N60478.AR.001673
NWS EARLE
5090.3a

SPECIFICATIONS FOR SITE 13 DEFENSE PROPERTY DISPOSAL OFFICE WITH TRANSMITTAL NWS EARLE NJ

11/1/2003

TETRA TECH

TETRA TECH NUS, INC.
661 Andersen Drive • Pittsburgh, PA 15220
Tel 412.921.7090 • Fax 412.921.4040 • www.tetratech.com

PITT-11-3-040

November 21, 2003

Project Number N6710

Ms. Michele DiGeambeardino
Naval Facilities Engineering Command
EFANE (Code EV21/MD)
10 Industrial Highway, Mail Stop #82
Lester, PA 19113-2090

Reference: CLEAN Contract No. N62467D-94-0888
Contract Task Order No. 851

Subject: Transmittal of Final Design/Build Request for Proposal Package
Site 13 – Defense Property Disposal Office Yard (OU-5)
Naval Weapons Station Earle, Colts Neck, New Jersey

Dear Ms. DiGeambeardino:

Enclosed please find five (5) copies the final Design/Build Request for Proposal Package for the above-referenced site. This package consists of the following draft components:

- Specifications (Sections 00101 through 13972)
- Cost estimate
- Bid Form
- Schedule

The specifications include six drawings and six attachments. The attachments are as follows:

- Attachment A – Remedy Analysis Report
- Attachment B – Subsurface Investigation Logs
- Attachment C – Wetland Delineation Report
- Attachment D – Geotechnical Investigation Report
- Attachment E – Point Survey Data
- Attachment D – Sediment Sample Data

We have also attached two CD's containing all of the above information in electronic format. One CD contains information all of the information including all documents and sections of the specification and the cost estimate. The second CD is for a contractor and does not include the cost estimate and document No. 00303 Project Information Form of the specifications. We have also included a copy of the specifications in SpecsIntact format on a floppy disk.

SPECIFICATIONS

SITE 13, DPDO YARD
Naval Weapons Station Earle
Colts Neck, New Jersey

Novermber 2003

TETRA TECH NUS, INC.
661 Andersen Drive • Pittsburgh, PA 15220
Tel 412.921.7090 • Fax 412.921.4040 • www.tetratech.com

PITT-11-3-040

November 21, 2003

Project Number N6710

Ms. Michele DiGeambeardino
Naval Facilities Engineering Command
EFANE (Code EV21/MD)
10 Industrial Highway, Mail Stop #82
Lester, PA 19113-2090

Reference: CLEAN Contract No. N62467D-94-0888
Contract Task Order No. 851

Subject: Transmittal of Final Design/Build Request for Proposal Package
Site 13 – Defense Property Disposal Office Yard (OU-5)
Naval Weapons Station Earle, Colts Neck, New Jersey

Dear Ms. DiGeambeardino:

Enclosed please find five (5) copies the final Design/Build Request for Proposal Package for the above-referenced site. This package consists of the following draft components:

- Specifications (Sections 00101 through 13972)
- Cost estimate
- Bid Form
- Schedule

The specifications include six drawings and six attachments. The attachments are as follows:

- Attachment A – Remedy Analysis Report
- Attachment B – Subsurface Investigation Logs
- Attachment C – Wetland Delineation Report
- Attachment D – Geotechnical Investigation Report
- Attachment E – Point Survey Data
- Attachment D – Sediment Sample Data

We have also attached two CD's containing all of the above information in electronic format. One CD contains information all of the information including all documents and sections of the specification and the cost estimate. The second CD is for a contractor and does not include the cost estimate and document No. 00303 Project Information Form of the specifications. We have also included a copy of the specifications in SpecsIntact format on a floppy disk.

Copies of this package have been sent, via this letter, to Dan Zari and Larry Burg at NWS Earle.

Should you have any questions, please call me at 412-921-8259 or Bob Mertz (412-921-7617) in our Pittsburgh office.

Sincerely,

Daniel C Witt

Daniel C. Witt, P.E.
Project Manager

DW/kf

Enclosures

c: Mr. Roger Boucher, NORTHDIV (w/o enclosure)
Mr. Dan Zari, NWS Earle (1 copy)
Mr. Larry Burg, NWS Earle (1 copy)
Mr. John Trepanowski, Tetra Tech NUS, Inc. (1 copy)
Mr. Bob Mertz, Tetra Tech NUS, Inc. (1 copy))
Project File N6710 (1 copy, plus CD and floppy)

SPECIFICATIONS

SITE 13, DPDO YARD
Naval Weapons Station Earle
Colts Neck, New Jersey

Novermber 2003

DOCUMENT 00101N

BID SCHEDULES
05/02

PART 1 GENERAL

1.1 BID SCHEDULE

NOTE:

Select one of the following Bid Schedules as the appropriate bidding format for the project. Preferred bidding format is Base Bid and Options for Mini Source Selection.

Use of Bid Items for projects will be infrequent and will require prior approval from the EFANE Code 02, Contracts Office.

BID SCHEDULE

Base Bid

Base Bid shall be the total price for providing all work complete in accordance with the drawings and specification but NOT including the work indicated or specified to be provided under any Option.

Base Bid $_____

The Contractor shall complete all Base Bid work excluding the period required for maintenance in accordance with the negotiated Contract schedule. The maintenance period shall be for a duration of one year commencing after formal acceptance by the Contracting Officer.

Option 1

Bid for Option 1 shall be the total price for providing all work for the excavation of contaminated material from the Sediment Contamination Area in the Marsh, placement, dewatering, and compaction of same under the landfill low permeability cover system complete in accordance with the drawings and specification.

Bid for Option 1 $_____ per cubic yard

Option 1 may be exercised at the time of award or within 90 calendar days after award by the Contracting Officer.

If Option 1 is exercised, the contract completion date will not be extended.

Option 2

Bid for Option 2 shall be the total price for providing all work for the excavation of contaminated material from the Sediment Contamination Area in the Marsh, waste disposal characterization, transport, and off-site disposal of same complete in accordance with the drawings and specification.

Bid for Option 2 $_____ per ton

Option 2 may be exercised at the time of award or within 90 calendar days after award by the Contracting Officer.

If Option 2 is exercised, the contract completion date will not be extended.

Option 3

Bid for Option 3 shall be the total price for providing all work for restoration in the Sediment Contamination Area in the Marsh including backfill, topsoil, and revegetation complete in accordance with the drawings and specification:

Bid for Option 3 $_____ per square yard

Option 3 may be exercised at the time of award or within 90 calendar days after award by the Contracting Officer.

If Option 3 is exercised, the contract completion date will not be extended.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Document --

DOCUMENT 00102

LIST OF DRAWINGS FOR DESIGN BUILD
07/00

PART 1 GENERAL

1.1 SUMMARY

This section lists the drawings for the project pursuant to Contract Clause "DFARS 252.236-7001, Contract Drawings, Maps and Specifications".

1.2 DRAWINGS

1.2.1 Performance Drawings

Designs and information indicated on the performance drawings shall be considered preliminary and may contain a combination of performance and detailed prescriptive requirements which are intended for use in preparing the design.

DRAWING NO.	NAVFAC DWG NO.	TITLE
C-1	2220448	Existing Conditions Plan
C-2	2220449	Final Grading Plan
C-3	2220450	Details
B-1	2220451	Boring Logs (Sheet 1 of 3)
B-2	2220452	Boring Logs (Sheet 2 of 3)
B-3	2220453	Boring Logs (Sheet 3 of 3)
	2220454	Not Used
	2220455	Not Used
	2220456	Not Used
	2220457	Not Used

1.2.2 Soils Information

NAVFAC Drawing Nos. 2220451 through 2220453 indicate soils information obtained by Government investigation. Soils testing data obtained by Government investigations are provided as attachments to the D/B RFP package. The Government does not guarantee that borings, probes, and cores indicate actual conditions, except for the exact locations and the time that they were made.

1.3 REFERENCE DOCUMENTS

The following reference documents are available for examination in the office of the Contracting Officer and are intended to show the existing conditions. The documents and drawings are the property of the Government and shall not be used for any purpose other than that intended by the specification.

a. Federal Facility Agreement Under CERCLA Section 120, In the Matter

of the U.S. Department of the Navy, Naval Weapons Station Earle, Colt's Neck, New Jersey, February 1991.

b. Remedial Investigation Report for Naval Weapons Station Earle, VOLUME II - APPENDICES A-M, Colts Neck, New Jersey. Prepared for Northern Division, Naval Facilities Engineering Command. Prepared by Brown & Root Environmental, March 1996.

c. Remedial Investigation Report for Naval Weapons Station Earle, VOLUME IA AND VOLUME IB - TEXT Colts Neck, New Jersey. Prepared for Northern Division, Naval Facilities Engineering Command. Prepared by Brown & Root Environmental, July 1996.

d. Remedial Investigation Addendum Report for Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Northern Division, Naval Facilities Engineering Command. Prepared by Brown & Root Environmental, January 1998.

e. Feasibility Study for Site 13 (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Northern Division, Naval Facilities Engineering Command. Prepared by Tetra Tech NUS, Inc., December 2000.

f. Proposed Plan for Site 13, Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared by Tetra Tech NUS, Inc., December 2002.

g. Letter Work Plan, Pre-Design Investigation for Site 13, Defense Property Disposal Office Yard (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast Naval Facilities Engineering Command. Prepared by Tetra Tech NUS, Inc., April 2003.

h. Final Quality Assurance Project Plan for Pre-Design Investigation Sediment Sampling at Site 13, Defense Property Disposal Office Yard, Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast Naval Facilities Engineering Command. Prepared by Tetra Tech NUS, Inc., Revision 1, September 2003.

i. Draft Record of Decision, Operable Unit 5 (OU-5), Site 13, Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast Naval Facilities Engineering Command. Prepared by Tetra Tech NUS, Inc., August 2003.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Document --

PROJECT INFORMATION FORM
05/02

PART 1 Prepared by EFANE REMEDIAL PROJECT MANAGER

1.1 PROJECT INFORMATION:

a. Project Name: Site 13 Cap, Defense Property Disposal Office Yard

Activity Name: Naval Weapons Station Earle

Location: Colts Neck, New Jersey

Const.Contract No. N62472-03-R-5617 Spec. No. 04-03-SB17

A/E Firm: Tetra Tech NUS, Inc.

661 Andersen Drive

Pittsburgh, PA 15220-2745

Contact: Mr. Daniel C. Witt, P.E. Phone: (412) 921-8259

A/E Contract No. N62467-94-D-0888
(A/E Contract No. does not appear on the drawings or specification)

b. Remedial Project Manager (RPM): Michele DiGeambeardino
Phone:(610) 595-0567 ex. 117

c. Design Manager (DM): John Mayhew Phone:(610) 595-0567 ex. 125

1.2 INFORMATION FOR 00 DOCUMENT:

1.2.1 FAC 5252.214-9304, PRE-BID SITE VISITATION (AUG 1991):

Identify point of contact, name and telephone number for prospective bidders to call for visiting the site during the bidding period.

POC: Dan Zari

Phone No.: (732) 866-2046

1.2.2 SPECIALIZED EXPERIENCE FOR THE CONTRACTOR:

Will this project have a technical section or sections requiring the Contractor to have pre-award qualifications (specialized experience)in order to perform the work require? (Section 13717, CMCS is a sample for pre-award requirements)

(___) Yes (X) No

If yes, identify the specification section which involved and recommend a

number of years of experience and number of projects required.

1.2.3 PRE-BID CONFERENCE/SITE VISITATION:

Will this project require a pre-bid conference and site visit due to complexity or uniqueness of the project or contract?

(X) Yes (___) No

If yes, the Const. Contract Specialist will fill in the point of contact, telephone number, place, date and time.
(Coordinate with contract specialist, Remedial Project Manager and ROICC)

POC: Michele Donnelly

Phone No.: (610) 595-0630

Place _____

Date/Time _____

1.2.4 FAR 52.204-2, SECURITY REQUIREMENTS (Aug 1996) ALTERNATE II (APR 1984):

Under the performance of this contract, will contractor employees be required to have I.D.'s for access to jobsite? Yes (X) No (___)

Will the Contractor or Contractor employees require access to classified material or is the work site in an area which requires a security clearance for access?

(X) Yes (___) No

1.2.5 DFARS 252.222-7001, RIGHT OF FIRST REFUSAL OF EMPLOYMENT - CLOSURE OF MILITARY INSTALLATIONS:

Did this project result from the closure of the military installation where the contract will be performed?

(___) Yes (X) No (If Yes, Code 02 will add it to the 00 documents.)

1.2.6 DFARS 252.236-7006, COST LIMITATION (Jan 1997):
FAC 5252.236-9308, INFORMATION CONCERNING COST LIMITATIONS (Jun 1994):

Is this project family housing?

(___) Yes (X) No

If yes, consult with the Remedial Project Manager and answer the following:

Does this contract include more than one project and is the total estimated construction cost over $280,000?

(___) Yes (X) No

If Yes, provide statutory cost limitation for each project:

Amount: $_____ Amount: $_____

1.2.7 FAR 52.245-1, PROPERTY RECORDS (APR 1984):

Is there Government furnished property in the contract?

(___) Yes (X) No If No, skip to 1.2.12.

1.2.8 FAR 52.245-2, GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (DEC 1989):

Is the estimated value of the Government furnished property greater than $100,000?

(___) Yes (X) No

1.2.9 FAR 52.245-3, IDENTIFICATION OF GOVERNMENT FURNISHED PROPERTY (APR 1984):

Has this property been identified in UFGS 01110N, "Summary of Work" and terms specified?

(___) Yes (X) No

Will the Government furnished property be delivered to work site?

(___) Yes (X) No

1.2.10 FAR 52.245-4, GOVERNMENT - FURNISHED PROPERTY (SHORT FORM) (APR 1984):

Is the estimated value of the government furnished property $100,000 or less?

(___) Yes (X) No

1.2.11 FAR 52.245-19, GOVERNMENT PROPERTY FURNISHED "AS IS" (APR 1984):

Will the property be provided "As Is"?

(X) Yes (___) No

1.2.12 FAC 5252.245-9302, LIMITED ASSUMPTION OF RISK BY GOVERNMENT (Jun 1994):

Is construction performed at or next to ammunition depots or magazines?

(___) Yes (X) No.

If Yes, should the Government assume part of the risk for loss or damages resulting from accidental explosion?

(___) Yes (___) No

1.2.13 ADDITIONAL INFORMATION FOR CONTRACT SPECIALIST:

Normal Bid Acceptance Period is 60 days. Does this project need a longer period?

(___) Yes (X) No If Yes, Days _____.

All projects will have "Partnering" in the project. A/E shall edited UFGS 01310N, "Administrative Requirements" for type of Partnering for each project.

Does this project required one of the following NEPA decision documents:

1. CATEX (Categorical Exclusion) (___) Yes (___) No

2. FONSI (Finding of No Significant Impacts) prepared after completion of EA (Environmental Assessment). (___) Yes (___) No

3. ROD (Record of Decision) prepared after completion of EIS (Environmental Impact Statement) (X) Yes (___) No

PART 2 Prepared by ARCHITECT\ENGINEER (A\E)

2.1 INFORMATION FOR 00 DOCUMENT:

2.1.1 Identify the appropriate bidding format for the project:

(___) Lump sum

(X) Base Bid and Options for Mini Source Selection

(___) Bid Items (Have to have approval of Code 02 before using bid items on projects)

A/E will edited UFGS 00101N "Bid Schedule". Do not add Base Bid, Options or Bid Items in body of spec sections or on drawings.

2.1.2 NAPS 5252.210-9000, NOTICE TO OFFERERS - USE OF CLASS I OZONE DEPLETING SUBSTANCES:

Does project specify any Class I Ozone Depleting Substance (ODS)?

(___) Yes (X) No

NOTE: If Class I ODSs are required in the project, see UFGS 01575N, "Temporary Environmental Controls" for guidance on obtaining a waiver.

2.1.3 List of Drawings:

A/E will edit UFGS 00102N "List of Drawings". It will not print out on the Project Table of Contents.

2.1.4 FAR 52.212-3, COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK AND ALTERNATE I (APR 1984):

NOTE: Specify construction time in 30 day increments.

NOTE: Choose one of the following and edit:

1. BASE BID AND OPTION CONTRACTS:

Number of days to complete construction for Base Bid will be in accordance with the negotiated Contract schedule excluding the one year maintenance period.

Is there any reason to delay start of construction until a specific date or season?

(___) Yes (X) No

If Yes, complete the following:

No work at the site may be performed before _____. (Add sentence under SPECIAL SCHEDULING REQUIREMENTS in UFGS 01140N, "Work Restrictions".)

2.1.5 FAR 52.211-12, LIQUIDATED DAMAGES -- CONSTRUCTION (Sep 2000)

NOTE: Choose one of the following and edit:

1. If project has Options, provide estimated construction cost for Base Bid and each Option.

Base Bid $1,860,351 Option 1 $21,327

Option 2 $148,488 Option 3 $41,948

(Code 02 to compute dollar amount for Liquidated Damages.)

2.1.6 FAR 52.211, BRAND NAME OR EQUAL (Aug 1999):

NOTE: Specifying proprietary and brand name or equal products is generally not permitted. If specified, all proprietary and brand name or equal products require Level I Contracting Officer approval. In order to obtain this approval the A/E must prepare

a justification on A/E letterhead. The justification shall include essential features (salient characteristics) of the product specified in sufficient detail to establish the basis for evaluating the acceptability of unlisted products, the cost of each product and the number of these products required for the project. See A/E Guide, Chapter 11 for additional information.

Manufacturers' names and products used to describe aesthetic characteristics such as color, texture, pattern, finish, etc. need no justification provided they include a disclaimer clause.

Does project specify any proprietary or brand name or equal products?

(___) Yes (X) No

If Yes, provide the following information:

Description	Section and Para.	Drawing No.
_____	_____	_____

Note: If Section 13717 is used in the project delete the brackets and fill in NAVFAC Drawing No.

2.1.7 FAR 52.225-9, BUY AMERICAN ACT--BALANCE OF PAYMENTS PROGRAM CONSTRUCTION MATERIALS (Feb 2000)

Does the project have any exemptions to the Buy American Act? (Prior approval is required for the exemption.) (___) Yes (___) No (X) Not Applicable (If Yes, fill in the table below:)

Description	Section and Para.	NAVFAC Drawing No.
_____	_____	_____

2.1.8 FAR 52.211-10, BUY AMERICAN ACT - CONSTRUCTION MATERIALS (MAY 1992) DFARS 252.225-7004, NONDOMESTIC CONSTRUCTION MATERIALS (DEC 1991):

NOTE: Specifying nondomestic construction materials is generally not permitted. If specified, use of nondomestic construction materials requires a waiver from the Buy American Act issued by a Level I Contracting Officer. In order to obtain this waiver the A/E must prepare a justification for using nondomestic construction materials on A/E letterhead. See A/E Guide, Chapter 11 for additional information.

Does project specify any nondomestic construction materials?

(___) Yes (___) No (X) Not Applicable

If Yes, provide the following information:

NAVFAC

Description	Section and Para.	Drawing No.

2.1.9 FAR 52.225-11, BUY AMERICAN ACT--BALANCE OF PAYMENTS PROGRAM CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (Feb 2002):

Use this clause if contract is greater than $6,806,000.
(___) Yes (X) No

2.1.10 FAR 52.236-1, PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984):

Specify percentage of work to be performed by the General Contractor consistent with complexity and magnitude of the work.

For family housing specify 15 percent.

For routine, multi-discipline projects specify 20 percent. Specify 20 percent for most projects.

For projects involving a limited number of disciplines (i.e. paving only, mechanical and electrical only, etc.), specify an appropriate percentage to ensure the General Contractor will perform most of the major discipline work.

The General Contractor shall perform 20 percent of the work.

2.1.11 FAR 52.236-21, SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (Feb 1997) - ALTERNATES I AND II (APR 1984):

Are record shop drawings required?
(___) Yes (X) No

Are reproducible copies of these record shop drawings required?
(___) Yes (X) No

Provide 5 prints of all shop drawings.

2.1.12 DFARS 252.236-7002, OBSTRUCTION OF NAVIGABLE WATERWAYS (DEC 1991):

Will construction occur on piers, wharves, bridges or in or over navigable waterways?

(___) Yes (X) No

2.1.13 DFARS 252.236-7004, PAYMENT FOR MOBILIZATION AND DEMOBILIZATION (DEC 1991):

Does this contract involve substantial or extreme cost for mobilization and demobilization with respect to the total estimated construction cost?

(___) Yes (X) No

2.1.14 DFARS 252.236-7005, AIRFIELD SAFETY PRECAUTIONS (DEC 1991):

Will work occur on or adjacent to aircraft runways, taxiways, or similar aircraft operational facilities or require the Contractor to traverse aircraft paving (i.e. taxiway, apron, etc.)?

(___) Yes (X) No

2.1.15 AVAILABILITY OF UTILITY SERVICE AT THE SITE:

NOTE: Coordinate with UFGS 01500N, "Temporary Facilities and Controls". Edit one of the following choices:

(1) (__) Utilities are available at the site and the Contractor will be charged for their use.

(2) (__) Utilities are not available at the site and the Contractor shall provide his own utilities.

(3) (X) Utilities are available at the site and the Contractor will not be charged for their use. Contractor will need to temporarily run these utilities when not directly adjacent to site.

Check off the existing utilities that are available to the Contractor:

X Electricity	___ Steam
___ Potable Water	___ Natural Gas
___ Salt Water	___ Sanitary Sewer
___ Compressed Air	

2.1.16 FAR 5252.236-9310, RECORD DRAWINGS:

NOTE: Coordinate with UFGS 01770N, "Closeout Procedures".

Are as-built drawings required for project?

(X) Yes (___) No

2.1.17 For Purposes of Establishing Appropriate Wage Rates:

Which of the following construction term or terms best describes the type of construction involved in this contract?

(___) Building - Construction, alteration or repair of sheltered enclosures for housing persons, machinery, equipment, or supplies including incidental grading, utilities and paving.

(___) Residential - Construction, alteration or repair of single family houses or apartment buildings of 4 stories or less including incidental site work, parking areas, utilities, streets and sidewalks.

(___) Highway - Construction, alteration or repair of roads,

streets, highways, runways, taxiways, alleys, parking areas, and other similar projects that are not incidental to "Building", "Residential or "Heavy" construction.

(X) Heavy - Construction not properly classified as either "Building", "Residential" or "Highway". Examples of this include "dredging", "dam", "flood control" projects and projects involving construction of utilities only (water, sewer, electric, steam, gas, etc.).

PART 3 Prepared by SPECIFICATION BRANCH

3.1 INFORMATION FOR 00 DOCUMENT:

3.1.1 FAR 52.222-23, AFFIRMATIVE ACTION COMPLIANCE (APR 1984):

Goals for minority participation for each trade

_____ percent.

Goals for female participation for each trade

6.9 percent.

..... the "covered area" is Monmouth County, New Jersey.

3.1.2 IS THIS A DESIGN BUILD PROJECT?

(X) Yes (___) No

--END OF PROJECT INFORMATION FORM--

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY NORTHEAST
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY, MAILSTOP NO. 82
LESTER, PA 19113-2090

SPECIFICATION NO:
04-03-SB17

CONST. CONTRACT NO:
N62472-03-R-SB17

APPROPRIATION:
[_____]

DESIGN/BUILD

SITE 13 - DPDO YARD

NAVAL WEAPONS STATION EARLE

COLTS NECK, NEW JERSEY

RFP PREPARED BY:

TETRA TECH NUS, INC.

600 CLARK AVENUE, SUITE 3
KING OF PRUSSIA, PENNSYLVANIA

Architectural:	Civil:	Structural:
N/A	Daniel C. Witt, P.E.	N/A
Electrical:	**Mechanical:**	**Other:**
N/A	N/A	N/A

SPECIFICATION SUBMITTED BY: _____ DATE: 11-21-03
John Trepanowski, P.E.

SPECIFICATION APPROVED BY: _____ DATE: _____
Russell Jorlett R. A.

PROJECT TABLE OF CONTENTS

-- End of Project Table of Contents --

SECTION 01110N

SUMMARY OF WORK
02/03

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

1.1.1 Project Description

The work includes the design and construction of a landfill cap and incidental related work at Defense Property Disposal Office (DPDO) Yard (Site 13).

1.1.2 Location

The work shall be located at the Naval Weapons Station Earle, Colts Neck, New Jersey, approximately as indicated. The exact location will be shown by the Contracting Officer.

1.2 EXISTING WORK

In addition to "FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements":

a. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.

b. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before new work started.

1.3 LOCATION OF UNDERGROUND FACILITIES

Obtain digging permits prior to start of excavation. Scan the construction site with electromagnetic or sonic equipment, and mark the surface of the ground where existing underground utilities are discovered. Verify the elevations of existing piping, utilities,and any type of underground or encased obstruction not indicated to be removed but indicated or discovered during scanning in locations to be traversed by piping and other work to be conducted or installed.

1.3.1 Notification Prior to Excavation

Notify the Contracting Officer at least 15 days prior to starting excavation work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01111

SUPPLEMENTARY SUMMARY OF WORK FOR DESIGN BUILD
12/02

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Section Includes

This section includes supplementary administrative and procedural requirements for a design build project.

1.2 DEFINITIONS

1.2.1 Draft Design Submission

Shall also mean "65% Progress Submittal" as referred to in the LANTDIV Professional Services Guide.

1.2.2 Draft Final Design Submission

Shall also mean "100% Pre-final Submittal" as referred to in the LANTDIV Professional Services Guide.

1.3 DESIGN BUILD ADMINISTRATIVE AND PROCEDURAL REQUIREMENTS

1.3.1 Partnering

The Contracting Officer intends to encourage the foundation of a cohesive partnership among the Government, the Contractor and his Design Team, and Subcontractors. This partnership shall be structured to draw on the strengths of each organization to identify and achieve common goals. The objectives are effective and efficient contract performance, intended to achieve completion within the budget, on schedule, and in accordance with the contract requirements. The Contractor's key personnel shall attend a 1 day "partnering" session with key personnel of the Contracting Officer. Contractor key personnel are the Project Manager, Superintendent, Quality Control Manager, Design Team, and major subcontractors. The Contractor shall organize and sponsor the session. The session will be held during normal working hours at Naval Weapons Earle within 14 calendar days after contract award. Contractor labor, travel, and per diem costs associated with attending the partnering session shall be included in the contract bid price. All other costs associated with the partnering effort, including facilitator, meeting room, audio visual accessories, refreshments, and working meals, will be shared equally by the Government and the Contractor. The Contractor shall pay for all other costs and will be reimbursed for half of these other costs by the Government at a later date by a contract modification.

1.3.2 Notice to Proceed with Design

Design shall not be initiated prior to written issuance of notice to proceed with design by the Contracting Officer. Allow 3 calendar days after submission of the valid certificate of insurance, performance and payment bonds, and statement of percentage of work for issuance of notice to proceed with design.

1.3.3 Project "Kick-Off" Meeting

Within 14 calendar days after contract award, the Contractor shall meet with Government representatives at ENGINEERING FIELD ACTIVITY NORTHEAST for one day to review specific technical and design submittal requirements contained in the contract, review the project schedule, review the proposed design and discuss administrative matters relating to the design and construction of the project. The Contractor's Project Manager, Project Superintendent, Quality Control Manager and Design Team (lead designer, civil engineer, landscape architect, and specifications writer) shall attend the meeting and be prepared to discuss their plans for accomplishing the work.

1.3.4 Draft Design Submission

Within the time specified in the contract, the Contractor shall submit an internal version of the Draft Design Submission to the Government and final version of the Draft Design Submission to the Government and regulatory agencies for review and approval. Content, format and distribution requirements for these submissions shall be as specified in Section 01331, "Design Submittals for Design Build". Government representatives will review the internal Draft Design Submission and Draft Design Submission for compliance with the contract requirements and provide the Contractor with written review comments within 10 working days and 45 calendar days respectively after receiving the submissions. The intent of the Government's review is to approve site layout. Accordingly, the Contractor shall anticipate that Government and regulatory review comments may result in minor revisions or refinements to the design included in the Contractor's proposal. The Government is not reviewing for design validity; the responsibility for a totally integrated design conforming to the contract requirements remains with the Contractor in accordance with Contract Clause "FAR 52.236-23, Responsibility of the Architect-Engineer Contractor". Design approval shall not be construed as a waiver from performing requirements contained in the contract which may have been omitted from the Contractor prepared design documents. In addition, Government review and approval of the design documents does not constitute approval or acceptance of any variations from the requirements of the contract unless such variations have been specifically noted by the Contractor and approved in writing by the Contracting Officer.

1.3.5 Draft Design Review Meeting

Within 7 calendar days after the Contractor receives the Government and regulatory agencies review comments on the Draft Design Submission, the Contractor's Project Manager and appropriate design team personnel shall attend a Draft Design Submission review meeting at ENGINEERING FIELD

ACTIVITY NORTHEAST. At the meeting, the Contractor shall provide 10 copies of written responses to the Government's and regulatory agencies review comments on the Draft Design Submission. The intent of the meeting is to discuss review comments with the Government and regulatory agencies and to issue official Government approval of the Draft Design Submission. The Contractor shall prepare meeting minutes which shall include a list of the review comments and agreed upon resolutions and furnish a copy of the minutes to the Contracting Officer and each Government meeting attendee within 7 calendar days after the meeting for review and comment by the Government.

1.3.6 Draft Final Design Submission

Within the time specified in the contract, the Contractor shall submit an internal version of the Draft Final Design Submission to the Government and final version of the Draft Final Design Submission to the Government and regulatory agencies for review and approval. Content, format and distribution requirements for this submission shall be as specified in Section 01331, "Design Submittals for Design Build." Government representatives will review the internal Draft Final Design Submission and Draft Final Design Submission for compliance with the contract requirements and provide the Contractor with written review comments within 10 working days and 30 calendar days respectively after receiving the submissions. An incomplete Draft Final Design Submission will not be reviewed and will be immediately returned to the Contractor for completion and resubmission. No change in contract price or schedule will be granted for the processing of a resubmittal. The Government is not reviewing for design validity; the responsibility for a totally integrated design conforming to the contract requirements remains with the Contractor in accordance with Contract Clause "FAR 52.236-23, Responsibility of the Architect-Engineer Contractor". Design approval shall not be construed as a waiver from performing requirements contained in the contract which may have been omitted from the Contractor prepared design documents. In addition, Government review and approval of the design documents does not constitute approval or acceptance of any variations from the requirements of the contract unless such variations have been specifically noted by the Contractor and approved in writing by the Contracting Officer.

1.3.7 Draft Final Design Review Meeting

Within 7 calendar days after the Contractor receives the Government and regulatory agencies review comments on the Draft Final Design Submission, the Contractor's Project Manager and appropriate design team personnel shall attend a Draft Final Design review meeting at ENGINEERING FIELD ACTIVITY NORTHEAST. At the meeting, the Contractor shall provide 10 copies of written responses to the Government's and regulatory agencies review comments on the Draft Final Design Submission. The intent of the meeting is to discuss review comments with the Government and regulatory agencies and to issue official Government and regulatory agencies approval of the Draft Final Design Submission. The Contractor shall prepare meeting minutes which shall include a list of the review comments and agreed upon resolutions and furnish a copy of the minutes to the Contracting Officer and each meeting attendee within 7 calendar days after the meeting for review and comment by the Government. The Contracting Officer may waive

the requirement for a Draft Final Design review meeting if the Contractor's Draft Final Design Submission is approved by the Government and regulatory agencies.

1.3.8 Final Design Submission

Within 7 calendar days after Government approval of the Draft Final Design, the Contractor shall submit final design documentation as specified in Section 01331, "Design Submittals for Design Build."

1.3.9 Notice to Proceed with Construction

Construction shall not be initiated prior to issuance of written notice to proceed with construction. Allow 14 calendar days after submission of the Final Design Submission for issuance of the notice to proceed with construction for all remaining portions of work not previously addressed.

1.3.10 Pre-Construction Conferences

1.3.10.1 First Pre-Construction Conference

The first pre-construction conference will be conducted at the project site. The Contractor shall meet with the Contracting Officer to discuss matters related to the administration of the project, project schedule, progress payments, safety program, and preparation and submission of the schedule of prices, shop drawings and other construction submittals. The Contractor shall be prepared to discuss requirements for the Accident Prevention Plan (Section 01525, "Safety and Occupational Health Requirements") and Quality Control Plan (Section 01450N, "Quality Control") at this meeting.

1.3.10.2 Second Pre-Construction Conference

As soon as practicable after Government approval of the Draft Final Design Submission, a second pre-construction conference will be conducted at the project site in conjunction with the "Coordination and Mutual Understanding Meeting" specified in Section 01450N, "Quality Control." The Contractor shall meet with the Contracting Officer to discuss among other things design implementation, site conditions, restrictions and constraints, and implementation of the Quality Control Plan. Major subcontractors who will be engaged in the work shall also attend.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01140N

WORK RESTRICTIONS
02/03

PART 1 GENERAL

1.1 SPECIAL SCHEDULING REQUIREMENTS

a. The DPDO Yard, railroad, railroad switching yard, and Military Sealift Command's (MSC) Connected Replenishment (CONREP) School will remain in operation during the entire construction period. The Contractor shall conduct his operations so as to cause the least possible interference with normal operations of the activity.

b. Permission to interrupt any Activity roads, railroads, and/or utility service shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption.

c. The work under this contract requires special attention to the scheduling and conduct of the work in connection with existing operations. Identify on the construction schedule each factor which constitutes a potential interruption to operations.

1.2 CONTRACTOR ACCESS AND USE OF PREMISES

1.2.1 Activity Regulations

Ensure that Contractor personnel employed on the Activity become familiar with and obey Activity regulations. Keep within the limits of the work and avenues of ingress and egress. Wear hard hats in designated areas. Do not enter any restricted areas unless required to do so and until cleared for such entry. The Contractor's equipment shall be conspicuously marked for identification.

1.2.2 Working Hours

Regular working hours shall consist of an 8 1/2 hour period established by the Contractor Officer, Monday through Friday, excluding Government holidays.

1.2.3 Work Outside Regular Hours

Work outside regular working hours requires Contracting Officer approval. Make application 15 calendar days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress. During periods of darkness, the different parts of the work shall be lighted in a manner approved by the Contracting Officer.

1.2.4 Utility Cutovers and Interruptions

a. Make utility cutovers and interruptions after normal working hours or on Saturdays, Sundays, and Government holidays. Conform to

procedures required in the paragraph "Work Outside Regular Hours."

b. Ensure that new utility lines are complete, except for the connection, before interrupting existing service.

c. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, fire alarm, and compressed air shall be considered utility cutovers pursuant to the paragraph entitled "Work Outside Regular Hours."

d. Operation of Station Utilities: The Contractor shall not operate nor disturb the setting of control devices in the station utilities system, including water, sewer, electrical, and steam services. The Government will operate the control devices as required for normal conduct of the work. The Contractor shall notify the Contracting Officer giving reasonable advance notice when such operation is required.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01200N

PRICE AND PAYMENT PROCEDURES
12/01

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EP-1110-1-8	(1995) Construction Equipment Ownership and Operating Expense Schedule

1.2 SUBMITTALS

Submit the following in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Preconstruction Submittals

Schedule of prices; G ROICC

1.3 SCHEDULE OF PRICES

1.3.1 Data Required

Provide a detailed breakdown of the contract price, giving quantities for each of the various kinds of work, unit prices, and extended prices therefor. Identify costs for design services, construction submittal reviews, and preparation of record drawings.

1.3.2 Schedule Instructions

Payments will not be made until the Schedule of Prices has been submitted to and accepted by the Contracting Officer.

1.4 CONTRACT MODIFICATIONS

In conjunction with the Contract Clause "DFARS 252.236-7000, Modification Proposals-Price Breakdown," and where actual ownership and operating costs of construction equipment cannot be determined from Contractor accounting records, equipment use rates shall be based upon the applicable provisions of the COE EP-1110-1-8.

1.5 CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT

1.5.1 Content of Invoice

Requests for payment will be processed in accordance with the Contract Clause "FAR 52.232-27, Prompt Payment Construction Contracts."

a. The Contractor's invoice certified by QC, on the form furnished by the Government for this purpose, showing in summary form, the basis for arriving at the amount of the invoice. Submit original and five copies.

b. The Contract Performance Statement on the form furnished by the Government for this purpose, showing in detail, the estimated cost, percentage of completion, and value of completed performance. Submit original and two copies.

c. Final invoice shall be accompanied by Final Release Form.

d. Updated construction and schedules (two copies).

1.5.2 Mailing of Invoices

a. All invoices shall be forwarded with specific marking on the envelope. This marking shall be in the front lower left hand corner, in large letters, "INVOICES - ENCLOSED."

b. Invoices not completed in accordance with contract requirements will be returned to the Contractor for correction of the deficiencies.

c. Final invoices not accompanied by Final Release Form will be considered incomplete and will be returned to the Contractor.

1.6 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests by the Contractor which comply with the requirements of this section, and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

1.6.1 Obligation of Government Payments

The obligation of the Government to make payments required under the provisions of this contract will, at the discretion of the Contracting Officer, be subject to reductions and/or suspensions permitted under the FAR and agency regulations including the following in accordance with "FAR 32.503-6:

a. Reasonable deductions due to defects in material or workmanship;

b. Claims which the Government may have against the Contractor under or in connection with this contract;

c. Unless otherwise adjusted, repayment to the Government upon demand for overpayments made to the Contractor; and

d. Failure to provide up to date record drawings not current as stated in Contract Clause "FAC 5252.236-9310, Record Drawings."

1.6.2 Payment for Materials Offsite

Payments may be made to the Contractor for materials stored off construction sites under the following conditions:

a. Conditions described in the paragraph entitled "Payments to the Contractor";

b. Material within the county of the construction site;

c. Materials adequately insured and protected from theft and exposure;

d. Materials not susceptible to deterioration or physical damage in storage or in transit to the job site are acceptable for progress payments. Items such as geomembrane, geotextile, steel, machinery, pipe and fittings, and electrical cable are acceptable; items such as gypsum wallboard, glass, insulation, and wall coverings are not;

e. Materials in transit to the job site or storage site are not acceptable for payment; and

f. Conditions specified in "FAR 52.232-5(b) Payments Under Fixed Price Construction Contracts."

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01310N

ADMINISTRATIVE REQUIREMENTS
02/03

PART 1 GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Preconstruction Submittals

List of contact personnel; G ROICC

View location map; G ROICC

Progress and completion pictures; G ROICC

1.2 VIEW LOCATION MAP

Submit to the Contracting Officer, prior to or with the first digital photograph submittals, a sketch or drawing indicating the required photographic locations. Update as required if the locations are moved.

1.3 PROGRESS AND COMPLETION PICTURES

Provide monthly, and within one month of the completion of work, digital photographs, 1600x1200x24 bit true color minimum resolution in JPEG file format showing the sequence and progress of work. Take digital photographs prior to the seventh day of each month from a minimum of ten views from points located by the Contracting Officer. Submit a sketch or drawing indicating points of view. Submit with the monthly invoice two sets of digital photographs each set on a separate CD, cumulative of all photos to date. Cross reference submittals in the appropriate daily report.

1.4 MINIMUM INSURANCE REQUIREMENTS

Procure and maintain during the entire period of performance under this contract the following minimum insurance coverage:

a. Comprehensive general liability: $500,000 per occurrence

b. Automobile liability: $200,000 per person, $500,000 per occurrence for bodily injury, $20,000 per occurrence for property damage

c. Workmen's compensation as required by Federal and State workers' compensation and occupational disease laws.

d. Employer's liability coverage of $100,000, except in States where

workers compensation may not be written by private carriers,

e. Others as required by State.

1.5 CONTRACTOR PERSONNEL REQUIREMENTS

1.5.1 Subcontractors and Personnel

Furnish a list of contact personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

1.5.2 Identification Badges

Identification badges will be furnished without charge. Application for and use of badges will be as directed by the Contracting Officer. An application is required for each Contractor employee performing work on-site under this contract.

a. Identification badge application process includes criminal records check.

b. Provide completed application 10 days prior to Contractor employee performing work on-site.

Immediately report instances of lost or stolen badges to the Contracting Officer.

1.5.3 Citizenship Requirements

Contractor employees and representatives performing work under this contract are required to be United States citizens. No employee or representative of the Contractor will be admitted to the work site without satisfactory proof of United States citizenship. Exceptions to citizenship requirements will be considered upon written request to the Contracting Officer.

1.5.4 Contractor Personnel Requirements

Failure to obtain entry approval will not affect the contract price or time of completion.

1.6 SUPERVISION

Have at least one qualified supervisor capable of reading, writing, and conversing fluently in the English language on the job site during working hours. In addition, if a Quality Control (QC) representative is required on the contract, then that individual shall also have fluent English communication skills.

1.7 AVAILABILITY OF CADD DRAWING FILES

After award and upon request, the electronic "Computer-Aided Drafting and

Design (CADD)" drawing files will be made available to the Contractor for use in preparation of construction drawings and data related to the referenced contract subject to the following terms and conditions.

Data contained on these electronic files shall not be used for any purpose other than as a convenience in the preparation of construction drawings and data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor shall make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor shall, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CADD drawing files are not construction documents. Differences may exist between the CADD files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic CADD files, nor does it make representation to the compatibility of these files with the Contractors hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished CADD files, the signed and sealed construction documents shall govern. The Contractor is responsible for determining if any conflict exists. Use of these CADD files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project.

If the Contractor uses, duplicates and/or modifies these electronic CADD files for use in producing construction drawings and data related to this contract, all previous indication of ownership (seals, logos, signatures, initials and dates) shall be removed.

1.8 ELECTRONIC MAIL (E-MAIL) ADDRESS

The Contractor shall establish and maintain electronic mail (e-mail) capability along with the capability to open various electronic attachments in Microsoft, Adobe Acrobat, and other similar formats. Within 10 days after contract award, the Contractor shall provide the Contracting Officer a single (only one) e-mail address for electronic communications from the Contracting Officer related to this contract including, but not limited to contract documents, invoice information, request for proposals, and other correspondence. The Contracting Officer may also use e-mail to notify the Contractor of base access conditions when emergency conditions warrant, such as hurricanes, terrorist threats, etc. Multiple e-mail addresses will not be allowed.

It is the Contractor's responsibility to make timely distribution of all Contracting Officer initiated e-mail with its own organization including field office(s). The Contractor shall promptly notify the Contracting Officer, in writing, of any changes to this e-mail address.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01320N

CONSTRUCTION PROGRESS DOCUMENTATION
12/01

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Preconstruction Submittals

Construction schedule; G ROICC

1.2 CONSTRUCTION SCHEDULE

Within 14 days after receipt of the Notice of Award and as required in Section 13972, "Building and Supporting Facilities Systems Civil Requirements", prepare and submit to the Contracting Officer for approval a construction schedule in the form of a progress chart in accordance with the terms in Contract Clause "FAR 52.236-15, Schedules for Construction Contracts," except as modified in this contract.

1.3 UPDATED SCHEDULES

Update the construction schedule at monthly intervals or when schedule has been revised. Reflect any changes occurring since the last update.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01331

DESIGN SUBMITTALS FOR DESIGN BUILD
05/02

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Section Includes

This section includes requirements for developing and submitting design documentation, including preparation of drawings, specifications, design analyses, and reports.

1.1.2 Section Excludes

This section does not include requirements for construction submittals which are specified in Section 01332, "Submittals During Construction for Design Build" and record drawings which are specified in Section 01770N, "Closeout Procedures."

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI)

CSI MP-2-1	(1995) Master format - Master List of Numbers and Titles for the Construction Industry

1.3 DEFINITIONS

1.3.1 Design

Documents which include CAD design drawings, project specifications, design analyses (basis of design and calculations), and reports prepared by or under the direct supervision of registered architects and professional engineers and proposed by the Contractor to meet the contract requirements.

1.3.2 CAD Design Drawings

Documentation showing in graphic and quantitative form the extent, design, location, relationships, and dimensions of the construction to be provided by the Contractor in accordance with LANTDIV Electronic Bid Solicitation "Manual of Policies and Procedures" available on the Internet (http://www.efdlant.navfac.navy.mil/lantops_04/home.htm) and Engineering Field Activity NORTHEAST "Life Cycle Management CADD Policy" which is attached at end of this section. (Note: Shop Drawings, as defined in Section 01332, "Submittals During Construction for Design Build", are not

to be provided in lieu of design drawings.)

1.3.3 Design Team

Architects and Engineers (A/E) associated with the Contractor who are responsible for the design.

1.3.4 Request for Proposals (RFP)

Electronic documents furnished to prospective contractors containing proposal information and specifying criteria and project requirements for design and construction of a landfill cap. The documents include this specification, performance drawings, and soils information data listed in or attached to this specification.

1.4 DESIGN REQUIREMENTS

The Contractor shall:

a. Prepare design drawings and project specifications for construction of the facility in accordance with LANTDIV Electronic Bid Solicitation "Manual of Policies and Procedures" and Engineering Field Activity NORTHEAST "Life Cycle Management CADD Policy";

b. Prepare design analyses (basis of design and calculations) and reports supporting the design shown;

c. Coordinate all elements of the design to ensure there are no conflicts; and

d. Present information 100 percent complete and in sufficient detail to permit a complete review by the Government and regulatory agencies.

1.5 DESIGN SUBMITTALS

Submit the following for review and approval by the Government and regulatory agencies in accordance with the requirements of this section:

1.5.1 Design

Submit the design as specified herein.

1.5.2 Submittals Register

Submit the Submittals Register as specified herein and in Section 01332, "Submittals During Construction for Design Build."

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 DRAWINGS

Prepare, organize, and present drawings in accordance with LANTDIV Electronic Bid Solicitation "Manual of Policies and Procedures" and Engineering Field Activity NORTHEAST "Life Cycle Management CADD Policy", except as modified herein. Provide drawings complete, accurate and explicit enough to show compliance with the contract requirements and to permit construction. Drawings illustrating systems proposed to meet the requirements of the contract shall reflect proper detailing for each such system to assure appropriate use, proper fit, compatibility of components and coordination with the design analyses, reports, and specifications required by this section. Coordinate drawings to ensure there are no conflicts between design disciplines and between drawings and specifications.

3.1.1 CAD Drawings Format

CAD drawings shall use English dimensioning. CAD drawings shall comply with LANTDIV Electronic Bid Solicitation "Manual of Policies and Procedures" and Engineering Field Activity NORTHEAST "Life Cycle Management CADD Policy", except drawing size and submittals shall be as specified herein. CADD files of the title block required will be provided by the Government at the Project "Kick-Off" Meeting. For records drawings requirements see Section 01770N, "Closeout Procedures."

All CAD drawings shall be drawn at full size and presented at the appropriate scale. Except for civil plans, minimum drawing scale shall be 1/8 inch per foot. Larger scale details and sections shall be provided to insure a clear presentation of the work. Show graphic scales on all drawings. Each Contractor prepared drawing shall bear the seal and signature of the registered architect or appropriate engineer responsible for the work portrayed on that drawing and proposed to meet the contract requirements. NAVFAC drawing numbers for the design drawings will be assigned by the Government prior to approval of the draft final design.

3.1.2 Drawings Sequence

Arrange drawings by design discipline in accordance with the National CAD Standards recommendations and sequentially number drawings within each discipline.

3.1.3 Drawings Required

Information shown on the drawings furnished or referenced in the Request for Proposals (RFP) and information shown on the drawings of the proposal upon which the award was based shall be used for preparing the design drawings. Prepare separate drawings for each design discipline in accordance with Engineering Field Activity NORTHEAST "Life Cycle Management CADD Policy". As a minimum, the Contractor shall prepare and submit the following design drawings (drawings within a discipline may be combined provided information shown remains legible) (Note: Where drawings are specified to "include" specific information, such information is in

addition to the information typically shown on such drawings.) All discipline drawings shall be developed according to Engineering Field Activity NORTHEAST "Life Cycle Management CADD Policy":

a. Title, Index Drawings:

(1) Title Sheet: Include Drawing Index, Area Map, Vicinity Map, and Location Map.

(2) General Notes and Legend: Include Abbreviations, Symbols Legend, Materials Legend, and General Notes.

b. Civil Drawings:

(1) Existing Conditions and Demolition Plan: Show ground surface topography (include spot elevations to illustrate drainage patterns), topographic features, watercourses, physical features, soils information, permanent and temporary benchmarks, site limits, floodplain, and wetland limits. Maximum contour interval shall be one foot.

(2) Soil Erosion and Sediment Control Plan: Show location of all soil erosion and sediment control (SESC) features (including both temporary and permanent SESC features, connections to existing storm drainage features, construction entrance, construction laydown, material stockpile, and decontamination pad locations), haul roads, floodplain, wetland limits, and limit of disturbance. Maximum contour interval for existing and final elevations shall be one foot.

(3) Interim Grading Plan: Show interim grades after regrading and excavation but prior to low permeability cover system construction and marsh restoration, monitoring points to be abandoned, limits of disturbance, and both temporary and permanent SESC features.

(4) Final Grading Plan: Show all existing and new topographic features complete with all dimensions. Show monitoring well, building, pavements, parking layout, fences, site amenities, and limit of disturbance. Provide benchmark for locating physical features in horizontal and vertical planes.

(5) Utility Site Plan: Showing all new work and modifications and connections to existing domestic water distribution system.

(6) Cross Sections: Include landfill, low permeability cover, wetland, and floodplain limits and subsurface stratigraphy and lithology.

(7) Soil Erosion and Sediment Control Plan Notes: Include Federal, New Jersey, and Freehold Conservation District SESC and environmental protection requirements, sequence of construction, and design certification.

(8) Revegetation Notes: Include Federal, New Jersey, and Freehold

Conservation District requirements relevant to revegetation, restoration, and stabilization (include temporary and permanent seeding summaries).

(9) SESC Details: Include details of both temporary and permanent SESC features.

(10) Details: Show details as required. Include all pertinent details of the individual items to be constructed in this project, low permeability cover (section, termination, and interconnection details), monitoring well, gas vent, security, pavement, storm drainage, utility, and site amenity details.

c. Boring Drawings:

(1) Boring Logs: Soil boring logs showing soil types encountered, Unified Soil Classification, moisture content, standard penetration resistance, and water level. Include soils information provided with the contract.

i. Electrical Drawings:

(1) Electrical Site Plan: Show power systems.

3.2 SPECIFICATIONS

3.2.1 RFP Specifications

The RFP specifications contain performance requirements for the facility and systems which must be met and criteria for verifying compliance, but do not contain unnecessary limitations for selecting materials, products, or systems which will meet the specified requirements. The following are RFP performance specification sections:

a. Section 13972, "Building and Supporting Facilities Systems Civil Requirements"

3.2.2 Project Specification

3.2.2.1 Project Specification Format

Use Unified Facilities Guide Specifications (UFGS). Provide project specification in The Construction Specifications Institute (CSI), 16 Division, 3 Part Section Format when there are no UFGS sections available. Write project specification sections at the Mediumscope level of detail as described in CSI MP-2-1. Use Mediumscope level section numbers and titles as identified in CSI MP-2-1.

An index of UFGS will be furnished to the Contractor for selection of guide specifications required to develop the project specification. Unedited paper copy of UFGS sections will be furnished to the Contractor upon request. UFGS sections are available on compact disk. The system is known as the "Construction Criteria Base (CCB)". Subscription is available to the Contractor upon request to the National Institute of Building Sciences

(NIBS). Contact NIBS at 1090 Vermont Avenue N.W. Suite 700, Washington, D.C. 20005 or at telephone number 202-289-7800, fax number 202-289-1092 or e-mail "ccb@nibs.org" for CCB information and a copy of the order form.

Submit the project specification, including a Cover page and Project Table of Contents, typed single spaced on bond paper or printed with a word processor using good quality white paper. Carbon copies are not acceptable.

Sample of the Cover page is attached at end of section and shall include:

a. Project title, activity and location

b. Construction contract number

c. Construction Contractor's name and address

d. Design firm's name and address

e. Names of design team members responsible for each Contractor prepared technical discipline of the project specification

f. Name and signature of a Principal of the design firm

g. Line for the EFANE Specification Manager to sign and date for the Government

3.2.2.2 Division 01 Sections

Include Division 00 and 01 specifications sections contained in the RFP as part of the project specification without change, except incorporate changes made during proposal preparation and issued as an "Amendment of Solicitation/Modification of Contract", if any. Disk copy of the SPECSINTACT job file (Division 01 through Division 16) for the RFP will be provided to the Contractor by the Government at the Project "Kick-Off" Meeting.

3.2.2.3 Technical Specifications Sections

Develop new technical prescriptive specifications sections and include in the project specification for the materials, products, and systems chosen to meet the requirements of the performance specifications sections contained in the RFP. Several prescriptive specifications sections must be developed to address various components of the systems covered in the performance specification sections. Guide specifications shall be edited to clearly identify the specific products chosen to meet the requirements of the RFP performance specifications sections and shall contain sufficient information to verify compliance.

Where the UFGS sections lists options for material types or properties, no other material types or property is allowed. The UFGS sections will be edited in accordance with the criteria notes in each UFGS sections. If the UFGS section criteria notes suggest consultation with EFANE or if the UFGS sections offers blank options, the Contractor shall consult with the Contracting Officer.

Building codes, industry standards, product types, styles, classes, etc., identified in the performance specifications sections shall be repeated in the new prescriptive specifications sections. Proprietary product information (manufacturers' brand names and model numbers or similar product information) shall be included as addenda to the individual prescriptive specifications sections developed by the Contractor, whenever practical. When manufacturers' brand names, model numbers or other product information are included in the new prescriptive specifications sections, manufacturers' product data indicating compliance with the performance requirements of the RFP may be submitted with the design at the Contractor's option, whenever practical. Submission of product information only to prove compliance is not acceptable.

3.2.2.4 Construction Submittals

All construction submittals shall be approved by the Contractor in accordance with Section 01332, "Submittals During Construction for Design Build", except for the following which will be approved by the Government:

a. Division 01 submittals.

b. Administrative submittals (e.g., warranties, Quality Control Plan, conference meeting minutes, etc.), except Operation and Maintenance (O&M) Manual Data Packages which will be approved by the Contractor.

All specifications sections contained in the RFP have been edited to conform to this requirement. Submittals which will be approved by the Government are identified with a "G ROICC" or "G EFANE" following the submittal item. Edit guide specifications to include appropriate construction submittals and indicate Government approval for only those construction submittals listed above and those identified in the RFP to be Government approved. Identify submittals to be approved by the Government by including a "G ROICC" or "G EFANE" and by the Contractor's Engineer of Record by including a "G EOR" following the submittal item. The Contracting Officer reserves the right, during the technical review of the design submittal, to change the designated approval authority for any proposed construction submittal.

In the prescriptive specifications sections developed by the Contractor, change the text of the "Submittals" paragraph to read: "Submit the following in accordance with Section 01332, "Submittals During Construction for Design Build." Procedures for handling construction submittals are specified in Section 01332, "Submittals During Construction for Design Build."

3.2.2.5 Submittal Register

Prepare and maintain a Submittal Register. The Submittal Register is both a design and construction submittal. Instructions for developing the Submittals Register are contained in Section 01332, "Submittals During Construction for Design Build." Develop the Submittal Register with the appropriate columns filled in as specified in Section 01332, "Submittals During Construction for Design Build" and submit with the design.

During the review of the design, the Government will provide its input for those items requiring Government approval. The Submittal Register will be returned to the Contractor along with the reviewed and approved design.

Resubmit the Submittal Register as a construction submittal with appropriate additional columns filled in as specified in Section 01332, "Submittals During Construction for Design Build." Remaining columns will be filled in at the appropriate time and by the appropriate authorities during construction.

3.3 DESIGN ANALYSES

Prepare design analyses for the project. The design analyses shall include a basis of design and calculations for each design discipline as well as other reports as specified herein. The design analyses shall be a presentation of facts to demonstrate that the concept of the project is fully understood and that the design is based on sound engineering. The design analyses shall include:

a. A narrative basis of design for each design discipline consisting of:

(1) An introductory description of the project concept which addresses the salient points of the design.

(2) An orderly and comprehensive documentation of criteria, rationale, assumptions, equipment catalog data, and reasoning for system selection.

b. Calculations to support the design for each design discipline.

c. Other reports as specified herein.

3.3.1 Format

The design analyses for each design discipline and each report shall include a cover page indicating the project title, location and construction contract number, table of contents and tabbed separations for quick reference. Submit design analyses prepared on 8 1/2 inch by 11 inch white paper. The design analyses for each design discipline and each report shall be bound in separate volumes. Multiple volumes for individual design disciplines, appropriately numbered, may be provided when required. Organize as follows:

a. Civil

b. Electrical

c. Environmental Permit Requirements Investigation, Permit Applications, and Report

3.3.2 Calculations

Calculations for each design discipline shall include a cover page, a table of contents, a summary of criteria on the first page and the project title, location and construction contract number identified on every page of the calculations. All calculation pages shall be clearly legible and photo-ready. Each page, consecutively numbered, shall identify the total number of pages contained in the calculations (Page _____ of _____), and the date. Cite criteria from which the calculations, rationale, and formulas are extracted by publication number, title, edition and page number. The cover page and each page of calculations shall also include the names of the persons originating and checking the calculations. The person checking the calculations shall be a professional engineer other than the originator. In addition, the signature and seal of the appropriate professional engineer responsible for the work shall appear on the cover page of the calculations for each design discipline. The table of contents shall include title and page number for each topic (Introduction, Design Criteria, Calculations, etc.) and subtopic (e.g. for Structural - Loads, Materials, References, Wind Analysis, Footing Design, Wall Design, Column Design, etc.) addressed in the calculations. See paragraph entitled "Ready for Construction Design Documentation Submission" for documents format at Ready for Construction Submission.

Computer printouts shall be identified similar to the calculations and may be referenced as an appendix or attachment to the design analysis. Identify the computer program name, source, and version. All schematic models used for computer input shall be provided.

3.3.3 Content

The design analyses shall include the following:

a. General: Resubmit the remedy analysis report provided with the proposal as the basis of design supplemented with any additional narrative information which further explains the proposed design for each design discipline.

b. Civil: Discuss the points of connection for all utility systems and capacity of the utility systems to accommodate the new facility. Provide calculations for water, sanitary sewer and storm water piping, storm water controls, and paving.

c. Electrical: Provide capacity and load calculations, lighting calculations, harmonic analysis, short circuit analysis and voltage drop calculations.

d. Environmental Permit Requirements Investigation, Permit Applications, and Report: The Contractor's Design Team shall identify and design the project to comply with the substantive requirements of all applicable Federal, State, local, and Intergovernmental Environmental Protection Standards governing air quality, water quality, solid waste, and hazardous waste. The Contractor's Design Team shall design the facility to comply with the substantive requirements of the most stringent applicable

environmental standards and the Contractor shall construct the facility to comply with the same standards.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121(e) exempts any response action conducted entirely on site from Federal, State, or local permit application procedures. On-site actions need only comply with the substantive aspects of environmental regulations and not with the corresponding administrative requirements.

The project may require that the Government secure environmental permits for pollution control, construction, operation, etc. In such cases, the Contractor's Design Team shall investigate the need for, report on, and obtain, complete, and submit permit applications to the Government. Final permit applications (including supporting documentation) and reports shall be submitted to the Government with the Draft Design Submission. The Government will be responsible for submitting the application(s) for final permit(s). The Contractor shall pay all associated fees. All Contractor Design Team contact with Federal, State, and local regulatory bodies shall be coordinated through the Government.

The Contractor's Design Team shall prepare an Environmental Permit Requirements Report which includes the following information and data:

(1) Project Review Environmental Permit Checklist attached to the end of this section.

(2) Permitting authority (EPA, USACE, State, local, NWS Earle, etc.).

(3) Type of permit required (construction, air, operation, discharge, use, dump, dredge, fill, haul, etc.).

(4) Who is responsible for submitting the permit application.

(5) Procedure and time necessary to complete the permit application and obtain permit.

(6) Permit fees required.

(7) Statement that the project is covered by variances or that the permit is not required. If a variance is required, describe the procedures on how it will be obtained. If a permit is not required, furnish reasons and supporting justification (cite Federal, State, local, and NWS Earle regulations).

(8) For each permit required, the Contractor's Design Team shall evaluate all applicable regulations to determine if monitoring devices are needed. Where required, monitoring devices shall be included in the project design.

In addition, the Contractor's Design Team shall prepare a report to verify that all critical permits and other areas of required compliance are being addressed in the design. The report shall be a comprehensive record of all compliance-type issues associated with the design and construction of the project. The report shall:

(1) List all required permits, including the construction permit and operating permit as applicable.

(2) Summarize design requirements imposed by the permit requirements and indicate whether the design is responsive to the same. Include statements explaining expected environmental pollution and the proposed methods of control.

(3) Include a 100-year floodplain analysis that identifies the 100-year floodplain elevation, provides mapping of the 100-year floodplain in the vicinity of Site 13, identifies the procedure used in the floodplain analysis, and reports the requirements that the design must meet in the event construction activities extend into the 100-year floodplain.

3.4 DESIGN CERTIFICATION

a. Provide certification signed by an officer of the Contractor's company attesting the design meets the specified requirements. The certification shall accompany the submittal of the design documents.

b. Provide certification that the design does not require or permit the use of a Class I Ozone Depleting Substance in the project. The certification shall accompany the submittal of the design documents.

c. Electronic data provided by the Contractor in accordance with LANTDIV Electronic Bid Solicitation "Manual of Policies and Procedures."

3.5 SUBMISSION REQUIREMENTS

3.5.1 Draft Design Submission

3.5.1.1 Content

As a minimum, submit the following:

Drawings: Project drawings will be (1) converted to PDF with bookmarks file format directly from the CAD package in accordance with the LANTDIV Electronic Bid Solicitation Manual of Policies and Procedures and plotted at half-size. The PDF file and hard copies will be distributed according to the Distribution Schedule.

a. Drawings (developed to approximately 60 percent to 65 percent completion):
(1) Title Sheet

(2) General Notes and Legend
(3) Existing Conditions and Demolition Plan
(4) Soil Erosion and Sediment Control Plan
(5) Interim Grading Plan
(6) Final Grading Plan
(7) Water Distribution Plan
(8) Cross Sections
(9) Soil Erosion and Sediment Control Plan Notes
(10) Revegetation Notes
(11) Soil Erosion and Sediment Control Details
(12) Details
(13) Boring Logs
(14) Electrical Site Plan

b. Design Analysis: Submit the narrative basis of design approximately 90 percent complete for all design disciplines.

c. Environmental permit requirements investigation, permit applications, and report 100 percent complete.

3.5.1.2 Distribution for Government Review

Provide copies of the internal and final versions of the design drawings and design analyses for review by the Government and regulatory agencies. Make the following distribution on the same day and in the same manner to all of the reviewing components except the internal submission will only be provided to Navy personnel. Provide:

a. 5 copies to the Remedial Project Manager (RPM);

b. 2 copies to the NWS Earle Environmental Department;

c. 3 copies to the USEPA Region II;

d. 2 copies to the New Jersey Department of Environmental Protection (NJDEP);

e. 1 copy to the Officer in Charge of Construction (OICC);

f. 1 copy to the Resident Officer in Charge of Construction (ROICC);

g. 1 copy to the Activity's Public Works Officer (PWO); and

h. 1 copy to the Industrial Hygienist (IH).

Addressees are as follows:

Remedial Project Manager (RPM)
Ms. Michele DiGeambeardino
Naval Facilities Engineering Command
EFANE (Code EV21/MD)
10 Industrial Highway, Mail Stop No. 82
Lester, PA 19113-2090
610 595-0567 Ext 117

NWS Earle Environmental Department
Mr. Larry Burg
Naval Weapons Station Earle
201 Highway 34 South
Code 043, Building C-23
Colts Neck, NJ 07722-5014
732 866-2621

Ms. Jessica Mollin
U.S. Environmental Protection Agency Region II
290 Broadway
New York, NY 10007-1866

Mr. Robert Marcolina
New Jersey Department of Environmental Protection
Division of Responsible Party Site Remediation
P.O. Box 028
Trenton, NJ 08625-0028

Officer in Charge of Construction (OICC)
Commanding Officer Engineering Field Activity Northeast
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop No. 82
Lester, PA 19113-2090
Attn: Code EV3/JM

Resident Officer in Charge of Construction(ROICC)
Naval Weapons Station Earle, Building C-9
201 Highway 34 South
Colts Neck, NJ 07722-5025
Attn: Dan Zari
732 866-2046

Public Works Officer (PWO)
Naval Weapons Station Earle, Building C-9
201 Highway 34 South
Colts Neck, NJ 07722-5025

Industrial Hygienist (IH)
Ms. Candy Velleri
Naval Weapons Station Earle, Building C-54
201 Highway 34 South
Colts Neck, NJ 07722-5025
732 866-2053

Provide 10 working days in schedule for Government review of internal Draft Design Submission and 45 calendar days in schedule for Government and regulatory agencies review of Draft Design Submission.

Provide informal responses to Government comments on the internal Draft Design Submission and formal response to comment document for Government (1 round) and regulatory agencies (2 rounds) comments on Draft Design Submission. Contractor shall anticipate 50 Government and regulatory

agencies review comments on the Draft Design Submission and allocate 2 hours of Contractor's design team average hourly labor rate to address each comment.

3.5.2 Draft Final Design Submission

3.5.2.1 Content

Submit 100 percent complete sealed and signed design drawings, project specifications, submittals register, and design analyses (basis of design and calculations). Include design documentation previously submitted and approved for construction fast tracking.

Drawings: Project drawings will be (1) converted to PDF file format directly from the CAD package in accordance with the LANTDIV Electronic Bid Solicitation Manual of Policies and Procedures and plotted at half-size. The PDF file and hard copies will be distributed according to the Distribution Schedule. Project drawings shall also be provided in Auto Cad format.

Specifications: Project Specifications will be prepared using SPECSINTACT, available at from NIBS Construction Criteria Base (CCB), and converted to PDF file format directly from SPECSINTACT in accordance with the LANTDIV Electronic Bid Solicitation Manual of Policies and Procedures and printed. The PDF file and hard copies will be distributed according to the Distribution Schedule.

3.5.2.2 Distribution for Government Review

Provide copies of the internal Draft Final and sealed and signed Draft Final versions of the design drawings, project specifications, Submittal Register, and design analyses (basis of design and calculations) for review by the Government and regulatory agencies. Make the following distribution on the same day and in the same manner to all of the reviewing components. Provide:

a. 5 copies to the RPM (Note: In addition, provide original marked-up Division 2 through 16 specification sections.);

b. 2 copies to the NWS Earle Environmental Department;

c. 3 copies to the USEPA Region II;

d. 2 copies to the NJDEP;

e. 1 copy to the OICC;

f. 1 copy to the ROICC;

g. 1 copy to the PWO; and

h. 1 copy to the IH.

Provide 10 working days in schedule for Government review of internal Draft

Final Design Submission and 30 calendar days in schedule for Government and regulatory agencies review of Draft Final Design Submission.

Provide informal responses to Government comments on the internal Draft Final Design Submission and formal response to comment document for Government (1 round) and regulatory agencies (2 rounds) comments on Draft Final Design Submission. Contractor shall anticipate 30 Government and regulatory agencies review comments on the Draft Final Design Submission and allocate 2 hours of Contractor's design team average hourly labor rate to address each comment.

3.5.3 Final Design Submission

After Government review and approval of the Draft Final Design Submission, submit one set of sealed and signed final drawings (prints), project specifications including submittal register, and design analyses (basis of design and calculations) to the RPM. Each drawing (print) and the cover page of the project specifications shall bear the words "Final". In addition, provide copies of the final design drawings and project specifications as follows:

Drawings: Project drawings will be (1) converted to PDF file format directly from the CAD package and signed electronically in accordance with the LANTDIV Electronic Bid Solicitation Manual of Policies and Procedures, the preferred method if the capability is available, (2) converted to PDF file format, plotted at full size, signed, scanned and converted to PDF file format in accordance with the LANTDIV Electronic Bid Solicitation Manual of Policies and Procedures. The PDF file and hard copies will be distributed according to the Distribution Schedule.

Wet-Signed Documents, when required wet-signed documents should be produced from the final electronic PDF documents (prior to electronic signature application) that are submitted.

Specifications: Project Specifications will be prepared using SPECSINTACT, available from NIBS Construction Criteria Base (CCB), and converted to PDF file format directly from SPECSINTACT in accordance with the LANTDIV Electronic Bid Solicitation Manual of Policies and Procedures and printed. The PDF file and hard copies will be distributed according to the Distribution Schedule.

Project Source Files: All source files used to generate the Bid Documents will be copied to a separate CD-ROM from the PDF files. This includes but is not limited to; CAD files, SPECSINTACT job file, cost estimate, design analysis, survey data, digital images and scanned photographs. The Source file CD(s) will be distributed according to the Distribution Schedule - Digital Files. CAD files will be named in accordance with the Engineering Field Activity Northeast CAD Policy.

a. 6 copies to the RPM plus 2 disk copies (CD-ROMS) of AutoCad drawing files and one disk copy of the project specification in PDF format with bookmarks;

b. 1 copy to the NWS Earle Environmental Department;

c. 1 copy to the OICC;

d. 1 copy to the ROICC;

e. 1 copy to the PWO;

f. 1 copy to the USEPA Region II; and

g. 1 copy to the NJDEP.

Provide 10 working days in schedule for Government review of internal Final Design Submission and 30 calendar days in schedule for Government and regulatory agencies review of Final Design Submission.

Provide informal responses to Government comments on the internal Final Design Submission. If, after Government and regulatory agencies review of the Final Design Submission, the Final Design Submission is not approved, the Contractor shall prepare a formal response to comment document for Government and regulatory agencies comments, make all necessary corrections or revisions, and resubmit a corrected Final Design Submission not later than 14 calendar days after receipt of Government and regulatory agencies review comments on initial Final Design Submission.

-- End of Section --

COVER PAGE INSTRUCTIONS

NOTE: Using sample as a guide, prepare the project specification cover page with signatures for use as the camera-ready master cover page for the project specification. Substitute appropriate information for blank lines as directed by the key identification number listed on the line. Retain blank lines where signatures and dates are required and substitute underlining for the key numbers. Do not include the key numbers in the final manuscript. Insert the following information at the locations containing the corresponding key numbers listed below:

1. Project specification number (i.e. 04-02-0023).

2. Construction contract number which is a combination of the EFANE UIC and the project specification number (N62472-02-C-0023).

3. Type of appropriation funding the project, such as "MCON".

4. Project title.

5. Name of the Station or Activity where the project is to be constructed.

6. Geographic location of the project, city and state only.

7. Name of the construction contractor and address.

8. Name of the design firm and address.

9. Typed name and signature of the person responsible for editing the respective design discipline for the project specification.

10. Typed name and signature of a Principal of the design firm or the EFANE team Design Director.

11. Date the specification was submitted to the EFANE.

When submitting the ready for construction documents print or stamp on the cover page "**FINAL**".

Print the cover page without the header and footer.

The specification Project Table of Contents (PTOC) will print automatically when using SPECSINTACT. The PTOC will contain the Division 00 and 01 sections from the RFP and all the guide specification sections pulled into the job file created for the project. Place the PTOC immediately after the cover page in the specification.

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY NORTHEAST
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY, MAILSTOP NO. 82
LESTER, PA 19113-2090

SPECIFICATION NO.:
04-__-____(1)

CONTRACT NO:
N62472-__-C-____(2)

APPROPRIATION:___(3)

DESIGN/BUILD

TITLE OF PROJECT (4)

MILITARY LOCATION (5)

GEOGRAPHIC LOCATION (6)

DESIGN BUILD TEAM

CONSTRUCTION CONTRACTOR	DESIGN FIRM
(FIRM NAME) (7) (FULL ADDRESS)	(FIRM NAME) (8) (FULL ADDRESS)

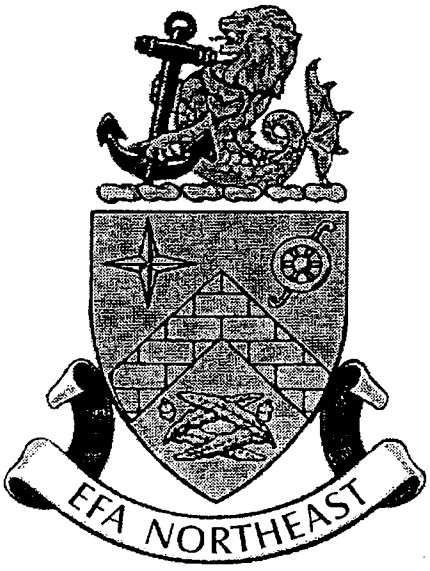
SPECIFICATION PREPARED BY:

ARCHITECTURAL:	CIVIL:	STRUCTURAL:
Signature (9) Type Name	Signature (9) Type Name	Signature (9) Type Name
ELECTRICAL:	MECHANICAL:	OTHER:
Signature (9) Type Name	Signature (9) Type Name	Signature (9) Type Name

SPECIFICATION SUBMITTED BY:_____Signature_____(10) DATE:_____(11)
Type Name

SPECIFICATION APPROVED BY:_____Signature_____ DATE:_____
Type Name

COMPUTER AIDED DESIGN
"LIFE CYCLE MANAGEMENT"
CADD POLICY



ENGINEERING FIELD ACTIVITY NORTHEAST,
NAVAL FACILITIES ENGINEERING COMMAND

Revision date 2/14/02

CONTENTS

SECTION 1: INTRODUCTION

1.1 Purpose.

This policy provides guidance and procedures for naming and producing Computer Aided Design files in accordance with the "Life Cycle Management" concept for the Engineering Field Division Northeast.

This document is a Engineering Field Division Northeast's' attachment to the LANTDIV Electronic Bid Solicitation Manual of Policies and Procurements. The content of this document will govern over any other policy or procedure.

Questions, comments, or suggested revisions to this policy shall be submitted to EFA NORHTEAST, CAD Manager for approval. The receiving activity and/or Engineering Field Activity Northeast will determine the specific format required for a project in the absence of any preference by the activity. Prior to the start of any design, the A&E shall check with the Design Manager for the existence of design files associated with the scope of work. These existing files shall be used after field verification for accuracy has been completed.

1.2 Prototype Systems.

The standards set forth in this policy are based on AutoDesk's AutoCAD Release 2000 for Windows95 and Windows NT, or Bentley Systems' Microstation and shall remain in effect through subsequent releases, unless otherwise noted.

1.3 Definitions.

The following terms, as used in this policy, are based on standard Engineering Department and AutoCAD/Microstation terminology, and may differ from similar terms used in other systems.

a. **Model Drawing File / Design File: (CAD file)** An electronic graphic database created on a CADD system in which all entities (e.g. walls, doors, windows, etc.) are shown actual size and in their correct three-dimensional relationship to one another.
b. **Sheet Layout / Drawing Composition:** The electronic file that contains the information required to create a plot or a PDF file.
c. **External Reference File (XREF):** A CAD file that is referenced by other CAD files.
d. **Layers / Levels:** A system of grouping drawing elements, similar to overlays used in manual drafting.
e. **Block / Cell:** A group of entities defined to act as a single entity. (Usually used as library parts / standard items)
f. **PDF File:** A file format that represents a document in manner independent of the hardware, operating system, and application software used to create the file.
g. **Database File**: An electronic file who's internal structure is tabular in nature such that the columns are defined as the generic data elements and the rows are the individual entries with specific data in each column.

SECTION 2: CORE STANDARDS

The standards listed in this section are the core standards for the Engineering Field Activity Northeast. The standards established in this section shall be used when specific standards are not addressed by one or more disciplines. Discipline specific standards are addressed in subsequent Sections. Unless otherwise stated, this standard adheres to the United States National CAD Standards, a consensus standard incorporating industry publication of; Introduction and Amendments to Industry Publications as published by the National Institute of Building Sciences, CAD Layer Guidelines as published by the American Institute of Architects, Uniform Drawing System (UDS)-Modules 1-3 as published by the Construction Specifications Institute and the Tri-Service Plotting Guidelines as published by the Tri-Service and the US Coast Guard.

2.1 Support Files.

All support files necessary for initializing; editing, and plotting drawing files shall be standard files provided as part of the CADD software, or files modified by and for the CADD Support Section. Copyrighted, third party files shall not be used. Support files include text fonts, hatch patterns, line types, etc.

2.2 Text.

The following standards will be used in all cases unless otherwise specifically waived by Engineering Field Activity Northeast.

2.2.1 Text Fonts.

Any "standard" text font that comes with the CAD software and therefore requires no additional license or permission is acceptable. However, the following text fonts are preferred for use on project drawings:

AutoCAD 2000	
ROMANS	Single stroke Roman font (romans.shx) to be used for normal text.
ROMAND	Double stroke Roman font (romand.shx) to be used for titles and other large text.
ROMANT	Triple stroke Roman font (romant.shx) to be used for project titles on cover sheet(s) only. AutoCAD standard.
HELVETICA	Outlined (not filled) Helvetica font (sasb__. pfb) to be used for project titles on cover sheet(s) only. AutoCAD R14 standard.

MICROSTATION

WORKING STANDARD ENGINEERING	Single stroke fonts to be used for regular text
FANCY	Double stroke font to be used for titles and other large text.
COMPRESSED	Complex font to be used for project titles on cover sheet(s) only.
BLOCK_OUTLINE	Outlined (not filled) font to be used for project titles on cover sheet(s) only.

Text fonts other than those listed are not preferred but may be used for specific purposes provided they are not substituted.

2.2.2 Text Height.

The minimum text height used shall be such that when plotted on a full size sheet, the actual measured height is not less than 0.125 inches.

2.3 Draw Forms.

The standard draw form used is the "D" size drawing (22" x 33") with vertical title block. Draw forms shall be inserted as blocks or cells on layer/level "x-xxxx-tsht" in Paper Space/Drawing Composition modes with attribute data entered. Draw forms shall not be; exploded, modified* or inserted as XREFS. The appropriate draw form can be obtained either from the Design Manager in charge of the specific project.

* A/E logos may be inserted in place of existing logo. A/E seal may be inserted into the draw form.

2.4 Submittals.

In addition to the requirements of the Engineering Field Activity Northeast NAVFACENGCOM A&E Guide, the following requirements shall be met:

CAD Files

The CAD files shall be distributed in accordance with the APPENDIX "A" STATEMENT OF ARCHITECT-ENGINEER (A/E) SERVICES. Each discipline shall be represented by one CAD file. Each discipline shall reference the architectural CAD file, where applicable, for consistency in the design. Additional CAD files may be incorporated into the project for each discipline's details. The sheet layout documents shall reference the discipline CAD files in a series of draw forms placed in Paper Space/Drawing Composition at a 1 to 1 scale, with multiple scaled views into the model. The only entities placed on the draw forms shall be; general noting, graphic scales, drawing titles and section/elevation marks. All dimensioning shall take place in the model to maintain associative dimensioning.
When the Base Map is supplied for project design, the base map CAD file shall be referenced only. Any additional information/data shall be entered in an overlaying CAD file.

2.4.1 Model File Naming

The CAD file naming convention shall conform to the following; Maintaining eight characters per file name, the first two to three characters are reserved for the type of asset the design is addressing. The next four characters are reserved for the ID of the asset/facility. And the eighth character is reserved for the discipline.

Example #1:

Building 137, mechanical design.

This design would fall under a facility. (FAC)

The facility ID is 137. (0137)

The discipline is mechanical. (M)

The CAD file name for this project would be; FAC0137M.DWG or DGN.

Example #2:

Pier 4, structural design.

This design would fall under water front. (WF)

The pier ID is 4. (0004)

The discipline is structural. (S)

The CAD file name for this project would be; WF-0004S.DWG or DGN.

2.4.2 Databases

When data has been linked to the CAD file, the database will be provided along with the CAD file. Each record will be linked to the project name, file name and handle ID. It is the A&E's responsibility to update and add any data associated with the scope of work.

When there are no databases provided for the CAD file, the A&E will provide the data in an external database with one of the fields in the database being a unique identifier for that item. The item having data associated with it shall be defined as a block. The block shall be defined with a single attribute matching the unique field in the associated database. The attribute data when entered shall match that of the unique identifier record in the associated database.

2.4.3 PDF Files

All PDF files shall be produced according to the LANTDIV Electronic Bid Solicitation Manual of Policies and Procedures and submitted in accordance to APPENDIX "A" STATEMENT OF ARCHITECT-ENGINEER (A/E) SERVICES.

2.4.4 Electronic Media.

Submittals shall be delivered on electronic media in accordance the LANTDIV Electronic Bid Solicitation Manual of Policies.

2.4.5 Plotting Media.

When plotting of the Bid Documents is required, the single matte Mylar media shall have a minimum thickness of 3 mils. Pre-final submittals shall be plotted on report grade paper. **At no time** will "Sepia" prints be accepted as meeting these requirements.

2.5 Archiving.

All associated source documents, (i.e. CAD, Specifications, cost estimate) are archived after final approval. Archived files must meet all applicable requirements and standards. Upon receipt of the electronic As-Built drawings, the necessary files will be up-loaded to the appropriate live data for that activity, indexed and archived at Engineering Field Division Northeast and the original files and hard copy made available to the receiving activity for their use.

2.6 CADD Support Web Page.

Engineering Field Activity Northeast maintains a home page on the World Wide Web, accessible through the Internet, on which there is a CADD Support sub-page. This system is used to transfer information to and communicate with outside organizations. Information which can be found on the CADD Support 's page includes: Special specification sections, special details and symbols, CADD standards (including this document), draw forms with title blocks, etc.

Engineering Field Activity Northeast home page address is as follows:

http://www.efane.navfac.navy.mil

THE A&E IS RESPONSIBLE FOR THE ACCURACY AND APPLICABILITY OF ANY DETAIL TAKEN FROM THE ENGINEERING DEPARTMENT WEB PAGE. NORTHERN DIVISION DOES NOT TAKE ANY RESPONSIBILITY FOR PROBLEMS WHICH MAY ARISE FROM THE USE OF THESE DETAILS.

SECTION 3: ARCHITECTURAL STANDARDS

The standards set in this section are for the Architectural Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

3.1 General

The general overall design should be approached as a 3-D model with all major components located in their correct three dimensional positions relative to each other as measured from a common geo-referenced point (hereafter referred to as "the origin") determined by the receiving activity. Any window, door or equipment objects should have all applicable data such as size, type, etc., attached via an external XBASE compliant database.

SECTION 4: INTERIOR DESIGN STANDARDS

The standards set in this section are for the Architectural Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

4.1 General

All cabinets, furniture, equipment, etc. should be placed as 3-D objects with appropriate data attached to an external XBASE compliant database file (*.dbf).

SECTION 5: CIVIL STANDARDS

The standards set in this section are for the Civil Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

5.1 General

All site work should be done using a 3-D model, geo-referenced to the appropriate point as per the receiving activity. The building / building outline should be referenced from the Architectural model so as to provide a "clean" site model that can be incorporated into any existing GIS system with a minimum of trouble.

SECTION 6: STRUCTURAL STANDARDS

The standards set in this section are for the Structural Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

6.1 General

All major structural elements should be placed into a 3-D model using the proper origin as provided by either Civil or Architectural. All major elements shall be of the correct dimensional sizes not their nominal designations and shall have all applicable data such as size, type, etc., attached via an external XBASE compliant database.

SECTION 7: MECHANICAL (HVAC) STANDARDS

The standards set in this section are for the Mechanical Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

7.1 General

All major components should be placed as 3-D objects in their correct three dimensional relative positions after referencing the Architectural, Structural and possibly Electrical models so as to minimize interference wherever possible. All ducts, fittings or equipment objects should have all applicable data such as size, type, etc., attached via an external XBASE compliant database.

SECTION 8: MECHANICAL (PLUMBING) STANDARDS

The standards set in this section are for the Mechanical Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

8.1 General

All major plumbing components shall be placed as 3-D objects after referencing Structural, Architectural and possibly Electrical models so as to avoid interference. All major pipes (4" O.D. or

larger) or equipment objects should have all applicable data such as size, type, etc., attached via an external XBASE compliant database.

SECTION 9: ELECTRICAL STANDARDS

The standards set in this section are for the Electrical Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

9.1 General

All fixtures shall be placed as 3-D objects after referencing Architectural, Structural and Mechanical models to avoid interference. Wiring diagrams can remain, as 2-D schematics unless significantly sized conduits (2" O.D.) will be used. In such cases the conduits shall be placed in the 3-D model as objects.

SECTION 10: FIRE PROTECTION / PHYSICAL SECURITY STANDARDS

The standards set in this section are for the Fire Protection / Physical Security Section of the Engineering Field Activity Northeast, NAVFACENGCOM. Standards not addressed in this section shall be taken from Section 2 of this policy entitled "Core Standards".

10.1 General

All major components shall be placed as 3-D objects after referencing Structural, Architectural and possibly Mechanical models so as to avoid interference. All major pipes (4" O.D. or larger) or equipment objects should have all applicable data such as size, type, manufacturer, etc., attached via an external XBASE compliant database.

10.2 Fire Protection

All piping representation shall comply with Section 9 of this policy, while all wiring representation shall comply with Section 10 of this policy.

10.3 Physical Security

All wiring representation shall comply with Section 10 of this policy.

PROJECT REVIEW
ENVIRONMENTAL PERMIT CHECKLIST

HAZARDOUS WASTE	YES	NO
1. Does the project involve a hazardous waste transfer or storage facility?		
2. If yes, will the waste be stored longer than 90 days?		
3. Is the required containment provided for spills?		
4. Are incompatibles stored separately?		
5. Is the floor sloped to allow spill collection or, alternatively, are containers elevated to prevent contact with spills?		
6. Is the truck loading apron bermed to collect spills?		
7. Is the facility at least 50 feet from the property line?		
8. Is a construction permit required?		
9. Is an operating permit required?		
UNDERGROUND STORAGE TANKS		
10. Does the project involve underground storage of regulated substances?		
11. Will there be closure or removal of an UST?		
12. Will there be installation or modification of a UST?		
13. Is a construction permit required?		
14. Is notification or registration required?		
15. Is leak detection provided?		

	YES	NO
16. Is the UST used to store heating oil only for consumptive use on the premises?		
17. Are regulatory design criteria met?		
HAZARDOUS WASTE TANKS		
18. Does the project involve either under or aboveground storage of hazardous waste in tanks?		
19. Will the hazardous waste be stored longer than 90 days?		
20. Is a construction permit required?		
21. Is an operating permit required?		
22. Is notification required?		
23. Is leak detection provided?		
24. Is the tank double walled?		
25. Is the tank compatible with what will be stored?		
26. Is a RCRA permit required?		
AIR PERMITS		
27. Does the project involve an air pollution source?		
28. Compare air source emissions with state allowable emissions standards and determine if registration with the state is required.		
29. Will boilers be installed or modified?		
30. Will a painting/blasting facility be installed or modified?		
31. Are regulated operations or sources such as boilers, incinerators, petroleum storage tanks, fire-fighting training, munition disposal by burning, plating, sandblasting, rocket and jet engine testing, asbestos application by spraying, fuel-transfer, or painting involved?		

	YES	NO
32. Are there other potential air sources?		
33. Is a construction permit required?		
34. Are sources rated at over 100 million BTU per hour?		
35. Are other permits required?		
36. Are emission controls provided (Particulate, SOX, VOC, etc.)?		
37. Will there be an air emission source from an Installation Restoration Program (IRP) removal or remedial project?		
38. If yes, will a CERCLA permit exemption apply? (Remedial action conducted entirely on-site)		
VAPOR RECOVERY		
39. Does the project involve a gasoline filling station?		
40. Is a stage I and/or stage II vapor recovery required?		
41. Are permits required?		
ACQUISITION OF LAND/BUILDINGS		
42. Does the project involve land or building acquisition?		
43. Has an environmental site survey been completed?		
44. Is the site known to have been used to store, handle, or dispose of hazardous materials/wastes?		
45. Is the site, or has it been, occupied by bulk storage tanks?		

	YES	NO
46. Is asbestos present or likely to be present?		
47. Are PCB transformers present?		
48. Will necessary permits require environmental testing/cleanup?		
49. Will public hearings be required?		
DEMOLITION		
50. Does the project involve demolition?		
51. Is asbestos present or likely to be present?		
52. Will asbestos removal notification be required?		
53. Is lead paint present?		
54. Are PCB transformers present?		
55. Are any permits required, including concurrence from State Historic Preservation Office on historic/ cultural resources?		
56. Are underground storage tanks present?		
WITHDRAWAL FROM AQUIFERS		
57. Does the project involve water withdrawal from an aquifer?		
58. If yes, is the aquifer sole-source?		
59. Is notification required?		
60. Are any permits required?		
61. Is water withdrawal a result of an Installation Restoration removal or remedial action project?		
62. If yes, will a CERCLA permit exemption apply?		

	YES	NO
WATER PERMITS WATER WITHDRAWALS SURFACE WATER WITHDRAWALS		
63. Does the project involve the withdrawal of water from surface water sources for domestic (potable) uses or industrial usage?		
64. Is a water allocation permit required?		
65. Are construction permits required for intake structures?		
66. Is notification of regulatory agencies required?		
GROUND WATER WITHDRAWALS		
67. Does the project involve the direct withdrawal of groundwater for potable, industrial uses or groundwater clean-up?		
68. Is a water allocation permit required?		
69. Is notification of regulatory agencies required?		
70. Are well construction permits required?		
TREATMENT FACILITIES		
71. Does the project include potable water storage (tanks, reservoirs) or treatment (disinfection, pH control, filtering) facilities, or expansion of the basewide water distribution systems?		
72. If yes, are potable water construction/operating permits needed?		
WASTEWATER DISCHARGES DOMESTIC SEWAGE		
73. Will domestic (sanitary) sewage be discharged from the project?		

	YES	NO
74. Does the project discharge to a sanitary sewage collection system?		
75. Will new sewer mains be constructed or will the effluent flow increase?		
76. Are construction, operating, or sewer extension permits required?		
77. Does the discharge flow to a Navy owned STP?		
78. Will the discharge affect the ability of the sewage treatment plant to meet the flow parameters of the NPDES permit? (If yes, a new permit may be required)		
79. Is notification of regulatory agencies required?		
80. Does the discharge flow to a publicly owned treatment plant?		
81. Is notification required?		
82. Is a connection permit required?		
83. Does the discharge flow to a septic system?		
84. Is the septic system new?		
85. Is a construction permit required?		
86. Is a discharge (to groundwater) permit required?		
87. Is the septic system existing?		
88. Does it have a permit?		
89. Are there flow limitations?		
90. Is notification of increased flow required?		
91. Does the project involve the construction of a sewage treatment plant?		
92. If yes, is a NPDES permit required?		

INDUSTRIAL DISCHARGES	YES	NO
93. Is there going to be a discharge of industrial wastewater from the facility? An industrial discharge can be considered any wastewater generated by any source other than sanitary facilities, such as sinks, urinals water closets, and floor drains. Examples are photographic labs, laundries, plating operations, pesticide-formulation operations, hospitals, explosive manufacturing, numerous organic and inorganic chemical processes, and cooling and blowdown water from boilers.		
94. Is the discharge going to flow into a sanitary sewage collection system?		
95. If yes, is pretreatment required?		
96. If yes, is a permit required? (Local ordinances may require permits for any industrial connection)		
97. Is the discharge going to flow to a storm sewer system, surface water or groundwater?		
98. If yes, is a NPDES permit required?		
99. Construction permits may be required for outfall structures or wells.		
100. Will there be a discharge to the sanitary sewer from an Installation Restoration program removal or remedial action project?		
101. If yes, is a permit required?		
STORM WATER DISCHARGES		
102. Facilities that "discharge storm water associated with industrial activity", includes any site where certain activities are performed. Projects which propose to perform any industrial activity may require (1) modification of an existing NPDES storm water permit or, (2) submission of an application for a new permit. NPDES permits will also be needed if a facility, currently without a permit, constructs an industrial facility.		

	YES	NO
103. Does the project involve construction activities that disturb more than 5 acres?		
104. If yes, is a NPDES permit required?		
105. Will there be discharge to the storm sewer from an Installation Restoration Program removal or remedial action project?		
106. If yes, will a NPDES permit be required?		
CORPS OF ENGINEERS PERMITS		
107. Does the project describe work in or adjacent to the coastal zone or aquatic sites such as, but not limited to, rivers, streams, lakes, creeks, ponds, estuaries, etc.?		
108. Does the project describe work in or adjacent to wetlands?		
109. Is the project adjacent to or within a wetland or aquatic environment or will have an impact upon a wetland or aquatic environment, has a wetland delineation been completed?		
110. If the project will have an impact upon wetlands, or an aquatic environment, has a site approval been issued?		
111. Has the wetland delineation been confirmed by the U.S. Army Corps of Engineers or state regulatory agency?		
112. If a coastal zone consistency determination is required, has it been completed?		
113. Does the project require utility runs that might cross wetlands or navigable waters? (these may be included in other projects)		
114. Does the project include or require access roads that cross wetlands or navigable waters?		

	YES	NO
115. Does the project include construction of intake/ discharge structures or headwalls within a wetland or waterway?		
STATE WETLANDS PERMITS		
116. Does the state in which the project is sited have wetland and/or dredging regulations which may apply to the project?		
117. Does the project describe work within 100' of wetlands?		
STATE WATER QUALITY CERTIFICATION		
118. Does the project require state review and approval under the provisions of Section 401, of the Clean Water Act? (Water Quality Certification)		
APPLIED BIOLOGY PROJECTS		
119. Does the project include installation or maintenance of wood piles, poles, or ties?		
120. Is the project a waterfront structure, pier wharf or bulkhead?		
121. Does the project include wood structural components?		
122. Does the project include landscaping with plants or maintenance of turf, shrubs or trees?		
123. Does the project include the application of pesticides other than for the prevention of termites?		
124. Has preconstruction treatment to prevent termites (NFGS 02284) been omitted from the specification?		
125. Is preconstruction treatment to prevent termites other than as specified in NFGS 02285?		

	YES	NO
ASBESTOS REMOVAL		
126. Does the project include the construction, repair or rehabilitation of food service or food storage facilities?		
127. Does the project involve potential disturbance of asbestos?		
128. Has an asbestos survey been performed?		
129. Does the project involve renovation, demolition or repair work?		
130. Is federal, state or local notification required?		
131. Are any state or local permits required?		
132. Is third party monitoring required or recommended?		
133. Is the NAVFAC spec section 02080 included and edited correctly?		
LEAD PAINT REMOVAL		
134. Does the project involve potential disturbance of lead paint?		
135. Has a lead paint survey been performed?		
136. Does the project involve renovation, demolition or repair work?		
137. Is federal, state or local notification required?		
138. Are any state or local permits required?		

RADON CONTROL	YES	NO
139. Is the project at an activity where radon readings of greater than 4 picoCuries/liter have been found in existing buildings?		
140. Does the project involve construction of a new building?		
141. Is slab on grade construction involved?		
142. Is the vapor barrier thickness 6 mil or greater?		
143. Are all penetrations through the vapor barrier sealed around the openings?		

SECTION 01332

SUBMITTALS DURING CONSTRUCTION FOR DESIGN BUILD
07/00

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Section Includes

This section includes administrative and procedural requirements for construction submittals presented by the Contractor for review and approval to demonstrate conformance with the contract requirements. This section also includes requirements for developing, submitting and maintaining a "Submittals Register."

1.1.2 Section Excludes

This section does not include requirements for facility design submittals which are specified in Section 01331, "Design Submittals for Design Build."

1.1.3 Government-Furnished Information

Submittal register is attached at the end of this section. Register will have the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g. SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Column (f): Indicate approving authority for each submittal. A "G ROICC" indicates approval by Government ROICC, "G EFANE" indicates approval by Government Engineering Field Activity Northeast, "G A/E" indicates Government Architect/Engineer, "G EOR" indicates approval by Contractor's Engineer of Record; a blank indicates approval by QC Manager.

1.2 DEFINITIONS

1.2.1 Submittal

Shop drawings, product data, samples, and administrative submittals presented for review and approval. Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all

"submittals."

1.2.2 Types of Submittals

All submittals are classified as indicated in paragraph "Submittal Descriptions (SD)". Submittals also are grouped as follows:

a. Shop drawings: As used in this section, drawings, schedules, diagrams, and other data prepared specifically for this contract, by Contractor or through Contractor by way of subcontractor, manufacturer, supplier, distributor, or other lower tier Contractor, to illustrate portion of work.

b. Product data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate portion of work, but not prepared exclusively for this contract.

c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to portion of work, illustrating portion of work or establishing standards for evaluating appearance of finished work or both.

d. Administrative submittals: Data presented for reviews and approval to ensure that administrative requirements of project are adequately met but not to ensure directly that work is in accordance with design concept and in compliance with contract documents.

1.2.3 Submittal Descriptions (SD)

Construction submittals required by the contract are identified using the following submittal description numbers and titles.

SD-01 Preconstruction Submittals

Certificates of insurance
Surety bonds
List of proposed subcontractors
List of proposed products
Project Progress Schedule
Submittal schedule
Schedule of Prices
Health and safety plan
Work plan
Quality control plan
Environmental protection plan
Accident Prevention Plan
Activity Hazard Analysis

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some

portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accordance with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

Factory test reports.

SD-10 Operation and Maintenance Data

Data intended to be incorporated in operations and maintenance manuals.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

As-built drawings

Special warranties

Posted operating instructions

Training plan

1.2.4 Approving Authority

Person authorized to approve submittal.

1.2.5 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce construction and materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.3 SUBMITTALS

Submit the following in accordance with the requirements of this section.

SD-01 Preconstruction Submittals

Submittal register; G ROICC

1.4 USE OF SUBMITTAL REGISTER

Prepare and maintain a Submittal Register. Use the form attached at the end of this section in developing the Submittal Register. Fill in columns (c), (d), (e), and (f) and submit with the final design as required by Section 01331, "Design Submittals for Design Build."

Information for completing columns (c), (d), (e), and (f) of the Submittal Register shall be obtained from the construction submittal requirements contained in Division 01 through Division 16 of the project specification developed by the Contractor. Under the left side of column (f), insert "G EFANE" or "G ROICC" for Government approved items or "G EOR" for Contractor's Engineer of Record approved items and leave the space blank for those items approved by the Contractor's QC Manager.

The Contractor shall develop the project specification using the Construction Criteria Base (CCB) system and the SpecsIntact (SI) editor, the Submittal Register can be computer generated. Columns (c), (d), (e), and (f) will be automatically filled in based on the computer editing of the NAVFAC guide specifications. Disk copy of the RFP SI specification will be provided to the Contractor in order to generate the Submittal Register for the RFP specification sections to be used "as is" in the project specification developed by the Contractor. When the Submittal Register is computer generated, only columns (c), (d), (e), and (f) are automatically filled in, all other columns require manual entries.

The Submittal Register will be returned to the Contractor along with the reviewed and approved draft final design.

1.4.1 Submittal Register

Submit submittal register with the Ready for Construction design documentation required by Section 01331, "Design Submittals for Design Build." Do not change data in columns (c), (d), (e), and (f) as delivered by the Government and as approved after Final Design Submission. Verify that all submittals required for project are listed and add missing submittals. Complete the following on the register:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

1.4.2 Contractor Use of Submittal Register

Update the following fields:

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.

1.4.3 Approving Authority Use of Submittal Register

Update the following fields:

Column (b).

Column (l) List date of submittal receipt.

Column (m) through (p).

Column (q) List date returned to Contractor.

1.4.4 Contractor Action Code and Action Code

Entries used will be as follows (others may be prescribed by Transmittal Form):

NR - Not Received

AN - Approved as noted

A - Approved

RR - Disapproved, Revise, and Resubmit

1.4.5 Copies Delivered to the Government

Deliver one copy of submitted register updated by Contractor to Government with each invoice request.

1.5 PROCEDURES FOR SUBMITTALS

1.5.1 Reviewing, Certifying, Approving Authority

QC organization shall be responsible for reviewing and certifying that submittals are in compliance with contract requirements. Approving authority on submittals is QC manager unless otherwise specified for specific submittal. At each "Submittal" paragraph in individual specification sections, a notation "G EFANE" (Government Engineering Field Activity Northeast), "G A/E" (Government Architect/Engineer), "G ROICC" (Government Resident Officer in Charge of Construction), or "G EOR" (Contractor's Engineer of Record) following a submittal item, indicates who is the approving authority for that submittal item.

1.5.2 Constraints

a. Submittals listed or specified in this contract shall conform to provisions of this section, unless explicitly stated otherwise.

b. Submittals shall be complete for each definable feature of work; components of definable feature interrelated as a system shall be submitted at same time.

c. When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review.

d. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.5.3 Scheduling

a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit.

b. Except as specified otherwise, allow review period, beginning with receipt by approving authority, that includes at least 15 working days for submittals for QC manager approval and 20 working days for submittals for Contracting Officer approval. Period of review for submittals with Contracting Officer approval begins when Government receives submittal from QC organization. Period of review for each resubmittal is the same as for initial submittal.

c. For submittals requiring review by fire protection engineer, allow review period, beginning when Government receives submittal from QC organization, of 30 working days for return of submittal to the Contractor. Period of review for each resubmittal is the same as for initial submittal.

1.5.4 Variations

Variations from contract requirements require Government approval pursuant

to contract Clause entitled "FAR 52.236-21, Specifications and Drawings for Construction" and will be considered where advantageous to government.

1.5.4.1 Considering Variations

Discussion with Contracting Officer prior to submission, will help ensure functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

1.5.4.2 Proposing Variations

When proposing variation, deliver written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government. If lower cost is a benefit, also include an estimate of the cost saving. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.5.4.3 Warranting That Variation Are Compatible

When delivering a variation for approval, Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.5.4.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.5.5 Contractor's Responsibilities

a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and contract documents.

b. Transmit submittals to QC organization in accordance with schedule on approved Submittal Register, and to prevent delays in the work, delays to Government, or delays to separate contractors.

c. Advise Contracting Officer of variation, as required by paragraph entitled "Variations."

d. Correct and resubmit submittal as directed by approving authority. When resubmitting disapproved transmittals or transmittals noted for resubmittal, the Contractor shall provide copy of that previously submitted transmittal including all reviewer comments for use by approving authority. Direct specific attention in writing or on resubmitted submittal, to revisions not requested by approving authority on previous submissions.

e. Furnish additional copies of submittal when requested by Contracting Officer, to a limit of 20 copies per submittal.

f. Complete work which must be accomplished as basis of a submittal in time to allow submittal to occur as scheduled.

g. Ensure no work has begun until submittals for that work have been returned as "approved," or "approved as noted", except to the extent that a portion of work must be accomplished as basis of submittal.

1.5.6 QC Organization Responsibilities

a. Note date on which submittal was received from Contractor on each submittal.

b. Review each submittal; and check and coordinate each submittal with requirements of work and contract documents.

c. Review submittals for conformance with project design concepts and compliance with contract documents.

d. Act on submittals, determining appropriate action based on QC organization's review of submittal.

(1) When QC manager is approving authority, take appropriate action on submittal from the possible actions defined in paragraph entitled, "Actions Possible."

(2) When Contracting Officer is approving authority or when variation has been proposed, forward submittal to Government with certifying statement or return submittal marked "not reviewed" or "revise and resubmit" as appropriate. The QC organization's review of submittal determines appropriate action.

e. Ensure that material is clearly legible.

f. Stamp each sheet of each submittal with QC certifying statement or approving statement, except that data submitted in bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.

(1) When approving authority is Contracting Officer, QC organization will certify submittals forwarded to Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with Contract Number N62472-03-R-SB17, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Certified by QC manager _____, Date _____"
(Signature)

(2) When approving authority is QC manager, QC manager will use the following approval statement when returning submittals to Contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with Contract Number N62472-03-R-SB17, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is _____ approved for use.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Approved by QC manager _____, Date _____"
(Signature)

g. Sign certifying statement or approval statement. The person signing certifying statements shall be QC organization member designated in the approved QC plan. The signatures shall be in original ink. Stamped signatures are not acceptable.

h. Update submittal register as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by Contracting Officer.

i. Retain a copy of approved submittals at project site, including Contractor's copy of approved samples.

j. When the QC Manager is the approving authority, forward to the Contracting Officer within 3 working days of approval, two information copies of each approved submittal, except "Samples," where one set is required. Ensure no work has begun until the QC approved submittals for that work are received by the Contracting Officer.

1.5.7 Government's Responsibilities

When approving authority is Contracting Officer, the Government will:

a. Note date on which submittal was received from QC manager, on each submittal for which the Contracting Officer is approving authority.

b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in paragraph entitled "Actions Possible" and with markings appropriate for action indicated.

d. Retain three copies of each submittal, except "Samples," where one copy will be retained.

1.5.8 Actions Possible

Submittals will be returned with one of the following notations:

a. Submittals marked "not reviewed" will indicate submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

b. Submittals marked "approved" "approved as submitted" authorize Contractor to proceed with work covered.

c. Submittals marked "approved as noted" authorize Contractor to proceed with work as noted provided Contractor takes no exception to the notations.

d. Submittals marked "revise and resubmit" or "disapproved" indicate submittal is incomplete or does not comply with design concept or requirements of the contract documents and shall be resubmitted with appropriate changes. No work shall proceed for this item until resubmittal is approved.

1.6 FORMAT OF SUBMITTALS

1.6.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels, to office of approving authority. Transmit submittals with transmittal form prescribed by Contracting Officer and standard for project. The transmittal form shall identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding sample panels and sample installations.

1.6.2 Identifying Submittals

Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

a. Project title and location.

b. Construction contract number.

c. Section number of the specification section by which submittal is required.

d. Submittal description (SD) number of each component of submittal.

e. When a resubmission, alphabetic suffix on submittal description, for example, SD-02A, to indicate resubmission.

f. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier contractor associated with submittal.

g. Product identification and location in project.

1.6.3 Format for Product Data

a. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.

b. Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.

c. Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project.

1.6.4 Format for Shop Drawings

a. Shop drawings shall not be less than 8 1/2 by 11 inches nor more than 30 by 42 inches.

b. Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.

c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."

d. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Shop drawing dimensions shall be the same unit of measure as indicated on the contract drawings. Identify materials and products for work shown.

1.6.5 Format of Samples

a. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:

(1) Sample of Equipment or Device: Full size.

(2) Sample of Materials Less Than 2 by 3 inches: Built up to 8

1/2 by 11 inches.

(3) Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.

(4) Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.

(5) Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.

(6) Color Selection Samples: 2 by 4 inches.

(7) Sample Panel: 4 by 4 feet.

(8) Sample Installation: 100 square feet.

b. Samples Showing Range of Variation: Where variations are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range.

c. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples shall be in undamaged condition at time of use.

d. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.

e. When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.6.6 Format of Administrative Submittals

a. When submittal includes a document which is to be used in project or become part of project record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.

1.7 QUANTITY OF SUBMITTALS

1.7.1 Number of Copies of Product Data

a. Submit six copies of submittals of product data requiring review and approval only by QC organization and seven copies of product data requiring review and approval by Contracting Officer.

1.7.2 Number of Copies of Shop Drawings

Submit shop drawings in compliance with quantity requirements specified for product data.

1.7.3 Number of Samples

a. Submit two samples, or two sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to Contractor.

b. Submit one sample panel. Include components listed in technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of non-solid materials.

1.7.4 Number of Copies of Administrative Submittals

a. Unless otherwise specified, submit administrative submittals compliance with quantity requirements specified for product data.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION

SITE 13 - DPDO YARD, NAVAL WEAPONS STATION EARLE, COLTS NECK, NJ

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	CLASSIFICATION GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01200N	SD-01 Preconstruction Submittals														
			Schedule of prices	1.3	GROICC												
		01310N	SD-01 Preconstruction Submittals														
			List of contact personnel	1.5.1	GROICC												
			View location map	1.2	GROICC												
			Progress and completion pictures	1.3	GROICC												
		01320N	SD-01 Preconstruction Submittals														
			Construction schedule	1.2	GROICC												
		01332	SD-01 Preconstruction Submittals														
			Submittal register	1.4.1	GROICC												
		01450N	SD-01 Preconstruction Submittals														
			(QC) plan	1.7	GROICC												
		01500N	SD-01 Preconstruction Submittals														
			Traffic control plan	1.7.1.1	GROICC												
			SD-06 Test Reports														
			Backflow Preventer Tests	3.3	GROICC												
			SD-07 Certificates														
			Backflow Tester	1.5	GROICC												
			Backflow Preventers	1.3													
		01525	SD-01 Preconstruction Submittals														
			Health and Safety Plan (HASP)	1.8	GROICC												
			Accident Prevention Plan (APP)	1.9	GROICC												
			Activity Hazard Analysis (AHA)	1.10	GROICC												
			Crane Critical Lift Plan	1.9.1	GROICC												
			SD-06 Test Reports														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
SITE 13 - DPDO YARD, NAVAL WEAPONS STATION EARLE, COLTS NECK, NJ

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION (ITEM SUBMITTED)	PARAGRAPH #	CLASSIFICATION (GOVT OR A/E REVWR)	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01525	Reports	1.14													
			Accident Reports	1.14.1													
			Monthly Exposure Reports	1.14.3													
			Regulatory Citations and Violations	1.14.4													
			Crane Reports	1.14.5													
			Certificate of Compliance	1.14.6													
			SD-07 Certificates														
			Confined Space Entry Permit	1.11													
		01575N	SD-01 Preconstruction Submittals														
			Environmental Protection Plan	1.11	CROICC												
			SD-06 Test Reports														
			Laboratory analysis	1.4													
			Laboratory analysis	1.5.3													
			SD-11 Closeout Submittals														
			Preconstruction survey	1.5.1													
			Solid waste disposal permit	1.5.2													
			Waste determination documentation	1.5.3													
			Waste determination documentation	3.5.1													
			Disposal documentation for hazardous and regulated waste	1.5.4													
			Contractor 40 CFR employee training records	1.5.5													
			Regulatory notification	1.5.6													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
SITE 13 - DPDO YARD, NAVAL WEAPONS STATION EARLE, COLTS NECK, NJ

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION (ITEM SUBMITTED)	PARAGRAPH #	CLASSIFICATION (GOVT A/E REVWR)	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01575N	Soil erosion and sediment control inspection reports	1.5.7													
			Solid waste disposal report	1.5.8													
			Contractor Hazardous Material Inventory Log	1.12	CROICC												
		01580N	SD-02 Shop Drawings														
			Preliminary one line	1.3.1.1	CROICC												
			SD-04 Samples														
			Final model	1.3.1.2	CROICC												
			Final framed model	1.3.1.3	CROICC												
		01770N	SD-11 Closeout Submittals														
			As-built drawings	1.2.1	CROICC												
			Record drawings	1.2.2	CROICC												
			Product warranty list	1.3.1	CROICC												
		13972	SD-01 Preconstruction Submittals														
			Remedial Action Work Plan	1.6	CROICC												
			SD-11 Closeout Submittals														
			Post Remedial Action Report	1.10	CROICC												

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS
03/03

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1819 L Street, NW, 6th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287
Internet: http://www.ansi.org/

Note --- Documents beginning with the letter "S" can be ordered from:

Acoustical Society of America
2 Huntington Quadrangle, Suite 1NO1
Melville, NY 11747-4502
Ph: 516-576-2360
Fax: 516-576-2377
Internet: http://asa.aip.org
General e-mail: asa@aip.org

AMERICAN WATER WORKS ASSOCIATION(AWWA)
6666 West Quincy Avenue
Denver, CO 80235
Ph: 303-794-7711
Fax: 303-794-3951
Internet: http://www.awwa.org

AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)
P.O. Box 5690
Grandbury, TX 76049-0690
Ph: 817-326-6300
Fax: 817-326-6306
Internet: http://www.awpa.com

ASME INTERNATIONAL (ASME)
Three Park Avenue
New York, NY 10016-5990
Ph: 212-591-7722
Fax: 212-591-7674
Internet: http://www.asme.org

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, PO Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
Internet: http://www.astm.org

ATLANTIC DIVISION, NAVAL FACILITIES ENGINEERING COMMAND (LANTDIV)
1510 Gibert Street
Norfolk, VA 23511-2699
Ph: 757-322-8000
Fax: 757-322-8124
Internet: http://www.lantdiv.navfac.navy.mil/

CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI)
99 Canal Center Plaza, Suite 300
Alexander, VA 22314
Ph: 800-689-2900
Fax: 703-684-8436
Internet: http://www.csinet.org/

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR)
University of South California
Kaprielian Hall 200
Los Angeles, CA 90089-2531
Ph: 213-740-2032
Fax: 213-740-8399
Internet: http://www.usc.edu/dept/fccchr

MILITARY HANDBOOK (MIL-HDBK)
c/o Atlantic Division, Naval Facilities Engineering Command (LANTDIV)
1510 Gibert Street
Norfolk, VA 23511-2699
Ph: 757-322-8000
Fax: 757-322-8124
Internet: http://www.lantdiv.navfac.navy.mil/

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101
Ph: 617-770-3000
Fax: 617-770-0700
Internet: http://www.nfpa.org

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP)
P.O. Box 402
Trenton, NJ 08625-0402
Internet: http:/www.state.nj.us/dep/dshw/resource/techman.htm

NEW JERSEY STATE SOIL CONSERVATION COMMITTEE (NJSSCC)
c/o New Jersey Soil Conservation District (Freehold)
211 Freehold Road
Manalapan, NJ 07726
Ph: 732-446-2300
Fax: 732-446-9140
Internet: http://www.webspan.net/~fsed/fsmain.htm

PUBLIC TECHNOLOGY INC. (PTI)
1301 Pennsylvania Avenue, NW, #800
Washington, DC 20004
Ph: 202-626-2441
Fax: 202-626-2498
Internet: http//www.pti.org
e-mail: smalls@pti.org

U.S. ARMY CORPS OF ENGINEERS (USACE)
Order CRD-C DOCUMENTS from:
U.S. Army Engineer Waterways Experiment Station
ATTN: Technical Report Distribution Section, Services Branch, TIC
3909 Halls Ferry Rd.
Vicksburg, MS 39180-6199
Ph: 601-634-2664
Fax: 601-634-2388
Internet: http://www.wes.army.mil/SL/MTC/handbook/handbook.htm

Order Other Documents from:
USACE Publications Depot
Attn: CEIM-SP-D
2803 52nd Avenue
Hyattsville, MD 20781-1102
Ph: 301-394-0081
Fax: 301-394-0084
Internet: http://www.usace.army.mil/publications
or http://www.hnd.usace.army.mil/techinfo/index.htm

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Ph: 202-260-2090
FAX: 202-260-6257
Internet: http://www.epa.gov

NOTE --- Some documents are available only from:
National Technical Information Services (NTIS)
5285 Port Royal Rd.
Springfield, VA 22161
Ph: 703-605-6000
Fax: 703-605-6900
Internet: http://www.ntis.gov

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)
Office of Highway Safety (HHS-31)
400 Seventh St., SW
Washington, DC 20590-0001
Ph: 202-366-0411
Fax: 202-366-2249
Internet: http://www.fhwa.dot.gov
Order from:

Superintendant of Documents
U. S. Government Printing Office
732 North Capitol Street, NW
Mailstop: SDE
Washington, DC 20401
Ph: 866-512-1800 or 202-512-1800
Fax: 202-512-2250
Internet: http://www.gpo.gov

U.S. GENERAL SERVICES ADMINISTRATION (GSA)
General Services Administration
1800 F Street, NW
Washington, DC 20405
PH: 202-501-0705

Order from:
General Services Administration
Federal Supply Service Bureau
1941 Jefferson Davis Highway
Arlington, VA 22202
PH: 703-605-5400
Internet: http://www.fss.gsa.gov/pub/fed-specs.cfm

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
700 Pennsylvania Avenue, N.W.
Washington, D.C. 20408
Phone: 866-325-7208
Internet: http://www.archives.gov

Order documents from:
Superintendent of Documents
U.S.Government Printing Office
732 North Capitol Street, NW

Washington, DC 20401
Mailstop: SDE
Ph: 866-512-1800 or 202-512-1800
Fax: 202-512-2250
Internet: http://www.gpo.gov
E-mail: gpoaccess@gpo.gov

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)
1510 Gilbert St.
Norfolk, VA 23511-2699
Ph: 757-322-4200
Fax: 757-322-4416
Internet: http://www.efdlant.navfac.navy.mil/LANTOPS_15

-- End of Section --

01450N

QUALITY CONTROL
02/03

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A 880	(1995) Criteria for Use in Evaluation of Testing Laboratories and Organizations for Examination and Inspection of Steel, Stainless Steel, and Related Alloys
ASTM C 1077	(2002) Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D 3666	(2002) Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D 3740	(2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(2002) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM E 543	(2002) Agencies Performing Nondestructive Testing

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(1996) Safety and Health Requirements Manual

1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Preconstruction Submittals

Quality Control (QC) plan; G ROICC

Submit draft, draft final, and final QC plan including Construction Quality Assurance Project Plan (CQAPP) in accordance with the schedule for, and included with the Remedial Action Work Plan (Section 13972, "Building and Supporting Facilities Systems Civil Requirements"). QC plan shall be prepared in accordance with the applicable requirements of the FFA, except that where the Terms "Quality Assurance/Quality Control Plan", "QAPP", or similar are used, will be the same as "QC plan."

1.3 INFORMATION FOR THE CONTRACTING OFFICER

Prior to commencing work on construction, the Contractor can obtain a single copy set of the current report forms from the Contracting Officer, or by calling the local EFD/EFA QA Coordinator for an electronic version of the report forms. The report forms will consist of the Contractor Production Report, Contractor Production Report (Continuation Sheet), Contractor Quality Control Report, Contractor Quality Control Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Rework Items List, and Testing Plan and Log. Other reports referenced below may be in formats customarily used by the Contractor, Testing Laboratories, etc. and will contain the information required by this specification.

Deliver the following to the Contracting Officer:

a. Contractor Quality Control Report: original and 1 copy, by 10:00 AM the next working day after each day that work is performed.

b. Contractor Production Report: Original and 1 copy, by 10:00 AM the next working day after each day that work is performed, attached to the Contractor Quality Control Report.

c. Preparatory Phase Checklist: Original attached to the original Contractor Quality Control Report and 1 copy attached to each copy.

d. Initial Phase Checklist: Original attached to the original Contractor Quality Control Report and 1 copy attached to each copy.

e. Field Test Reports: 2 copies, within 2 working days after the test is performed, attached to the Contractor Quality Control Report.

f. Monthly Summary Report of Tests: 2 copies attached to the Contractor Quality Control Report.

g. Testing Plan and Log: 2 copies, at the end of each month.

h. Rework Items List: 2 copies, by the last working day of the month.

i. QC Meeting Minutes: 2 copies, within 2 working days after the meeting.

j. QC Certifications: As required by the paragraph entitled "QC Certifications."

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC Organization, a QC Plan, a QC Plan Meeting, a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. The QC program shall cover on-site and off-site construction work and shall be keyed to the work sequence. No construction work or testing may be performed unless the QC Manager is on the work site. The QC Manager shall report to an officer of the firm and shall not be subordinate to the Project Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the Quality Control Manager is the primary individual responsible for quality control, all three individuals will be held responsible for the quality of work on the job. The project superintendent will be held responsible for the quality of production.

1.4.1 Preliminary Work Authorized Prior to Approval

The only construction work that is authorized to proceed prior to the approval of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.4.2 Approval

Approval of the QC Plan is required prior to the start of construction. The Contracting Officer reserves the right to require changes in the QC Plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The Contracting Officer reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC organization personnel shall be subject to acceptance by the Contracting Officer. The Contracting Officer may require the removal of any individual for non-compliance with quality requirements specified in the contract.

1.4.3 Notification of Changes

Notify the Contracting Officer, in writing, of any proposed change, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to acceptance by the Contracting Officer.

1.5 CQA PROGRAM REQUIREMENTS

Prepare, submit, and implement a Construction Quality Assurance Program as required by the Contracting Officer. Construction Quality Assurance Project Plan shall be submitted as part of the QC plan.

1.6 QC ORGANIZATION

1.6.1 QC Manager

1.6.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent. The QC Manager is required to attend the QC Plan Meeting, attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by Testing Laboratory personnel and any other inspection and testing personnel required by this Contract.

1.6.1.2 Qualifications

An individual with a minimum of 10 years combined experience in the following positions; superintendent, QC Manager, project engineer and construction manager on similar size and type construction contracts which included the major trades that are part of this Contract. Alternatively, the 10 year combined experience may be satisfied by providing a professional engineer registered in the State of New Jersey having at least 2 years experience as a Quality Control Manager. The individual must be familiar with the requirements of EM 385-1-1, and have experience in the areas of hazard identification and safety compliance.

1.6.1.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager shall have completed the course entitled "Construction Quality Management for Contractors" and provide a current copy of the certificate to the Contracting Officer. If the QC Manager does not have a current certification, he/she shall obtain the CQM course certification within 90 days of award. This course is periodically offered by Engineering Field Activity Northeast. Contact Engineering Field Activity Northeast QA Coordinator (George Morton, (610) 595-0801) for dates and time for the course.

1.6.2 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager shall be the same as for the QC Manager.

1.6.3 QC Specialist Duties and Qualifications

Provide a separate QC specialist at the work site for each of the areas of responsibilities, specified below, who shall assist and report to the QC

Manager and who may perform production related duties but must be allowed sufficient time to perform their assigned quality control duties. QC specialists are required to attend the Coordination and Mutual Understanding Meeting, QC meetings, and be physically present at the construction site to perform the three phases of control and prepare documentation for each definable feature of work in their area of responsibility.

Qualification/Experience in Area of Responsibility	Area of Responsibility	Frequency
Geomembrane Inspector/ 5 years minimum	Installation and testing of geomembrane	Full-time during installation and until cover placed

1.6.4 Submittal Reviewer Duties and Qualifications

Provide a Submittal Reviewer, other than the QC Manager, qualified in the discipline being reviewed, to review and certify that the submittals meet the requirements of this Contract prior to certification or approval by the QC Manager.

Each submittal shall be reviewed by a registered professional engineer.

1.7 QUALITY CONTROL (QC) PLAN

1.7.1 Requirements

Provide, for approval by the Contracting Officer, a QC plan submitted in a 3-ring binder with pages numbered sequentially that covers both on-site and off-site work and includes the following:

a. A table of contents listing the major sections identified with tabs in the following order:

I. QC ORGANIZATION
II. NAMES AND QUALIFICATIONS
III. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL
IV. OUTSIDE ORGANIZATIONS
V. APPOINTMENT LETTERS
VI. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER
VII. TESTING LABORATORY INFORMATION
VIII. TESTING PLAN AND LOG
IX. PROCEDURES TO COMPLETE REWORK ITEMS
X. DOCUMENTATION PROCEDURES
XI. LIST OF DEFINABLE FEATURES
XII. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL
XIII. PERSONNEL MATRIX
XIV. PROCEDURES FOR COMPLETION INSPECTION

b. A chart showing the QC organizational structure.

c. Names and qualifications, in resume format, for each person in the QC organization. Include the CQM course certifications for the QC

Manager and Alternate QC Manager as required by the paragraphs entitled "Construction Quality Management Training" and "Alternate QC Manager Duties and Qualifications."

d. Duties, responsibilities and authorities of each person in the QC organization.

e. A listing of outside organizations such as, architectural and consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.

f. Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for implementing and managing the QC program as described in this contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of quality control, and their authority to stop work which is not in compliance with the contract. The QC Manager shall issue letters of direction to all other QC specialists outlining their duties, authorities, and responsibilities. Copies of the letters shall be included in the QC plan.

g. Procedures for reviewing, approving and managing submittals. Provide the name of the person in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in Section 01332, "Submittals During Construction for Design Build."

h. Testing laboratory information required by the paragraphs entitled "Accreditation Requirements" or "Construction Materials and Environmental Testing Laboratory Requirements", as applicable.

i. A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

j. Procedures to identify, record, track and complete rework items.

k. Documentation procedures, including proposed report formats.

l. List of definable features of work. A definable feature of work (DFOW) is a task which is separate and distinct from other tasks, has the same control requirements and work crews. The list shall be cross-referenced to the contractor's Construction Schedule and the specification sections. For projects requiring a Progress Chart, the list of definable features of work shall include but not be limited to all items of work on the schedule.

m. Procedures for Performing the Three Phases of Control. For each DFOW, provide the DFOW's Preparatory and Initial Phase Checklists. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections, and tests required by the contract documents. The

Preparatory and Initial Phases and meetings shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems for each definable feature of work.

n. A personnel matrix showing for each section of the specification who will review and approve submittals, who will perform and document the three phases of control, and who will perform and document the testing.

o. Procedures for Identifying and Documenting the Completion Inspection process. Include in these procedures the responsible party for punch out inspection, prefinal inspection, and final acceptance inspection.

1.8 QC PLAN MEETING

Prior to submission of the QC plan, meet with the Contracting Officer to discuss the QC plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QC plan requirements prior to plan development and submission.

1.9 COORDINATION AND MUTUAL UNDERSTANDING MEETING

After submission of the draft QC Plan, and prior to the start of construction, meet with the Contracting Officer to present the QC program required by this Contract. The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production and QC personnel. At the meeting, the Contractor will be required to explain in detail how three phases of control will be implemented for each definable feature of work. As a minimum, the Contractor's personnel required to attend shall include an officer of the firm, the project manager, project superintendent, QC Manager, and subcontractor representatives. Each subcontractor who will be assigned QC responsibilities shall have a principal of the firm at the meeting. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, and the Contracting Officer. A copy of the signed minutes shall be provided to all attendees by the Contractor. Repeat the coordination and mutual understanding meeting when a new QC Manager is appointed.

Provide a room acceptable to the Contracting Officer for the one day meeting. The room shall be equipped with VCR and monitor equipment, overhead projector and a flip chart. Submit for Contracting Officer approval the location, date and agenda for this meeting.

1.10 QC MEETINGS

After the start of construction, the QC Manager shall conduct QC meetings once every two weeks at the work site with the project superintendent. The QC Manager shall prepare the minutes of the meeting and provide a copy to the Contracting Officer within 2 working days after the meeting. The Contracting Officer may attend these meetings. The QC Manager shall notify

the Contracting Officer at least 48 hours in advance of each meeting. As a minimum, the following shall be accomplished at each meeting:

a. Review the minutes of the previous meeting;

b. Review the schedule and the status of work:

(1) Work or testing accomplished since last meeting

(2) Rework items identified since last meeting

(3) Rework items completed since last meeting;

c. Review the status of submittals:

(1) Submittals reviewed and approved since last meeting

(2) Submittals required in the near future;

d. Review the work to be accomplished in the next 2 weeks and documentation required:

(1) Establish completion dates for rework items

(2) Update the schedule showing planned and actual dates of the preparatory, initial and follow-up phases, including testing and any other inspection required by this contract

(3) Discuss construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each definable feature of work

(4) Discuss status of off-site work or testing

(5) Documentation required

(6) Discuss upcoming Activity Hazard Analyses;

e. Resolve QC and production problems:

(1) Assist in resolving Request for Information issues;

f. Address items that may require revising the QC plan:

(1) Changes in QC organization personnel

(2) Changes in procedures;

g. Review Health and Safety Plan

1.11 THREE PHASES OF CONTROL

The Three Phases of Control shall adequately cover both on-site and off-site work and shall include the following for each definable feature of

work.

1.11.1 Preparatory Phase

Notify the Contracting Officer at least 2 work days in advance of each preparatory phase. This phase shall include a meeting conducted by the QC Manager and attended by the QC specialist, the superintendent, and the foreman responsible for the definable feature. Document the results of the preparatory phase actions in the daily Contractor Quality Control Report and in the Preparatory Phase Checklist. Perform the following prior to beginning work on each definable feature of work:

a. Review each paragraph of the applicable specification sections;

b. Review the Contract drawings;

c. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;

d. Review the testing plan and ensure that provisions have been made to provide the required QC testing;

e. Examine the work area to ensure that the required preliminary work has been completed;

f. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;

g. Discuss construction methods, construction tolerances, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each definable feature of work; and

h. Review the Health and Safety Plan and appropriate activity hazard analysis to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted.

1.11.2 Initial Phase

Notify the Contracting Officer at least 2 work days in advance of each initial phase. When construction crews are ready to start work on a definable feature of work, conduct the initial phase with the QC Specialist, the superintendent, and the foreman responsible for that definable feature of work. Observe the initial segment of the definable feature of work to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily Contractor Quality Control Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each definable feature of work:

a. Establish the quality of workmanship required;

b. Resolve conflicts;

c. Ensure that testing is performed by the approved laboratory; and

d. Check work procedures for compliance with the Health and Safety Plan and the appropriate activity hazard analysis to ensure that applicable safety requirements are met.

1.11.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary until the completion of each definable feature of work and document in the daily Contractor Quality Control Report:

a. Ensure the work is in compliance with Contract requirements;

b. Maintain the quality of workmanship required;

c. Ensure that testing is performed by the approved laboratory;

d. Ensure that rework items are being corrected; and

e. Perform safety inspections.

1.11.4 Additional Preparatory and Initial Phases

Additional Preparatory and Initial Phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a definable feature is resumed after substantial period of inactivity, or if other problems develop.

1.11.5 Notification of Three Phases of Control for Off-Site Work

Notify the Contracting Officer at least two weeks prior to the start of the preparatory and initial phases.

1.12 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in Section 01332, "Submittals During Construction for Design Build."

1.13 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this Contract.

1.13.1 Accreditation Requirements

Construction materials, geosynthetic materials, and environmental testing laboratories performing work for Navy construction contracts will be required to submit the following:

a. A copy of the Certificate of Accreditation and Scope of Accreditation by an acceptable laboratory accreditation authority.

Construction materials, geosynthetic materials, and environmental testing laboratories performing work for Navy construction contracts must be accredited by one of the laboratory accreditation authorities. The construction materials and geosynthetic materials, laboratory's scope of accreditation must include the ASTM standards listed in the paragraph titled "Construction Materials Testing Laboratory Requirements" as appropriate to the testing field. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office."

1.13.2 Construction Materials, Geosynthetic Materials and Environmental Testing Laboratory Requirements

Provide independent construction materials, geosynthetic materials and environmental testing laboratories accredited by an acceptable laboratory accreditation authority to perform sampling and tests required by this Contract. Testing laboratories that have obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit to the Contracting Officer, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test methods required by the Contract. For testing laboratories that have not yet obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit an acknowledgment letter from one of the laboratory accreditation authorities indicating that the application for accreditation has been received and the accreditation process has started, and submit to the Contracting Officer for approval, certified statements, signed by an official of the testing laboratory attesting that the proposed laboratory, meets or conforms to the ASTM standards listed below as appropriate to the testing field.

a. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E 329.

b. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C 1077.

c. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D 3666.

d. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D 3740.

e. Laboratories engaged in inspection and testing of steel, stainless steel, and related alloys will be evaluated according to ASTM A 880.

f. Laboratories engaged in nondestructive testing (NDT) shall meet the requirements of ASTM E 543.

g. Laboratories engaged in Hazardous Materials Testing shall meet the

requirements of OSHA and EPA.

1.13.3 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities are the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO) program, ICBO Evaluation Service, Inc. (ICBO ES), and the American Association for Laboratory Accreditation (A2LA) program.

Geosynthetic laboratory accreditation authority is the Geosynthetic Accreditation Institute - Laboratory Accreditation Program.

Environmental testing laboratory accreditation authorities are the Department of Defense (DOD) National Environmental Laboratory Accreditation Program (NELAP), EPA's National Environmental Laboratory Accreditation Conference (NELAC), and the State of New Jersey. The environmental testing laboratory accreditation authorities are subject to the approval of the Contracting Officer. The environmental testing laboratory's quality systems program shall be prepared and implemented in accordance with DOD QSMEL.

Furnish to the Contracting Officer, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test methods required by the Contract.

1.13.4 Capability Check

The Contracting Officer retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

1.13.5 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify Contracting Officer immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.13.6 Test Reports and Monthly Summary Report of Tests

The QC Manager shall furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the Contracting Officer. Attach a copy of the summary report to the last daily Contractor

Quality Control Report of each month.

1.14 QC CERTIFICATIONS

1.14.1 Contractor Quality Control Report Certification

Each Contractor Quality Control Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

1.14.2 Invoice Certification

Furnish a certificate to the Contracting Officer with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with contract requirements.

1.14.3 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the Contract."

1.15 COMPLETION INSPECTIONS

1.15.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings and specifications. Include in the punch list any remaining items on the "Rework Items List" which were not corrected prior to the Punch-Out Inspection. The punch list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch list shall be provided to the Contracting Officer. The QC Manager or staff shall make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished the Contractor shall notify the Government that the facility is ready for the Government "Pre-Final Inspection."

1.15.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" may be developed as a result of this inspection. The QC Manager shall ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the customer can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments

by separate completion dates.

1.15.3 Final Acceptance Inspection

The QC Manager, the QC specialist, the superintendent or other primary contractor management personnel, and the Contracting Officer's representative will be in attendance at this inspection. Additional Government personnel may be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the "Pre-Final" inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final inspection stating that all specific items previously identified to the Contractor as being unacceptable, along with all the remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction." When the Contracting Officer takes possession of partially completed work, it will be in accordance with Contract Clause "Use and Possession Prior to Completion."

1.16 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.16.1 Contractor Production Report

Reports are required for each day that work is performed and shall be attached to the Contractor Quality Control Report prepared for the same day. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Production Reports are to be prepared, signed and dated by the project superintendent and shall contain the following information:

a. Date of report, report number, name of contractor, Contract number, title and location of Contract and superintendent present.

b. Weather conditions in the morning and in the afternoon including maximum and minimum temperatures.

c. Identify work performed by corresponding Schedule Activity No., PC#, Modification No., etc.

d. A list of Contractor and subcontractor personnel on the work site, their trades, employer, work location, description of work performed, hours worked by trade, daily total work hours on work site this date (including hours on continuation sheets), and total work hours from start of construction.

e. A list of job safety actions taken and safety inspections conducted. Indicate that safety requirements have been met

including the results on the following:

(1) Was a job safety meeting held this date? (If YES, attach a copy of the meeting minutes.)

(2) Were there any lost time accidents this date? (If YES, attach a copy of the completed OSHA report.)

(3) Was crane/manlift/trenching/scaffold/hv electrical/high work/hazmat work done? (If YES, attach a statement or checklist showing inspection performed.)

(4) Was hazardous material/waste released into the environment? (If YES, attach a description of incident and proposed action.)

f. Identify Schedule Activity No. related to safety action and list safety actions taken today and safety inspections conducted.

g. Identify Schedule Activity No., Submittal # and list equipment/material received each day that is incorporated into the job.

h. Identify Schedule Activity No., Owner and list construction and plant equipment on the work site including the number of hours used.

i. Include a "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

1.16.1.1 Contractor Production Report (Continuation Sheet)

Additional space required to contain daily information on the Contractor Production Report will be placed on its Continuation Sheet(s). An unlimited number of Continuation Sheets may be added as necessary and attached to the Production Report.

1.16.2 Contractor Quality Control Report

Reports are required for each day that work is performed and for every seven consecutive calendar days of no-work and on the last day of a no-work period. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Quality Control Reports are to be prepared, signed and dated by the QC Manager and shall contain the following information:

a. Date of report, report number, Contract Number, and Contract Title.

b. Indicate if Preparatory Phase work was performed today (Yes/No checkboxes).

c. If Preparatory Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index # is a cross reference to the Preparatory Phase Checklist. An example of the Index # is: 0025-P01, where "0025" is the Contractor Quality Control Report Number, "P" indicates Preparatory Phase, and "01" is the Preparatory Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Preparatory Phase Checklist.

d. Indicate if Initial Phase work was performed today (Yes/No checkboxes).

e. If Initial Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index # is a cross reference to the Initial Phase Checklist. An example of the Index # is: 0025-I01, where "0025" is the Contractor Quality Control Report Number, "I" indicates Initial Phase, and "01" is the Initial Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Initial Phase Checklist.

f. Results of the Follow-up Phase inspections held today (including on-site and off-site work), including Schedule Activity No., the location of the definable feature of work, Specification Sections, etc. Indicate in the report for this definable feature of work that the work complies with the Contract as approved in the Initial Phase, work complies with safety requirements, and that required testing has been performed and include a list of who performed the tests.

g. List the rework items identified, but not corrected by close of business; along with its associated Schedule Activity Number.

h. List the rework items corrected from the rework items list along with the corrective action taken and its associated Schedule Activity Number.

i. Include a "remarks" section in this report which will contain pertinent information including directions received, quality control problem areas, deviations from the QC plan, construction deficiencies encountered, QC meetings held, acknowledgement that as-built drawings have been updated, corrective direction given by the QC Organization and corrective action taken by the Contractor. For each remark given, identify the Schedule Activity No. that is associated with the remark.

j. Contractor Quality Control Report certification, signature and date.

1.16.2.1 Contractor Quality Control Report (Continuation Sheet)

Additional space required to contain daily information on the Contractor Quality Control Report will be placed on its Continuation Sheet(s). An unlimited number of Continuation Sheets may be added as necessary and attached to the Contractor Quality Control Report.

1.16.3 Preparatory Phase Checklist

Each Definable Feature of Work that is in the Preparatory Phase shall have this checklist filled out for it. The checklist shall be identified by terminology consistent with the construction schedule. Attach this checklist to the Contractor Quality Control Report of the same date.

a. Specification Section, date of report, and Contract number shall be filled out. Duplicate this information in the header of the second page of the report.

b. Definable Feature of Work, Schedule Activity No. and Index # entry and format will match entry in the Preparatory Phase section of the Contractor Quality Control Report. Duplicate this information in the header of the second page of the report.

c. Personnel Present: Indicate the number of hours of advance notice that was given to the Government Representative and indicate (Yes/No checkboxes) whether or not the Government Rep was notified. Indicate the Names of Preparatory Phase Meeting attendees, their position and company/government they are with.

d. Submittals: Indicate if submittals have been approved (Yes/No checkboxes), if no indicate what has not been submitted. Are materials on hand (Yes/No checkboxes) and if not, what items are missing. Check delivered material/equipment against approved submittals and comment as required.

e. Material Storage: Indicate if materials/equipment is stored properly (Yes/No checkboxes) and if not, what action is/was taken.

f. Specifications: Review and comment on Specification Paragraphs that describe the material/equipment, procedure for accomplishing the work and clarify any differences.

g. Preliminary Work & Permits: Ensure preliminary work is in accordance with the contract documents and necessary permits are on file, if not, describe the action taken.

h. Testing: Identify who performs tests, the frequency, and where tests are to occur. Review the testing plan, report abnormalities, and if the test facilities have been approved.

i. Safety: Indicate if the activity hazard analysis has been approved (Yes/No checkboxes) and comment on the review of the applicable portions of the EM 385-1-1.

j. Meeting Comments: Note comments and remarks during the Preparatory Phase Meeting that was not addressed in previous sections of this checklist.

k. Other Items or Remarks: Note any other remarks or items that were a result of the Preparatory Phase.

l. QC Manager will sign and date the checklist.

1.16.4 Initial Phase Checklist

Each Definable Feature of Work that is in the Initial Phase shall have this checklist filled out for it. The checklist shall be identified by terminology consistent with the construction schedule. Attach this checklist to the Contractor Quality Control Report of the same date.

a. Specification Section, date of report, and Contract number shall be entered.

b. Definable Feature of Work, Schedule Activity No. and Index # entry and format will match entry in the Initial Phase section of the Contractor Quality Control Report.

c. Personnel Present: Indicate the number of hours of advance notice that was given to the Government Representative and indicate (Yes/No checkboxes) whether or not the Government Rep was notified. Indicate the Names of Initial Phase Meeting attendees, their position and company/government they are with.

d. Procedure Compliance: Comment on compliance with procedures identified at Preparatory Phase of Control and assurance that work is in accordance with plans, specifications and submittals.

e. Preliminary Work: Ensure preliminary work being placed is in compliance and if not, what action is/was taken.

f. Workmanship: Identify where initial work is located; if a sample panel is required (Yes/No checkboxes); is the initial work the sample (Yes/No checkboxes); and if Yes, describe the panel location and precautions taken to preserve the sample.

g. Resolution: Comment on any differences and the resolutions reached.

h. Check Safety: Comment on the safety review of the job conditions.

i. Other: Note any other remarks or items that were a result of the Initial Phase.

j. QC Manager will sign and date the checklist.

1.16.5 Quality Control Validation

Establish and maintain the following in a series of 3 ring binders.

Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Government's Quality Assurance Team during all business hours.

a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.

b. All milestone inspections, arranged by Activity/Event Number.

c. A current up-to-date copy of the Testing and Plan Log with supporting field test reports, arranged by specification section.

d. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.

e. A current up-to-date copy of the Rework Items List.

f. Maintain up-to-date copies of all punch lists issued by the QC Staff on the Contractor and subcontractors and all punch lists issued by the Government.

1.16.6 Reports from the QC Specialist

Reports are required for each day that work is performed in their area of responsibility. QC specialist reports shall include the same documentation requirements as the Contractor Quality Control Report for their area of responsibility. QC specialist reports are to be prepared, signed and dated by the QC specialist and shall be attached to the Contractor Quality Control Report prepared for the same day.

1.16.7 Testing Plan and Log

As tests are performed, the QC Manager shall record on the "Testing Plan and Log" the date the test was conducted, the date the test results were forwarded to the Contracting Officer, remarks and acknowledgement that an accredited or Contracting Officer approved testing laboratory was used. Attach a copy of the updated "Testing Plan and Log" to the last daily Contractor Quality Control Report of each month.

1.16.8 Rework Items List

The QC Manager shall maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. Other than for geomembrane, there is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily Contractor Quality Control Report of each month. The Contractor shall be responsible for including on this list items needing rework including those identified by the Contracting Officer.

1.16.9 As-Built Drawings

The QC Manager is required to ensure the as-built drawings, required by

Section 01770N "Closeout Procedures," are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. PC No., Modification No., Request for Information No., etc.). The QC Manager or QC specialist assigned to an area of responsibility shall initial each deviation and each revision. Upon completion of work, the QC Manager shall furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

1.16.10 Report Forms

The following forms, are acceptable for providing the information required by the paragraph entitled "Documentation." While use of these specific formats are not required, any other format used shall contain the same information:

a. Contractor Quality Control Report w/ continuation sheet(s).

b. Contractor Production Report w/ continuation sheet(s).

c. Preparatory Phase Checklist.

d. Initial Phase Checklist.

e. Testing Plan and Log.

f. Rework Items List.

1.17 NOTIFICATION ON NON-COMPLIANCE

The Contracting Officer will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time for excess costs or damages by the Contractor.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

CONTRACTOR PRODUCTION REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE: Enter Date (DD/MMM/YY)

CONTRACT NO: Enter Cnt# Here

TITLE AND LOCATION: Enter Title and Location of Construction Contract Here

REPORT NO: Enter Report # Here

CONTRACTOR: Enter The Contractor's Company Name Here

SUPERINTENDENT: Enter Superintendent's Name Here

AM WEATHER	PM WEATHER	MAX TEMP (F)	MIN TEMP (F)
Enter AM Weather Data Here	Enter PM Weather Data Here	Enter Max Temp Here	Enter Min Temp Here

WORK PERFORMED TODAY

Schedule Activity No.	WORK LOCATION AND DESCRIPTION	EMPLOYER	NUMBER	TRADE	HRS

JOB SAFETY

WAS A JOB SAFETY MEETING HELD THIS DATE? (If YES attach copy of the meeting minutes)	☐ YES	☐ NO	TOTAL WORK HOURS ON JOB SITE, THIS DATE, INCL CON'T SHEETS
WERE THERE ANY LOST TIME ACCIDENTS THIS DATE? (If YES attach copy of completed OSHA report)	☐ YES	☐ NO	CUMULATIVE TOTAL OF WORK HOURS FROM PREVIOUS REPORT
WAS CRANE/MANLIFT/TRENCHING/SCAFFOLD/HV ELEC/HIGH WORK/ HAZMAT WORK DONE? (If YES attach statement or checklist showing inspection performed.)	☐ YES	☐ NO	
WAS HAZARDOUS MATERIAL/WASTE RELEASED INTO THE ENVIRONMENT? (If YES attach description of incident and proposed action.)	☐ YES	☐ NO	TOTAL WORK HOURS FROM START OF CONSTRUCTION

Schedule Activity No.	LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED	☐ SAFETY REQUIREMENTS HAVE BEEN MET.

EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB (INDICATE SCHEDULE ACTIVITY NUMBER)

Schedule Activity No.	Submittal #	Description of Equipment/Material Received

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INDICATE HOURS USED AND SCHEDULE ACTIVITY NUMBER.

Schedule Activity No.	Owner	Description of Construction Equipment Used Today (incl Make and Model)	Hours Used

Schedule Activity No.	REMARKS

CONTRACTOR/SUPERINTENDENT _____ DATE

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE: Enter (DD/MMM/YY)

REPORT NO: Enter Rpt # Here.

PHASE | CONTRACT NO: Enter Cnt# Here | CONTRACT TITLE: Enter Title and Location of Construction Contract Here

PREPARATORY

WAS PREPARATORY PHASE WORK PREFORMED TODAY? YES ☐ NO ☐

IF YES, FILL OUT AND ATTACH SUPPLEMENTAL PREPARATORY PHASE CHECKLIST.

Schedule Activity No.	Definable Feature of Work	Index #

INITIAL

WAS INITIAL PHASE WORK PREFORMED TODAY? YES ☐ NO ☐

IF YES, FILL OUT AND ATTACH SUPPLEMENTAL INITIAL PHASE CHECKLIST.

Schedule Activity No.	Definable Feature of Work	Index #

FOLLOW-UP

WORK COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE? YES ☐ NO ☐

WORK COMPLIES WITH SAFETY REQUIREMENTS? YES ☐ NO ☐

Schedule Activity No.	Description of Work, Testing Performed & By Whom, Definable Feature of Work, Specification Section, Location and List of Personnel Present

REWORK ITEMS IDENTIFIED TODAY (NOT CORRECTED BY CLOSE OF BUSINESS)

Schedule Activity No.	Description

REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

Schedule Activity No.	Description

REMARKS (Also Explain Any Follow-Up Phase Checklist Item From Above That Was Answered "NO"), Manuf. Rep On-Site, etc.

Schedule Activity No.	Description

On behalf of the contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

AUTHORIZED QC MANAGER AT SITE DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

Schedule Activity No.	Description

GOVERNMENT QUALITY ASSURANCE MANAGER DATE

GOVERNMENT QUALITY ASSURANCE (QA) REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE: Enter Date (DD/MMM/YY)

CONTRACT NO: Enter Cnt# Here

TITLE AND LOCATION: Enter Title and Location of Construction Contract Here

REPORT NO: Enter Report # Here

Status

WORKING?	YES	NO	IF NO, WHY NOT:
	☐	☐	

WEATHER CONDITIONS:

Check Points

	YES	NO	REMARKS:
SUPERINTENDENT ON SITE	☐	☐	
QC MANAGER ON SITE	☐	☐	
QC REPORTS CURRENT	☐	☐	
AS-BUILTS CURRENT	☐	☐	
SUBMITTALS APPROVED FOR FOR ONGOING WORK	☐	☐	
DEFICIENCY LIST REVIEWED	☐	☐	

WORK OBSERVED/DEFICIENCIES NOTED/SAFETY ISSUES DISCUSSED/QA TESTS AND RESULTS:

Schedule Activity No	DESCRIBE OBSERVATIONS

MEETING/CONFERENCE NOTES (INCLUDING PARTICIPANTS):

Schedule Activity No.	NOTES

INSTRUCTIONS GIVEN OR RECEIVED/CONTROVERSIES PENDING:

Schedule Activity No.	INSTRUCTIONS/CONTROVERSIES

QA REPRESENTATIVE _____ DATE _____

SUPV INITIALS _____ DATE _____

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
Enter Spec Section # Here	Enter Date (DD/MMM/YY)

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
Enter Cnt# Here	Enter DFOW Here	Enter Sched Act ID Here	Enter Index# Here

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED ____ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS:

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

WORKMANSHIP

ESTABLISH LEVEL OF WORKMANSHIP.

WHERE IS WORK LOCATED?

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☐

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☐

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES.

COMMENTS:

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS:

OTHER

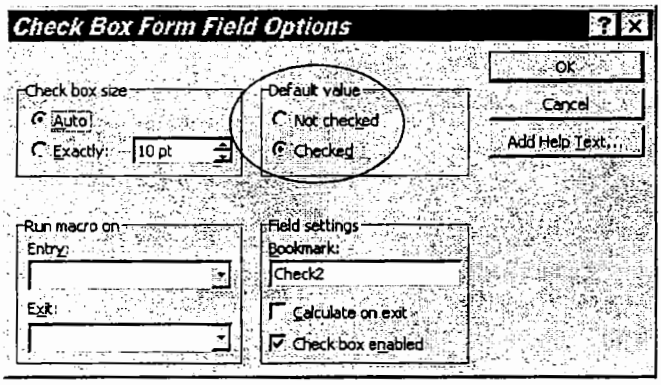
OTHER ITEMS OR REMARKS

QC MANAGER DATE

Instructions for Using Report Forms in MS-Word

In the Report Header, fields that have instructional text such as "Enter Title and Location of Construction Contract Here" prompt the user to enter the information in a specific location, governed by the field. Single mouse click anywhere in the field and the field will darken. Entry of text/data at this point will delete the instructional text in the field and will be replaced with entered text/data.

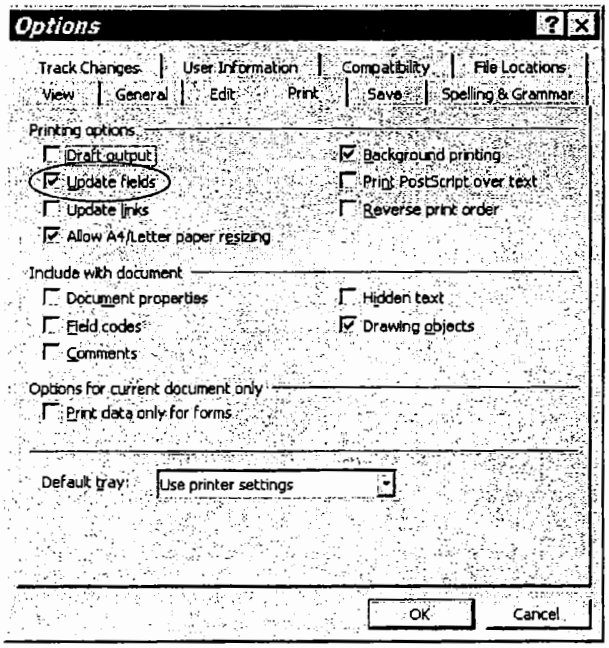
All check boxes are all defaulted as unchecked (i.e.; ☐). To check the box (i.e.; ☒), double click the box and the "Check Box Form Field Options" box will appear. In the "Default value" section of the box, click in the Radio Button for "Checked", then click on the "OK" button and the box will be checked.



The "Hour" fields where intentionally not programmed to total. If the Contractor deleted the formula in a field within the range that was to be totaled, the total would be wrong.

With the ability to [unlimitedly] expand the Contractor Production Report and Contractor Quality Control Representative Report, their Continuation Sheets are obsolete.

In the footer of each form are data fields for the Sheet number and the total number of sheets in the report (Sheet 1 of 2). The first number will generate itself when pages of the report are added. But MS-Word will not automatically update the second number. To update the NumPages field, click the field or the field results and then press F9. You can also click **Options** in the **Tools** menu, click the **Print** tab, and then select the **Update fields** check box.



PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
Enter Spec Section # Here	Enter Date (DD/MMM/YY)

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
Enter Cnt# Here	Enter DFOW Here	Enter Sched Act ID Here	Enter Index# Here

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED ____ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☐ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

ARE ALL MATERIALS ON HAND? YES ☐ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS:

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☐ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK.

CLARIFY ANY DIFFERENCES.

PRELIMINARY WORK & PERMITS

ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. WHEN REQUIRED? WHERE REQUIRED? REVIEW TESTING PLAN. HAS TEST FACILITIES BEEN APPROVED?
SAFETY	ACTIVITY HAZARD ANALYSIS APPROVED? YES ☐ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1.
MEETING COMMENTS	NAVY/ROICC COMMENTS DURING MEETING.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS:

QC MANAGER _____ DATE _____

RESPONSIBILITIES/AUTHORITY OF THE QC MANAGER

1. Appointing letter to the QC manager shall detail his/her authority and responsibility to act for the contractor and outline his/her duties, responsibilities and authority. He/she shall have no job-related responsibilities other than QC unless specifically permitted in the specification.

2. He/she shall be on the site at all times during progress of the work, with complete authority to take any action necessary to ensure conformance with the contract requirements. In the event of his/her absence, approved backup shall be on the site.

3. Authority to immediately stop any segment of work which does not comply with the contract plans and specifications and direct the removal and replacement of any defective work.

4. Conduct daily inspection of work performed for compliance with plans and specifications.

5. Certify daily that all materials and equipment delivered/installed in the work comply with contract plans and specifications. Certify daily that all work performed on the construction site and off the construction site conforms to plans and specifications. Report any deficiencies and remedial action planned and taken.

6. Supervise and coordinate the inspection and tests made by the members of the Quality Control Organization, including subcontractors.

7. Assure QC staff is adequate to meet its responsibilities.

8. Maintain a copy of the ROICC approved QC Plan on file at the jobsite complete with up-to-date approved revisions/filled-in log of submittals. Maintain at the jobsite an
up-to-date QC Submittal Register (provided in the specification) showing the status of all submittals required by the contract.

9. Maintain at the jobsite a testing plan showing status of all tests required by the contracts. Ensure that all tests required are performed and report the results of same. Indicate whether test results show the item tested conforms to contract requirements or not.

10. Authority to remove any individual from the site who fails to perform his/her work in a skillful and workmanlike manner or his/her work does not comply with the contract plans and specifications.

11. QC manager does not have authority to deviate from plans and specifications without prior approval, in writing, from the ROICC.

12. Ensure that the contractor's Quality Control Organization is adequately staffed with qualified personnel to perform all the detailed inspections and testing specified in the plans and specifications.

13. Maintain at the jobsite the up-to-date QC Rework Items List.

ATTACHMENT A

REWORK ITEMS LIST

Contract No. and Title: Enter Contract # and Title Here

Contractor: Enter Contractor's Company Name Here

NUMBER	DATE IDENTIFIED	DESCRIPTION	CONTRACT REQUIREMENT (Spec. Section and Par. No., Drawing No. and Detail No., etc.)	ACTION TAKEN BY QC MANAGER	RESOLUTION	DATE COMPLETED

4296/3 (9/98)

TESTING PLAN AND LOG

CONTRACT NUMBER Enter Contract # Here			PROJECT TITLE AND LOCATION Enter Contract Title and Location Here							CONTRACTOR Enter Contractor's Company Name Here	
SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			

SECTION 01500N

TEMPORARY FACILITIES AND CONTROLS
02/03

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C511	(1997) Reduced-Pressure Principle Backflow Prevention Assembly

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR)

FCCCHR Manual-9	Manual of Cross-Connection Control
FCCCHR List	List of Approved Backflow Prevention Assemblies

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

FHWA SA-89-006	(2000: Rev 1, 2001) Manual on Uniform Traffic Control Devices

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2002) National Electrical Code
NFPA 241	(2000) Safeguarding Construction, Alteration, and Demolition Operations

1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Preconstruction Submittals

Traffic control plan; G ROICC

SD-06 Test Reports

Backflow Preventer Tests; G ROICC

SD-07 Certificates

Backflow Tester Certification; G ROICC

Backflow Preventers Certificate of Full Approval

1.3 BACKFLOW PREVENTERS CERTIFICATE

Certificate of Full Approval from FCCCHR List, University of Southern California, attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval will not be acceptable.

1.3.1 Backflow Prevention Training Certificate

The Contractor shall submit a certificate recognized by the State or local authority that states the Contractor has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

1.4 TEMPORARY UTILITIES

Reasonable amounts of the following utilities will be made available to the Contractor without charge:

Electricity

The Contractor shall pay all costs incurred in connecting, converting, and transferring the utilities to the work. The Contractor shall make connections, including providing backflow-preventing devices on connections to domestic water lines; and providing transformers; and make disconnections.

1.4.1 Contractor Utilities

The Contractor shall provide his own utilities from nearest available electric and water source at the activity. Electrical service is available from the Military Sealift Command's (MSC) Connected Replenishment (CONREP) School located near the entrance to the DPDO Yard approximately 1,200 feet from the site.

1.5 BACKFLOW TESTER CERTIFICATION

Prior to testing, submit to the Contracting Officer certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester shall not be affiliated with any company participating in any other phase of this Contract.

1.6 WEATHER PROTECTION

1.6.1 Storm Protection

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby Government property.

Precautions shall include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; adequately ballasting geosynthetic materials; and removing or securing scaffolding and other temporary work. Close openings in the work when storms of lesser intensity pose a threat to the work or any nearby Government property.

1.6.1.1 Hurricane Condition of Readiness

Unless directed otherwise, comply with:

a. Condition FOUR (Sustained winds of 50 knots or greater expected within 72 hours): Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove all debris, trash, or objects that could become missile hazards. Contact Contracting Officer for Condition of Readiness (COR) updates and completion of required actions.

b. Condition THREE (Sustained winds of 50 knots or greater expected within 48 hours): Maintain "Condition FOUR" requirements and commence securing operations necessary for "Condition ONE" which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Commence securing and stow all gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to "Condition TWO" and continue action as necessary to attain "Condition THREE" readiness. Contact Contracting Officer for weather and COR updates and completion of required actions.

c. Condition TWO (Sustained winds of 50 knots or greater expected within 24 hours): Curtail or cease routine activities until securing operation is complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear all missile hazards and loose equipment from general base areas. Contact Contracting Officer for weather and Condition of Readiness (COR) updates and completion of required actions.

d. Condition ONE. (Sustained winds of 50 knots or greater expected within 12 hours): Secure the jobsite, and leave Government premises.

1.7 STATION OPERATION AFFECT ON CONTRACTOR OPERATIONS

1.7.1 Special Restrictions Regarding Access of Vehicles and Parking

1.7.1.1 Interruption of Vehicular Traffic

If during the performance of work, it becomes necessary to modify vehicular traffic patterns at any locations, notify the Contracting Officer at least

15 calendar days prior to the proposed modification date, and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval. The plan shall be in accordance with State and local regulations and the FHWA SA-89-006, Part VI. Make all notifications and obtain any permits required for modification to traffic movements outside Station's jurisdiction. Provide cones, signs, barricades, lights, or other traffic control devices and personnel required to control traffic. Do not use foil-backed material for temporary pavement marking because of its potential to conduct electricity during accidents involving downed power lines.

1.8 STORAGE AREAS

The Contract Clause entitled "FAR 52.236-10, Operations and Storage Areas" and the following apply:

1.8.1 Storage Size and Location

The open site available for storage shall be confined to where indicated by the Contracting Officer. The storage area shall be approximately 10,000 square feet.

1.9 TEMPORARY SANITARY FACILITIES

Provide adequate sanitary conveniences of a type approved for the use of persons employed on the work, properly secluded from public observation, and maintained in such a manner as required and approved by the Contracting Officer. Maintain these conveniences at all times without nuisance. Upon completion of the work, remove the conveniences from the premises, leaving the premises clean and free from nuisance. Dispose of sewage through connection to a municipal, district, or station sanitary sewage system. Where such systems are not available, use chemical toilets or comparably effective units, and periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Include provisions for pest control and elimination of odors.

1.10 TEMPORARY BUILDINGS

Temporary facilities (including trailers) shall be in like new condition. Locate these facilities where directed and within the designated storage areas. Storage of materials/debris under such facilities is prohibited. Contractor shall be responsible for the security of the stored property.

1.10.1 Maintenance of Temporary Facilities

Suitably paint and maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal.

PART 2 PRODUCTS

2.1 Backflow Preventers

Reduced pressure principle type conforming to the applicable requirements AWWA C511. Provide backflow preventers when connected to water lines,

complete with 150 pound flanged cast iron mounted gate valve and strainer, stainless steel or bronze, internal parts. Backflow preventors shall be approved by the Contracting Officer prior to installation.

PART 3 EXECUTION

3.1 TEMPORARY PHYSICAL CONTROLS

3.1.1 Access Controls

3.1.1.1 Temporary Barricades

Contractor shall provide for barricading around all work areas to prevent public access.

3.1.1.2 Fencing

Fencing shall be provided along the construction site at all open excavations and tunnels to control access by unauthorized people. Fencing must be installed to be able to restrain a force of at least 250 pounds against it.

3.1.1.3 Signs

Place warning signs at the construction area perimeter designating the presence of construction hazards requiring unauthorized persons to keep out. Signs must be placed on all sides of the project, with at least one sign every 300 feet. All points of entry shall have signs designating the construction site as a hard hat area.

3.1.1.4 Traffic Work

All work around/involving roadways, to include roadway excavations and utility crossings, will be conducted in accordance with Manual of Traffic Control Devices. Contractors shall provide and ensure appropriate road closure and detour signs are established as necessary for motor traffic management. All road closures shall be coordinated with the Contracting Officer in advance. Self-illuminated (lighted) barricades shall be provided during hours of darkness. Brightly-colored (orange) vests are required for all personnel working in roadways. Road closures shall require a road closure plan showing the location of signage.

3.2 TEMPORARY WIRING

Provide temporary wiring in accordance with NFPA 241 and NFPA 70, Article 305-6(b), Assured Equipment Grounding Conductor Program. Program shall include frequent inspection of all equipment and apparatus.

3.3 REDUCED PRESSURE BACKFLOW PREVENTERS

Provide an approved reduced pressure backflow prevention assembly at each location where the Contractor taps into the Government potable water supply.

A certified tester(s) shall perform testing of backflow preventer(s) for

proper installation and operation and provide subsequent tagging. Backflow preventer tests shall be performed using test equipment, procedures, and certification forms conforming to those outlined in the latest edition of the Manual of Cross-Connection Control published by the FCCCHR Manual-9. Test and tag each reduced pressure backflow preventer upon initial installation (prior to continued water use) and quarterly thereafter. Tag shall contain the following information: make, model, serial number, dates of tests, results, maintenance performed, and signature of tester. Record test results on certification forms conforming to requirements cited earlier in this paragraph.

-- End of Section --

SECTION 01525

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS
11/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.14	(1991) Construction and Demolition Operations - Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use
ANSI Z359.1	(1992, R 1999) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

ASME INTERNATIONAL (ASME)

ASME B30.5	(2000) Mobile and Locomotive Cranes
ASME B30.8	(2000) Floating Cranes and Floating Derricks
ASME B30.22	(2000) Articulating Boom Cranes

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.94	Ventilation
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
29 CFR 1915	Subpart B, Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
29 CFR 1926.500	Fall Protection

29 CFR 1926-SUBPART V Power Transmission and Distribution

U. S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (1996) Safety and Health Requirements Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10 (1998) Portable Fire Extinguishers

NFPA 241 (2000) Safeguarding Construction, Alteration, and Demolition Operations

1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Pre-Construction

Health and Safety Plan (HASP); G ROICC

Accident Prevention Plan (APP); G ROICC

Activity Hazard Analysis (AHA); G ROICC

Crane Critical Lift Plan; G ROICC

Submit draft, draft final, and final HASP, APP, and AHA in accordance with the schedule for, and include with the Remedial Action Work Plan (Section 13972, "Building and Supporting Facilities Systems Civil Requirements").

SD-06 Test Reports

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Monthly Exposure Reports

Regulatory Citations and Violations

Crane Reports

Certificate of Compliance (Crane)

SD-07 Certificates

Confined Space Entry Permit

Submit one copy of each permit attached to each Daily Production Report.

1.3 DEFINITIONS

a. Certified Industrial Hygienist (CIH). An individual who is currently certified by the American Board of Industrial Hygiene.

b. Certified Safety Professional (CSP). An individual who is currently certified by the Board of Certified Safety Professionals.

c. Competent Person. A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

d. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

e. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

f. Multi-Employer Work Site (MEWS). A multi-employer work site, as defined by OSHA, is one in which many employers occupy the same site. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors.

g. Operating Envelope. The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).

h. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

(1) Death, regardless of the time between the injury and death, or the length of the illness;

(2) Days away from work;

(3) Restricted work;

(4) Transfer to another job;

(5) Medical treatment beyond first aid;

(6) Loss of consciousness; or

(7) A significant injury or illness diagnosed by a physician or

other licensed health care professional, even if it did not result in (1) through (6) above.

i. Site Safety and Health Officer (SSHO). The superintendent or other qualified or competent person who is responsible for the on-site safety and health required for the project. The Contractor quality control (QC) person can be the SSHO on this project.

j. "USACE" property and equipment specified in EM 385-1-1 should be interpreted as Government property and equipment.

k. Weight Handling Equipment (WHE) Accident. A WHE accident occurs when any one or more of the six elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; and collision, including unplanned contact between the load, crane, and/or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, roll over, etc.).

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with EM 385-1-1, and the following federal laws, ordinances, criteria, rules and regulations ANSI A10.14, ANSI Z359.1, 29 CFR 1910, 29 CFR 1926, and NFPA 241. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.5 DRUG PREVENTION PROGRAM

Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employee uses illegal drugs or consumes alcohol during work hours. Ensure there are no employees under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine, or saliva specimens and test the injured and involved employees for the influence of drugs and alcohol. A copy of the test shall be made available to the Contracting Officer upon request.

1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.6.1 Personnel Qualifications

1.6.1.1 Site Safety and Health Officer (SSHO)

The SSHO shall meet the following requirements:

Level 2:
A minimum of 3 years safety work on similar project.
30-hour OSHA construction safety class or equivalent within last 3 years.
Competent person training as needed.

1.6.1.2 Certified Safety Professional (CSP) and/or Certified Industrial Hygienist (CIH)

Provide a Contractor employee CSP at the work site to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The CSP shall be the safety and occupational health "competent person" as defined by EM 385-1-1.

1.6.1.3 Competent Person for the Health Hazard Control and Respiratory Protection Program

Provide a competent person meeting the requirements of EM 385-1-1 who is:

a. Capable by education, specialized training and/or experience of anticipating, recognizing, and evaluating employee exposure to hazardous chemical, physical and biological agents in accordance with EM 385-1-1, Section 6.

b. Capable of specifying necessary controls and protective actions to ensure worker health.

1.6.1.4 Crane Operators

Crane operators shall meet the requirements in EM 385-1-1, Appendix G.

1.6.2 Personnel Duties

1.6.2.1 Site Safety and Health Officer (SSHO)/Superintendent

a. Be at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor.

b. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.

c. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and subcontractors.

d. Maintain applicable safety reference material on the job site.

e. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.

f. Implement and enforce accepted APPS and AHAs.

g. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.

h. Ensure subcontractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

1.6.2.2 Certified Safety Professional (CSP)

a. Perform safety and occupational health management, surveillance, inspections, and safety enforcement for the project.

b. Perform as the safety and occupational health "competent person" as defined by EM 385-1-1.

c. Be on site at least weekly whenever work or testing is being performed and on an on call basis.

d. Conduct and document safety inspections.

e. Shall have no other duties other than safety and occupational health management, inspections, and enforcement on this contract.

1.6.3 Meetings

1.6.3.1 First and Second Pre-Construction Conferences

In accordance with Section 01111, "Supplementary Summary of Work For Design Build."

1.6.3.2 Preconstruction Conferences

a. The Contractor will be informed, in writing, of the date of each preconstruction conference. The purpose of the preconstruction conference is for the Contractor and the Contracting Officer's representatives to become acquainted and explain the functions and operating procedures of their respective organizations and to reach mutual understanding relative to the administration of the overall project's APP before the initiation of work.

b. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the AHAs and special plans, program

and procedures associated with it).

c. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated activity hazard analyses (AHAs) that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.

d. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

1.6.3.3 Weekly Safety Meetings

Conduct weekly safety meetings at the project site for all employees. The Contracting Officer will be informed of the meeting in advance and be allowed attendance. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

1.6.3.4 Work Phase Meetings

The appropriate AHA shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection. The analysis should be used during daily inspections to ensure the implementation and effectiveness of safety and health controls.

1.7 TRAINING

Personnel participating in on-site activities shall satisfy the health and safety training requirements specified in EM 385-1-1, Section 28.D, which mirror and reference the training requirements specified in 29 CFR 1926 Section 65(e). These address training requirements for new employee orientation, site-specific training, management and supervisory training, and refresher training. Additional training requirements specified in the HASP, APP, and AHA, shall also be satisfied by personnel participating in on-site activities.

Applicable training, including addressing specific site and activity hazards, shall be satisfactorily completed by personnel participating in on-site activities before they are permitted to engage in any onsite activities. Documentation of training completion for all on-site personnel shall be collected, reviewed, and maintained at the site, and shall be made available to the Contracting Officer upon request.

1.8 HEALTH AND SAFETY PLAN (HASP)

Provide a site specific HASP prepared in accordance with the following:

(1) 29 CFR 1910.

(2) 29 CFR 1926.65 (b)(4)(ii).

(3) 29 CFR 1926-SUBPART V, tagout and lockout procedures.

(4) Contract Clause "FAR 52.236-13, Accident Prevention."

(5) Contract Clause "FAR 52.223-3, Hazardous Material Identification and Material Safety Data."

(6) NFPA 241.

HASP shall incorporate AHA as specified in paragraph titled "Activity Hazard Analysis (AHA)". AHA shall be prepared to satisfy the requirements of EM 385-1-1 Sections 1.01.A.09 and 1.01.A.10. AHA shall be used to satisfy the HASP requirement for a risk or hazard analysis for each site task and activity, as specified in 29 CFR 1926 Section 65(b)(4)(ii)(A). Site work activities will not be permitted to commence until the HASP and the AHA have been reviewed and accepted by the Contracting Officer in accordance with EM 385-1-1 Section 1.A.09.b.

In accordance with EM 385-1-1, Health and Safety Requirements, Section 28.B.01.f, a "project SSHP may be considered to satisfy the requirement for an Accident Prevention Plan if the SSHP covers all of the elements required of an accident prevention plan" (as specified in EM 385-1-1 Section 28.B.01.a).

1.9 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP. APP shall be incorporated into the HASP. Prepare the APP in accordance with the format and requirements of EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in EM 385-1-1, Appendix A, "Minimum Basic Outline for Preparation of Accident Prevention Plan." Where a paragraph or subparagraph element is not applicable to the work to be performed indicate "Not Applicable" next to the heading. Specific requirements for some of the APP elements are described in the paragraph entitled "EM 385-1-1 Contents." The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and

any designated CSP and/or CIH.

Work cannot proceed without an accepted APP. The Contracting Officer reviews and comments on the Contractor's submitted APP and accepts it when it meets the requirements of the contract provisions.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any unforeseen hazard become evident during the performance of work, the project superintendent shall inform the Contracting Officer, both verbally and in writing, for resolution as soon as possible. In the interim, all necessary action shall be taken by the Contractor to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment.

Copies of the accepted plan will be maintained at the Contracting Officer's office and at the job site. The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

1.9.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of EM 385-1-1, the following is required:

a. Names and qualifications (resumes including education, training, experience and certifications) of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified personnel to be used such as CSPs, CIHs. The duties of each position shall be specified.

b. Qualifications of competent and of qualified persons. As a minimum, competent persons shall be designated and qualifications submitted for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; personal protective equipment and clothing to include selection, use and maintenance.

c. Confined Space Entry Plan. Develop a confined space entry plan in accordance with EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, and any other federal, state and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by

contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

d. Health Hazard Control Program. The Contractor shall designate a competent and qualified person to establish and oversee a Health Hazard Control Program in accordance with EM 385-1-1, Section 6. The program shall ensure that employees, on-site Government representatives, and others, are not adversely exposed to chemical, physical and biological agents and that necessary controls and protective actions are instituted to ensure health.

e. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of crane hoist's maximum load limit; lifts involving more than one crane or hoist; lifts of personnel; and technically difficult lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks in accordance with EM 385-1-1, paragraph 16.c.18. and submit 15 calendar days prior to on-site work.

f. Alcohol and Drug Abuse Plan

(1) Describe plan for random checks and testing with pre-employment screening in accordance with the DFAR Clause subpart 252.223-7004, "Drug Free Work Force."

(2) Description of the on-site prevention program

g. Fall Protection and Prevention (FP&P) Plan. The plan shall be site specific and address all fall hazards in the work place and during different phases of construction. It shall address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A qualified person shall prepare and sign the plan. The plan shall include fall protection and prevention systems, equipment and methods employed for every phase of work, responsibilities, rescue and escape equipment and operations, training requirements, and monitoring methods. Fall Protection and Prevention Plan shall be revised every six months for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. The accepted Fall Protection and Prevention Plan shall be kept and maintained at the job site for the duration of the project. (If there are no fall hazards, include a statement that no fall hazards exist and none will be created.)

h. Site Safety, Health and Emergency Response Plan. The safety and health aspects prepared in accordance with Section 01351A.

i. Excavation Plan. The safety and health aspects prepared in accordance with Section 02300, "Earthwork."

j. Training Records and Requirements. List of mandatory training and certifications which are applicable to this project (e.g. explosive actuated tools, confined space entry, fall protection, crane operation,

vehicle operator, forklift operators, personal protective equipment); list of requirements for periodic retraining/certification; outline requirements for supervisory and employee safety meetings.

1.10 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) content shall be in accordance with EM 385-1-1. AHA shall be incorporated into the HASP. Format subsequent AHA as amendments to the APP. An AHA shall be developed by the Contractor for every operation involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or subcontractor is to perform work. The analysis shall identify and evaluate hazards and outline the proposed methods and techniques for the safe completion of each phase of work. At a minimum, define activity being performed, sequence of work, specific safety and health hazards anticipated, control measures (to include personal protective equipment) to eliminate or reduce each hazard to acceptable levels, equipment to be used, inspection requirements, training requirements for all involved, and the competent person in charge of that phase of work. For work with fall hazards, including fall hazards associated with scaffold erection and removal, identify the appropriate fall arrest systems. For work with materials handling equipment, address safeguarding measures related to materials handling equipment. For work requiring excavations, include requirements for safeguarding excavations. An activity requiring an AHA shall not proceed until the AHA has been accepted by the Contracting Officer's representative and a meeting has been conducted by the Contractor to discuss its contents with everyone engaged in the activity, including on-site Government representatives. The Contractor shall document meeting attendance at the preparatory, initial, and follow-up phases of quality control inspection. The AHA shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

Activity hazard analyses shall be updated as necessary to provide an effective response to changing work conditions and activities. The on-site superintendent, site safety and health officer and competent persons used to develop the AHAs, including updates, shall sign and date the AHAs before they are implemented.

1.11 DISPLAY OF SAFETY INFORMATION

Within 5 calendar days after commencement of work, erect a safety bulletin board at the job site. The following information shall be displayed on the safety bulletin board in clear view of the on-site construction personnel, maintained current, and protected against the elements and unauthorized removal:

a. Map denoting the route to the nearest emergency care facility.

b. Emergency telephone numbers.

c. Copy of the most up-to-date APP.

d. AHA(s).

e. OSHA 300A Form.

f. Confined space entry permit.

g. A sign indicating the number of hours worked since last lost workday accident.

h. OSHA Safety and Health Protection-On-The-Job Poster.

i. Safety and Health Warning Posters.

1.12 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.13 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.14 REPORTS

1.14.1 Accident Reports

a. For recordable injuries and illnesses, and property damage accidents resulting in at least $2,000 in damages, the Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the Navy Contractor Significant Incident Report (CSIR) form and provide the report to the Contracting Officer within 1 calendar day of the accident. The Contracting Officer will provide copies of any required or special forms.

b. For a weight handling equipment accident the Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the WHE Accident Report form and provide the report to the Contracting Officer within 30 calendar days of the accident. The Contracting Officer will provide a blank copy of the accident report form.

1.14.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $2,000, or any weight handling equipment accident involving a overturned crane, collapsed boom, or any other major damage to

the crane or adjacent property. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on site and Government investigation is conducted.

1.14.3 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

1.14.4 Regulatory Citations and Violations

Contact the Contracting Officer immediately of any OSHA or other regulatory agency inspection or visit, and provide the Contracting Officer with a copy of each citation, report, and contractor response. Correct violations and citations promptly and provide written corrective actions to the Contracting Officer.

1.14.5 Crane Reports

Submit crane inspection reports required in accordance with EM 385-1-1, Appendix H and as specified herein with Daily Reports of Inspections.

1.14.6 Certificate of Compliance

The Contractor shall provide a Certificate of Compliance for each crane entering an activity under this contract (see Contracting Officer for a blank certificate). Certificate shall state that the crane and rigging gear meet applicable OSHA regulations (with the Contractor citing which OSHA regulations are applicable, e.g., cranes used in construction, demolition, or maintenance shall comply with 29 CFR 1926 and EM 385-1-1 section 16 and Appendix H. Certify on the Certificate of Compliance that the crane operator(s) is qualified and trained in the operation of the crane to be used. The Contractor shall also certify that all of its crane operators working on the DOD activity have been trained in the proper use of all safety devices (e.g., anti-two block devices). These certifications shall be posted on the crane.

1.15 HOT WORK

Prior to performing "Hot Work" (welding, etc.) or operating other flame-producing devices, a written permit shall be requested from the Fire Department. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for

any "Hot Work" done at this activity.

a. Oil painting materials (paint, brushes, empty paint cans, etc.), and all flammable liquids shall be removed from the facility at quitting time. All painting materials and flammable liquids shall be stored outside in a suitable metal locker or box and will require re-submittal with non-hazardous materials.

b. Accumulation of trays, paper, shavings, sawdust, boxes and other packing materials shall be removed from the facility at the close of each workday and such material disposed of in the proper containers located away from the facility.

c. The storage of combustible supplies shall be a safe distance from structures.

d. Area outside the facility undergoing work shall be cleaned of trash, paper, or other discarded combustibles at the close of each workday.

e. All portable electric devices (saws, sanders, compressors, extension chord, lights, etc.) shall be disconnected at the close of each workday. When possible, the main electric switch in the facility shall be deactivated.

f. When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Department telephone number (732-866-2333). ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FIRE DEPARTMENT IMMEDIATELY.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with EM 385-1-1, NFPA 241, the HASP, the APP, the AHA, and other related submittals and activity fire and safety regulations.

3.1.1 Hazardous Material Use

Each hazardous material must receive approval prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material. Any work or storage involving hazardous chemicals or materials must be done in a manner that will not expose Government or Contractor employees to any unsafe or unhealthful conditions. Adequate protective measures must be taken to prevent Government or Contractor employees from being exposed to any hazardous condition that could result from the work or storage. The Contractor shall keep a complete inventory

of hazardous materials brought onto the work-site. Approval by the Contracting Officer of protective measures and storage area is required prior to the start of the work.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocynates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

3.1.3 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer and the Base Civil Engineering (732-866-2785) to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 EQUIPMENT

3.3.1 Material Handling Equipment

a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

b. The use of hooks on equipment for lifting of material must be in

accordance with manufacturer's printed instructions.

c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.3.2 Weight Handling Equipment

a. Cranes must be equipped with:

(1) Load indicating devices (LIDs) and a boom angle or radius indicator,

(2) or load moment indicating devices (LMIs).

(3) Anti-two block prevention devices.

(4) Boom hoist hydraulic relief valve, disconnect, or shutoff (stops hoist when boom reaches a predetermined high angle).

(5) Boom length indicator (for telescoping booms).

(6) Device to prevent uncontrolled lowering of a telescoping hydraulic boom.

(7) Device to prevent uncontrolled retraction of a telescoping hydraulic boom.

b. The Contractor shall notify the Contracting Officer 15 days in advance of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated. Contractor's operator shall remain with the crane during the spot check.

c. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.

d. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes and ASME B30.8 for floating cranes and floating derricks.

e. The presence of Government personnel does not relieve the Contractor of an obligation to comply with all applicable safety regulations. The Government will investigate all complaints of unsafe or unhealthful working conditions received in writing from contractor employees, federal civilian employees, or military personnel.

f. Each load shall be rigged/attached independently to the hook/master-link in such a fashion that the load cannot slide or otherwise become detached. Christmas-tree lifting (multiple rigged materials) is not allowed.

g. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

h. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of EM 385-1-1 Section 11 and ASME B30.5 or ASME B30.22 as applicable.

i. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

j. A fire extinguisher having a minimum rating of 10BC and a minimum nominal capacity of 5 lb of extinguishing agent shall be available at all operator stations or crane cabs. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

k. All employees shall be kept clear of loads about to be lifted and of suspended loads.

l. A weight handling equipment operator shall not leave his position at the controls while a load is suspended.

m. Only Contractor crane operators who have met the requirements of 29 CFR 1910.94, 29 CFR 1910.120, 29 CFR 1926.65, 29 CFR 1926.500, EM 385-1-1, ASME B30.5, and ASME B30.22 and other local and state requirements shall be authorized to operate the crane.

n. The Contractor shall use cribbing when performing lifts on outriggers.

o. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

p. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

q. A substantial and durable rating chart containing legible letters and figures shall be provided with each crane and securely mounted onto the crane cab in a location allowing easy reading by the operator while seated in the control station.

r. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.

s. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

t. The Contractor shall certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

3.3.3 Equipment and Mechanized Equipment

a. Equipment shall be operated by designated qualified operators. Proof of qualifications shall be kept on the project site for review.

b. Manufacturer's specifications or owner's manual for the equipment shall be on site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or EM 385-1-1. Such additional safety precautions or requirements shall be incorporated into the AHAs.

c. Equipment and mechanized equipment shall be inspected in accordance with manufacturer's recommendations for safe operation by a competent person prior to being placed into use.

d. Daily checks or tests shall be conducted and documented on equipment and mechanized equipment by designated competent persons.

3.4 EXCAVATIONS

The competent person for excavations performed as a result of contract work shall be on-site when excavation work is being performed, and shall inspect, and document the excavations daily prior to entry by workers. The competent person must evaluate all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly.

3.4.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

3.4.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 2 feet of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 100 feet if parallel within 5 feet of the excavation.

3.4.3 Utilities with Concrete Slabs

Utilities located within concrete slabs or pier decks, bridges, and the like are extremely difficult to identify. The location must be coordinated

with station utility departments in addition to a private locating service. Outages on system utilities shall be used in circumstances where concrete chipping, saw cutting, or core drilling is required and utilities are unable to be completely identified.

3.4.4 Shoring Systems

Trench and shoring systems must be identified in the accepted HASP and AHA. Manufacturer tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

3.4.5 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

3.5 CRYSTALLINE SILICA

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with OSHA regulations, such as 29 CFR 1910.94, and EM 385-1-1, Appendix C. The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment.

3.6 HOUSEKEEPING

3.6.1 Clean-Up

All debris in work areas shall be cleaned up daily or more frequently if necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

3.6.2 Dust control

In addition to the dust control measures required elsewhere in the contract documents, dry cutting of brick or masonry shall be prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to this prohibition on a case-by-case basis. Wet cutting must address control of water run off.

-- End of Section --

WEIGHT HANDLING EQUIPMENT ACCIDENT REPORT

Report Date:

From:

To: Navy Crane Center, NORTHNAVFACENGCOM
10 Industrial Hwy; MS #82
Lester, PA 19113-2090
FAX (610) 595-0747

UIC:

Activity: | Report No:

Crane No: | Cat: | Accident Date: | Time: hrs

SPS: GPS: | Crane Type: | Crane Manufacturer:

Location: | Weather:

Crane Capacity: | Hook Capacity: | Weight of Load on Hook:

Fatality or Permanent Total Disability ☐ YES ☐ NO | Material/Property Cost Estimate:

Loss of Work Time Beyond the Day or Shift on Which it Occurred? ☐ YES ☐ NO

Accident Type:

☐ Personal Injury ☐ Overload ☐ Derail ☐ Damaged Rigging Gear

☐ Load Collision ☐ Two Blocked ☐ Dropped Load ☐ Damaged Crane

☐ Crane Collision ☐ Damaged Load ☐ Other Specify _____

Cause of Accident:

☐ Improper Operation ☐ Equipment Failure ☐ Inadequate Visibility

☐ Improper Rigging ☐ Switch Alignment ☐ Inadequate Communication

☐ Track Condition ☐ Procedural Failure ☐ Other Specify _____

Chargeable to:

☐ Track Walker ☐ Rigger ☐ Operator

☐ Maintenance ☐ Management/Supervision ☐ Other Specify _____

Crane Function:

☐ Travel ☐ Hoist ☐ Rotate ☐ Luffing ☐ Telescoping ☐ Other

Is this accident indicative of a recurring problem? ☐ Yes ☐ No

If Yes, list Accident Report Nos.: _____

ATTACH COMPLETE AND CONCISE SITUATION DESCRIPTION AND CORRECTIVE/PREVENTIVE ACTIONS TAKEN AS ENCLOSURE (1). Include probable cause and contributing factors. Assess damages and define responsibility. For equipment malfunction or failure include specific description of the component and the resulting effect or problem caused by the malfunction or failure. List Corrective/ Preventive Actions assigned and responsible codes.

Preparer's Signature	Code	Date

CONCURRENCES (Include Signature, Code, and Date)

CERTIFYING OFFICIAL	Date

FIGURE 12-1 (1 of 2)

WEIGHT HANDLING EQUIPMENT ACCIDENT REPORT INSTRUCTIONS

1. Report Date: The date the accident report is completed and signed by the certifying official.
2. From: The naval activity that owns the crane and UIC number.
3. Activity: The naval activity where the accident took place.
4. Report No.: The activity assigned accident number (e.g., 95-001).
5. Crane No.: The activity assigned crane number (e.g., PC-5).
6. Category: Identify category of crane (i.e., 1, 2, 3, or 4).
7. Accident Date: The date the accident occurred.
8. Time: The time (24 hour clock) the accident occurred (e.g., 1300).
9. Category of Service: Special purpose service (SPS) or general purpose service (GPS).
10. Crane Type: The type of crane involved in the accident (e.g., mobile, bridge).
11. Crane Manufacturer: The manufacturer of the crane (e.g., Dravo, Grove, P&H).
12. Location: The detailed location where the accident took place (e.g., building 213, dry dock 5).
13. Weather: The weather conditions at time of accident (e.g., wind, rain, cold).
14. Crane Capacity: The certified capacity of the crane (e.g., 120,000 pounds).
15. Hook Capacity: The capacity of the hook involved in the accident at the maximum radius of the operation.
16. Weight of Load on Hook: If applicable, the weight of the load on the hook.
17. Fatality or permanent total disability?: Check yes or no.
18. Material/Property Cost Estimate: Estimate total cost of damage resulting from the accident.
19. Loss of work time beyond the day or shift on which it occurred?: Check yes or no.
20. Accident Type: Check all that apply.
21. Cause of Accident: Check all that apply.
22. Chargeable to: Check all that apply.
23. Crane Function: Check the function(s) in operation at time of accident. Check all that apply.
24. Is this a recurring problem?: Check yes or no. Identify any other similar accidents.
25. Situation Description/Corrective Actions: Self-explanatory.
26. Concurrence: Signatures of activity personnel concurring with the accident report.
27. Certifying Official. Signature of crane certifying official approving the report

FIGURE 12-1 (2 of 2)

SECTION 01572

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT
02/03

PART 1 GENERAL

1.1 GOVERNMENT POLICY

Government policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy the Contractor shall: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse.

1.2 MANAGEMENT

The Contractor shall take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage, or recycling shall accrue to the Contractor. Firms and facilities used for recycling, reuse, and disposal shall be appropriately permitted for the intended use to the extent required by federal, state, and local regulations.

1.3 PLAN

A waste management plan shall be submitted within 15 days after approval of the design by the Government and prior to initiating any site preparation work. The plan shall include the following:

a. Name of individuals on the Contractor's staff responsible for waste prevention and management.

b. Actions that will be taken to reduce solid waste generation.

c. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting, and temporary storage of wastes.

d. Characterization, including estimated types and quantities, of the waste to be generated.

e. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.

f. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity.

g. List of specific waste materials that will be salvaged for resale, salvaged and reused, or recycled. Recycling facilities that will be used shall be identified.

h. Identification of materials that cannot be recycled/reused with an explanation or justification.

i. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

1.4 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. The records shall be made available to the Contracting Officer during construction, and a copy of the records shall be delivered to the Contracting Officer upon completion of the construction.

1.5 COLLECTION

The necessary containers, bins and storage areas to facilitate effective waste management shall be provided and shall be clearly and appropriately identified. Recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials and separated by one of the following methods:

1.5.1 Source Separated Method

Waste products and materials that are recyclable shall be separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing.

1.5.2 Co-Mingled Method

Waste products and recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed.

1.5.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

1.6 DISPOSAL

Except as otherwise specified in other sections of the specifications, disposal shall be in accordance with the following:

1.6.1 Reuse

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered. Salvaged materials, other than those specified in other sections to be salvaged and reinstalled, shall not be used in this project.

1.6.2 Recycle

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling whenever economically feasible.

1.6.3 Waste

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01575N

TEMPORARY ENVIRONMENTAL CONTROLS
02/03

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
40 CFR 112	Oil Pollution Prevention
40 CFR 122.26	EPA National Pollutant Discharge Elimination System Permit Regulations
49 CFR 171	General Information, Regulations and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
40 CFR 241	Guidelines for Disposal of Solid Waste
40 CFR 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
40 CFR 258	Criteria for Municipal Solid Waste Landfills
40 CFR 260	Hazardous Waste Management Systems: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 263	Transporters of Hazardous Waste
40 CFR 264	Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR 265	Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administrated Permit Programs: The Hazardous Waste Permit Program
40 CFR 271	Requirements for Authorization of State Hazardous Waste Programs
40 CFR 272	Approved State Hazardous Waste Management Programs
40 CFR 273	Universal Waste Management
40 CFR 279	Used Oil Regulations
40 CFR 280	Owners and Operators of Underground Storage Tanks
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 355	Emergency Planning and Notification
40 CFR 372-SUBPART D	EPA Toxic Chemical Release Reporting Regulations
49 CFR 173	Shipments and Packagings
49 CFR 178	Packagings

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 832-R-92-005	Storm Water Management for Construction Activities

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 7:14A	Pollutant Discharge Elimination System
NJAC 7:26	Solid Waste

NEW JERSEY STATE SOIL CONSERVATION COMMITTEE (NJSSCC)

NJSSCC SSESC	(1999) Standards for Soil Erosion and Sediment Control in New Jersey

1.2 DEFINITIONS

1.2.1 Sediment

Soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.2 Solid Waste

Garbage, refuse, debris, sludge, or other discharged material (except hazardous waste as defined in paragraph entitled "Hazardous Waste" or hazardous debris as defined in paragraph entitled "Hazardous Debris"), including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations. Material not regulated as solid waste are: nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or irrigation return flows, or other regulated point source discharges; regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

a. Green waste: The vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, shrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.

b. Surplus soil: Existing soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars and paving. Contaminated soil meeting the definition of hazardous material or hazardous waste is not included.

c. Inert construction and demolition debris: Broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may be reinforced with or contain ferrous wire, rods, accessories and weldments.

d. Wood: Dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated and/or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included.

e. Scrap metal: Scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

f. Paint cans: Metal cans that are empty of paints, solvents, thinners and adhesives. If permitted by the paint can label, a thin dry film may remain in the can.

g. Recyclables: Materials, equipment and assemblies such as doors,

windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable. Metal meeting the definition of lead contaminated or lead based paint contaminated may not be included as recyclable if sold to a scrap metal company. Paint cans may not be included as recyclable if sold to a scrap metal company.

1.2.3 Debris

Non-hazardous solid material generated during the construction, demolition, or renovation of a structure which exceeds 2.5 inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders). A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.2.4 Hazardous Debris

As defined in paragraph entitled "Debris" of this section, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) per 40 CFR 261; or debris that exhibits a characteristic of hazardous waste per 40 CFR 261.

1.2.5 Chemical Wastes

This includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.

1.2.6 Garbage

Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2.7 Hazardous Waste

Any discarded material, liquid, solid, or gas, which meets the definition of hazardous material or is designated hazardous waste by the Environmental Protection Agency or State Hazardous Control Authority as defined in 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 271, 40 CFR 272, 40 CFR 273, 40 CFR 279, and 40 CFR 280.

1.2.8 Oily Waste

Petroleum products and bituminous materials.

1.2.9 Regulated Waste

Those solid waste that have specific additional Federal, State, or local controls for handling, storage, or disposal.

1.2.10 Class I Ozone Depleting Substance (ODS)

Class I ODS is defined in Section 602(a) of The Clean Air Act and includes

the following chemicals:

chlorofluorocarbon-11 (CFC-11)	chlorofluorocarbon-213 (CFC-213)
chlorofluorocarbon-12 (CFC-12)	chlorofluorocarbon-214 (CFC-214)
chlorofluorocarbon-13 (CFC-13)	chlorofluorocarbon-215 (CFC-215)
chlorofluorocarbon-111 (CFC-111)	chlorofluorocarbon-216 (CFC-216)
chlorofluorocarbon-112 (CFC-112)	chlorofluorocarbon-217 (CFC-217)
chlorofluorocarbon-113 (CFC-113)	halon-1211
chlorofluorocarbon-114 (CFC-114)	halon-1301
chlorofluorocarbon-115 (CFC-115)	halon-2402
chlorofluorocarbon-211 (CFC-211)	carbon tetrachloride
chlorofluorocarbon-212 (CFC-212)	methyl chloroform

1.2.11 Hazardous Materials

Any material that is defined in 49 CFR 171, listed in 49 CFR 172, and regulated as a hazardous material in accordance with 49 CFR 173, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.120, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261. Throughout this specification, hazardous material includes hazardous chemicals.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Preconstruction Submittals

Environmental Protection Plan; G ROICC

SD-06 Test Reports

Laboratory analysis

SD-11 Closeout Submittals

Some of the records listed below are also required as part of other submittals. For the "Records" submittal, maintain on-site a separate three-ring Environmental Records binder and submit at the completion of the project. Make separate parts to the binder corresponding to each of the applicable subitems listed below.

Preconstruction survey

Solid waste disposal permit

Waste determination documentation

Disposal documentation for hazardous and regulated waste

Contractor 40 CFR employee training records

Regulatory notification

Soil erosion and sediment control inspection reports

Solid waste disposal report

Contractor Hazardous Material Inventory Log; G ROICC

1.4 LABORATORY ANALYSIS

Submit a copy of a laboratory analysis of solid waste and debris with the potential of becoming classified as a hazardous waste (i.e., abrasive/sand blasting debris, etc.). Waste stream determinations are required at the point of generation and must sufficiently document whether the waste will be a solid waste, hazardous waste, or Resource Conservation and Recovery Act (RCRA) exempt waste. Determinations must use EPA approved methods and provide written rational for whether the waste is classified as hazardous or non-hazardous. The Contractor shall bear the cost of the waste stream determinations, and the Contracting Officer reserves the right to request waste stream determinations on questionable waste streams.

1.5 REPORTS

1.5.1 Preconstruction Survey

Perform a preconstruction survey of the project site and access roads to the project site with the Contracting Officer, and take photographs showing existing environmental conditions leading to, in, and adjacent to the site. Submit a report for the record.

1.5.2 Solid Waste Disposal Permit

Submit one copy of a State and local permit or license showing such agencies' approval of the disposal plan before transporting wastes off Government property.

1.5.3 Waste Determination Documentation

The Contractor shall complete a Waste Determination form (provided at the pre-construction conference) for all contractor derived wastes to be generated. The waste determination must be based upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data, or laboratory analysis MSDS by themselves are not adequate). All support documentation must be attached to the Waste Determination form. As a minimum, a Waste Determination form must be provided for the following wastes (this listing is not all inclusive): oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials.

1.5.4 Disposal Documentation for Hazardous and Regulated Waste

Submit a copy of the applicable EPA and State permit(s), manifest(s), or

license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities.

1.5.5 Contractor 40 CFR Employee Training Records

Prepare and maintain employee training records throughout the term of the contract meeting applicable 40 CFR requirements. The Contractor shall ensure every employee completes a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures compliance with Federal, State and local regulatory requirements for RCRA Large Quantity Generator. The Contractor shall provide a Position Description for each employee, by subcontractor, based on the Davis-Bacon Wage Rate designation or other equivalent method, evaluating the employee's association with hazardous and regulated wastes. This Position Description shall include training requirements as defined in 40 CFR 265 for a Large Quantity Generator facility. Submit these training records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

1.5.6 Regulatory Notification

The Contractor is responsible for all regulatory notification requirements in accordance with Federal, State and local regulations. The Contractor shall forward copies to the Contracting Officer prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all inclusive): demolition, renovation, NPDES defined site work, remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.5.7 Soil Erosion and Sediment Control Inspection Reports

Submit "Soil Erosion and Sediment Control Inspection Reports" (form provided at the pre-construction conference) to the Contracting Officer once every 7 calendar days and within 24 hours of a storm event that produces 0.5 inch or more of rain.

1.5.8 Solid Waste Disposal Report

Monthly the Contractor shall submit a solid waste disposal report to the Contracting Officer. For each waste, the report shall state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste. The Contractor shall include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, the Contractor shall submit a statement indicating the disposal location for the solid waste which is signed by an officer of the Contractor firm authorized to legally obligate or bind the firm. The sales documentation or Contractor certification shall include the receiver's tax identification number and business, EPA or State registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained by the Contractor for his own use, the Contractor shall submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received will not be reported to the Contracting Officer

unless required by other provisions or specifications of this Contract or public law.

1.6 WHM/HW MATERIALS PROHIBITION

No waste hazardous material or hazardous waste shall be disposed of on Government property. No hazardous material shall be brought onto Government property that does not directly relate to requirements for the performance of this contract. The Government is not responsible for disposal of Contractor's waste material brought on the job site and not required in the performance of this contract. The intent of this provision is to dispose of that waste identified as waste hazardous material/hazardous waste as defined herein that was generated as part of this contract and existed within the boundary of the Contract limits and not brought in from offsite by the Contractor. Incidental materials used to support the contract including, but not limited to aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, etc. are the responsibility of the Contractor. The list is illustrative rather than inclusive. The Contractor is not authorized to discharge any materials to sanitary sewer, storm drain, or to watercoures or conduct waste treatment or disposal on Government property without written approval of the Contracting Officer.

1.7 CLASS I ODS PROHIBITION

Class I ODS as defined and identified herein will not be used in the performance of this contract, nor be provided as part of the equipment. This prohibition will be considered to prevail over any other provision, specification, drawing, or referenced documents.

1.8 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with Federal, State, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

Environmental Brief: Attend an environmental brief to be included in the preconstruction meeting. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the activity; types and quantities of wastes/wastewater that may be generated during the contract.

1.8.1 Facility Hazardous Waste Generator Status

NWS Earle is designated as a Large Quantity Generator. All work conducted within the boundaries of this activity must meet the regulatory requirements of this generator designation. The Contractor shall comply with all provisions of Federal, State and local regulatory requirements applicable to this generator status regarding training and storage,

handling, and disposal of all construction derived wastes.

1.8.2 Licenses and Permits

Obtain licenses and permits pursuant to the "Permits and Responsibilities" FAR Clause.

For permits obtained by the Contracting Officer, whether or not required by the permit, the Contractor is responsible to perform quality control inspections of the work in progress, and to submit notifications and certifications to the applicable regulatory agency, via the Contracting Officer, that the work conforms to the contract and permit requirements. The inspections and certifications shall be provided through the services of a Professional Engineer, registered in the State of New Jersey. As a part of the quality control plan, which is required to be submitted for approval by the quality control section, provide a sub item containing the name, P.E. registration number, address, and telephone number of the professional engineer(s) who shall be performing the inspections and certifications for each permit.

1.8.3 Contractor Liabilities for Environmental Protection

The Contractor is advised that this project and the station are subject to Federal, State, and local regulatory agency inspections to review compliance with environmental laws and regulations. The Contractor shall fully cooperate with any representative from any Federal, State or local regulatory agency who may visit the job site and shall provide immediate notification to the Contracting Officer, who will accompany them on any subsequent site inspections. The Contractor shall complete, maintain, and make available to the Contracting Officer, station, or regulatory agency personnel all documentation relating to environmental compliance under applicable Federal, State and local laws and regulations. The Contractor shall immediately notify the Contracting Officer if a Notice of Violation (NOV), Notice of Deficiency (NOD), or similar regulatory notice is issued to the Contractor.

The Contractor shall be responsible for all damages to persons or property resulting from Contractor fault or negligence as well as for the payment of any civil fines or penalties which may be assessed by any Federal, State or local regulatory agency as a result of the Contractor's or any subcontractor's violation of any applicable Federal, State or local environmental law or regulation. Should a NOV, Notice of Noncompliance (NON), NOD, or similar regulatory agency notice be issued to the Government as facility owner/operator on account of the actions or inactions of the Contractor or one of its subcontractors in the performance of work under this contract, the Contractor shall fully cooperate with the Government in defending against regulatory assessment of any civil fines or penalties arising out of such actions or inactions.

1.9 FUEL TANKS

On site fuel tanks shall be over drip pans, which shall contain 110% of the tank's volume. The tanks and drip pans shall be covered during inclement weather and when work is not in progress on the site.

1.10 ENVIRONMENTAL MANAGER

The Contractor shall appoint in writing an Environmental Manager for the project site. The Environmental Manager shall be directly responsible for coordinating contractor compliance with Federal, State, local, and station requirements. The Environmental Manager shall ensure compliance with Hazardous Waste Program requirements (including hazardous waste handling, storage, manifesting, and disposal); implement the Environmental Protection Plan; ensure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Storm Water Program Management requirements; ensure compliance with Hazardous Materials (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (lead, asbestos, PCB transformers). This can be a collateral position; however the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all Contractor personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out.

1.11 ENVIRONMENTAL PROTECTION PLAN

Within 14 calendar days after contract award and prior to inititating any work on site, the Contractor shall meet with the Contracting Officer to discuss the proposed Environmental Protection Plan and develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, and other measures to be taken. The Environmental Protection Plan shall include a Soil Erosion and Sediment Control Plan Report in accordance with NJAC 7:26-2A.9(e) and NJSSCC SSESC, a Storm Water Pollution Prevention Plan in accordance with NJAC 7:14A, shall be prepared, and shall, at a minimum, address the following elements (also refer to paragraph entitled "Protection of Natural Resources" in this section):

a. Description of the Environmental Protection Plan

(1) General overview and purpose

(2) General site information

(3) A letter signed by an officer of the firm appointing the Environmental Manager and stating that he/she is responsible for managing and implementing the Environmental Program as described in this contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of non-conforming work.

b. Protection of Natural Resources

(1) Land resources

(2) Tree protection

(3) Replacement of damaged landscape features

(4) Temporary construction

(5) Stream crossings

(6) Fish and wildlife resources

(7) Wetland areas

c. Protection of Historical and Archaeological Resources

(1) Objectives

(2) Methods

d. Storm Water Management and Control

(1) Ground cover

(2) Erodible soils

(3) Temporary measures

(a) Mechanical retardation and control of runoff

(b) Vegetation and mulch

(4) Storm Water Pollution Prevention Measures and Notice of Intent 40 CFR 122.26 and EPA 832-R-92-005. Provide a "Storm Water Pollution Prevention Plan" (SWPPP) for the project. The SWPPP shall meet the requirements of the State of New Jersey general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intents, Notice of Termination, and appropriate permit fees as required, via the Contracting Officer, to the appropriate agency for approval, a minimum of 14 calendar days prior to the start of construction. A copy of the approved SWPPP shall be kept at the construction on-site office, and continually updated as regulations require to reflect current site conditions.

(a) Identify potential sources of pollution which may be reasonably expected to affect the quality of storm water discharge from the site.

(b) Describe and ensure implementation of practices which will be used to reduce the pollutants in storm water discharge associated with industrial activity at the construction site.

(c) Ensure compliance with terms of state general permit for storm water discharge.

(d) Select applicable management practices from EPA 832-R-92-005.

(e) Provide completed copy of "Notice of Intent" and "Notice of Termination" except for effective date.

e. Prevention of Releases to the Environment

(1) Procedures to prevent releases to the environment

(2) Notifications in the event of a release to the environment

f. Protection of the Environment from Waste Derived from Contractor Operations

(1) Control and disposal of solid and sanitary waste

(2) Control and disposal of hazardous waste (Hazardous Waste Management Section)

This item shall consist of the management procedures for all hazardous waste to be generated. The elements of those procedures shall coincide with the Activity Hazardous Waste Management Plan. A copy of the Activity Hazardous Waste Management Plan shall be provided by the Contracting Officer. As a minimum, include the following:

(a) Procedures to be employed to ensure a written waste determination is made for appropriate wastes which are to be generated;

(b) Sampling/analysis plan;

(c) Methods of hazardous waste accumulation/storage (i.e., in tanks and/or containers);

(d) Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted);

(e) Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268);

(f) Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and the like;

(g) Used oil management procedures in accordance with 40 CFR 279;

(h) Pollution prevention\hazardous waste minimization procedures;

(i) Plans for the disposal of hazardous waste by permitted facilities;

(j) Procedures to be employed to ensure all required employee training records are maintained.

g. Approval sign-off blocks shall be included in the Soil Erosion and Sediment Control Plan Report and Storm Water Pollution Prevention Plan and shall contain as a minimum the following:

Contractor's Soil Erosion and Sediment Control Point of Contact:

Date	Printed Name	Signature

Soil Erosion and Sediment Control Point of Contact:

Signatures below indicates plan approval:

Date	Printed Name	Signature

1.11.1 Environmental Protection Plan Review

Fourteen days after the environmental protection meeting, submit the proposed Environmental Protection Plan for further discussion, review, and approval. Commencement of work will not begin until the environmental protection plan has been approved.

1.12 CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG

Submit the "Contractor Hazardous Material Inventory Log"(found at: http://www.lantdiv.navfac.navy.mil/pls/lantdiv/docs/FOLDER/EICO/UFGS/GRAPHICS/01575.pdf), which provides information required by (EPCRA Sections 312 and 313) along with corresponding MSDS to the Contracting Officer at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the contract. Documentation for any spills/releases, environmental reports or off-site transfers may be requested by the Contracting Officer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified. Conform to the national permitting requirements of the Clean Water Act.

3.1.1 Land Resources

Except in areas to be cleared, do not remove, cut, deface, injure, or

destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Contractor shall be responsible for any resultant damage.

3.1.1.1 Protection of Trees

Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed.

3.1.1.2 Replacement

Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain Contracting Officer's approval before replacement.

3.1.2 Water Resources

3.1.2.1 Stream Crossings

The Contracting Officer's approval is required before any equipment will be permitted to ford live streams. In areas where frequent crossings are required, install temporary culverts or bridges. Obtain Contracting Officer's approval prior to installation. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition.

3.1.2.2 Oily and Hazardous Substances

Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm shall be impervious to oil for 72 hours and be constructed so that any discharge shall not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.

3.1.3 Fish and Wildlife Resources

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

3.2 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the Contracting Officer historical and archaeological items or human skeletal remains discovered in the course of work. Stop work in the immediate area of the discovery until directed by the Contracting Officer to resume work. The

Government retains ownership and control over historical and archaeological resources.

3.3 SOIL EROSION AND SEDIMENT CONTROL MEASURES

3.3.1 Burnoff

Burnoff of the ground cover is not permitted.

3.3.2 Borrow Pit Areas

Manage and control borrow pit areas to prevent sediment from entering nearby streams or lakes. Restore areas, including those outside the borrow pit, disturbed by borrow and haul operations. Restoration includes grading, replacement of topsoil, and establishment of a permanent vegetative cover. Uniformly grade side slopes of borrow pit to no more than a slope of 1 vertical to 2 horizontal. Uniformly grade the bottom of the borrow pits to provide a flat bottom and drain by outfall ditches or other suitable means. Stockpile topsoil removed during the borrow pit operation, and use as part of restoring the borrow pit area.

3.3.3 Protection of Erodible Soils

Immediately finish the earthwork brought to a final grade, as indicated or specified. Immediately protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

3.3.4 Temporary Protection of Erodible Soils

Use the following methods to prevent soil erosion and control sedimentation:

3.3.4.1 Mechanical Retardation and Control of Runoff

Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches, berms, and use of silt fences and straw bales to retard and divert runoff to protected drainage courses.

3.3.4.2 Vegetation and Mulch

Provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require soil erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective soil erosion control.

a. Seeding: Provide new seeding where ground is disturbed. Include topsoil or nutriment during the seeding operation necessary to establish a suitable stand of grass.

3.4 CONTROL AND DISPOSAL OF SOLID WASTES

Pick up solid wastes, and place in covered containers which are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Recycling is encouraged and can be coordinated with the Contracting Officer and the activity recycling coordinator. Remove all solid waste (including non-hazardous debris) from Government property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with most stringent local, State, and Federal requirements including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

3.5 CONTROL AND DISPOSAL OF HAZARDOUS WASTES

3.5.1 Hazardous Waste/Debris Management

The Contractor shall identify all construction activities which will generate hazardous waste/debris. The Contractor must provide a documented waste determination for all resultant waste streams. Hazardous waste/debris shall be identified, labeled, handled, stored, and disposed of in accordance with all Federal, State, and local regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268. Hazardous waste shall also be managed in accordance with the approved Hazardous Waste Management Section of the Environmental Protection Plan. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities shall be identified as being generated by the Government. Prior to removal of any hazardous waste from Government property, all hazardous waste manifests must be signed by activity personnel from the Station Environmental Office. No hazardous waste shall be brought onto Government property. Provide to the Contracting Officer a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D. For hazardous wastes spills, verbally notify the Contracting Officer immediately.

3.5.1.1 Regulated Waste Storage/Satellite Accumulation/90 Day Storage Areas

If the work requires the temporary storage/collection of regulated or hazardous wastes, the Contractor shall request the establishment of a Regulated Waste Storage Area, a Satellite Accumulation Area, or a 90 Day Storage Area at the point of generation. The Contractor must submit a request in writing to the Contracting Officer providing the following information:

Contract Number	_____	Contractor	_____
Haz/Waste or Regulated Waste POC	_____	Phone Number	_____
Type of Waste	_____	Source of Waste	_____
Emergency POC	_____	Phone Number	_____

Location of the Site: _____
(Attach Site Plan to the Request)

Attach a waste determination form. Allow ten working days for processing this request.

3.5.2 Pollution Prevention/Hazardous Waste Minimization

The Contractor shall actively pursue minimizing the use of hazardous materials and the generation of hazardous waste while on-base. The Hazardous Waste Management Section of the Environmental Protection Plan shall include the Contractor's procedures for pollution prevention/ hazardous waste minimization. For preparing this part of the plan, the Contractor may consult the activity Environmental Office for suggestions and to obtain a copy of the installation's pollution prevention/hazardous waste minimization plan for reference material. The Contractor shall describe the types of the hazardous materials expected to be used in the construction when requesting information.

3.5.3 Hazardous Material Control

The Contractor shall include hazardous material control procedures in the Health and Safety Plan. The procedures shall address and ensure the proper handling of hazardous materials, including the appropriate transportation requirements. The Contractor shall submit a MSDS and estimated quantities to be used for each hazardous material to the Contracting Officer prior to bringing the material on base. Typical materials requiring MSDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. At the end of the project, the Contractor shall provide the Contracting Officer with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used. The Contractor shall also ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated. The Contractor shall ensure that all containers of hazardous materials have NFPA labels or their equivalent. Copies of the MSDS for hazardous materials shall be kept on site at all times and provided to the Contracting Officer at the end of the project. The Contractor shall certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261.

3.5.4 Petroleum Products

Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation. All used oil generated on site shall be managed in accordance with 40 CFR 279. The Contractor shall determine if any used oil generated while on-site exhibits a characteristic of hazardous waste. In addition, used oil containing 1000 parts per million of solvents shall be considered a hazardous waste and disposed of at Contractor's expense. Used oil mixed with a hazardous waste shall also be considered a hazardous waste. All hazardous waste shall be

managed in accordance with the paragraph entitled "Hazardous Waste/Debris Management" and shall be managed in accordance with the approved Environmental Protection Plan.

3.5.5 Releases/Spills of Oil and Hazardous Substances

Take precautions to prevent releases/spills of oil and hazardous substances. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Base or Activity Fire Department, the activity's Command Duty Officer, and the Contracting Officer. The Contractor is responsible for verbal and written notifications as required by the federal 40 CFR 355, State, local regulations and Navy Instructions. Spill response shall be in accordance with 40 CFR 300 and applicable State and local regulations. Contain and clean up these spills without cost to the Government. If Government assistance is requested or required, the Contractor shall reimburse the Government for such assistance. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

The Contractor shall notify the Contracting Officer immediately upon discovery of any spill. The Contractor shall maintain spill cleanup equipment and materials at the work site. The Contractor shall clean up all hazardous and non-hazardous (WHM) waste spills caused by the Contractor. The Contractor shall reimburse the Government for all material, equipment, and clothing generated during any spill cleanup. The Contractor shall reimburse the Government for all costs incurred including sample analysis materials, equipment, and labor if the Government must initiate its own spill cleanup procedures, for Contractor responsible spills, when:

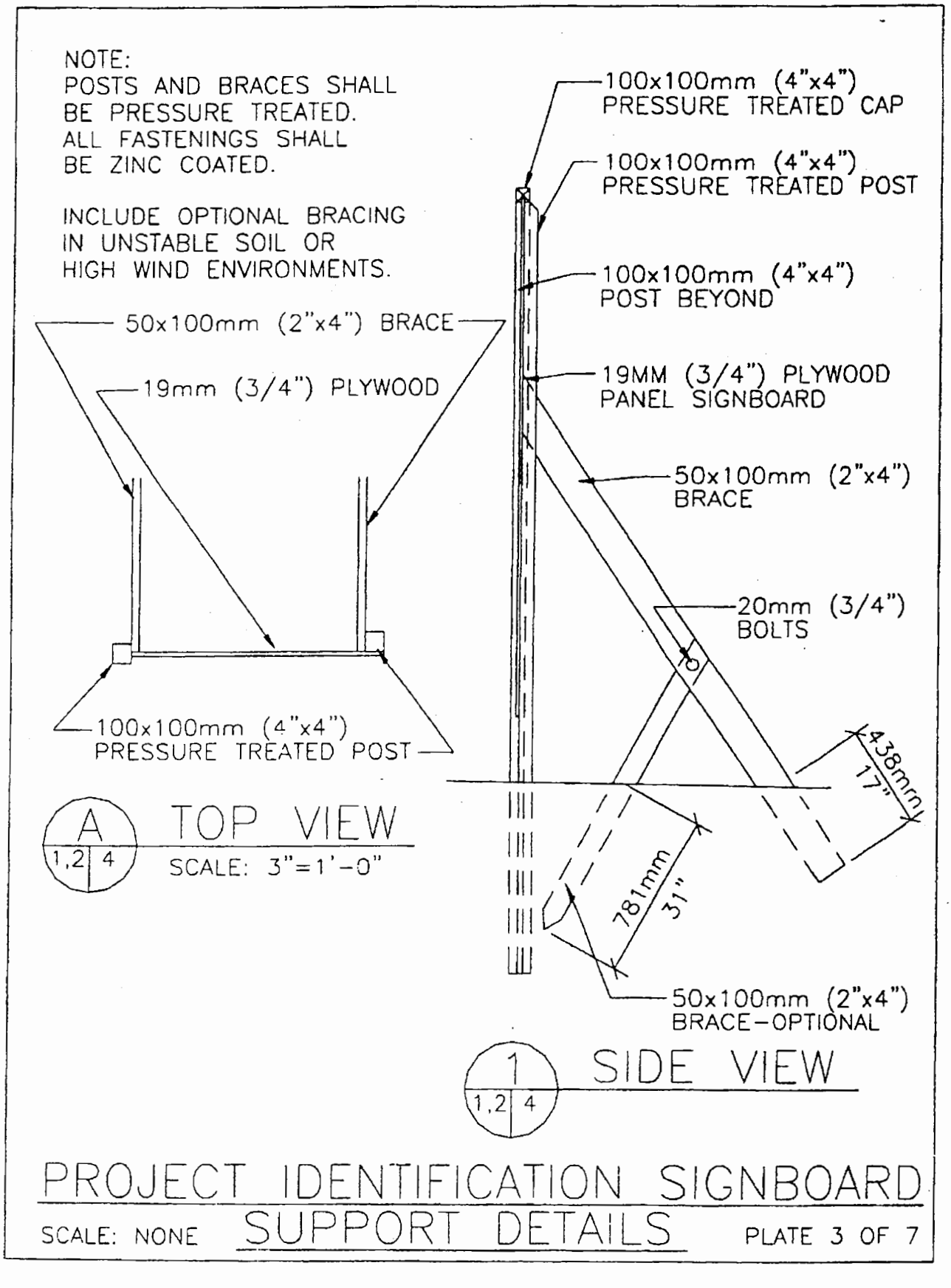
a. The Contractor has not begun spill cleanup procedure within one (1) hour of spill discovery/occurrence, or

b. If, in the Government's judgment, the Contractor's spill cleanup is not adequately abating life threatening situation and/or is a threat to any body of water or environmentally sensitive areas.

3.6 DUST CONTROL

Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming shall not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing shall be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

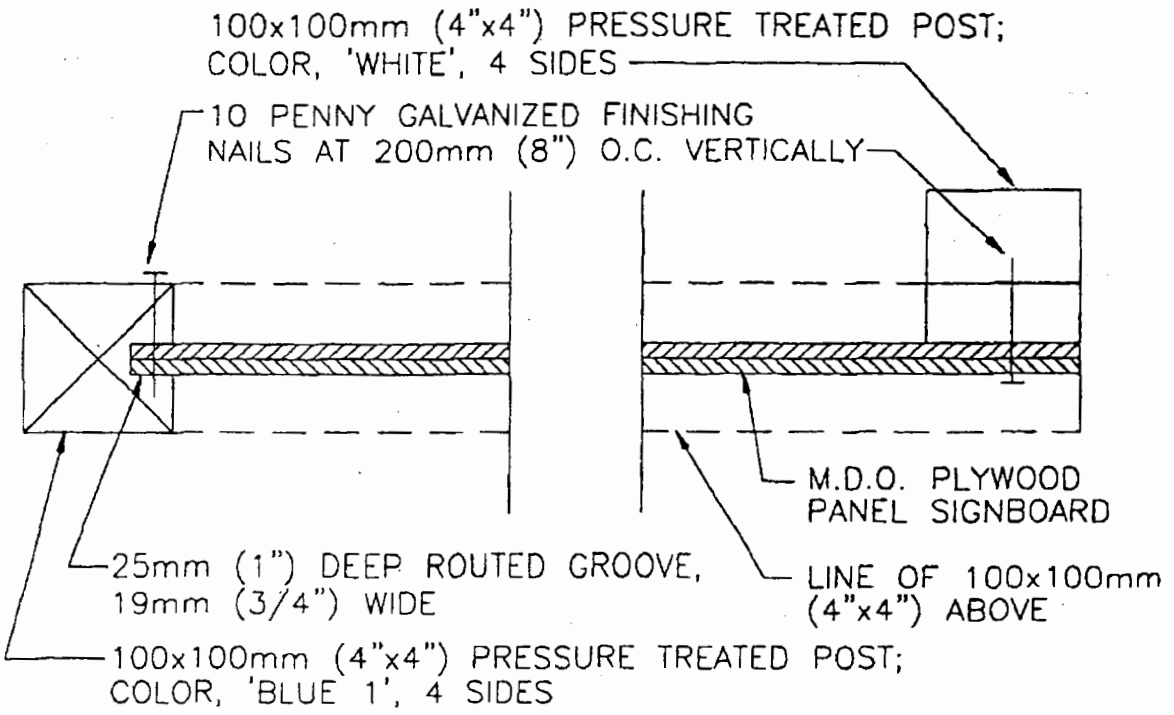
-- End of Section --



PROJECT IDENTIFICATION SIGNBOARD SUPPORT DETAILS

SCALE: NONE

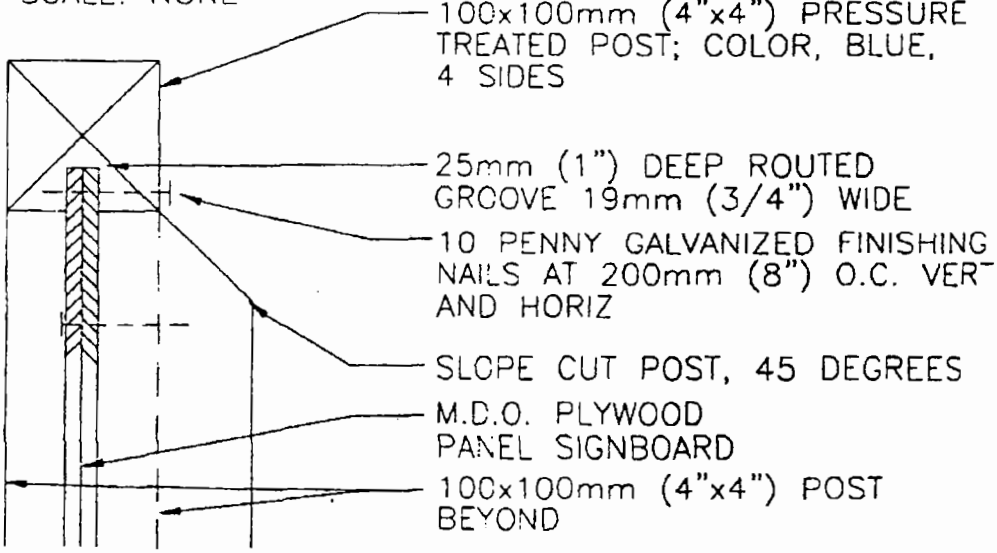
PLATE 3 OF 7



A
1,2 | 4

PLAN SECTION

SCALE: NONE



1
1,2 | 4

DETAIL AT END

SCALE: NONE

PROJECT IDENTIFICATION SIGNBOARD SECTIONS

PLATE 4 OF 7

SECTION 01670

RECYCLED / RECOVERED MATERIALS

12/01

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 247	Comprehensive Procurement Guideline for Products Containing Recovered Materials

1.2 OBJECTIVES

Government procurement policy is to acquire, in a cost effective manner, items containing the highest percentage of recycled and recovered materials practicable consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing suppliers' employees to undue hazards from the recovered materials. The Environmental Protection Agency (EPA) has designated certain items which must contain a specified percent range of recovered or recycled materials. EPA designated products specified in this contract comply with the stated policy and with the EPA guidelines. The Contractor shall make all reasonable efforts to use recycled and recovered materials in providing the EPA designated products and in otherwise utilizing recycled and recovered materials in the execution of the work.

1.3 EPA DESIGNATED ITEMS INCORPORATED IN THE WORK

Various sections of the specifications contain requirements for materials that have been designated by EPA as being products which are or can be made with recovered or recycled materials. These items, when incorporated into the work under this contract, shall contain at least the specified percentage of recycled or recovered materials unless adequate justification (non-availability) for non-use is provided. When a designated item is specified as an option to a non-designated item, the designated item requirements apply only if the designated item is used in the work.

1.4 EPA PROPOSED ITEMS INCORPORATED IN THE WORK

Products other than those designated by EPA are still being researched and are being considered for future Comprehensive Procurement Guideline (CPG) designation. It is recommended that these items, when incorporated in the work under this contract, contain the highest practicable percentage of

recycled or recovered materials, provided specified requirements are also met.

1.5 EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

There are many products listed in 40 CFR 247 which have been designated or proposed by EPA to include recycled or recovered materials that may be used by the Contractor in performing the work but will not be incorporated into the work. These products include office products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled or recovered materials and that these products be recycled when no longer needed.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01770N

CLOSEOUT PROCEDURES
09/99

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-11 Closeout Submittals

As-built drawings; G ROICC

Record drawings; G ROICC

Product warranty list; G ROICC

1.2 PROJECT RECORD DOCUMENTS

1.2.1 As-Built Drawings

Contract Clause "FAC 5252.236-9310, Record Drawings" applies. As-built drawings are required.

1.2.2 Record Drawings

1.2.2.1 General

The Contractor's design team shall prepare record drawings showing "as-built" conditions upon completion of construction. Request from the Contracting Officer one set of the approved marked-up prints (as-builts) and using the approved as-built drawings produce the project record drawings using AutoCAD Release 2000 or higher. Correct the digital files of the approved ready for construction design drawings to reflect the "as-built" changes indicated on the mark-up prints. Forward one copy of the digital files of the record drawings, one set of record drawings mylars and the set of mark-up prints to the Contracting Officer 15 calendar days prior to contract completion date or in accordance with the schedule for the Remedial Action Report (Section 13972, "Building and Supporting Facilities Systems Civil Requirements") whichever is more stringent. Request for final payment will not be approved until the record drawings are delivered to the Contracting Officer.

1.2.2.2 Drafting Procedures for Record Drawings

Correct the approved ready for construction design drawings to reflect "as-built" conditions as follows:

a. Deleted or superseded portions of the drawings shall be deleted.

b. When optional methods of construction are shown, the method not used shall be deleted. Work previously crossed out and noted "omit" or "not in contract" shall remain.

c. Previous revision symbols and circles on the drawings shall remain. Revision data shall remain in the revision space.

d. Revisions shall be placed on the appropriate layer, same as for like elements and in accordance with the "LANTDIV Electronic Bid Solicitation (ESB) - Manual of Policies and Procedures." The area of revision shall be outlined and annotated with a letter. Only the outline and the annotation shall be placed on the "Drawing Revision" layer. A description of the revision shall be noted in the revision block and shall be placed on the drawing text layer.

e. Place the note "Change to As-Built" in the "description" column of the revision block of each changed drawing. When no change to a drawing are necessary, place the words "As-Built, No Changes" in the revision block.

f. Indicate on the cover sheet revision block "RECORD DRAWINGS MAY NOT MATCH THE ORIGINAL CONTRACT DRAWING SHEETS". Date and indicate "RECORD DRAWING" on each drawing. All record drawings shall be dated the same time.

g. On the cover sheet and the first sheet of each discipline (A-1, C-1, S-1, etc), all AutoCAD created information in the title block area on the contract drawings (including signatures, initials, dates, and satisfactory to) shall be transferred as text on the record drawings. Include a note stating that these drawings supercede the original contract drawings that were stamped and signed by a registered engineer.

1.3 EXTENDED PRODUCT WARRANTIES

1.3.1 Product Warranty List

Obtain and furnish to the Contracting Officer written warranties for products that have extended warranties (warranty periods exceeding the standard one-year warranty) furnished under the contract, and prepare a complete listing of such products. The products list shall state the specification section applicable to the product, duration of the warranty therefor, start date of the warranty, ending date of the warranty, and the point of contact for fulfillment of the warranty. The warranty period shall begin on the same date as project acceptance and shall continue for the full/product warranty period. This listing shall be fully executed and delivered to the Contracting Officer prior to final acceptance of the facility, an acceptable listing shall be a condition of final acceptance of the facility.

1.4 CLEANUP

Leave premises "broom clean." Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction

facilities from the site.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 13972

BUILDING AND SUPPORTING FACILITIES SYSTEMS CIVIL REQUIREMENTS
07/00

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Section Includes

This section includes civil performance requirements for supporting facilities systems for the design and construction of the DPDO Yard (Site 13) Cap.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A 53/A 53M	(2002) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM C 94/C 94M	(2000e2) Ready-Mixed Concrete
ASTM D 1557	(2002) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m))
ASTM D 5092	(2002) Design and Installation of Ground Water Monitoring Wells in Aquifers
ASTM F 883	(1997) Padlocks

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C2	(1997) National Electrical Safety Code

AMERICAN WATER WORKS ASSOCIATION(AWWA)

AWWA C104/A21.4	(1995) Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
ANSI/AWWA C151/A21.51	(2002) Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids
AWWA C500	(2002; A C500a-95) Metal-Seated Gate Valves for Water Supply Service
AWWA C502	(1994) Dry-Barrel Fire Hydrants

AWWA C651	(1999) Disinfecting Water Mains
AWWA C900	(1997) Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Distribution

U.S. ARMY CORPS OF ENGINEERS (USACE)

TM 5-822-2	(1987) General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS RR-F-191/1	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Fabric) (Detail Specification)
FS RR-F-191/2	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Gates) (Detail Specification)
FS RR-F-191/3	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces) (Detail Specification)
FS RR-F-191/4	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Accessories) (Detail Specification)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 258	Criteria for Municipal Solid Waste Landfills

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 540/F-93/035	(1993) Presumptive Remedy for CERCLA Municipal Landfill Sites
EPA 540/F-96/020	(1996) Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills
EPA 600/4-89/034	(1990) Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells

PUBLIC TECHNOLOGY INC. (PTI)

PTI SBTM	(1996) Sustainable Building Technical Manual: Green Building Design,

Construction, and Operations

NEW JERSEY ADMINISTRATIVE CODE (NJAC)

NJAC 7:9D	Well Construction; Maintenance and Sealing of Abandoned Wells
NJAC 7:13-2.3	Regulatory Flood
NJAC 7:13-2.4	Establishment of Flood Plain Limits and Encroachment Lines on Non-delineated Watercourses
NJAC 7:26-2	Solid Waste Disposal
NJAC 7:26-2A	Additional Specific Disposal Regulations For Sanitary Landfills

NEW JERSEY STATE SOIL CONSERVATION COMMITTEE (NJSSCC)

NJSSCC SSESC	(1999) Standards for Soil Erosion and Sediment Control in New Jersey

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP)

NJDEP TM	(1999) Technical Manual for Sanitary Landfill Permits and Approvals

NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT)

NJDOT Specifications	(2001) Standards Specifications for Road and Bridge Construction

ATLANTIC DIVISION, NAVAL FACILITIES ENGINEERING COMMAND (LANTDIV)

LANTDIV A/E Guide	(2002) Professional Services Guide, A Guide for Firms Performing Architect and Engineering (A&E) Work and Other Professional Services for the Atlantic Division

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2002) National Electrical Code

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

NAVFAC DM-5.4	(1979) Pavements

MILITARY HANDBOOK (MIL-HDBK)

MIL-HDBK-1005/2	Hydrology

1.3 DESIGN SUBMITTALS

Submit the design documentation specified in Section 01331, "Design Submittals for Design Build", to illustrate compliance with the requirements specified herein.

1.4 DEFINITIONS

1.4.1 Provide

Provide means furnish and install.

1.4.2 Sensitive Areas

NJAC 7:26-2A.6 including the flood fringe areas of the flood hazard area as identified by the NJDEP and wetland buffer areas.

1.4.3 Coverage

C as used herein:

$C = (Af/Ad) \times N \times 100\%$

where N = number of passes of the compaction equipment over a given point;

Af = sum of the end contact areas of the feet on the drums of the compaction equipment; and,

Ad = average surface area of the drum itself based on the average of the diameter over feet and diameter over drum.

Note that the coverage provided by a one-directional pass of a steel wheeled roller with full width front and rear drums is 200 percent.

1.4.4 Engineered Fill

Clean earthen fill placed in controlled lifts and compacted to achieve specified density criteria.

1.5 SUBMITTALS

Submit the following in accordance with Section 01332, "Submittals During Construction for Design Build."

SD-01 Preconstruction Submittals

Remedial Action Work Plan; G ROICC

SD-11 Closeout Submittals

Post Remedial Action Report; G ROICC

1.6 REMEDIAL ACTION WORK PLAN

Submit 11 copies of the internal Draft Remedial Action Work Plan to the Government in hardcopy format within 7 calendar days after submission of

the Draft Final Design submission. Submit a total of 16 copies of the Draft Remedial Action Work Plan to the Government and regulatory agencies in hardcopy format within 21 calendar days after submission of the Draft Final Design submission.

Provide 10 working days in schedule for Government review of internal Draft Remedial Action Work Plan and 45 calendar days in schedule for Government and regulatory agencies review of Draft Remedial Action Work Plan.

Provide informal responses to Government comments on the internal Draft Remedial Action Work Plan and formal response to comment document for Government (1 round) and regulatory agencies (2 rounds) comments on Draft Remedial Action Work Plan. Contractor shall anticipate 50 Government and regulatory agencies review comments on the Draft Remedial Action Work Plan and allocate 2 hours of Contractor's design team average hourly labor rate to address each comment.

Submit 11 copies of the internal Draft Final Remedial Action Work Plan to the Government in hardcopy format within 14 days after receipt and resolution of Government and regulatory agencies review comments on the Draft Remedial Action Work Plan. Submit a total of 16 copies of the Draft Final Remedial Action Work Plan to the Government and regulatory agencies in hardcopy format within 21 days after receipt of Government review comments on the internal Draft Final Remedial Action Work Plan.

Provide 10 working days in schedule for Government review of internal Draft Final Remedial Action Work Plan and 30 calendar days in schedule for Government and regulatory agencies review of Draft Final Remedial Action Work Plan.

Provide informal responses to Government comments on the internal Draft Final Remedial Action Work Plan and formal response to comment document for Government (1 round) and regulatory agencies (2 rounds) comments on Draft Final Remedial Action Work Plan. Contractor shall anticipate 25 Government and regulatory agencies review comments on the Draft Final Remedial Action Work Plan and allocate 2 hours of Contractor's design team average hourly labor rate to address each comment.

Submit 11 copies of the internal Final Remedial Action Work Plan to the Government in hardcopy format within 14 days after receipt and resolution of Government and regulatory agencies review comments on the Draft Final Remedial Action Work Plan.

Provide 10 working days in schedule for Government review of internal Final Remedial Action Work Plan and 30 calendar days in schedule for Government and regulatory agencies review of Final Remedial Action Work Plan.

Provide informal responses to Government comments on the internal Final Remedial Action Work Plan. If, after Government and regulatory agencies review of the Final Remedial Action Work Plan, the Final Remedial Action Work Plan is not approved, the Contractor shall prepare a formal response to comment document for Government and regulatory agencies comments, make all necessary corrections or revisions, and resubmit a corrected Final Remedial Action Work Plan not later than 14 calendar days after receipt of

Government and regulatory agencies review comments on initial Final Remedial Action Work Plan.

Submit a total of 16 copies of the approved Final Remedial Action Work Plan to the Government and regulatory agencies in hardcopy and electronic formats (Word, Excel and AutoCAD as appropriate; and PDF on CD) and public repositories as required within 14 days after receipt and resolution of Government and regulatory agencies review comments on the Draft Final Remedial Action Work Plan.

Submit a Remedial Action Work Plan consisting of the following remedial action elements:

a. Narrative: Provide a description of the project objectives, scheduling, sampling and analysis requirements, decontamination procedures; demolition and utility relocation; detailed earthwork procedures for excavation, proof-rolling, regrading, and compaction including equipment to be used; groundwater monitoring well abandonment if required and groundwater monitoring well installation; wastewater treatment plan (water resulting from decontamination, excavation dewatering, and regraded landfill material dewatering); storage, transportation, and off-site disposal requirements; detailed wetlands restoration procedures; and a detailed sequence of events for the construction methods.

b. Technical Specifications: Provide, in an amendment format, any additional specifications and any modifications to the remedial design specifications required to accurately describe the materials and work procedures envisioned to satisfy the requirements of the contact. Contact Code 09TB/RJ for availability of guide specification sections for those sections required, but not included in the remedial action design.

c. Remedial Action Schedule: Section 01320N, "Construction Progress Documentation."

d. Health and Safety Plan: Section 01525, "Safety and Occupational Health Requirements."

e. Sampling and Analysis Plan: As directed by the Contracting Officer.

f. Quality Control Plan: Section 01450N, "Quality Control" including a Construction Quality Assurance Project Plan.

1.7 OPERATION AND MAINTENANCE PLAN

The Government will prepare and implement the Operation and Maintenance (O&M) Plan.

1.8 LONG TERM MONITORING PLAN

The Government will prepare and implement the Long Term Monitoring (LTM) Plan.

1.9 CLASSIFICATION EXCEPTION AREA

The Government will prepare documentation for and obtain a Classification Exception Area.

1.10 POST REMEDIAL ACTION REPORT

The Post Remedial Action Report is a primary document as defined in FFA; draft, draft final, and final submissions are therefore required. Submit 9 copies of the internal Draft Post Remedial Action Report to the Government in hardcopy format within 30 days of completion of demobilization. Submit a total of 16 copies of the Draft Post Remedial Action Report to the Government and regulatory agencies in hardcopy format within 60 days of completion of demobilization. Submit a total of 16 copies of the Draft Final Post Remedial Action Report to the Government and regulatory agencies in hardcopy format within 14 days after receipt and resolution of Government and regulatory agencies review comments on the draft Post Remedial Action Report. Submit a total of 16 copies of the Final Post Remedial Action Report to the Government and regulatory agencies in hardcopy and electronic formats (Word, Excel and AutoCAD as appropriate; PDF; on CD) and public repositories as required within 14 days after receipt and resolution of Government and regulatory agencies review comments on the Draft Final Post Remedial Action Report.

Prepare Post Remedial Action Report in accordance with the FFA, NJDEP TM, NJAC 7:26-2, NJAC 7:26-2A, and the LANTDIV A/E Guide. The Post Remedial Action Report shall document, in detail, the remedial action and that performance standards have been met. The Post Remedial Action Report shall outline in detail, and provide an explanation for, any activities that were not conducted in accordance with the Remedial Design and/or Remedial Action Work Plan. The Post Remedial Action Report shall include, but not be limited to, the following:

(1) Title Sheet;

(2) Table of Contents;

(3) List of Acronyms;

(4) Body. Include overview of Post Remedial Action Report; NWS Earle facility description, chronological Site 13 history relevant to the CERCLA process, general site description, detailed description of the remedial action including Remedial Action Objectives (RAOs), remedial action components, basis of design, and changes made during construction;

(5) copies of weekly activity reports;

(6) copy of field logbook;

(7) Record Drawings. Record drawings shall be prepared in accordance with Section 01770N, "Closeout Procedures";

(8) completed submittal register and submittals as required;

(9) groundwater monitoring well construction logs reflecting post-remedial action conditions;

(10) gas vent construction logs;

(11) groundwater monitoring well and gas vent survey data reflecting post-remedial action conditions (grid coordinates, ground surface elevation, top of PVC riser elevation, top of protective casing, and screened interval(s) as applicable);

(12) topography in hardcopy and electronic format of verification sampling locations survey, excavation quantities (cut and fill) survey and final grades, as applicable;

(13) field survey results of confirmation sampling locations;

(14) volume calculations;

(15) chain-of-custodies, hazardous waste manifests, and data submitted for disposal facility characterization/acceptance;

(16) environmental laboratory analyses (detailed and summarized) for "clean soil" as applicable;

(17) off-site soil material delivery tickets;

(18) geotechnical laboratory test results;

(19) geosynthetic materials laboratory test results;

(20) vegetative materials (grasses, shrubs, trees, etc.) certification, analyses and warranty/guarantee, as applicable;

(21) description and corrective action for any problems encountered and documentation related to same; and

(22) Professional engineer's certification that work was performed in accordance with the Remedial Design and/or Remedial Action Work Plan.

The Post Remedial Action Report shall include, if required, the following information provided by the Government:

(1) verification sampling and analysis report;

(2) description, reason, and justification for any deviations from the verification sampling and analysis plan;

(3) chain-of-custodies;

(4) sample log sheets; and

(5) verification sampling laboratory analyses (detailed and

summarized, data validation).

1.11 BLASTING

No blasting is permitted.

1.12 WETLAND PERMITS

Government will prepare a permit application package for wetlands and other regulated aquatic areas.

PART 2 SYSTEMS PERFORMANCE REQUIREMENTS (CIVIL)

2.1 PROGRAM REQUIREMENTS

2.1.1 General Program Statement

The Site 13 low permeability cover over the existing landfill with wetland restoration on adjacent areas.

2.1.2 Compliance Checking

Compliance with the requirements of this section will be determined by a review of the Contractor's design submittals, by construction inspection and by post remedial action inspections.

2.2 SUPPORTING FACILITIES SYSTEMS REQUIREMENTS

2.2.1 Criteria for Design and Construction

Landfill low permeability cover for Site 13 shall be designed to the criteria specified herein and standard engineering practice. In the event of conflict between the criteria specified herein and local practice, the criteria specified herein shall govern.

2.2.2 Information Provided

2.2.2.1 Site Investigation Data

Site investigation data obtained by the Government including data listed in Document 00102, "List of Drawings for Design Build" are provided as attachments to the D/B RFP package. The Government does not guarantee that the data furnished reflects actual conditions except for the exact locations and times that the data was obtained. If the Contractor does not consider that the data furnished by the Government provides an adequate and sufficient basis for final design, the Contractor shall perform whatever additional explorations or tests he considers necessary at no additional cost to the Government.

2.2.2.2 Existing Conditions

Existing conditions (are listed in Document 00102, "List of Drawings for Design Build" in paragraph titled "Performance Drawings."

2.2.3 Sustainable Development

It is the Government's policy to design and construct facilities which incorporate sustainable development concepts. Accordingly, design and construct facilities systems which:

(1) result in a highly environmentally efficient facility,
(2) minimize demolition and construction waste through salvage or recycling of construction debris, and
(3) maximize the use of materials that do not contribute to environmental pollution through their manufacture, use or disposal are desired.

Sustainable development guidelines and practices are specified in PTI SBTM.

2.3 SITE PREPARATION

2.3.1 Description

Develop the project site work necessary to meet the requirements of the project, reference standards, technical specifications and performance criteria.

Site 13 shall be constructed approximately at the location specified. All existing features which are no longer required or interfere with the construction of the cap and associated features shall be removed.

Contractor's haul route(s) and access to the site shall be coordinated with the Resident Officer In Charge of Construction (ROICC) in order to minimize the impact of the construction on the DPDO Yard, railroad, railroad switching yard, and Military Sealift Command's (MSC) Connected Replenishment (CONREP) School. Contractor will be responsible for maintaining the roadway, throughout the life of the project, as required to support the construction equipment and truck traffic. Any damage to the roadway(s) shall be repaired by the Contractor in accordance with Section 01110N, "Summary of Work."

Contractor is responsible for identifying and complying with the substantive aspects of all Federal, State, and local regulatory environmental regulations and not with the corresponding administrative requirements. Contractor shall submit a completed "Permits Record of Decision (PROD)" to EFANE's Technical Representative.

2.3.2 System Requirements

The landfill low permeability soil cover and soil erosion and sediment control features shall be designed in accordance with 40 CFR 258.60, NJAC 7:26-2A, and Freehold Soil Conservation District requirements, whichever are more stringent.

A topographic survey of the project site has been done. Utilities shown were located based on above ground features and existing utility drawings. There may be some below ground utilities which exist that are not shown on this plan. Verify location of all utilities, both above and below ground prior to starting work. Topographic drawings in AutoCAD Release 2000

format are attached to this contract.

Subsurface investigations have been performed and a drawing has been provided. Provide a design that is based on the information indicated on the drawing in addition to any other information provided, procured or uncovered during the course of the design.

Perform a 100-year floodplain analysis of the watershed in which Site 13 is located. Perform the analysis in accordance with NJAC 7:13-2.3 and NJAC 7:13-2.4.

2.3.3 Criteria

The ROICC and/or Public Works Officer (PWO) utilities will approve all utility connection points.

2.3.4 Reports

Reports and reference data are provided as attachments to the D/B RFP package. The Government does not guarantee that the reports and reference data furnished reflects actual conditions except for the exact locations and times that the reports and reference data were obtained. If the Contractor does not consider that the reports and reference data furnished by the Government provides an adequate and sufficient basis for final design, the Contractor shall perform whatever additional explorations or tests he considers necessary at no additional cost to the Government.

2.3.5 Site Planning

Provide an approved Soil Erosion and Sediment Control (SESC) Plan within the Environmental Protection Plan in accordance with Section 01575N, "Temporary Environmental Controls." The SESC Plan is a narrative and illustrative document based on concise site information which describes the potential for soil erosion and sedimentation problems on a construction project and identifies the specific measures which are to be taken to control these problems.

2.3.6 Site Soil Erosion and Sediment Control

a. NJSSCC SSESC.

b. Overland flow values and associated design parameters such as rainfall data, storm frequency, stormwater quality standards and hydrograph computation methods shall be computed in accordance with NJAC 7:26-2A, and Freehold Soil Conservation District requirements, whichever are more stringent. If there are no regulatory requirements where the project is located, utilize the design methodologies provided in the MIL-HDBK-1005/2.

Adhere to the following minimum SESC requirements for storm recurrence interval unless otherwise required:

(1) Temporary/Permanent features (non-sensitive areas): 25-year, 24-hour; and

(2) Temporary/Permanent features (sensitive areas): 100-year, 24-hour.

c. Culverts or storm drains with free outlets shall be designed for full flow with the outlet not submerged. Discharge area shall be protected to prevent erosion.

d. Increase by 25 percent, minimum, the design capacity of pipes and catch basins in areas such as woods or where swales are commonly utilized to take into account clogging and sediment build-up.

e. Culverts and underground storm drainage pipes shall have concrete headwalls, endwalls, wingwalls, flared or mitered end sections at free outlets.

2.3.7 Site Demolition

a. Abandon monitoring wells if required and as identified by the Contracting Officer, so as to prevent the well, casing, riser, and annular space outside the riser, from being a conduit for vertical movement of water. Monitoring wells shall be abandoned in accordance with the following requirements:

(1) NJAC 7:9D;

(2) State of New Jersey and local requirements;

(3) Completely remove the steel casing, concrete pad, and PVC risers;

(4) Grout monitoring well from bottom to ground surface with cement-bentonite grout using a tremie pipe;

(5) Submit individual well abandonment reports; and

(6) Well driller shall be registered in the State of New Jersey in accordance with NJAC 7:9D-3.1(c).

b. Regraded landfill material that is reusable, salvageable, or recyclable shall become the property of the Contractor and shall be removed from Government property.

2.3.8 Preparation

a. Dispose of grubbed materials at an approved off-site disposal facility.

b. Construction shall avoid, to the extent practicable, adverse impacts to floodplains and wetlands as follows:

(1) Minimize the destruction, degradation, or loss of floodplains and wetlands;

(2) Enhance and preserve the beneficial and natural values of floodplains and wetlands;

(3) Reduce the risk of flood loss and to minimize the impact of floods on human health, welfare and safety; and

(4) Construction activities shall result in no net loss of wetlands for the site.

2.3.9 Site Earthwork

a. NJAC 7:26-2A.7(b)4 as applicable or the following whichever is more stringent.

b. Proof roll the landfill surface after clearing and grubbing and prior to placement of regraded landfill material and consolidated contaminated sediment with a large track type tractor ("dozer"). Proof roll in a systematic manner to ensure 200 percent coverage is provided over all areas. Areas which exhibit rutting or pumping shall be overexcavated and replaced with engineered fill.

c. Excavate surficial landfill material located outside of the indicated landfill limits if present and as directed by the Contracting Officer. Excavate contaminated sediment from indicated areas. Government will perform confirmation sampling and analysis of excavated area(s).

d. Manage excavated contaminated sediment as directed by the Contracting Officer.

e. Government will prepare and implement a confirmation program to verify removal of contaminants from indicated area(s) to acceptable levels. Contractor shall coordinate excavation activities with Government's sampling, analysis, data validation, and data analysis processes. Contractor shall provide survey of confirmation sample locations.

f. Sheeting, shoring and bracing shall comply with all the requirements of Federal, State of New Jersey and local codes and requirements.

g. Surface water and groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. All water shall be containerized and tested to determine proper disposal requirements, when required.

h. Soil and aggregate borrow materials shall be tested for full TCLP and ignitability, corrosively and reactivity, total petroleum hydrocarbons (TPH), and the sum of benzene, toluene, ethylbenzene, and xylene (BTEX). Soil and aggregate borrow materials shall not fail the TCLP test, and shall have TPH and BTEX concentrations less than State of New Jersey and local requirements.

i. Compact regraded landfill material and consolidated contaminated sediment in 8 inch maximum loose lifts or as directed by the ROICC with a minimum 200 percent coverage with Contracting Officer approved compaction equipment.

j. Compact all soil fill and backfill in 8 inch maximum loose lifts to a minimum 95 percent of ASTM D 1557 maximum dry density (Modified Proctor) unless otherwise indicated. The topsoil layer is not subject to the above compaction requirements.

2.4 SITE IMPROVEMENTS

2.4.1 Site Landfill and Cap

a. The landfill cap shall be designed in accordance with the following ARARs and TBCs:

ARARs

(1) 40 CFR 258

(2) NJAC 7:26-2A

TBCs

(1) NJDEP TM

(2) EPA 540/F-93/035

(3) EPA 540/F-96/020

b. Provide stability analysis demonstrating remedy with a minimum factor of safety of 1.5 under static conditions as required by NJAC 7:26-2A.7(b)3.i.(1).

c. Provide seismic stability analysis demonstrating remedy that resists the maximum horizontal acceleration in lithified material for the landfill with maximum horizontal acceleration defined as the maximum expected acceleration depicted on a seismic hazard map with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years as required by NJAC 7:26-2A.7(b)3.i.(2).

d. Excavate landfill material at perimeter of landfill to comply with maximum Federal and State of New Jersey slope requirements and to assure the finished slopes are stable against stability failure.

(1) Adhere to the following landfill grading requirements:

(a) Sideslope grade, maximum: 3H:1V

(b) Plateau grade, minimum: 3 percent after allowing for settlement and subsidence

(c) Plateau grade, maximum: 5 percent

e. Low permeability layer shall have a maximum hydraulic conductivity of 1.0 x 10-7 cm/sec.

2.4.2 Landfill Gas Vent System

a. Designed and constructed to prevent and control the migration of sanitary landfill gases off-site.

b. Consist of an interior collection system which shall:

(1) Prevent and control the accumulation of any methane concentrations in any structure;

(2) Prevent and control damage to vegetation beyond the perimeter of the property on which the sanitary landfill is located; and

(3) Contain malodorous gaseous emissions on-site.

c. Gas vents constructed to the top of the groundwater table as required by NJAC 7:26-2A.7(f)3.v.(2).

2.4.3 Groundwater Monitoring Wells

a. Install groundwater monitoring wells as indicated. Groundwater monitoring wells shall be installed and developed in accordance with the following requirements:

(1) ASTM D 5092 and EPA 600/4-89/034 except as modified below;

(2) NJAC 7:9D, Category 3 "Resource Evaluation Wells";

(3) State of New Jersey, local and Activity requirements;

(4) Well driller shall be registered in the State of New Jersey in accordance with NJAC 7:9D-3.i(c); and

(5) Ancillary features consisting of locking well cap with duplicate keys, all keys keyed alike; and steel reinforced cast-in-place concrete pad. ASTM A 53/A 53M, Type E or S, Grade B, concrete filled, steel capped, bollards, 4 each well painted as directed by the Contracting Officer for wells installed within limits of DPDO Yard or traffic areas.

2.4.4 Site Restoration

Provide restoration considering the attached NWS Earle draft seeding work specifications and in accordance with the following:

a. Topsoil in accordance with NJSSCC SSESC.

b. Topsoil shall be amended to make it suitable for plant growth. Provide independent soil evaluation, performed by a certified soil

testing laboratory, of topsoil utilized for low permeability soil cover and wetland restoration areas. Evaluation shall include recommendations for specific soil amendments. No "acid producing soils" (presence of iron sulfide) as defined in NWS Earle draft seeding work specifications shall be permitted on the site.

c. Provide complete restoration of areas disturbed consisting of temporary and permanent seeding of the low permeability soil cover surface, and seeding of restored wetland areas.

d. Protect and maintain restored areas immediately after planting for a period of one year after formal acceptance by the Contracting Officer. Maintenance shall include repair of eroded areas, reseeding, watering, and other activities necessary to ensure the integrity of the low permeability soil cover, and survival of the seeded areas for the duration of the maintenance period.

e. Provide 8-foot high chain link fencing, gate, and signage around landfill boundary as indicated.

f. In the event the site is brought to final grades outside of the state planting dates identified in NJSSCC SSESC, provide temporary seeding and additional erosion and sediment features as appropriate in accordance with NJSSCC SSESC. Maintain established temporary vegetation, reseed areas as required, and maintain erosion and sediment features until next state planting season as identified and in accordance with NJSSCC SSESC.

2.4.5 Pavement

a. Upgrade as necessary and maintain existing gravel and bituminous concrete surfaced pavement systems used during the remedial action to support anticipated construction traffic loads and load repetitions.

b. Repair or replace portions of pavement systems used during the remedial action to match existing or adjoining pavement, as approved by the Contracting Officer. At the completion of the remedial action, existing roads and drainage systems used during the remedial action shall be in a condition equal to or better than that which existed before new work started.

c. Pavement systems shall be designed and constructed in accordance with the following:

(1) Bituminous concrete and gravel surfaced to match existing at a minimum;

(2) NAVFAC DM-5.4;

(3) TM 5-822-2;

(4) Primary road as defined in NAVFAC DM-5.4;

(5) Design Index of 3, i.e., medium traffic up to 3,000 vehicles per day. Up to 10% Group 2 (two-axle trucks) plus Group 3 vehicles (trucks having three or more axles). 1% Group 3 vehicles; and

(6) NJDOT Specifications.

2.4.6 Post Remedial Action Inspection and Maintenance

Provide a warranty for a period of one year after formal acceptance by the Contracting Officer.

Inspect and maintain cap, restored wetlands, site monitoring system, and other features installed as part of the Remedial Action for a period of one year after formal acceptance by the Contracting Officer.

Inspections shall be performed by a professional engineer registered in the State of New Jersey immediately following rainfall events producing greater than 1.0 inch of precipitation in a 24 hour period, floods, or other events that may detrimentally impact the effectiveness of the remedy. Inspection results shall be documented in a site inspection report prepared by the professional engineer and provided to the Contracting Officer within 5 days of completion of inspection. Site inspection report shall include, at a minimum, date and time of inspection, weather conditions, site conditions, completed inspection form, problems encountered, and engineers certification. Areas requiring mitigation, if present shall be addressed in the site inspection report and include a detailed description of the deficient area, photographs, recommended mitigation measures, and schedule for mitigation.

Maintenance shall include, but not be limited to, periodic mowing of the cap surface, application of soil supplements (lime and fertilizer) as required based on agronomic laboratory test results or as required by the O&M Manual, reseeding, and repair of eroded or settled areas; maintenance of site monitoring system; and maintenance of perimeter fencing and gate as necessary.

2.5 SITE UTILITIES RELOCATION

2.5.1 System Description

Removal and relocation of site potable water, fencing and overhead electrical distribution.

2.5.2 System Requirements

a. Potable water and overhead electrical distribution system design and construction shall meet the requirements of the applicable regulatory agency that governs and issues permits for the installation of these systems.

b. Place tracer tape on all water pipe runs.

c. Contractor is responsible for obtaining all permits and complying

with all Federal, State, and local regulatory requirements associated with this work.

d. Water lines should be laid in trenches separate from sewer lines, and above and at least 10 feet away from nearby sewers. Where a sanitary sewer crosses over a water line, the portion of the sewer line, which is within 10 feet of the water line (on both sides), shall be of pressure pipe or encased in at least 8 inches of concrete.

2.5.3 Site Water Supply and Distribution System

a. Mains shall be considered as part of the distribution system supplying fire hydrants or fire hydrant laterals.

b. The pipe, valves, and all other materials shall meet the American Water Works Association (AWWA) standards for a 150 psi working pressure system.

c. Water mains shall be either ductile iron pipe conforming to ANSI/AWWA C151/A21.51 or PVC pipe conforming to AWWA C900.

d. All ductile iron pipe shall have a cement-mortar lining in accordance with AWWA C104/A21.4.

e. Fire hydrants shall conform to AWWA C502 dry barrel. Valves shall conform to AWWA C500. Fire hydrants shall have a 6 inch diameter inlet, one 4 inch diameter pumper connection, and two, 2 1/2 inch diameter hose connections. Fire hydrants shall have national hose threads and be yellow in color. Hydrant laterals shall be 6 inch minimum diameter, shall not exceed 50 feet in length, and shall have an underground shutoff valve. Valve box, at each lateral, shall be located within 10 feet of the hydrant, and shall not be located where obstructed by parked vehicles, shrubbery, etc. Hydrants shall be located 3 to 7 feet from pavements. Guard post barriers shall be provided where hydrant locations are subject to vehicle damage.

f. Valves shall be installed at all new points of connection and where necessary to insure adequate sectionalization of the water distribution system. Valves shall be placed in protective valve boxes and located outside of pavement and heavy traffic areas whenever possible.

g. Minimum cover for mains shall be 3 feet and adequate thrust restraints should be provided.

h. Sterilization of all potable water mains shall be accomplished in conformance with requirements of local authority and AWWA C651. Report the method of injection, injection point, test points, and free chlorine residuals before, during, and after disinfection. Dispose of chlorinated water without discharge to natural drainage.

i. All work involving existing and new water lines is to be

coordinated with the Contracting Officer.

2.5.4 Fencing

Remove and replace fence as indicated. Provide zinc or aluminum coated steel chain link fence with top guard outrigger and barbed wire. Gates shall be double-leaf manual swing type.

2.5.4.1 Fence and Gate Criteria

a. All fencing materials shall meet the following standards:

Fabric - FS RR-F-191/1 Type I or II
Gate - FS RR-F-191/2 Type II
Posts - FS RR-F-191/3
Fencing Accessories - FS RR-F-191/4
Concrete - ASTM C 94/C 94M
Padlocks - ASTM F 883
Tie wire - 9 gauge minimum

b. Adhere to the following dimensional requirements:

Height - 8 foot with 1 foot top guard outrigger
Fabric - 9 gauge with openings 2 inches or less per side
Ground clearance - not to exceed 2 inches

c. All post and supports shall be located on the inner side side of the fabric and secured into the soil with concrete footings.

d. Taut reinforcing wires shall be interwoven along the top and bottom of the fabric. Top rails are prohibited.

e. All fastening hardware shall be peened or welded to prevent removal.

f. Top guard outriggers shall face outward and upward at a 45 degree angle to increase the overall fence height by at least 1 foot. Three strands of 12 gauge barbed wire, equally spaced, shall be installed on the supporting arms.

2.5.5 Overhead Electrical Distribution System Requirements

a. Overhead lines shall match existing. Use pressure treated wood poles and crossarms.

b. Provide insulators which are radio interference free.

c. Provide pole line guying wherever tensions are not balanced.

d. Overhead criteria shall follow ANSI C2 and NFPA 70.

PART 3 EXECUTION

Not used.

-- End of Section --

NWS EARLE DRAFT SPECIFICATIONS FOR SEEDING WORK WITH WILDLIFE BENEFITS FOR UNIMPROVED AREAS

SEEDING. Seeding shall be done during dates specified for seed mix to be used. Seeding shall be done on all ground areas disturbed by contract work. Seeding work shall including supplying sufficient topsoil so that the minimum depth will be 4" for all seeded areas. Seeding shall consist of site preparation including spreading and grading of topsoil, liming, fertilizing, sowing of grass seed, mulching and other protection to seeded areas. All work is to be in accordance with the following details:

a. **Soil Preparation.** The ground surface shall first be cleared of all stones, roots, stumps or other material including vegetation that might interfere with seeding operations. These materials shall be removed from the work site. The areas shall then be tilled in accordance with accepted horticultural practices and topsoil spread and graded.

b. **Liming**. Ground agricultural limestone, as specified herein, shall be uniformly applied to all areas to be seeded at the rate of 50 pounds per 1,000 square feet (2,178 pounds per acre). The lime shall be spread after applying topsoil and it shall be worked into the top 3 inches of prepared soil. It may be applied the same day as seeding or previous to seeding.

c. **Fertilizing** mixed fertilizer, (analysis 10-6-4) as specified herein, shall be uniformly applied to all areas to be seeded at the rate of 20 pounds per 1,000 square feet (870 pounds per acre). The fertilizer shall be lightly worked into the top 2 inches of prepared soil. This operation shall be done the same day as seeding or not more than 6 days in advance of seeding.

d. **Sowing of Grass Seed.** The areas on which soil preparation, liming and fertilizer has been completed shall be sowed to the grass mixtures and rates specified. The seed shall be uniformly sown by machine or hand seeder (not hand broadcasting). The seed shall be covered to a depth of approximately 1/4 inch by light raking followed by light rolling.

e. **Mulching and Other Protection.**

(1) As a part of seeding operations, all seeded areas shall be mulched with mulch material as specified herein. The mulch material shall be anchored in place by netting, a non-staining tack spray or other acceptable means. The mulch used, as specified herein, shall be applied at the rate of 2 tons per acre.

(2) All seeded areas subject to foot traffic are to be staked to which heavy cord or twine is attached to delineate the seeded area.

f. **Acceptance of Seeding.** Seeded areas will not be accepted until a dense stand of grass has been obtained and the seeded areas have been completely stabilized. Fail areas shall be replanted according to the original specifications during an acceptable season of the year.

MATERIALS FOR SEEDING WORK

a. **Lime** shall be granular, dolomitic agricultural limestone containing a minimum of 85 percent total carbonates. Limestone shall be furnished in standard bags of the manufacturer showing weight and name of vendor.

b. **Fertilizer.** For the spring application, mixed fertilizer to be used shall be (10-6-4 analysis) granular free flowing type. No less than 1/3 the nitrogen shall be in a water insoluble form. Fertilizer shall be furnished in standard manufacturer's bags giving guaranteed statement of analysis.

c. **Grass Seed.** Grass Seed mixture shall be composed of fresh clean seed of the latest crop, which meets the following pure, live seed standards. The OIC shall select one of the following seed mixtures to be used for reseeding work.

SEED MIX #1 Recommended for areas that will not be mowed. (To be seeded at a rate of 150 pounds per acre or 3.5 pounds per 1,000 square feet)

Pounds Per Acre	Variety	Percent Pure Seed	Percent Germination
75	Tall Fescue	85%	80%
75	Switchgrass	85%	80%

SEEDING SEASONS FOR MIX#1

Seeding Spring April 1 to May 15

SEED MIX #2 Recommended for areas with only occasional mowing. (To be seeded at a rate of 180 pounds per acre or 4.2 pounds per 1,000 square feet)

Pounds Per Acre	Variety	Percent Pure Seed	Percent Germination
150	Tall Fescue	85%	80%
30	Birdsfoot trefoil	85%	80%

SEEDING SEASONS FOR MIX#2

Seeding Spring **March 15 to April 30**

SEED MIX #3 Recommended for seeding in nearly level areas that will not be mowed. (To be seeded at a rate of 90 pounds per acre or 2 pounds per 1,000 square feet)

Pounds Per Acre	Variety	Percent Pure Seed	Percent Germination
10	Weeping lovegrass	85%	80%
80	Sericea lespedeza	85%	80%

SEEDING SEASONS FOR MIX#3

Seeding Spring **March 15 to April 30**

SEED MIX #4 This mix is recommended for areas that will not be mowed or where there may only be one mowing in the Fall. (To be seeded at a rate of 135 pounds per acre or 3 pounds per 1,000 square feet)

Pounds Per Acre	Variety	Percent Pure Seed	Percent Germination
75	Tall Fescue	85%	80%
60	Sericea lespedeza	85%	80%

SEEDING SEASONS FOR MIX#4

Seeding Spring **March 15 to April 30**
Seeding Fall **August 15 to Sept 30**

SEED MIX #5 This mix is recommended for areas that will be mowed on a regular basis. This mix is also good for areas that will not be mowed. (To be seeded at a rate of 175 pounds per acre or 4 pounds per 1,000 square feet)

Pounds Per Acre	Variety	Percent Pure Seed	Percent Germination
155	Tall Fescue	85%	80%
20	Perenial Ryegrass	85%	80%

SEEDING SEASONS FOR MIX#5

Seeding Spring **March 15 to April 30**
Seeding Fall **August 15 to Sept 30**

Birdsfoot Trefoil and lespedeza must be mixed with proper inoculate just prior to sowing seed.

All grass seed shall be delivered in standard size packages of the vendor with each package showing weight, name of vendor, percent of each grass species, percent pure seed, percent germination, percent weed content and date of seed crop and test.

d. **Topsoil**

(1) Topsoil shall be furnished by the Contractor from approved sources off the site. Topsoil to be provided by the Contractor shall be natural, friable, fertile soils possessing the characteristics of good soil which produces heavy growths of crops, grass or other vegetation and shall be obtained from naturally well-drained areas. The topsoil shall be free from subsoil, brush, objectionable weeds, and other litter, and shall be free from clay lumps, stones, stumps, and any other material or substance which might be harmful to plant growth or be a hindrance to grading, planting, and maintenance operations. Soil shall be of a pH suitable for the growth of grass. Soils not within an optimum pH range for the growth of grass shall receive additional treatments at the contractor's expense based on soil tests and recommendations for pH adjustments. No "Recycled", "Manufactured" or Artificial Soil Mix will be permitted. Also, no "acid producing soils" will per permitted on site. Testing may be required at the contractor's expense so that testing for "Acid Producing Soils"(presence of iron sulfide) may be conducted by the Rutgers University Soils Lab.

(2) Topsoil shall contain no less than 4% and not more than 20% of organic matter as determined by loss of ignition of oven-dried samples in accordance with current methods of the Association of Agricultural Chemist. The sieve analysis of oven-dried samples of topsoil shall be as follows:

Passing	Retained On	Percentage
1" screen		100%
1" screen	1/4" screen (gravel)	0-3%
1/4" screen	No. 100 U.S.S. Mesh Sieve	40-60%
No. 100 U.S.S. Sieve	(sand (silt and clay)	40-60%

When so requested by the Contracting Officer, the Contractor shall have soil tests made at a reputable soil-testing laboratory such as one associated with a New Jersey State University. The samples to be treated shall be selected by the Contracting Officer.

e. **Mulching Materials.** Mulch shall consist of grain straw or marsh hay free from noxious weeds or other objectionable material. The mulch material shall not contain moldy material and it shall not exceed 15% moisture content.

f. **Fill Soil.** In additon to requirements specified elsewhere, no acid producing soil will be allowed as fill soil. The contractor may be required to have soil tested at the Rutgers Cooperative Extension Soils Lab under the test listed as "Acid Producing Soils (presence of iron sulfide)"

Cost Estimate
for
Site 13 – Defense Property Disposal Office Yard (OU-5)

Naval Weapons Station Earle
Colts Neck, New Jersey

Engineering Field Activity Northeast
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0851

November 2003

LIST OF ASSUMPTIONS

References:

Richardson Engineering Services, Inc., Process Plant Construction Estimating Standards, Volume 1, Mesa, Arizona, July 2001.

R. S. Means, Site Work & Landscape Cost Data (Means Site Work), 21st Annual Ed., R. S. Means Company, Inc., Kingston, MA, 2002.

R. S. Means, Site Environmental Cost Data – Unit Price (Echos), 8th Annual Ed., R. S. Means Company, Inc., Kingston, MA, 2002.

U. S. Department of Labor, Wage and Hour Division, Davis-Bacon Wage Determinations for Monmouth County, New Jersey (website), downloaded 06/09/03

Vendor Quotes

General:

The schedule has been prepared assuming that the construction of the low permeability soil cover system at Site 13 – Defense Property Disposal Office (DPDO) Yard (OU-5) will be done in one construction season with no down time. Should the contractor have to shut the project down due to weather or other considerations, an increase in mobilization/demobilization costs as well as other cost increases will occur.

Verification sampling and analysis will be performed by the Navy and is therefore not included in the cost estimate.

For daily equipment rate (hydraulic excavator, bulldozers, front end loader, 4-wheel drive truck, and vibratory roller):

- Use Means Site Work
- Assume 22 workdays per month
- Daily equipment cost = (monthly rental rate / 22 days) + (hourly operating cost x 8 hours/day)

Power Equipment (PE) Operators – use Davis-Bacon labor rates for Monmouth County, New Jersey

PE Operators (Heavy/Highway/Road) Group 2: Operators for excavator, front end loader, bulldozer, etc.
$31.28 + $17.15 fringes = $48.43/hr x 8 hours = $387.44/man-day

Water Truck Driver, Dump Truck Driver – use Davis-Bacon labor rates for New Jersey

Truck Drivers Group 1: Two axle equipment, Straight Dump
$26.35 + $11.835 fringes = $38.185/hr x 8 hours = $305.48/man-day

Laborers – in addition to the equipment operators, two laborers will be needed on-site.

Davis-Bacon rates for Monmouth County
Group 7 Laborers: Hazardous Waste Laborer
$26.30 rate + $11.80 fringes = $38.10/hr x 8 hours = $304.80/man-day

The following markups were used to incorporate costs the contractor will incur in the administration of the site work (included is an indirect cost for bonds, security, insurance, etc.):

(1) Overhead on Labor Cost @	30%
(2) G & A on Labor Cost @	10%
(3) G & A on Material Cost @	10%
(4) G & A on Subcontract Cost @	10%
(5) Indirects on Total Direct Cost @	15%
(6) Profit on Total Direct Cost @	10%
(7) Contingency on Total Field Costs @	20%

Markups as numbered above were applied as follows [with the exception of Project Planning & Documents – no indirect markups (5)]:

Subcontract: Markups (4), (5), and (6)
Material: Markups (3), (5), and (6)
Labor: Markups (1), (2), (5), and (6)
Equipment: Markups (5) and (6)
Total: Subtotal plus (7)

In addition, where Means Site Work and Echos costs were used, costs are adjusted using the City Cost Index for Elizabeth, New Jersey:

Site Construction:
Materials – 109.3%,
Installation (Labor and Equipment, including Rental) – 106.7%

Assume roads, equipment storage areas, and parking areas are provided at the NWS Earle and do not need to be constructed by the contractor.

1 PROJECT PLANNING & DOCUMENTS

Charge labor at $30/hour, plus cost under "Material" for reproduction, telephone, computer usage, shipping, express shipping, travel per diem allowance for meetings, etc., such that marked-up "Material" cost equals 20% of marked-up "Labor" cost.

- Remedial Action Design (RAD) Submission (Engineering) including project management, meetings (i.e., D/B "kick-off"), floodplain analysis, Design Quality Assurance Plan, Basis of Design (Draft, Draft Final, and Final), Response to Comments (Internal Draft and Internal Draft Final), Environmental Permits Report (Draft, Draft Final, and Final), RA Work Plan [including schedule, Health and Safety Plan, and Quality Control Plan (including Construction Quality Assurance Project Plan)] (Draft, Draft Final, and Final).

- RAD Submission (Design) including RAD drawings, specifications, and supporting calculations.

- Permits including Soil Erosion and Sediment Control Plan Report (Draft, Draft Final, and Final) and Stormwater Pollution Prevention Plan (Draft, Draft Final, and Final).

- Floodplain analysis consisting of survey, engineering analysis, and report. [4 day survey effort @ $1,500/day + $1,000 survey report + 4 weeks engineering]

- Post Construction Award Services (PCAS) including meetings (i.e., mutual understanding, RA kick-off, and partnering session), and Remedial Action Report (internal draft, draft and final).

2 MOBILIZATION/DEMOBILIZATION & SITE PREPARATION

Mobilization

- Equipment Mobilization (one each)
  - D7 (200 HP) Dozer
  - D5 (105 HP) Dozer
  - Tracked Hydraulic Excavator
  - Wheeled Front End Loader
  - Vibratory Roller

- Trailer Mobilization (Get-a-Quote.net, downloaded 1/8/03)
  - 1 Office Trailer
  - 1 Storage Trailer

Construction Survey – pre-construction survey and post-construction survey; Means Site Work average of minimum and maximum for conventional topographic survey; pre- and post-construction area equal to disturbed area from Drawing C-2; area = 2.68 acres x 2 = 5.36 acres.

Site Services: Install Temporary Utilities – $15,000 to install utility hook-ups at the site.

Demolition – assume demolition of existing chain link fence (440 feet), fire hydrant (1), and overhead electrical lines and poles (465 feet).

Erosion Control Measures:

- Silt Fence – silt fence, polypropylene, 3-feet high, ideal conditions; Means Site Work; includes construction entrances, decontamination pads, and miscellaneous support facilities = 200 feet.

- Reinforced Silt Fence – residential chain link fence, 3-feet high; 6-oz/sy geotextile, use per square yard price divided by 3 for price per foot; machine auger post holes, 3-feet deep at 10-feet spacing (cost per hole/10); Means Site Work; to be placed along the toe of slope of disturbed landfill and sediment excavation areas = 800 feet.

Erosion Protection:

- Riprap at Steep Slope on Channel (West End) – machine place for slope protection; Means Site Work; width = 12.48 feet, depth = 1.5 feet, length = 50 feet; volume = 936 cf = 35 cy.

- Riprap Along Railroad – machine place for slope protection; Means Site Work; depth = 6 inches; from Drawing C-2, area = 3,700 sf; volume = 1,850 cf = 70 cy.

- Total Volume of Riprap for Erosion Protection = 35 cy + 70 cy = 105 cy

- Geotextile Beneath Riprap – geotextile fabric, woven, 200-lb tensile strength; Means Site Work; areas measured from Drawing C-2 = 4,325 sf = 480 sy.

Clearing and Grubbing:

- Clear and grub dense brush including stumps – Means Site Work; assume area equal to disturbed area from Drawing C-2 = 2.68 acres.

- Cut & chip medium, trees to 12-inch diameter – Means Site Work; assume area equal to forested area within the area of disturbance on Drawing C-2 = 0.78 acres.

Sale of Timber – salvage timber for sale by others, no cost or profit included in Cost Estimate.

Demobilization – same items/costs as Mobilization.

3 FIELD PROJECT SUPPORT

Assume Project Field Personnel, including Field Engineer, Superintendent, Project Manager, Clerk, and Certified Safety Officer, are local. No airfare or per diem allowances for travel expenses are included in this estimate.

Trailers, Supplies, and Temporary Facilities – For 3.5 months (15 weeks x 5 days/week):

- Office Trailer (1) – monthly rental, 50 feet x 12 feet; Means Site Work.
- Field Office Support plus Supplies – average monthly office supplies and office equipment rental; Means Site Work.
- Storage Trailer (1) – monthly rental, 40 feet x 8 feet; Means Site Work.
- Site Services: Temporary Utilities – field office expense, telephone bill, average bill per month including long distance, lights and HVAC; Means Site Work.
- Toilets, Portable, Chemical (3) – rental rate + hourly operating cost x 8 hours/day x 22 days/month; Means Site Work.

Project Field Personnel – Echos average labor rates for Field Engineer, Superintendent, and Project Manager, use cost per man-week/5 days for daily rate:

- Field Engineer - full time plus 2 weeks
- Superintendent - full time
- Project Manager - half time
- Clerk – estimate $10 per hour, full time

Certified Safety Officer – Visits by a local Certified Safety Officer (no airfare or per diem allowance for travel), $30/hour for 8 hours at the site plus 8 hours for travel and preparation of report plus $100/day car rental (1 day), once per week for the duration of the project (15 visits).

UXO screening will be performed for all intrusive work including clearing/grubbing, excavation/regrading, and monitoring well and passive gas vent installation. Assume UXO technician will be on site for a total of 12 weeks.

Pick-up Trucks – 4-Wheel Drive, 2 trucks for 70 Days; monthly rental rate / 22 days + hourly operating cost x 8 hours/day, Means Site Work; to be driven by Field Engineer and Superintendent.

4 EXCAVATION/REGRADING

Sediment Excavation Areas – two areas; tracked hydraulic excavator, 1 ½ cy.

Perimeter Regrading, Place/Grade/Compact/Proofroll Regraded Material:

- Tracked hydraulic excavator, 1 ½ cy, full time

- D7 (200 HP) Dozer, full time
- D5 (105 HP) Dozer, full time
- Wheeled F. E. Loader (130 HP), 3 cy, full time
- Vibratory Roller, full time
- Laborers, 2 for 10 days

Overexcavation/Engineered Fill Placement - assume 30 cy of overexcavation within landfill limits and engineered fill placement. Include volume occupied by off-site disposal (non-haz) and off-site recycling materials for engineered fill placement.

- Tracked hydraulic excavator, 1 ½ cy, [1 day]
- D7 (200 HP) Dozer, [1 day]
- Wheeled F. E. Loader (130 HP), 3 cy, [1 day]
- Vibratory Roller, [1 day]
- Laborers, 2 for 1 day

Off-site Disposal Bulky Landfill Material (Non-haz) - assume 40 tons of bulky landfill material for off-site disposal at a non-hazardous waste disposal facility.

- Tracked hydraulic excavator, 1 ½ cy, [2 days]
- Roll-off box rental/demurrage, [1 month ($400 delivery + $350 monthly rental + $50 liner fee (Advanced Environmental Options, Inc., Gaffney, SC)]
- T&D, 40 tons

Off-site Recycling - assume 10 tons of recycled material, salvage value equals T&D cost.

- Tracked hydraulic excavator, 1 ½ cy, [2 days]
- Roll-off box rental/demurrage, [1 month]

5 LOW PERMEABILITY SOIL COVER

Gabion Baskets – galvanized, 12-feet long, 3-feet high, set along channel adjacent to railroad; Means Site Work; measured from Drawing C-2; 250 feet / 12 feet = 21 baskets.

Reno Mattresses – 12-feet long by 6-feet wide by 6-inches thick placed beneath gabion baskets; Richardson; measured from Drawing C-2; 250 feet / 12 feet = 21 mattresses.

Riprap – machine placed; Means Site Work; measured from Drawings C-2 and C-3; total volume = 775 cy + 225 cy + 20% = 1,200 cy

- At Toe of Slope (North) – length = 675 feet, width = 12.37 feet, depth = 2.5 feet; volume = 775 cy.
- Along Southern Channel – length = 450 feet, width = sf, 12.37 feet; volume = 225 cy

Geotextile Beneath Riprap – geotextile, woven, 200-lb tensile strength; Means Site Work; measured from Drawings C-2 and C-3; total area = 930 sy + 450 sy + 20% = 1,660 sy

- At Toe of Slope (North) – length = 675 feet, width = 12.37 feet; area = 8,350 sf = 930 sy.
- Along Southern Channel – length = 450 feet, width = 9 feet; area = 4,050 sf = 450 sy.

Passive Gas Vents – Two passive gas vents located at peak of landfill constructed to the bottom of the landfill material or to the top of the groundwater table whichever is higher; Means Site Work; assume 30 feet of polyvinyl chloride pipe and one tee for each vent.

Base Layer

- Bottom 6 inches consists of select waste.

- Off-site Material characterization (1 sample).
- Import and place top 6 inches of free-draining granular material (sand) – vendor quote from Pinnacle Materials, Inc., East Brunswick, New Jersey; 9,625 cy x 6 inches = 1,604 cy.
- Quality control technician – 2 week period.

Barrier Layer

- 40 mil LLDPE geomembrane – Means Site Work; area equal to limit of cover system measured from Drawing C-2 + 10% for overlaps = 89,500 sf + 10% = 98,450 sf.

Drainage Layer

- Off-site Material characterization (1 sample).
- Import and place 12 inches of granular drainage material (1/4" washed stone) – vendor quote from Pinnacle Materials, Inc., East Brunswick, New Jersey; 9,625 cy x 12 inches = 3,208 cy.

Top Layer

- Separation Geotextile – Means Site Work, 8 oz/sy, 80 mil non-woven polypropylene; area equal to limit of cover system measured from Drawing C-2 + 10% for overlaps = 89,500 sf + 10% = 98,450 sf = 10,950 sy.
- Off-site Material characterization (1).
- Import and place 12-inches of common fill – vendor quote from Pinnacle Materials, Inc., East Brunswick, New Jersey; 9,625 cy x 12-inches = 3,208 cy.
- Import and place 6-inches of topsoil – vendor quote from Pinnacle Materials, Inc., East Brunswick, New Jersey; 9,625 cy x 6 inches = 1,604 cy.

Off-Site Material Characterization (sand, granular drainage material, common fill, and topsoil)

- $100 – sieve and hydrometer
- $100 – Atterberg limits
- $13 – moisture content
- $30 – Loss-on-Ignition
- $100 – moisture-density test
- $300 – permeability
- $70 – total petroleum hydrocarbons (TPH)
- $132 – benzene, toluene, ethylbenzene, and xylene (BTEX)
- $860 – Toxic Characteristic Leaching Procedure (TCLP)
- $80 – polychlorinated biphenyls (PCBs)
- $150 – inorganics.

Place/Grade/Compact base layer, drainage layer, and top layer:

- D5 (105 HP) Dozer, full time
- Wheeled F. E. Loader (130 HP), 3 cy, full time
- Vibratory Roller – 18,000 lb, full time minus 1 week (no topsoil compaction)
- Water Truck, Diesel, 200 Gallon – water truck (full time), Means Site Work hourly operating cost x 8 hours/day plus Hertz Office 4 week rental rate/20 days; water truck operator (1/4 time), Davis-Bacon Truck Drivers Group 1, full time
- Laborers, 2 for 45 days

Dewatering – 3-inch diameter water suction hose with coupling, 20-feet long, plus 3-inch diameter discharge hose with coupling, 50-feet long, plus 3-inch diameter diaphragm pump; Means Site Work; one week rental for work near wetlands.

Construction Survey – surveying during construction (i.e., as-built of interim grades, geomembrane grades, anchor trench, sampling locations, etc.); Means Site Work average of minimum and maximum for conventional topographic survey; area for survey during construction is disturbed area +10% = 2.68 acres + 10% = 2.95 acres.

6 SITE RESTORATION

Topsoil Amendments/Seed/Mulch – fine grading and seeding, including lime, fertilizer and seed, with equipment; Means Site Work; assume area equal to disturbed area from Drawing C-2 + 10% = 2.68 acres + 10% = 2.95 acres = 14,270 sy.

Wetlands Restoration – from wetlands specialist; seed mix (500 sf = 0.01 acres @ $2,500/acre) = $25, say double cost for small area = $50; equipment cost – assume use of front end loader for 1 day.

Perimeter Fencing – 8-feet high, chain link, barbed wire, industrial, 6 gauge wire, 2 ½ inch line post, galvanized steel; Means Site Work; measured length from Drawing C-2 = 405 feet. Double leaf-swing gate included in fence cost.

Fire Hydrant – assume 4-1/2 inch valve size, depth 5 feet; Means Site Work.

Overhead Electrical Lines and Poles – install 430 feet of line.

Downgradient Monitoring Wells – install 3 wells south of site; assume total depth of each well = 20 feet.

7 OPERATION AND MAINTENANCE

Maintenance period of 1 year commencing after formal acceptance by the Contracting Officer.

Site Inspections – Inspections to occur after significant rainfall events, storms, and spring thaw. Visits by a local Professional Engineer (no airfare or per diem allowance for travel), $30/hour for 8 hours at the site plus 8 hours for travel and preparation of inspection report plus $100/day car rental (1 day), 15 events.

Maintenance of Low Permeability Soil Cover and Wetlands – assume 2 events, small backhoe (3/4 cy) with operator and two laborers for 4 days each event, plus mob/demob, plus 50% labor and equipment cost for materials, Means Site Work.

Mowing, 4 times – mowing brush, tractor with mower, medium density, Means Site Work; assume area equal to disturbed area from Drawing C-2 = 2.68 acres = 120 msf

Soil Amendments – fertilizer and lime, one time; Means Site Work; assume area equal to disturbed area from Drawing C-2 = 2.68 acres.

Construction Schedule

Mobilization	1 week
Clearing and Grubbing	1 week
Excavation/Regrading	2 weeks
Final Cover Terminations (Riprap & Gabions)	1 week
Final Cover	8 weeks

Site Restoration	1 week
Demobilization	1 week
Total	15 weeks (3.5 months)

Inspection & Maintenance Schedule

Final Cover & SESC Inspection & Maintenance	52 weeks
Final Cover Maintenance/Repair (Event 1)	3 days
Wetlands Maintenance/Repair (Event 1)	2 days
Temporary SESC Removal	2 days
Final Cover Maintenance/Repair (Event 2)	3 days
Wetlands Maintenance/Repair (Event 2)	2 days
Total	NA

Option 1: Marsh Contaminated Material Excavation and Consolidation

Say 3,000 sy of marsh to be excavated one foot deep

3,000 sy = 27,000 sf x 1 ft = 27,000 cf = 1,000 cy

27,000 sf / 43,560 sf/ac = 0.62 acres

Assume no dewatering pad is needed for marsh soil (sandy) to be placed under cap.
Assume cleared vegetation and stumps/roots cannot be placed under cap due to methane concerns –send to Subtitle D landfill, estimate 50 tons

- D5 (105 HP) Dozer, [3 day]
- Wheeled F. E. Loader (130 HP), 3 cy, [3 day]
- 12-Ton Dump Truck, [3 day]

Option 2: Marsh Contaminated Material Excavation and Off-Site Disposal

Say 3,000 sy of marsh to be excavated one foot deep

3,000 sy = 27,000 sf x 1 ft = 27,000 cf = 1,000 cy

1,000 cy x 1.5 tons/cy = 1,500 tons

Clearing - 0.62 acres

- D5 (105 HP) Dozer, [3 day]
- Wheeled F. E. Loader (130 HP), 3 cy, [3 day]
- 12-Ton Dump Truck, [3 day]

Roll-Off Box – 1 month
Transportation and Disposal – 1,500 tons

Option 3: Marsh Restoration

Say 3,000 sy of marsh to be excavated one foot deep

3,000 sy = 27,000 sf x 1 ft = 27,000 cf = 1,000 cy

1,000 cy x 2/3 = 667 cy common fill
1,000 cy x 1/3 = 333 cy topsoil

27,000 sf / 43,560 sf/ac = 0.62 acres

- D5 (105 HP) Dozer, [3 day]
- Wheeled F. E. Loader (130 HP), 3 cy, [3 day]

Topsoil Amendments – 3,000 sy

Wetlands Seed Mix - .62 acres

Item	Quantity	Unit	Unit Cost Subcontract	Material	Labor	Equipment	Extended Cost With Markups Subcontract	Material	Labor	Equipment	Subtotal	20% Contingency	Total
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5) - CAP													
1 PROJECT PLANNING & DOCUMENTS											$203,628	$40,726	$244,354
1.1 Remedial Design Submission (Engineering)	1,250	hr		$6.00	$30.00		$0	$9,000	$56,250	$0	$65,250		
1.2 Remedial Design Submission (Design)	1,600	hr		$6.00	$30.00		$0	$11,520	$72,000	$0	$83,520		
1.3 Permits	290	hr		$6.00	$30.00		$0	$2,088	$13,050	$0	$15,138		
1.4 Floodplain Analysis	1	ls	$7,000.00	$960.00	$4,800.00	$0.00	$8,400	$1,152	$7,200	$0	$16,752		
1.5 Post Construction Award Services (PCAS)	440	hr		$6.00	$30.00		$0	$3,168	$19,800	$0	$22,968		
2 MOBILIZATION/DEMOBILIZATION & SITE PREPARATION											$148,937	$29,787	$178,724
2.1 Equipment Mobilization	1	ls	$350.00	$0.00	$266.75	$938.95	$473	$0	$440	$1,174	$2,086		
2.2 Construction Survey	5.36	ac	$1,000.00				$7,236	$0	$0	$0	$7,236		
2.3 Site Services: Install Temporary Utilities	1	ls	$15,000.00				$20,250	$0	$0	$0	$20,250		
2.4 Site Services: Decontamination Pad and Services	1	ls	$13,320.00	$29,526.46	$7,095.55	$746.90	$17,982	$39,861	$11,708	$934	$70,484		
2.5 Demolition	1	ls	$7,500.00	$0.00	$896.48	$290.03	$10,125	$0	$1,479	$363	$11,967		
2.6 Erosion Control Measures	1	ls	$0.00	$2,512.00	$1,552.00	$280.00	$0	$3,391	$2,561	$350	$6,302		
2.7 Erosion Protection (Riprap and Geotextile)	1	ls	$0.00	$2,536.35	$928.35	$638.40	$0	$3,424	$1,532	$798	$5,754		
2.8 Clearing and Grubbing	1	ls	$0.00	$0.00	$5,367.56	$11,132.01	$0	$0	$8,856	$13,915	$22,771		
2.9 Equipment Demobilization	1	ls	$350.00	$0.00	$266.75	$938.95	$473	$0	$440	$1,174	$2,086		
3 FIELD PROJECT SUPPORT											$153,886	$30,777	$184,663
3.1 Trailers, Supplies, and Temporary Utilities	3.5	mo	$0.00	$1,066.22	$0.00	$532.95	$0	$5,038	$0	$2,332	$7,370		
3.2 Project Field Personnel	75	days	$0.00	$0.00	$735.62	$0.00	$0	$0	$91,033	$0	$91,033		
3.3 Certified Safety Officer	15	ea			$480.00	$100.00	$0	$0	$11,880	$1,875	$13,755		
3.4 UXO Specialist	60	day			$253.52	$26.29	$0	$0	$25,098	$1,972	$27,070		
3.5 Pick-up Truck	150	days				$78.18	$0	$0	$0	$14,659	$14,659		
4 EXCAVATION/REGRADING/PROOFROLLING											$85,342	$17,068	$102,410
4.1 Site Regrading	10	days			$2,546.80	$2,129.10	$0	$0	$42,022	$26,614	$68,636		
4.2 Overexcavation/Engineered Fill Placement	1	day		$337.50	$2,159.36	$1,776.89	$0	$456	$3,563	$2,221	$6,240		
4.3 Off-Site Disposal (Non-Haz)	1	ls	$2,960.00	$0.00	$774.88	$1,133.20	$3,996	$0	$1,279	$1,417	$6,691		
4.4 Off-Site Recycling	1	ls	$800.00	$0.00	$774.88	$1,133.20	$1,080	$0	$1,279	$1,417	$3,775		
5 CAPPING											$827,961	$165,592	$993,553
5.1 Gabion Baskets and Reno Mattresses	21	ea		$258.14	$634.61	$327.01	$0	$7,318	$21,989	$8,584	$37,892		
5.2 Slope Protection (Riprap)	1	ls	$0.00	$21,718.00	$9,997.60	$7,296.00	$0	$29,319	$16,496	$9,120	$54,935		
5.3 Install Passive Gas Vents	2	ea		$96.24	$110.98		$0	$260	$366	$0	$626		
5.4 Base Layer	1	ls	$1,935.00	$26,466.00	$2,189.30	$0.00	$2,612	$35,729	$3,612	$0	$41,954		
5.5 Barrier Layer - Geomembrane, 40 mil LLDPE	98,450	sf		$0.31	$0.87	$0.18	$0	$41,201	$141,325	$22,151	$204,678		
5.6 Drainage Layer	1	ls	$1,935.00	$115,488.00	$0.00	$0.00	$2,612	$155,909	$0	$0	$158,521		
5.7 Separation Geotextile	10,950	sy		$0.73	$0.42	$0.02	$0	$10,791	$7,588	$274	$18,653		
5.8 Top Layer	1	ls	$3,870.00	$65,764.00	$0.00	$0.00	$5,225	$88,781	$0	$0	$94,006		
5.9 Equipment	45	days	$0.00	$0.00	$1,424.75	$1,091.52	$0	$0	$105,788	$61,398	$167,186		
5.10 Laborers, 2 for 45 Days	90	days			$304.80		$0	$0	$45,263	$0	$45,263		
5.11 Pump and Hose	1	wk				$212.33	$0	$0	$0	$265	$265		
5.12 Construction Survey	2.95	ac	$1,000.00				$3,983	$0	$0	$0	$3,983		
6 SITE RESTORATION											$85,000	$17,000	$102,000
6.1 Topsoil Amendments/Seed/Mulch	14,270	sy		$0.28	$1.27	$0.19	$0	$5,394	$29,903	$3,389	$38,686		
6.2 Wetlands Restoration	1	ls		$50.00	$387.44	$300.70	$0	$68	$639	$376	$1,083		
6.3 Perimeter Fence & Gate	405	lf	$0.00	$23.86	$5.90	$4.01	$0	$13,045	$3,943	$2,030	$19,018		
6.4 Replace Site Features (Hydrant, and Overhead Electric)	1	ls	$7,500.00	$923.59	$102.43	$31.66	$10,125	$1,247	$169	$40	$11,580		
6.5 Warning Signs	6	ea		$17.65	$31.81		$0	$143	$315	$0	$458		
6.6 Install Downgradient Groundwater Monitoring Wells (3 @ 20')	60	ft	$175.00				$14,175	$0	$0	$0	$14,175		
7 OPERATION AND MAINTENANCE											$45,539	$9,108	$54,647
7.1 Site Inspections	15	ea			$480.00	$100.00	$0	$0	$11,880	$1,875	$13,755		
7.2 Maintenance of Low Permeability Soil Cover and Wetlands	2	ea		$2,787.75	$4,038.16	$1,537.33	$0	$7,527	$13,326	$3,843	$24,696		
7.3 Mowing Brush, 4 Events	120	msf	$36.81				$5,963	$0	$0	$0	$5,963		
7.4 Soil Amendments, Fertilizer and Lime, 1 Event	2.68	ac	$310.84				$1,125	$0	$0	$0	$1,125		
DPDO Yard Subtotals							$115,833	$475,831	$774,072	$184,557	$1,550,293	$310,059	
DPDO Yard COST													$1,860,351

Naval Weapons Station Earle
Colts Neck, New Jersey
Design Build Request for Proposal - Capital Cost Estimate

Item	Quantity	Unit	Unit Cost: Subcontract	Material	Labor	Equipment	Extended Cost With Markups: Subcontract	Material	Labor	Equipment	Subtotal	20% Contingency	Total
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5) - CAP													
1 PROJECT PLANNING & DOCUMENTS											$203,628	$40,726	$244,354
1.1 Remedial Design Submission (Engineering)(Includes floodplain analysis)	1,250	hr		$6.00	$30.00		$0	$9,000	$56,250	$0	$65,250		
1.2 Remedial Design Submission (Design)	1,600	hr		$6.00	$30.00		$0	$11,520	$72,000	$0	$83,520		
1.3 Permits (E&S, SWPPP)	290	hr		$6.00	$30.00		$0	$2,088	$13,050	$0	$15,138		
1.4a Floodplain Analysis - Survey and Report	1	ls	$7,000.00				$8,400	$0	$0	$0	$8,400		
1.4b Floodplain Analysis - Engineering	160	hr		$6.00	$30.00		$0	$1,152	$7,200	$0	$8,352		
1.5 Post Construction Award Services (PCAS)	440	hr		$6.00	$30.00		$0	$3,168	$19,800	$0	$22,968		
2 MOBILIZATION/DEMOBILIZATION & SITE PREPARATION											$148,937	$29,787	$178,724
2.1a Equipment Mobilization	5	ea			$53.35	$187.79	$0	$0	$440	$1,174	$1,614		
2.1b Trailer Mobilization	2	ea	$175.00				$473	$0	$0	$0	$473		
2.2 Construction Survey (Pre/During/Post)	5.4	ac	$1,000.00				$7,236	$0	$0	$0	$7,236		
2.3 Site Services: Install Temporary Utilities	1	ls	$15,000.00				$20,250	$0	$0	$0	$20,250		
2.4a Equipment Decon Pad	1	ls		$6,339.40	$7,095.55	$746.90	$0	$8,558	$11,708	$934	$21,199		
2.4b Decontamination Trailer	3	mo	$2,200.00				$8,910	$0	$0	$0	$8,910		
2.4c Decontamination Services (man-weeks)	13	wk		$918.12			$0	$16,113	$0	$0	$16,113		
2.4d Decon Water	3,000	gal	$0.20				$810	$0	$0	$0	$810		
2.4e Decon Water Storage Tank, 6,000 gallon	3	mo	$600.00				$2,430	$0	$0	$0	$2,430		
2.4f Clean Water Storage Tank, 4,000 gallon	3	mo	$540.00				$2,187	$0	$0	$0	$2,187		
2.4g Disposal of Decon Waste (liquid & solid)	3	mo	$900.00				$3,645	$0	$0	$0	$3,645		
2.4h PPE (5 p * 5 days * 13 weeks)	325	day		$34.62			$0	$15,190	$0	$0	$15,190		
2.5a Demolition, Chain Link Fence	440	lf			$1.47	$0.43	$0	$0	$1,067	$237	$1,304		
2.5b Demolition, Fire Hydrant	1	ea			$249.68	$100.83	$0	$0	$412	$126	$538		
2.5c Demolition, Overhead Electrical Lines and Poles	1	ls	$7,500.00				$10,125	$0	$0	$0	$10,125		
2.6a Erosion Control Measures: Silt Fence	200	lf		$0.32	$0.24		$0	$86	$79	$0	$166		
2.6b Erosion Control Measures: Reinforced Silt Fence	800	lf		$3.06	$1.88	$0.35	$0	$3,305	$2,482	$350	$6,136		
2.7a Erosion Protection: Riprap, Machine Placed	105	cy		$15.47	$8.11	$6.08	$0	$2,193	$1,405	$798	$4,396		
2.7b Erosion Protection: Woven Geotextile Beneath Riprap	480	sy		$1.90	$0.16		$0	$1,231	$127	$0	$1,358		
2.8a Clear & Grub Dense Brush Including Stumps	2.68	ac			$1,467.13	$3,734.50	$0	$0	$6,488	$12,511	$18,998		
2.8b Clear and Grub, Cut & Chip Medium, Trees to 12" Diam.	0.78	ac			$1,840.58	$1,440.45	$0	$0	$2,369	$1,404	$3,773		
2.9a Equipment Demobilization	5	ea			$53.35	$187.79	$0	$0	$440	$1,174	$1,614		
2.9b Trailer Demobilization	2	ea	$175.00				$473	$0	$0	$0	$473		
3 FIELD PROJECT SUPPORT											$153,886	$30,777	$184,663
3.1a Office Trailer, 1 for 3.5 Months	3.5	mo		$382.55			$0	$1,808	$0	$0	$1,808		
3.1b Field Office Support plus Supplies	3.5	mo		$243.19			$0	$1,149	$0	$0	$1,149		
3.1c Storage Trailer, 1 for 3.5 Months	3.5	mo		$114.77			$0	$542	$0	$0	$542		
3.1d Site Services: Temporary Utilities	3.5	mo		$325.71			$0	$1,539	$0	$0	$1,539		
3.1e Toilets, Portable, Chemical, 3 for 3.5 Months	10.5	mo				$177.65	$0	$0	$0	$2,332	$2,332		
3.2a Project Manager	37.5	days			$306.02		$0	$0	$18,935	$0	$18,935		
3.2b Field Engineer	85	days			$188.90		$0	$0	$26,493	$0	$26,493		
3.2c Superintendent	75	days			$288.52		$0	$0	$35,704	$0	$35,704		
3.2d Clerk	75	days			$80.00		$0	$0	$9,900	$0	$9,900		
3.3 Certified Safety Officer - Weekly Visits	15	ea			$480.00	$100.00	$0	$0	$11,880	$1,875	$13,755		
3.4 UXO Specialist	60	days			$253.52	$26.29	$0	$0	$25,098	$1,972	$27,070		
3.5 Pick-up Truck, 4-Wheel Drive, 2 Trucks for 75 Days	150	days				$78.18	$0	$0	$0	$14,659	$14,659		
4 EXCAVATION/REGRADING											$85,342	$17,068	$102,410
4.1a Perimeter Regrading, Hydraulic Excavator, 1 1/2 cy	10	days			$387.44	$566.60	$0	$0	$6,393	$7,083	$13,475		
4.1b Place/Grade Regraded Material - D7 (200 HP) Dozer	10	days			$387.44	$663.99	$0	$0	$6,393	$8,300	$14,693		
4.1c Place/Grade Regraded Material - D5 (105 HP) Dozer	10	days			$387.44	$352.21	$0	$0	$6,393	$4,403	$10,795		
4.1d Place/Grade Tracked F. E. Loader, 3 cy, 130 HP	10	days			$387.44	$300.70	$0	$0	$6,393	$3,759	$10,152		
4.1e Compact/Proofroll Surface of Landfill, Vibratory Roller, 18,000 lb	10	days			$387.44	$245.60	$0	$0	$6,393	$3,070	$9,463		
4.1f Laborers, 2 for 10 Days	20	days			$304.80		$0	$0	$10,058	$0	$10,058		
4.2a Overexcavation/Engineered Fill Placement, Hydraulic Excavator, 1 1/2 cy	1	day			$387.44	$566.60	$0	$0	$639	$708	$1,348		
4.2b Overexcavation/Engineered Fill Placement, D7 (200 HP) Dozer	1	day			$387.44	$663.99	$0	$0	$639	$830	$1,469		
4.2c Overexcavation/Engineered Fill PlacementTracked, F. E. Loader, 3 cy, 13(	1	day			$387.44	$300.70	$0	$0	$639	$376	$1,015		
4.2d Overexcavation/Engineered Fill Compact/Proofroll, Vibratory Roller, 18,00(	1	day			$387.44	$245.60	$0	$0	$639	$307	$946		
4.2e Overexcavation/Engineered Fill Placement, Laborers, 2 for 1 Day	2	days			$304.80		$0	$0	$1,006	$0	$1,006		
4.2f Overexcavation/Engineered Fill Placement, Fill material	30	cy		$11.25			$0	$456	$0	$0	$456		
4.3a Off-Site Disposal (Non-Haz), Hydraulic Excavator, 1 1/2 cy	2	days			$387.44	$566.60	$0	$0	$1,279	$1,417	$2,695		
4.3b Off-Site Disposal (Non-Haz), Roll-Off Box Rental/Demurrage	1	mo	$800.00				$1,080	$0	$0	$0	$1,080		

Naval Weapons Station Earle
Colts Neck, New Jersey
Design Build Request for Proposal - Capital Cost Estimate

	Item	Quantity	Unit	Unit Cost				Extended Cost With Markups				Subtotal	20% Contingency	Total
				Subcontract	Material	Labor	Equipment	Subcontract	Material	Labor	Equipment			
4.3c	Off-Site Disposal (Non-Haz), Transportation & Disposal	40	tons	$54.00				$2,916	$0	$0	$0	$2,916		
4.4a	Off-Site Recycling, Hydraulic Excavator, 1 1/2 cy	2	days			$387.44	$566.60	$0	$0	$1,279	$1,417	$2,695		
4.4b	Off-Site Recycling, Roll-Off Box Rental/Demurrage	1	mo	$800.00				$1,080	$0	$0	$0	$1,080		
4.4c	Off-Site Recycling, Transportation & Disposal = Salvage Value	10	tons	$0.00				$0	$0	$0	$0	$0		
5	**CAPPING**											$827,961	$165,592	$993,553
5.1a	Gabion Baskets	21	ea		$194.55	$506.83	$258.21	$0	$5,515	$17,562	$6,778	$29,855		
5.1b	Reno Mattresses	21	ea		$63.59	$127.78	$68.80	$0	$1,803	$4,428	$1,806	$8,036		
5.2a	Riprap, Machine Placed	1,200	cy		$15.47	$8.11	$6.08	$0	$25,061	$16,058	$9,120	$50,239		
5.2b	Woven Geotextile Beneath Riprap, 200 lb Tensile	1,660	sy		$1.90	$0.16		$0	$4,258	$438	$0	$4,696		
5.3	Install Passive Gas Vents	2	ea		$96.24	$110.98		$0	$260	$366	$0	$626		
5.4a	Off-Site Sand Characterization	1	ea	$1,935.00				$2,612	$0	$0	$0	$2,612		
5.4b	Import Sand, 6" Thick	1,604	cy		$16.50			$0	$35,729	$0	$0	$35,729		
5.4c	Quality Control Technician	10	day			$218.93		$0	$0	$3,612	$0	$3,612		
5.5	Geomembrane, 40 mil LLDPE	98,450	sf		$0.31	$0.87	$0.18	$0	$41,201	$141,325	$22,151	$204,678		
5.6a	Off-Site Granular Drainage Material Characterization	1	ea	$1,935.00				$2,612	$0	$0	$0	$2,612		
5.6b	Import Granular Drainage Material, 12" Thick	3,208	cy		$36.00			$0	$155,909	$0	$0	$155,909		
5.7	Separation Geotextile	10,950	sy		$0.73	$0.42	$0.02	$0	$10,791	$7,588	$274	$18,653		
5.8a	Off-Site Common Fill Characterization	1	ea	$1,935.00				$2,612	$0	$0	$0	$2,612		
5.8b	Import Common Fill, 12" Thick	3,208	cy		$11.25			$0	$48,722	$0	$0	$48,722		
5.8c	Off-Site Topsoil Characterization	1	ea	$1,935.00				$2,612	$0	$0	$0	$2,612		
5.8d	Import Topsoil, 6" Thick	1,604	cy		$18.50			$0	$40,060	$0	$0	$40,060		
5.9a	Place/Grade Layers, D5 (105 HP) Dozer	45	days			$387.44	$352.21	$0	$0	$28,767	$19,812	$48,579		
5.9b	Place/Grade Layers, Tracked F. E. Loader, 3 cy, 130 HP	45	days			$387.44	$300.70	$0	$0	$28,767	$16,914	$45,682		
5.9c	Compact Layers, Vibratory Roller, 18,000 lb	40	days			$387.44	$245.60	$0	$0	$25,571	$12,280	$37,851		
5.9d	Water Truck, Diesel, 2000 Gallon	45	days			$305.48	$220.30	$0	$0	$22,682	$12,392	$35,074		
5.10	Laborers, 2 for 45 Days	90	days			$304.80		$0	$0	$45,263	$0	$45,263		
5.11	Dewatering (Pump and Hose)	1	wk				$212.33	$0	$0	$0	$265	$265		
5.12	Construction Survey	2.95	ac	$1,000.00				$3,983	$0	$0	$0	$3,983		
6	**SITE RESTORATION**											$85,000	$17,000	$102,000
6.1	Topsoil Amendments/Seed/Mulch	14,270	sy		$0.28	$1.27	$0.19	$0	$5,394	$29,903	$3,389	$38,686		
6.2a	Wetlands Restoration - Seed Mix	1	ls		$50.00			$0	$68	$0	$0	$68		
6.2b	Wetlands Restoration - Tracked F. E. Loader, 3 cy, 130 HP	1	day			$387.44	$300.70	$0	$0	$639	$376	$1,015		
6.3	Perimeter Fence, 8' High, Chain Link, Barbed Wire & Gate	405	lf		$23.86	$5.90	$4.01	$0	$13,045	$3,943	$2,030	$19,018		
6.4a	Fire Hydrant	1	ea		$923.59	$102.43	$31.66	$0	$1,247	$169	$40	$1,455		
6.4b	Overhead Electrical Lines and Poles	1	ls	$7,500.00				$10,125	$0	$0	$0	$10,125		
6.5	Warning Signs	6	ea		$17.65	$31.81		$0	$143	$315	$0	$458		
6.6	Install Downgradient Groundwater Monitoring Wells (3 @ 20')	60	ft	$175.00				$14,175	$0	$0	$0	$14,175		
7	**OPERATION AND MAINTENANCE**											$45,539	$9,108	$54,647
7.1	Site Inspections	15	ea			$480.00	$100.00	$0	$0	$11,880	$1,875	$13,755		
7.2	Maintenance of Low Permeability Soil Cover and Wetlands	2	ea		$2,787.75	$4,038.16	$1,537.33	$0	$7,527	$13,326	$3,843	$24,696		
7.3	Mowing Brush, 4 Events	120	msf	$36.81				$5,963	$0	$0	$0	$5,963		
7.4	Soil Amendments, Fertilizer and Lime, 1 Event	2.68	ac	$310.84				$1,125	$0	$0	$0	$1,125		
	DPDO Yard Subtotals							$115,833	$475,831	$774,072	$184,557	$1,550,293	$310,059	
	DPDO Yard COST													$1,860,351

Naval Weapons Station Earle
Colts Neck, New Jersey
Design Build Request for Proposal - Capital Cost Estimate
Option 1: Marsh Contaminated Material Excavtion and Consolidation

Item	Quantity	Unit	Unit Cost Subcontract	Material	Labor	Equipment	Extended Cost With Markups Subcontract	Material	Labor	Equipment	Subtotal	20% Contingency	Total
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5)													
A.1 Wet Clearing, Light without Grub	0.62	ac			$328.36	$230.36	$0	$0	$336	$179	$514	$103	$617
A.2 Excavation/Transport/Material Dewatering/Compaction	1	ls			$4,403.52	$4,213.47	$0	$0	$7,266	$5,267	$12,533		
A.3 Transport & Off-Site Disposal (Non-Haz)	1	ls	$3,500.00				$4,725	$0	$0	$0	$4,725		
							$4,725	$0	$7,602	$5,445	$17,772	$3,554	
													$21,327

DPDO Yard Subtotals

DPDO Yard COST

Naval Weapons Station Earle
Colts Neck, New Jersey
Design Build Request for Proposal - Capital Cost Estimate
Option 1: Marsh Contaminated Material Excavtion and Consolidation

Item	Quantity	Unit	Unit Cost Subcontract	Material	Labor	Equipment	Extended Cost With Markups Subcontract	Material	Labor	Equipment	Subtotal	20% Contingency	Total
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5)													
A.1 Wet Clearing, Light without Grub	0.62	ac			$328.36	$230.36	$0	$0	$336	$179	$514		
A.2a Place/Grade Regraded Material - D5 (105 HP) Dozer	3	days			$387.44	$352.21	$0	$0	$1,918	$1,321	$3,239		
A.2b Place/Grade Tracked F. E. Loader, 3 cy, 130 HP	3	days			$387.44	$300.70	$0	$0	$1,918	$1,128	$3,045		
A.2c 12 Ton Dump Truck	3	days			$305.52	$505.98	$0	$0	$1,512	$1,897	$3,410		
A.2d Compact/Proofroll Surface of Landfill, Vibratory Roller, 18,000 lb	3	days			$387.44	$245.60	$0	$0	$1,918	$921	$2,839		
A.3a Off-Site Disposal Roll-Off Box Rental/Demurrage	1	mo	$800.00				$1,080	$0	$0	$0	$1,080		
A.3b Off-Site Disposal (Non-Haz), Transportation & Disposal	50	tons	$54.00				$3,645	$0	$0	$0	$3,645		
DPDO Yard Subtotals							$4,725	$0	$7,602	$5,445	$17,772	$3,554	
DPDO Yard COST													**$21,327**

Naval Weapons Station Earle
Colts Neck, New Jersey
Design Build Request for Proposal - Capital Cost Estimate
Option 2: Marsh Contaminated Material Excavation and Off-Site Disposal

Item	Quantity	Unit	Unit Cost Subcontract	Material	Labor	Equipment	Extended Cost With Markups Subcontract	Material	Labor	Equipment	Subtotal	20% Contingency	Total
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5)													
B.1 Wet Clearing, Light without Grub	0.62	ac			$328.36	$230.36	$0	$0	$336	$179	$514		
B.2 Excavation/Material Dewatering	1	ls			$3,874.40	$3,264.55	$0	$0	$6,393	$4,081	$10,473		
B.3 Waste Disposal Characterization	2	ea	$860.00				$2,322	$0	$0	$0	$2,322		
B.4 Transport & Off-Site Disposal (Non-Haz)	1	ls	$81,800.00				$110,430	$0	$0	$0	$110,430		
							$112,752	$0	$6,729	$4,259	$123,740	$24,748	
													$148,488

DPDO Yard Subtotals

DPDO Yard COST

Naval Weapons Station Earle
Colts Neck, New Jersey
Design Build Request for Proposal - Capital Cost Estimate
Option 3: Marsh Restoration

Item	Quantity	Unit	Unit Cost				Extended Cost With Markups				Subtotal	20% Contingency	Total
			Subcontract	Material	Labor	Equipment	Subcontract	Material	Labor	Equipment			
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5)													
C.1a Import Common Fill, 8" Thick	667	cy		$11.25			$0	$10,130	$0	$0	$10,130		
C.1b Place/Grade Regraded Material - D5 (105 HP) Dozer	2	days			$387.44	$352.21	$0	$0	$1,279	$881	$2,159		
C.1c Place/Grade Tracked F. E. Loader, 3 cy, 130 HP	2	days			$387.44	$300.70	$0	$0	$1,279	$752	$2,030		
C.2a Import Topsoil, 6" Thick	333	cy		$18.50			$0	$8,317	$0	$0	$8,317		
C.2b Place/Grade Regraded Material - D5 (105 HP) Dozer	1	day			$387.44	$352.21	$0	$0	$639	$440	$1,080		
C.2c Place/Grade Tracked F. E. Loader, 3 cy, 130 HP	1	day			$387.44	$300.70	$0	$0	$639	$376	$1,015		
C.3 Topsoil Amendments/Seed/Mulch	3,000	sy		$0.28	$1.27	$0.19	$0	$1,134	$6,287	$713	$8,133		
C.4 Wetlands Restoration - Seed Mix	0.62	ac	$2,500.00				$2,093	$0	$0	$0	$2,093		
DPDO Yard Subtotals							$2,093	$19,581	$10,122	$3,161	$34,956	$6,991	
DPDO Yard COST													**$41,948**

BID FORM
DESIGN/BUILD REQUEST FOR PROPOSAL
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5) - CAP
NWS EARLE, COLTS NECK, NEW JERSEY

Item	Quantity	Unit	Unit Cost	Line Subtotal Cost
BASE BID				
1 PROJECT PLANNING & DOCUMENTS				
1.1 Remedial Design Submission (Engineering)	1,250	hr		
1.2 Remedial Design Submission (Design)	1,600	hr		
1.3 Permits	290	hr		
1.4 Floodplain Analysis	1	ls		
1.5 Post Construction Award Services (PCAS)	440	hr		
2 MOBILIZATION/DEMOBILIZATION & SITE PREPARATION				
2.1 Equipment Mobilization	1	ls		
2.2 Construction Survey	5.36	ac		
2.3 Site Services: Install Temporary Utilities	1	ls		
2.4 Site Services: Decontamination Pad and Services	1	ls		
2.5 Demolition (Fence, Hydrant, and Overhead Electric)	1	ls		
2.6 Erosion Control Measures	1	ls		
2.7 Erosion Protection (Riprap and Geotextile)	4,325	sf		
2.8 Clearing and Grubbing	2.68	ac		
2.9 Access Road Upgrade (aggregate and bituminous concrete paved)	1	ls		
2.10 Equipment Demobilization	1	ls		
3 FIELD PROJECT SUPPORT				
3.1 Trailers, Supplies, and Temporary Utilities	3.5	mo		
3.2 Project Field Personnel	75	days		
3.3 Certified Safety Officer	15	ea		
3.4 UXO Specialist	60	day		
3.5 Pick-up Truck	150	days		
4 EXCAVATION/REGRADING/PROOFROLLING				
4.1 Site Regrading	4,700	cy		
4.2 Overexcavation/Engineered Fill Placement	30	cy		
4.3 Off-Site Disposal (Non-Haz)	40	tons		
4.4 Off-Site Recycling	10	tons		
5 CAPPING				
5.1 Gabion Baskets and Reno Mattresses (21 of each)	42	ea		
5.2 Toe of Slope and Southern Channel Protection (Riprap/Geotextile)	14,900	sf		
5.3 Passive Gas Vents	2	ea		
5.4 Off-Site Sand Characterization	1	ea		
5.5 Import/Place Sand, 6" Thick	1,604	cy		
5.6 Barrier Layer - Geomembrane, 40 mil LLDPE	98,450	sf		
5.7 Off-Site Granular Drainage Material Characterization	1	ea		
5.8 Import/Place Granular Drainage Material, 12" Thick	3,208	cy		
5.9 Separation Geotextile	10,950	sy		
5.10 Off-Site Common Fill Characterization	1	ea		
5.11 Import/Place Common Fill, 12" Thick	3,208	cy		
5.12 Off-Site Topsoil Characterization	1	ea		
5.13 Import/Place Topsoil, 6" Thick	1,604	cy		
5.14 Dewatering	1	ls		
5.15 Survey Control	4	day		
6 SITE RESTORATION				
6.1 Topsoil Amendments/Seed/Mulch	14,270	sy		
6.2 Wetlands Restoration (ditch area only)	0.20	ac		
6.3 Perimeter Fence & Gate	405	lf		
6.3 Relocate Site Features (Fence, Hydrant, and Overhead Electric)	1	ls		
6.4 Warning Signs	6	ea		
6.5 Downgradient Groundwater Monitoring Wells (3 @ 20')	60	ft		
6.6 Access Road Repair (aggregate and bituminous concrete paved)	1,700	ft		
7 OPERATION AND MAINTENANCE				
7.1 Site Inspections	15	ea		
7.2 Maintenance of Low Permeability Soil Cover and Wetlands	2	ea		
7.3 Mowing Brush, 4 Events	120	msf		
7.4 Soil Amendments, Fertilizer and Lime, 1 Event	2.68	ac		
BASE BID				

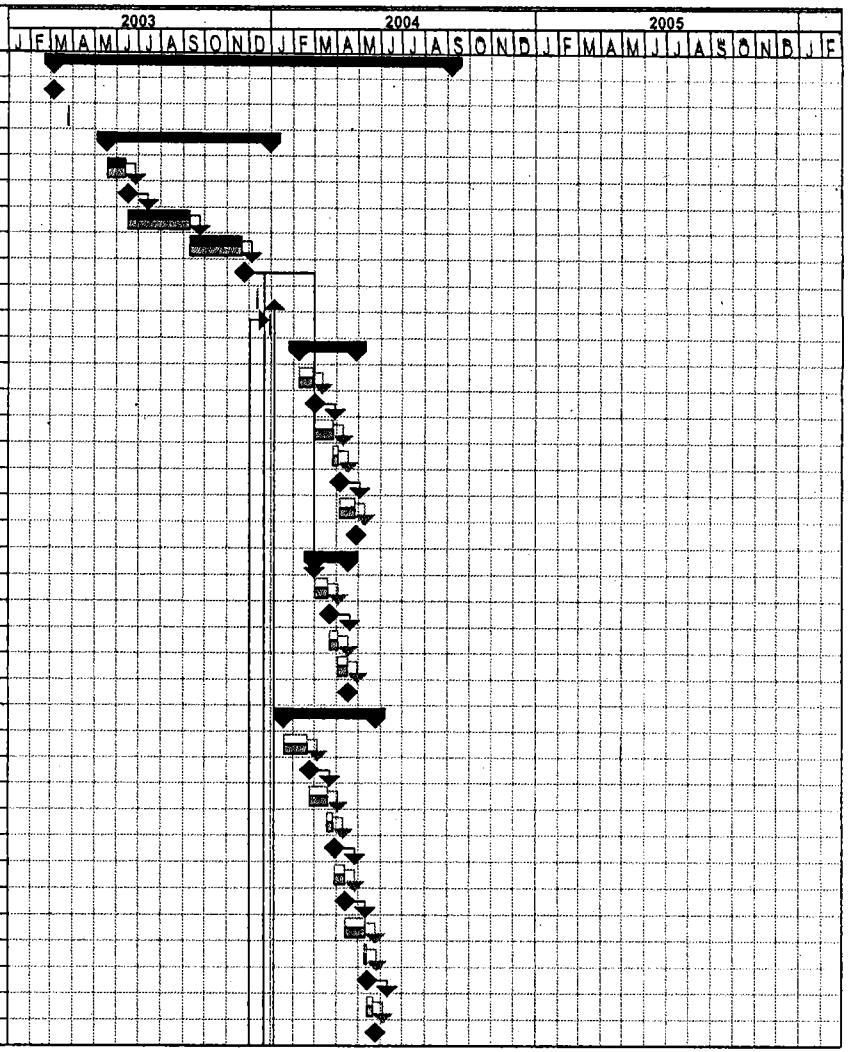
BID FORM
DESIGN/BUILD REQUEST FOR PROPOSAL
SITE 13 - DEFENSE PROPERTY DISPOSAL OFFICE YARD (OU-5) - CAP
NWS EARLE, COLTS NECK, NEW JERSEY
2 OF 2

	Item	Quantity	Unit	Unit Cost	Line Subtotal Cost
OPTIONS [1]					
OPTION 1 MARSH CONTAMINATED MATERIAL EXCAVATION AND CONSOLIDATION					
A.1	Clearing	0.62	ac	_____	_____
A.2	Excavation/Transport/Material Dewatering/Compaction	1,000	cy	_____	_____
A.3	Transport & Off-Site Disposal (Non-Haz)	50	tons	_____	_____
	Option 1 Subtotal				_____
	OPTION 1 UNIT PRICE [2]				_____ /cy
OPTION 2 MARSH CONTAMINATED MATERIAL EXCAVATION AND OFF-SITE DISPOSAL					
B.1	Clearing	0.62	ac	_____	_____
B.2	Excavation/Material Dewatering	1,000	cy	_____	_____
B.3	Waste Disposal Characterization	1	ls	_____	_____
B.4	Transport & Off-Site Disposal (Non-Haz)	1,500	tons	_____	_____
	Option 2 Subtotal				_____
	OPTION 2 UNIT PRICE [3]				_____ /ton
OPTION 3 MARSH RESTORATION					
C.1	Import/Place Common Fill, 8" Thick	667	cy	_____	_____
C.2	Import/Place Topsoil, 4" Thick	333	cy	_____	_____
C.3	Topsoil Amendments	3,000	sy	_____	_____
C.4	Wetlands Restoration	0.62	ac	_____	_____
	Option 3 Subtotal				_____
	OPTION 3 UNIT PRICE [4]				_____ /sy

(1) Quantities shown are for bidding purposes only. Actual quantities are to be determined by ongoing investigation.
(2) Calculate 'OPTION 1 UNIT PRICE' by dividing 'Option 1 Subtotal' by 1,000 cy.
(3) Calculate 'OPTION 2 UNIT PRICE' by dividing 'Option 2 Subtotal' by 1,500 tons.
(4) Calculate 'OPTION 3 UNIT PRICE' by dividing 'Option 3 Subtotal' by 3,000 square yards.

CTO 851 RD/RA SCHEDULE

Task	CTO Plan Begin	Act. Begin	CTO Plan End	Act. End	% Comp.
DESIGN/BUILD REQUEST FOR PROPOSAL (D/B RFP)	3/6/03	NA	9/6/04	NA	0%
Notice to Proceed (TtNUS)	***3/6/03***	***NA***	***3/6/03***	***NA***	***0%***
Scope Clarification Meeting/Site Visit (TtNUS)	3/25/03	NA	3/25/03	NA	0%
D/B RFP (TtNUS)	5/19/03	NA	12/31/03	NA	0%
Prepare Draft D/B RFP	5/19/03	NA	6/13/03	NA	0%
D/B RFP (Draft) to Navy	***6/16/03***	***NA***	***6/16/03***	***NA***	***0%***
Navy Review	6/16/03	NA	9/10/03	NA	0%
Prepare Final D/B RFP	9/10/03	NA	11/21/03	NA	0%
D/B RFP (Final) to Navy	***11/24/03***	***NA***	***11/24/03***	***NA***	***0%***
Pre-D/B RFP Proposal Meeting	12/12/03	NA	12/12/03	NA	0%
D/B Contractor Proposal Evaluation	12/29/03	NA	12/31/03	NA	0%
Verification Sampling and Analysis Plan (TtNUS)	2/9/04	NA	4/27/04	NA	0%
Prepare VSAP (Draft)	2/9/04	NA	2/27/04	NA	0%
VSAP (Draft) to Team	***3/1/04***	***NA***	***3/1/04***	***NA***	***0%***
Team Review	3/1/04	NA	3/26/04	NA	0%
Prepare Response To Comments (RTC)	3/26/04	NA	4/2/04	NA	0%
RTC to Team	***4/5/04***	***NA***	***4/5/04***	***NA***	***0%***
Prepare VSAP (Final)	4/5/04	NA	4/26/04	NA	0%
VSAP (Final) to Team	***4/27/04***	***NA***	***4/27/04***	***NA***	***0%***
Wetlands Permit Applications (WPAs)(TtNUS)	3/1/04	NA	4/16/04	NA	0%
Prepare WPAs (Internal Draft)	3/1/04	NA	3/19/04	NA	0%
WPAs (Internal Draft) to Navy	***3/22/04***	***NA***	***3/22/04***	***NA***	***0%***
Navy Review	3/22/04	NA	4/2/04	NA	0%
Prepare WPAs	4/2/04	NA	4/15/04	NA	0%
WPAs to Navy & Permitting Agencies	***4/16/04***	***NA***	***4/16/04***	***NA***	***0%***
Long-Term Monitoring (LTM) Plan (TtNUS)	1/19/04	NA	5/24/04	NA	0%
Prepare LTM Plan (Draft)	1/19/04	NA	2/20/04	NA	0%
LTM Plan (Draft) to Team	***2/23/04***	***NA***	***2/23/04***	***NA***	***0%***
Team Review	2/23/04	NA	3/19/04	NA	0%
Prepare RTC	3/19/04	NA	3/26/04	NA	0%
RTC to Team	***3/29/04***	***NA***	***3/29/04***	***NA***	***0%***
Prepare LTM Plan (Draft Final)	3/29/04	NA	4/12/04	NA	0%
LTM Plan (Draft Final) to Team	***4/13/04***	***NA***	***4/13/04***	***NA***	***0%***
Team Review	4/13/04	NA	5/10/04	NA	0%
Prepare RTC	5/10/04	NA	5/12/04	NA	0%
RTC to Team	***5/13/04***	***NA***	***5/13/04***	***NA***	***0%***
Prepare LTM Plan (Final)	5/13/04	NA	5/21/04	NA	0%
LTM Plan (Final) to Team	***5/24/04***	***NA***	***5/24/04***	***NA***	***0%***



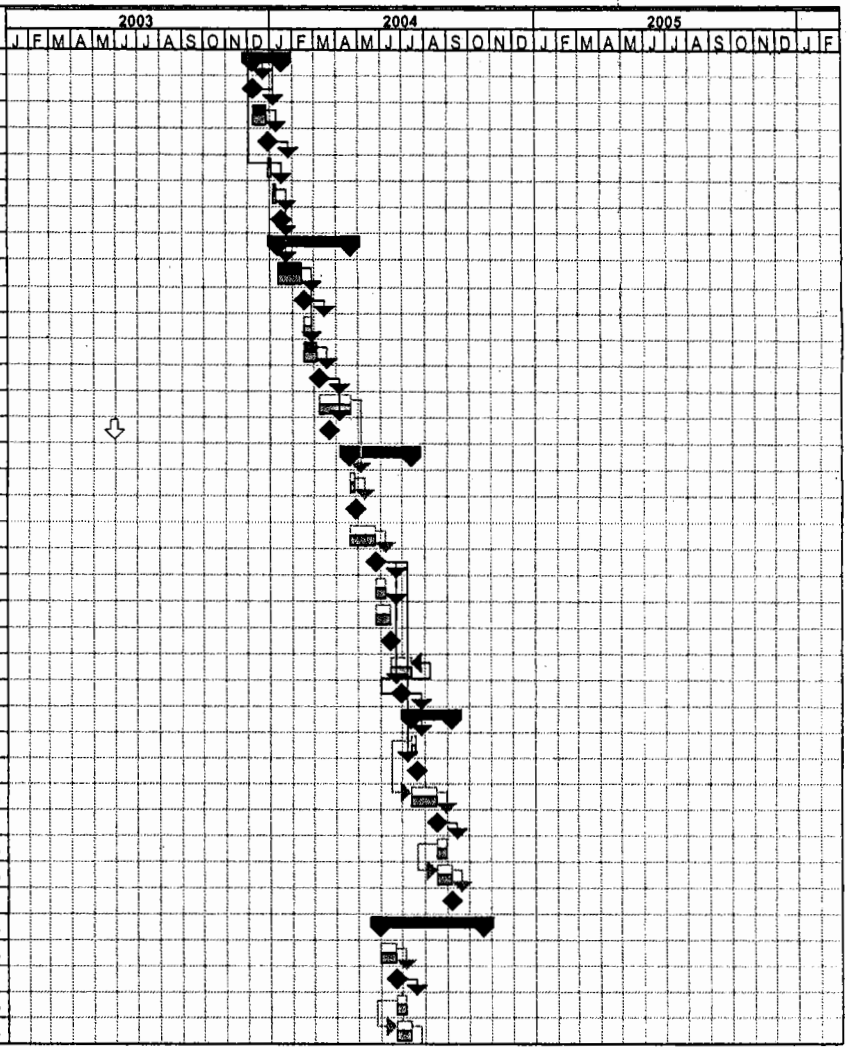
Critical Path Item - Anticipated Progress
Critical Path Item - Actual Progress
Noncritical Path Item - Anticipated Item
Noncritical Path Item - Actual Progress
CTO Schedule
CTO Schedule Milestone

Anticipated Milestone
Actual Milestone
Summary
External Milestone
Deadline

11/21/03

CTO 851 RD/RA SCHEDULE

Task	CTO Plan Begin	Act. Begin	CTO Plan End	Act. End	%Comp.
D/B Contractor Procurement	12/8/03	NA	1/16/04	NA	0%
Issue D/B RFP to D/B Contractor	***12/8/03***	***NA***	***12/8/03***	***NA***	***0%***
Prepare Cost Proposal	12/8/03	NA	12/26/03	NA	0%
Cost Proposal to Navy	***12/29/03***	***NA***	***12/29/03***	***NA***	***0%***
Navy Review	12/29/03	NA	1/2/04	NA	0%
Negotiation/Award	1/5/04	NA	1/9/04	NA	0%
D/B "Kick-Off" Meeting	***1/16/04***	***NA***	***1/16/04***	***NA***	***0%***
Draft Design Submission (D/B Contractor)	1/12/04	NA	4/20/04	NA	0%
Prepare Draft Design Submission (Internal Draft)	1/12/04	NA	2/13/04	NA	0%
Draft Design Submission (Internal Draft) to Navy	***2/16/04***	***NA***	***2/16/04***	***NA***	***0%***
Navy Review	2/16/04	NA	2/27/04	NA	0%
Prepare Draft Design Submission	2/16/04	NA	3/5/04	NA	0%
Draft Design Submission to Team	***3/8/04***	***NA***	***3/8/04***	***NA***	***0%***
Team Review	3/8/04	NA	4/20/04	NA	0%
Draft Design Review Meeting	***3/22/04***	***NA***	***3/22/04***	***NA***	***0%***
Draft Final Design Submission (D/B Contractor)	4/20/04	NA	7/13/04	NA	0%
Prepare RTC	4/20/04	NA	4/26/04	NA	0%
RTC to Team	***4/27/04***	***NA***	***4/27/04***	***NA***	***0%***
Prepare Draft Final Design Submission (Internal Draft)	4/20/04	NA	5/24/04	NA	0%
Draft Final Design Submission (Internal Draft) to Na	***5/25/04***	***NA***	***5/25/04***	***NA***	***0%***
Navy Review	5/25/04	NA	6/7/04	NA	0%
Prepare Draft Final Design Submission	5/25/04	NA	6/14/04	NA	0%
Draft Final Design Submission to Team	***6/15/04***	***NA***	***6/15/04***	***NA***	***0%***
Team Review	6/15/04	NA	7/13/04	NA	0%
Draft Final Design Review Meeting	***6/29/04***	***NA***	***6/29/04***	***NA***	***0%***
Final Design Submission (D/B Contractor)	7/13/04	NA	9/6/04	NA	0%
Prepare RTC	7/13/04	NA	7/19/04	NA	0%
RTC to Team	***7/20/04***	***NA***	***7/20/04***	***NA***	***0%***
Prepare Final Design Submission (Internal Draft)	7/13/04	NA	8/16/04	NA	0%
Final Design Submission (Internal Draft) to Navy	***8/17/04***	***NA***	***8/17/04***	***NA***	***0%***
Navy Review	8/17/04	NA	8/30/04	NA	0%
Prepare Final Design Submission	8/17/04	NA	9/6/04	NA	0%
Final Design Submission to Team	***9/7/04***	***NA***	***9/7/04***	***NA***	***0%***
Remedial Action (RA) Work Plan (D/B Contractor)	5/31/04	NA	10/20/04	NA	0%
Prepare RA Work Plan (Internal Draft - Draft)	5/31/04	NA	6/21/04	NA	0%
RA Work Plan (Internal Draft - Draft) to Navy	***6/22/04***	***NA***	***6/22/04***	***NA***	***0%***
Navy Review	6/22/04	NA	7/5/04	NA	0%
Prepare RA Work Plan (Draft)	6/22/04	NA	7/12/04	NA	0%



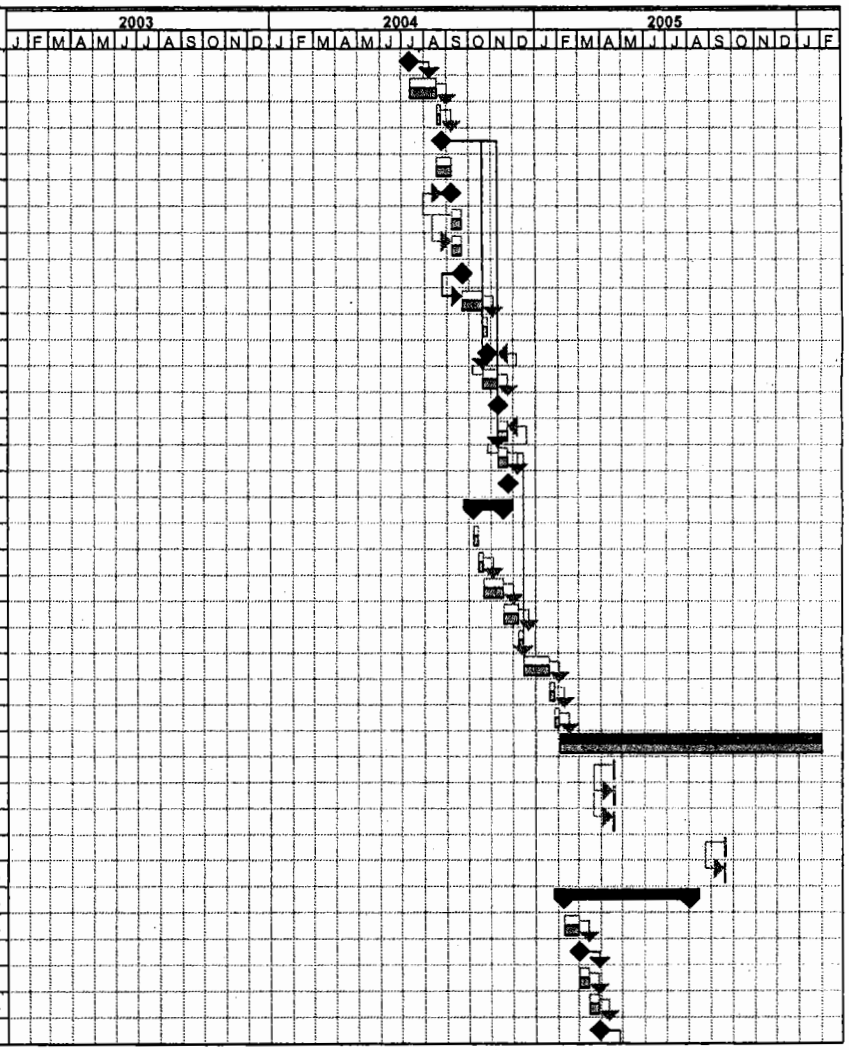
Critical Path Item - Anticipated Progress
Critical Path Item - Actual Progress
Noncritical Path Item - Anticipated Item
Noncritical Path Item - Actual Progress
CTO Schedule
CTO Schedule Milestone

Anticipated Milestone
Actual Milestone
Summary
External Milestone
Deadline

11/21/03

CTO 851 RD/RA SCHEDULE

Task	CTO Plan Begin	Act. Begin	CTO Plan End	Act. End	%Comp.
RA Work Plan (Draft) to Team	***7/12/04***	***NA***	***7/12/04***	***NA***	***0%***
Team Review	7/13/04	NA	8/18/04	NA	0%
Prepare RTC	8/19/04	NA	8/24/04	NA	0%
RTC to Team	***8/25/04***	***NA***	***8/25/04***	***NA***	***0%***
Prepare RA Work Plan (Internal Draft - Draft Final)	8/18/04	NA	9/7/04	NA	0%
RA Work Plan (Internal Draft - Draft Final) to Navy	***9/8/04***	***NA***	***9/8/04***	***NA***	***0%***
Navy Review	9/8/04	NA	9/21/04	NA	0%
Prepare RA Work Plan (Draft Final)	9/8/04	NA	9/21/04	NA	0%
RA Work Plan (Draft Final) to Team	***9/22/04***	***NA***	***9/22/04***	***NA***	***0%***
Team Review	9/22/04	NA	10/20/04	NA	0%
Prepare RTC	10/20/04	NA	10/26/04	NA	0%
RTC to Team	***10/26/04***	***NA***	***10/26/04***	***NA***	***0%***
Prepare RA Work Plan (Internal Draft - Final)	10/20/04	NA	11/9/04	NA	0%
RA Work Plan (Internal Draft - Final) to Navy	***11/10/04***	***NA***	***11/10/04***	***NA***	***0%***
Navy Review	11/10/04	NA	11/23/04	NA	0%
Prepare RA Work Plan (Final)	11/10/04	NA	11/23/04	NA	0%
RA Work Plan (Final) to Team	***11/24/04***	***NA***	***11/24/04***	***NA***	***0%***
Remedial Action Construction (D/B Contractor)	10/7/04	NA	11/17/04	NA	0%
Mobilization	10/7/04	NA	10/13/04	NA	0%
Temp E&S Controls/Clearing & Grubbing	10/14/04	NA	10/20/04	NA	0%
Excavation/Regrading	10/21/04	NA	11/17/04	NA	0%
Capping (Low Permeability Cover)	11/18/04	NA	12/8/04	NA	0%
Final Cover Terminations (Riprap & Gabions)	12/9/04	NA	12/15/04	NA	0%
Capping (Fill & Topsoil)	12/16/04	NA	1/19/05	NA	0%
Restoration/Wetland Mitigation	1/20/05	NA	1/26/05	NA	0%
Demobilization	1/27/05	NA	2/2/05	NA	0%
Cap & E&S Controls Inspection & Maintenance	2/3/05	NA	2/1/06	NA	0%
Temporary E&S Removal	4/18/05	NA	4/19/05	NA	0%
Cap Maintenance/Repair (Event 1)	4/18/05	NA	4/20/05	NA	0%
Wetlands Maintenance/Repair (Event 1)	4/18/05	NA	4/19/05	NA	0%
Cap Maintenance/Repair (Event 2)	9/19/05	NA	9/21/05	NA	0%
Wetlands Maintenance/Repair (Event 2)	9/19/05	NA	9/20/05	NA	0%
Post-Remedial Action Report (PRAR) (D/B Contractor)	2/9/05	NA	8/1/05	NA	0%
Prepare PRAR (Internal Draft)	2/9/05	NA	3/1/05	NA	0%
PRAR (Internal Draft) to Navy	***3/2/05***	***NA***	***3/2/05***	***NA***	***0%***
Navy Review	3/2/05	NA	3/15/05	NA	0%
Prepare PRAR (Draft)	3/16/05	NA	3/29/05	NA	0%
PRAR (Draft) to Team	***3/30/05***	***NA***	***3/30/05***	***NA***	***0%***



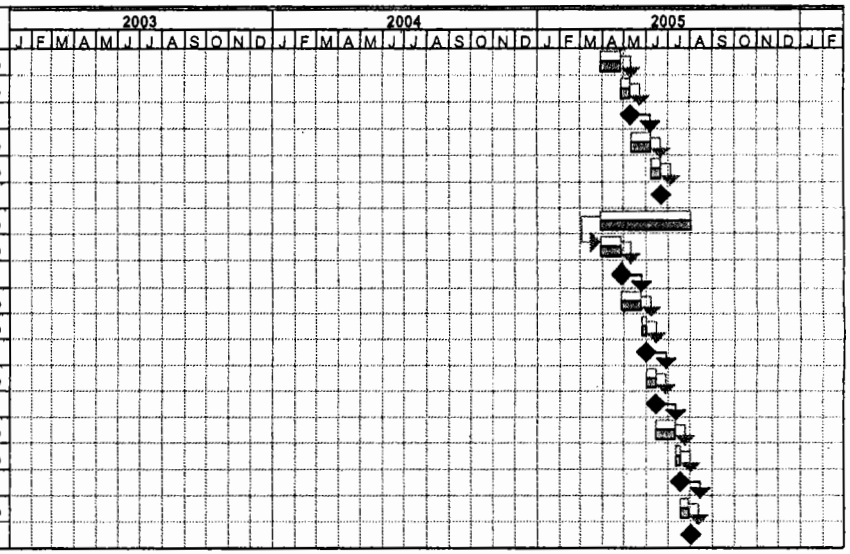
Critical Path Item - Anticipated Progress
Critical Path Item - Actual Progress
Noncritical Path Item - Anticipated Item
Noncritical Path Item - Actual Progress
CTO Schedule
CTO Schedule Milestone

Anticipated Milestone
Actual Milestone
Summary
External Milestone
Deadline

11/21/03

CTO 851 RD/RA SCHEDULE

Task	CTO Plan Begin	Act. Begin	CTO Plan End	Act. End	% Comp.
Team Review	3/30/05	NA	4/26/05	NA	0%
Prepare PRAR (Draft Final)	4/27/05	NA	5/9/05	NA	0%
PRAR (Draft Final) to Team	***5/10/05***	***NA***	***5/10/05***	***NA***	***0%***
Team Review	5/11/05	NA	6/7/05	NA	0%
Prepare PRAR (Final)	6/8/05	NA	6/21/05	NA	0%
PRAR (Final) to Team	***6/22/05***	***NA***	***6/22/05***	***NA***	***0%***
Operation & Maintenance (O&M) Plan (TtNUS)	3/30/05	NA	8/1/05	NA	0%
Prepare O&M Plan (Draft)	3/30/05	NA	4/26/05	NA	0%
O&M Plan (Draft) to Team	***4/27/05***	***NA***	***4/27/05***	***NA***	***0%***
Team Review	4/27/05	NA	5/24/05	NA	0%
Prepare RTC	5/25/05	NA	5/31/05	NA	0%
RTC to Team	***5/31/05***	***NA***	***5/31/05***	***NA***	***0%***
Prepare O&M Plan (Draft Final)	6/1/05	NA	6/14/05	NA	0%
O&M Plan (Draft Final) to Team	***6/14/05***	***NA***	***6/14/05***	***NA***	***0%***
Team Review	6/14/05	NA	7/11/05	NA	0%
Prepare RTC	7/12/05	NA	7/18/05	NA	0%
RTC to Team	***7/18/05***	***NA***	***7/18/05***	***NA***	***0%***
Prepare O&M Plan (Final)	7/18/05	NA	7/29/05	NA	0%
O&M Plan (Final) to Team	***8/1/05***	***NA***	***8/1/05***	***NA***	***0%***



11/21/03

Critical Path Item - Anticipated Progress
Critical Path Item - Actual Progress
Noncritical Path Item - Anticipated Item
Noncritical Path Item - Actual Progress
CTO Schedule
CTO Schedule Milestone

Anticipated Milestone
Actual Milestone
Summary
External Milestone
Deadline

ATTACHMENT A

REMEDY ANALYSIS REPORT

REMEDY ANALYSIS REPORT

1.0 DESCRIPTION OF THE SELECTED REMEDY

The selected remedy for Defense Property Disposal Office (DPDO) Yard (Site 13) at Naval Weapons Station Earle (NWS Earle) identified in the Record of Decision (ROD) (TtNUS, 2003), includes a low permeability cover system, institutional controls, and monitoring. The selected remedy meets the remedial action objectives (RAOs), provides adequate protection of human health and the environment, and attains Applicable or Relevant and Appropriate Requirement (ARARs) in the most cost-effective manner of all the alternatives evaluated in the Feasibility Study (TtNUS, 2000). The selected remedy consists of pre-design investigations (PDI), site preparation, site grading, low permeability cover system, fencing, institutional controls, long-term operation and maintenance, long-term periodic monitoring, and five-year reviews.

The RAOs for the remedial action provided in the ROD are as follows:

Protection of Human Health

- Prevent contact with landfilled materials.
- Prevent potential human exposure to metals and volatile organic compound (VOC) contamination in groundwater.

Protection of the Environment

- Prevent potential contact with landfill contents.
- Minimize contaminant migration into the adjacent wetlands.

The major components of the selected remedy consistent with the FS are as follows:

Pre-Design Investigation Activities

The purpose of the PDI activities was to better define the landfill limits and extent of sediment contamination, and to support the low permeability cover system remedial design. PDI activities were conducted during April, May, June, and September of 2003 and consisted of a field topographic survey, subsurface investigation, wetland delineation, and sediment sampling. Additional sediment sampling may be conducted as part of the PDI after issuance of this remedy analysis report. The results of these PDI activities are summarized below.

The topographic survey consisted of obtaining ground surface topography and locating physical features of Site 13 and 500 feet of the ditch upstream (south) of Site 13, and point surveying of the geotechnical soil boring, test trench, wetland delineation stakes, and sediment sample locations. The topographic and point surveys were performed by James M. Stewart, Inc., of Philadelphia, Pennsylvania, a New Jersey licensed surveyor in May and October 2003. The survey horizontal datum used was the New Jersey State Plane Coordinate System, North American Datum 1983 and the vertical datum was the National American Vertical Datum (NAVD) 1988. The topographic and point survey information is reflected on Drawing C-1 and in the logs provided on Drawings B-1 through B-3. The point survey data is provided as an attachment to the Design/Build Request for Proposal (D/B RFP) package.

The subsurface investigation was conducted to characterize subsurface conditions beneath Site 13, to define the lateral extent of landfill material at Site 13 along the western, northern, and eastern boundaries, and to determine the thickness of fill material at the landfill perimeter because some fill material may be excavated and consolidated under the low permeability cover system during the remedial action. The subsurface investigation was conducted in accordance with the Letter Work Plan (TtNUS, 2003a). The subsurface investigation consisted of installing three soil borings (i.e., SB13-07, SB13-08, and SB13-09) within the Site 13 limits and ten test trenches (i.e., TP13-13 through TP13-22) at the assumed Site 13 limits. The soil borings were installed from April 29 to April 30, 2003 and test trenches were installed from April 30 through May 2, 2003. A TtNUS geologist and unexploded ordnance (UXO) technician provided oversight during soil boring and test trench installation activities. The subsurface investigation (drilling and excavation) was performed by Earth Matters, Inc., of Ellicott City, Maryland. Soil boring and test trench activities and findings are described in detail in the Geotechnical Investigation Report for Pre-Design Investigation Site 13 – Defense Property Disposal Office Yard (OU-5) (TtNUS, 2003b) provided as an attachment to the D/B RFP package. Soil boring and test trench activities and findings are summarized below.

- Soil borings were installed by advancing hollow-stem augers (HSA) to depths ranging from 27 to 52 feet below ground surface (bgs). Standard penetration tests (SPT) were performed using split-barreled samplers continuously for the first 10-feet and at five foot intervals thereafter with the exception of SB13-07, where no SPT were performed at the 6 to 8 foot interval. Representative samples were obtained from each split-barreled sampler, placed in glass jars, and selected samples submitted to a geotechnical laboratory for testing. The selected soil boring samples were submitted to Valley Forge Laboratories, Inc. of Devon, Pennsylvania for grain size, Atterberg limits, classification [Unified Soil Classification System (USCS)], and organic content testing. Each soil boring location was surveyed. Soil borings were tremie grouted from bottom to ground surface using cement-bentonite grout as required by New Jersey Administrative Code (N.J.A.C.) 7:26-2A.5(a)(6)vi(13) in accordance with N.J.A.C. 7:9-9.

- Test trenches were installed using a rubber-tired backhoe to depths ranging from 4 to 5 feet bgs with lengths ranging from 8 to 37 feet. The waste limits were determined based on visual observation for industrial waste (scrap metal, sheet metal, cables, scrap doors, etc.) in the test trench bottoms, sidewalls, and spoils. No samples were collected from the excavations for laboratory analysis. The center and four corners of each test trench were surveyed. Trench spoil generated was placed back in its place of origin.

Soil boring and test trench locations are reflected on Drawing C-1 and soil boring and test trench logs are also provided on Drawings B-1 through B-3.

Prior to the PDI, the wetlands at NWS Earle had been identified on statewide wetland maps prepared as general guidance by the New Jersey Department of Environmental Protection (NJDEP). However, the wetlands had not yet been formally delineated for regulatory verification by NJDEP or for review by natural resource trustees. A site-specific wetland delineation was therefore performed during April 2003 as part of the PDI. The wetland delineation was conducted to delineate wetlands at Site 13, the area contiguous to Site 13, the area within 50 feet of the Site 13 limits presented in the FS, and 500 feet of the ditch upstream (south) of Site 13. The wetland delineation was performed in accordance with the New Jersey Freshwater Wetlands Protection Act (N.J.S.A. 13:9B) and the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (USFWS 1989). A TtNUS wetland scientist visited the site on April 29 and April 30, 2003 to perform the wetlands delineation. A Letter of Interpretation or "LOI" verifying the wetland delineation has not yet been requested from the NJDEP. The wetland limits are shown on Drawing C-1 and the wetland delineation report is provided as an attachment to the D/B RFP package.

Sediment sampling and laboratory analysis were conducted for two sampling events to better define the extent of contamination within the ditch upstream (south) of Site 13 and in the washout area at the toe of the landfill. These areas were identified in the ROD as areas possibly requiring excavation. Sediment sampling and analysis were conducted in accordance with the approved Final Quality Assurance Project Plan (QAPP) (TtNUS, 2003e). Silver and total polychlorinated biphenyls (PCBs) were identified in the QAPP as the contaminants of concern in these areas. The remediation levels identified in the QAPP for silver was 3.7 mg/kg and 1.0 mg/kg for total PCBs. The samples were analyzed for TAL metals and target compound list (TCL) PCBs. All sediment sample locations were surveyed. Sediment sample locations are shown on Drawing C-1. Samples were analyzed within a 10-day turnaround time by Lionville Laboratory, Inc. of Lionville, Pennsylvania. The data were fully validated by TtNUS in accordance with method-specific requirements, National Functional Guidelines for Organic and Inorganic Data Review, and the USEPA Region II Standard Operating Procedure for Data Validation to the extent practicable. Data validation letters containing summaries of the validation reviews and documenting the

validation procedures, sediment sample survey coordinates, sediment sample chains of custody, and sediment sample log sheets are provided as attachments to the D/B RFP package. Sediment sample results from the two rounds of sediment sampling are provided on Table A.1. Silver and total PCBs exceedances of the remediation levels identified in the QAPP are presented on Figure A-1 and are summarized below.

Sixteen sediment samples were obtained on June 26, 2003 for the first sampling event from two separate areas as identified in the ROD as possibly requiring excavation. The areas consisted of the area associated with sediment sample 13SD03 collected in the center of an area where materials have washed out of the landfill via erosion (i.e., 13SD04 through 13SD08) and the area associated with sediment sample 13SD01 located where an eroded outfall originating under the DPDO yard flows into the ditch west of the DPDO yard (i.e., 13SD09 through 13SD19). The sediment sample results were reviewed for exceedances of the remediation levels identified in the QAPP. The remediation levels were not exceeded in any of the 11 sediment samples obtained within the ditch located west of the DPDO yard. The remediation levels for silver and total PCBs were exceeded in 4 of 5 and 2 of 5 sediment samples, respectively, from sediment samples obtained in the washout area at the toe of the landfill. The exceedances of the silver and total PCB remediation levels are shown on Figure A-1.

Additional sediment sampling was performed in the washout area at the toe of the landfill to bound the extent of sediment contamination not bounded by the first round of sampling (i.e., by samples 13SD04 through 13SD08) and to determine if contamination exists at depth. Twelve additional sediment samples were obtained on September 25, 2003: five sediment samples (13SD20 through 13SD24) at a depth of 0 to 6 inches bgs from a second ring of samples outside of the June 2003 sediment samples, three sediment samples (13SD25 through 13SD27) at a depth of 0 to 6 inches bgs downgradient from the second ring of samples, and four sediment samples (13SD21, 13SD24, 132SD26, and 132SD28) at a depth of 12 to 18 inches bgs from within the washout area. The sediment samples were analyzed for TAL metals and TCL PCBs and reviewed for exceedances of the remediation levels. The remediation levels were exceeded for silver or total PCB at all 9 sediment sample locations. The remediation levels were exceeded for silver and total PCB in 12 of 12 and 6 of 12 sediment samples, respectively. The exceedances of the silver and total PCB remediation levels are shown on Figure A-1.

In addition, several metals were detected at concentrations above results of other PDI sediment samples in both the 0- to 6-inch and 12- to 18-inch bgs intervals.

Site Preparation

The Site has not been used as a landfill for many years; however, part of the site is currently being used as the DPDO Yard. The remainder of the site is sparsely vegetated with grasses and a few small pine

trees. The surface of the landfill will be prepared prior to low permeability cover system construction by clearing and grubbing vegetation followed by surface grading. Erosion control devices (e.g., sediment barriers and riprap) will be provided at the perimeter of the landfill, downgradient of disturbed areas, and at critical locations to minimize erosion and sediment transport during the remedial action. Impacted soils and sediments near the currently eroded area will be excavated and consolidated beneath the low permeability cover system. Post excavation sampling will be performed to confirm that all impacted media with concentrations above remediation levels are removed.

Site Grading

As indicated on Drawing C-1, the existing slope on the plateau portion of the landfill is sloped to the west with an average slope of approximately 0.8 percent, the average sideslope grade is approximately 3H:1V, and the steepest grades on the sideslope at approximately 2H:1V. The landfill will be proof-rolled and graded following clearing and grubbing activities. Proof-rolling will be performed to compact the landfill surface and to identify those areas that could provide an unacceptable base for the low permeability cover system. Unacceptable areas will be overexcavated and engineered fill (i.e., fill placed in controlled lifts with specified compaction requirements) placed in the excavations to provide an acceptable subgrade. The landfill sideslopes and plateau area would be graded with a constant and uniform slope to provide suitable grades for support of the overlying low permeability cover system. The most stringent of federal and New Jersey regulations regarding landfill slopes require a minimum slope of 3 percent and maximum slope of 33 percent [3 horizontal to 1 vertical (3H:1V)] (N.J.A.C. 7:26-2A.5). The appropriate grades will be determined during the remedial action design in accordance with applicable federal and state regulations and sound engineering judgement. The grades presented on Drawing C-2 represent a maximum slope of 4H:1V and a minimum slope of 4 percent.

Low Permeability Cover System

A low permeability cover system will be designed and installed to prevent human and animal exposures to landfill material contaminants, to reduce infiltration, to prevent metals from leaching into groundwater, and to prevent migration of contaminants by wind and surface runoff. The cover design as indicated in the ROD will include a low permeability layer (i.e., geomembrane) that meets RCRA criteria for municipal solid waste landfills (40 CFR 258). The low permeability cover system, from bottom to top consistent with the ROD, is as follows:

Subgrade – The subgrade would consist of landfill material that has been proof-rolled and engineered fill that has been placed to address unacceptable areas. The subgrade would be graded to provide a firm, unyielding, uniform surface for the overlying low permeability cover system.

Base – The purpose of the base is to provide protection for the overlying low permeability layer from puncture from underlying landfill materials and to act as a gas management layer. The base would consist of a minimum 12-inch thick layer of natural material with limitations placed on the maximum particle size. For Site 13 the bottom 6-inches of the base layer may consist of select waste and the top 6-inches may consist of free-draining granular material.

Gas Vent System – The need for a gas venting system is not anticipated because the landfill has not been in use, is covered with permeable cover materials, and received non-putrescible wastes such as cars, trucks, electronic equipment, sheet metal, furniture, scrap metal, and batteries. However, if a passive gas venting system is deemed necessary, the passive gas venting system will consist of the free-draining material portion of the base layer with gas vents placed at the peak of the landfill.

Barrier Layer – The barrier layer (i.e., "low permeability layer") will be designed to minimize precipitation infiltration into the landfill materials. ARARs require that a barrier layer have a maximum permeability of 1 x 10^{-5} centimeters per second (cm/sec) and could consist of a geomembrane with a minimum thickness of 30 mils, one-foot of compacted low permeability clay or the equivalent. A geomembrane was selected as the barrier layer because geomembranes can be installed more efficiently than a compacted low permeability clay liner and are less sensitive to extreme weather conditions. The geomembrane would likely be a polyethylene geomembrane and have a minimum thickness of 40 mils.

Drainage Layer – The drainage layer will be installed to remove and prevent the accumulation of water above the low permeability layer that could infiltrate and damage the geomembrane or cause erosion of the top layer. The drainage layer will terminate at the perimeter of the low permeability cover (i.e., "daylight"). The drainage layer will be a 12-inch minimum layer of free-draining granular material. A 12-inch thick drainage layer will provide increased protection for the underlying low permeability layer from puncture from overlying materials, and increased protection from construction/traffic stresses. In addition, free-draining granular material should be readily available locally and thus economical.

Top Layer – The purpose of the top layer and associated vegetative cover is to protect the barrier and drainage layers from erosion by rain or wind and from burrowing animals. The top layer will consist of an 18-inch thick layer of soil capable of supporting vegetative growth. The surface of the top layer will be vegetated with permanent plant species such as grasses and legumes to minimize erosion. Trees, woody shrubs, and other deep rooted plants that might penetrate the low permeability layer will be prevented from growing on the cover through periodic maintenance activities. The top layer will be underlain by a geotextile that functions as a separation layer to prevent physical clogging of the underlying drainage layer.

The low permeability cover system will have final grades on the plateau area between 3 and 5 percent and maximum sideslope grades of 3H:1V. The grades will be selected during the remedial action design to ensure slope stability, accommodate settlement, control erosion, and allow compaction, seeding, and revegetation of the cover materials. Surface water run-on and runoff controls would be required to convey run-on and runoff away from and from the low permeability cover system.

Fencing

An 8-foot high, chain link fence will be installed around the southern perimeter of the site to limit trespassers from entering the site and to protect the integrity of the cover system. A double-leaf security gate will be installed for use by authorized personnel during sampling, inspection, and maintenance activities. Warning signs will be posted around the remainder of the perimeter at approximately every 200-feet.

Institutional Controls

After construction of the low permeability cover system is complete, access restrictions will be used to significantly limit future activities that could result in intrusion into and possible damage of the low permeability cover system and accidental exposure to landfill wastes. Restricted activities would include excavation, excessive vehicular traffic, and use of untreated groundwater for drinking water.

Because site groundwater does not meet New Jersey groundwater quality standards, a Classification Exception Area (CEA) pursuant to N.J.A.C. 7:9-6 would be established to provide the state official notice that the constituent standards will not be met for a specified duration and to ensure that use of groundwater in the affected area is suspended until standards are achieved.

Operation and Maintenance

Operation and maintenance activities associated with the low permeability soil cover will consist of periodic inspection of the cover, gas management, storm water management, and fencing components; and maintenance of the vegetative cover, including but not limited to seeding, mowing, fertilizing, and liming (as needed).

Long-Term Monitoring

Three new groundwater monitoring wells will be installed downgradient of the landfill. Surface water, sediment, and groundwater will be sampled periodically to monitor the migration of contaminants from Site 13 and assess the potential impacts to downgradient receptors. The collected data will be evaluated during the five-year review period.

Five-Year Reviews

Because contaminants remain on the site, a review of site conditions and risks will be conducted every 5 years, as required by CERCLA. The reviews will consist of evaluation of analytical and hydrogeologic data, assessing whether contaminant migration has increased and whether human or biological receptors or groundwater resources are at risk.

2.0 PERFORMANCE STANDARDS

The selected remedy will manage residuals, achieve all RAOs, and meet all ARARs and To Be Considered (TBC) criteria for the site. Specific performance standards are as follows:

2.1 Contaminated Sediment

Based on the results of the PDI sampling, it is necessary to excavate contaminated sediments for consolidation beneath the low permeability soil cover. The contaminated sediment limits for the ditch were determined by the June 2003 PDI sampling event. Contaminated sediment excavated from the ditch will be placed beneath the low permeability soil cover system. The contaminated sediment limits for the washout area at the toe of the landfill have not yet been defined but will be finalized through ongoing investigation. Contaminated sediment excavated from the washout area at the toe of the landfill will be placed beneath the low permeability soil cover system and/or disposed off-site dependent on the final limits of sediment contamination. The D/B RFP package has been prepared to address the unknown quantity of excavated contaminated sediment from the washout area at the toe of the landfill by including options for consolidation beneath the cover and/or off-site disposal. The contaminated sediment quantity will be determined after commencement of remedial action design activities through ongoing investigation.

2.2 Low Permeability Soil Cover System

The low permeability soil cover system will be designed, constructed, operated, and maintained to meet the performance requirements for closure of municipal solid waste landfills specified in 40 CFR 258.60, the New Jersey regulations for closure of nonhazardous solid waste specified in N.J.A.C. 7:26-2A, and guidance provided in the NJDEP, Bureau of Landfill and Recycling Management, Division of Solid and Hazardous Waste's "Technical Manual for Sanitary Landfill Permits and Approvals".

Regulatory Requirements

Federal regulations (40 CFR 258.60) require a final cover system consisting of, from bottom to top, a layer with a permeability less than or equal to 1 x 10^{-5} cm/sec, an infiltration layer consisting of 18-inch minimum thick earthen material, and a 6-inch minimum thick erosion layer that is capable of sustaining native plant growth.

State regulations (N.J.A.C. 7:26-2A) for final cover systems for sanitary landfills require that the permeability of the final cover be less than or equal to that of natural subsoils present or 1 x 10^{-5} cm/sec, whichever is less. The final cover must be a minimum of 18 inches thick overlain by a minimum 6-inch erosion layer. A final cover must include a geomembrane if the landfill has a bottom geomembrane liner system. A minimum geomembrane thickness of 30 mils is required unless a high density polyethylene (HDPE) geomembrane is used in which case a minimum thickness of 60 mils is required. The 60 mil minimum HDPE geomembrane thickness is required to ensure proper seaming of the geomembrane.

The geomembrane must be protected from below and above by a minimum thickness of six inches of bedding and cover which is no coarser than a poorly graded sand [SP as determined by the Unified Soil Classification System (USCS)] or an equivalent geotextile if approved by the NJDEP. In addition the low permeability cap must be located wholly below the average depth of frost penetration in the area as determined by the USDA and mapping.

The drainage layer, if located above a geomembrane low permeability layer, must be a minimum of 12 inches thick and combined with the drainage pipes or synthetic drainage nets, must maintain the hydrostatic head resulting from a 25-year, 24-hour storm to within the thickness of the drainage layer.

Slope restrictions include a maximum sideslope of 3H:1V, a minimum plateau slope of 3 percent (33H:1V) after allowing for settlement and subsidence, and a maximum plateau slope of 5 percent. Plateau slopes steeper than 5 percent may be allowed provided the maximum erosion rate does not exceed two tons per acre as determined by the Universal Soil Loss equation.

Proposed Low Permeability Soil Cover

The low permeability soil cover system will consist of a prepared subgrade, base consisting of 6-inches of select waste overlain by 6-inches of free-draining granular material to act as a gas management layer, barrier layer consisting of a 40 mil polyethylene, drainage layer consisting of 12-inches of free-draining granular material overlain by a separation geotextile, top layer consisting of 12-inches of common fill, and 6-inches vegetative soil. All 18-inches of the top layer should be soil capable of supporting vegetative

growth. The surface of the top layer would be vegetated with permanent plant species such as grasses and legumes to minimize erosion.

2.3 Soil Erosion and Sedimentation Control

Before excavation, soil erosion and sediment controls will be established to prevent impacts to downgradient areas of the site. During excavation, grading, and backfilling activities, and until vegetation is established, the soil erosion and sediment controls will be regularly inspected and maintained. Soil erosion and sediment control regulations to be complied with during remedial activities include the New Jersey Clean Water Act Surface Water Discharge Permit Program (N.J.A.C. 7:14A) and New Jersey Surface Water Quality Standards (N.J.A.C. 7:9B). Construction of the soil erosion and sediment control devices will conform to the requirements presented in the manual titled "Standards for Soil Erosion and Sediment Control in New Jersey" (July 1999).

2.4 Wetlands Restoration

The wetland delineation identified two areas on Site 13 that are regulated under Section 404 of the Clean Water Act (CWA; 33 U.S.C. 1344) and the New Jersey Freshwater Wetlands Protection Act (NJFWPA; N.J.S.A. 13:9B). One area is a ditch that flows northward along the western edge of the DPDO Yard. The ditch is a water of the United States regulated under the CWA and a state open water regulated under the NJFWPA. The subject reach of the ditch is bounded by steep embankments and is not bordered by wetlands. The second area is a forested wetland north and west of the landfill. The forested wetland is regulated as a wetland under the CWA and NJFWPA.

Floodplains have not been delineated for the site; however a floodplain analysis will be performed as part of the remedial action design. Impacts to the 100-year floodplain are regulated under the New Jersey Flood Hazard Control Act (NJFHCA; N.J.S.A. 58:16A). Visual inspection of Site 13 suggests that the potential occurrence of 100-year floodplain is limited to areas directly adjoining the ditch that flows northward along the western edge of the DPDO yard (Area 13A). The ditch is bounded on both sides by steep embankments that are 5 to 7 feet higher in elevation than the base of the ditch; the 100-year floodplain therefore likely lies within the embankments. The forested wetland is part of a broad flat area of poorly drained soils where the headwaters of several small streams originate and is thus not likely itself within the 100-year floodplain. It is also noted that the wetland delineation did not reveal any coastal (tidal) wetlands on Site 13 that are regulated under New Jersey's older Wetlands Act of 1970 (N.J.S.A. 13:9A).

The remedy will be designed to minimize impacts to the ditch and adjoining embankments and uplands. It is estimated that the remedy will disturb approximately 500 square feet of the ditch and embankments

and will not disturb the forested wetlands downgradient of the washout area at the toe of the landfill. The current scope of the remedial action design does not result in the disturbance of the forested wetland; however, if the Navy elects to award the options for additional excavation in the wetlands it is likely that disturbance in the wetland will occur.

The disturbed areas within the ditch and embankments including the associated 100-year floodplain will be restored to their existing grade. The embankments will be topsoiled; seeded with regionally indigenous grasses selected in accordance with the manual titled *Standards for Soil Erosion and Sediment Control in New Jersey*, July 1999; and then covered with a biodegradable geotextile such as a coconut fiber (coir) mat. A coconut fiber roll (log) will be anchored at the toe of the restored embankment(s).

Disturbed areas within the uplands will be restored to their existing grade; topsoiled; and seeded with regionally indigenous grasses suited to mesic soils selected in accordance with the manual titled Standards for Soil Erosion and Sediment Control in New Jersey, July 1999.

The upland restoration will be designed to meet the substantive requirements of the CWA, NJFWPA, NJFHCA, and other applicable federal, state, and local regulations. The restoration will be monitored and maintained until it is determined to be successfully established and functioning in accordance with the remedial action design.

2.5 Excavation of Contaminated Sediments

Two areas of contaminated sediments are identified on Drawing C-1. The sediments located in these areas, outside the intended limits of the cover system, will be excavated for placement beneath the low permeability cover system and/or off-site disposal. The PDI sediment sampling effort conducted in June 2003 determined the extent of excavation in the ditch along the western edge of the DPDO yard. The PDI sediment sampling efforts conducted in June and September 2003 and on-going investigation will determine the extent of contamination and disposition of contaminated sediment from the washout area at the toe of the landfill. The Navy will perform post excavation verification sampling following the removal of contaminated sediment to assure that remediation goals are met. Excavation and sampling activities will be repeated until post excavation concentrations in sediment are less than the remediation goals.

3.0 MATERIAL/SOILS MANAGEMENT

This remedial action is intended to provide a low permeability soil cover over the landfill. Material and soils management include regrading the landfill, excavation of contaminated sediment, installation of a 3-

foot thick low permeability soil cover system, and management of material resulting from installation of erosion and sediment control features.

The estimated horizontal extent of the landfill presented on Drawing C-1 of the D/B RFP package is based on test trenching and field observations. Pre-PDI boring, monitoring well, and test trench logs used to estimate the horizontal extent of the landfill and characterize site conditions are provided as an attachment to the D/B RFP package. The low permeability soil cover system will extend to the landfill limits as indicated in details provided on Drawing C-3 of the D/B RFP package. Waste exposed in the contiguous area during construction will be removed and placed beneath the low permeability soil cover.

Clearing and Grubbing

Clearing and grubbing will be performed within the landfill limits. Clearing consists of the removal of above-ground vegetation within the limits of disturbance and grubbing consists of the removal of stumps and root systems. Saleable timber will be removed from the site. The grubbed material from within the landfill limits and from within contaminated sediment excavation areas will be disposed off-site. Clearing, grubbing, and topsoil stripping will be performed, as required, in the remaining area within the limits of disturbance but outside the landfill limits.

Topsoil from outside the landfill limits will be stripped to a depth of approximately 6-inches and stockpiled for use during site restoration activities.

Excavation and Regrading

Materials that will be excavated include contaminated sediments located outside the limits of the proposed low permeability soil cover system. Materials to be regraded include the current landfill cover soils and landfill materials within the limits of the proposed low permeability cover system to achieve the required minimum and maximum slopes. Materials that will be excavated and disposed/recycled off-site include large items of waste unearthed during regrading operations within the existing limits of Site 13.

Regrading activities will also include the placement of the required soil components associated with the low permeability cover system. Topsoil will be placed for the final 0.5-foot to establish the final grades indicated on Drawing C-2.

All decontamination water will be collected in a specifically designed, lined decontamination pad area and transported to an approved off-site treatment facility.

4.0 LOW PERMEABILITY SOIL COVER SYSTEM

The proposed low permeability soil cover system will be sloped from 4.0 percent (25H:1V) to 25 percent (4H:1V). The sides of the low permeability soil cover system will tie into the existing ground surface with a maximum slope of 4H:1V. The low permeability soil cover system is comprised of a prepared subgrade, base/gas management layer consisting of 6-inches of select waste overlain by 6-inches of free-draining granular material, barrier layer consisting of a 40 mil polyethylene geomembrane, drainage layer consisting of 12-inches of free-draining granular material overlain by a separation geotextile, top layer consisting of 12-inches of soil, and 6-inches of topsoil. The 12-inch top layer and 6-inch topsoil layer comprise an 18-inch thick layer of soil capable of supporting vegetative growth. The surface of the top layer would be vegetated with permanent plant species such as grasses and legumes to minimize erosion. Following placement of the low permeability soil cover system, the landfill will be vegetated with grasses selected for soil stabilization. Compaction of soils and requirements for low permeability soil cover system materials are provided in Specification 13972 "Building and Supporting Facilities Systems Civil Requirements" of the D/B RFP package.

5.0 WETLANDS RESTORATION

The remedy will disturb approximately 500 square feet of the ditch and adjoining embankments due to the excavation of contaminated sediments. The remedy will not disturb the forested wetlands downgradient of the washout area at the toe of the landfill. The exact area of disturbance cannot be determined until ongoing investigation activities have been completed. Although both of these areas lie outside of the delineated wetlands, due to their proximity to the wetlands and the possibility of the excavation extending into the wetlands, this section presents the restoration of these areas.

5.1 Wetlands Restoration Concept

Mitigation is defined by the Council on Environmental Quality (CEQ) as avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). For mitigation of wetland impacts, the USEPA encourages a sequential approach considering (in order), avoidance measures, minimization measures, and compensatory mitigation measures.

Avoidance: Avoidance measures will be considered throughout the development of the remedial action design. The remedial action design will avoid impacts to the forested wetlands north and west of the landfill. However, because contaminated sediments are located in the ditch upstream (south) of Site 13 and the washout area at the toe of the landfill, the remedial action will require excavation of those sediments and placing them under the low permeability soil cover to eliminate the possibility of direct

contact with and migration of contaminants. Avoidance of impacts to the ditch is impossible because excavation cannot be accomplished without disturbance of the ditch and embankments.

Minimization: The remedial action design will require use of best management practices throughout implementation of the remedy to minimize the potential for sedimentation of the forested wetlands and downgradient reaches of the ditch. These practices include the use of silt fences and vegetative stabilization.

Compensatory Mitigation: Because the remedial action will be conducted in the context of CERCLA, traditional compensatory mitigation is not required. However, in order to meet the substantive requirements of wetland-related ARARs and the Navy's own wetland protection policies, the remedial action design will include restoration and revegetation of all areas disturbed during the remedial action including the ditch, embankments and washout area at the toe of the landfill. Restoration activities are described in greater detail in Section 2.4.

6.0 SOIL EROSION, SEDIMENT, AND STORMWATER MANAGEMENT REQUIREMENTS

The preparation of a Soil Erosion and Sediment Control (SESC) plan and a Stormwater Pollution Prevention Plan (SPPP) are required as part of the remedial action design submission. The SESC plan will be prepared in accordance with the Soil Erosion and Sediment Control Act of 1975 as amended per N.J.A.C. 7:26-2A.9(e) and must be certified by the Freehold Soil Conservation District. The SPPP will be prepared in accordance with N.J.A.C. 7:14A.

6.1 Soil Erosion and Sediment Control

Run-off quality during the remedial action will be addressed via soil erosion and sediment control devices located within the limits of disturbance. The soil erosion and sediment control devices will meet the requirements set forth in the Standards of Soil Erosion and Sediment Control in New Jersey (SSESCNJ) manual dated July 1999. Temporary and permanent soil erosion and sediment control devices may consist of hay bales, silt fence, super silt fence, erosion control mat, riprap, and gabions.

6.2 Stormwater Management

Stormwater management will evaluate the need for temporary sediment basins during construction and permanent detention ponds following construction. Calculations performed for these evaluations will be provided with the SESC Plan and the SPPP.

To determine the need for temporary sediment basins during construction the contributing slopes and area of disturbance will be evaluated. In the event that features such as silt fence or reinforced silt fence are determined inadequate for the contributing area and slopes, a temporary sediment basin and diversions will be constructed to intercept surface water runoff exiting the construction areas to remove the sediment in the runoff prior to discharging surface water runoff to downgradient waterways. The evaluations performed to determine the adequacy of silt fence or reinforced silt fence will follow the standards presented in the current SSESCNJ manual. Likewise, in the event a temporary sediment basin and diversions are deemed necessary, the design of these features will follow the requirements presented in the current SSESCNJ manual.

To determine the need for permanent stormwater runoff control devices following construction, pre- and post- construction run-off analyses will be performed. The surface water drainage system will be designed to protect the landfill from run-on and control run-off from the peak discharge resulting from the 25-year recurrence interval, 24-hour storm recurrence interval per N.J.A.C. 7:26-2A.7(g). Run-on and run-off control structures will be designed in accordance with the Standards for Soil Erosion and Sedimentation Control (NJAC 2:90) per N.J.A.C. 7:26-2A.6(g). The performance of the surface water drainage system should be upgraded to protect environmentally sensitive areas including the freshwater wetlands (i.e. forested) located north and west of the landfill, flood fringe areas of the flood hazard area as identified by the NJDEP pursuant to the State Flood Hazard Area Control Act and those areas defined by the NJDEP as wetland buffer (i.e., transition) areas per N.J.A.C. 7:26-2A.6(g). Upgrading the performance standards for sensitive areas consists of upgrading the permanent surface water drainage features to handle the higher flows expected from increased design storms per N.J.A.C. 7:26-2A.6(h). Due to the wetlands located downgradient of the landfill, the permanent erosion and sediment control features will be designed using a storm with a 100-year recurrence interval, 24-hour intensity.

6.3 Floodplain Protection Measures

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps indicate that the areas within NWS Earle have not been included in the flood studies conducted to date. Additionally, although the 100 year flood zone extends to the northern boundary of NWS Earle, FEMA flood maps do not associate an elevation for the 100 year flood in this area. Therefore, a site specific floodplain analysis will be performed to determine whether portions of Site 13 extend into the 100 year floodplain.

7.0 OTHER DESIGN REQUIREMENTS

7.1 Utilities

Lightning protection, overhead electrical lines and fire water supply lines exist within and adjacent to the site as indicated on Drawing C-1. Verification of utility locations must be made prior to any construction.

Fencing, overhead electrical lines and service poles, and water service and fire hydrants within the Site limits will be relocated to the south prior to low permeability soil cover construction.

7.2 Groundwater Monitoring Wells

A groundwater monitoring system will be designed in accordance with N.J.A.C. 7:26-2A.7(h) and the New Jersey Pollutant Discharge Elimination System (NJPDES) (i.e., N.J.A.C. 7:14A-6) to ensure its ability to observe and record the performance of the sanitary landfill and to detect any possible pollutant migration. Existing groundwater monitoring wells are located outside of the landfill limits and therefore will not be impacted by excavation, grading, and low permeability soil cover placement efforts. The status of groundwater monitoring wells will be determined as part of the Long-Term Monitoring (LTM) Plan. For the purpose of this D/B RFP package it is assumed that existing groundwater monitoring wells will be protected and 3 additional monitoring wells installed as indicated. Existing groundwater monitoring well locations are shown on Drawings C-1 and C-2. Proposed groundwater monitoring well locations are shown on Drawing C-2. Groundwater monitoring well installation will be performed in accordance with NJDEP requirements.

7.3 Landfill Gas Venting System

A passive landfill gas venting system will be designed and constructed in accordance with N.J.A.C. 7:26-2A.7(h) if a passive landfill gas venting system is determined to be required during the remedial action design. The landfill gas venting system will prevent and control the migration of sanitary landfill gases off-site and will consist of a perimeter collection system or an interior collection system or both which will:

- prevent and control the accumulation of any methane concentrations in any structure;
- prevent and control damage to vegetation beyond the perimeter of the property on which the sanitary landfill is located; and
- contain malodorous gaseous emissions on-site.

7.4 Maintenance and Repair

Annual inspection and repair procedures will be established in the Operation and Maintenance (O&M) Plan. Plans for periodic mowing, reseeding, and repair of sparsely vegetated areas, repair of areas of differential settlement, etc. will be identified in the O&M Plan. The O&M Plan is a stand alone document prepared following remedial action construction activities.

7.5 Institutional Controls

Institutional controls in the form of access restrictions would be enacted to limit future uses of the site that may result in disturbance of the low permeability cover or direct contact with contaminated media.

Because site groundwater does not met the New Jersey groundwater quality standards, a Classification Exception Area (CEA) pursuant to N.J.A.C. 7:9-6 would be established. The CEA would provide the state official notice that the constituent standards will not be met for a specified duration and to ensure that use of groundwater in the affected area is suspended until standards are achieved.

7.6 Long-Term Monitoring Plan / O&M Plan

Long-term monitoring of groundwater will be performed to evaluate the effectiveness of the selected remedy. The monitoring program will document the data collection and evaluation activities required to evaluate the effectiveness of the selected remedy and will be prepared in accordance with the requirements of the Federal Facilities Agreement (FFA), ROD, 40 CFR 258, N.J.A.C. 7:26-2A, and Navy requirements. The groundwater monitoring wells, parameters to be analyzed, and sampling frequency will be addressed in the Long-Term Monitoring Plan. The LTM Plan is part of O&M activities and is therefore typically provided as part of, or appended to the O&M Plan.

The O&M Plan will provide the guidance and instruction necessary to ensure that the implemented remedy remains protective of human health and the environment. The O&M Plan will provide details of inspection, sampling, monitoring and analysis, routine operation and maintenance, and reporting requirements. The O&M Plan will be prepared in accordance with USEPA's Office of Solid Waste and Emergency Response (OSWER) document titled "Operation and Maintenance in the Superfund Program", N.J.A.C. 7:26-2A, NJDEP's document titled "Landfill Technical Guidance Manual", and Navy requirements.

REFERENCES

Tetra Tech NUS, Inc. (TtNUS), 2000. Feasibility Study for Site 13 (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey prepared for Northern Division, Naval Facilities Engineering Command, King of Prussia, Pennsylvania, December.

TtNUS, 2003a. Letter Work Plan, Pre-Design Investigation for Site 13 - Defense Property Disposal Office Yard (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast, Naval Facilities Engineering Command, King of Prussia, Pennsylvania, April.

TtNUS, 2003b. Geotechnical Investigation Report for Pre-Design Investigation, Site 13 – Defense Property Disposal Office Yard (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast, Naval Facilities Engineering Command, King of Prussia, Pennsylvania, June.

TtNUS, 2003c. Wetland Delineation Report for Site 13 – Defense Property Disposal Office Yard (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast, Naval Facilities Engineering Command, King of Prussia, Pennsylvania, June.

TtNUS, 2003d. Draft Record of Decision, Operable Unit 5 (OU-5), Site 13, Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast Naval Facilities Engineering Command, King of Prussia, Pennsylvania, August.

TtNUS, 2003e. Final Quality Assurance Project Plan for Pre-Design Investigation Sediment Sampling at Site 13 - Defense Property Disposal Office Yard, Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared for Engineering Field Activity Northeast, Naval Facilities Engineering Command, King of Prussia, Pennsylvania, September.

TABLE A-1
SUMMARY OF ANALYTICAL RESULTS
PRE-DESIGN INVESTIGATION
NWS EARLE
COLTS NECK, NEW JERSEY

Constituent	13SD04	13SD05	13SD06	13SD06-D	13SD07	13SD08	13SD09	13SD10	13SD11	13SD12	13SD13	13SD14
Polychlorinated Biphenyls (PCBs) (ug/kg)												
Aroclor-1016	370 U	370 U	400 U	390 U	360 U	36 U	37 U	42 U	44 U	44 U	42 U	42 U
Aroclor-1221	750 U	730 U	790 U	780 U	730 U	71 U	74 U	84 U	87 U	87 U	84 U	84 U
Aroclor-1232	370 U	370 U	400 U	390 U	360 U	36 U	37 U	42 U	44 U	44 U	42 U	42 U
Aroclor-1242	370 U	370 U	400 U	390 U	360 U	36 U	37 U	42 U	44 U	44 U	42 U	42 U
Aroclor-1248	370 U	370 U	400 U	390 U	360 U	36 U	37 U	42 U	44 U	44 U	42 U	42 U
Aroclor-1254	1000	2000	940	860	360 U	36 U	37 U	42 U	44 U	44 U	42 U	42 U
Aroclor-1260	370 U	370 U	400 U	390 U	1800	36 U	37 U	42 U	44 U	44 U	42 U	42 U
TCL Aroclors [3]	1000	2000	940	860	1800	ND	ND	ND	ND	ND	ND	ND
Inorganics (mg/kg)												
Aluminum	1380 J	2150 J	1340 J	1460 J	2180 J	2650 J	4180 J	3150 J	1710 J	944 J	823 J	818 J
Antimony	1.1 J	2.3 J	1.3 J	0.65 J	1.2 J	0.53 J	0.85 J	0.55 J	0.55 J	0.4 J	0.25 UJ	0.25 UJ
Arsenic	2.5	4.5	3.3	2.8	3.5	4.1	11.1	4.9	2.0	1.3	0.65	0.86
Barium	4.6	35.3	3.4	3.3	3.2	3.4	3.9	5.5	1.3	1.3	1.9	2.4
Beryllium	0.15	0.20	0.21	0.21	0.31	0.42 J	0.6 J	0.30	0.29	0.21	0.15	0.16
Cadmium	0.14 J	3.1 J	0.16 J	0.04 UJ	0.04 UJ	0.04 J	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.05 UJ
Calcium	49.4	88.6	33.6	32.5	34.5	88.2	73.8	92.3	20.1	41.6	81.4	524
Chromium	19.1	30.1	21.7	22.8	43.8	59.5	110	46.1	45.0	27.9	34.8	29.7
Cobalt	0.1 U	2.9	0.25	0.1 U	0.29	0.22	0.23	0.25	0.11 U	0.12 U	0.38	0.11 U
Copper	10.7 J	61.9 J	11.2 J	10.4 J	8.5 J	1.8 J	3.2 J	4.4 J	1.5 J	1 J	0.7 J	0.64 J
Iron	5900	14300	7370	6590	10700	11400	16200	8920	4940	3380	2990	2430
Lead	30.8 J	112 J	30.5 J	28.5 J	37.2 J	7.2 J	13.4 J	14.5 J	7.4 J	3.1 J	360 J	3.3 J
Magnesium	254	289	258	295	497	740	956	491	368	176	139	184
Manganese	12.4	28.8	16.5	10.1	22.4	9.3	8.1	18.7	2.1	2.9	4.4	5.9
Mercury	0.12	0.23	0.11	0.08	0.15	0.01 U	0.03	0.08	0.02	0.04	0.02 U	0.03
Nickel	1.2 J	14.3 J	2.1 J	1.3 J	2.2 J	1.5 J	1.8 J	1.4 J	0.91 J	0.66 J	0.87 J	0.42 J
Potassium	741	821	788	1120	1500	2290	2730	1360	1200	574	366	436
Selenium	0.41 U	0.72	0.5 U	0.41 U	0.49	0.34 U	0.55	0.46 U	0.46 U	0.5 U	0.47 U	0.48 U
Silver	10.9	34.3	20.9	9.7	13.1	1.6	0.73	0.34	0.13 U	0.14 U	0.13 U	0.14 U
Sodium	18.6	17.0	14.0	15.1	15.7	13.1	18.9	17.1	16.8	30.3	18.9	17.1
Thallium	0.44 U	0.32 U	0.53 U	0.43 U	0.46 U	0.36 U	0.48 U	0.5 U	0.5 U	0.53 U	0.5 U	0.51 U
Vanadium	18.4	24.9	18.3	20.3	44.2	61.7	64.6	39.7	23.7	13.6	8.2	10.4
Zinc	14.6	47.9	18.2	11.4	13.4	59.8	16.5	10.5	5.9	5.2	20.6	3.4

TABLE A-1
SUMMARY OF ANALYTICAL RESULTS
PRE-DESIGN INVESTIGATION
NWS EARLE
COLTS NECK, NEW JERSEY

Constituent	13SD14-D	13SD15	13SD16	13SD17	13SD18	13SD19	13SD200006	13SD210006	13SD211218	13SD220006	13SD230006	13SD240006
Polychlorinated Biphenyls (PCBs) (ug/kg)												
Aroclor-1016	43 U	45 U	43 U	43 U	42 U	42 U	38 U	360 U	420 U	520 U	380 U	380 U
Aroclor-1221	86 U	90 U	86 U	85 U	83 U	84 U	38 U	360 U	420 U	520 U	380 U	380 U
Aroclor-1232	43 U	45 U	43 U	43 U	42 U	42 U	38 U	360 U	420 U	520 U	380 U	380 U
Aroclor-1242	43 U	45 U	43 U	43 U	42 U	42 U	38 U	360 U	420 U	520 U	380 U	380 U
Aroclor-1248	43 U	45 U	43 U	43 U	42 U	42 U	38 U	360 U	420 U	520 U	380 U	380 U
Aroclor-1254	43 U	45 U	43 U	43 U	42 U	42 U	38 U	360 U	420 U	520 U	380 U	380 U
Aroclor-1260	43 U	45 U	43 U	43 U	42 U	42 U	250	970	2500	4400	2400 J	860 J
TCL Aroclors [3]	ND	ND	ND	ND	ND	ND	250	970	2500	4400	2400 J	860 J
Inorganics (mg/kg)												
Aluminum	686 J	1120 J	443 J	635 J	753 J	975 J	2080	1500	6090	22000	1800	3360
Antimony	0.36 J	0.27 UJ	0.27 UJ	0.22 UJ	0.23 UJ	0.26 UJ	0.56 J	0.46 J	1.8 J	7.9 J	2 J	1.1 J
Arsenic	1.2	1.0	0.56	0.60	0.52	0.99	2.9 J	2.5 J	8.1 J	37 J	5.3 J	7.5 J
Barium	0.85	0.95	0.95	0.96	1.2	3.6	4.0	2.4	12.5	32.8	6.9	5.1
Beryllium	0.15	0.14	0.07	0.07	0.10	0.06	0.26	0.18	0.62 J	1.8 J	0.20	0.36
Cadmium	0.05 UJ	0.05 UJ	0.05 UJ	0.04 UJ	0.04 UJ	0.05 J	0.14	0.07	0.63	2.2	0.46	0.46
Calcium	20.2	25.9	21.8	23.3	135	275	51.4	29.8	157	133	60.0	106
Chromium	39.4	26.8	9.6	13.5	12.5	6.1	36.9	30.9	88.2	284	31.3	84.5
Cobalt	0.13 U	0.12 U	0.12 U	0.1 U	0.17	0.78	0.36	0.30	0.98	2.6	0.82	0.32
Copper	0.49 J	1.3 J	0.45 J	0.72 J	0.87 J	2.9 J	3.8	3.6	25.2	109	42.8	12.4
Iron	2520	4010	1350	2030	2190	3490	9080	7300	21700	69200	16600	15700
Lead	3 J	3.4 J	1.6 J	2.7 J	2.4 J	4.2 J	11.5	14.9	106	302	116	33.7
Magnesium	153	259	74.7	119	172	163	467	363	1310	3870	379	623
Manganese	3.5	4.5	1.8	4.7	9.7	27.0	9.7	6.1	22.3	48.7	49.9	9.0
Mercury	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02	0.36 J	0.06 J	0.38 J	2 J	0.51 J	0.19 J
Nickel	0.34 J	0.82 J	0.34 J	0.45 J	0.64 J	1.5 J	1.4	1.1	4.2	13.4	4.1	2.3
Potassium	444	756	210	330	450	201	1420 J	1100 J	3650 J	11100 J	912 J	2080 J
Selenium	0.53 U	0.51 U	0.52 U	0.43 U	0.45 U	0.49 U	0.25 U	0.3 U	0.35 U	1.4	0.27 U	0.49
Silver	0.15 U	0.15 U	0.15 U	0.12 U	0.13 U	3.4	14.3	4.5	18.2	55.8	42.3	7.6
Sodium	15.8	14.2	15.4	10.8	13.4	18.3	15.0	9.3	24.3	57.0	15.2	14.0
Thallium	0.57 U	0.55 U	0.56 U	0.46 U	0.48 U	0.53 U	0.47 U	0.56 U	0.67 U	0.85 U	0.51 U	0.48 U
Vanadium	14.6	14.5	7.0	9.3	9.3	6.0	39.4 J	32.9 J	87 J	253 J	25.4 J	44.1 J
Zinc	3.8	5.2	3.5	4.0	6.4	16.3	16.5	8.5	33.2	108	86.5	22.4

TABLE A-1
SUMMARY OF ANALYTICAL RESULTS
PRE-DESIGN INVESTIGATION
NWS EARLE
COLTS NECK, NEW JERSEY

Constituent	13SD240006-D	13SD241218	13SD250006	13SD260006	13SD261218	13SD270006	13SD281218
Polychlorinated Biphenyls (PCBs) (ug/kg)							
Aroclor-1016	380 U	550 U	77 U	3700 U	40 U	2600 U	380 U
Aroclor-1221	380 U	550 U	77 U	3700 U	40 U	2600 U	380 U
Aroclor-1232	380 U	550 U	77 U	3700 U	40 U	2600 U	380 U
Aroclor-1242	380 U	550 U	77 U	3700 U	40 U	2600 U	380 U
Aroclor-1248	380 U	550 U	77 U	3700 U	40 U	2600 U	380 U
Aroclor-1254	380 U	550 U	77 U	3700 U	40 U	2600 U	380 U
Aroclor-1260	700 J	4900 J	520	9600 J	46	7200 J	780
TCL Aroclors [3]	700 J	4900 J	520	9600 J	46	7200 J	780
Inorganics (mg/kg)							
Aluminum	1520	12400	5150 J	12000 J	1260	16800	1360
Antimony	1 J	8.1 J	2.7 J	7.7 J	1.2 J	4.8 J	1.5 J
Arsenic	4.1 J	21.7 J	10 J	28.7 J	1.7 J	23.4 J	1.8 J
Barium	6.2	38.2	41.4 J	47.2 J	7.2	36.0	3.0
Beryllium	0.21	0.80	0.53 J	0.8 J	0.14	0.92 J	0.22
Cadmium	0.51	3.3	2.2 J	6.8 J	0.84	2.9	0.07
Calcium	137	221	235 J	303 J	41.6	123	36.1
Chromium	41.3	122	39 J	118 J	292	132	28.9
Cobalt	0.48	1.9	0.83 J	2.5 J	0.22	1.7	0.55
Copper	15.7	114	36.9 J	96.8 J	7.6	91.5	18.3
Iron	9330	37700	12500 J	33600 J	2540	40300	8500
Lead	33.0	435	88.4 J	290 J	23.8	231	118
Magnesium	287	1420	315 J	1320 J	126	1530	249
Manganese	17.4	49.1	12.6 J	25.9 J	4.9	24.5	30.7
Mercury	0.16 J	2.6 J	0.46 J	1.8 J	0.37 J	1.8 J	0.11 J
Nickel	2.8	10.3	5.8 J	14.6 J	1.5	9.8	2.9
Potassium	872 J	3930 J	874 J	3800 J	378 J	4420 J	788 J
Selenium	0.33 U	1.6	1.7 J	2.7 J	0.68	2.4	0.33 U
Silver	11.6	76.6	12.3 J	60.7 J	4.4	79.5	8.3
Sodium	14.4	49.1	34.8 J	87.8 J	13.3	42.3	12.7
Thallium	0.62 U	0.89 U	1.3 U	1.2 U	0.6 U	0.82 U	0.63 U
Vanadium	24.8 J	112 J	31.4 J	118 J	9.9 J	120 J	29.2 J
Zinc	22.8	110	53.7 J	175 J	17.7	73.0	12.7

1. Results presented for June and September 2003 sampling events.
2. FD06260301 is a duplicate of 13SD06, FD06260302 is a duplicate of 13SD14, and FD09250301 is a duplicate of 13SD240006.
3. TCL Aroclors represents the calculated sum of the detected values for Aroclors-1016, -1221, -1232, -1242, -1248, -1254, and -1260.

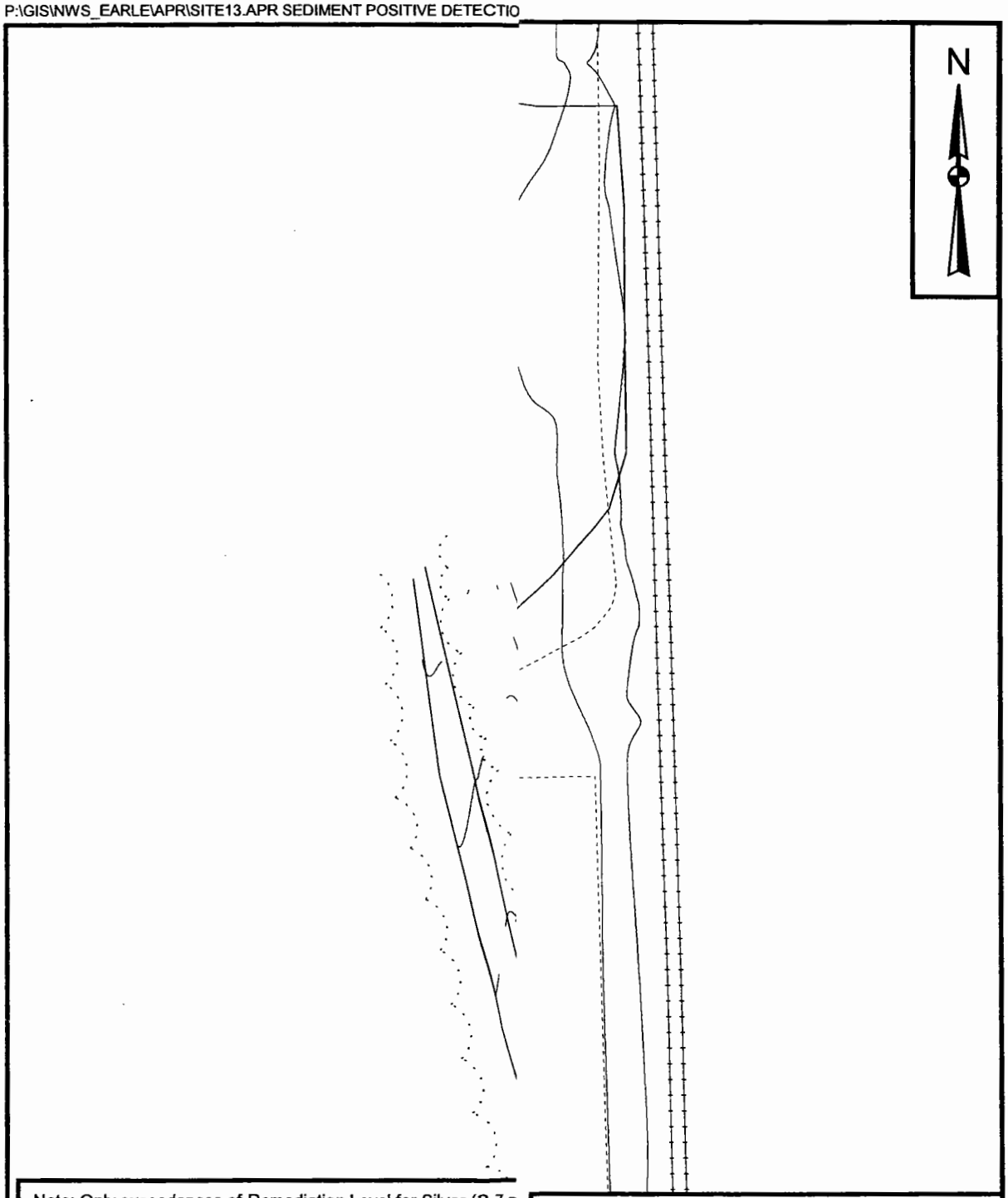
ND - Not detected.

J - Value is estimated due to technical noncompliance.

U - Value is non-detected as reported by the laboratory.

UJ - Non-detected value is estimated due to technical noncompliance.

P:\GIS\NWS_EARLE\APR\SITE13.APR SEDIMENT POSITIVE DETECTIO



00971-FA17

ATTACHMENT B

SUBSURFACE INVESTIGATION LOGS

B.1 BORING LOGS
B.2 MONITORING WELL LOGS
B.3 TEST TRENCH LOGS

B.1 BORING LOGS

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE - CTO 231 — BORING NO.: MW13-1
PROJECT NO.: 5803 — DATE: 6/24/95 — DRILLER: JC ANDERSON
ELEVATION: — FIELD GEOLOGIST: CONTI
WATER LEVEL DATA: —
(Date, Time & Conditions) —

SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR ROD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth ft.)	MATERIAL DESCRIPTION*: SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS	HNU PPM
S-1	0.0	2/3	1.8/2.0		LOOSE	BRN	SILTY SAND	SM	TOP 6" TOPSOIL MOIST	0
0910	2.0	5/5		2.0	↓	TAN TO OLIVE	↓			
S-2		12/13	1.7/2.0	3.0	M DENSE	↓	SILTY F TO M SAND TR	SM	HIT WATER @ 4'±	0
0915	4.0	8/6			↓	↓	TO SOME GRAVEL	/SP	GRAVEL (MAX 3/4") LAYER ≈ 2'-3'	
S-3		3/4	1.9/2.0		↓	↓	↓		THEN OLIVE SILTY SAND	0
@ 0980	6.0	4/4		5.5	LOOSE	OLIVE ORANG BRN	SILTY SAND (F TO M)	SM/SP	WET	
					↓	↓	↓		LAST 6" ORANGE BRN.	
					↓	↓	↓		S-1 → S-3 SL MICACEOUS	
	10.0				↓	↓	↓			
S-4		4/5	1.8/2.0		M DENSE	YELLOW BRN	SILTY FINE SAND	SM/SP	WET	0
0940	12.0	6/5			↓	↓	↓		SL MICACEOUS	
	15.0			15.0	↓	↓	↓			
							BOTTOM @ 15' (HSA)			
							SCREEN 15-5			
							SAND 15-4			
							BENTONITE 4-2			

REMARKS: ATV (FAILING)

BORING MW13-1

PAGE 1 OF 1

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE - CTO 231 — BORING NO.: MW13-2
PROJECT NO.: 5803 — DATE: 6/23/95 — DRILLER: JC ANDERSON
ELEVATION: — FIELD GEOLOGIST: CONTI
WATER LEVEL DATA: —
(Date, Time & Conditions) —

SAMPLE NO. & TYPE	DEPTH (Ft.) OR RUN NO.	BLOWS 6" OR ROD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, Ft.)	MATERIAL DESCRIPTION* — SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS	HNU PPM
S-1	0.0	2/2	1.5/2.0		LOOSE	TAN BRN	SILTY FINE TO M SAND	SM	6" TOPSOIL/LEAVES	2
1250	2.0	1/2		2.0	↓	↓	↓	SP	MOIST	
S-2		1/1	1.5/2.0		M DENSE	TAN GRAY	FINE TO COARSE SAND	SW	MOIST → WET	0
	4.0	5/10			↓	ORANG	TR F GRAVEL		WATER ≈ 4'±	
S-3		8/8	1.6/2.0		M DENSE	BRN TO	↓		WET	0
1255	6.0	8/8			↓	GRAY MOTLD	SILTY FINE SAND	SM	WET - SLIGHTLY MICACEOUS	
	10.0	3			↓	YELLOW	↓			
S-4		3/5	1.7/2.0		LOOSE	BRN	SILTY FINE SAND	SM	WET	0
1305	12.0	4			↓	↓	↓			
	15.0				↓	ORANG	↓			
S-5	16.0	8/10	1.0/1.0		M DENSE	BRN	SILTY FINE SAND	SM	WET	0
1320									SL. MICACEOUS	
							HSA TO 15'			
							SCREEN 15 TO 5			
							SAND 15 TO 4			
							BENTONITE 4 TO 2			

REMARKS: ATV RIG (FAILING)

BORING MW-13-2

PAGE 1 OF 1

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE – CTO 231 — BORING NO.: MW13-3
PROJECT NO.: 5803 — DATE: 6/23/95 — DRILLER: JC ANDERSON
ELEVATION: — FIELD GEOLOGIST: CONTI
WATER LEVEL DATA: —
(Date, Time & Conditions) —

SAMPLE NO. & TYPE	DEPTH (ft) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY - SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft)	MATERIAL DESCRIPTION*: SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS	HNU PPM
S-1	0.0	2/1	1-5/2.0		V LOOSE	LT. BRN	SILTY SAND	SM	6" TOPSOIL MOIST	.5
1510	2.0	1/1		2.0	↓	↓	↓			
S-2		1/1	1-7/2.0		M DENSE	OLIVE	SILTY FINE SAND	SM	MOIST → WET	0
1512	4.0	6/7			↓	↓	↓	/SP	WATER ≈ 4'	
S-3		6/7	1-8/2.0		M DENSE	OLIVE	SILTY FINE SAND	SM/	SLIGHT SULFUR ODOR	0
1515	6.0	7/6						SP	WET SL.	
									MICACEOUS ALL SAMPLES	
									NOTE COLOR	
									CHANGE AT 2' - NOT SO	
	10.0				↓	↓	↓		WITH MW13-2	
S-4		5/7	1-0/2.0		M DENSE	OLIVE	SILTY SAND/SANDY SILT	SM /SP	WET	0
1530	12.0	6/5								
				14.0	↓	↓	↓			
	15.0			15.0	M DENSE	YELLOW BR	SILTY SAND - TR M SAND	SM /SP	LOGGED FROM 3" SPOON USED TO CLEAN HSA WITH.	0
							HSA TO 15'			
							SCREEN : 15 TO 5			
							SAND : 15 TO 4			
							BENT. : 4 TO 2			

REMARKS ATV RIG (FAILING)

BORING MW13-3

PAGE 1 OF 1

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE - CTO 231 — BORING NO.: MW13-4
PROJECT NO.: 5803 — DATE: 6/24/95 — DRILLER: JC ANDERSON
ELEVATION: — FIELD GEOLOGIST: CONTI
WATER LEVEL DATA: —
(Date, Time & Conditions) —

SAMPLE NO. & TYPE	DEPTH (Ft.) OR RUN NO.	BLOWS 6" OR ROD (")	SAMPLE RECOVERY - SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, Ft.)	MATERIAL DESCRIPTION* SOIL DENSITY: CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS	HNU PPM
S-1	0.0	3/2	1.5/2.0		LOOSE	LT YELLOW BRN	SILTY SAND	SM/SP	DAMP → MOIST	0
1245	2.0	4/4			↓	↓	↓			
S-2		1/1	1.3/2.0		LOOSE	YELLOW BRN	SILTY SAND	SM/SP	MOIST	0
1250	4.0	3/5			↓	YELLOW BRN	↓			
S-3		5/4	1.8/2.0		LOOSE	BRN TO	SILTY FINE TO M	SM/SP	MOST	0
1255	6.0	4/6		5.5 / 6.0	↓	D.BRN	SANDY SILT SAND			0
S-4		6/5	1.9/2.0		LOOSE	TAN BRN TO BRN	TR WOOD (PEAT)		NATURAL	
1300	8.0	3/5		7.5± ▽	↓	↓	SILTY FINE TO M SAND		LAST 6" (S-4)	
					↓	↓	↓		WET WATER = 7.5±	
	10.0			10.0	↓	↓	↓			
S-5		3/3	1.8/2.0		LOOSE	OLIVE	SILTY F TO M SAND	SM/SP	WET	0
1307	12.0	4/5			↓	↓	↓		GLAUCONITIC NOTE COLOR CHANGE	
	16.0			16.0	↓	↓	↓			
S-6		6/8	1.8/2.0		MDENSE	OLIVE	SILTY F TO M SAND	SM/SP	WET	0
1320	18.0	10/10								
							HSA TO 16		TOOK 3" SPOON	
							SS (3"Ø) 16-18		16/18 FOR LITH. ONLY.	
							SCREEN 6-16			
							SAND 4-16			
							BENTONITE 2-4			

REMARKS ATV RIG (FAILING)

BORING MW13-4

PAGE 1 OF 1

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE - CTO 231 — BORING NO.: MW13-5
PROJECT NO.: 5803 — DATE: 6/24/95 — DRILLER: JC ANDERSON
ELEVATION: — FIELD GEOLOGIST: CONTI
WATER LEVEL DATA: —
(Date, Time & Conditions) —

SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR ROD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS	HNU PPM
S-1	0.0	4/5	1.8/2.0		LOOSE	TAN BRN	FINE TO MED SAND	SM/SP	DAMP	0
1445	2.0	5/5								
	5.0					YELLOW				
S-2		5/4	2.0/2.0		LOOSE	BRN	SILTY FINE TO MED	SM/SP	MOIST	0
1500	7.0	4/4					SAND		NO WATER @ 7'	
									HIT WATER	
									≈ 8.0	
	10.0					OLIVE				
S-3		4/5	1.8/2.0		LOOSE	BRN	SILTY FINE TO MED	SM/SP	WET - SL	0.5
1515	12.0	5/5					SAND		MICACEOUS	
	17.0					YELLOW				
S-4		6/8/10/11	1.7/2.0		MDENSE	BRN	SILTY SAND	SM/SP	WET	0
	19.0								USED 3" SPOON HERE TO CLEAN OUT BOTH HSA.	
							HSA TO 17'			
							SCREEN 7 TO 17			
							SAND 5 TO 17			
							BENTONITE 5 TO 3			

REMARKS ATV (FAILING)

BORING MW13-5

PAGE 1 OF 1

* See Legend on Back

BORING LOG

BROWN AND ROOT ENVIRONMENTAL
A Division of Halliburton NUS

PROJECT NWS - EARLE
PROJECT NO. 5803 CTO-231
ELEVATION
WATER LEVEL DATA
(DATE. TIME & CONDITIONS) 12/5/96 & 12/6/96

BORING NO. MW13-06
DATE 12/5 and 12/6/96
DRILLER CT&E Drilling - Bill Petley
FIELD GEOLOGIST Paul Davis

SAMPLE NO.	DEPTH (FT.)	BLOWS 6"	SAMPLE REC. LENGTH	LITHO. CHANGE	MATERIAL DESCRIPTION*			USCS	REMARKS
					SOIL DENSITY HARDNESS	COLOR	MATERIAL CLASSIFICATION		
S-22 @	43	7 / 17			med dense	olive green	Silty fine to med.	SM	wet
1426	44	28 / 33	18/24		very dense	↓	grained sands (some orange bands)		Running sands Adding water
S-23 @	45	18 / 10		-	med dense	↓	↓		
1434	46	19 / 20	24/24		Dense	↓	Silty Fine sand	SM	wet
S-24 @	47	30 / 50			very dense	Dark green	↓		
1505	48	50 / 75	24/24		↓	↓	↓		Damp
S-25 @	49	25 / 60			↓	↓	↓	SM	
1520	50	76 / 104	12/24		↓	↓	↓		Damp
S-26 @	51	50 / 50			↓	↓	↓		
1605	52	76 / 100/1	12/24		↓	↓	↓	SM	Damp
S-27 @	53	75 / 73			↓	↓	↓		
1105	54	77 / 79	12/24		↓	↓	↓	SM	
S-28 @	55	77 / 76			Hard	Blue Green	Silty clay	ML	(very plastic)
1120	56	40 / 38	18/24		Hard	↓	↓	ML	Damp

↑ 2-5-96
12-6-96 ↓

REMARKS Used 250 gallons of water to control running sands in augers.

BORING NO. MW13-06
PAGE 4 OF 4

* See Legend on Back

B.2 MONITORING WELL LOGS

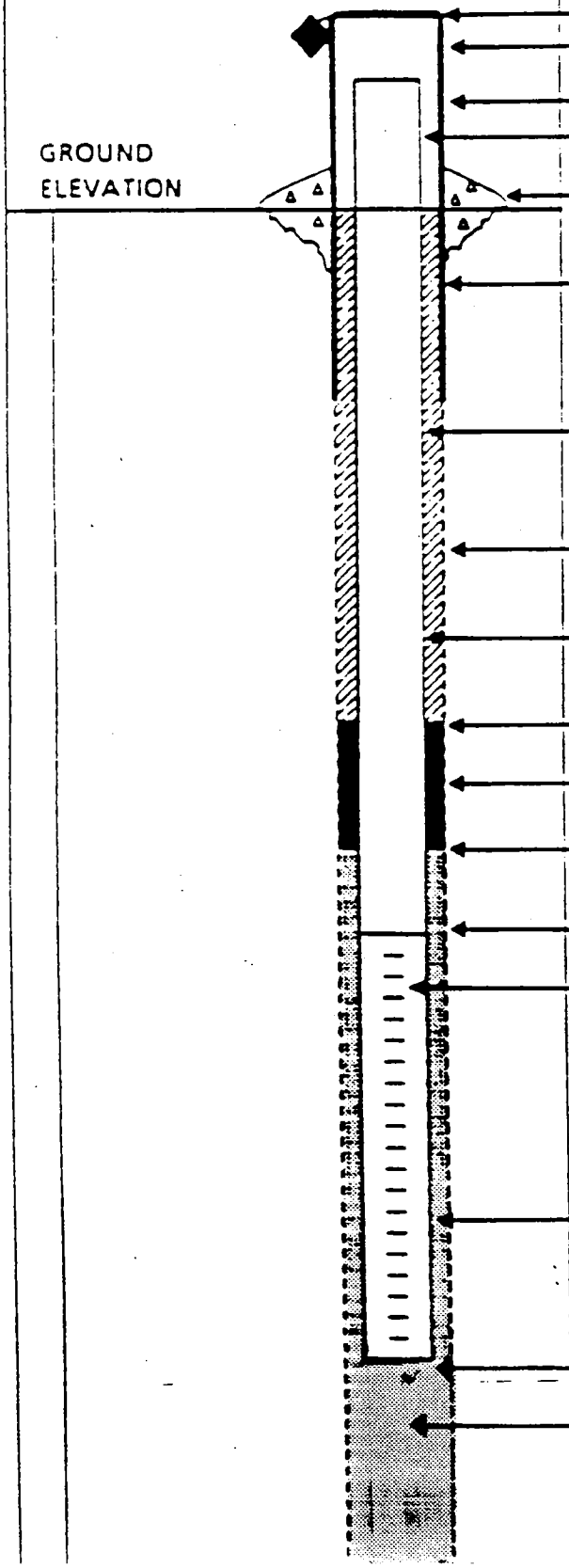
HALLIBURTON NUS
Environmental Corporation

BORING NO MW13-1

OVERBURDEN
MONITORING WELL SHEET

PROJECT GTO - 231 LOCATION NWS-Earle
PROJECT NO. 5803 BORING MW13-1
ELEVATION Ground: 84.19' msl DATE 6-23-95
FIELD GEOLOGIST Conti

DRILLER JCA
DRILLING METHOD HSA
DEVELOPMENT METHOD Pump



ELEVATION OF TOP OF SURFACE CASING: 86.43'
ELEVATION OF TOP OF RISER PIPE: 86.04
STICK - UP TOP OF SURFACE CASING: + 2.24'
STICK - UP RISER PIPE: + 1.85'
TYPE OF SURFACE SEAL: Cement / grout
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: Steel
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: cement / grout
ELEVATION / DEPTH TOP OF SEAL: 12'
TYPE OF SEAL: Bentonite Pellets
DEPTH TOP OF SAND PACK: 4'
ELEVATION / DEPTH TOP OF SCREEN: 15'
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 SL x 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: # 1 morie
ELEVATION / DEPTH BOTTOM OF SCREEN: 115'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 115'
TYPE OF BACKFILL BELOW OBSERVATION WELL: N/A

115'

HALLIBURTON NUS
Environmental Corporation

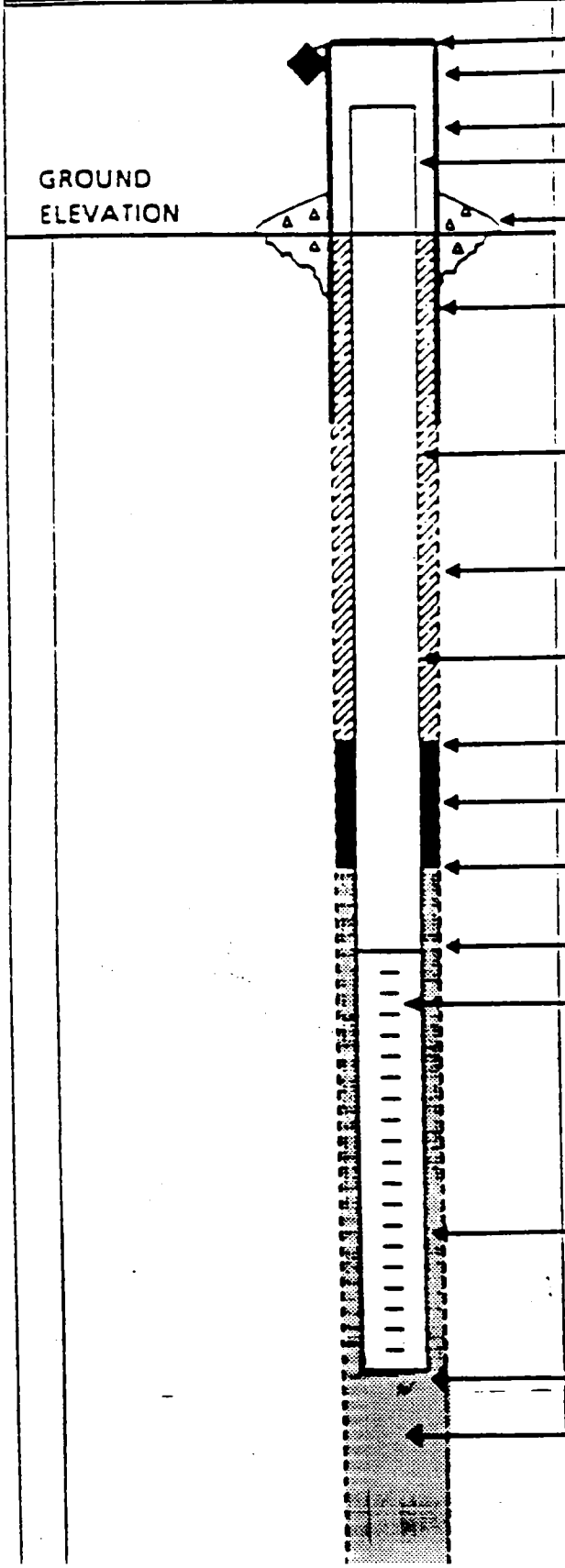
BORING NO MW13-2

OVERBURDEN
MONITORING WELL SHEET

PROJECT GTO-231
PROJECT NO. 5803
ELEVATION Ground: 83.04' msl
FIELD GEOLOGIST Conti

LOCATION NWS-Earle
BORING MW13-2
DATE 6-23-95

DRILLER JCA
DRILLING METHOD HSA
DEVELOPMENT METHOD Pump



ELEVATION OF TOP OF SURFACE CASING: 85.44'
ELEVATION OF TOP OF RISER PIPE: 85.09'
STICK - UP TOP OF SURFACE CASING: +2.40'
STICK - UP RISER PIPE: +2.05'
TYPE OF SURFACE SEAL: Cement/grout
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: Steel
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: cement/grout
ELEVATION / DEPTH TOP OF SEAL: 12'
TYPE OF SEAL: Bentonite Pellets
DEPTH TOP OF SAND PACK: 4'
ELEVATION / DEPTH TOP OF SCREEN: 15'
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 SL x 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 Morie
ELEVATION / DEPTH BOTTOM OF SCREEN: 115'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 115'
TYPE OF BACKFILL BELOW OBSERVATION WELL: N/A

115'

HALLIBURTON NUS
Environmental Corporation

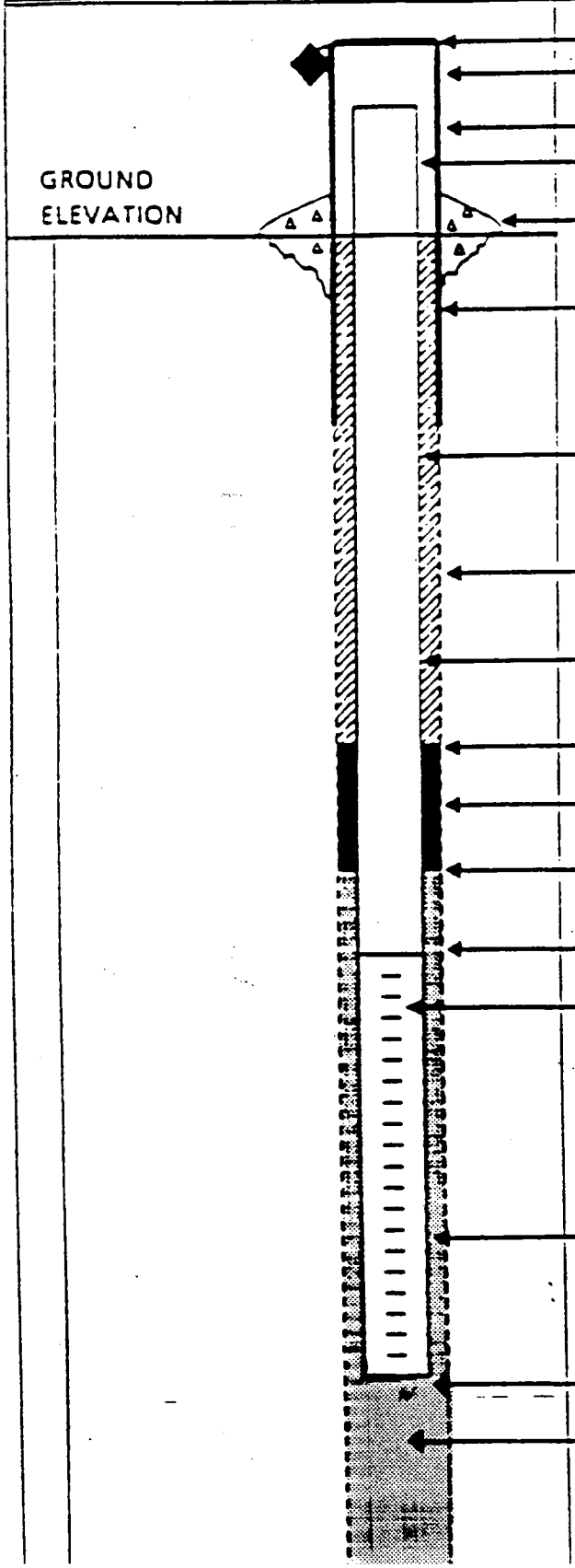
BORING NO MW13-3

OVERBURDEN
MONITORING WELL SHEET

PROJECT GTO-231
PROJECT NO. 5803
ELEVATION Ground: 81.28' msl
FIELD GEOLOGIST Conti

LOCATION NWS-Earle
BORING MW13-3
DATE 6-23-95

DRILLER JCA
DRILLING METHOD HSA
DEVELOPMENT METHOD Pump



ELEVATION OF TOP OF SURFACE CASING: 83.69'
ELEVATION OF TOP OF RISER PIPE: 83.26'
STICK-UP TOP OF SURFACE CASING: +2.41'
STICK-UP RISER PIPE: +1.98'
TYPE OF SURFACE SEAL: Cement/grout
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: Steel
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: cement/grout
ELEVATION / DEPTH TOP OF SEAL: 12'
TYPE OF SEAL: Bentonite Pellets
DEPTH TOP OF SAND PACK: 4'
ELEVATION / DEPTH TOP OF SCREEN: 15'
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 SL x 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 morie
ELEVATION / DEPTH BOTTOM OF SCREEN: 115'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 115'
TYPE OF BACKFILL BELOW OBSERVATION WELL: N/A

HALLIBURTON NUS
Environmental Corporation

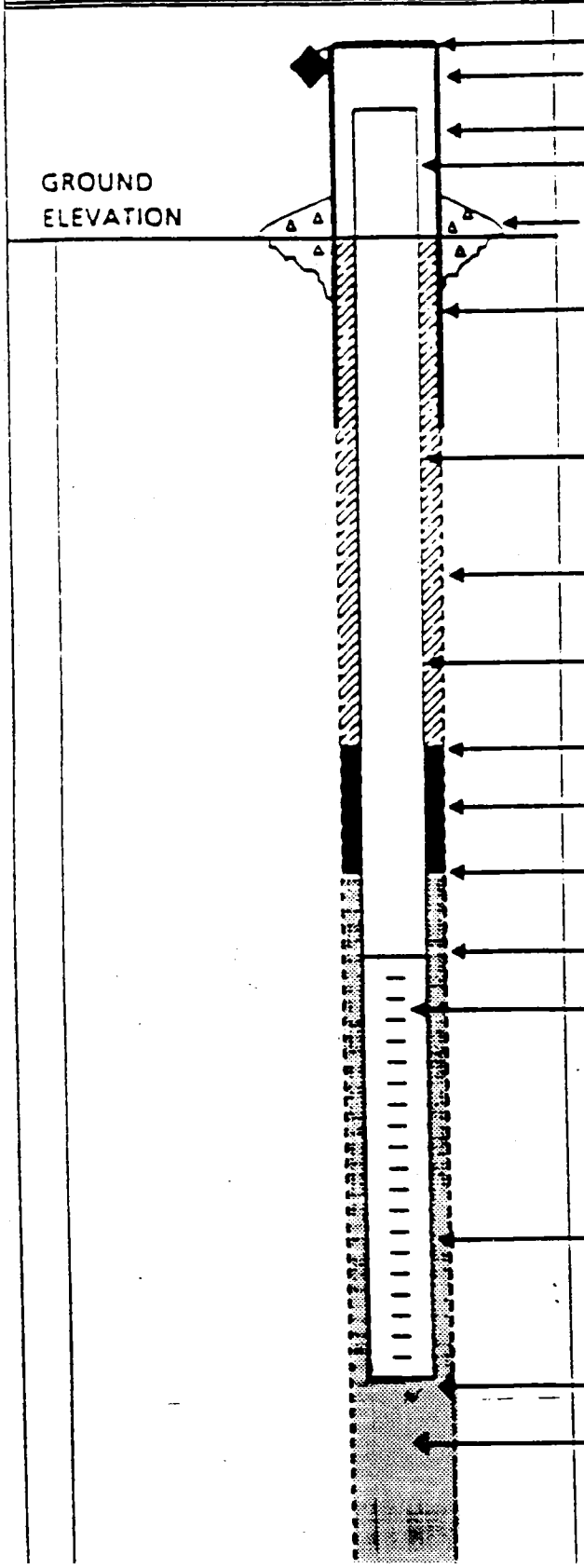
BORING NO MW13-4

OVERBURDEN
MONITORING WELL SHEET

PROJECT GTO - 231
PROJECT NO. 5803
ELEVATION Ground: 92.18' msl
FIELD GEOLOGIST Conti

LOCATION NWS-Earle
BORING MW13-4
DATE 6-24-95

DRILLER JCA
DRILLING METHOD HSA
DEVELOPMENT METHOD Pump



ELEVATION OF TOP OF SURFACE CASING: 94.30'
ELEVATION OF TOP OF RISER PIPE: 93.85'
STICK - UP TOP OF SURFACE CASING: +2.12'
STICK - UP RISER PIPE: +1.67'
TYPE OF SURFACE SEAL: Concrete
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: Steel
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: Cement / grout
ELEVATION / DEPTH TOP OF SEAL: 12'
TYPE OF SEAL: Bentonite pellets
DEPTH TOP OF SAND PACK: 14'
ELEVATION / DEPTH TOP OF SCREEN: 16'
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 SL X 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 morie
ELEVATION / DEPTH BOTTOM OF SCREEN: 116'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 116'
TYPE OF BACKFILL BELOW OBSERVATION WELL: N/A

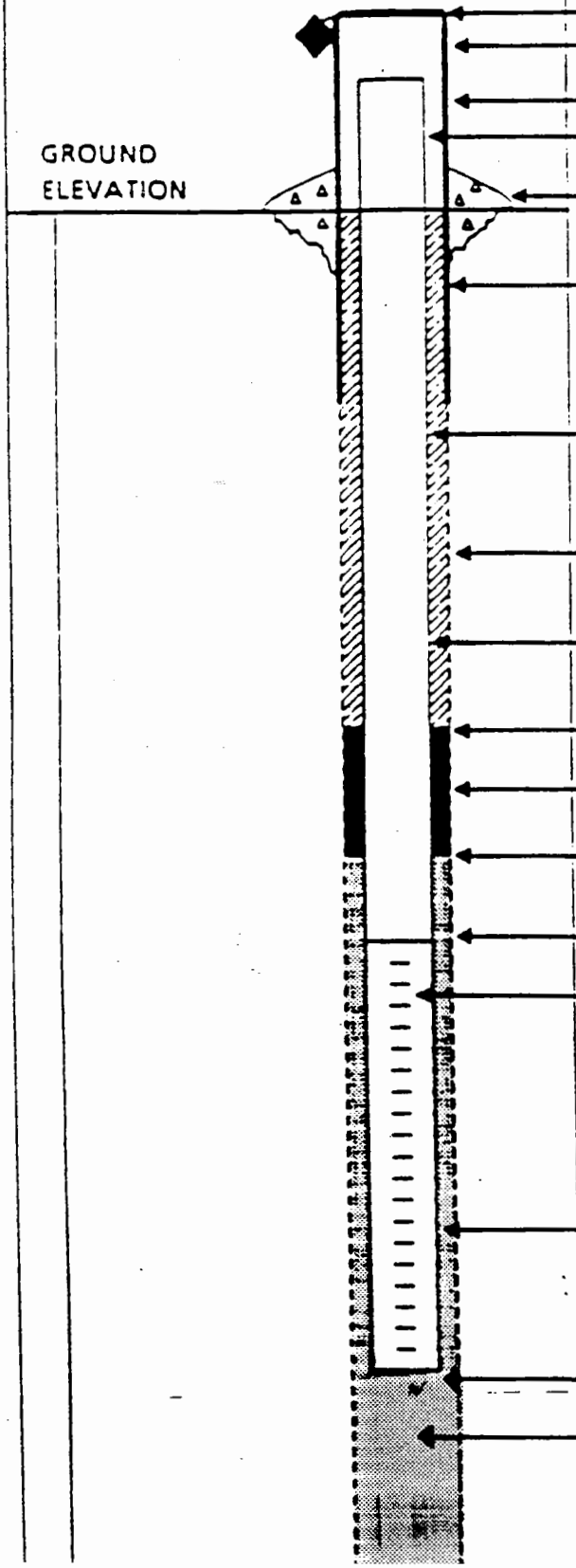
HALLIBURTON NUS
Environmental Corporation

BORING NO MW13-5

OVERBURDEN
MONITORING WELL SHEET

PROJECT GTO-231 LOCATION NWS-Earle
PROJECT NO. 5803 BORING MW13-5
ELEVATION Ground: 93.67' MSL DATE 6-24-95
FIELD GEOLOGIST Conti

DRILLER JCA
DRILLING METHOD HSA
DEVELOPMENT METHOD Pump



ELEVATION OF TOP OF SURFACE CASING: 96.06
ELEVATION OF TOP OF RISER PIPE: 95.54
STICK - UP TOP OF SURFACE CASING: +2.39'
STICK - UP RISER PIPE: +1.87'
TYPE OF SURFACE SEAL: Concrete
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: Steel
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: Cement grout
ELEVATION / DEPTH TOP OF SEAL: 13'
TYPE OF SEAL: Bentonite pellets
DEPTH TOP OF SAND PACK: 15'
ELEVATION / DEPTH TOP OF SCREEN: 17'
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 SL x 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 morie
ELEVATION / DEPTH BOTTOM OF SCREEN: 117'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 117'
TYPE OF BACKFILL BELOW OBSERVATION WELL: N/A

117'

BROWN & ROOT ENVIRONMENTAL

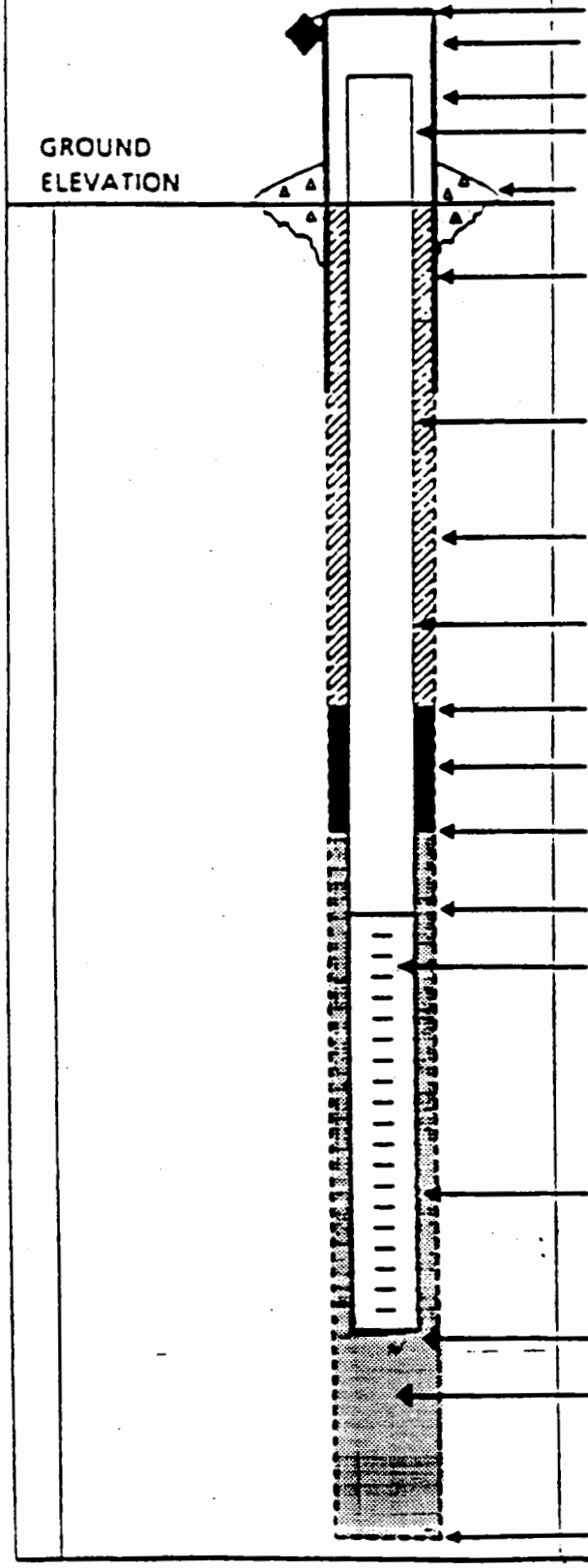
BORING NO MW13-6

OVERBURDEN MONITORING WELL SHEET

PROJECT NWS - Earle
PROJECT NO. 5803 CTO.231
ELEVATION
FIELD GEOLOGIST Paul Davis

LOCATION Colts Neck, NJ
BORING MW13-06
DATE 12/6/96

DRILLER CT&E Bill Petley
DRILLING METHOD HSA
DEVELOPMENT METHOD



ELEVATION OF TOP OF SURFACE CASING:
ELEVATION OF TOP OF RISER PIPE:

STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE :

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 4"
TYPE OF SURFACE CASING Steel

RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC Schedule 40

BOREHOLE DIAMETER: 6"

TYPE OF BACKFILL: Bentonite / Grout

ELEVATION / DEPTH TOP OF SEAL: 35' bgs

TYPE OF SEAL: Bentonite

DEPTH TOP OF SAND PACK: 38' bgs

ELEVATION / DEPTH TOP OF SCREEN: 42' bgs

TYPE OF SCREEN: PVC Sch. 40

SLOT SIZE x LENGTH: 0.01 x 15'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: Morie #2 Sand

ELEVATION / DEPTH BOTTOM OF SCREEN: 57' bgs

ELEVATION / DEPTH BOTTOM OF SAND PACK: 57 1/2' bgs

TYPE OF BACKFILL BELOW OBSERVATION WELL: N/A

ELEVATION / DEPTH OF HOLE: 57 1/2' bgs

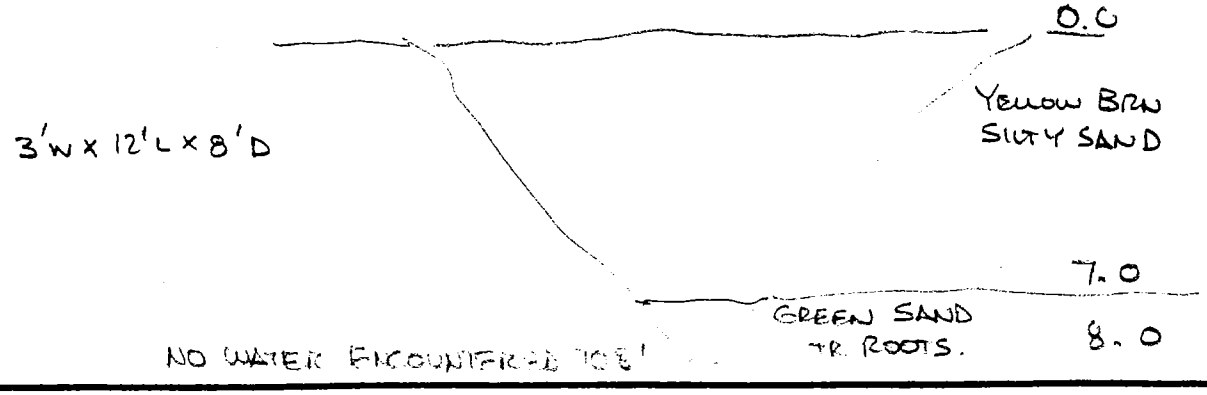
B.3 TEST TRENCH LOGS

TEST PIT LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE — TEST PIT NO.: 13TP1
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (DEPTH, FT.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0		LOOSE YELLOW BRN - SILTY SAND -	SM	MOIST 3" LAYER OF
		TR GRAVEL		BLACK SLAG
				THEN SILTY SAND
	7.0			
8.0	8.0	GRAY GREEN SILTY SAND - TR ROOTS	SM	MOIST TO WET
		AND GRAVEL		CLOSE TO WT - SIDE WALLS
				KEEP CAVING
		BOTTM @ 8'		LOOK NATURAL
		NO SIGN OF FILL DEBRIS - TOP 7'		
		COULD BE NAT SAND PLACED AS		
		FILL		NO HNU READINGS

Test Pit Cross Section and / or Plan View



REMARKS START 0925
DONE 0945

PHOTO LOG ROLL 1 PHOTOS 11, 12, 13

TEST PIT 13TP1

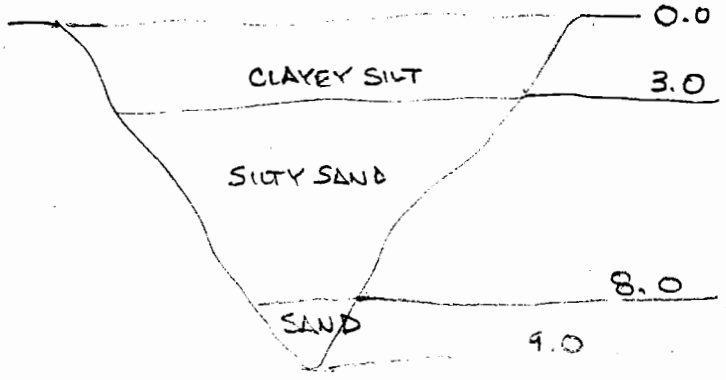
PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE — TEST PIT NO.: 13TP2
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (DEPTH, FT.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0		LOOSE OLIVE BRN - CLAYEY SILT -	ML	
		SOME SAND	/SM	el WAS 4'6" PC OF 8" ϕ
3.0	3.0			CONC. STORM DRAIN PIPE
		LOOSE YELLOW BRN SILTY SAND -		REST OF PIT FAIRLY CLEAN WITH
		TR GRAVEL.		NAT MATL PLACED AS FILL
				TO APPROX 8'
8.0	8.0			
9.0	9.0	LOOSE DK GRAY SILTY SAND - TR	ML	LOOKS NATURAL HERE
		BOTM @ 9' ROOTS		MOIST TO WET.
				NO SIGN OF WATER IN PIT
		NO SIGN OF ANY INDUSTRIAL		
		PLACED FILL MATL		

Test Pit Cross Section and / or Plan View



3W x 9D x 12L

NO HNU READINGS.

REMARKS: START = 0945
DONE = 1005

PHOTO LOG: ROLL 1 PHOTOS 14, 15 - BOTH LOOKING SOUTH AT PIT AND EXC MATL

TEST PIT 13TP2

PAGE 1 OF 1

TEST PIT LOG **HALLIBURTON NUS**

PROJECT: NWS EARLE TEST PIT NO.: 13TP3
PROJECT NO.: 5803 DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

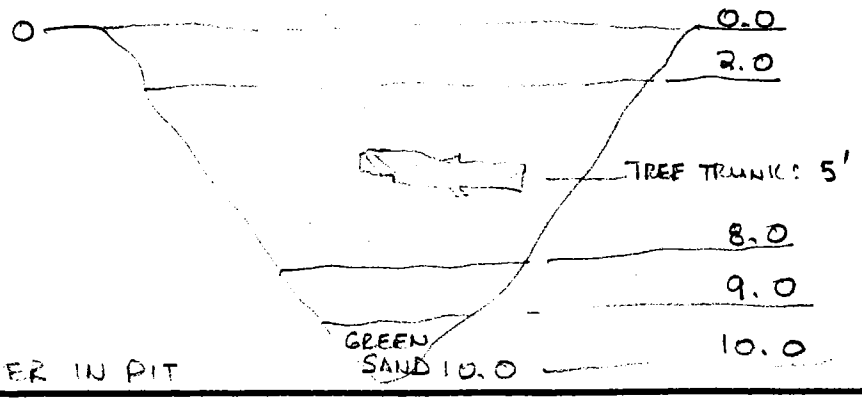
DEPTH (ft.)	LITHOLOGY CHANGE (Depth/ft.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0		LOOSE BRN GRAY SILTY SAND - SOME		FILL MATL.
2.0	2.0	SLAG, GRAVEL, SILT		DAMP
		YELLOW BRN SILTY SAND TO		
		8'.		
5.0		LARGE 10" Φ X 7' LONG TREE		
		TRUNK		MOIST
8.0	8.0			
9.0	9.0	LOOSE BLACK SANDY SILT - TR ROOTS		
10.0	10.0	LOOSE GREEN SILTY SAND	SM/SP	MOIST → WET - CLOSE TO WATER TABLE.
		BOTM @ 10'		
		NO SIGN OF IND WASTE - 1 TREE		
		TRUNK & SOME ROOTS		

Test Pit Cross Section and / or Plan View

NO HNU READINGS
SLIGHT ORG ODOR

4'W x 10'D x 13'L:

NO SIGN OF WATER IN PIT



REMARKS START @ 1010
DONE @ 1035

PHOTO LOG ROLL 1 PHOTOS 16, 17 LOOKING S. SE AT PIT AND TREE TRUNK.

TEST PIT 13TP3

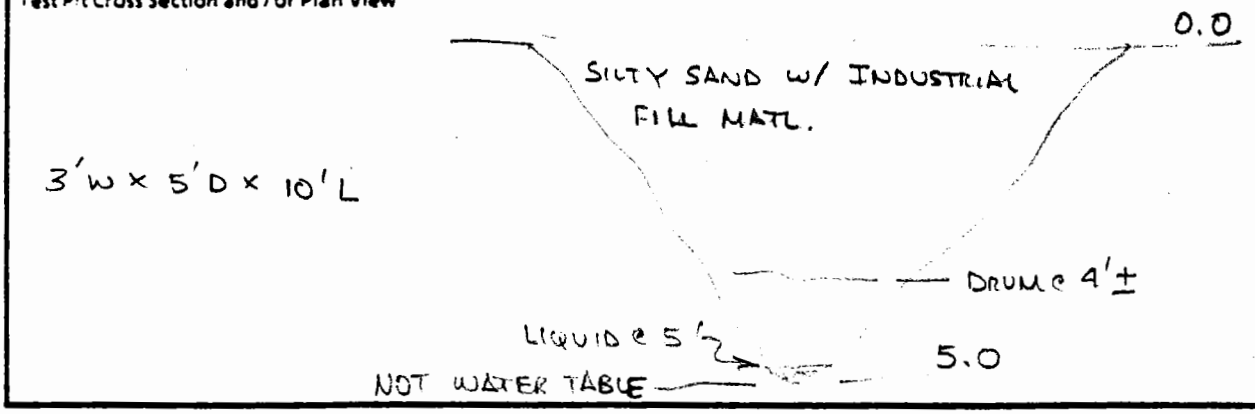
PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE — TEST PIT NO.: 13TP4
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (DEPTH/FT.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0		LOOSE BRN SILTY SAND - TR GRAVEL		
		W/ INDUSTRIAL WASTE FROM		HITTING METAL - "DUMMY
		≃6" FROM GS		6"ø SHELL CASINGS. (4 TOTAL)
				OLD COMPRESSOR ? - 1 BRICK
				DRUM W/ FUEL ODOR.
5.0	5.0			≃ 50 TO 90 PPM
				LIQUID IN HOLE W/ SHEEN
		BOTM @ 5'		
				DID NOT (COULD NOT) GO
		ALSO - ELEC CABLE.		DEEPER DUE TO FLUID IN
				HOLE & CAVING.
		BOTTOM OF DRUM HAD "GREASE"		
		MATL ADHERED TO IT.		

Test Pit Cross Section and / or Plan View



REMARKS: START ≃ 1045 — DONE ≃ 1100 — MOVED ≃ 15' SSW FROM THIS PIT TO DO TP 5.

JOHN M. WOULD LIKE TO SAMPLE FROM THIS PIT.

PHOTO LOG: ROLL 1 PHOTOS 18, 19, 20

TEST PIT 13TP4

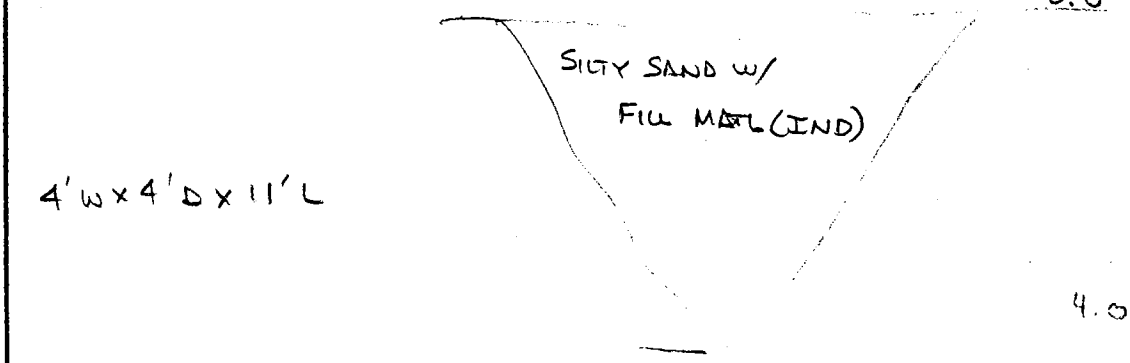
PAGE 1 OF 1

TEST PIT LOG **HALLIBURTON NUS**

PROJECT: NWS EARLE TEST PIT NO.: 13TP5
PROJECT NO.: 5803 DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (DEPTH, FT.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0		LOOSE BRN SILTY SAND - SOME		CABLES, METAL
		GRAVEL		POSSIBLE CRUSHED DRUM
		W/ INDUS FILL.		1 MORE DUMMY SHELL.
	4.0			RUBBER HOSE.
		BOTM @ 4'		
		STOPPED @ 4' - WILL MOVE TO TRY		
		AND DETERMINE BOUNDARY		NO HNU READINGS HERE
		OF FILL		

Test Pit Cross Section and / or Plan View



REMARKS START: 11.10
DONE: 11.25

PHOTO LOG ROLL 1 PHOTOS 21, 22 TEST PIT 13TP5

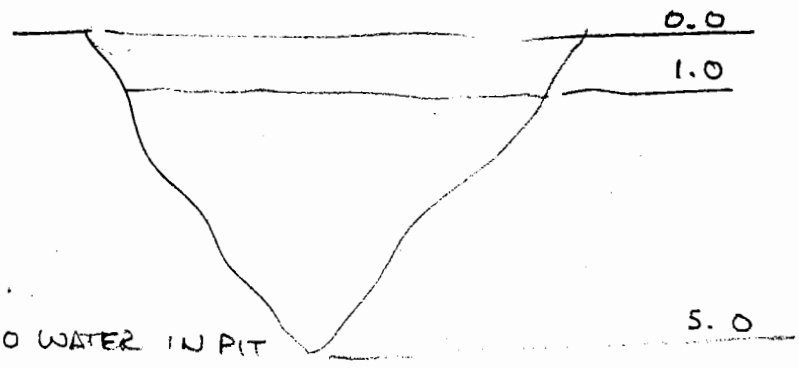
PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE — TEST PIT NO.: 13TP6
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION:
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (DEPTH FT.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
	1.0	LOOSE TAN BRN SANDY SILT	ML	
		LOOSE ORANG BRN SILTY SAND	SM	TR-WOOD
		-SOME GRAVEL	SP	CONCRETE ANCHOR BLOCK.
		-WOOD FRAG.		BUT SO FAR RELATIVELY
	5.0			CLEAN OF IND WASTE
				SOME PCS OF WIRE.
		BOTH @ 5'		SOME LG 8"Φ PCS OF
				WOOD

Test Pit Cross Section and / or Plan View



0 HNU READINGS

5'D x 12'L x 3'W

NO INDUSTRIAL WASTE.

NO WATER IN PIT

REMARKS START @ 1320 HRS
END 1340

PHOTO LOG ROLL 2 PHOTOS - 2, 3, 4 AT PIT

TEST PIT 13TP6

PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE — TEST PIT NO.: 13TP7
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (DEPTH/FT.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0	1.0	LOOSE BRN SILTY SAND - TR ROOTS	SM	
		THEN METAL DEBRIS		
	3.0	CRUSHED DRUM		(IND. FILL)
		LOOSE YELLOW BRN SILTY SAND	SM	
				SOUTH END OF PIT LOOKS
6.0	6.0			CLEAN. LIMIT OF FILL
				IN THIS AREA ~ SOUTH
		BOTM @ 6'		END OF THIS PIT.
				METAL DOORS W/HINGE

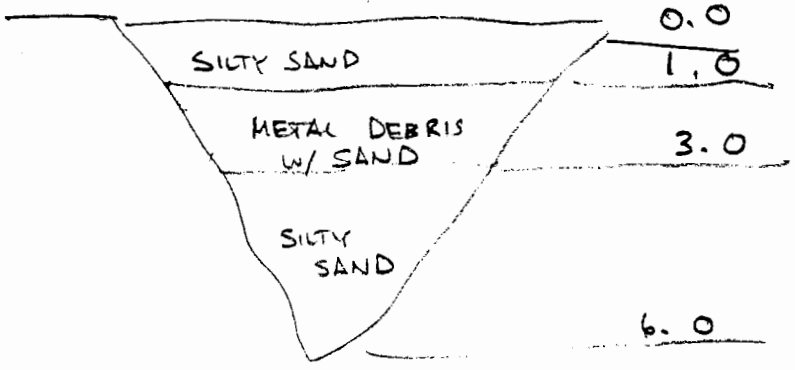
Test Pit Cross Section and / or Plan View

HIT DEBRIS @ 1' - METAL DRUMS

6'DX 3'WX 10'L

0 - PPM HNU on SOIL

NO OBVIOUS CONTAM.



REMARKS START @ 1345
END @ 1350 IND WASTE

PHOTO LOG ROLL 2 PHOTOS 5 — TEST PIT 13TP7

PAGE ___ OF ___

TEST PIT LOG — **HALLIBURTON NUS**

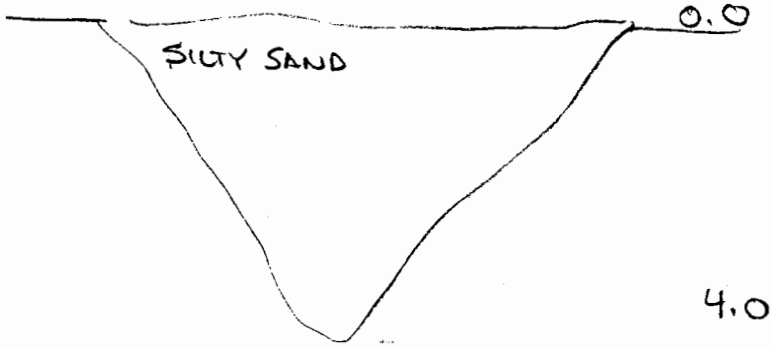
PROJECT: NWS EARLE — TEST PIT NO.: 13TP8
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION:
FIELD GEOLOGIST: CONTI

DEPTH (ft.)	LITHOLOGY CHANGE (Depth,Ft.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0		LOOSE MOTTLED ORANG, BRN, GRAY		
		SILTY SAND – TR GRAVEL		
4.0	4.0			
		BOTM @ 4'		
		NO INDUS. WASTE.		COULD BE NAT PLACED
				AS FILL –
				NO WATER ENCOUNTERED

Test Pit Cross Section and / or Plan View

NO HNU READINGS

8'L x 4'D x 3'W



REMARKS START = 1350
END 1355

PHOTO LOG ROLL 2 PHOTO 6 LOOKING S.

TEST PIT 13TP8

PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

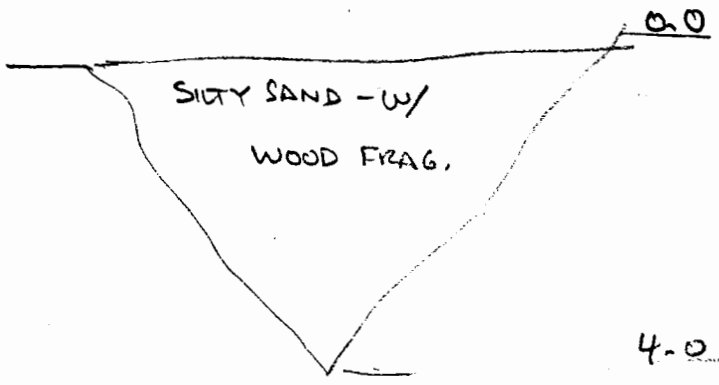
PROJECT: NWS EARLE — TEST PIT NO.: 13TP9
PROJECT NO: 5803 — DATE: 6-7-95
LOCATION:
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (Depth Ft.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0		LOOSE YELLOW BRN SILTY SAND	SM	MOIST
		SOME WOOD PCS.		
		(FILL)		CLEAN FILL MATL.
4.0	4.0	TR GRAVEL		
		BOTH @ 4'		
		NO IND WASTE		
		OBSERVED		
				J MAYHEW - AGREE TO
		NO WATER ENCOUNTERED		J. KRATZ MOVE TO
				NEXT PIT.

Test Pit Cross Section and / or Plan View

NO HNU READINGS

3'W x 4'D x 8'L



REMARKS 1358 START
1405 END

PHOTO LOG ROLL 2 PHOTO 7-

TEST PIT 13TP9

PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

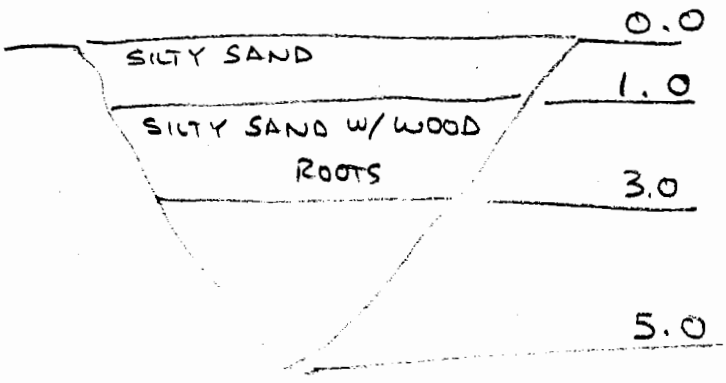
PROJECT: NWS EARLE — TEST PIT NO.: 13TP10
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (Depth, Ft.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0	1.0	LOOSE TAN BRN SILTY SAND-TR		
		WOOD - ROOTS GRAVEL		CLEAN FILL W/ ROOTS
	3.0			WOOD 1'-3'
		LOOSE ORANG BRN SAND	SP	MOIST
5.0	5.0			
		BOTM @ 5'		
		NO IND. WASTE OBSERVED		
		NO WATER		

Test Pit Cross Section and / or Plan View

NO HNU READING

5'D x 3'W x 10'L



REMARKS START : 1415
END : 1435

PHOTO LOG ROLL 2 PHOTO 8,9 LOOKING ~N

TEST PIT 13TP10

PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

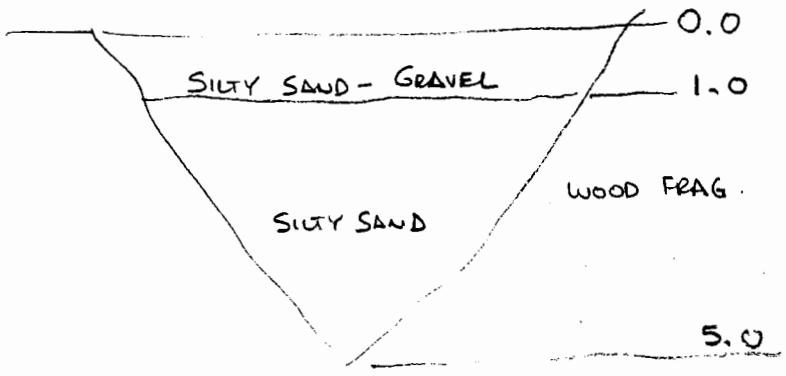
PROJECT: NWS EARLE — TEST PIT NO.: 13TP11
PROJECT NO: 5803 — DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (FT.)	LITHOLOGY CHANGE (Depth, Ft.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0	1.0	ORANG BRN SILTY SAND - SOME GRAVEL	SP	DAMP
		TAN BRN SILTY SAND - SOME WOOD		
		FRAGMENTS		
5.0	5.0			
		BOTM @ 5'		CLEAN FILL.
		NO IND WASTE		
		NO SIGN OF IND WASTE		
		CLEAN FILL		
		NO WATER IN PIT.		

Test Pit Cross Section and / or Plan View

NO HNU RDGS.

5'D x 10'L x 3'W



REMARKS: START = 1500
END = 1510
75'+14' @ 89' FROM NEAST CORNER Fence
10' FROM N " "

PHOTO LOG: ROLL 2 PHOTO 11, 12

TEST PIT 13TP11

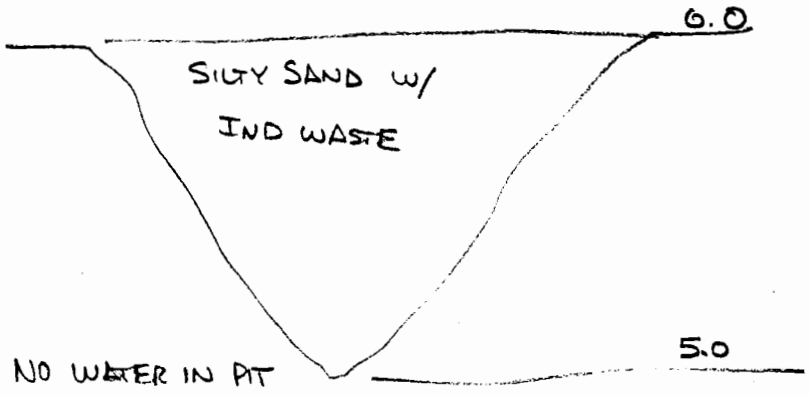
PAGE 1 OF 1

TEST PIT LOG — **HALLIBURTON NUS**

PROJECT: NWS EARLE — TEST PIT NO.: 13TP12
PROJECT NO.: 5803 — DATE: 6-7-95
LOCATION: SITE 13
FIELD GEOLOGIST: CONTI

DEPTH (ft.)	LITHOLOGY CHANGE (Depth/ft.)	MATERIAL DESCRIPTION (Soil Density / Consistency, Color)	USCS	REMARKS
0.0		LOOSE BRN SILTY SAND W/	SM	MOIST
		IND FILL - METAL - DRUM		
		LIDS - WIRE ETC.		
	5.0'		SM	MOIST → WET
		BOTM @ 5'		
		HIT IND WASTE - METAL - DRUM LIDS		≈ 40% OF PIT - FILL MATLS.
		SLIGHT ODOR (PETROLEUM TYPE)		
		5 PPM MAX HNU		

Test Pit Cross Section and / or Plan View



5'D x 10'L x 3'W

REMARKS: START ≈ 1515
END ≈ 1545
89'+50 = 139' FROM NE COR FENCE
20' FROM N. EDGE OF FENCE

PHOTO LOG: ROW 2 PHOTOS 13, 14

TEST PIT 13TP12

PAGE 1 OF 1

ATTACHMENT C

WETLAND DELINEATION REPORT (TtNUS, September 2003)

Wetland Delineation Report
for
Site 13 - Defense Property Disposal Office Yard (Operable Unit 5)

Naval Weapons Station Earle
Colts Neck, New Jersey

Engineering Field Activity Northeast
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0851

September 2003

060307/P

WETLAND DELINEATION REPORT
FOR
SITE 13 - DEFENSE PROPERTY
DISPOSAL OFFICE YARD (OU-5)

NAVAL WEAPONS STATION EARLE
COLTS NECK, NEW JERSEY

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Engineering Field Activity Northeast
Environmental Department, Code EV2
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop #82
Lester, Pennsylvania 19113-2090

Submitted by:
Tetra Tech NUS, Inc.
600 Clark Avenue, Suite 3
King of Prussia, Pennsylvania 19406-1433

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0851

SEPTEMBER 2003

PREPARED UNDER DIRECTION OF:

DANIEL C. WITT, P.E.
PROJECT MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMISSION BY:

JOHN J. TREPANOWSKI, P.E.
PROGRAM MANAGER
TETRA TECH NUS, INC.
KING OF PRUSSIA, PENNSYLVANIA

TABLE OF CONTENTS

TABLES

FIGURES

ACRONYMS

ARAR	applicable, relevant, and appropriate requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	diameter at breast height
ESQD	explosive safety quantity distance
FACW	Facultative Wetland
FICWD	Federal Interagency Committee for Wetland Delineation
LOI	Letter of Interpretation
NCDC	National Climatic Data Center
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJSA	New Jersey State Act
NRCS	National Resource Conservation Service
NWS	Naval Weapons Station
OBL	Obligate Wetland
PFO	Palustrine Forested
RI	remedial investigation
RME	reasonable maximum exposure
SCS	United States Soil Conservation Service
TtNUS	Tetra Tech NUS, Inc.
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish & Wildlife Service
UXO	unexploded ordnance

1.0 INTRODUCTION

Areas meeting the definition of wetlands used by the U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) and the New Jersey Department of Environmental Protection (NJDEP) under the New Jersey Freshwater Wetlands Protection Act (N.J.S.A. 13:9B) were delineated on that part of the Naval Weapons Station (NWS) Earle in Colts Neck, New Jersey designated as Site 13 - Defense Property Disposal Office Yard. Chemical contamination on Site 13 will be remediated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 et seq.). The remedy will consist of excavating some areas of contaminated soil and installing a low permeability cover system over the landfill (excavated soil will be placed under the new cover system). The USACE, USEPA, and NJDEP define wetlands as "those areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (40 C.F.R. 230.3, 33 C.F.R. 328.3, and N.J.A.C. 7:7A-1.4)". Under this definition, wetlands may be either under the influence of tides (tidal) or unaffected by tides (nontidal).

NWS Earle is located in Monmouth County in east-central New Jersey (Figure 1-1). The NWS Earle encompasses approximately 11,134 acres and includes a Waterfront Area and a Mainside Area. The Waterfront Area is located on Sandy Hook Bay and includes an ammunition depot and associated piers. The Mainside Area is located approximately 10 miles inland and includes residences, office buildings, workshops and warehouses, recreational areas, open space, and undeveloped land. The majority of the Mainside Area consists of undeveloped land associated with ordnance operations, production, and storage facilities. Much of the undeveloped land is encumbered by explosive safety quantity distance (ESQD) arcs. Land surrounding the Mainside Area includes agricultural areas, vacant land, and low density residential land (TtNUS, 2003).

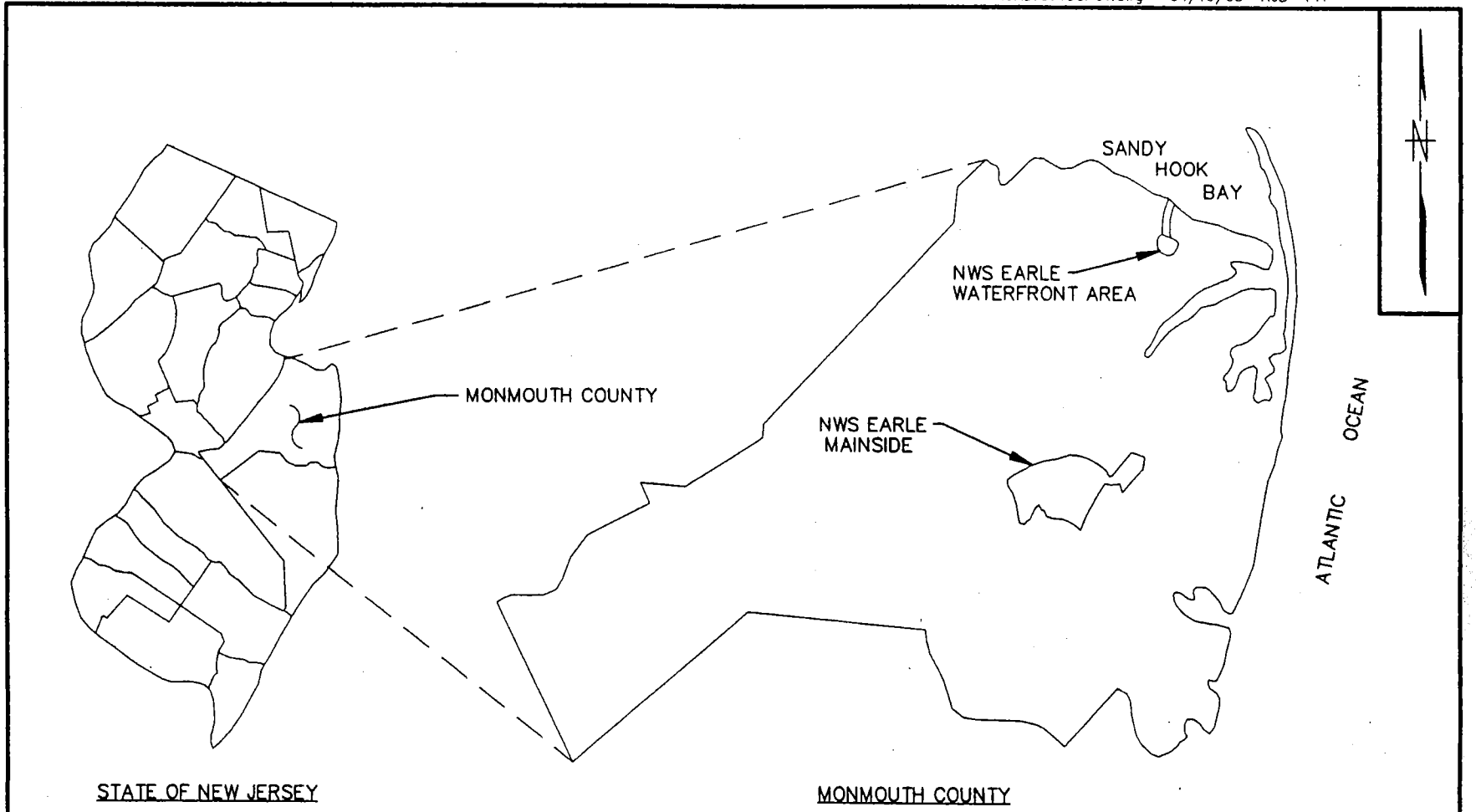
Site 13 is an area of fill material located near the rail classification yards within the Mainside Area (Figure 1-2). Activities at the site included storage of scrap metals and batteries and the burial of material, such as cars, trucks, electronic equipment, clothing/shoes, sheet metal, furniture, scrap metal, and batteries. Additionally, batteries were broken open at the site for lead recovery, and acid was drained onto the ground. Because the primary function of the site was scrap metal storage, unexploded ordnance (UXO) is not expected to be present in the fill material; however, ordnance "shapes" have been encountered during previous intrusive activities at the site.

A baseline human health risk assessment performed as part of a remedial investigation (RI) concluded that reasonable maximum exposure (RME) cancer risk estimates for future residents consuming and exposed to groundwater below Site 13 exceeded the target maximum acceptable risk range. The

estimated human health risk for the future industrial (groundwater) exposure scenario was at the upper end of the target maximum acceptable risk range. Arsenic and vinyl chloride were the principal compounds of concern in the groundwater contributing to the estimated cancer risks. Unacceptable noncancer risks were also reported for future residential and future industrial (groundwater) exposure scenarios. The principal noncancer compounds of concern include arsenic, cadmium, and iron (TtNUS, 2003).

All of NWS Earle, including Site 13, is located in the coastal lowlands of Monmouth County, within the Atlantic Coastal Plain Physiographic Province of New Jersey. The Mainside Area, which includes Site 13, is relatively flat, with elevations ranging from approximately 100 to 300 feet above mean sea level. The headwaters and drainage basins of three major coastal plain rivers (the Swimming, Manasquan, and Shark Rivers) originate in the Mainside Area. All ultimately discharge to the Atlantic Ocean. The Swimming River and Shark River supply reservoirs used for public water supplies. Site 13 drains to an unnamed perennial drainage that flows into Hockhockson Brook, a tributary to the Swimming River (TtNUS, 2003).

ACAD: 6710CP01.dwg 04/10/03 HJB PIT



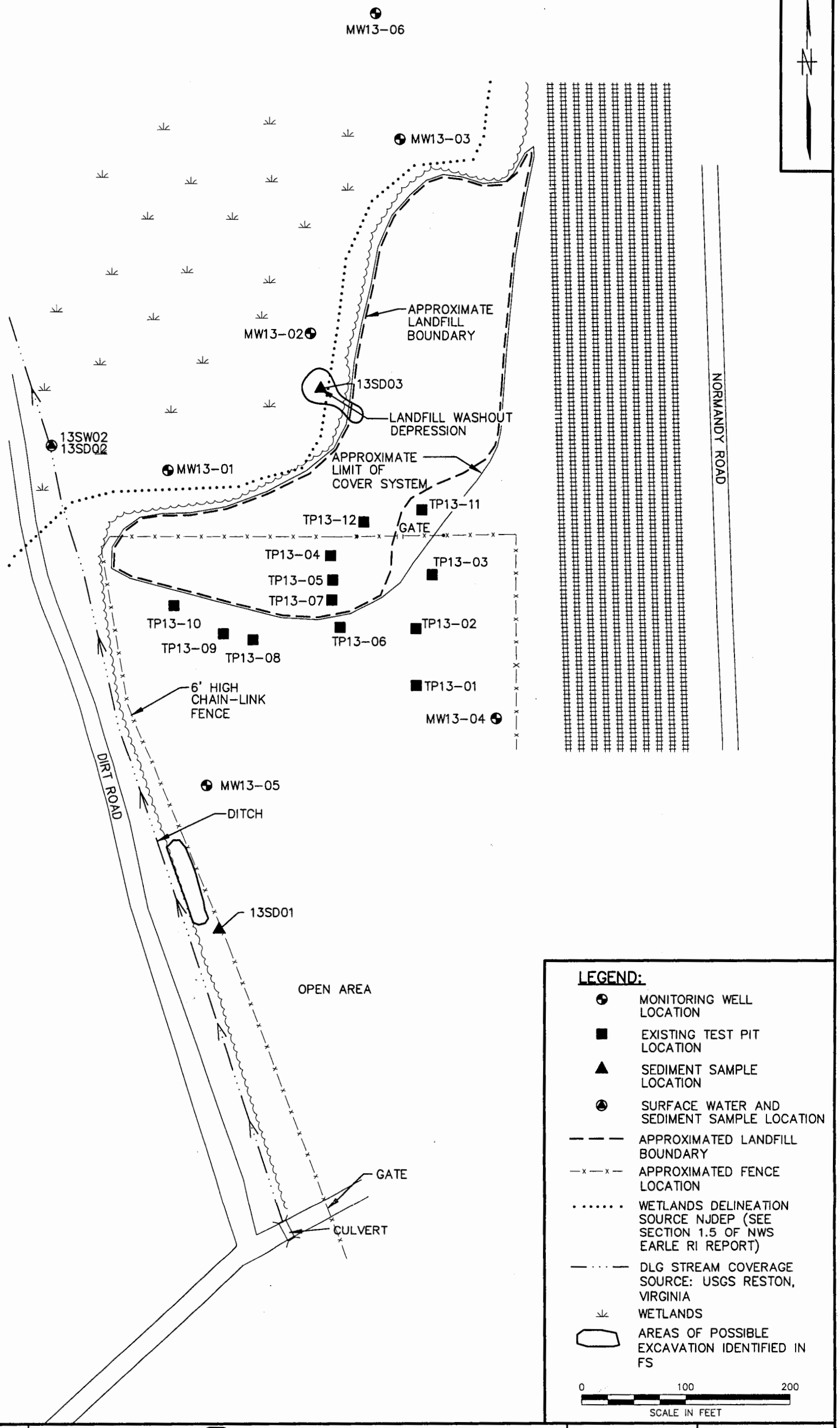
DRAWN BY HJB DATE 4/10/03	Tetra Tech NUS, Inc.	CONTRACT NO. 6710	OWNER NO. 0851
CHECKED BY DATE	REGIONAL SITE MAP NAVAL WEAPONS STATION EARLE COLTS NECK, NEW JERSEY	APPROVED BY Daniel C Witt	DATE 4/10/03
COST/SCHED-AREA		APPROVED BY	DATE
SCALE NOT TO SCALE		DRAWING NO. FIGURE 1-1	REV. 0

FORM CADD NO. TtNUS_AH.DWG - REV 0 - 1/22/98

This page intentionally left blank.

060307/P (Wetland)

ACAD: 6710CP05.dwg 09/03/03 MF PIT



DRAWN BY DATE: HJB 4/21/03	Tetra Tech NUS, Inc.	CONTRACT NO. 6710	OWNER NO. 0851
CHECKED BY DATE	SITE MAP SITE 13 – DPDO YARD NAVAL WEAPONS STATION EARLE COLTS NECK, NEW JERSEY	APPROVED BY DATE: 9/11/03	
COST/SCHED–AREA		APPROVED BY DATE	
SCALE: AS NOTED		DRAWING NO. FIGURE 1–2	REV. 0

FORM CADD NO. TtNUS_BV.DWG - REV 0 - 1/20/98

REVISION 1
SEPTEMBER 2003

CTO 0851

00976I022

2.0 METHODOLOGY

Fieldwork for the wetland delineation was conducted on April 29 and 30, 2003. The wetland delineation followed the Routine Onsite Determination Method, Plant Community Assessment Procedure in Section 4.11 of the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Manual) (FICWD, 1989). Although the Federal Manual was recognized by the USACE from 1989 until 1991 as the technical direction for delineating wetlands throughout the United States for purposes of determining jurisdiction of the CWA, the USACE has since 1991 reverted to an earlier wetland delineation manual for CWA permitting purposes. The earlier manual is termed the U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE Manual; Environmental Laboratory, 1987). However, the USACE has delegated administration of most elements of Section 404 to the NJDEP in New Jersey. While the NJDEP recognizes the same definition of wetlands as the USACE, it recognizes the Federal Manual rather than the USACE Manual as the procedural guide for delineating wetlands.

With few exceptions, areas identified as a wetland using the Federal Manual must display positive evidence of each of the following three parameters indicative of wetland conditions:

- Hydrophytic Vegetation – Defined as macrophytic plant life growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content (Federal Manual, Section 2.1).

- Hydric Soil – Defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (Federal Manual, Section 2.6).

- Wetland Hydrology – Defined as permanent or periodic inundation, or soil saturation to the surface, at least seasonally (Federal Manual, Section 2.8).

The definitions of hydrophytic vegetation and hydric soil in the Federal Manual and in the USACE Manual are approximately the same. However, with respect to wetland hydrology, Section 2.8 of the Federal Manual states that the presence of water for a week or more during the growing season typically creates anaerobic conditions in the soil, which affect the types of plants that can grow and the types of soils that develop. In contrast, Section 48 of the USACE Manual states that areas that are inundated or saturated for less than 5 percent of the growing season (generally 1 to 2 weeks in the middle Atlantic states such as New Jersey) are not wetlands.

The fieldwork commenced with walking the site to identify areas displaying potential evidence of each of the three parameters. Data collection points were then oriented at 10-foot intervals on representative

transects perpendicular to the hydrological gradient of suspected wetland areas. Vegetation, soil, and hydrology data were recorded at each data collection point to determine whether the hydrophytic vegetation, hydric soil, and wetland hydrology parameters were met.

Dominant plant species for each vegetative stratum (tree canopy, saplings, shrubs, herbs, and woody vines) at each data point were determined based on estimated percent aerial cover (Table 2-1). Wetland indicator statuses developed by the U.S. Fish & Wildlife Service (USFWS) (Reed, 1988) were assigned to each dominant species and used as the basis for determining whether the vegetation was hydrophytic (Table 2-2). A soil pit was hand augured at each data point location to a minimum depth of 20 inches and the color, texture, and other descriptive data were recorded for each encountered soil horizon. These observations were used to determine whether field indicators of hydric soils, as listed in the Federal Manual and the Natural Resources Conservation Service (NRCS, 1998), were present. Surface and subsurface observations were made at each data point to determine which field indicators of wetland hydrology, as listed in the Federal Manual, were present.

Wetland delineation data sheets provided in the Federal Manual for use in routine onsite wetland delineations were completed for each data point and are provided in Appendix A. Delineated wetland boundaries were marked in the field using wooden stakes and red ribbon. Each stake was labeled "WET 13X-N", with "X" as a letter corresponding to the specific wetland occurrence and "N" as the numeric order of the stake along the boundary. A land survey depicting the location of each stake was subsequently completed and is the basis for the wetland delineation map provided in Section 3.0.

TABLE 2-1

DEFINITIONS OF VEGETATION STRATA USED IN WETLAND DELINEATION
NWS EARLE SITE 13 – DPDO YARD
COLTS NECK, NEW JERSEY

Stratum	Symbol	Definition[1]	Plot Diameter (feet)[2]
Canopy	C	Trees over 5 inches in diameter at breast height (DBH)	30
Saplings	SA	Woody plants over 20 feet in height but under 5 inches DBH	15
Shrubs	SH	Woody plants under 20 feet in height	15
Herbaceous Groundcover	H	Nonwoody plants and woody seedlings under 3 feet in height	5
Woody Vines	V	Woody vines attached to the trunks of trees or saplings	15

1 Source: FICWD, 1989
2 Plot size used for visually estimating percent aerial cover for plant species (circular plots)

TABLE 2-2

DEFINITIONS OF WETLAND PLANT INDICATOR STATUSES USED IN WETLAND DELINEATION
NWS EARLE SITE 13 – DPDO YARD
COLTS NECK, NEW JERSEY

Indicator Status	Definition
Obligate Wetland (OBL)	Species recognized as occurring in wetlands greater than 99 percent of the time
Facultative Wetland (FACW)	Species recognized as occurring in wetlands 67 to 99 percent of the time
Facultative (FAC)	Species equally likely to occur in wetlands or uplands (nonwetlands)
Facultative Upland (FACU)	Species recognized as occurring in wetlands 1 to 33 percent of the time
Obligate Upland (UPL)	Species recognized as occurring in wetlands less than 1 percent of the time

Source: Reed, 1988

3.0 RESULTS AND DISCUSSION

The wetland delineation identified two areas on Site 13 that are regulated under Section 404 of the CWA and under the New Jersey Freshwater Wetlands Protection Act (Figure 3-1). The first, designated as Area 13A (Photograph 1), is a ditch near the western edge of the landfill. The second, designated as Area 13B (Photograph 2), is a forested wetland northwest of the landfill. Although the wetland and the ditch are contiguous north of Site 13, they are separated by more than 50 feet of uplands at Site 13.

The landfill itself does not contain any wetlands. The landfill surface consists of mixed soil and gravel overlying the landfill materials (Photograph 3). The southern part of the landfill is used for exterior storage of metal parts. The northern part of the landfill supports a sparse cover of ruderal vegetation, such as broomsedge (*Andropogon virginicus*) and switchgrass (*Panicum virgatum*). A few pitch pine (*Pinus rigida*) seedlings have established on the northern part of the landfill. The landfill surface is generally smooth throughout without noticeable ditches, swales, or depressions that could potentially hold surface water following rainfall events. An exception is a shallow ditch that separates the northern part of the landfill from railroad tracks east of the landfill. The ditch was dry as of the wetland delineation (April 29 and 30, 2003). It supported vegetation similar to other parts of the landfill and lacked watermarks, scouring, or other visible evidence of seasonal surface water.

The western edge of the landfill consists of a steep slope, with areas at the toe of the slope more than 10 feet lower in elevation than areas at the top. The ditch abuts the toe of the slope in the southern part of the landfill. Although forest vegetation directly abuts the slope to the northern part of the landfill, the delineated boundary of the forested wetland (Area 13B) is 30 to 50 feet west of the slope at most locations.

3.1 AREA 13A: DITCH

An unnamed ditch originates in a forested area southwest of the site and flows past the western edge of the landfill in a northwesterly direction. It flows in a roughly northerly direction, and aerial photographs suggest that it forms a headwater to Hockhockson Brook. The delineation addressed a segment of the ditch extending from a culvert under a gravel access road to the site; approximately 100 feet upstream from the landfill to a point approximately 100 feet downstream (northwest) from the landfill. The ditch is straight, narrow (approximately 10 to 15 feet bank to bank), and deeply incised (embankments 5 to 10 feet from the toe to top of slope) for the entire length. Slow running water 6 to 12 inches in depth was present at the time of the delineation. The substrate at the bottom of the ditch is natural soil. U.S. Geological Survey topographic maps suggest that the ditch drains a watershed of just over 100 acres.

No areas meeting the criteria for delineation as a wetland adjoin the delineated segment of the ditch. What appeared to be the approximate location of the ordinary high water mark on the lower part of the steep embankments was therefore delineated as the outer edge of waters of the United States and New Jersey open waters. Wooden stakes numbered from "WET 13A-1" to "WET 13A-14" mark the ordinary high water mark on the west embankment, and stakes numbered from "WET 13A-15" to "WET 13A-27" mark the ordinary high water mark on the east embankment. Above the ordinary high water mark, the steep embankments support upland forest vegetation dominated by species such as pitch pine, white oak (*Quercus alba*), and black oak (*Quercus velutina*), with occasional sweetgum (*Liriodendron tulipifera*) and paper birch (*Betula sp.*).

The ditch does not contain any wetlands and thus is not expected to display most of the functions and values typical of wetlands. The shallow running water in the ditch could provide habitat for some small fish species and well as some benthic organisms typical of shallow headwaters with a soft bottom. However, the channelized condition and artificially steep gradient would, at best, favor only those species tolerant of substantially disturbed freshwater aquatic habitats. The shade provided by the tree cover on the embankments does however, function to cool the water, which could be beneficial to biota favoring shaded running water in forest settings.

The ditch would be best classified as Riverine, Upper Perennial Unconsolidated Bottom (R3UB) or Riverine, Intermittent Unconsolidated Bottom (R4UB) under the classification system developed by the USFWS (Cowardin et al., 1979). The Riverine system is defined as all surface waters and wetlands contained within a channel.

3.2 AREA 13B: FORESTED WETLAND

Most of the forested area northwest of the landfill constitutes a seasonally saturated forested wetland. The wetland boundary does not extend to the toe of the landfill; instead the boundary lies within the forested area as much as 50 to 75 feet distant from the toe of the landfill. The boundary, which corresponds to the edge of the area meeting the delineation criteria in the Federal Manual, was marked with stakes numbered from "WET 13B-1" to "WET 13B-17". The entire boundary surrounding the forested wetland was not delineated; the delineation only addressed areas within 100 feet of the toe of the landfill. The wetland encompasses a large area extending several hundred feet north and west from the landfill.

The sections below summarize the vegetation, soils, hydrology, classification, and functions and values for the delineated wetland.

Vegetation: Vegetation throughout Area 13B is dominated by deciduous trees, especially red maple (*Acer rubrum*) and black gum (*Nyssa sylvatica*), with scattered Atlantic white cedar (*Chamaecyparis*

thyoides). Some widely scattered white pine (*Pinus strobus*) and pitch pine (*Pinus rigida*) trees occur within the wetland, especially close to the delineated boundary. Most trees are visually estimated to range between 6 and 12 inches in diameter at breast height (DBH). Canopy cover is variable, visually estimated to range from roughly 40 percent to 70 percent at most locations. The deciduous shrub highbush blueberry (*Vaccinium corymbosum*) forms a sparse to moderately dense understory throughout most of the wetland. Herbaceous groundcover is sparse throughout. Patches of what appear to be a small sedge (*Carex sp.*) or bulrush (*Scirpus sp.*) species were observed, although the absence of distinguishing fruiting structures prevented identification. Widely scattered sprouts of skunk cabbage (*Symplocarpus foetidus*) were observed at several locations within the wetland. Small patches of sphagnum moss (*Sphagnum sp.*) were observed scattered throughout.

Vegetation in Area 13B meets the hydrophytic vegetation parameter according to the Federal Manual. More than 50 percent of the dominant plant species in vegetation at data points 13B-7-1 and 13B-10-1, both located 10 feet downgradient of the delineated wetland boundary, are designated as obligate wetland (OBL), facultative wetland (FACW), or facultative plant species by the USFWS (Reed, 1988) (Field Indicator Number 2 of hydrophytic vegetation in Section 3.6 of the Federal Manual). Many of the deciduous trees within the wetland grow on small hummocks (mounds of soil) and display distinctively shallow root systems (Photograph 4). Some of the deciduous trees displayed slight evidence of trunk buttressing (flare close to ground level). Section 3.37 of the Federal Manual indicates that distinctively shallow root systems and trunk buttressing are morphological adaptations of plants to inundated or saturated soils and are a field indicator of wetland hydrology.

Vegetation does not change abruptly at the delineated wetland boundary. The overall dominance by red maple and black gum continues upgradient from the boundary, but the hummocking, shallow root systems, and other morphological plant adaptations of the trees to saturated soil conditions cease upgradient of the boundary. Upland species such as pitch pine, gray birch, and white oak become increasingly dominant. However, the forest vegetation in most areas between the delineated wetland boundary and the toe of the landfill meets the technical criteria in the Federal Manual for hydrophytic vegetation. Highbush blueberry forms patchy shrub cover on both sides of the boundary, but mountain laurel (an upland shrub) is dominant in many locations upgradient. Skunk cabbage is present only downgradient of the boundary.

Soils: Soils in Area 13B are mapped by the U.S. Soil Conservation Service (SCS) (predecessor to the NRCS) as Atsion sand (SCS, 1989). The Atsion soil series is described as nearly level, poorly drained, sandy soils occurring on upland flats. Extensive areas of forest land on and in the vicinity of the NWS Earle Mainside are mapped as Atsion sands. The typical profile described by the SCS for Atsion soils in Monmouth County includes a surface layer (topsoil) consisting of 2 inches of matted, partly decomposed

organic matter and roots (O-Horizon) underlain by 6 inches of black (10YR 2/1) sand (A-Horizon). The subsurface layer (E-Horizon) is described as a 14-inch layer of grayish brown (10YR 5/2) sand. The subsoil (B-Horizon) is described as an 8-inch dark reddish brown (5YR 3/2) loamy sand (Bh-Horizon) over a 10-inch brown (10 YR 4/3) sand with large prominent dark brown (7.5YR 4/2) mottles (BC-Horizon). The substratum (C-Horizon) is described as a yellowish brown (10YR 5/4) fine sand with distinct light brownish gray (10YR 6/2) mottles (SCS, 1989).

The surface soils observed throughout Area 13B are generally consistent with the SCS description for Atsion sand but appear to be considerably deeper. Consistent with the SCS description, the surface soils in Area 13B appear to be black sands, although the sands appear to be highly fine-textured and might include a substantial proportion of muck (small grains of well-decomposed organic matter). While the SCS describes the surface layer as typically 8 inches thick, the surface layer throughout Area 13B ranges between roughly 12 and 20 inches deep (generally deeper in the interior of the wetland and shallower close to the delineated boundary). The subsurface soils throughout Area 13B tend to be 2.5Y 6/2 (light brownish gray) or 5Y 6/2 (light olive gray) fine sands or fine loamy sands. They generally resemble the E-Horizon described by the SCS for Atsion sands but occur at a somewhat deeper depth and are distinctly more yellow in hue. The transition from the E-Horizon to the B-Horizon and C-Horizon was not evident in the shallow soil borings performed for the wetland delineation.

Atsion sand is a mapping unit identified by the SCS as a hydric soil in its list of hydric soils for Monmouth County, New Jersey (SCS, 1990). Section 3.27 of the Federal Manual states that if a soil's characteristics match those described for a hydric soil, then the hydric soil criterion is met. Section 3.28 of the Federal Manual states that many of the field indicators commonly used as evidence of hydric soils, especially the presence of gleyed and low chroma soil colors, cannot be used to assess whether sandy soils are hydric. The deep surface accumulations of black sand are suggestive of an exceptionally high organic matter content in the surface horizon, a field indicator of a sandy hydric soil [Federal Manual Section 3.28(8)(A)].

The SCS maps the landfill itself as Udorthents, soils that have been altered by excavating or filling. The SCS does not distinguish an area of upland (i.e., non-hydric) soils between Area 13A and the landfill edge (SCS, 1989). This area is too narrow to be resolved on SCS maps. The surface profile between the delineated wetland boundary and the edge of the landfill still generally resembles that for an Atsion sand but the surface layer is thinner, and the profile displays thin layers (horizons) of higher-chroma soil within 1 or 2 inches of the surface.

Hydrology: Areas inside the delineated wetland boundary appear to be seasonally saturated only. No surface water was visible anywhere within the wetland during the wetland delineation (April 29 and 30, 2003) and there were no watermarks on the trees, surface sediment deposits, water-stained leaves or

other visible evidence of surface water in the months preceding the wetland delineation. The water table was observed to be within about 12 to 18 inches below the soil surface, although visible saturation was observed within 2 or 3 inches of the soil surface. Capillary action typically causes organic soil material (muck and peat) to be saturated several inches above the water table. The looser condition of peat on the surface of the soil might be preventing saturation from reaching to the surface.

Considering the deep surface layer of soil high in organic matter content, the frequency of Atlantic white cedar (an OBL plant species), and the presence of hummocking and shallow roots systems for the red maple and black gum, the absence of field indicators of surface saturation and the depth below the surface of the water table is surprising. New Jersey, including Monmouth County, experienced a significant drought in 2001, when the statewide annual rainfall was 35.65 inches versus a normal of 44.72 inches (NCDC, 2003). However, the statewide annual rainfall in 2002 was 46.76 inches (slightly above normal), and 14.52 inches fell between January 1 and April 30 of 2003 (slightly above the average of 14.24 inches for that period). It is possible that the regional water table has not yet completely recovered from the 2001 drought and lies further below the ground surface than expected.

It is additionally possible that the channelization of the unnamed ditch (Area 13A) could have artificially lowered the water table in the Area 13B wetland. Although the ditch (Area 13A) and the wetland (Area 13B) are not contiguous within Site 13, they are contiguous approximately 250 feet north of the site. It is also possible that the past development of the landfill and storage areas has diverted surface runoff into the stream instead of into the wetland. Another plausible hypothesis concerns the fact that the hydrology of any wetland is not static even in the absence of human disturbance. For example, it is plausible that continued deposition of plant material in Area 13B over a prolonged time (decades or centuries) could have gradually elevated the soil surface until it is no longer within reach of the capillary fringe of the seasonal high water table.

Classification: The forested wetland forming Area 13B would be classified as Palustrine Forested (PFO) under the classification system developed by the USFWS (Cowardin et al., 1979). The palustrine system is described by the USFWS as consisting of nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens.

Functions and Values: Wetland functions are physical, chemical, and biological processes or attributes of wetlands that are vital to the integrity of a wetland system, regardless of how those benefits are perceived by society. Wetland values are attributes that are not necessarily important to the integrity of a wetland system but which are perceived as valuable to society (Adamus et al., 1991). Table 3-1 lists several commonly recognized functions and values provided by wetlands (DeSanto and Flieger, 1995). The following discussion of the functions and values of the wetlands delineated in Area 13B is subjective,

based on the descriptive approach for wetland functional assessment developed as part of the Highway Methodology by the New England District of the USACE. More rigorous quantitative and semi-quantitative models are available for assessing the functions and values of wetlands but are rarely necessary to support most permitting and planning decisions affecting wetlands.

A descriptive review of the physical and biological attributes of the Area 13B wetland suggest that the wetland could potentially play a role with respect to the following functions and values: groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, wildlife habitat, recreation, educational/scientific value, uniqueness/heritage, visual quality/aesthetics, and endangered species habitat (Appendix B). However, the review suggests that the principal functions and values of the Area 13B wetland are limited to sediment/toxicant/pathogen retention, production export, wildlife habitat, and endangered species habitat. It is recommended that these principal functions form the focus of efforts to mitigate wetland impacts resulting from the proposed remediation of the site.

Groundwater Recharge/Discharge (Occurrence-Yes; Principal-No): The Area 13B wetland and adjoining forested wetlands to the north likely function to trap precipitation and runoff from upgradient uplands and contribute to groundwater recharge. Even if surface water (inundation) sometimes occurs (the wetland surface was not inundated anywhere at the time of the April 2003 wetland delineation), the coarse soils and apparent lack of claypans or other layers of fine-textured soil near the surface suggests that the wetland tends to function more with respect to groundwater recharge than groundwater discharge. Because Monmouth County receives relatively heavy annual precipitation and contains large expanses of tidal and non-tidal wetlands, it is unlikely that any individual wetland in the county serves a principal function with respect to groundwater recharge or discharge.

Floodflow Alteration (Occurrence-Yes; Principal-No): The dense vegetation and coarse soils within the Area 13B wetland likely function to trap surface runoff from upgradient uplands, thereby reducing the potential for small-stream flooding along Hockhockson Brook over its 1- to 2-mile course before emptying into the tidal Swimming River. The cumulative importance of the remaining areas of Atsion sands and other forested wetlands in reducing the influx of runoff into the non-tidal tributaries to the Swimming River will continue to increase as the area becomes increasingly urbanized, with larger amounts of impervious surface generating greater quantities of runoff and with more structures and other facilities susceptible to overbank flooding along the streams. However, the relatively level topography and proximity to tidal waters suggests that the potential for non-tidal flooding is low; floodflow alteration is therefore not identified as a principal function of the subject wetland.

Sediment/Toxicant/Pathogen Retention (Occurrence-Yes; Principal-Yes): The dense vegetation in the Area 13B wetland appears capable of detaining surface runoff for extended periods, trapping suspended sediment and any toxicants or pathogens carried in the runoff. The landfill is a source of eroding sediment that can carry chemical contamination originating from waste buried in the landfill. The wetland is positioned to serve as a buffer separating the landfill from Hockhockson Brook and other downgradient aquatic habitats. Because the proposed remedy involves containment rather than excavation and removal of at least some of the waste buried in the landfill, the wetland will continue to play a role in shielding aquatic habitats from the landfill even once the remedy is implemented.

Fish and Shellfish Habitat (Occurrence-Yes; Principal-No): The data collected for the wetland delineation suggest that the Area 13B wetland does not regularly experience surface inundation for extended periods of time. It therefore does not likely provide fish or shellfish habitat directly. However, the ability of the dense vegetation and coarse sand in the wetland to modulate the downgradient movement of runoff and sediment, and the ability of the vegetation to cool surface runoff and contribute beneficial biomass to the runoff, likely contributes to the quality of the estuarine waters and marshes of the Swimming River as habitat for fish and shellfish.

Nutrient Removal/Retention/Transformation (Occurrence-Yes; Principal-No): The large size, dense vegetation, and high organic matter in the surface soils of the Area 13B wetland likely function to trap dissolved nutrients in surface runoff entering the wetland from upgradient uplands. However, large agricultural operations and other large sources of nutrients do not occur upgradient of the subject wetland. Most of the upgradient watershed contributing surface runoff to the subject wetland is undeveloped forest or exterior industrial land within NWS Earle Mainside that is not used for agriculture and not likely subject to large-scale application of fertilizers or pesticides for landscaping purposes.

Production Export (Occurrence-Yes; Principal-Yes): The large size, dense and varied forest vegetation, abundant wildlife food sources, and abundant downed logs and other detritus within the Area 13B wetland suggests that the wetland contributes substantially to the regional food chain, including the aquatic food chains of Hockhockson Brook and Swimming River and the terrestrial food chain of adjoining undeveloped lands.

Sediment/Shoreline Stabilization (Occurrence-No; Principal-No): The Area 13B wetland and adjoining forested wetlands lack shorelines and permanent standing water, hence the ability of the vegetation in the wetland to stabilize soils against water erosion caused by currents, floods, or storm surges is not important. There is a slight topographic gradient within the wetland. The vegetation may thus help to stabilize surface soils against gully erosion caused by runoff. But this function does not appear to be substantial.

Wildlife Habitat (Occurrence-Yes; Principal-Yes): Aerial photographs and soil survey data (SCS, 1989) suggest that the Area 13B wetland is contiguous to more than 100 acres of unfragmented forested wetland habitat of similar vegetational composition adjoined by large tracts of forested upland habitat broken only by occasional roads and widely scattered military facilities (all part of NWS Earle). The NWS Earle Mainside forms an oasis of large forested tracts, wetland and upland, surrounded by a rural-residential landscape where forest tracts are becoming increasingly fragmented by residential construction. Forest land on the NWS Earle Mainside therefore forms a refuge for birds and mammals preferring large tracts of contiguous forest land with minimal human intrusion. Although the subject wetland itself lies at the edge, rather than in the interior of, a large forested wetland area; loss of the subject wetlands would reduce the overall size of the forested wetland and reduce the area providing favorable habitat to forest-interior dwelling wildlife.

Recreation (Occurrence-Yes; Principal-No): The Area 13B wetland is located in an industrial setting (heavy equipment is stored on an exterior gravel pad that covers part of the landfill and some land immediately south of the landfill) on a secured military base not open to the public. The subject wetland and adjoining areas are not developed with trails or other recreational facilities. Because the subject wetland could be suitable for certain passive recreational activities and are located close to the administrative buildings of the NWS Earle Mainside, the recreation function is noted as present but not as principal.

Educational Scientific Value (Occurrence-Yes; Principal-No): The large size of the subject wetland and adjoining wetlands and the physical exclusion of the general public makes for potential value for scientific research, although no specific research activities are presently underway.

Uniqueness/Heritage (Occurrence-Yes; Principal-No): The Area 13B wetland is part of a large wetland that is typical of other inland forested wetlands in Monmouth County. Because of increasing urbanization in Monmouth County, the large tracts of forested wetlands and adjoining forested uplands on NWS Earle are increasing in importance as relics of the area's unique natural and cultural heritage.

Visual Quality/Aesthetics (Occurrence-Yes; Principal-No): The dense forest vegetation within and adjoining the Area 13B wetland is visually attractive and is visually enhanced by the contrast between the evergreen trees and shrubs and deciduous trees and shrubs. However, the wetland is not visible to the public and is not in a part of NWS Earle that is heavily frequented by personnel living or working on the installation.

Endangered Species Habitat (Occurrence-Yes; Principal-Yes): A remedial investigation prepared by the U.S. Navy in 1996 determined that there are no sensitive habitats (other than wetlands) or threatened or endangered species at Site 13 (U.S. Navy, 1996). However, the large size and (apparently) largely undisturbed condition of the Area 13B wetland north and west of the site could be conducive to the occurrence of certain rare, threatened, or endangered species endemic to forested wetlands in coastal New Jersey.

This page intentionally left blank.

TABLE 3-1

**COMMON FUNCTIONS AND VALUES OF WETLANDS
NWS EARLE SITE 13 – DPDO YARD
COLTS NECK, NEW JERSEY
PAGE 1 OF 2**

Functions	Description
Groundwater Recharge	Some wetlands function to catch and detain surface runoff, allowing at least some of the detained water to leach down into underlying aquifers. Wetlands capable of best performing this function tend to receive runoff from a large watershed, support dense vegetation, and have a narrow (constricted) outlet (or no outlet).
Groundwater Discharge	Some wetlands function as areas where groundwater is discharged to the surface. Such wetlands are commonly referred to as seeps or springs and represent a means by which wildlife inhabiting the surface can access water reserves held in the ground.
Floodflow Alteration	Some wetlands function to slow the overland runoff of floodwaters, thereby reducing peak flow levels following heavy precipitation events. Wetlands capable of best performing this function tend to be located in the upper parts of the watershed to stream systems.
Sediment/ Shoreline Stabilization	Vegetation in wetlands bordering streams and other waterbodies can stabilize banks and shorelines against erosion caused by currents and waves.
Sediment/ Toxicant Retention	Some wetlands serve to detain surface flow (surface runoff or channel flow) allowing some suspended sediments, toxicants, and/or pathogens to settle out into the wetland soil, thereby preventing their migration into downstream waters. Wetlands capable of best performing this function tend to support dense vegetation, have constricted (or no) outlets, and be located near disturbed soils or toxicant sources.
Nutrient Removal/ Transformation	Some wetlands serve to detain surface flow (surface runoff or channel flow) allowing nutrients such as nitrogen and phosphorus to settle out into the wetland soil, thereby preventing their migration into downstream waters. High nutrient levels in waterbodies cause eutrophication, a condition where undesirable algal growths deplete dissolved oxygen and interfere with other aquatic biota. Wetlands capable of best performing this function tend to support dense vegetation, have constricted (or no) outlets, and be located near areas of heavy fertilizer use.
Production Export	Some wetlands serve as sources of biomass, nutrients, and food sources supporting aquatic ecosystems in downgradient waterbodies. Wetlands capable of best performing this function tend to have dense, diverse vegetation and be connected to areas of open water.
Aquatic Diversity/ Abundance	Wetlands adjoining or forming a part of streams, lakes, and other areas of open water tend to provide specialized habitat for many species of fish and other aquatic biota, thereby enhancing the diversity of aquatic ecosystems.
Wildlife Diversity/ Abundance	Wetlands provide favored habitat for many amphibian, reptile, bird, and mammal species. The exact species of wildlife attracted by a wetland depends largely on the wetland's vegetation composition.

TABLE 3-1

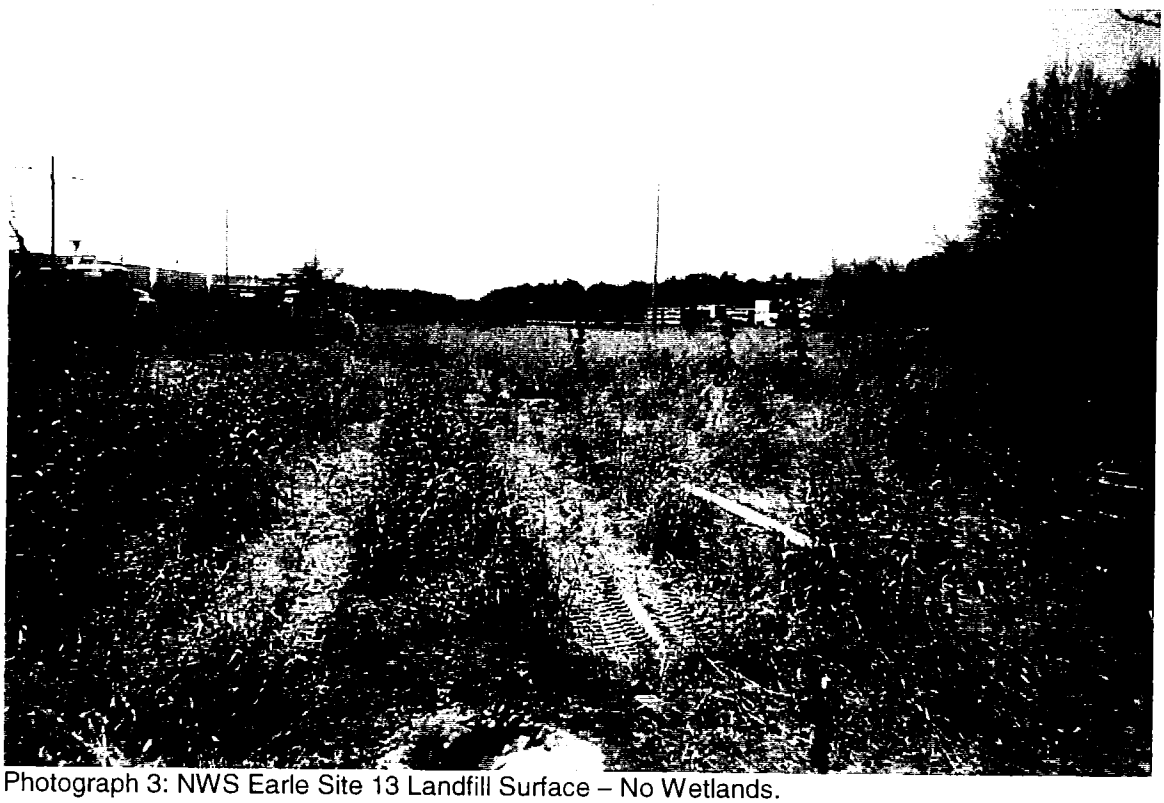
**COMMON FUNCTIONS AND VALUES OF WETLANDS
NWS EARLE SITE 13 – DPDO YARD
COLTS NECK, NEW JERSEY
PAGE 2 OF 2**

Values	Description
Recreation	Many wetlands provide opportunities for recreational activities such as hiking, canoeing, boating, fishing, and hunting. The recreational value of a wetland depends not only on its physical characteristics but also on its public accessibility and proximity to population centers.
Uniqueness/ Heritage	Many wetlands are inherently "special" places that reflect or contribute to the history and/or culture of the surrounding region.
Educational/ Scientific Value	Many wetlands, especially wetlands that have experienced little human alteration or disturbance, are of value for scientific research and/or for public outdoor education. The location of a wetland on public land and/or in close proximity to schools enhances this value.
Visual Quality/ Aesthetics	Especially in urban/suburban settings, many wetlands are visually pleasing natural areas that can buffer, screen, or offset the visual impacts of developed areas.

Source: Adamus *et al.*, 1991 and De Santo and Flieger, 1995.

Photograph 1: Ditch forming Area 13A. The ditch is a Water of the United States and New Jersey State Open Water. Note the absence of wetlands within the steep embankments on each side of the stream.

Photograph 2: Palustrine Forested Wetland (Area 13B)



Photograph 3: NWS Earle Site 13 Landfill Surface – No Wetlands.

Photograph 4: Shallow Root Systems and Hummocking at Red Maple and Black Gum Trees in Palustrine Forested Wetlands Forming Area 13B.

4.0 CONCLUSIONS

Wetland Delineation Summary: The wetland delineation identified two areas on Site 13 that meet regulatory definitions under Section 404 of the CWA and the New Jersey Freshwater Wetlands Protection Act (Figure 3-1). The first, designated as Area 13A, is a ditch on the western edge of the site. The ditch is a water of the United States and a New Jersey state open water but is not adjoined by wetlands. The second, designated as Area 13B, is a forested wetland in the northwestern part of the site. Although the wetland and the stream are contiguous north of Site 13, the ditch is adjoined by steep upland embankments where it traverses the site. The landfill itself does not contain any wetlands.

Other Regulated Sensitive Lands: The NJDEP also regulates impacts to a number of other environmentally sensitive lands in addition to freshwater wetlands, such as coastal (tidal) wetlands and 100-year floodplains. The delineation revealed that Site 13 does not contain any coastal (tidal) wetlands as defined under New Jersey's older Wetlands Act of 1970 (N.J.S.A. 13:9A). Floodplains, as regulated under the New Jersey Flood Hazard Control Act (N.J.S.A. 58:16A) have not been delineated for Site 13. Visual inspection of Site 13 suggests that the potential occurrence of 100-year floodplain is limited to areas directly adjoining the ditch to the west of the landfill (Area 13A). The ditch is bounded on both sides by steep embankments that are 5 to 7 feet higher in elevation than the stream; the 100-year floodplain undoubtedly lies within the embankments. The wetland forming Area 13B is part of a broad flat of poorly drained soils where the headwaters of several small streams originate and is thus not likely itself within the 100-year floodplain of any stream.

Because Site 13 is located well to the west of the coastal shorelines of Monmouth County, it does not likely contain any areas regulated under the New Jersey Waterfront Development Act (N.J.S.A. 12:5-3) or the New Jersey Tidelands Act (N.J.S.A. 12:3). Site 13 lies outside of the coastal area regulated under the New Jersey Coastal Area Facility Review Act (CAFRA; N.J.S.A. 13:19).

Potential Permit Requirements: The remedy will be conducted in the context of CERCLA, and therefore environmental permits and formal approvals are not required. However, CERCLA actions must comply with the substantive requirements of federal state applicable, relevant, and appropriate requirements (ARARs), which include federal and state wetland protection regulations such as Section 404 of the CWA and the New Jersey Freshwater Wetlands Protection Act. The first step in meeting the substantive requirements of the wetland ARARs is to request that the NJDEP, the agency responsible for verifying wetland delineations in New Jersey, issue a letter of interpretation (LOI) authenticating the wetland delineation of Site 13. The remedial design must then minimize physical disturbance within the wetlands and other surface water features identified in the LOI.

It is noted that the New Jersey Freshwater Wetlands Protection Act addresses actions within upland buffers, termed transition areas, that adjoin freshwater wetlands. The width of the transition area is 50 feet for most wetlands, although the NJDEP could designate a transition area as narrow as 0 feet or as wide as 150 feet, depending on the resource value (functional value) of the wetland. The NJDEP officially designates the transition area width for each wetland when issuing an LOI verifying a wetland delineation. CERCLA actions in New Jersey are typically designed to minimize encroachment into the transition area, but formal transition area waivers are not required.

REFERENCES

Adamus, P. R., L. T. Stockwell, E. J. Clairain, Jr., M. E. Morrow, L. P. Rozas, and R. D. Smith, 1991. Wetland Evaluation Technique (WET); Volume I: Literature Review and Evaluation Rationale, Technical Report WRP-DE-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States, FWS/OBS-79/31, U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC.

DeSanto, R. S. and T. A. Flieger, 1995. Wetland Functions and Values: Descriptive Approach to Visualizing and Assessing Wetland Systems, Transportation Research Record 1475, Transportation Research Board, National Research Council, Washington, DC.

Environmental Laboratory, 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

FICWD (Federal Interagency Committee for Wetland Delineation), 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service. Cooperative technical publication.

NCDC (National Climatic Data Center), 2003. Climate at a Glance – Annual Precipitation, New Jersey. http://climvis.ncdc.noaa.gov.

NRCS (Natural Resources Conservation Service), 1998. Field Indicators of Hydric Soils in the United States, Version 4.0, March 1998.

Reed, P. B., Jr., 1988. National List of Plant Species that Occur in Wetlands: National Summary, U.S. Fish and Wildlife Service Biol. Rep. 88(24), U.S. Department of the Interior, Fish & Wildlife Service, Washington, DC.

SCS (U.S. Soil Conservation Service), 1989. Soil Survey of Monmouth County, New Jersey, U.S. Department of Agriculture, Soil Conservation Service, in cooperation with New Jersey Agricultural Experiment Station, Cook College, Rutgers – the State University and the New Jersey Department of Agriculture, State Soil Conservation Committee.

SCS (U.S. Soil Conservation Service), 1990. List of hydric soils for Monmouth County, New Jersey, February 1990 amendment (provided to Tetra Tech NUS by the Natural Resources Conservation Service, Freehold, New Jersey in April 2003)

TtNUS (Tetra Tech NUS, Inc.), 2003. Letter Work Plan, Pre-Design Investigation for Site 13, Defense Property Disposal Office Yard, Naval Weapons Station Earle, Colts Neck, New Jersey. April.

U.S. Navy, 1996. Remedial Investigation Report for Naval Weapons Station Earle, Colts Neck, New Jersey. Prepared by Brown & Root Environmental for Northern Division, Naval Facilities Engineering Command, Lester, Pennsylvania. July.

APPENDIX A

WETLAND DELINEATION DATA SHEETS

DATA POINT 13B-7-1

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 29, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No _____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes _____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. NYSSA SYLVATICA (3)	FAC	C	11. ACER RUBRUM (1)	FAC	SA
2. ACER RUBRUM (3)	FAC	C	12. SYMPLOCARPUS FOETIDUS (T)	OBL	H
3. NYSSA SYLVATICA (1)	FAC	SA	13. KALMIA LATIFOLIA (1)	FACU	H
4. VACCINIUM CORYMBOSUM (1)	FACW	SH	14.		
5. KALMIA LATIFOLIA (1)	FACU	SH	15.		
6. CAREX SP.	VAR	H	16.		
7. SPHAGNUM SP.	NI	BR	17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 80
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No _____ Undetermined _____
Is the soil a Histosol? Yes _____ No X Histic epipedon present? Yes _____ No X
Is the soil: Mottled? Yes _____ No X Gleyed? Yes _____ No X
Matrix Color: 2.5Y 2.5/1 (0-2 DEPTH) Mottle Colors: NONE (0-2 DEPTH)
Other hydric soil indicators: DEEP BLACK SANDS ON SURFACE ARE HIGH IN ORGANIC MATTER
Is the hydric soil criterion met? Yes X No _____
Rationale: SOIL PROFILE MATCHES A SOIL MAPPING UNIT ON COUNTY LIST OF HYDRIC SOILS [FM SEC 3.27]
(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: NONE
Is the soil saturated? Yes _____ No X
Depth to free-standing water in pit/soil probe hole: 18 INCHES
List other field evidence of surface inundation or soil saturation.
MORPHOLOGICAL PLANT ADAPTATIONS (SHALLOW ROOTS, TRUNK BUTTRESSING), HUMMOCKING
Is the wetland hydrology criterion met? Yes X No _____
Rationale: MORPHOLOGICAL PLANT ADAPTATIONS [FM SEC 3.35(10)]

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No _____
Rationale for jurisdictional decision: HYDROPHYTIC VEGETATION, HYDRIC SOILS, AND WETLAND HYDROLOGY OCCUR CONCURRENTLY

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-7-1

Map Unit Name (Series and Phase): ATSION SAND
Taxonomy (subgroup): AERIC HAPLAQUODS
Drainage Class: POORLY DRAINED
Field Observations Confirmed Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-20	A	2.5Y 2.5/1	NONE	N/A	FINE LOAMY SAND
20-24	E or B	2.5Y 6-5/2	NONE	N/A	FINE LOAMY SAND
24-30+	B	5Y 6/2	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soil
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
___	Reducing Conditions	___	Listed on National Hydric Soils List
___	Gleyed or Low-Chroma Colors	___	Other (Explain in Remarks)

Remarks: HYDRIC SOIL [FM SEC 3.27]

DATA POINT 13B-1-2

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 29 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No _____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes _____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. ACER RUBRUM (3)	FAC	C	11. PINUS STROBUS (1)	FACU	C
2. NYSSA SYLVATICA (3)	FAC	C	12. VACCINIUM CORYMBOSUM (T)	FACW-	SH
3. ACER RUBRUM (1)	FAC	SA	13.		
4. NYSSA SYLVATICA (1)	FAC	SA	14.		
5. KALMIA LATIFOLIA (2)	FACU	SH	15.		
6. CAREX SP	VAR	H	16.		
7. SPHAGNUM SP.	NI	BR	17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC _____
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: >50% OF DOMINANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No _____ Undetermined _____
Is the soil a Histosol? Yes _____ No X Histic epipedon present? Yes _____ No X
Is the soil: Mottled? Yes _____ No X Gleyed? Yes _____ No X
Matrix Color: 2.5Y 2.5/1 (0-20" DEPTH) Mottle Colors: NONE (0-20" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes X No _____
Rationale: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOILS.

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: NONE
Is the soil saturated? Yes _____ No X
Depth to free-standing water in pit/soil probe hole: 20 INCHES
List other field evidence of surface inundation or soil saturation.
UPPER EDGE OF MORPHOLOGICAL PLANT ADAPTATIONS
Is the wetland hydrology criterion met? Yes X No _____
Rationale: UPPER EDGE OF APPARENT WETLAND HYDROLOGY

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No _____
Rationale for jurisdictional decision: UPPER EDGE OF WHERE ALL 3 PARAMETERS CLEARLY OCCUR CONCURRENTLY

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-7-2

Map Unit Name (Series and Phase):	ATSION SAND	Drainage Class:	POORLY DRAINED
Taxonomy (subgroup):	AERIC HAPLAQUODS	Field Observations Confirmed Mapped Type?	(Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-20	A	2.5Y 2.5/1	NONE	N/A	FINE LOAMY SAND
20-24+	B	5Y 6/2	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

___ Histosol	___ Concretions
___ Histic Epipedon	___ High Organic Content in Surface Layer in Sandy Soil
___ Sulfidic Odor	___ Organic Streaking in Sandy Soils
___ Aquic Moisture Regime	X Listed on Local Hydric Soils List
___ Reducing Conditions	___ Listed on National Hydric Soils List
___ Gleyed or Low-Chroma Colors	___ Other (Explain in Remarks)

Remarks: HYDRIC SOIL [FM SEC 3.27]
ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

DATA POINT 155-1-S

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 29, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No ____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes ____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. NYSSA SYLVATICA (3)	FAC	C	11. ACER RUBRUM (1)	FAC	C
2. PINUS STROBUS (2)	FACU	C	12. PINUS RIGIDA (1)	FACU	C
3. ACER RUBRUM (1)	FAC	SA	13. CHAMAECYPARIS THYOIDES (T)	OBL	C
4. NYSSA SYLVATICA (1)	FAC	SA	14.		
5. VACCINIUM CORYMBOSUM (1)	FACW-	SH	15.		
6. KALMIA LATIFOLIA (1)	FACU	SH	16.		
7. SPHAGNUM SP	NI	BR	17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 67
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND-UPPER EDGE Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No ____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes ____ No X Histic epipedon present? Yes ____ No X
Is the soil: Mottled? Yes ____ No X Gleyed? Yes ____ No X
Matrix Color: 2.5 Y 5/3-2 (12-24" DEPTH) Mottle Colors: NONE (12-24" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes ____ No X
Rationale: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth: NONE
Is the soil saturated? Yes ____ No X
Depth to free-standing water in pit/soil probe hole: 20 INCHES
List other field evidence of surface inundation or soil saturation.
NONE
Is the wetland hydrology criterion met? Yes ____ No X
Rationale: JUST UPGRADIENT OF UPPER EDGE OF APPARENT WETLAND HYDROLOGY

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ____ No X
Rationale for jurisdictional decision: JUST UPGRADIENT OF UPPER EDGE OF APPARENT WETLAND HYDROLOGY, ON GRADUAL TRANSITION FROM WETLAND TO UPLAND

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-7-3

Map Unit Name (Series and Phase): ATSION SAND
Taxonomy (subgroup): AERIC HAPLAQUODS
Drainage Class: POORLY DRAINED
Field Observations Confirmed Mapped Type? Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-12	A	2.5Y 2.5/1	NONE	N/A	FINE LOAMY SAND
12-24	E & B	2.5Y 5/3-2	NONE	N/A	FINE LOAMY SAND
24-30	B	5Y 6/2	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soil
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL.

DATA POINT 13B-7-4

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 29, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No ____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes ____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. PINUS STROBUS (3)	FACU	C	11. ACER RUBRUM (1)	FAC	C
2. NYSSA SYLVATICA (2)	FAC	C	12. CHAMAECYPARIS THYOIDES (1)	OBL	C
3. PINUS RIGIDA (2)	FACU	C	13.		
4. NYSSA SYLVATICA (1)	FAC	SA	14.		
5. ACER RUBRUM (1)	FAC	SA	15.		
6. VACCINIUM CORYMBOSUM (1)	FACW-	SH	16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 67
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6.(2)]

SOILS

Series/phase: ATSION SAND - UPPER EDGE Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No ____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes ____ No X Histic epipedon present? Yes ____ No X
Is the soil: Mottled? Yes ____ No X Gleyed? Yes ____ No X
Matrix Color: 2.5YR 3/1 (1-4" DEPTH) Mottle Colors: NONE (1-4" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes ____ No X
Rationale: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth: NONE
Is the soil saturated? Yes ____ No X
Depth to free-standing water in pit/soil probe hole: 20 INCHES
List other field evidence of surface inundation or soil saturation.
NONE
Is the wetland hydrology criterion met? Yes ____ No X
Rationale: UPGRADIENT OF UPPER EDGE OF APPARENT WETLAND HYDROLOGY

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ____ No X
Rationale for jurisdictional decision: ON GRADUAL TRANSITION FROM WETLAND TO UPLAND

---

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-7-4

Map Unit Name (Series and Phase): ATSION SAND

Taxonomy (subgroup): AERIC HAPLAQUODS

Drainage Class: POORLY DRAINED

Field Observations Confirmed Mapped Type? Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-1	A	2.5Y 3/1	NONE	N/A	FINE LOAMY SAND
1-4	E^2	2.5Y 5/3	NONE	N/A	FINE LOAMY SAND
4-20	A^2	2.5Y 3/1	NONE	N/A	FINE LOAMY SAND
20-24+	E or B^2	5Y 6/2	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soil
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

DATA POINT 13B-7-5

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 29, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No _____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes _____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. PINUS STROBUS (3)	FACU	C	11. ILEX OPACA (T)	FACU	H
2. PINUS RIGIDA (2)	FACU	C	12.		
3. NYSSA SYLVATICA (2)	FAC	C	13.		
4. ACER RUBRUM (2)	FAC	C	14.		
5. NYSSA SYLVATICA (1)	FAC	SA	15.		
6. ACER RUBRUM (1)	FAC	SA	16.		
7. VACCINIUM CORYMBOSUM (1)	FACW-	SH	17.		
8. SPHAGNUM SP (2)	NI	BR	18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 71
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND - UPPER EDGE Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No _____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes _____ No X Histic epipedon present? Yes _____ No X
Is the soil: Mottled? Yes _____ No X Gleyed? Yes _____ No X
Matrix Color: 2.5Y 3/1 (50%)(0-10" DEPTH) Mottle Colors: 2.5Y 6/3 (<2%)(0-10" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes _____ No X
Rationale: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: NONE
Is the soil saturated? Yes _____ No X
Depth to free-standing water in pit/soil probe hole: >12 INCHES
List other field evidence of surface inundation or soil saturation.
NONE
Is the wetland hydrology criterion met? Yes _____ No X
Rationale: UPGRADIENT OF UPPER EDGE OF APPARENT WETLAND HYDROLOGY

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes _____ No X
Rationale for jurisdictional decision: ON GRADUAL TRANSITION FROM WETLAND TO UPLAND.

---

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-7-5

Map Unit Name (Series and Phase): ATSION SAND
Taxonomy (subgroup): AERIC HAPLAQUODS
Drainage Class: POORLY DRAINED
Field Observations Confirmed Mapped Type? Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-10	A/E	2.5Y 3/1 (50%)	2.5Y 6/3 (50%)	POLYCHROMATIC	FINE LOAMY SAND
10-24	A/E	2.5Y 3/1	NONE	N/A	FINE LOAMY SAND
24-30	B	2.5Y 6/2	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soil
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

DATA POINT 13B-7-6

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 29, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No _____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes _____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. PINUS STROBUS (3)	FACU	C	11.		
2. PINUS RIGIDA (2)	FACU	C	12.		
3. NYSSA SYLVATICA (2)	FAC	C	13.		
4. ACER RUBRUM (2)	FAC	C	14.		
5. NYSSA SYLVATICA (1)	FAC	SA	15.		
6. VACCINIUM CORYMBOSUM (1)	FACW-	SH	16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 67
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: PITSION SAND - UPPER EDGE Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No _____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes _____ No X Histic epipedon present? Yes _____ No X
Is the soil: Mottled? Yes _____ No X Gleyed? Yes _____ No X
Matrix Color: 2.5Y 3/1 (50%) (0-10" DEPTH) Mottle Colors: 2.5Y 6/3 (25%) (0-10" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes _____ No X
Rationale: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: NONE
Is the soil saturated? Yes _____ No X
Depth to free-standing water in pit/soil probe hole: >12 INCHES
List other field evidence of surface inundation or soil saturation.
NONE
Is the wetland hydrology criterion met? Yes _____ No X
Rationale: UPGRADIENT OF UPPER EDGE OF APPARENT WETLAND HYDROLOGY

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes _____ No X
Rationale for jurisdictional decision: ON GRADUAL TRANSITION FROM WETLAND TO UPLAND

---

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-7-6

Map Unit Name (Series and Phase): ATSION SAND
Taxonomy (subgroup): AERIC HAPLAQUODS
Drainage Class: POORLY DRAINED
Field Observations Confirmed Mapped Type? Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-10	A/E	2.5Y 3/1 (50%)	2.5Y 6/3 (50%)	POLYCHROMATIC	FINE LOAMY SAND
10-24	A/E	2.5Y 3/1	NONE	N/A	FINE LOAMY SAND
24-30	B	2.5Y 6/2	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soil
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

DATA POINT 13B-7-7

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 29, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No ____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes ____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. PINUS STROBUS (4)	FACU	C	11. PINUS RIGIDA (2)	FACU	C
2. NYSSA SYLVATICA (2)	FAC	SA	12. NYSSA SYLVATICA (2)	FAC	C
3. VACCINIUM CORYMBOSUM (1)	FACW-	SH	13. ACER RUBRUM (2)	FAC	C
4. CHAMAECYPARIS THYOIDES (1)	OBL	SH	14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 75
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No ____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes ____ No X Histic epipedon present? Yes ____ No X
Is the soil: Mottled? Yes ____ No X Gleyed? Yes ____ No X
Matrix Color: 2.5Y 7/6 (1-10" DEPTH) Mottle Colors: NONE (1-10" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes ____ No X
Rationale: DISTINCT AEROBIC SOIL HORIZON AT SURFACE

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth: NONE
Is the soil saturated? Yes ____ No X
Depth to free-standing water in pit/soil probe hole: 18 INCHES
List other field evidence of surface inundation or soil saturation.
NONE
Is the wetland hydrology criterion met? Yes ____ No X
Rationale: SURFACE SOIL APPEARS TO DISPLAY GOOD DRAINAGE

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ____ No X
Rationale for jurisdictional decision: HYDRIC SOIL AND WETLAND HYDROLOGY PARAMETERS ARE CLEARLY NOT MET.

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-7-7

Map Unit Name (Series and Phase): ATSION SAND

Taxonomy (subgroup): AERIC HAPLAQUODS

Drainage Class: POORLY DRAINED

Field Observations Confirmed Mapped Type? Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-1	A	2.5Y 3/1	NONE	N/A	FINE LOAMY SAND
1-10	B_2	2.5Y 7/6	NONE	N/A	FINE LOAMY SAND
10-30+	C_2	2.5Y 3/1	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soil
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: DISTINCT AEROBIC SOIL HORIZON AT SURFACE

DATA POINT 13B-10-1

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 30, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No _____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes _____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. ACER RUBRUM (4)	FAC	C	11. CHAMAECYPARIS THYOIDES (2)	OBL	C
2. NYSSA SYLVATICA (3)	FAC	C	12. SPHAGNUM SP (T)	NI	BR
3. ACER RUBRUM (1)	FAC	SA	13.		
4. VACCINIUM CORYMBOSUM (3)	FACW-	SH	14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No _____ Undetermined _____
Is the soil a Histosol? Yes _____ No X Histic epipedon present? Yes _____ No X
Is the soil: Mottled? Yes _____ No X Gleyed? Yes _____ No X
Matrix Color: 2.5Y 6/3 OR 6/2 (12-15" DEPTH) Mottle Colors: NONE (12-15" DEPTH)
Other hydric soil indicators: BLACK SANDS NR. SURFACE (0-12" DEPTH) MAY BE ORGANIC MATTER ACCUM.
Is the hydric soil criterion met? Yes X No _____
Rationale: SOIL PROFILE MATCHES A SOIL MAPPING UNIT ON COUNTY LIST OF HYDRIC SOILS [FM SEC 3.27]
(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: NONE
Is the soil saturated? Yes _____ No X
Depth to free-standing water in pit/soil probe hole: 15 INCHES
List other field evidence of surface inundation or soil saturation.
MORPHOLOGICAL PLANT ADAPTATIONS (SHALLOW ROOTS, BUTTRESSED TRUNKS) [FM SEC 3.35(10)]
Is the wetland hydrology criterion met? Yes X No _____
Rationale: MORPHOLOGICAL PLANT ADAPTATIONS (SHALLOW ROOTS, BUTTRESSED TRUNKS) [FM SEC 3.35(10)]. ABNORMALLY DRY 2002 COULD EXPLAIN LACK OF SURFACE SATURATION.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No _____
Rationale for jurisdictional decision: HYDROPHYTIC VEGETATION, HYDRIC SOILS, AND WETLAND HYDROLOGY OCCUR CONCURRENTLY

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-10-1

Map Unit Name (Series and Phase): ATSION SAND

Taxonomy (subgroup): AERIC HAPLAQUODS

Drainage Class: POORLY DRAINED

Field Observations Confirmed Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-12	A	2.5Y 4/1	NONE	N/A	FINE LOAMY SAND
12-15	E or B	2.5Y 6/3-2	NONE	N/A	FINE LOAMY SAND
15-24+	B	5Y 6/2	NONE	N/A	FINE LOAMY SAND

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soil
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: HYDRIC SOIL [FM SEC 3.27]

DATA POINT 13B-10-2

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 30, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No _____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes _____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. ACER RUBRUM (4)	FAC	C	11. CHAMAECYPARIS THYOIDES (2)	OBL	C
2. NYSSA SYLVATICA (3)	FAC	C	12. BETULA POPULIFOLIA (1)	FAC	SA
3. ACER RUBRUM (3)	FAC	SA	13.		
4. NYSSA SYLVATICA (2)	FAC	SA	14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND - UPPER EDGE Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No _____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes _____ No X Histic epipedon present? Yes _____ No _____
Is the soil: Mottled? Yes _____ No X Gleyed? Yes _____ No X
Matrix Color: 5Y 3/1 (70%) (0-4" DEPTH) Mottle Colors: 5Y 5/3 (30%) (0-4" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes X No _____
Rationale:
ON TRANSITION TO NON-HYDRIC SOIL
(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: NONE
Is the soil saturated? Yes _____ No X
Depth to free-standing water in pit/soil probe hole: 15 INCHES
List other field evidence of surface inundation or soil saturation.
UPPER EDGE OF MORPHOLOGICAL PLANT ADAPTATIONS
Is the wetland hydrology criterion met? Yes _____ No X
Rationale: UPPER EDGE OF APPARENT WETLAND HYDROLOGY

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No _____
Rationale for jurisdictional decision: UPPER EDGE OF WHERE ALL 3 PARAMETERS APPEAR TO OCCUR SIMULTANEOUSLY.

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-10-2

Map Unit Name (Series and Phase):	ATSION SAND	Drainage Class:	POORLY DRAINED
Taxonomy (subgroup):	AERIC HAPLAQUODS	Field Observations Confirmed Mapped Type?	Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-4	A/E	5Y 3/1 (70%)	5Y 5/3 (30%)	POLYCHROMATIC	FINE LOAMY SAND
4-8	A_2	5Y 2.5/1	NONE	N/A	FINE LOAMY SAND
8-		5Y 5/2	5Y 6/6	INDISTINCT (<5%)	FINE LOAMY SAND

Hydric Soil Indicators:

___ Histosol	___ Concretions
___ Histic Epipedon	___ High Organic Content in Surface Layer in Sandy Soil
___ Sulfidic Odor	___ Organic Streaking in Sandy Soils
___ Aquic Moisture Regime	___ Listed on Local Hydric Soils List
___ Reducing Conditions	___ Listed on National Hydric Soils List
___ Gleyed or Low-Chroma Colors	___ Other (Explain in Remarks)

Remarks:

ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

DATA POINT 13B-10-3

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 30, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No ____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes ____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. ACER RUBRUM (4)	FAC	C	11. BETULA POPULIFOLIA (1)	FAC	SA
2. NYSSA SYLVATICA (2)	FAC	C	12. NYSSA SYLVATICA (1)	FAC	SA
3. ACER RUBRUM (2)	FAC	SA	13. NYSSA SYLVATICA (T)	FAC	SH
4. SPHAGNUM SP (1)	NI	BR	14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND-UPPER EDGE Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No ____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes ____ No X Histic epipedon present? Yes ____ No X
Is the soil: Mottled? Yes ____ No X Gleyed? Yes ____ No X
Matrix Color: 5Y 3/1 (70%) (0-3" DEPTH) Mottle Colors: 5Y 5/3 (30%) (0-3" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes ____ No X
Rationale: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes ____ No X Surface water depth: NONE
Is the soil saturated? Yes ____ No X
Depth to free-standing water in pit/soil probe hole: 15 INCHES
List other field evidence of surface inundation or soil saturation.
NONE
Is the wetland hydrology criterion met? Yes ____ No X
Rationale: JUST UPGRADIENT OF UPPER EDGE OF APPARENT WETLAND HYDROLOGY

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ____ No X
Rationale for jurisdictional decision: JUST UPGRADIENT OF UPPER EDGE OF HYDRIC SOILS AND APPARENT WETLAND HYDROLOGY

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-10-3

Map Unit Name (Series and Phase):	ATSION SAND	Drainage Class:	POORLY DRAINED
Taxonomy (subgroup):	AERIC HAPLAQUODS	Field Observations Confirmed Mapped Type?	Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-3	A/E?	5Y 3/1 (70%)	5Y 5/3 (30%)	POLYCHROMATIC	FINE LOAMY SAND
3-18	A	5Y 3/1	NONE	N/A	FINE LOAMY SAND
18-24+	B	5Y 5/2	5Y 6/6	INDISTINCT (~10%)	FINE LOAMY SAND

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soil
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: ON TRANSITION FROM HYDRIC TO NON-HYDRIC SOIL

DATA POINT 13B-10-4

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): J. PEYTON DOUB, PWS, CEP Date: APRIL 30, 2003
Project/Site: NWS EARLE, IR SITE 13 State: NJ County: MONMOUTH
Applicant/Owner: US NAVY Plant Community #/Name: RED MAPLE FOREST
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes X No _____ (if no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly distributed?
Yes _____ No X (if yes, explain on back)

VEGETATION

Dominant Plant Species (Cover Class)	Indicator Status	Stratum	Other Plant Species (Cover Class)	Indicator Status	Stratum
1. ACER RUBRUM (4)	FAC	C	11. NYSSA SYLVATICA (1)	FAC	C
2. NYSSA SYLVATICA (1)	FAC	SA	12. VACCINIUM CORYMBOSUM (T)	FACW-	SH
3. ACER RUBRUM (2)	FAC	SA	13. SPHAGNUM SP. (T)	NI	BR
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No _____
Rationale: >50% OF DOMINANT PLANT SPECIES ARE OBL, FACW, OR FAC [FM SEC 3.6(2)]

SOILS

Series/phase: ATSION SAND - UPPER EDGE Subgroup:[2] AERIC HAPLAQUODS
Is the soil on the hydric soils list? Yes X No _____ Undetermined UPPER EDGE
Is the soil a Histosol? Yes _____ No X Histic epipedon present? Yes _____ No X
Is the soil: Mottled? Yes _____ No X Gleyed? Yes _____ No X
Matrix Color: 5Y 5/4 (0-10" DEPTH) Mottle Colors: NONE (0-10" DEPTH)
Other hydric soil indicators: NONE
Is the hydric soil criterion met? Yes _____ No X
Rationale: DISTINCT AEROBIC SOIL HORIZON AT SURFACE

(Soil Profile Presented on Back of Page)

HYDROLOGY

Is the ground surface inundated? Yes _____ No X Surface water depth: NONE
Is the soil saturated? Yes _____ No X
Depth to free-standing water in pit/soil probe hole: >24 INCHES
List other field evidence of surface inundation or soil saturation.
NONE
Is the wetland hydrology criterion met? Yes _____ No X
Rationale: SURFACE SOIL HORIZON APPEARS TO DISPLAY GOOD DRAINAGE

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes _____ No X
Rationale for jurisdictional decision: HYDRIC SOIL AND WETLAND HYDROLOGY PARAMETERS ARE CLEARLY NOT MET

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
2 Classification according to "Soil Taxonomy."

SOIL PROFILE DATA
DATA POINT: 13B-10-4

Map Unit Name (Series and Phase): ATSION SAND

Taxonomy (subgroup): AERIC HAPLAQUODS

Drainage Class: POORLY DRAINED

Field Observations Confirmed Mapped Type? Yes (No) TRANSITIONAL

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture Concretions, Structure, etc,
0-10	E & B	5Y 5/4	NONE	N/A	FINE SANDY LOAM
10-30	Bw A	5Y 2.5/1	NONE	N/A	FINE SANDY LOAM

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soil
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: DISTINCT AEROBIC HORIZON AT SURFACE

APPENDIX B

WETLAND FUNCTION-VALUE DATA SHEET

AREA 13B

Wetland Function-Value Evaluation Form

Total area of wetland >100A[1] Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use FOREST, CLOSED LANDFILL Distance to nearest roadway or other development ~500 FT

Dominant wetland systems present PALUSTRINE Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? HEADWATERS

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see ~~attached list~~ APPENDIX A)

Wetland I.D. NWS EARLE - 13B

Latitude N523700 Longitude E592250[2]

Prepared by: P. DOUB Date 4/30/03

Wetland Impact:
Type LF REMEDIATION Area <0.5A

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____ (FEDERAL 1989 MANUAL)

Function/Value	Occurence Y	Occurence N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,4,5,16		LANDSCAPE POSITION AND PHYSICAL CONDITIONS SUGGEST MORE OF A RECHARGE THAN DISCHARGE ROLE
Floodflow Alteration	X		1,2,3,5,6,9,18		DENSE VEGETATION AND BROAD AREA IN HEADWATERS BUT STILL CLOSE TO COASTAL AREA
Fish and Shellfish Habitat	X		1,2		PRODUCTION EXPORT AND WATER QUALITY FUNCTIONS COULD ENHANCE DOWN-GRADIENT HABITAT
Sediment/Toxicant Retention	X		1,2,4,5,7,8,9	X	DENSE VEGETATION AND OTHER FAVORABLE PHYSICAL CONDITIONS, LOCATED NEXT TO LANDFILL
Nutrient Removal	X		1,3,8,11,12		DENSE VEGETATION AND OTHER FAVORABLE PHYSICAL CONDITIONS BUT FEW APPARENT UP-GRADIENT NUTRIENT SOURCES
Production Export	X		1,2,4,5,7,8,12	X	DENSE AND DIVERSE VEGETATION, ABUNDENT WILDLIFE FOOD SOURCES
Sediment/Shoreline Stabilization		X	2,3,14		NO SHORELINES OR OPEN WATER NEAR POTENTIALLY AFFECTED AREA
Wildlife Habitat	X		1,3,5,6,7,8,11,14,15,17	X	LARGE EXPANSE OF UNBROKEN FOREST COVER, GOOD VEGETATIONAL DIVERSITY
Recreation	X		4,5,7		POTENTIAL FOR PASSIVE RECREATION (e.g., HIKING) BUT NOT OPEN TO THE PUBLIC
Educational Scientific Value	X		2,4,5,14		LARGE, GENERALLY UNDISTURBED WETLAND BUT NOT OPEN TO THE PUBLIC
Uniqueness/Heritage	X		3,15,16,19,28		TYPICAL OF OTHER INLAND WETLANDS CHARACTERIZED BY ATSION SANDS
Visual Quality/Aesthetics	X		3,4,5,7,8		FAVORABLE APPEARANCE BUT NOT VISIBLE TO THE PUBLIC
ES Endangered Species Habitat	X		3	X	POTENTIAL FOR OCCURRENCE
Other					

Notes: [1] >100 A FOR ENTIRE WETLAND, BUT PRIMARY FOCUS OF THE ASSESSMENT IS UPON <0.5 ACRES IMMEDIATELY ADJOINING THE SITE 13 LANDFILL.

[2] NJ STATE PLANE COORDINATE SYSTEM, NA DATUM OF 1983.

*Refer to back up list of numbered considerations.

Appendix

Wetland evaluation supporting documentation and reproducible forms.

Below is an example list of considerations that was used for a New Hampshire highway project. Considerations are flexible, based on best professional judgement and interdisciplinary team consensus. This example provides a comprehensive base, however, and may only need slight modifications for use in other projects.

GROUNDWATER RECHARGE/DISCHARGE— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

CONSIDERATIONS/QUALIFIERS

1. Public or private wells occur downstream of the wetland.
2. Potential exists for public or private wells downstream of the wetland.
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in/or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock, does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse, but lacks a defined outlet or contains a constricted outlet.
10. Wetland contains only an outlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g. springs).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
16. Gravel or sandy soils present in or adjacent to wetland.
17. Piezometer data demonstrates discharge.
18. Other

FLOODFLOW ALTERATION (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

CONSIDERATIONS/QUALIFIERS

1. Area of this wetland is large relative to its watershed.
2. Wetland occurs in the upper portions of its watershed.
3. Effective flood storage is small or non-existent upslope of or above the wetland.
4. Wetland watershed contains a high degree of impervious surfaces.
5. Wetland contains hydric soils which are able to absorb and detain water.
6. Wetland exists in a relatively flat area that has flood storage potential.
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures or resources are located in or near the floodplain downstream from the wetland.
12. The watershed has a history of economic loss due to flooding.
13. This wetland is associated with one or more watercourses.
14. This wetland watercourse is sinuous or diffuse.
15. This wetland outlet is constricted.
16. Channel flow velocity is affected by this wetland.
17. Land uses downstream are protected by this wetland.
18. This wetland contains a high density of vegetation.
19. Other

FISH AND SHELLFISH HABITAT — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.[1]

CONSIDERATIONS/QUALIFIERS

1. Forest land dominant in the watershed above this wetland.
2. Abundance of cover objects present.

STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE

3. Size of this wetland is able to support large fish/shellfish populations.
4. Wetland is part of a larger, contiguous watercourse.
5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retains some open water during winter.
6. Stream width (bank to bank) is more than 50 feet.
7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
8. Streamside vegetation provides shade for the watercourse.
9. Spawning areas are present (submerged vegetation or gravel beds).
10. Food is available to fish/shellfish populations within this wetland.
11. Barrier(s) to anadromous fish (such as dams, including beaver dams, water falls, road crossing, etc.) are absent from the stream reach associated with this wetland.
12. Evidence of fish is present.
13. Wetland is stocked with fish.
14. The watercourse is persistent.
15. Man-made streams are absent.
16. Water velocities are not too excessive for fish usage.
17. Defined stream channel is present.
18. Other

SEDIMENT/TOXICANT/PATHOGEN RETENTION —This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sedi-

ing wetland areas.

CONSIDERATIONS/QUALIFIERS

1. Potential sources of excess sediment are in the watershed above the wetland.
2. Potential or known sources of toxicants are in the watershed above the wetland.
3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.
4. Mineral, fine grained, or organic soils are present.
5. Long duration water retention time is present in this wetland.
6. Public or private water sources occur downstream.
7. The wetland edge is broad and intermittently aerobic.
8. The wetland is known to have existed for more than 50 years.
9. Drainage ditches have not been constructed in the wetland.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

10. Wetland is associated with an intermittent or perennial stream, or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation is present by dense vegetation.
17. Other

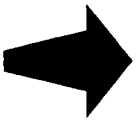
NUTRIENT REMOVAL/RETENTION/TRANSFORMATION — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands, and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.

CONSIDERATIONS/QUALIFIERS

1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.
4. Potential sources of excess nutrients present in the watershed above the wetland.
5. Wetland saturated for most of the season. Ponded water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained mineral, fine grained, or organic soils, are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Aquatic diversity/abundance sufficient to utilize nutrients.
11. Opportunity for nutrient attenuation exists.
12. Vegetation diversity/abundance sufficient to utilize nutrients.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

13. Waterflow through this wetland is diffuse.
14. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
15. Water moves slowly through this wetland.
16. Other



PRODUCTION EXPORT (Nutrient) — This function evaluates the effectiveness of the wetland to produce food or usable products for man or other living organisms.

CONSIDERATIONS/QUALIFIERS

1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland
3. Economically or commercially used products found in this wetland.

4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).
11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants which are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring however, no visible signs of export (assumes export is attenuated).
15. Other

SEDIMENT/SHORELINE STABILIZATION — This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

CONSIDERATIONS/QUALIFIERS

1. Indications of erosion. siltation present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
5. A distinct step between the open waterbody or stream and the adjacent land exists (i.e. sharp bank) with dense roots throughout.
6. Wide wetland (>10') bordering watercourse, lake. or pond.
7. High flow velocities in the wetland.
8. Potential sediment sources present upstream.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy absorbing emergents and/or shrubs bordering watercourse, lake or pond.
14. Vegetation comprised of large trees and shrubs which withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation comprised of dense resilient herbaceous layer which stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other

WILDLIFE HABITAT — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.[2]

CONSIDERATIONS/QUALIFIERS

1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g.brushland, wood land, active farmland, or idle land) at least 500 feet in width.
6. Wetland contiguous with other wetland systems connected by watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.

9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland are present.
13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g. tree/shrub/vine /grasses/mosses/etc.)
16. Plant/animal indicator species present.
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife, and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland contains or has potential to contain a high population of insects.
20. Wetland contains or has potential to contain large amphibian populations.
21. Wetland has a high avian utilization or its potential.
22. Indications of less disturbance-tolerant species present.
23. Signs of wildlife habitat enhancement present (birdhouses, nesting boxes, food sources, etc.).
24. Other

RECREATION (Consumptive and Non-Consumptive) — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.

CONSIDERATIONS/QUALIFIERS

1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake, associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

EDUCATIONAL/SCIENTIFIC VALUE — This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.

6. Wetland is located within a nature preserve or wildlife management area.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.
9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site available.
12. Direct access to pond or lake at potential educational site available.
13. No known safety hazards within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other

UNIQUENESS/HERITAGE — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

CONSIDERATIONS/QUALIFIERS

1. Upland surrounding wetland primarily urban.
2. Upland surrounding wetland developing rapidly.
3. More than 3 acres of shallow permanent open water occur in wetlands (less than 6.6 feet deep) including streams .
4. Three or more wetland classes present.
5. Deep and/or shallow marsh, or wooded swamp dominate.
6. High degree of interspersion of vegetation and/or open water occurring in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake at potential educational site.
12. Two or more wetland classes visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants, or plants which turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings occur within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures or associated features occur within the wetland.
24. Wetland contains critical habitat for a state or federally listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.
27. Wetland has local significance because it serves several functional values.

[1] Although the above example refers to freshwater wetlands, it can also be adapted for marine ecosystems. Below is an example of an adaptation for the fish and shellfish function provided by the National Marine Fisheries Service.

FISH AND SHELLFISH HABITAT — This function considers the effectiveness of wetlands, embayments, tidal flats, vegetated shallows, and other environments in supporting marine resources such as fish, shellfish, marine mammals, and sea turtles.

CONSIDERATIONS/QUALIFIERS (Marine)

1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.
2. Suitable spawning habitat is present at the site or in the area.
3. Commercially or recreationally important species are present or suitable habitat exists.
4. The wetland/waterway supports prey for higher trophic level marine organisms.
5. The waterway provides migratory habitat for anadromous fish.
6. Other

[2] In March 1995 a rapid wildlife habitat assessment method was completed by a University of Massachusetts research team, with funding and oversight provided by the New England Transportation Consortium. The method is called WEThings (wetland habitat indicators for non- game species). It produces a list of potential wetland- dependent mammals, reptiles, and amphibian species that may be present in the wetland. The output is based on observable habitat characteristics documented on the field data form. This method may be used to generate the wildlife species list recommended as backup information to the wetland evaluation form, and to augment the considerations. Use of this method should first be coordinated with the Corps project manager. A computer program is also available to expedite this process.

ATTACHMENT D

GEOTECHNICAL INVESTIGATION REPORT (TtNUS, June 2003)

Geotechnical Investigation Report
for
Pre-Design Investigation
Site 13 – Defense Property Disposal Office Yard (OU-5)

Naval Weapons Station Earle
Colts Neck, New Jersey

Engineering Field Activity Northeast
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0851

June 2003

TETRA TECH NUS, INC.

060307/P

GEOTECHNICAL INVESTIGATION REPORT
FOR
PRE-DESIGN INVESTIGATION
SITE 13 – DEFENSE PROPERTY DISPOSAL OFFICE (OU-5)

NAVAL WEAPONS STATION EARLE
COLTS NECK, NEW JERSEY

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Engineering Field Activity Northeast
Environmental Department, Code EV2
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop #82
Lester, Pennsylvania 19113-2090

Prepared and Submitted by:
Tetra Tech NUS, Inc.
600 Clark Avenue, Suite 3
King of Prussia, Pennsylvania 19406-1433

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0851

JUNE 2003

PREPARED UNDER DIRECTION OF:

DANIEL C. WITT, P.E.
PROJECT MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMISSION BY:

JOHN J. TREPANOWSKI, P.E.
PROGRAM MANAGER
TETRA TECH NUS, INC.
KING OF PRUSSIA, PENNSYLVANIA

TABLE OF CONTENTS

TABLES

FIGURES

1.0 INTRODUCTION

This report presents the activities and results of the geotechnical investigation portion of the Pre-Design Investigation (PDI) performed at Site 13 – Defense Property Disposal Office (DPDO) Yard (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey in support of the remedial design under Contract Task Order (CTO) No. 851 of Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888.

PDI activities included topographic and point surveys, completion of soil borings and test trenches, and a wetland delineation. The PDI activities were performed in accordance with the Letter Work Plan, Pre-Design Investigation (TtNUS, 2003) except as noted in Section 2.0 of this document. The wetland delineation activities are described under separate cover. Geotechnical investigation activities are described in Section 2.0. Geotechnical laboratory test results are presented in Section 3.0.

2.0 GEOTECHNICAL INVESTIGATION ACTIVITIES

PDI geotechnical investigation activities consisted of the installation of soil borings and test trenches. The geotechnical investigation test locations are shown on Figure 2-1. The PDI activities were performed in accordance with the Letter Work Plan, Pre-Design Investigation (TtNUS, 2003) with the following exceptions:

- Soil boring SB13-07 was offset twice due to anomalies encountered at a depth of 4 feet below ground surface (bgs).

- Photo ionization detector (PID) readings were taken for soil boring SB13-07 until the PID malfunctioned at a depth of 4 feet bgs. PID readings for soil boring SB13-09 were not taken until after the first two feet of drilling due to the PID malfunctioning.

- Test trenches TP13-13 through TP13-16 were located further to the east to better define the lateral extent of the landfill material.

- Test trench TP13-17 was located further to the north to determine the thickness of the fill material.

- Test trenches TP13-19 and TP13-20 were moved to the north and east to determine the thickness of the fill material in the area.

- Two additional test trenches (TP13-21 and TP13-22) were excavated along the western portion of the landfill near the wetlands to determine the thickness of the fill material.

- PID measurements were not taken during excavation of test trenches TP13-19, TP13-20, TP13-21, and TP13-22 due to malfunctioning of the instrument.

Each field investigation activity is described below. A copy of the Tetra Tech NUS, Inc. (TtNUS) field log book is provided in Appendix A. A photographic log of the PDI is provided in Appendix B.

2.1 SOIL BORINGS

The purpose of installing soil borings was to characterize the subsurface conditions at Site 13 and determine the geotechnical properties of native soil beneath the waste/fill comprising the landfill. A total of three borings were installed during the PDI. Two borings (SB13-07 and SB13-09) were advanced to a

total depth of 27 feet bgs. One boring (SB13-08) was advanced to a total depth of 52 feet bgs. The soil boring locations are shown on Figure 2-1.

The soil borings were advanced using a 4 1/4-inch inside diameter (ID)/8 1/2-inch outside diameter (OD) hollow-stem augers (HSA). Soil samples were collected continuously at 2-foot intervals for the first 10 feet and at 5-feet intervals thereafter with a 1 3/8-inch ID/2-inch OD split-barrel samplers ("split-spoons"). Split-spoons were advanced in accordance with ASTM D1586. Each split-spoon sample was screened with a photo ionization detector (PID, Photovac Model 2020 with 10.4 ev lamp), examined by the TtNUS field geologist for any physical indication of contamination, and classified according to the Unified Soil Classification System (USCS) based on visual-manual classification procedures (ASTM D2488). As noted above, the PID was malfunctioning for a portion of sampling in soil boring SB13-07. Field boring logs and final boring logs are provided in Appendices D.1 and D.2, respectively. Representative portions of the split-spoon samples were placed in clear glass jars and subsequently transported to the geotechnical laboratory for testing. Sample log sheets are provided in Appendix E.

All three soil borings contained waste/fill from the ground surface to 8 to 10 feet bgs. The fill component of the waste/fill layer consisted primarily of silty sand. The waste component of the waste/fill layer consisted of wood fragments, decayed matter, and metal debris. Also observed in the waste component of the waste/fill layer was black staining, creosote odor, and sulfur odor.

All soil borings were backfilled upon completion with a cement/bentonite (94 pounds and 5 pounds, respectively) grout through the center of the augers with a tremie pipe from the bottom of the boring to the ground surface.

Soil boring ground surface elevations were surveyed to the nearest 0.01 foot. Elevations were referenced to the North American Vertical Datum of 1988 (NAVD88). Horizontal locations of soil borings were surveyed to New Jersey State Plane coordinates, within the nearest 0.10 foot and referenced to the North American Datum of 1983 (NAD83). Appendix C contains the survey data for the geotechnical investigation.

2.2 TEST TRENCHES

Ten test trenches (TP13-13 through TP13-22) were excavated in the DPDO Yard. Test trenches TP13-17 through TP13-22 located along the northern and western perimeter were excavated to a depth below the waste to determine the thickness of the fill material. Test trenches TP13-13 through TP13-16 located on the eastern perimeter of the landfill were excavated to the lateral extent of industrial waste. The test trench locations are shown on Figure 2-1. Field test trench logs and final test trench logs are presented in Appendix F.1 and F.2, respectively. The test trenches were installed using a rubber-tired backhoe.

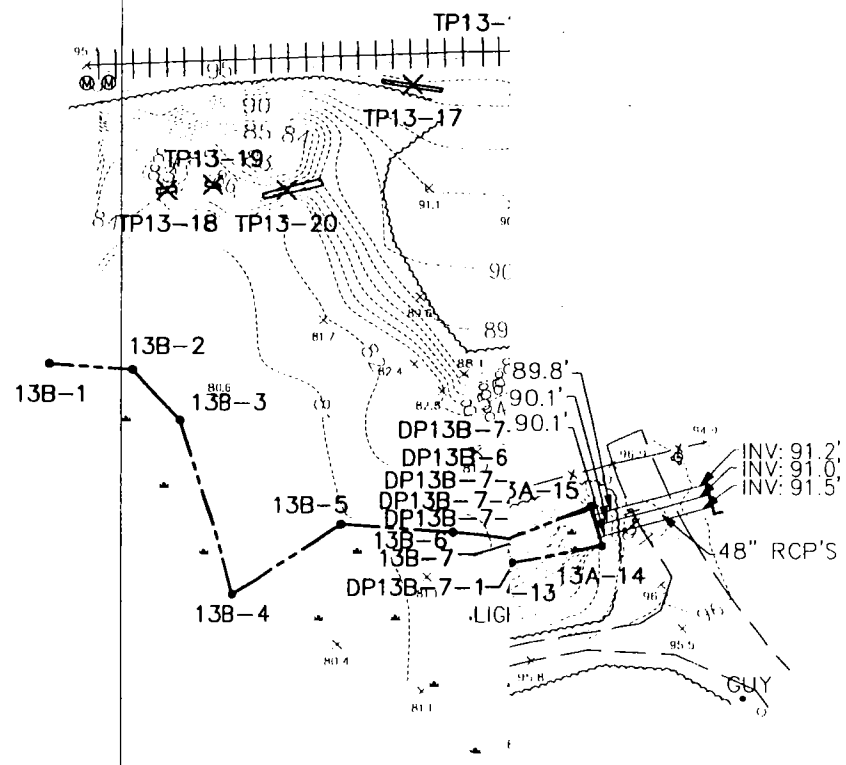
Test trenches were backfilled with the excavated material from the associated test trench. Waste/fill material was backfilled first, followed by the overlying surface cover. The final surface was restored to original, pre-excavation conditions. Soil descriptions, stratigraphy of the soil/waste, and test trench dimensions were recorded on test trench logs.

All but two test trenches contained fill (TP13-18 and TP13-19). An ash/slag layer was encountered in five test trenches (TP13-13, TP13-14, TP13-15, TP13-15, and TP13-16). Three test trenches (TP13-20, TP13-21, and TP13-22) contained waste that included scrap metal, lawn mowers, furniture, sheet metal, munitions container, shell cones, scrap doors, cables, and a buried car. Total depth of test trenches was 4 to 5 feet. PID readings were nondetectable for locations TP13-13 through TP13-18. No PID readings were taken for TP13-19, TP13-20, TP13-21, and TP13-22 due to the instrument malfunctioning.

The center of each test trench was surveyed to the nearest 0.01 foot. Elevations were referenced to the North American Vertical Datum of 1988 (NAVD88). Horizontal locations of test trenches were surveyed to New Jersey State Plane coordinates, within the nearest 0.10 foot and referenced to the North American Datum of 1983 (NAD83). Appendix C contains the survey data for the geotechnical investigation.

This page intentionally left blank.

ACAD: 6710CP07.dwg 05/27/03 DM PIT



LIMIT

DECIDUOUS TREE

CONIFEROUS TREE

90 EXISTING CONTOUR

FENCE

TREE LINE

EDGE OF DELINEATED WETLAND

RAILROAD TRACKS

0 100 200

SCALE IN FEET

HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATES -
VERTICAL DATUM: NAVD 88

NO.	DATE	REVISIONS

CONTRACT NO. 6710	OWNER NO. 0851
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2-1	REV. 0

FORM CADD NO. TtNUS_BH.DGN - REV 0 - 1/20/98

3.0 GEOTECHNICAL LABORATORY TEST RESULTS

Geotechnical field investigation activities included completing test borings and test trenches. Geotechnical field investigation activities are described in Section 2.0. Soil samples were obtained from representative test borings for subsequent geotechnical laboratory testing.

3.1 GEOTECHNICAL LABORATORY TESTING

Geotechnical laboratory testing was performed on jar samples from soil borings SB13-07, SB13-08, and SB13-09. Jar samples were obtained for representative samples from each split spoon for each soil boring. The selection of samples for geotechnical laboratory analysis was based on field observations of changes in lithologic conditions at the site. A total of three samples were collected from soil borings SB13-07 and SB13-09 and four samples were collected from soil boring SB13-08.

Soil samples were analyzed for particle size (ASTM D422), soil classification (ASTM D2487), organic content (ASTM D2974), and Atterberg Limits (ASTM D4318).

A summary of geotechnical laboratory test results are presented on Table 3-1. The detailed geotechnical test results are presented in Appendix G.

This page intentionally left blank.

TABLE 3-1

SUMMARY OF GEOTECHNICAL TESTING RESULTS
SITE 13 – DEFENSE PROPERTY DISPOSAL OFFICE YARD
NAVAL WEAPONS STATION EARLE
COLTS NECK, NEW JERSEY

Sample Identification	Particle Size (mm) - ASTM D422		Atterberg Limits - ASTM D4318			USCS Classification ASTM D2487	Organic Content (%) ASTM D2974
	% Passing No. 4 (4.75 mm) Sieve	% Passing No. 200 (0.075 mm) Sieve	Liquid Limit	Plastic Limit	Plasticity Index		
SB13-07-1012	99.9	18.1	NP	NP	NP	SM	1.8
SB13-07-1517	100.0	12.3	NP	NP	NP	SM	NT
SB13-07-2527	100.0	12.6	NP	NP	NP	SM	NT
SB13-08-1012	93.8	11.3	NP	NP	NP	SW-SM	NT
SB13-08-2022	100.0	14.9	NP	NP	NP	SM	1.2
SB13-08-3032	100.0	13.2	NP	NP	NP	SM	NT
SB13-08-4547	100.0	7.6	NP	NP	NP	SP-SM	NT
SB13-09-1012	97.4	11.2	NP	NP	NP	SP-SM	0.6
SB13-09-1517	100.0	12.5	NP	NP	NP	SM	NT
SB13-09-2527	100.0	10.4	NP	NP	NP	SP-SM	NT

NP Not Plastic
NT Not Tested

Sample Nomenclature : SB13-AA-BBBB

SB13 – sample matrix (soil boring) and site number (13)
AA – boring number (07, 08, 09)
BBBB – sampling interval depth (in feet below ground surface)

REFERENCES

Tetra Tech NUS, Inc. (TtNUS), 2003. *Letter Work Plan Pre-Design Investigation for Site 13, Defense Property Disposal Office Yard (OU-5), Naval Weapons Station Earle, Colts Neck, New Jersey.* Prepared for Engineering Field Activity Northeast, Naval Facilities Engineering Command, Lester, Pennsylvania, April.

APPENDIX A

TtNUS FIELD LOG BOOK

Work continued from Page

1400 ON SITE, CHECK IN AT MAIN GATE FOR PASSES:

MATT COCHRAN - TTNUS
RAY WILLOUGHBY - TTNUS
RICH RIDER - EARTH MATTERS / DRILLERS
CHRIS MAHLE - EARTH MATTERS / DRILLERS

1500 PASSES OBTAINED, DRILLERS LEAVE SITE TO GET REQUIRED SAFETY GAS CANS. M.G.C + RW GO TO BASE ENVIRONMENTAL + CHECK IN, TOUCH BASE W LARRY BURG. PHONE STEVE (ENGINEERING) TO CHECK STATUS OF DIG PERMIT. LEFT MESSAGE TO CALL WHEN AUTHORIZED

~~1530~~

1530 CHECK IN W/ EOD, GET EMERGENCY TELE #'S & EMERGENCY INFO

1600 CHECK W FIRE DEPARTMENT & OBTAIN HOT WORK PERMITS FOR WEEK

1630 DRILLERS RETURN - FILL WATER TANKS. D. WITT CALLS, REQUESTS THAT ALL 4 CORNERS OF TEST PITS BE MARKED & SURVEYED

1700 MOBILIZE RIG TO DPDO AREA. PERFORM H&S TRAINING FOR DRILLERS & TTNUS STAFF.

1730 MEET W LARRY BURG. WILL NEED KEYS TO ACCESS SITE THRU DPDO. LARRY GAVE TEL. #S TO MGC.

Work continued to Page

SIGNATURE MK Mm DATE 4-28-03

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

4-28-03 (CONT.)

STILL AWAITING DIG PERMIT FROM MGC.
WILL CHECK STATUS TOMORROW

1830 LEAVE SITE FOR DAY.

VOID

4-28-03

Work continued from Page

0700 ON SITE

MATT COCHRAN - TTNUS
RAY WILLOUGHBY - TTNUS
PEYTON DOUB - TTNUS
RICH RIDER - EARTH MATTERS
CHRIS MAHLE - EARTH MATTERS

DRILLERS AWAIT FOR SAFETY FUEL CANS TO ARRIVE
MG COCHRAN HAS HIS PAPERWORK COMPLETED
CHECK ON ACCESS IN DPPO AND DIG PERMITS

0800 DPDO GATE OPENED, MOB. RIG ONTO DPPO AREA, CALLED TO CHECK ON DIG PERMIT STATUS W/ LARRY BURG. P. DOUB STARTS WETLAND DELINEATION.

0900 DRILLERS SET UP ON SB13-07. GO ON STANDBY TO AWAIT UTILITY CLEARANCE

1100 WENT TO LUNCH / PICKUP SUPPLIES, STILL AWAITING UTILITY CLEARANCE. ALL PARTIES ARE AWARE OF THE IMPORTANCE OF EXPEDITING UTILITY CLEARANCE. (NOTE: UTILITY CLEARANCE REQUEST WAS SUBMITTED BY TTNUS ~ 2 WEEKS AGO.)

1200 RETURN FROM LUNCH, AWATING CLEARANCE

1330 AL PETERSON ARRIVES. GAVE CLEARANCE FOR PRESENT BORING LOCATION. PITS PENDING MARKING OF GROUNDING WIRES. & WATER LINES. OFF STANDBY

Work continued to Page

SIGNATURE [signature] DATE 4-29-03

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

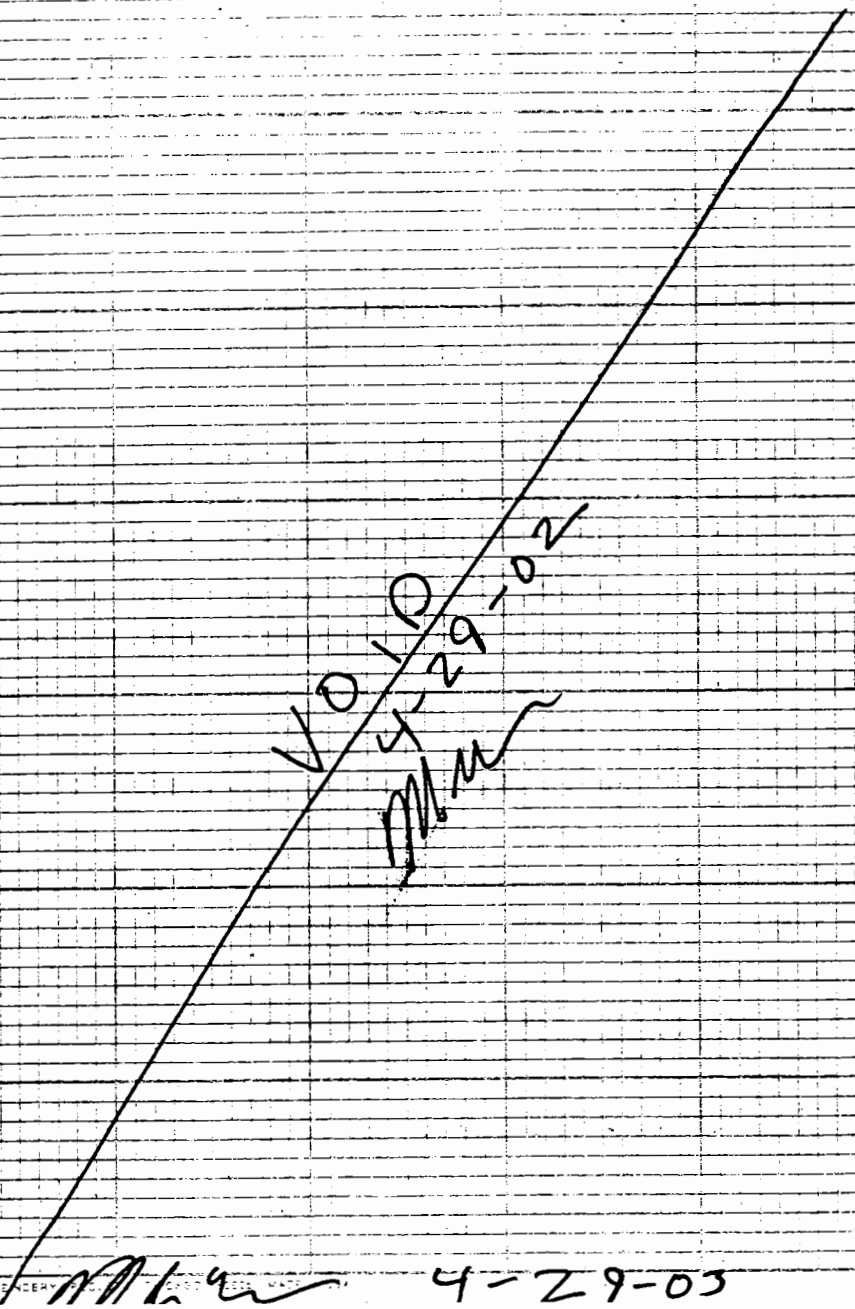
4-29-03 (CONT.)

1330 (CONT.) A. PETERSON TO MARK LINES.

1400 A. PETERSON RETURNS. NO MARKING NEEDED. GROUND WIRES TERMINATE INTO RR. TRACES. WATER DEPT. STAFF ~~ARRIVE~~ ARRIVE + INDICATE THAT HYDRANT MARKS NORTH MOST END OF LINE. ALL LOCATIONS CLEARED AT THIS TIME.

1700 SB13-07 COMPLETED + ABANDONED. MOVE TO LOCATION SB13-09 TO START DRILLING

1800 QUIT FOR DAY. LEAVE SITE



4-29-03

Work continued from Page

0700 ON SITE
MATT COCHRAN
RAY WILLOUGHBY
SET UP AND CALIBRATED EQUIPMENT FOR DAY

0715 DRILLERS ARRIVE, START REFUELING
R. RIDER
C. MAHLE

0730 RESUME DRILLING SB13-09

0800 BOB GORMAN (EARTH MATTERS) ON SITE TO DELIVER SUPPLIES

1000 SB13-09 DRILLED + GROUTED, DRILLERS DECON

1040 MOVE ONTO SB13-08, START DRILLING

1220 PEYTON DOUB COMPLETED W/ WORK
GIVES MATT MAP FOR SURVEYORS.
PEYTON LEAVES SITE, CREW
TAKES QUICK LUNCH + CONTINUES
WORKING.

1430 SB13-08 COMPLETED + GROUTED,

1500 BACKHOE ARRIVED. DRILLERS CLEANUP
DRILL LOCATIONS W/ HOE

1530 START DIGGING TP13-13

1600 HIT GROUND CABLE FOR POLES. CALLED
AL PETERSON. HE WILL PATCH IN THE A.M.
RESUMED EXCAVATION (NOTE: SEE PG. 4, LINES
SUPPOSED TO TERMINATE AT TRACKS

Work continued to Page

SIGNATURE DATE 4-30-03

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

1600 (CONT.) BOB GORMAN LEAVES FOR DAY, WILL NOT BE RETURNING

1640 ~~TR[illegible]~~ TP-13-13 DONE, START TP13-14

1740 TP 13-14 DONE

1800 BACKHOE WORK COMPLETE FOR DAY, ~~[illegible]~~

1815 LEAVE SITE FOR DAY

VOID

4-30-03

Work continued from Page 3

2.5

0700 ON SITE
M.G. COCHRAN
R. WILLOUGHBY

0715 DRILLERS ON SITE
R RIDER
C. MAHLE

730 START EXCAVATING TP 13-15. MGC CALIBRATES PID.

745 AL. PETERSEN ARRIVES + REPAIRS GROUNDING CABLE HIT IN TP 13-13

815 TP 13-15 DONE, START TP 13-16

830 TP 13-16 DONE, START TP 13-17

850 SURVEYORS CALL, MGC DRIVES TO MEET THEM

930 MGC RETURNS W/ SURVEYORS, TP 13-17 COMPLETED, START CLEARING FOR TP 13-18
SURVEYORS:
DENNIS SKLAR
JIM STEWART

945 HYDRAULIC LINE BROKE ON BACKHOE, DRILLERS CALL FOR REPAIR

1100 LUNCH

1130 RETURN FROM LUNCH, STILL AWAITING HOSE REPAIR, REPAIR SCHEDULED FOR BEFORE NOON (ACCORDING TO EARTHMTRS)

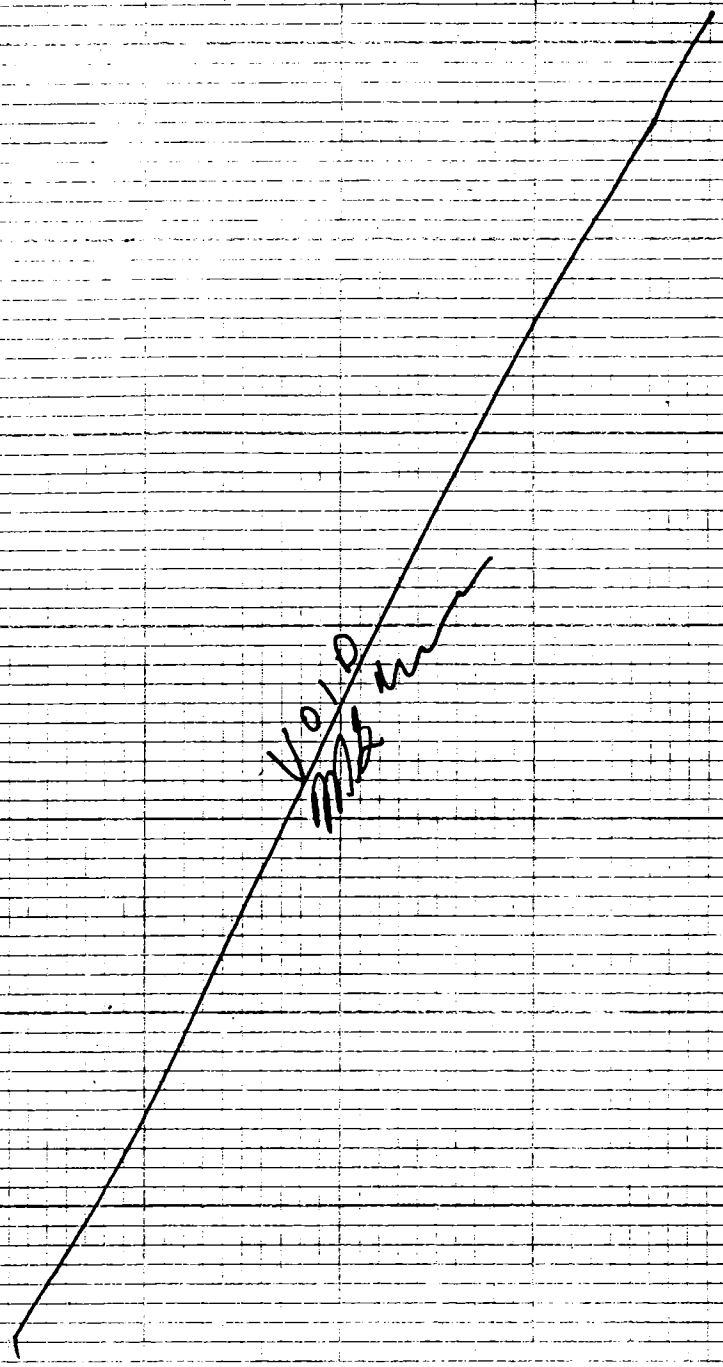
SIGNATURE M L [illegible] DATE 5-1-03

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

1230 REPAIR ON HOE NOT YET DONE. MGC REMOVES HOSE FROM HOE & TAKES TO GET REPAIRED.

1530 COULD NOT GET HOSE REPAIRED (FITTINGS NOT AVAILABLE) WILL HAVE TO GET DEALER HOSE. DELIVERY OF HOSE SCHEDULED FOR TOMORROW A.M.

1600 LEAVE SITE FOR PAY. PACK SPLS. @ MOTEL FOR SHIPMENT



Work continued from Page

7:30 ON SITE
MG COCHRAN
R. WILLOUGHBY
AWAITING DRILLERS WITH HOSE TO REPAIR HOE

0810 DRILLERS CALLED & INDICATED PART WOULD BE DELIVERED @ 840

0830 PID MALFUNCTIONING, UNIT CHECKED. CANNOT REPAIR IN FIELD, SEND BACK TO VENDOR

0930 RENTAL SERVICE ARRIVES TO REPAIR BACKHOE

1000 WRONG SIZE HOSE, DECIDED TO CALL DEALER, NONE AVAILABLE, DECIDED TO PLUG LINE & MAKE HOE FUNCTIONAL ~~MGC DRIVES TO J. DEERE DEALER W/ UNITED RENTAL REP TO GET PLUG~~ R. WILLOUGHBY SUGGESTS USING COINS TO PLUG LINES.

1020 HOE REPAIRED, START DIGGING TP-~~B~~13-18

1030 TP-13-18 DONE START TP13-19

1050 TP13-19 DONE START TP13-20

1150 TP13-20 DONE, DECON, START TP13-21

1240 TP13-21 DONE, DECON START TP13-22

Work continued to Page

SIGNATURE [signature] DATE 5-2-03

DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

1320 TP13-22 DONE, START BACKFILLING ALL REMAINING PITS

1400 ALL AREAS BACKFILLED AND MARKED

1415 LEAVE SITE, JOB COMPLETE

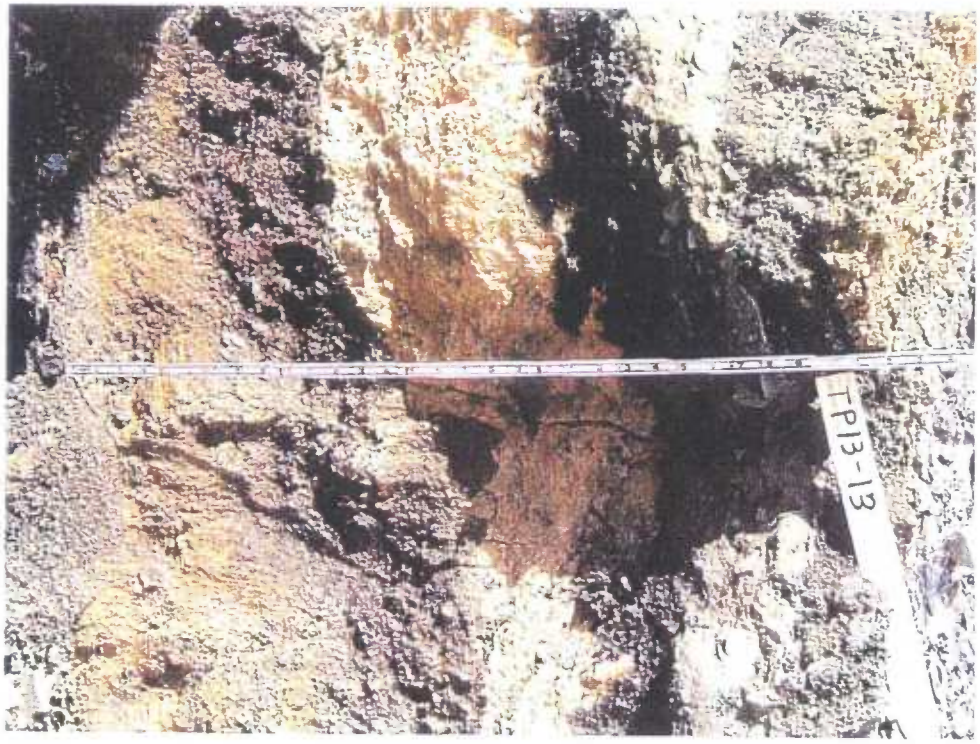
VOID

5-2-03

APPENDIX B

TtNUS PHOTOGRAPHIC LOG

SITE 13 – TOE OF LANDFILL (NOTE MISCELLANEOUS SCRAP)
FACING NORTHEAST
APRIL 30, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

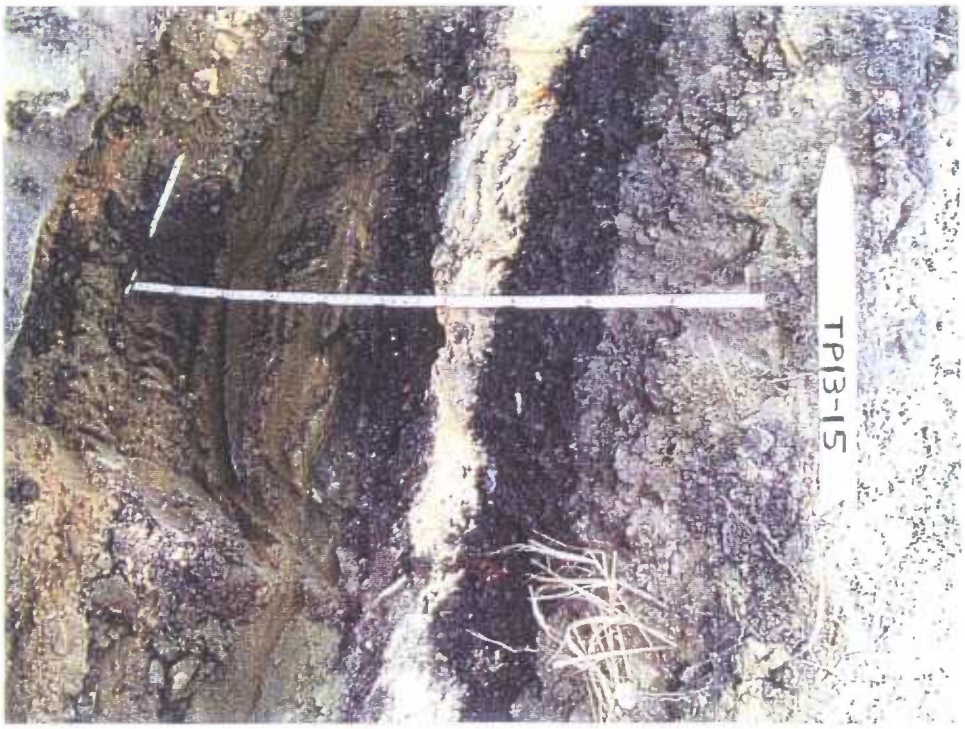


SITE 13 – TP13-13
FACING NORTH
APRIL 30, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-13
FACING NORTH
APRIL 30, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

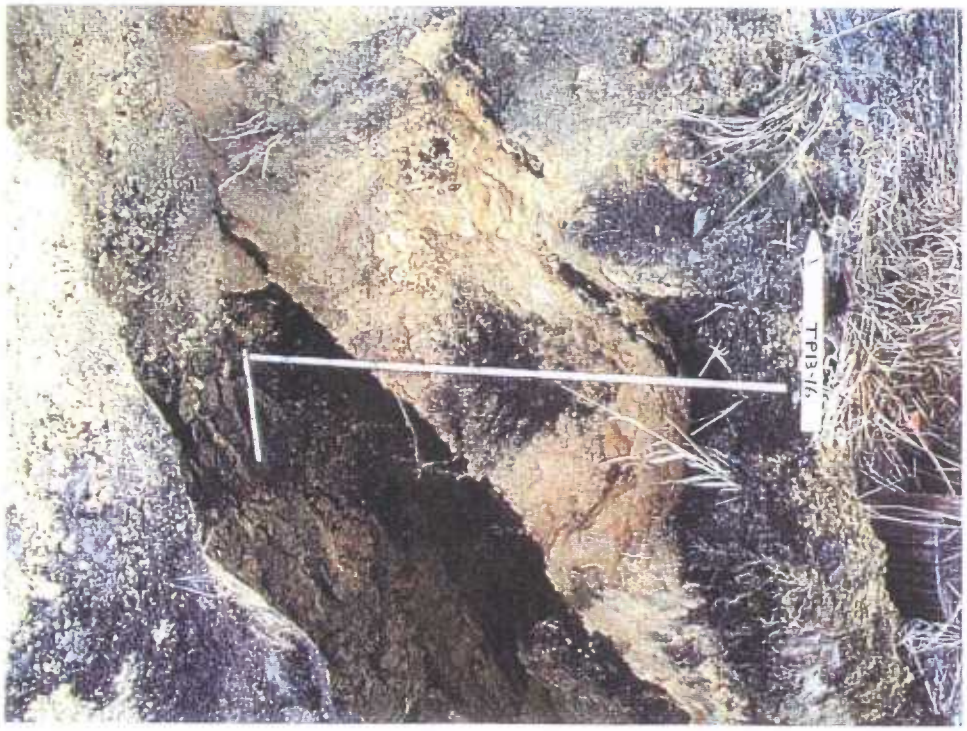
SITE 13 – TP13-14
FACING NORTH
APRIL 30, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-14
FACING NORTH
APRIL 30, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851



SITE 13 – TP13-15
FACING NORTH
MAY 1, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-15
FACING NORTH
MAY 1, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

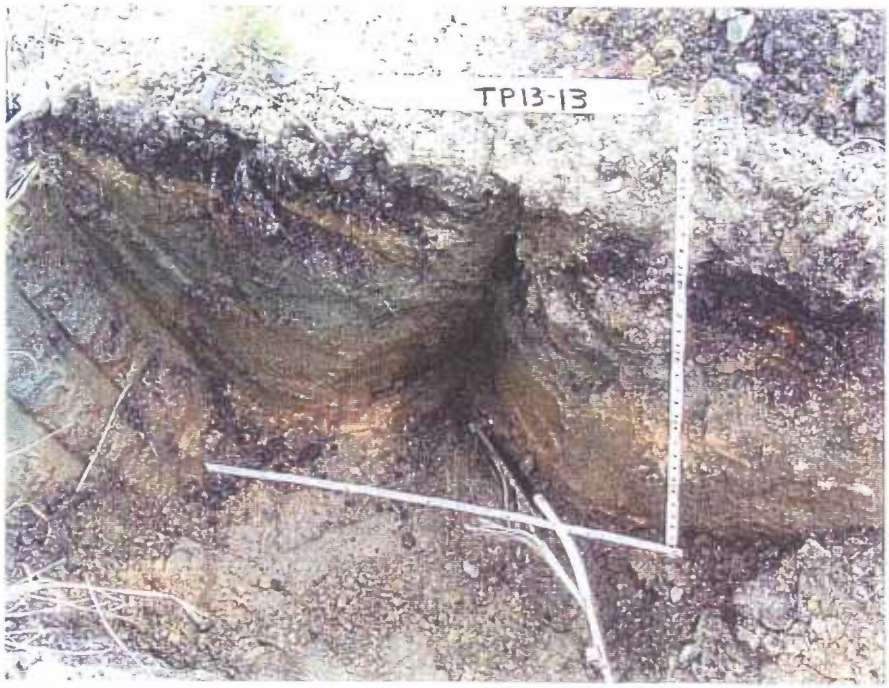


SITE 13 – TP13-16
FACING NORTHEAST
MAY 1, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-16
FACING NORTHEAST
MAY 1, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-17
FACING NORTHEAST
MAY 1, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-17
FACING NORTHEAST
MAY 1, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851



SITE 13 – REPAIRED GROUND CABLE IN TP13-13
FACING SOUTH
MAY 1, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-18
FACING SOUTHWEST
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

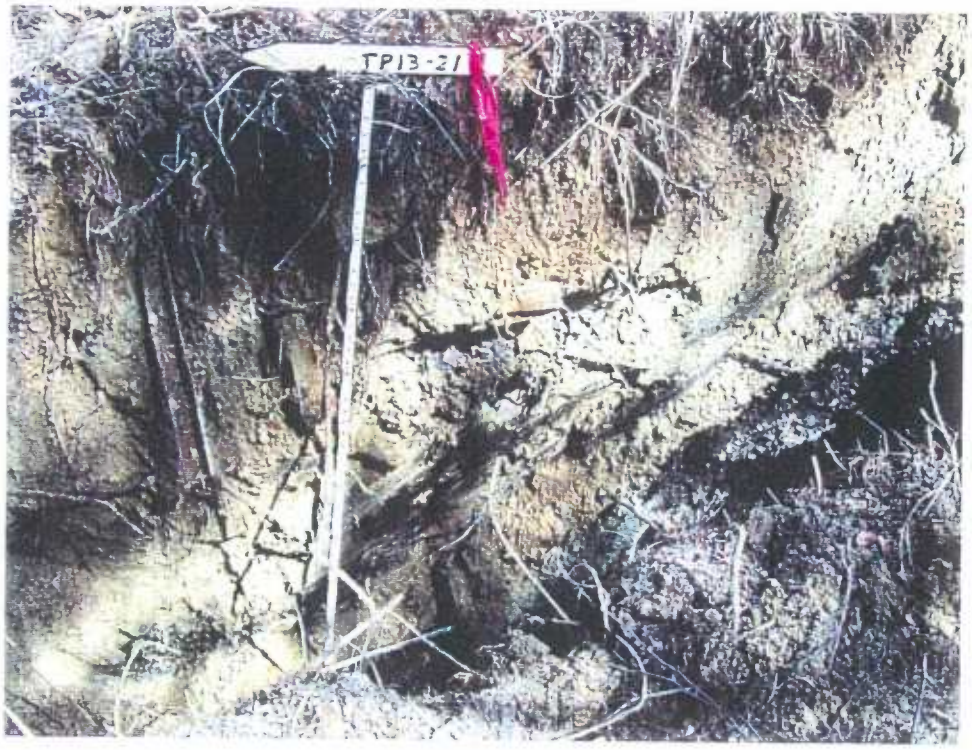
SITE 13 – TP13-19
FACING WEST
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-20
FACING SOUTH
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-20 EXCAVATED SHELL CONES AND MUNITION CONTAINER
FACING DOWN
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-20
FACING SOUTH
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-20
FACING SOUTH
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851



SITE 13 – TP13-21
FACING NORTH
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-21
FACING EAST
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-22
FACING EAST
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

SITE 13 – TP13-22
FACING EAST
MAY 2, 2003
NWS EARLE, COLTS NECK, NEW JERSEY, CTO 0851

APPENDIX C

SURVEY DATA

Naval Weapons Station Earle
Site 13 – DPDO Yard
Wetland Locations

	Elevations (Feet)	Coordinates (Feet)	
		(Y)	(X)
Point #	Ground Elevation	North	East
13A-1	81.4	523844.22	591943.52
13A-2	81.1	523777.90	591960.34
13A-3	80.8	523741.79	591967.98
13A-4	82.1	523704.66	591956.71
13A-5	81.1	523658.75	591984.02
13A-6	85.3	523599.98	592007.95
13A-7	87.1	523528.99	592028.56
13A-8	86.3	523444.45	592056.00
13A-9	85.2	523415.62	592059.39
13A-10	86.0	523349.78	592091.46
13A-11	87.0	523278.87	592112.12
13A-12	87.3	523206.92	592131.15
13A-13	87.9	523150.34	592147.35
13A-14	95.2	523104.04	592156.28
13A-15	95.2	523109.70	592176.86
13A-16	88.3	523161.17	592155.99
13A-17	88.1	523208.51	592141.95
13A-18	88.9	523287.32	592123.34
13A-19	87.7	523333.23	592111.55
13A-20	85.9	523414.02	592073.53
13A-21	86.6	523445.48	592070.46
13A-22	87.3	523537.85	592043.90
13A-23	83.5	523606.63	592017.08
13A-24	83.7	523661.87	591995.32
13A-25A	81.7	523695.07	591975.46
13A-25B	80.5	523738.27	591979.19
13A-26	82.1	523780.87	591970.01
13A-27	80.5	523835.88	591956.66

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

Naval Weapons Station Earle
Site 13 – DPDO Yard
Wetland Locations

Point #	Elevations (Feet) Ground Elevation	Coordinates (Feet) (Y) North	(X) East
13B-1	79.6	524237.16	592252.63
13B-2	80.0	524194.24	592249.33
13B-3	80.6	524169.33	592222.85
13B-4	80.2	524142.01	592132.22
13B-5	80.9	524085.91	592168.42
13B-6	80.6	524027.82	592164.07
13B-7	81.5	523992.24	592159.92
13B-8	81.9	523947.62	592158.21
13B-9	82.9	523910.57	592163.32
13B-10	82.5	523869.95	592149.93
13B-11	82.9	523832.20	592131.10
13B-12	82.7	523813.16	592088.50
13B-13	82.1	523844.51	592068.58
13B-14	82.4	523871.69	592061.97
13B-15	82.6	523899.15	592037.64
13B-16	82.5	523938.97	592044.58
13B-17	82.5	523952.80	592005.95

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

Naval Weapons Station Earle
Site 13 – DPDO Yard
Wetland Data Point Locations

Point #	Elevations (Feet) Ground Elevation	Coordinates (Feet) (Y) North	(X) East
DP13B-7-1	81.2	523994.73	592150.43
DP13B-7-2	81.3	523988.67	592158.84
DP13B-7-3	81.5	523985.73	592167.99
DP13B-7-4	81.6	523978.30	592175.04
DP13B-7-5	81.6	523974.00	592183.64
DP13B-7-6	81.7	523965.32	592191.86
DP13B-7-7	82.2	523963.22	592205.58
DP13B-10-1	82.4	523877.13	592143.45
DP13B-10-2	82.4	523871.00	592150.32
DP13B-10-3	83.0	523862.77	592156.98
DP13B-10-4	83.3	523853.00	592160.09

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

Naval Weapons Station Earle
Site 13 – DPDO Yard
Soil Boring & Test Pit Locations

	Elevations (Feet)	Coordinates (Feet)	
		(Y)	(X)
Point #	Ground Elevation	North	East
SB13-07	91.6	523687.56	592121.51
SB13-08	91.5	523897.82	592345.88
SB13-09	89.8	523990.14	592287.08
TP13-13	93.6	523824.50	592399.23
TP13-14	93.2	523891.22	592393.06
TP13-15	93.5	523954.26	592398.46
TP13-16	94.3	523994.76	592396.92
TP13-17	93.9	524049.54	592396.16
TP13-18	83.8	524177.28	592342.12
TP13-19	86.5	524153.14	592344.85
TP13-20	85.7	524114.35	592341.76
TP13-21	84.5	523949.87	592241.29
TP13-22	86.2	523852.13	592227.46

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

APPENDIX D

D.1 TtNUS FIELD SOIL BORING LOGS

D.2 TtNUS SOIL BORING LOGS (FINAL)

D.1 TtNUS FIELD SOIL BORING LOGS

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWS-EARLE
PROJECT NUMBER: 0710
DRILLING COMPANY: EARTH MATTERS
DRILLING RIG: B-61

BORING No.: SB13-07
DATE: 4-29-03
GEOLOGIST: M.G COCHRAN
DRILLER: R RIDER

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0												
S1		4/4	1.4/	FILL	LOOSE	BRN	SILTY SAND	SM	SB13-07-0002@ 1340 FILL	0	0	0	0
	2	5/5	2.0						DRY, BLACK STAINING	↓	↓	↓	↓
S2		6/1	.4/		V. LOOSE	DK BRN	SILTY SAND	SM	SB13-07-0204@ 1345 RK(BL)	0	0	0	0
	4	1/2	2.0						FRAG IN ETM. SB13-07-0426@				
S3		27 SOIL	.3/		V. LOOSE	BRN	SILTY SAND	SM	1430 WOOD FRAG IN SPL	*	*	*	*
	6		2.0						CREOSOTE ODOR				
				3.0					NO SPL. TAKEN.				
	8		.3/	GRN SAND					SB13-07-0810@ 1515				
S4		9/11	2.0		MEDIUM	GRN	SILTY SAND	SM	SATURATED, TOP OF FILL	*	*	*	*
	10	11/9	.4/						@ 9' SB13-07-1012 @ 1520 ✓				
S5		9/8	2.0		MEDIUM	GRN	SILTY SAND	SM	WOOD FRAG IN SAMPLE FROM ABOVE.	*	*	*	*
	12	8/7											
	15												
S6		5/4	.7/	15	LOOSE	GRN BRN	SILTY SAND	SM	SB13-07-1517 @ 1530 ✓	*	*	*	*
	17	3/4	2.0	Y/B SAND		YELL BRN			SATURATED				
	20												
S7		5/3	1.0/		LOOSE	YEL BRN	SILTY SAND	SM	SB13-07-2022@ 1545	*	*	*	*
	22	3/4	2.0						SATURATED				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: HIT ANOMALY @ 4', OFFSET & RESUMED DRILLING 2ND ANOM @ 4' OFFSET. * PID MALFUNCTION - MOISTURE/RAIN IN HOLE. DRILLED TO T.D. ✓ SAMPLE SELECTED FOR LAB ANALYSIS

Converted to Well: Yes _____ No ✓ Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NNS - EARLE
PROJECT NUMBER: 6710
DRILLING COMPANY: EARTH MATTERS
DRILLING RIG: P-101
BORING No.: SB 13-07
DATE: 4-29-03
GEOLOGIST: M. G. COCHRAN
DRILLER: R. RIDER

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1		5/5	.71		LOOSE	YEL BRN	SILTY SAND	SM	SB13-07-2527@ 1550 ✓	*	*	*	*
	27	5/6	2.0						SATURATED				
							TD 27'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): *

Remarks: HOLE GROUTED TO GS

Converted to Well: Yes ____ No ✓ Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6715
DRILLING COMPANY: EARTH MATTERS
DRILLING RIG: MOBILE B-61

BORING No.: SB13-08
DATE: 4-30-03
GEOLOGIST: M G. COCHRAN
DRILLER: R. RIDER

Sample No. and Type or RQD	Depth (FL) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0												
S1		5/6	1.9/	FILL	MEDIUM DENSE	BL	SILTY SAND	SM	SB13-08-0002 @ 1050 DRY.	0	0	0	0
	2	6/7	2.0			LT BRN			FILL TO 9'				
S2		5/5	1.9/		LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-0204 @ 1100 DRY.	0	0	0	0
	4	5/4	2.0						LOOKS LIKE REWORKED NTL MTL				
S3		3/3	1.2/		LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-0406 @ 1110. DRY	0	0	0	0
	6	2/2	2.0										
S4		2/3	1.2/		LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-0608 @ 1115. DAMP	0	0	0	0
	8	2/2	2.0			GRN	SILTY SAND		REWORKED NTL MTL				
S5		2/3	1.0/	9.0	LOOSE	DK BRN	SILTY SAND W/	SM	WOOD IN SPL DECAYED MATTER	0	0	0	0
	10	4/5	2.0	SS/WOOD 10.0			DECAYED WOOD,	SM	SB13-08-0810 @ 1130. SAT				
S6		7/8	1.1/	GS. SAND	MEDIUM DENSE	GRN BRN	SILTY SAND	SM	SB13-08-1012 @ 1140. SAT. ✓	0	0	0	0
	12	9/11	2.0			GRN	SILTY SAND	SM	GLAUCONITIC NTL.				
	15												
S7		4/3	1.1/	Y/B S. SAND	LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-1517 @ 1145. SAT	0	0	0	0
	17	3/5	2.0										
	20												
S8		2/2	.6/		LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-2022 @ 1150, SAT ✓	0	0	0	0
	22	3/4	2.0										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: ✓ SAMPLE SELECTED FOR LAB ANALYSES

Converted to Well: Yes _____ No ✓ Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6710
DRILLING COMPANY: EARTH MATTERS
DRILLING RIG: MOBILE B-61

BORING No.: SB13-08
DATE: 4-30-03
GEOLOGIST: M.G. COCHRAN
DRILLER: R. RIDER

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25												
S9		2/2	.6/	Y/B	LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-2527 @ 1155 - AT	0	0	0	0
	27	5/8	2.0										
				S									
	29												
S10		4/6	1.1/	S	MEDIUM	YEL BRN	SILTY SAND	SM	SB13-08-32-2 @ 1240 SAT	0	0	0	0
	37	8/10	2.0										
				A									
				N									
	35												
S11		2/1	1.6/	D	V LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-3537 @ 1245 SATURATED	0	0	0	0
	37	3/5	2.0										
	40												
S12		6/7	1.6/		MEDIUM	YEL BRN	SILTY SAND	SM	SB13-08-4042 @ 1300 - AT	0	0	0	0
	42	8/8	2.0										
	45												
S13		4/2			LOOSE	YEL BRN	SILTY SAND	SM	SB13-08-4547 @ 1310 ✓ SAT	0	0	0	0
	47	6/8											

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No ✓ Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWS-EARLE
PROJECT NUMBER: 6710
DRILLING COMPANY: EARTH MATTERS
DRILLING RIG: MOBILE B-61
BORING No.: SB 13-09
DATE: 4-30-97
GEOLOGIST: MG COLLARD
DRILLER: R RIDER

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole** BZ	Driller BZ**
SD		4/7	1.8/		MEDIUM	YELLOWISH BROWN	SILTY SAND	SM	SB13-09-0002 @ 1330	0	0	0	0
	52	3/13	2.0										
							TD 52'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: HOLE GROUTED TO GS

Converted to Well: Yes ____ No ✓ Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6710
DRILLING COMPANY: EARTH MATTERS
DRILLING RIG: MOBILE B-101

BORING No.: SB13-09
DATE: 4-29-03
GEOLOGIST: M COCHRAN
DRILLER: R RIDER

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0												
S1		2/10	.9/	FILL	M DENSE	BRN	SILTY SAND	SM	SB13-09-0002 @ 1715	*	*	*	*
	2	5/8	2.0						WOOD FRAG IN SAL, FILL, DRY				
S2		8/7	1.1/		M DENSE	DK BRN	SILTY SAND	SM	SB13-09-0204 @ 0735, FILL-10'	0	0	0	0
	4	7/6	2.0						MOIST, METAL OXIDES IN CUTTINGS				
S3		7/4	1.1/		V DENSE	GR BRN	SILTY SAND	SM	SB13-09-0406 @ BOS, FILL, WOOD	50	0	0	0
	6	50/3"	2.0						PLUG IN BTM. 2", CREOSOTE WOOD				
S4		7/2	.8/		LOOSE	DK BRN	SILTY SAND	SM	SB13-09-0608 @ 0830 SAT WOOD	0	0	0	0
	8	3/3	2.0						CHIPS IN SPL, SLIGHT ODOR				
S5		2/4	0/		LOOSE				NO RECOVERY PROBABLY STILL IN FILL	-	0	0	0
	10	3/4	2.0	10.0									
S6		12/32	1.0/	GRAVELLY SAND 15.0	V DENSE	GRN	SILTY SAND	SM	SB13-09-1012 @ 0855 SATURATED OUT OF FILL, TR FGRAVEL TOP 2'	0	0	0	0
	12	24/15	2.0										
	15												
S7		5/4	1.1/	Y/B SAND	LOOSE	YEL BRN	SILTY SAND	SM	SB13-09-1517 @ 0905, AT	0	0	0	0
	17	3/3	2.0										
	20												
S8		4/3	1.4/		LOOSE	YEL BRN	SILTY SAND	SM	SB13-09-2022 @ 0915 SAT	0	0	0	0
	22	4/5	2.0										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: PID MAL FUNCTIONING - STOPPED DRILLING @ 2' ON 4-29. RESUMED @ 4-30 ✓ SAMPLE SELECTED FOR LAB ANALYSES

Converted to Well: Yes _____ No ✓ Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6710
DRILLING COMPANY: EARTH MATTERS
DRILLING RIG: MOBILE B-61
BORING No.: SB13-09
DATE: 4-30-03
GEOLOGIST: M G. COCHRAN
DRILLER: R RIFE

Sample No. and Type or RQD	Depth (FL) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25												
S9		3/5	1.8/		M DENSE	VFL BRN	SILTY SAND	SM	SB13-09-2527 @ 0930 SAT	0	0	0	0
	27	7/8	2.0										
							TD 27'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: HOLE BACKFILLED W/ GROUT

Converted to Well: Yes _____ No ✓ Well I.D. #: —

D.2 TtNUS SOIL BORING LOGS (FINAL)

BORING LOG SB13-07

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, New Jersey	NORTHING	523687.56
DATE STARTED	4/29/2003	EASTING	592121.51
DATE COMPLETED	4/29/2003	GROUND ELEV.	91.6
DRILLING CONTR.	Earth Matters, Inc.	HORIZ. DATUM	SPCS NAD83
DRILLING EQUIP/DRILLER	Mobile B-61	VERT. DATUM	NAVD88
DRILLING METHOD	Hollow-Stem Auger	WEATHER	--
SAMPLING METHOD	As noted	INSPECTOR	M. Cochran/Pgh, PA

Depth (ft bgs)	Sample Depth (ft)/ Type	Blows/ per 6" or RQD (%)	Recovery (ft) / Length (ft)	Lithology	MATERIAL DESCRIPTION [consistency or density, color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Sample	Sample BZ	Borehole	Drill BZ
0										
	0-2	4/4	1.4/	FILL	Loose, br SILTY SAND (SM)	-SB13-07-0002 @ 1340, fill, dry, black	0	0	0	0
2	S1	5/5	2			staining	↓	↓	↓	↓
	2-4	6/1	0.4/		Very loose, dk br SILTY SAND (SM)	-SB13-07-0204 @ 1345, RK (BL)	0	0	0	0
	S2	1/2	2.0			-Frag in BTM SB13-07-0406 @ 1430				
4										
	4-6	27/50/ 0.1'	0.3/		Very dense, br SILTY SAND (SM)	-Wood frag in SPL	*	*	*	*
6	S3		2.0			-Creosote odor				
						-No spl taken				
8						-SB13-07-0810 @ 1515				
	8-10	9/11	0.3/	GRN SAND	Medium dense, grn, SILTY SAND (SM)	-Saturated, out of fill @ 8',	*	*	*	*
10	S4	11/9	2.0			SB13-07-1012 @ 1520 ✓				
	10-12	9/8	0.4/		Medium dense, grn, SILTY SAND (SM)	-Wood frag in	*	*	*	*
12	S5	8/7	2.0			sample from above				
15										
	15-17	5/4	0.7/		Loose, grn/br, SILTY SAND (SM)	SB13-07-1517 @ 1530 ✓	*	*	*	*
17	S6	3/4	2.0	Y/B SS SAND	Yel/br	-Saturated				
20										
	20-22	5/3	1.0/		Loose, yel/br, SILTY SAND (SM)	-SB-13-07-2022 @ 1545	*	*	*	*
22	S7	3/4	2.0			-Saturated				

continued

BORING LOG SB13-07

Depth (ft bgs)	Sample Depth (ft)/ Type	Blows per 6" or RQD (%)	Recovery (ft) / Length (ft)	Lithology	MATERIAL DESCRIPTION [consistency or density, color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Sample	Sample BZ	Borehole	Drill BZ
22										
25	25-27	5/5	0.7/		Loose, yel/br, SILTY SAND (SM)	-SB13-07-2527 @ 1550 ✓	*	*	*	*
27	S8	5/8	2.0			-Saturated				
					Total Depth = 27.0'					

Drilling Area

Background (ppm): 0

Remarks: First attempt for SB13-07 hit anomaly @ 4' bgs, offset and resumed drilling. Second attempt for SB13-07 hit anomaly @ 4', offset. Third attempt for SB13-07 drilled to total depth. * PID malfunction - moisture/rain? ✓ Sample selected for laboratory analysis. Hole grouted to ground surface with cement/bentonite grout.

Converted to Well: Yes ____ No ✓ Well I.D. # NA

BORING LOG SB13-08

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, New Jersey	NORTHING	523897.82
DATE STARTED	4/30/2003	EASTING	592345.88
DATE COMPLETED	4/30/2003	GROUND ELEV.	91.5
DRILLING CONTR.	Earth Matters, Inc.	HORIZ. DATUM	SPCS NAD83
DRILLING EQUIP/DRILLER	Mobile B-61	VERT. DATUM	NAVD88
DRILLING METHOD	Hollow-Stem Auger	WEATHER	--
SAMPLING METHOD	As noted	INSPECTOR	M. Cochran/Pgh, PA

Depth (ft bgs)	Sample Depth (ft)/ Type	Blows/ per 6" or RQD (%)	Recovery (ft) / Length (ft)	Lithology	MATERIAL DESCRIPTION [consistency or density, color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Sample	Sample BZ	Borehole	Drill BZ
0										
	0-2	5/6	1.9/	FILL	Medium dense, bl, SILTY SAND (SM)	-SB13-08-0002 @ 1050, dry,	0	0	0	0
2	S1	6/7	2.0		Lt br	fill to 9'				
	2-4	5/5	1.9/		Loose, yel/br, SILTY SAND (SM)	-SB13-08-0204 @ 1100, dry,	0	0	0	0
4	S2	5/4	2.0			looks like reworked ntl mtl				
	4-6	3/3	1.2/		Loose, yel/br, SILTY SAND (SM)	-SB13-08-0406 @ 1110, dry	0	0	0	0
6	S3	2/2	2.0							
	6-8	2/3	1.2/		Loose, yel/br, SILTY SAND (SM)	-SB13-08-0608 @ 1115, damp	0	0	0	0
	S4	2/2	2.0		Grn, SILTY SAND	-reworked ntl mtl				
8										
	8-10	2/3	1.0/		Loose, dk br, SILTY SAND (SM) w/	-Wood in spl	0	0	0	0
	S5	4/5	2.0	S.S./ Wood	Decayed wood (SM)	decayed, matter -SB13-08-0810 @ 1130, sat				
10										
	10-12	7/8	1.1/	GRN SAND	Medium dense, grn/br, SILTY SAND (SM)	-SB13-08-1012 @ 1140, sat ✓	0	0	0	0
12	S6	9/11	2.0		Grn, SILTY SAND (SM)	glauconitil ntl				
15										
	15-17	4/3	1.1/	Y/B SS SAND	Loose, yel/br, SILTY SAND (SM)	-SB13-08-1517 @ 1145, sat	0	0	0	0
17	S7	3/5	2.0							
20										
	20-22	2/2	0.6/		Loose, yel/br, SILTY SAND (SM)	-SB13-08-2022 @ 1150, sat ✓	0	0	0	0
22	S8	3/4	2.0							

continued

BORING LOG SB13-08

Depth (ft bgs)	Sample Depth (ft)/ Type	Blows per 6" or RQD (%)	Recovery (ft) / Length (ft)	Lithology	MATERIAL DESCRIPTION [consistency or density, color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Sample	Sample BZ	Borehole	Drill BZ
22										
25										
	25-27	2/2	0.6/		Loose, yel/br, SILTY SAND (SM)	-SB13-08-2527 @ 1155, sat	0	0	0	0
27	S9	5/8	2.0							
30										
	30-32	4/6	0.1/		Medium dense, yel/br, SILTY SAND (SM)	-SB13-08-3032 @ 1240, sat ✓	0	0	0	0
32	S10	8/10	2.0	Y/B S Sand						
35										
	35-37	3/1	1.6/		Very loose, yel/br, SILTY SAND (SM)	-SB13-08-3537 @ 1245,	0	0	0	0
37	S11	2/5	2.0			saturated				
40										
	40-42	6/7	1.6/		Medium dense, yel/br, SILTY SAND (SM)	-SB13-08-4042 @ 1300, sat	0	0	0	0
42	S12	8/8	2.0							
45										
	45-47	4/2			Loose, yel/br, SILTY SAND (SM)	-SB13-08-4547 @ 1310, sat ✓	0	0	0	0
47	S13	6/8								

continued

BORING LOG SB13-08

Depth (ft bgs)	Sample Depth (ft)/ Type	Blows per 6" or RQD (%)	Recovery (ft) / Length (ft)	Lithology	MATERIAL DESCRIPTION [consistency or density, color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Sample	Sample BZ	Borehole	Drill BZ
47										
50	50-52	4/7	1.8/		Medium dense, yel/br, SILTY SAND (SM)	-SB13-08-5052 @ 1330	0	0	0	0
52	S14	8/13	2.0							
					Total Depth = 52.0'					

Drilling Area Background (ppm): 0

Remarks: ✓ Sample selected for laboratory analysis. Hole grouted to ground surface with cement/bentonite grout.

Converted to Well: Yes ____ No ✓ Well I.D. # NA

BORING LOG SB13-09

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, New Jersey	NORTHING	523990.14
DATE STARTED	4/29/2003	EASTING	592287.08
DATE COMPLETED	4/30/2003	GROUND ELEV.	89.8
DRILLING CONTR.	Earth Matters, Inc.	HORIZ. DATUM	SPCS NAD83
DRILLING EQUIP/DRILLER	Mobile B-61	VERT. DATUM	NAVD88
DRILLING METHOD	Hollow-Stem Auger	WEATHER	--
SAMPLING METHOD	As noted	INSPECTOR	M. Cochran/Pgh, PA

Depth (ft bgs)	Sample Depth (ft)/ Type	Blows/ per 6" or RQD (%)	Recovery (ft) / Length (ft)	Lithology	MATERIAL DESCRIPTION [consistency or density, color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Sample	Sample BZ	Borehole	Drill BZ
0										
	0-2	2/10	0.9/	FILL	Medium dense, br, SILTY SAND (SM)	-SB13-09-0002 @ 1715	*	*	*	*
2	S1	8/8	2.0			-wood frag in spl, fill, dry				
	2-4	8/7	1.1/		Medium dense, dk br, SILTY SAND (SM)	-SB13-09-0204 @ 0735, fill-10'	0	0	0	0
4	S2	7/6	2.0			-moist, metal, debris in cutting				
	4-6	7/4	1.1/		Very dense, grn/br, SILTY SAND (SM)	-SB13-09-0406 @ 0805, fill wood	50	0	0	0
6	S3	50/0.25	2.0			plug in btm .2', creosote odor				
	6-8	4/2	0.8/		Loose, dk br, SILTY SAND (SM)	-SB13-09-0608 @ 0830, sat, wood	0	0	0	0
8	S4	2/3	2.0			-chips in spl, sulfur odor				
	8-10	2/4	0/		Loose	-No recovery probably still in fill	–	0	0	0
10	S5	3/4	2.0							
	10-12	12/32	1.0/	GRN SAND	Very dense, grn, SILTY SAND (SM)	SB13-09-1012 @ 0855, saturated ✓	0	0	0	0
12	S6	24/15	2.0			-out of fill, tr, f gravel top 0.2'				
15										
	15-17	5/4	1.1/	Y/B SAND	Loose, yel/br, SILTY SAND (SM)	-SB13-09-1517	0	0	0	0
17	S7	3/3	2.0		Yel/br	@ 0905, sat ✓				
20										
	20-22	4/3	1.4/		Loose, yel/br, SILTY SAND (SM)	-SB13-09-2022	0	0	0	0
22	S8	4/5	2.0			@ 9015, sat				

continued

BORING LOG SB13-09

Depth (ft bgs)	Sample Depth (ft)/ Type	Blows per 6" or RQD (%)	Recovery (ft) / Length (ft)	Lithology	MATERIAL DESCRIPTION [consistency or density, color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Sample	Sample BZ	Borehole	Drill BZ
22										
25										
	25-27	3/5	1.8/		Medium dense, yel/br, SILTY SAND (SM)	-SB13-09-2527 @ 0930, sat	0	0	0	0
27	S9	7/8	2.0							
					Total Depth = 27.0'					

Drilling Area

Background (ppm): 0

Remarks: PID malfunctioning. Stopped drilling @ 2' on 4-29-03. Resumed drilling on 4-30-03. ✓ Sample selected for laboratory analysis. Hole backfilled with cement/bentonite grout to ground surface.

Converted to Well: Yes ____ No ✓ Well I.D. # NA

APPENDIX E

SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS - EARLE
Project No.: 0710

Sample ID No.: SB13-07-1012
Sample Location: SB13-07
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4-29-07 / Time: 1520 / Method: GRAB / Monitor Reading (ppm): NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	10-12'	GREEN	SILTY SAND, SATURATED

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	1 8OZ GLASS	✓	
GRAIN SIZE	↓	✓	
ATTERBERG		✓	
ORGANIC CONTENT		✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS - EARLE
Project No.: 0712

Sample ID No.: SB13-071517
Sample Location: SB13-07
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4-29-07 / Time: 1530 / Method: GRAB / Monitor Reading (ppm): NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	15-17'	GREEN-BROWN	SILTY SAND

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL CLASS	1 8 OZ G-A	✓	
GRAIN SIZE	↓	✓	
ATTERBERG		✓	

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

MGC

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS - EARLE
Project No.: 6710

Sample ID No.: SB13-07-2527
Sample Location: SB13-07
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4-29-03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1550	25-27'	YELLOW BROWN	SILTY SAND, SATURATED
Method: GRAB			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL CLASS	2-8 OZ. GLASS	✓	
GRAIN SIZE	1	✓	
ATTERBERG	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

MGC

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS - EARLE
Project No.:

Sample ID No.: SB13-08-1012
Sample Location: SB13-08
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4-20-03 / Time: 1140 / Method: GRAB / Monitor Reading (ppm): 0	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	10-12'	GREEN BROWN	SILTY SAND, SATURATED

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL CLASS	2 - 8 OZ GLASS	✓	
GRAIN SIZE	↓	✓	
ATTERBG	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

MGC

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS - EARLE
Project No.: 0710

Sample ID No.: SB13-OB-2022
Sample Location: SB13-OB
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4.30-07 / Time: 1240 / Method: GRAB / Monitor Reading (ppm): 0	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	20-22	YEL-BROWN	SILTY SAND. SAT

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL CLASS	2-8 OZ GLASS	✓	
GRAIN SIZE	↓	✓	
ATTERBERG		✓	
ORGANIC CONTENT		✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS - EARLE
Project No.: 0710

Sample ID No.: SC13-0B30-32
Sample Location: SC13-0B
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4-30-02	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1240	30-32	YEL-BROWN	SILTY SAND (SM)
Method: GRAB			
Monitor Reading (ppm): 5			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL CLASS	2 8oz GLASS	✓	
GRAIN SIZE	↓	↓	
ATTERBERG	↓	↓	

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

MGC

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS- EARLE
Project No.: 6710

Sample ID No.: SB13-08-4547
Sample Location: SB13-08
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4-20-03 / Time: 1310 / Method: GRAB / Monitor Reading (ppm): 0	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	45-47	YEL-BROWN	SILTY SAND, SATURATED

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL CLASS	2 8OZ GLASS	✓	
GRAIN SIZE	↓	↓	
ATTERBERG	↓	↓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS - EARLE
Project No.: 6710

Sample ID No.: SB13-09-1517
Sample Location: SB13-09
Sampled By: MGC
C.O.C. No.: 1

- ☐ Surface Soil
- ☒ Subsurface Soil
- ☐ Sediment
- ☐ Other:
- ☐ QA Sample Type:

Type of Sample:
- ☒ Low Concentration
- ☐ High Concentration

GRAB SAMPLE DATA:

Date: 4-30-07 Time: 0905 Method: GRAB Monitor Reading (ppm): 0	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	15-17	YEL-BROWN	SILTY SAND, SAT

COMPOSITE SAMPLE DATA:

Date: Method: Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL CLASS	2 8OZ GLASS	✓	
GRAIN SIZE	↓	✓	
ATTERBERG	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

MGC

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS-EARLE
Project No.: 6710

Sample ID No.: SB13-09-2527
Sample Location: SB13-09
Sampled By: MGC
C.O.C. No.: 1

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Method:	Monitor Reading (ppm):	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
				25-27	YEL-BROWN	SILTY SAND, SAT

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SOIL GRAIN SIZE	2 8 oz	✓	
MOISTURE	↓	✓	
ATTERBERG		✓	
ORGANIC CONTENT		✓	

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

APPENDIX F

F.1 TtNUS FIELD TEST TRENCH LOGS

F.2 TtNUS TEST TRENCH LOGS (FINAL)

F.1 TtNUS FIELD TEST TRENCH LOGS

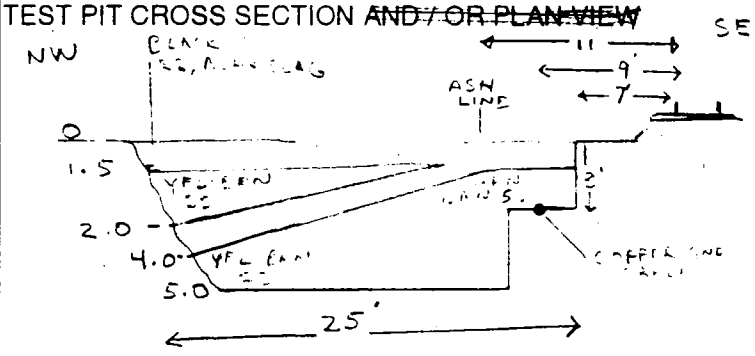
TEST PIT LOG

Tetra Tech NUS, Inc.

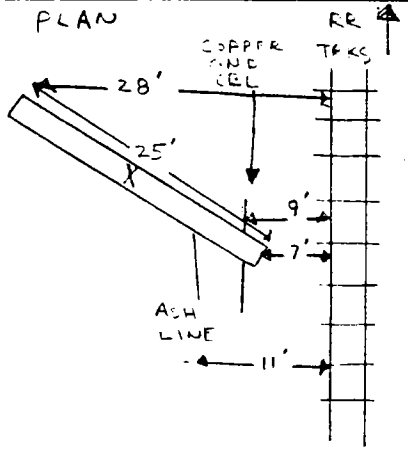
PROJECT NAME: NWS-EARLE
PROJECT NUMBER: 6710
LOCATION: COLTS NECK N.J.
TEST PIT No.: TP 13-13
DATE: 4-30-03
GEOLOGIST: M.G. COCHRAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0		BLACK SILTY SAND, ASH + SLAG	SM	FILL TO 4'	0	0
	1.5	YELLOW BROWN SILTY SAND	↓			
	2.0	BLACK SILTY SAND ASH + SLAG				
	4.0					
5		YELLOW BROWN SILTY SAND		NATURAL ?		
		TD 5.0				

TEST PIT CROSS SECTION ~~AND / OR PLAN VIEW~~



PLAN



REMARKS: PIT COLLAPSE @ 5' COULD NOT DIG DEEPER
ASH LINE = LINE WHERE SS/ASH/SLAG BEGIN TO THICKEN
GROUND CABLE HIT, BROKE AND REPAIRED

PHOTO LOG: # 3 & 9. FACING NORTH = 19 FACING SOUTH

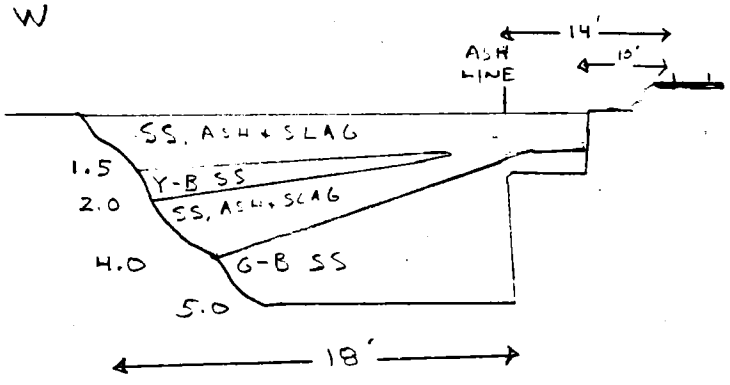
TEST PIT LOG

Tetra Tech NUS, Inc.

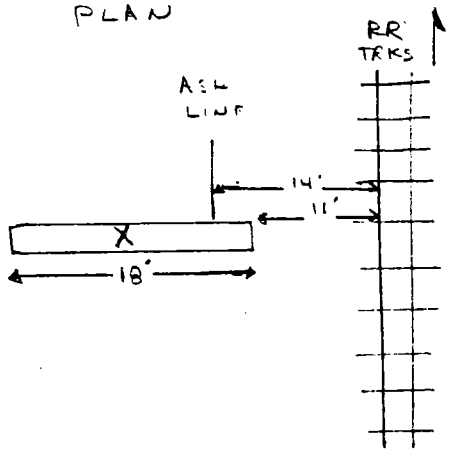
PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP13-14
DATE: 4-30-03
GEOLOGIST: M.G. COCHRAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0		DK BRN/BLACK SILTY SAND, ASH + SLAG	SM	FILL TO 4'	0	0
	1.5	YELLOW BROWN SILTY SAND	↓		↓	↓
	2.0	DK BRN/BLACK SILTY SAND, ASH + SLAG				
	4.0					
5		GREEN GRN SILTY SAND		LOOKS NATL.		
		T.D. 5.0'				

TEST PIT CROSS SECTION ~~AND / OR PLAN VIEW~~



PLAN



REMARKS: ASH LINE = LINE WHERE SS/ASH/SLAG BEGINS TO THICKEN
DUMPED SOIL JARS IN PIT FROM SOIL BORINGS
PIT COLLAPSE LIMIT IS UPPER 4 AN 5'

PHOTO LOG: #10 + 11 FACING NORTH

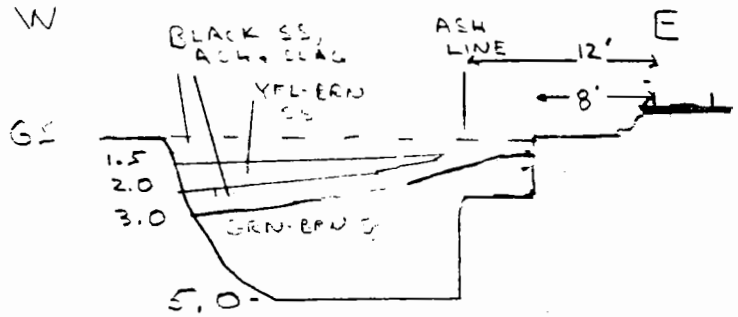
TEST PIT LOG

Tetra Tech NUS, Inc.

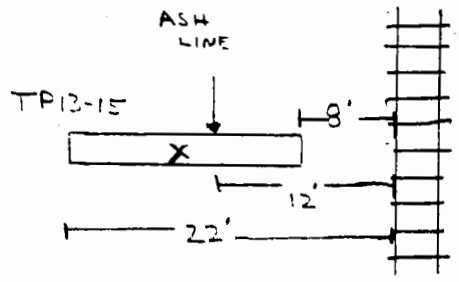
PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP 13-15
DATE: 5-1-03
GEOLOGIST: M.G. COCHRAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0		BLACK SILTY SAND, ASH + SLAG	SM	FILL	0	0
	1.5	BROWN SILTY SAND	SM	FILL	↓	↓
	2.0	BLACK SILTY SAND, ASH + SLAG		LOOKS LIKE ASH + SLAG		
		GREEN BROWN SILTY SAND	SM	LOOKS NTL		
5						
		TD 5.0'				

TEST PIT CROSS SECTION ~~AND/OR PLAN VIEW~~



PLAN VIEW



REMARKS: ASH LINE = LINE WHERE SS/ASH + SLAG THICKENS
PIT COLLAPSE
PHOTOS 12 + 13 FACING NORTH

PHOTO LOG:

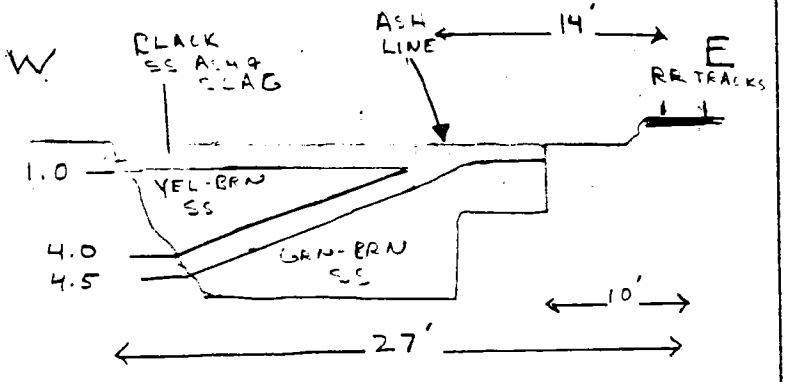
TEST PIT LOG

Tetra Tech NUS, Inc.

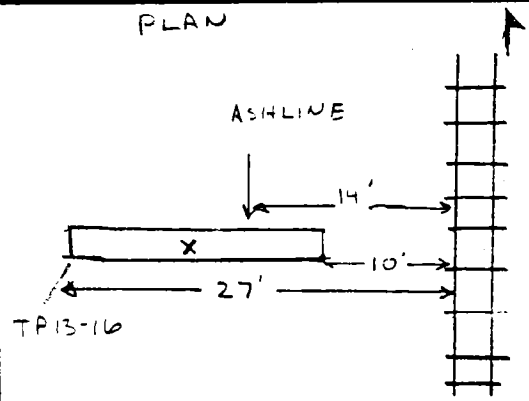
PROJECT NAME: NWS EARLE
PROJECT NUMBER: 6710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP13-16
DATE: 5-1-03
GEOLOGIST: M. G COCHRAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0						
	4.5	BLACK SILTY SAND ASH + SLAG	SM	FILL TO 4.5'	0	0
		YELLOW BROWN SILTY SAND	SM			
5	4.5	BLACK SILTY SAND ASH + SLAG	SM			
		GREEN BROWN SILTY SAND	SM	LOOKS NATURAL		
		TD 5.0' PIT COLLAPSING				

TEST PIT CROSS SECTION ~~AND / OR PLAN VIEW~~



PLAN



REMARKS: ASH LINE = LINE WHERE SS/ASH/SLAG CROSSES TO THE ERA

PHOTO LOG: #15 & 16 FACING NE

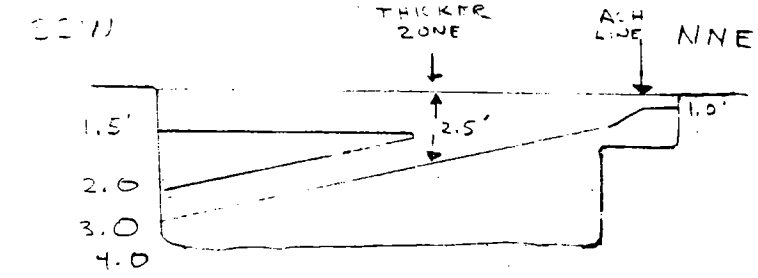
TEST PIT LOG

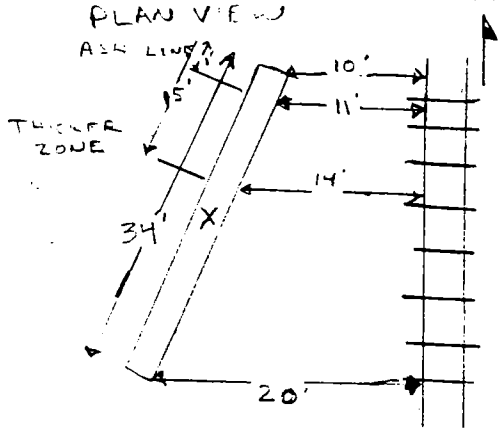
Tetra Tech NUS, Inc.

PROJECT NAME: NWS EAGLE
PROJECT NUMBER: 0710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP 13-17
DATE: 5-1-02
GEOLOGIST: M. G. COCHRAN

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
		[illegible]	SM	FILL - 3'	0	0
		[illegible]	SM			
		[illegible]	SM			
		[illegible]-BROWN SILTY SAND	SM	NATURAL MTL		
5						
		TD 4.0'				

TEST PIT CROSS SECTION ~~AND/OR PLAN VIEW~~





REMARKS: ASH LINE = LINE WHERE ASH/SLAG BEGINS TO THICKEN.

PHOTO LOG: PHOTO 14 FACING NE, [illegible] FACING NE

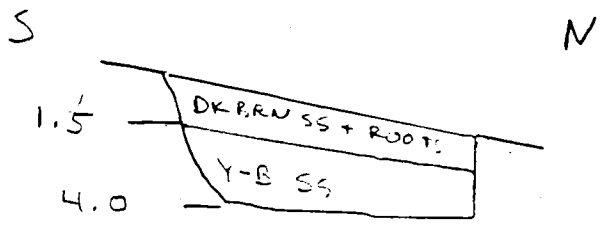
TEST PIT LOG

Tetra Tech NUS, Inc.

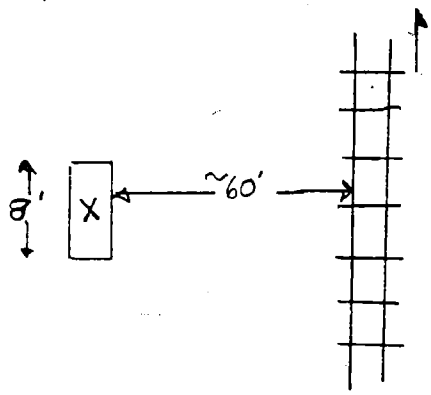
PROJECT NAME: NWS EARLE
PROJECT NUMBER: 6710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP13-18
DATE: 5-2-03
GEOLOGIST: M C COCHRAN

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING Source (ppm)	 BZ (ppm)
		DARK BROWN SILTY SAND W	SM	NATURAL MATERIAL,	0	0
	1.5	ROOT MTL		DRY		
		YELLOW BROWN SILTY SAND				
5		TD 4.0				

TEST PIT CROSS SECTION ~~AND/OR PLAN VIEW~~



PLAN



REMARKS:

PHOTO LOG: #24 FACING SW

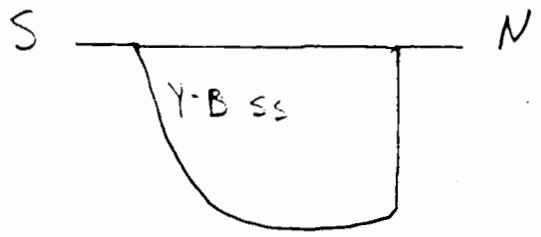
TEST PIT LOG

Tetra Tech NUS, Inc.

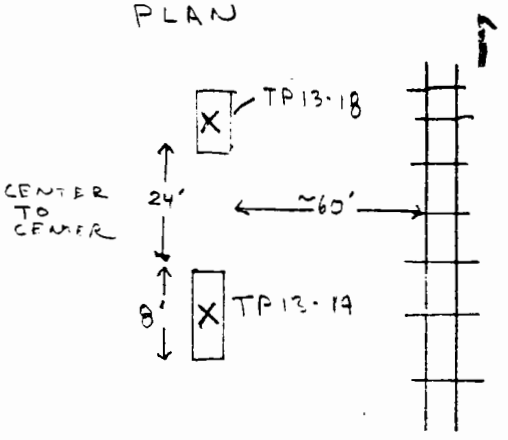
PROJECT NAME: NWS EARLE
PROJECT NUMBER: 0710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP 13-19
DATE: 5-2-03
GEOLOGIST: M. G. COCHRAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
0		YELLOW-BROWN SILTY SAND	SM	LOOKS NATURAL DRY	NA	NA
5		TD 4.0'				

TEST PIT CROSS SECTION ~~AND/OR PLAN VIEW~~



PLAN



REMARKS: NA - NOT AVAILABLE PID MALFUNCTIONING

PHOTO LOG: # 25 FACING W

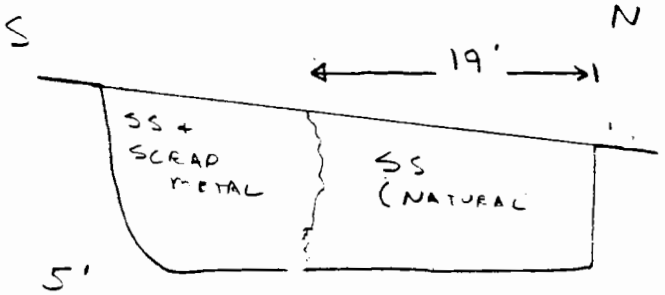
TEST PIT LOG

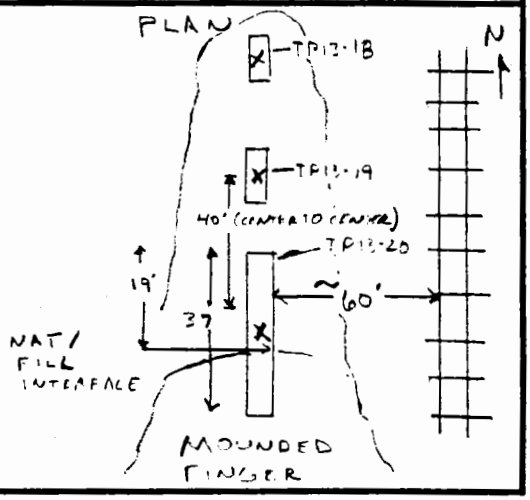
Tetra Tech NUS, Inc.

PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP 13 - 20
DATE: 5-2-03
GEOLOGIST: M G COCHRAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
		DARK BROWN SILTY SAND AND	SM	FILL, SCRAP METAL =	NA	NA
		SCRAP METAL		LAWN MOWERS, FURNITURE, SHEET METAL, MISC. CONTAINERS, STEEL CONES,		
				NATURAL ON NORTH END		
		TD 5.0', PIT STARTED TO		LESS SCRAP W/ DEPTH		
		COLLAPSE				

TEST PIT CROSS SECTION ~~AND / OR PLAN VIEW~~





REMARKS: NA - NOT AVAILABLE, PID MALFUNCTIONING

PHOTO LOG: #26 FACING S, #27 ON GROUND #28 & 29 FACING S

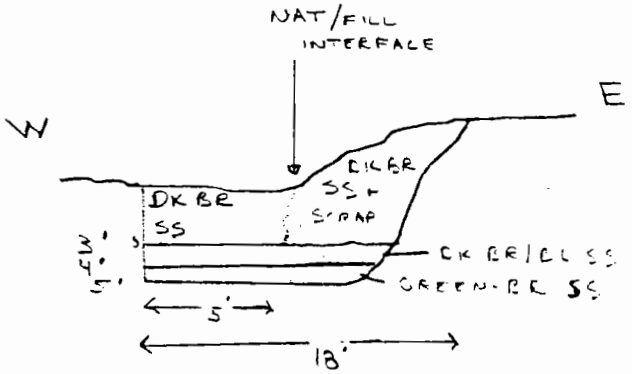
TEST PIT LOG

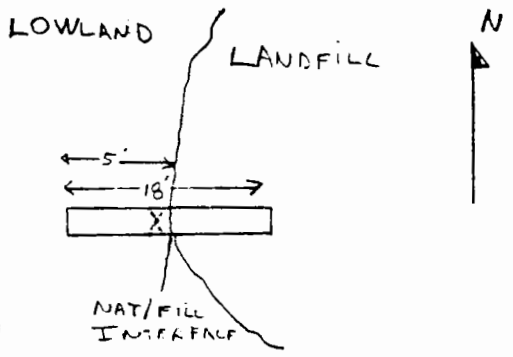
Tetra Tech NUS, Inc.

PROJECT NAME: NWS EARLE
PROJECT NUMBER: 6710
LOCATION: COLTS NECK NJ
TEST PIT No.: TP 13-21
DATE: 5-2-03
GEOLOGIST: M. G. COCHRAN

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
		DARK BROWN SILTY SAND & SCRAP	SM	FILL TO 4'	NA	NA
		TOPSOIL		SCRAP DOORS, SHEET METAL, CABLES		
	2.0					
	4.0	DARK BROWN/BLACK SILTY SAND		ORGANIC, NAT MAT.		
		GREEN-BROWN SILTY SAND		NO FILL ON WEST END		
		TD 5.0				

TEST PIT CROSS SECTION AND / OR PLAN VIEW





REMARKS: NA - NOT AVAILABLE P.I.D MALFUNCTIONING ;

PHOTO LOG: #30 FACING N ≈ 31 FACING E

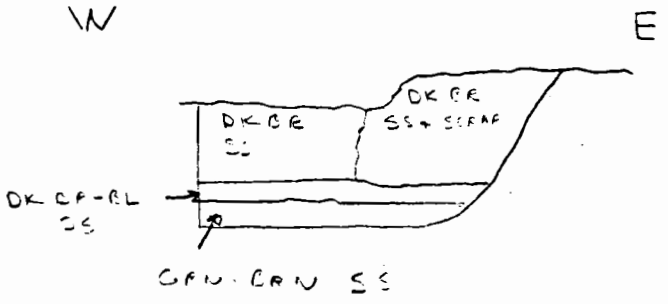
TEST PIT LOG

Tetra Tech NUS, Inc.

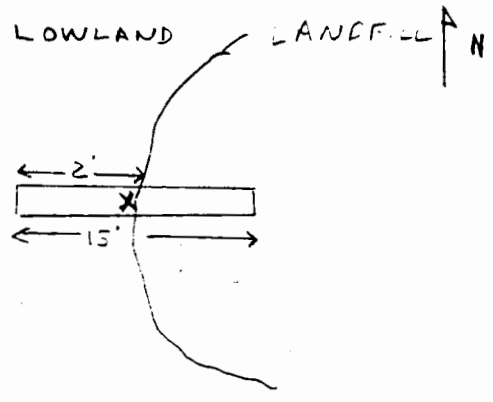
PROJECT NAME: NWS - EARLE
PROJECT NUMBER: 6713
LOCATION: COLTS NECK NJ
TEST PIT No.: TP 13-22
DATE: 5-2-03
GEOLOGIST: M. G. COCHRAN

Depth (FL)	Lithology Change (Depth/Ft)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
		DARK BROWN SILTY SAND +	SM	FILL TO 3'	NA	NA
		FAR FILTER		HIT BURIED CAR @ 2'	↓	↓
	3.0					
	4.0	DARK BRN-BL. SS		ORGANIC MATL		
		GREEN-BRN SS				
		TD 5.0				

TEST PIT CROSS SECTION ~~AND / OR PLAN VIEW~~



PLAN



REMARKS: NA - NOT AVAILABLE PID MALFUNCTIONING

PHOTO LOG: #32 + 33 FACING EAST

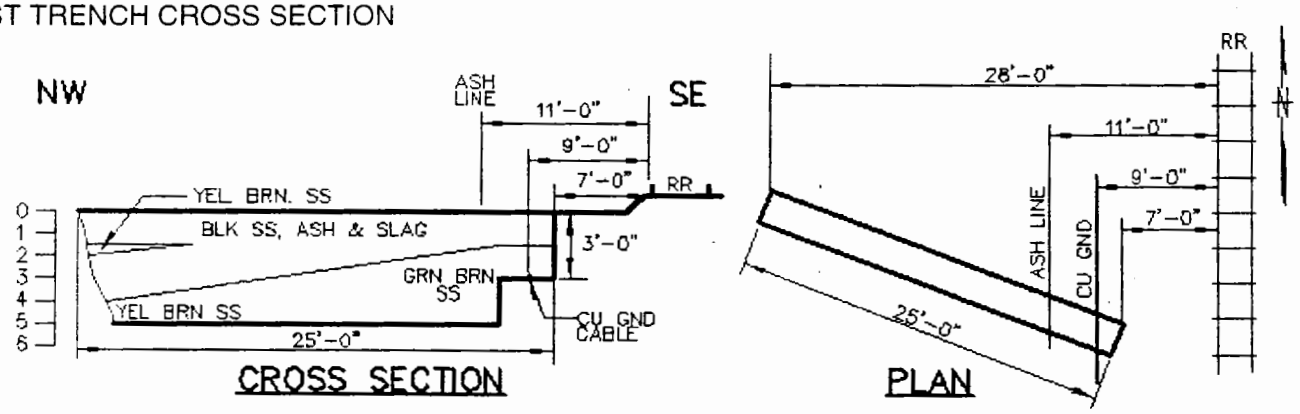
F.2 TtNUS TEST TRENCH LOGS (FINAL)

TEST TRENCH TP13-13

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	4/30/2003	VERT. DATUM	NAVD88
DATE COMPLETED	4/30/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	93.6 @ center of trench
NORTHING	523824.5 @ center of trench	EASTING	592399.23 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	523831	NORTHING	523820
EASTING	592390	EASTING	592410
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	523828	NORTHING	523818
EASTING	592391	EASTING	592409

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Black SILTY SAND, ash, and slag (SM)	Fill to 4'	0	0
2	FILL	Yellow brown SILTY SAND (SM)			
3	FILL	Black SILTY SAND, ash, and slag (SM)			
4	S SAND	Yellow brown SILTY SAND (SM)	Natural?		
5		Total Depth = 5.0'			

TEST TRENCH CROSS SECTION



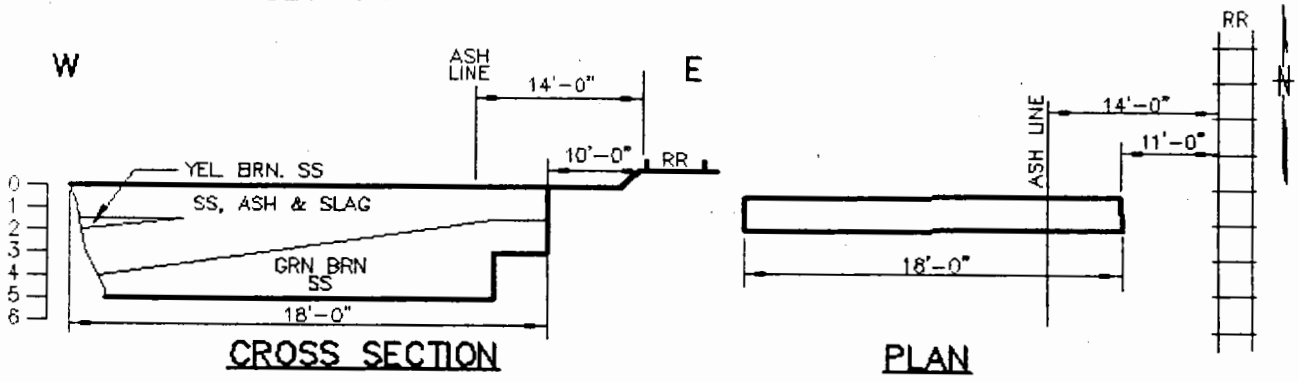
Remarks: Pit collapse @ 5', could not dig deeper. Ash line = line where SS/ash/slag begins to thicken. Ground cable hit, broke, and repaired.

TEST TRENCH TP13-14

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	4/30/2003	VERT. DATUM	NAVD88
DATE COMPLETED	4/30/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	93.2 @ center of trench
NORTHING	523891.22 @ center of trench	EASTING	592393.06 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	523893	NORTHING	523894
EASTING	592385	EASTING	592403
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	523889	NORTHING	523890
EASTING	592385	EASTING	592403

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Dk brn/black SILTY SAND, ash and slag (SM)	Fill to 4'	0	0
2	FILL	Yellow brown SILTY SAND (SM)		0	0
3	FILL	Dk brn/black SILTY SAND, ash and slag (SM)		0	0
4	S SAND	Green brn SILTY SAND (SM)	Looks natl	0	0
5		Total Depth = 5.0'			

TEST TRENCH CROSS SECTION



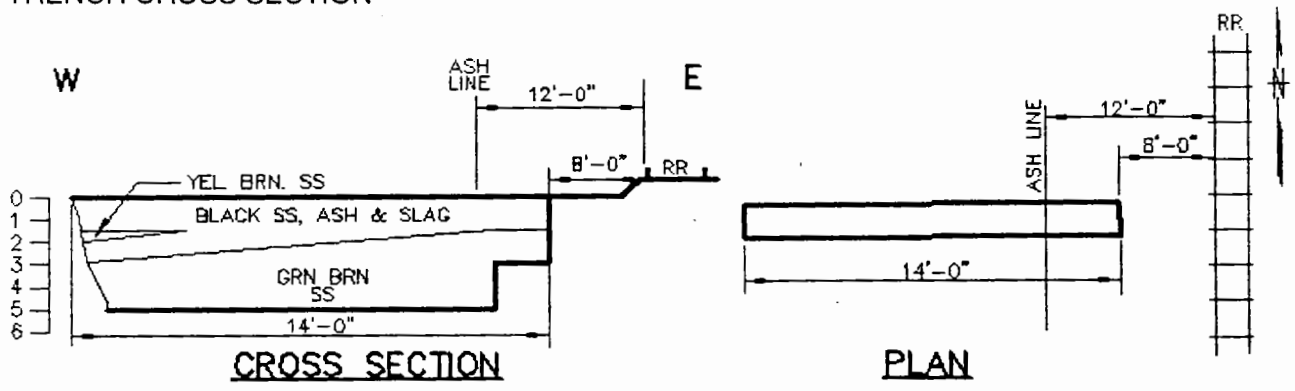
Remarks: Ash line = line where SS/ash/slag begins to thicken. Dumped soil jars in pit from soil borings. Pit collapse. Can't dig deeper than 5'.

TEST TRENCH TP13-15

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/1/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/1/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	93.5 @ center of trench
NORTHING	523954.26 @ center of trench	EASTING	592398.46 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	523956	NORTHING	523957
EASTING	592390	EASTING	592404
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	523952	NORTHING	523953
EASTING	592390	EASTING	592404

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Black SILTY SAND, ash and slag (SM)	FILL	0	0
2	FILL	Yellow-brn SILTY SAND (SM)	FILL	0	0
3	ASH & SLAG	Black SILTY SAND, ash and slag	Looks like ash and slag	0	0
4	S SAND	Green - brown SILTY SAND (SM)	Looks ntl	0	0
5		Total Depth = 5.0'			

TEST TRENCH CROSS SECTION



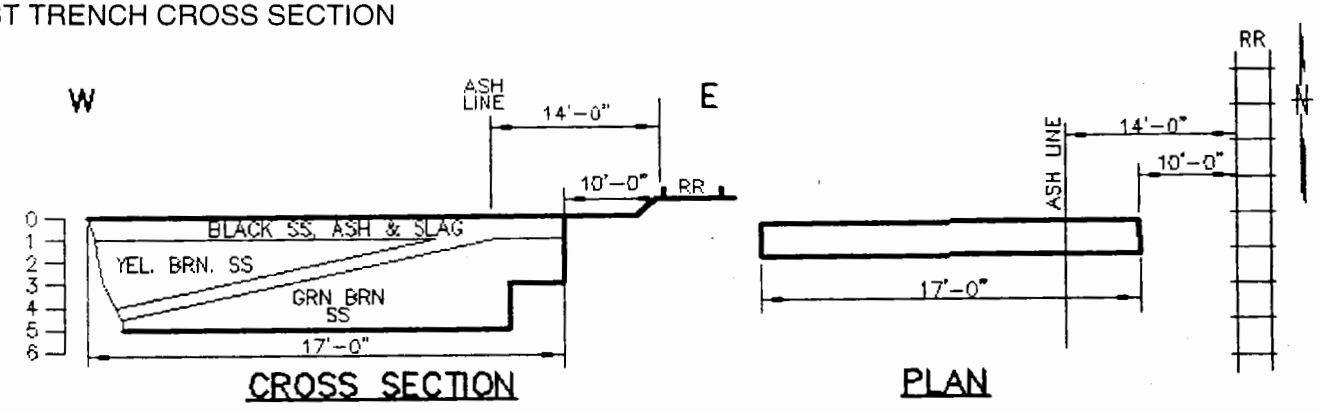
Remarks: Ash line = line where SS/ash + slag thickens. Pit collapse.

TEST TRENCH TP13-16

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/1/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/1/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	94.3 @ center of trench
NORTHING	523994.76 @ center of trench	EASTING	592396.92 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	523997	NORTHING	523995
EASTING	592388	EASTING	592401
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	523993	NORTHING	523993
EASTING	592387	EASTING	592401

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Black SILTY SAND, ash and slag (SM)	Fill to 4.5'	0	0
2	FILL	Yellow Brown SILTY SAND (SM)			
3	FILL				
4	FILL	Black SILTY SAND, ash and slag (SM)			
5	S SAND	Green brown SILTY SAND (SM)	Looks Natural		
		Total Depth = 5.0'			

TEST TRENCH CROSS SECTION



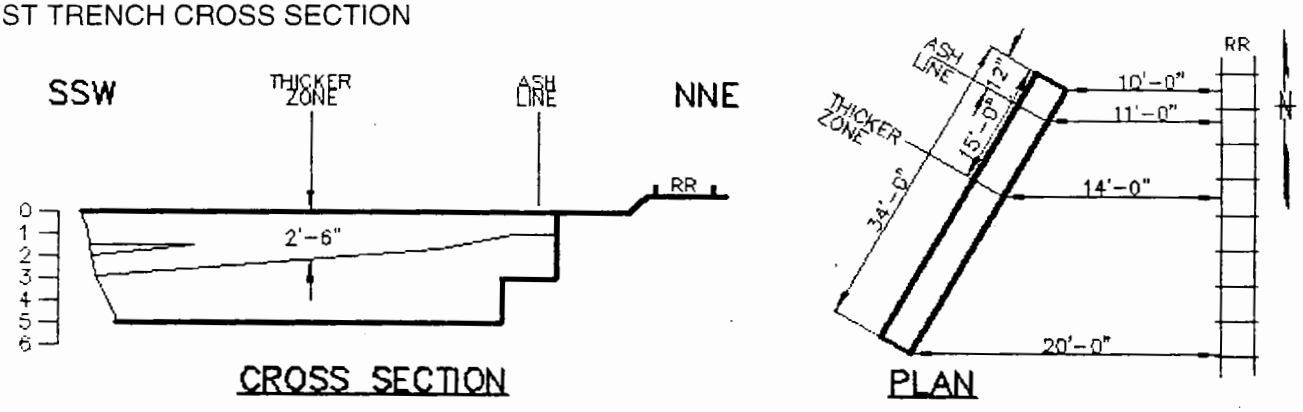
Remarks: Ash line = line where SS/ash/slag begins to thicken. Pit collapsing.

TEST TRENCH TP13-17

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/1/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/1/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	93.9 @ center of trench
NORTHING	524049.54 @ center of trench	EASTING	592396.16 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	524065	NORTHING	524065
EASTING	592397	EASTING	592399
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	524034	NORTHING	524034
EASTING	592392	EASTING	592394

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Black SILTY SAND, ash and slag (SM)		0	0
2	FILL	Yellow brown SILTY SAND (SM)			
3	FILL	Black SILTY SAND, ash and slag (SM)			
4	S SAND	Green-brown SILTY SAND (SM)			
		Total Depth = 4.0'			

TEST TRENCH CROSS SECTION



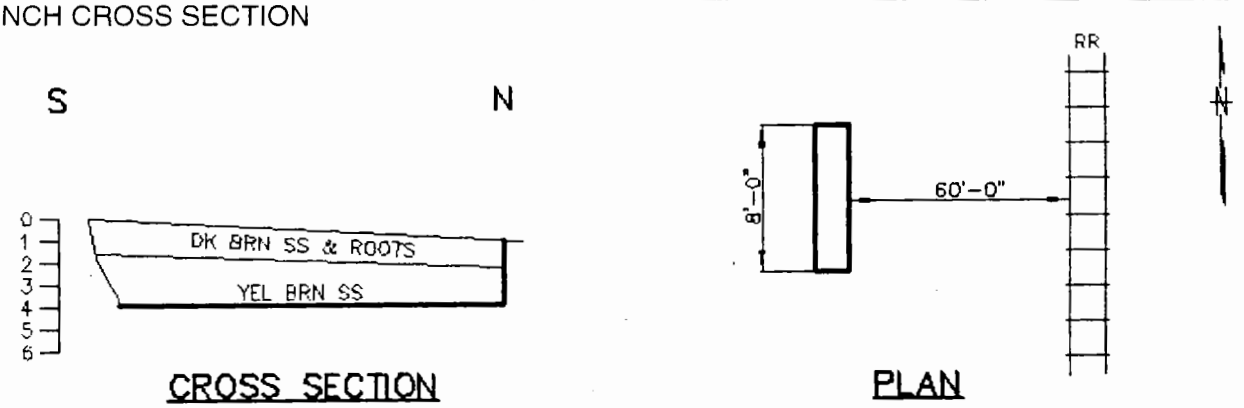
Remarks: Ash line = line where SS/ash/slag begins to thicken.

TEST TRENCH TP13-18

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/2/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/2/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	83.8 @ center of trench
NORTHING	524177.28 @ center of trench	EASTING	592342.12 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	524181	NORTHING	524182
EASTING	592340	EASTING	592343
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	524171	NORTHING	524172
EASTING	592341	EASTING	592344

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	S	Dark brown SILTY SAND with root mtl (SM)	Natural Material, dry	0	0
2	S A N D	Yellow brown SILTY SAND (SM)			
3					
4		Total Depth = 4.0'			

TEST TRENCH CROSS SECTION



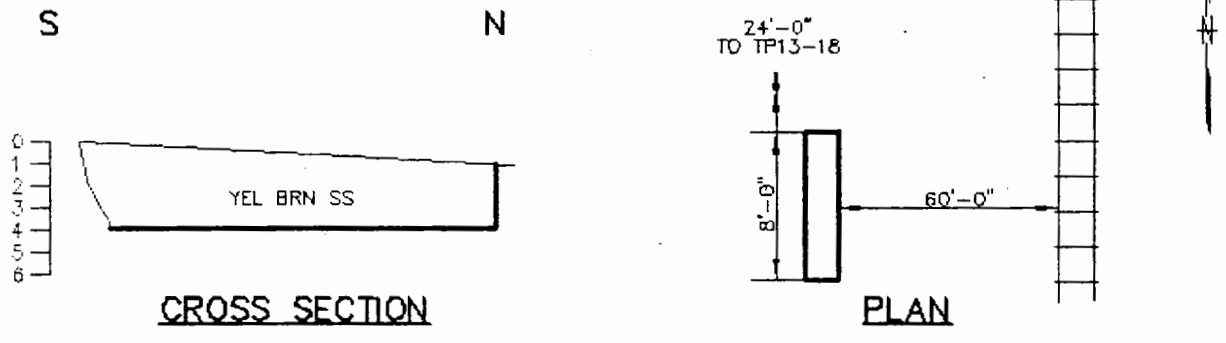
Remarks:

TEST TRENCH TP13-19

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/2/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/2/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	86.5 @ center of trench
NORTHING	524153.14 @ center of trench	EASTING	592344.85 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	524157	NORTHING	524156
EASTING	592344	EASTING	592347
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	524149	NORTHING	524150
EASTING	592342	EASTING	592345

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	S	Yellow-brown SILTY SAND (SM)	Looks natural dry	NA	NA
2	S A N D				
3					
4		Total Depth = 4.0'			

TEST TRENCH CROSS SECTION



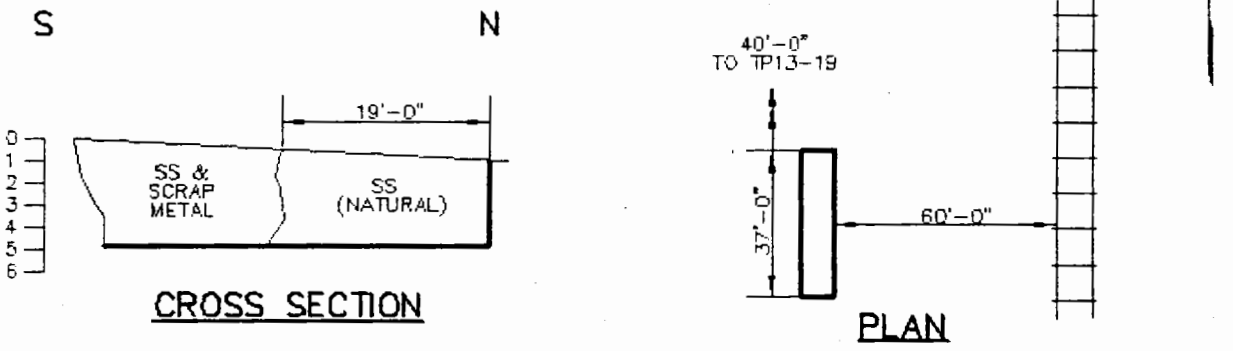
Remarks: NA - Not available. PID malfunctioning.

TEST TRENCH TP13-20

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/2/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/2/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	85.7 @ center of trench
NORTHING	524114.35 @ center of trench	EASTING	592341.76 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	524126	NORTHING	524127
EASTING	592337	EASTING	592340
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	524095	NORTHING	524097
EASTING	592344	EASTING	592348

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Dark brown SILTY SAND and scrap metal (SM)	Fill scrap metal = lawn mowers, furniture, crushed sheet metal munitions containers, shell cones Natural on North end, Less scrap with depth	NA	NA
2					
3					
4					
5		Total Depth = 5.0'			

TEST TRENCH CROSS SECTION



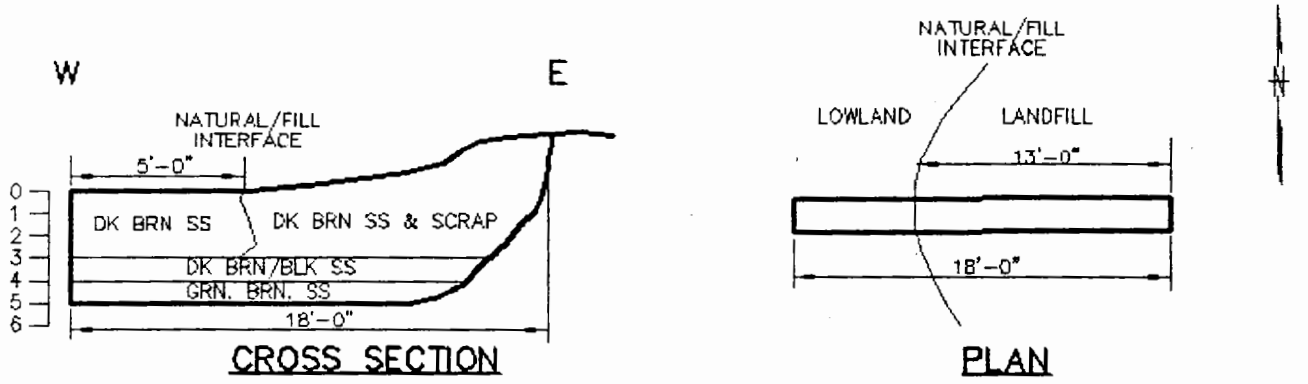
Remarks: NA - Not available. PID malfunctioning. Pit started to collapse.

TEST TRENCH TP13-21

PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/2/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/2/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	84.5 @ center of trench
NORTHING	523949.87 @ center of trench	EASTING	592241.29 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	523950	NORTHING	523951
EASTING	592233	EASTING	592249
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	523949	NORTHING	523947
EASTING	592233	EASTING	592249

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Dark brown SILTY SAND and scrap metal (SM)	Fill to 4' Scrap doors, sheet metal, cables	NA	NA
2					
3	SAND	Dark brown/black SILTY SAND	Organic, nat matl		
4		Green-brown SILTY SAND	No fill on West end		
5		Total Depth = 5.0'			

TEST TRENCH CROSS SECTION



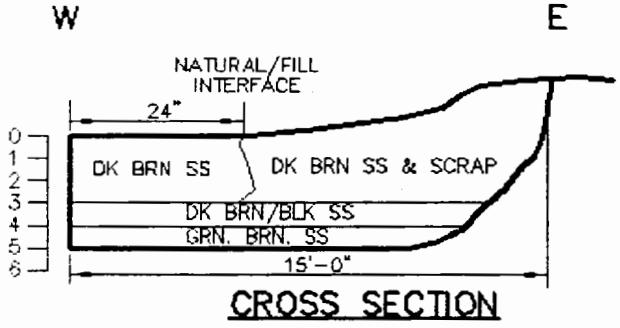
Remarks: NA - Not available. PID malfunctioning.

TEST TRENCH TP13-22

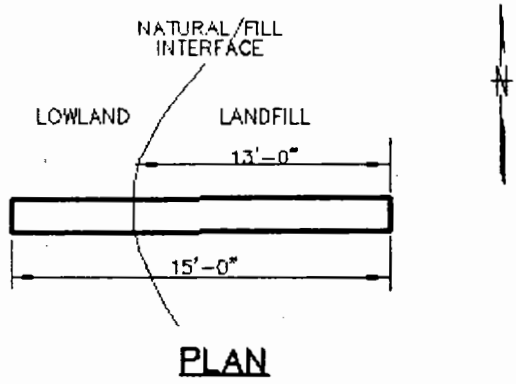
PROJECT	NWS Earle	PROJECT NO.	CTO851 N6710
LOCATION	Colts Neck, NJ	HORIZ. DATUM	SPCS NAD83
DATE STARTED	5/2/2003	VERT. DATUM	NAVD88
DATE COMPLETED	5/2/2003	WEATHER	--
EXCAVATION CONTR.	Earth Matters, Inc.	GEOLOGIST	M. Cochran/Pgh, PA
EQUIPMENT TYPE/OP.	Backhoe	ELEVATION	86.2 @ center of trench
NORTHING	523852.13 @ center of trench	EASTING	592227.46 @ center of trench
NORTHWEST COORDINATES		NORTHEAST COORDINATES	
NORTHING	523855	NORTHING	523851
EASTING	592223	EASTING	592235
SOUTHWEST COORDINATES		SOUTHEAST COORDINATES	
NORTHING	523853	NORTHING	523848
EASTING	592221	EASTING	592235

Depth (ft bgs)	Lithology	MATERIAL DESCRIPTION [color, grain size (optional), material type (USCS classification), other notes, (depth)]	Remarks	Instr. Rdg. (ppm) Source	Instr. Rdg. (ppm) BZ
0					
1	FILL	Dark Brown SILTY SAND and scrap metal (SM)	Fill to 3' Hit buried car @ 2'	NA	NA
2					
3	SAND	Dark brn-bl SS	Organic natl mtl	NA	NA
4		Green-brn SS		NA	NA
5		Total Depth = 5.0'			

TEST TRENCH CROSS SECTION



CROSS SECTION



PLAN

Remarks: NA - Not available. PID malfunctioning.

APPENDIX G

GEOTECHNICAL LABORATORY TEST RESULTS

VALLEY
FORGE
LABORATORIES, INC.

Engineering Consultants Since 1967

Geotechnical Engineering

Construction Quality Control

Laboratory Testing

NDT and Related Services

Research and Special Studies

Environmental Engineering

Transportation and Traffic Engineering

SOIL LABORATORY TEST REPORT 5-1

Project No. 03140
May 9, 2003

Attention: Mr. Dan Witt
TetraTech NUS
Foster Plaza 7
662 Andersen Drive
Pittsburgh, PA 15220

Re: Subcontract No. GCMP-03-032-0888
CLEAN Contract N62467-D-0888, CTO 851
Naval Air Station Earle
Colts Neck, NJ

Sample Received: On 5/5/03 – 10 jar samples designated SB-13-07 through SB-13-09.

Testing Completed: (See attached Work Order)

Test	ASTM Standard
Particle-Size Analysis (Sieve and Hydrometer)	D422
Atterberg Limits	D4318
USCS Classification Designation	D2487
Organic Matter Content	D2974

Results:

The results of the classification and organic matter testing are graphically depicted on the attached Grain Size Distribution curves. Also enclosed is the hard copy data package. If you have any questions about this report, please call.

Sincerely,

Jeffrey W. Rosengarten, P.E.
Project Geotechnical Engineer

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 1 | PAGE 1 OF 1 (WA 5-1)

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
6710	NWS-EARLE	DAN WITT 412-921-7090	VALLEY FORGE
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
		MATT COCHRAN 412-921-7090	6 BERKELY ROAD
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX 8316 7332 6560	DEVON PA, 610-688-8517

STANDARD TAT ☑
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2003	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: SOIL CLASSIFICATION ASTM D2487	GRAIN SIZE ASTM D422	ATTERBERG ASTM D4318	ORGANIC CONTENT ASTM D2974	COMMENTS
						G	NONE					
4/29	1520	SB13-07-1012			1			X	X	X	X	X INDICATES
4/29	1530	SB13-07-1517			1			X	X	X		DESIRED
4/29	1550	SB13-07-2527			2			X	X	X		ANALYSES
4/30	1130	SB13-08-~~0812~~ 1012			2			X	X	X		
4/30	1150	SB13-08-2022			2			X	X	X	X	
4/30	1240	SB13-08-3032			2			X	X	X		
4/30	1310	SB13-08-4547			2			X	X	X		
4/30	0905	SB13-09-1517			2			X	X	X		
4/30	0930	SB13-09-2527			2			X	X	X		
4/30	0855	SB13-09-1012			2			X	X	X	X	

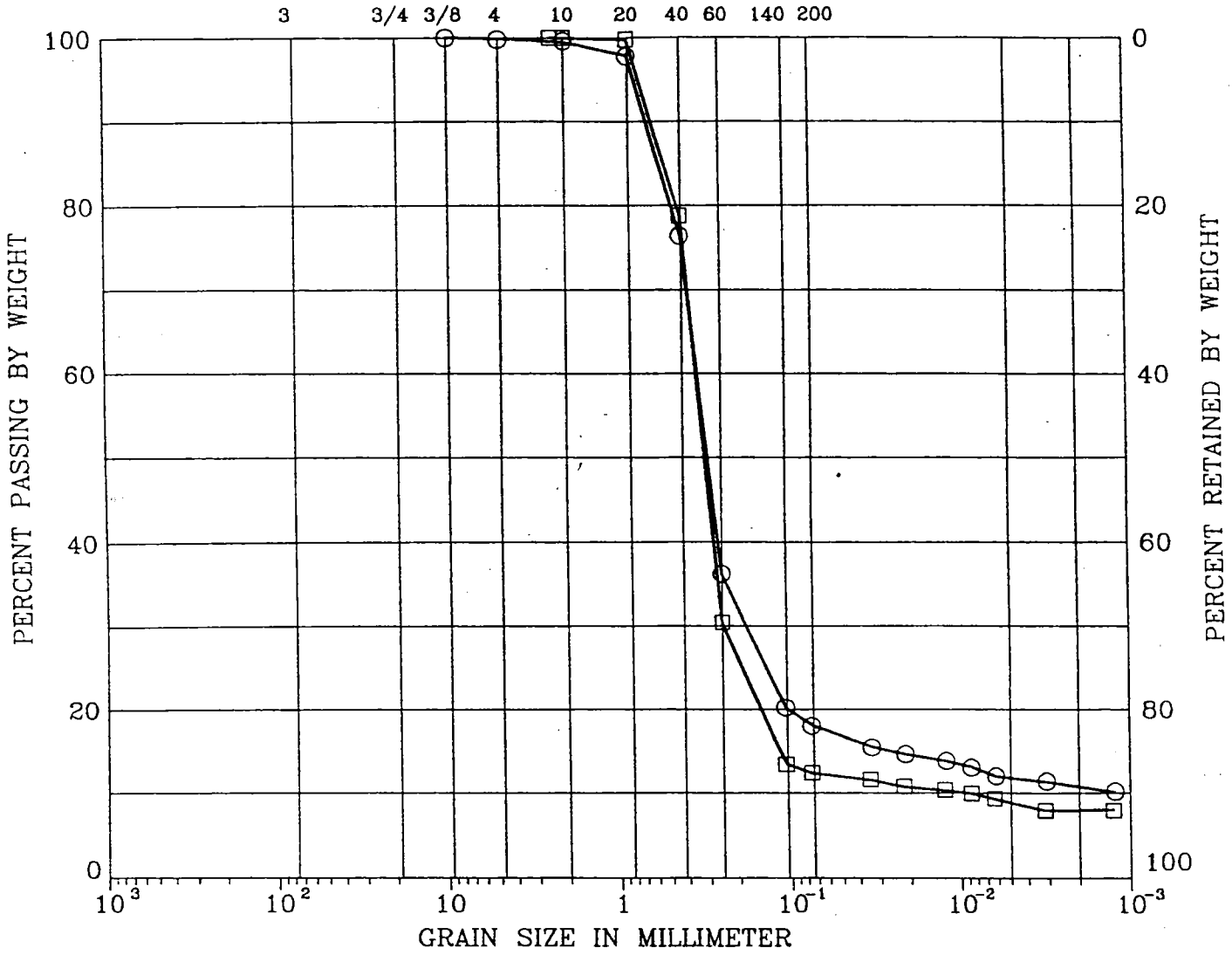
	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	5-1-03	1700	1. RECEIVED BY SHIP TO FEDEX.	—	—
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 3/99

UNIFIED SOIL CLASSIFICATION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



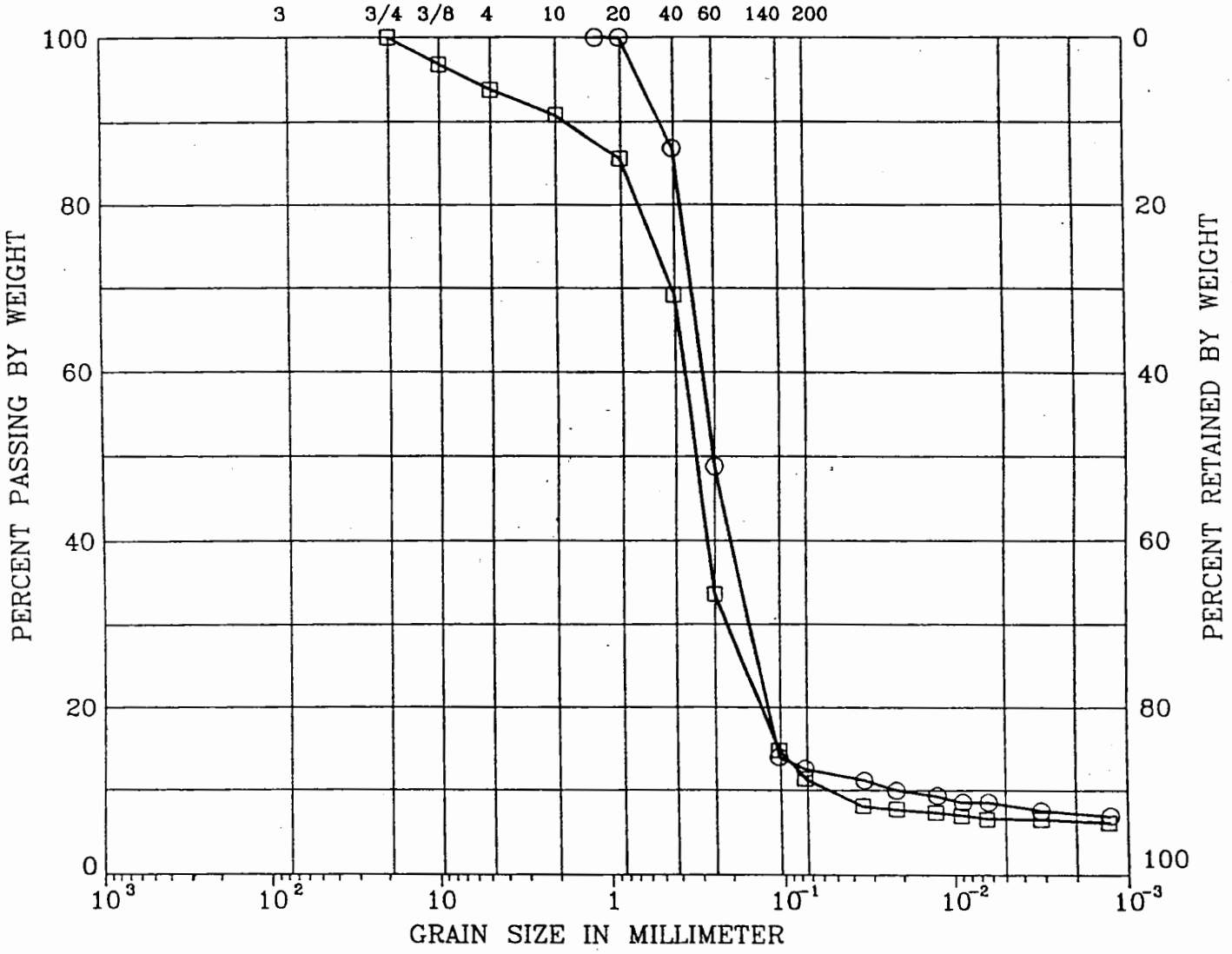
SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	SB13-07	1012	NP	NP	Silty Sand (SM); Organic Matter Content: 1.8 %
□	SB13-07	1517	NP	NP	Silty Sand (SM)

Remark :

Project No. 03140	Naval Air Station Earle
Valley Forge Laboratories, Inc.	GRAIN SIZE DISTRIBUTION 5/9/03

UNIFIED SOIL CLASSIFICATION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



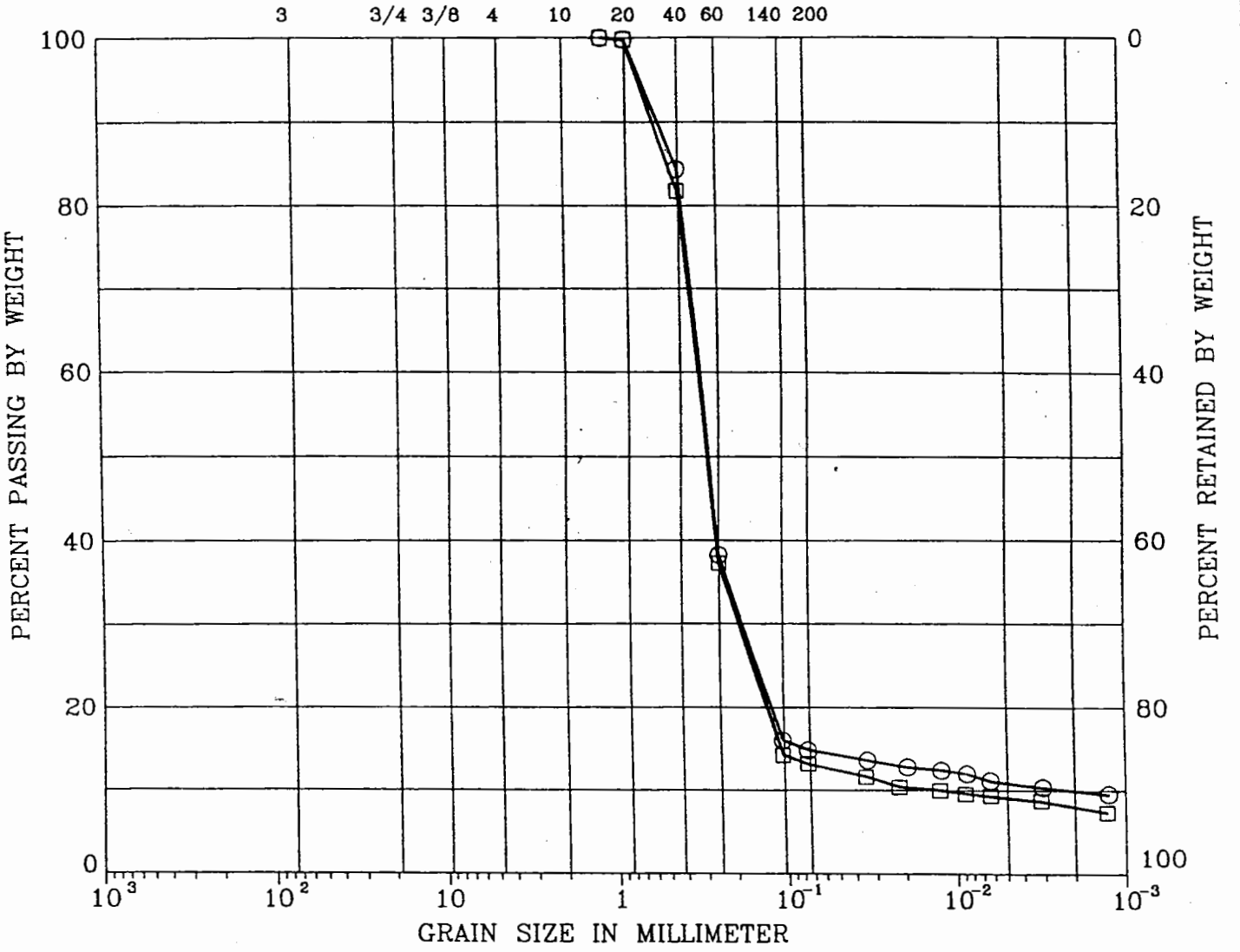
SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	SB13-07	2527	NP	NP	Silty Sand (SM)
□	SB13-08	1012	NP	NP	Well-Graded Sand with Silt (SW-SM)

Remark :

Project No. 03140	Naval Air Station Earle
Valley Forge Laboratories, Inc.	GRAIN SIZE DISTRIBUTION 5/9/03

UNIFIED SOIL CLASSIFICATION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



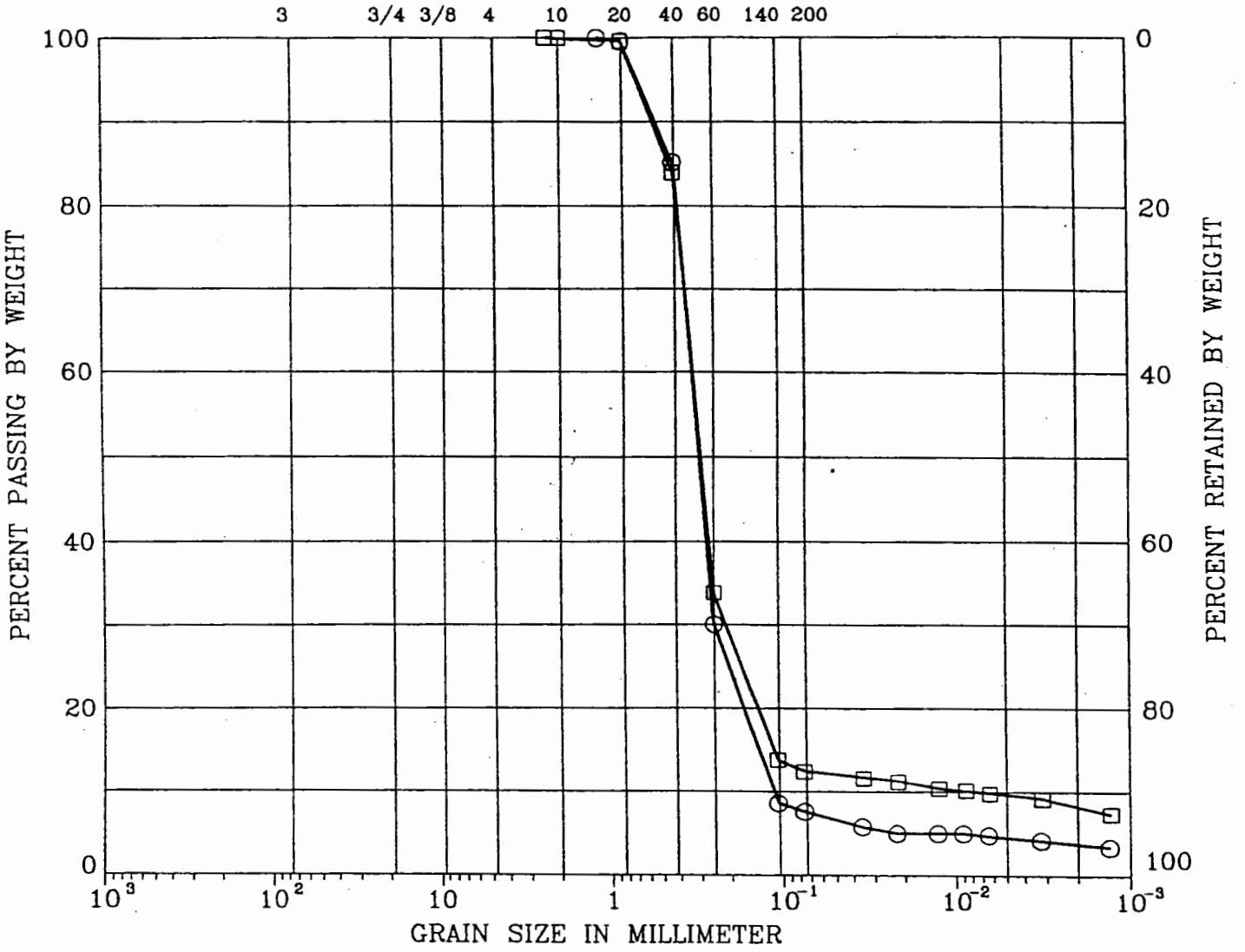
SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	SB-13-08	2022	NP	NP	Silty Sand (SM); Organic Matter Content: 1.2 %
□	SB-13-08	3032	NP	NP	Silty Sand (SM)

Remark :

Project No. 03140	Naval Air Station Earle
Valley Forge Laboratories, Inc.	GRAIN SIZE DISTRIBUTION 5/9/03

UNIFIED SOIL CLASSIFICATION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



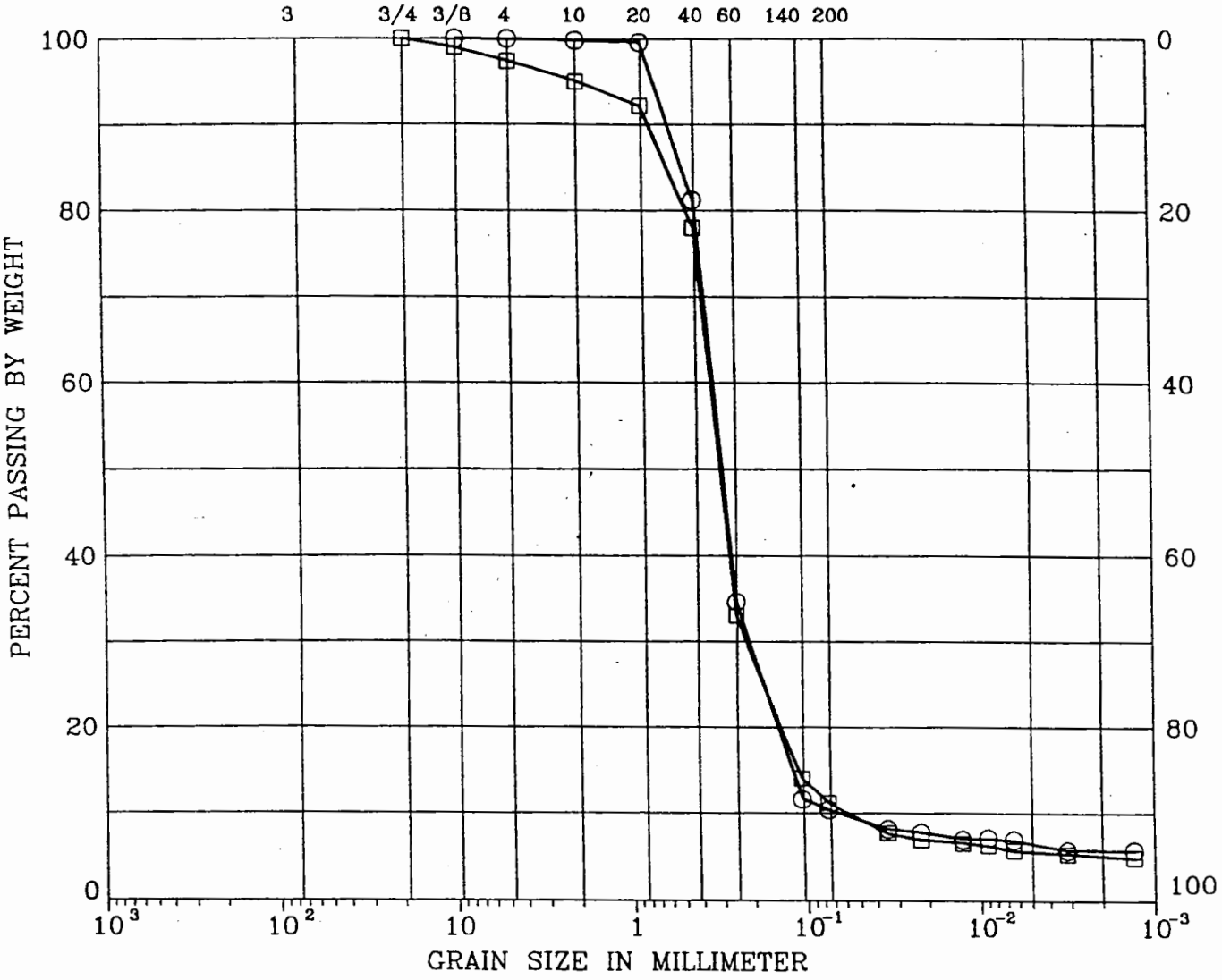
SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	SB-13-08	4547	NP	NP	Poorly-Graded Sand with Silt (SP-SM)
□	SB-13-09	1517	NP	NP	Silty Sand (SM)

Remark :

Project No. 03140	Naval Air Station Earle
Valley Forge Laboratories, Inc.	GRAIN SIZE DISTRIBUTION 5/9/03

UNIFIED SOIL CLASSIFICATION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	
U.S. SIEVE SIZE IN INCHES			U.S. STANDARD SIEVE No.			HYDROMETER



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	SB-13-09	2527	NP	NP	Poorly-Graded Sand with Silt (SP-SM)
□	SB-13-09	1012	NP	NP	Poorly-Graded Sand w/ Silt (SP-SM); Organic Matter Content 0.6%

Remark :

Project No. 03140	Naval Air Station Earle
Valley Forge Laboratories, Inc.	GRAIN SIZE DISTRIBUTION 5/9/03

GEOSOFT [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 1	Boring	SB13-07	Depth (ft)	1012	
Specific Gravity of Soil		2.70	Temperature	Composite	
Weight of Airdry Soil	(g)	90.11	(Centigrade)	Correction	
Wet Weight of Soil + Tare	(g)	66.45	18.4	1.0055	
Dry Weight of Soil + Tare	(g)	66.19	29.0	1.0025	
Weight of Tare	(g)	9.10	0.0	0.0000	

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	21.1	1.0135	0.0337	15.4
5.0	21.2	1.0130	0.0214	14.6
15.0	21.3	1.0125	0.0124	13.8
30.0	21.7	1.0120	0.0088	13.1
60.0	22.1	1.0113	0.0062	12.0
240.0	23.4	1.0105	0.0031	11.3
1440.0	26.4	1.0090	0.0012	10.2
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s1

GEOSOFT [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 1 Boring SB13-07 Depth (ft) 1012

Total Weight of Dry Soil For Coarse Sieve 148.470

Total Weight of Dry Soil For Fine Sieve 89.700

Sieve No. For Coarse/Fine Sieve Split 10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	1.480	97.9
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	20.820	76.4
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	57.130	36.1
# 4(4.75 mm)	0.160	99.9	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	71.570	20.1
#10(2.00 mm)	0.720	99.5	# 200(0.075mm)	73.400	18.1

Press [ESC] to continue ... a:s1

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 2	Boring	SB13-07		Depth (ft)	1517
Specific Gravity of Soil		2.70		Temperature	Composite
Weight of Airdry Soil	(g)	95.03		(Centigrade)	Correction
Wet Weight of Soil + Tare	(g)	22.62		18.4	1.0055
Dry Weight of Soil + Tare	(g)	22.20		29.0	1.0025
Weight of Tare	(g)	1.38		0.0	0.0000

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	21.1	1.0115	0.0344	11.5
5.0	21.2	1.0110	0.0218	10.7
15.0	21.3	1.0108	0.0126	10.4
31.0	21.5	1.0105	0.0088	10.0
61.0	21.8	1.0100	0.0063	9.3
240.0	22.6	1.0090	0.0032	8.0
1440.0	25.4	1.0083	0.0013	8.1
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s1

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 2 Boring SB13-07 Depth (ft) 1517

Total Weight of Dry Soil For Coarse Sieve	280.370
Total Weight of Dry Soil For Fine Sieve	93.150
Sieve No. For Coarse/Fine Sieve Split	10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	0.180	99.8
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	19.700	78.8
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	64.910	30.3
# 4(4.75 mm)	0.000	0.0	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	80.670	13.4
#10(2.00 mm)	0.060	100.0	# 200(0.075mm)	81.670	12.3

Press [ESC] to continue ... a:s1

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 1	Boring	SB13-07	Depth (ft)	2527	
Specific Gravity of Soil		2.70	Temperature	Composite	
Weight of Airdry Soil	(g)	99.45	(Centigrade)	Correction	
Wet Weight of Soil + Tare	(g)	26.24	18.4	1.0055	
Dry Weight of Soil + Tare	(g)	26.16	29.0	1.0025	
Weight of Tare	(g)	1.34	0.0	0.0000	

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	21.2	1.0117	0.0343	11.3
5.0	21.2	1.0110	0.0218	10.1
15.0	21.3	1.0105	0.0127	9.3
30.0	21.4	1.0100	0.0090	8.6
60.0	21.5	1.0100	0.0063	8.6
240.0	22.1	1.0093	0.0032	7.7
1440.0	24.8	1.0080	0.0013	6.9
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s3

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 1 Boring SB13-07 Depth (ft) 2527

Total Weight of Dry Soil For Coarse Sieve 268.640

Total Weight of Dry Soil For Fine Sieve 99.130

Sieve No. For Coarse/Fine Sieve Split 10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	0.030	100.0
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	13.110	86.8
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	50.680	48.9
# 4(4.75 mm)	0.000	0.0	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	85.340	13.9
#10(2.00 mm)	0.000	0.0	# 200(0.075mm)	86.680	12.6

Press [ESC] to continue ... a:s3

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 2	Boring	SB13-08	°	Depth (ft)	1012
Specific Gravity of Soil		2.70	°	Temperature	Composite
Weight of Airdry Soil	(g)	99.05	°	(Centigrade)	Correction
Wet Weight of Soil + Tare	(g)	25.85	°	18.4	1.0055
Dry Weight of Soil + Tare	(g)	25.57	°	29.0	1.0025
Weight of Tare	(g)	1.39	°	0.0	0.0000

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	21.1	1.0102	0.0348	8.1
5.0	21.1	1.0100	0.0221	7.7
15.0	21.1	1.0098	0.0128	7.4
30.0	21.2	1.0095	0.0090	7.1
60.0	21.2	1.0093	0.0064	6.7
240.0	21.9	1.0090	0.0032	6.6
1440.0	24.5	1.0080	0.0013	6.2
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s3

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 2 Boring SB13-08 Depth (ft) 1012

Total Weight of Dry Soil For Coarse Sieve 505.720

Total Weight of Dry Soil For Fine Sieve 97.920

Sieve No. For Coarse/Fine Sieve Split 10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	5.520	85.6
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	23.130	69.3
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	16.030	96.8	# 60 (0.250mm)	61.650	33.6
# 4(4.75 mm)	31.220	93.8	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	82.000	14.7
#10(2.00 mm)	47.020	90.7	# 200(0.075mm)	85.670	11.3

Press [ESC] to continue ... a:s3

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 1		Boring SB-13-08		Depth (ft)	2022
Specific Gravity of Soil		2.70		Temperature	Composite
Weight of Airdry Soil	(g)	103.95		(Centigrade)	Correction
Wet Weight of Soil + Tare	(g)	71.81		18.4	1.0055
Dry Weight of Soil + Tare	(g)	71.17		29.0	1.0025
Weight of Tare	(g)	9.15		0.0	0.0000

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	21.2	1.0135	0.0337	13.6
6.0	21.2	1.0130	0.0195	12.8
15.0	21.3	1.0128	0.0124	12.5
30.0	21.2	1.0125	0.0088	12.0
60.0	20.9	1.0120	0.0063	11.1
240.0	21.9	1.0113	0.0031	10.4
1440.0	24.3	1.0100	0.0013	9.5
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s5

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 1 Boring SB-13-08 Depth (ft) 2022

Total Weight of Dry Soil For Coarse Sieve	313.340
Total Weight of Dry Soil For Fine Sieve	102.890
Sieve No. For Coarse/Fine Sieve Split	10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	0.170	99.8
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	16.030	84.4
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	63.620	38.2
# 4(4.75 mm)	0.000	0.0	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	86.420	16.0
#10(2.00 mm)	0.000	0.0	# 200(0.075mm)	87.590	14.9

Press [ESC] to continue ... a:s5

GEOSOFT [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 2	Boring	SB-13-08	Depth (ft)	3032	
Specific Gravity of Soil		2.70	Temperature	Composite	
Weight of Airdry Soil	(g)	99.41	(Centigrade)	Correction	
Wet Weight of Soil + Tare	(g)	27.17	18.4	1.0055	
Dry Weight of Soil + Tare	(g)	26.86	29.0	1.0025	
Weight of Tare	(g)	1.33	0.0	0.0000	

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	20.9	1.0120	0.0343	11.7
5.0	20.9	1.0113	0.0219	10.4
15.0	20.9	1.0110	0.0126	10.0
30.0	21.0	1.0108	0.0090	9.7
60.0	21.1	1.0105	0.0063	9.3
240.0	22.5	1.0098	0.0031	8.8
1440.0	23.1	1.0087	0.0013	7.4
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s5

GEOSOFT [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 2 Boring SB-13-08 Depth (ft) 3032

Total Weight of Dry Soil For Coarse Sieve	446.450
Total Weight of Dry Soil For Fine Sieve	98.220
Sieve No. For Coarse/Fine Sieve Split	10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	0.280	99.7
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	17.960	81.7
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	61.740	37.1
# 4(4.75 mm)	0.000	0.0	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	84.220	14.3
#10(2.00 mm)	0.000	0.0	# 200(0.075mm)	85.300	13.2

Press [ESC] to continue ... a:s5

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 1	Boring	SB-13-08	Depth (ft)	4547	
Specific Gravity of Soil		2.70	Temperature	Composite	
Weight of Airdry Soil	(g)	103.10	(Centigrade)	Correction	
Wet Weight of Soil + Tare	(g)	24.12	18.4	1.0055	
Dry Weight of Soil + Tare	(g)	23.97	29.0	1.0025	
Weight of Tare	(g)	1.33	0.0	0.0000	

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	21.0	1.0085	0.0354	5.8
5.0	21.1	1.0080	0.0225	5.1
15.0	21.1	1.0080	0.0130	5.1
30.0	21.1	1.0080	0.0092	5.1
60.0	21.3	1.0078	0.0065	4.8
240.0	22.7	1.0070	0.0032	4.2
1440.0	22.8	1.0065	0.0013	3.5
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s7

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 1 Boring SB-13-08 Depth (ft) 4547

Total Weight of Dry Soil For Coarse Sieve	556.590
Total Weight of Dry Soil For Fine Sieve	102.420
Sieve No. For Coarse/Fine Sieve Split	10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	0.370	99.6
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	15.200	85.2
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	71.670	30.0
# 4(4.75 mm)	0.000	0.0	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	93.560	8.7
#10(2.00 mm)	0.000	0.0	# 200(0.075mm)	94.620	7.6

Press [ESC] to continue ... a:s7

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 2	Boring	SB-13-09	Depth (ft)	1517	
Specific Gravity of Soil		2.70	Temperature	Composite	
Weight of Airdry Soil	(g)	99.96	(Centigrade)	Correction	
Wet Weight of Soil + Tare	(g)	21.59	18.4	1.0055	
Dry Weight of Soil + Tare	(g)	21.16	29.0	1.0025	
Weight of Tare	(g)	1.37	0.0	0.0000	

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	20.9	1.0120	0.0343	11.7
5.0	20.9	1.0117	0.0217	11.3
15.0	20.9	1.0113	0.0126	10.5
31.0	21.1	1.0110	0.0088	10.2
60.0	21.4	1.0108	0.0063	9.9
240.0	22.6	1.0100	0.0031	9.2
1440.0	22.1	1.0090	0.0013	7.4
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s7

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 2 Boring SB-13-09 Depth (ft) 1517

Total Weight of Dry Soil For Coarse Sieve 413.510

Total Weight of Dry Soil For Fine Sieve 97.830

Sieve No. For Coarse/Fine Sieve Split 10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	0.240	99.7
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	15.660	83.9
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	64.790	33.7
# 4(4.75 mm)	0.000	0.0	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	84.390	13.7
#10(2.00 mm)	0.380	99.9	# 200(0.075mm)	85.630	12.5

Press [ESC] to continue ... a:s7

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 1	Boring	SB-13-09	Depth (ft)	2527	
Specific Gravity of Soil		2.70	Temperature	Composite	
Weight of Airdry Soil	(g)	102.39	(Centigrade)	Correction	
Wet Weight of Soil + Tare	(g)	25.10	18.4	1.0055	
Dry Weight of Soil + Tare	(g)	24.49	29.0	1.0025	
Weight of Tare	(g)	1.37	0.0	0.0000	

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	20.8	1.0100	0.0350	8.2
5.0	20.8	1.0098	0.0222	7.8
15.0	20.9	1.0093	0.0129	7.1
30.0	21.0	1.0093	0.0091	7.1
60.0	21.4	1.0090	0.0064	6.9
240.0	22.6	1.0080	0.0032	5.9
1440.0	22.5	1.0080	0.0013	5.8
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s9

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 1 Boring SB-13-09 Depth (ft) 2527

Total Weight of Dry Soil For Coarse Sieve 544.800

Total Weight of Dry Soil For Fine Sieve 99.760

Sieve No. For Coarse/Fine Sieve Split 10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	0.250	99.6
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	18.710	81.1
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	0.000	0.0	# 60 (0.250mm)	65.170	34.6
# 4(4.75 mm)	0.240	100.0	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	88.130	11.6
#10(2.00 mm)	0.760	99.9	# 200(0.075mm)	89.390	10.4

Press [ESC] to continue ... a:s9

G E O S O F T [R/GRAIN] HYDROMETER ANALYSIS (ASTM 151-H) OUTPUT SCREEN

Curve No. 2	Boring	SB-13-09	Depth (ft)	1012	
Specific Gravity of Soil		2.70	Temperature	Composite	
Weight of Airdry Soil	(g)	103.35	(Centigrade)	Correction	
Wet Weight of Soil + Tare	(g)	73.82	18.4	1.0055	
Dry Weight of Soil + Tare	(g)	73.04	29.0	1.0025	
Weight of Tare	(g)	9.31	0.0	0.0000	

Time (min)	Temp. (Cent.)	Reading	Grain Size (mm)	% Passing By Wt.
2.0	20.9	1.0100	0.0350	7.7
5.0	21.0	1.0095	0.0222	7.0
15.0	21.0	1.0093	0.0129	6.6
30.0	21.2	1.0090	0.0091	6.3
60.0	21.5	1.0085	0.0064	5.7
240.0	22.6	1.0080	0.0032	5.5
1440.0	22.3	1.0078	0.0013	5.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0
0.0	0.0	0.0000	0.0000	0.0

Press [ESC] to continue ... a:s9

G E O S O F T [R/GRAIN] SIEVE ANALYSIS (ASTM D-422-63) OUTPUT SCREEN

Curve No. 2 Boring SB-13-09 Depth (ft) 1012

Total Weight of Dry Soil For Coarse Sieve	460.300
Total Weight of Dry Soil For Fine Sieve	102.100
Sieve No. For Coarse/Fine Sieve Split	10

U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.	U.S. Sieve Size/No.	Cumul. Wt. Retained (gm)	% Passing By Wt.
3.0 (inch)	0.000	0.0	# 16 (1.18 mm)	0.000	0.0
2.0 (inch)	0.000	0.0	# 20 (0.85 mm)	3.150	92.2
1.5 (inch)	0.000	0.0	# 30 (0.60 mm)	0.000	0.0
1.0 (inch)	0.000	0.0	# 40 (0.425mm)	18.340	78.0
3/4 (inch)	0.000	0.0	# 50 (0.300mm)	0.000	0.0
3/8 (inch)	4.750	99.0	# 60 (0.250mm)	66.730	32.9
# 4(4.75 mm)	11.810	97.4	# 100(0.150mm)	0.000	0.0
# 8(2.38 mm)	0.000	0.0	# 140(0.106mm)	87.160	13.9
#10(2.00 mm)	22.620	95.1	# 200(0.075mm)	90.100	11.2

Press [ESC] to continue ... a:s9

ATTACHMENT E

POINT SURVEY DATA

Naval Weapons Station Earle
Site 13 – DPDO Yard
Wetland Locations

Point #	Elevations (Feet) Ground Elevation	Coordinates (Feet) (Y) North	(X) East
13A-1	81.4	523844.22	591943.52
13A-2	81.1	523777.90	591960.34
13A-3	80.8	523741.79	591967.98
13A-4	82.1	523704.66	591956.71
13A-5	81.1	523658.75	591984.02
13A-6	85.3	523599.98	592007.95
13A-7	87.1	523528.99	592028.56
13A-8	86.3	523444.45	592056.00
13A-9	85.2	523415.62	592059.39
13A-10	86.0	523349.78	592091.46
13A-11	87.0	523278.87	592112.12
13A-12	87.3	523206.92	592131.15
13A-13	87.9	523150.34	592147.35
13A-14	95.2	523104.04	592156.28
13A-15	95.2	523109.70	592176.86
13A-16	88.3	523161.17	592155.99
13A-17	88.1	523208.51	592141.95
13A-18	88.9	523287.32	592123.34
13A-19	87.7	523333.23	592111.55
13A-20	85.9	523414.02	592073.53
13A-21	86.6	523445.48	592070.46
13A-22	87.3	523537.85	592043.90
13A-23	83.5	523606.63	592017.08
13A-24	83.7	523661.87	591995.32
13A-25A	81.7	523695.07	591975.46
13A-25B	80.5	523738.27	591979.19
13A-26	82.1	523780.87	591970.01
13A-27	80.5	523835.88	591956.66

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

Naval Weapons Station Earle
Site 13 – DPDO Yard
Wetland Locations

Point #	Elevations (Feet) Ground Elevation	Coordinates (Feet) (Y) North	(X) East
13B-1	79.6	524237.16	592252.63
13B-2	80.0	524194.24	592249.33
13B-3	80.6	524169.33	592222.85
13B-4	80.2	524142.01	592132.22
13B-5	80.9	524085.91	592168.42
13B-6	80.6	524027.82	592164.07
13B-7	81.5	523992.24	592159.92
13B-8	81.9	523947.62	592158.21
13B-9	82.9	523910.57	592163.32
13B-10	82.5	523869.95	592149.93
13B-11	82.9	523832.20	592131.10
13B-12	82.7	523813.16	592088.50
13B-13	82.1	523844.51	592068.58
13B-14	82.4	523871.69	592061.97
13B-15	82.6	523899.15	592037.64
13B-16	82.5	523938.97	592044.58
13B-17	82.5	523952.80	592005.95

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

Naval Weapons Station Earle
Site 13 – DPDO Yard
Wetland Data Point Locations

Point #	Elevations (Feet) Ground Elevation	Coordinates (Feet) (Y) North	(X) East
DP13B-7-1	81.2	523994.73	592150.43
DP13B-7-2	81.3	523988.67	592158.84
DP13B-7-3	81.5	523985.73	592167.99
DP13B-7-4	81.6	523978.30	592175.04
DP13B-7-5	81.6	523974.00	592183.64
DP13B-7-6	81.7	523965.32	592191.86
DP13B-7-7	82.2	523963.22	592205.58
DP13B-10-1	82.4	523877.13	592143.45
DP13B-10-2	82.4	523871.00	592150.32
DP13B-10-3	83.0	523862.77	592156.98
DP13B-10-4	83.3	523853.00	592160.09

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

Naval Weapons Station Earle
Site 13 – DPDO Yard
Soil Boring & Test Pit Locations

Point #	Elevations (Feet) Ground Elevation	Coordinates (Feet) (Y) North	(X) East
SB13-07	91.6	523687.56	592121.51
SB13-08	91.5	523897.82	592345.88
SB13-09	89.8	523990.14	592287.08
TP13-13	93.6	523824.50	592399.23
TP13-14	93.2	523891.22	592393.06
TP13-15	93.5	523954.26	592398.46
TP13-16	94.3	523994.76	592396.92
TP13-17	93.9	524049.54	592396.16
TP13-18	83.8	524177.28	592342.12
TP13-19	86.5	524153.14	592344.85
TP13-20	85.7	524114.35	592341.76
TP13-21	84.5	523949.87	592241.29
TP13-22	86.2	523852.13	592227.46

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

9622 Evans Street Philadelphia, PA 19115 Office 215 969 1577 Fax 215 969 0338

SEDIMENT SAMPLE SURVEY DATA
PRE-DESIGN INVESTIGATION
SITE 13 – DPDO YARD
NAVAL WEAPONS STATION
COLTS NECK, NEW JERSEY

SAMPLE	ELEVATION	NORTHING	EASTING
13SD04		523894.1781	592229.0252
13SD05		523901.3317	592196.9223
13SD06		523878.3395	592176.2026
13SD07		523849.5159	592185.2754
13SD08		523838.8917	592213.5068
13SD09		523604.3987	592004.3275
13SD10		523551.3761	592014.4932
13SD11		523499.4392	592033.0257
13SD12		523453.2424	592049.4376
13SD13		523402.6666	592064.5573
13SD14		523344.8704	592084.8418
13SD15		523288.4281	592102.9418
13SD16		523236.0978	592120.5922
13SD17		523190.8048	592135.2533
13SD18		523146.9184	592149.7476
13SD19		523095.7685	592166.5171
13SD20	84.3	523815.60	592181.66
13SD21	83.4	523849.94	592155.28
13SD22	82.5	523883.91	592153.00
13SD23	83.2	523910.07	592174.18
13SD24	82.9	523927.80	592199.14
13SD25	82.0	523922.85	592116.74
13SD26	81.5	523946.08	592135.93
13SD27	81.6	523962.59	592174.58
13SD28	83.9	523868.05	592196.57

Horizontal Datum: New Jersey State Plane Coordinates – NAD 83
Vertical Datum: NAVD 88

References:

1. Survey data for sediment samples 13SD04 through 13SD19 were obtained from electronic file dated 7/11/2003 prepared by James M. Stewart, Inc. – Land Surveyors, 9622 Evans Street, Philadelphia, PA 19115, Office 215 969 1577, Fax 215 969 0338

2. Survey data for sediment samples 13SD20 through 13SD28 were obtained from electronic file dated 10/3/2003 prepared by James M. Stewart, Inc. – Land Surveyors, 9622 Evans Street, Philadelphia, PA 19115, Office 215 969 1577, Fax 215 969 0338

ATTACHMENT F

SEDIMENT SAMPLE DATA

F.1 CHAINS OF CUSTODY
F.2 LOG SHEETS
F.3 DATA VALIDATION LETTERS

F.1 CHAINS OF CUSTODY

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 1 | PAGE 1 OF 2

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
6710	NWS-EARLE	DAN WITT 412-921-7090	LIONVILLE LAB
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
Matt Cochran Robert Pellegrini		MATT COCHRAN 412-921-7090	208 WELSHPOOL ROAD
		CARRIER/WAYBILL NUMBER	CITY, STATE
		DELIVER	LIONVILLE PA 19341

STANDARD TAT ☑
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2003	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: TAL METALS + TCL PCB 8082	COMMENTS
						G	COOL 4°C		
6/26	0813	SD1304	SO	G	1			1	
	0820	SD1305	↓		1			~~1~~	~~MS/MSD~~
	0820	SAMPLE-MS			1			1	
	0820	SAMPLE-MSD			1			1	
	0830	SD1306			1			1	
	0000	FD062603O1			1			1	
	0838	SD1307			1			1	
	0843	SD1308			1			1	
	0935	SD1309			1			1	
	0940	SD1310			1			1	
	0948	SD1311			1			1	
	0955	SD1312			1			1	
	1002	SD1313			1			1	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	6-26-03	1500	1. RECEIVED BY J Perry	6/26/03	1505
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TINUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 1 | PAGE 2 OF 2

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
6710	NWS-EARLE	DAN WITT 412-921-7090	LIONVILLE LAB.
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: MATT COCHRAN 412-921-7090	ADDRESS: 208 WELSH POOL ROAD
Robert Pohlmann		CARRIER/WAYBILL NUMBER: DELIVER	CITY, STATE: LIONVILLE PA 19341

STANDARD TAT ☑
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE (YEAR 2003)	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: TAL METALS + TCL PCB 8 OZ GLASS	COMMENTS
						G	COOL 4°C		
6/26	1009	SD1314	SO	G	1	1			
	0000	FD062603Z			1	1			
	1019	SD1315			1	1			
	1030	SD1316			1	1			
	1036	SD1317			1	1			
	1045	SD1318			1	1			
	1055	SD1319			1	1			

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	6-26-03	1500	1. RECEIVED BY J Perry	6/26/03	1505
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
6710	NWS EARLE	PAM WITT 412-921-7090	LIONVILLE LAB, MARK HASLETT
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
K-1 S. Lyn		MATT COCHRAN 412-921-7090	208 WELSH POOL ROAD
		CARRIER/WAYBILL NUMBER	CITY, STATE
		DELIVERED KS/MC	LIONVILLE PA 19341

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE 2003	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: PCBs + TAL METALS	4 OZ	COMMENTS
		SITE 13				G				
9/25	1000	SD1320 0006	S	G	1	1				
	1004	SD1321 0006			1	1				
	1006	SD1321 1218			1	1				
	1010	SD1322 0006			2	2				RUN ALSO MS/MSD
	1020	SD1323 0006			1	1				
	1026	SD1324 0006			1	1				
	1030	SD1324 1218			1	1				
	1044	SD1325 0006			1	1				
	1052	SD1326 0006			1	1				
	1100	SD1326 1218			1	1				
	1106	SD1327 0006			1	1				
	1111	SD1328 1218			1	1				
↓	0000	FD 992503 01	↓	↓	1	1				DUP OF SD1324 0006

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY K-1 S. L.	9.25.03	1400	1. RECEIVED BY	9.25.03	1400
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

F.2 LOG SHEETS

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD1304
Sample Location: SD1304
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/20/03	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0813	0-6"	GREY	FINE SAND, DAMP
Method: DISP TROWEL			
Monitor Reading (ppm): N/A			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1 8OZ GLASS	✓	
TCL PCBS		✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD1305
Sample Location: SD1305
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/2/10/03	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0820	0-6"	GREY	FINE SAND, DAMP
Method: DISP TROWEL			
Monitor Reading (ppm): N/A			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1 8OZ GLASS ↓	✓	
TCL PCBS		✓	

OBSERVATIONS / NOTES:

SAMPLE - MS
SAMPLE - MSD
} COLLECTED

MAP:

Circle if Applicable:

MS/MSD ✓

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD 1306
Sample Location: SD 1306
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/26/03	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0830	0-6"	TAN	FINE SAND, DAMP
Method: DISP TROWEL			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8OZ GLASS	✓	
TCL PCBS		✓	

OBSERVATIONS / NOTES:

~~FD080802-01 COLLECTED~~ MM

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: ~~FD080802~~ MM

FD062603-01

Signature(s):

MM

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD1307
Sample Location: SD1307
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/26/03 Time: 0838 Method: DISP TROWEL Monitor Reading (ppm): N/A	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	OLIVE BROWN	FINE SAND, DAMP

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1-8OZ GLASS ↓	✓	
TCL PCBS		✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD1308
Sample Location: SD1308
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0843	0-6"	OLIVE GREEN	FINE SAND, DAMP
Method: DISP TROWEL			
Monitor Reading (ppm): N/A			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1 8 OZ GLASS ↓	✓	
TCL PCBS		✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

M

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD1309
Sample Location: SD1309
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10-26-03 / Time: 935 / Method: PUSH TROWEL / Monitor Reading (ppm): N/A	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	FINE SAND, ROOT MTL, SAT

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1 8 OZ	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD 13 10
Sample Location: SD 13 10
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 0940 / Method: DISP TROWEL / Monitor Reading (ppm): N/A	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT GREY	FINE SAND, ROOT MTL, SAT.

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8 OZ GLASS ↓	✓	
TCL PCBS		✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD 13 11
Sample Location: SD 13 11
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 0948 / Method: DISP TROWEL / Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	TAN	FINE SAND, SATURATED TR. ROOT MTL.

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8 OZ GLASS	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD1312
Sample Location: SD1312
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 0955 / Method: DISP TROWEL / Monitor Reading (ppm): NA	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	F-C SAND, TR. ROOTMTL. SATURATED

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8OZ GLASS	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD1313
Sample Location: SD1313
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10-26-03 / Time: 1002 / Method: DISP TROWEL / Monitor Reading (ppm): N/A	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	F: SAND + GRAVEL, SATURATED

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8OZ GLASS	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD1314
Sample Location: SD 13 14
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 1009 / Method: DISP TROWEL / Monitor Reading (ppm): N/A	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	F-C SAND, TR ROOTS SAT.

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8 OZ	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

SAMPLE COLLECTED ADJACENT TO OUTFALL

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	FD062603O2

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD13 15
Sample Location: SD 13 15
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 1019 / Method: DISP TROWEL / Monitor Reading (ppm): N/A	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	F-C SND. TR. ROOTS SATURATED

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8 OZ GLASS	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD1316
Sample Location: SD1316
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 1030 / Method: DISP TROWEL / Monitor Reading (ppm):	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	F-C SAND, SATURATED

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8OZ GLASS	✓	
TCL PCBS		✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD13 17
Sample Location: SP13 17
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1036	0-6"	LT BRN	F-C SAND, SATURATED
Method: DISP TROWEL			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8 OZ GLASS	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD1318
Sample Location: SD1318
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 1045 / Method: DISP TROWEL / Monitor Reading (ppm): NA	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	F-C SAND, SATURATED

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8 OZ GLASS	✓	
TCL PCBS	↓	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS EARLE
Project No.: N6710 PDI SEDIMENT SAMPLING

Sample ID No.: SD13 19
Sample Location: SD13 19
Sampled By: M. Cochran / B. Balkovec
C.O.C. No.: 1

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6-26-03 / Time: 1055 / Method: DISP TROWEL / Monitor Reading (ppm): N/A	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	LT BRN	F-C SAND, SATURATED

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	8 OZ GLASS	✓	
TCL PCBS	1	✓	

OBSERVATIONS / NOTES:

SAMPLE COLLECTED AT CULVERT.

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD 13 20 0006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1000	0-6"	BRN	F/M SAND, ROOTS, MOIST
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD13210006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1004	0-6"	BRN	F/M SAND, ROOTS, MOIST
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

K. F. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD1321 1218
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1006	KS ~~0~~ 12-18"	BRN	F/M SAND, ROOTS, MOIST
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s):

K. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD1322 0006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1010	0 - 6"	DARK BRN	SILT, ROOTS, MOIST
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date: / Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:			
Monitor Readings (Range in ppm):			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—
	2 X VOL FOR MS/MSD		

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD	Duplicate ID No.:
YES	—

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD1323 0006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1020	0 - 6"	BRN	SILT & F SAND, ROOTS, MOIST
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s):

K. E. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD1324-0006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
~~[X]~~ Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1026	0-6"	BRN	SILT & F SAND, ROOTS, MOIST
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—
	2X VOL FOR DUP		

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FD 092503 01

Signature(s):

K. E. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD1324-1218
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03 Time: 1030 Method: Disposable plastic trowel Monitor Reading (ppm): NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	12-18"	DARK BRN.	SILT TR. F SAND, ROOTS, MOIST

COMPOSITE SAMPLE DATA:

Date: Method: Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

K. S. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD13250006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03 Time: 1044 Method: Disposable plastic trowel Monitor Reading (ppm): NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	BLACK	SILT, SOME ROOTS, MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

K. S. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD1326 0006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1052	0-6"	BLACK	SILT, ROOTS/HIGHLY ORGANIC, MOIST
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD 13261218
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03 Time: 1100 Method: Disposable plastic trowel Monitor Reading (ppm): NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	12-18"	BLACK/TAN	SILT, TR ROOTS, MOIST BLACK TO 16" THEN F/M SAND-TAN 16 TO 18"

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

K. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SD13270006
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03 Time: 1106 Method: Disposable plastic trowel Monitor Reading (ppm): NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-6"	BRN	SILT, ROOTS, MOIST

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

K. S. Simpson

Tetra Tech NUS, Inc.

SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWS Earl, NJ
Project No.: CTO 851 N6710

Sample ID No.: SD1328 1218
Sample Location: Site 13
Sampled By: M. Cochran / K. Simpson
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/25/03	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1111	12-18"	BRN	F/M SAND, TR SILT, SOME ROOTS, TR GRAVEL ½" Ø
Method: Disposable plastic trowel			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PCBs & TAL Metals	8 OZ. w/m glass	✓	—

OBSERVATIONS / NOTES:

MAP:

SEE WORK PLAN FIGURE

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

F.3 DATA VALIDATION LETTERS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. WITT** **DATE:** **JULY 22, 2003**

FROM: **ERIN M. FAUST** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS**
CTO 851 NWS EARLE
SAMPLE DELIVERY GROUP (SDG) – 0306L699

SAMPLES: 18/Sediment/

FD06260301	FD06260302	SD1304
SD1305	SD1306	SD1307
SD1308	SD1309	SD1310
SD1311	SD1312	SD1313
SD1314	SD1315	SD1316
SD1317	SD1318	SD1319

Overview

The sample set for CTO 851, NWS, Earle, SDG 0306L699, consists of eighteen (18) sediment environmental samples. Two (2) field duplicate pairs (FD06260301 / SD1306 and FD06260302 / SD1314) are included within this SDG.

All samples were analyzed for target analyte list (TAL) metals. The samples were collected by Tetra Tech NUS on June 26, 2003 and analyzed by Lionville Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of mercury, were conducted using SW-846 method 6010B. Mercury analyses were conducted using SW-846 method 7471A.

Metals analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA).

The data was evaluated based on the following parameters:

*	• Data Completeness
*	• Holding Times
	• Calibration Data
*	• Laboratory Blank Analyses
*	• ICP Interference Check Sample Results
*	• Laboratory Control Sample Results
	• Matrix Spike Results
	• Laboratory Duplicate Results
*	• Field Duplicate Results
	• ICP Serial Dilution Results
*	• Sample Quanitation
*	• Detection Limits

* - All quality control criteria were met for this parameter.

Calibration Data

The final Contract Required Detection Limit (CRDL) percent recovery for aluminum was < 80% quality control limit. Positive results reported for aluminum were qualified as estimated, "J".

Matrix Spike Results

The Matrix Spike (MS) percent recoveries for antimony, cadmium, copper and lead were < 75% quality control limit. Positive results reported for these analytes were qualified as estimated, "J". Nondetected results reported for antimony and cadmium were qualified as estimated, "UJ".

Laboratory Duplicate Results

Laboratory duplicate imprecision (difference > 2X CRDL) was noted for cadmium and nickel. Positive results reported for cadmium and nickel were qualified as estimated, "J". Nondetected results reported for cadmium were qualified as estimated, "UJ".

ICP Serial Dilution Results

The ICP serial dilution percent difference for beryllium was > 10% quality control limit and the initial sample result was > 10X the instrument detection limit (IDL). The positive results, greater than the CRDL, reported for beryllium in samples SD1308 and SD1309 were qualified as estimated, "J".

Notes

The majority of the results reported by the laboratory in the electronic data deliverable (EDD) did not match the results reported on the hard-copy Form Is. The data reviewer corrected the results in the database to match those reported on the Form Is.

Sample descriptions are not included on the Form Is.

The laboratory incorrectly listed the true value of vanadium in the CRDL standard on the Form 2B as 100 ug/l. The data reviewer contacted the laboratory to verify the true value of vanadium in this standard. The laboratory confirmed that the true value should have been listed as 10 ug/l and a replacement form 2B was issued by the laboratory.

The initial CRDL percent recovery for thallium was > 120% quality control limit. No validation action was required because all results for thallium were reported as nondetected by the laboratory.

The Matrix Spike Duplicate (MSD) percent recoveries for chromium, lead and silver were > 125% quality control limit. The MSD percent recovery for cadmium was < 75% quality control limit. No validation action was taken based on the MSD percent recoveries.

The MS percent recoveries for aluminum, iron and silver and the MSD percent recoveries for aluminum and iron were outside of the 75-125% quality control limits; however, no validation action was necessary because the initial samples results were greater than four times the amounts of these analytes added in the spiking solution.

The ICP serial dilution percent differences for antimony and sodium were > 10% quality control limit and the initial sample results were > 10X the instrument detection limit (IDL) for these analytes. No validation action was required because all reported results for these analytes were < CRDL.

Executive Summary

Laboratory Performance: Aluminum was qualified due to calibration noncompliance. Laboratory duplicate imprecision was noted for cadmium and nickel. The results in the laboratory EDD did not match the results reported on the Form Is.

Other Factors Affecting Data Quality: Antimony, cadmium, copper and lead were qualified due to MS noncompliance. Beryllium was qualified due to ICP serial dilution noncompliance in two samples.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", as amended for use within EPA Region II, January 1992 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Erin M Faust

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4. Appendix D - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: M

nsample	FD06260301	nsample	FD06260302	nsample	SD1304
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-004	lab_id	0306L699-013	lab_id	0306L699-001
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	85.6	Pct_Solids	77.9	Pct_Solids	89.2
DUP_OF:	SD1306	DUP_OF:	SD1314	DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1460	J	C
ANTIMONY	0.65	J	D
ARSENIC	2.8		
BARIUM	3.3		
BERYLLIUM	0.21		
CADMIUM	0.04	UJ	DF
CALCIUM	32.5		
CHROMIUM	22.8		
COBALT	0.10	U	
COPPER	10.4	J	D
IRON	6590		
LEAD	28.5	J	D
MAGNESIUM	295		
MANGANESE	10.1		
MERCURY	0.08		
NICKEL	1.3	J	F
POTASSIUM	1120		
SELENIUM	0.41	U	
SILVER	9.7		
SODIUM	15.1		
THALLIUM	0.43	U	
VANADIUM	20.3		
ZINC	11.4		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	686	J	C
ANTIMONY	0.36	J	D
ARSENIC	1.2		
BARIUM	0.85		
BERYLLIUM	0.15		
CADMIUM	0.05	UJ	DF
CALCIUM	20.2		
CHROMIUM	39.4		
COBALT	0.13	U	
COPPER	0.49	J	D
IRON	2520		
LEAD	3.0	J	D
MAGNESIUM	153		
MANGANESE	3.5		
MERCURY	0.02	U	
NICKEL	0.34	J	F
POTASSIUM	444		
SELENIUM	0.53	U	
SILVER	0.15	U	
SODIUM	15.8		
THALLIUM	0.57	U	
VANADIUM	14.6		
ZINC	3.8		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1380	J	C
ANTIMONY	1.1	J	D
ARSENIC	2.5		
BARIUM	4.6		
BERYLLIUM	0.15		
CADMIUM	0.14	J	DF
CALCIUM	49.4		
CHROMIUM	19.1		
COBALT	0.10	U	
COPPER	10.7	J	D
IRON	5900		
LEAD	30.8	J	D
MAGNESIUM	254		
MANGANESE	12.4		
MERCURY	0.12		
NICKEL	1.2	J	F
POTASSIUM	741		
SELENIUM	0.41	U	
SILVER	10.9		
SODIUM	18.6		
THALLIUM	0.44	U	
VANADIUM	18.4		
ZINC	14.6		

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: M

nsample	SD1305	nsample	SD1306	nsample	SD1307
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-002	lab_id	0306L699-003	lab_id	0306L699-005
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	91	Pct_Solids	84.2	Pct_Solids	91.9
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	2150	J	C
ANTIMONY	2.3	J	D
ARSENIC	4.5		
BARIUM	35.3		
BERYLLIUM	0.20		
CADMIUM	3.1	J	DF
CALCIUM	88.6		
CHROMIUM	30.1		
COBALT	2.9		
COPPER	61.9	J	D
IRON	14300		
LEAD	112	J	D
MAGNESIUM	289		
MANGANESE	28.8		
MERCURY	0.23		
NICKEL	14.3	J	F
POTASSIUM	821		
SELENIUM	0.72		
SILVER	34.3		
SODIUM	17.0		
THALLIUM	0.32	U	
VANADIUM	24.9		
ZINC	47.9		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1340	J	C
ANTIMONY	1.3	J	D
ARSENIC	3.3		
BARIUM	3.4		
BERYLLIUM	0.21		
CADMIUM	0.16	J	DF
CALCIUM	33.6		
CHROMIUM	21.7		
COBALT	0.25		
COPPER	11.2	J	D
IRON	7370		
LEAD	30.5	J	D
MAGNESIUM	258		
MANGANESE	16.5		
MERCURY	0.11		
NICKEL	2.1	J	F
POTASSIUM	788		
SELENIUM	0.50	U	
SILVER	20.9		
SODIUM	14.0		
THALLIUM	0.53	U	
VANADIUM	18.3		
ZINC	18.2		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	2180	J	C
ANTIMONY	1.2	J	D
ARSENIC	3.5		
BARIUM	3.2		
BERYLLIUM	0.31		
CADMIUM	0.04	UJ	DF
CALCIUM	34.5		
CHROMIUM	43.8		
COBALT	0.29		
COPPER	8.5	J	D
IRON	10700		
LEAD	37.2	J	D
MAGNESIUM	497		
MANGANESE	22.4		
MERCURY	0.15		
NICKEL	2.2	J	F
POTASSIUM	1500		
SELENIUM	0.49		
SILVER	13.1		
SODIUM	15.7		
THALLIUM	0.46	U	
VANADIUM	44.2		
ZINC	13.4		

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: M

nsample	SD1308	nsample	SD1309	nsample	SD1310
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-006	lab_id	0306L699-007	lab_id	0306L699-008
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	93.6	Pct_Solids	90.1	Pct_Solids	79.7
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	2650	J	C
ANTIMONY	0.53	J	D
ARSENIC	4.1		
BARIUM	3.4		
BERYLLIUM	0.42	J	I
CADMIUM	0.04	J	DF
CALCIUM	88.2		
CHROMIUM	59.5		
COBALT	0.22		
COPPER	1.8	J	D
IRON	11400		
LEAD	7.2	J	D
MAGNESIUM	740		
MANGANESE	9.3		
MERCURY	0.01	U	
NICKEL	1.5	J	F
POTASSIUM	2290		
SELENIUM	0.34	U	
SILVER	1.6		
SODIUM	13.1		
THALLIUM	0.36	U	
VANADIUM	61.7		
ZINC	59.8		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	4180	J	C
ANTIMONY	0.85	J	D
ARSENIC	11.1		
BARIUM	3.9		
BERYLLIUM	0.60	J	I
CADMIUM	0.04	UJ	DF
CALCIUM	73.8		
CHROMIUM	110		
COBALT	0.23		
COPPER	3.2	J	D
IRON	16200		
LEAD	13.4	J	D
MAGNESIUM	956		
MANGANESE	8.1		
MERCURY	0.03		
NICKEL	1.8	J	F
POTASSIUM	2730		
SELENIUM	0.55		
SILVER	0.73		
SODIUM	18.9		
THALLIUM	0.48	U	
VANADIUM	64.6		
ZINC	16.5		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	3150	J	C
ANTIMONY	0.55	J	D
ARSENIC	4.9		
BARIUM	5.5		
BERYLLIUM	0.30		
CADMIUM	0.04	UJ	DF
CALCIUM	92.3		
CHROMIUM	46.1		
COBALT	0.25		
COPPER	4.4	J	D
IRON	8920		
LEAD	14.5	J	D
MAGNESIUM	491		
MANGANESE	18.7		
MERCURY	0.08		
NICKEL	1.4	J	F
POTASSIUM	1360		
SELENIUM	0.46	U	
SILVER	0.34		
SODIUM	17.1		
THALLIUM	0.50	U	
VANADIUM	39.7		
ZINC	10.5		

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: M

nsample	SD1311	nsample	SD1312	nsample	SD1313
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-009	lab_id	0306L699-010	lab_id	0306L699-011
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	76.3	Pct_Solids	76.2	Pct_Solids	79.6
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1710	J	C
ANTIMONY	0.55	J	D
ARSENIC	2.0		
BARIUM	1.3		
BERYLLIUM	0.29		
CADMIUM	0.04	UJ	DF
CALCIUM	20.1		
CHROMIUM	45.0		
COBALT	0.11	U	
COPPER	1.5	J	D
IRON	4940		
LEAD	7.4	J	D
MAGNESIUM	368		
MANGANESE	2.1		
MERCURY	0.02		
NICKEL	0.91	J	F
POTASSIUM	1200		
SELENIUM	0.46	U	
SILVER	0.13	U	
SODIUM	16.8		
THALLIUM	0.50	U	
VANADIUM	23.7		
ZINC	5.9		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	944	J	C
ANTIMONY	0.40	J	D
ARSENIC	1.3		
BARIUM	1.3		
BERYLLIUM	0.21		
CADMIUM	0.05	UJ	DF
CALCIUM	41.6		
CHROMIUM	27.9		
COBALT	0.12	U	
COPPER	1.0	J	D
IRON	3380		
LEAD	3.1	J	D
MAGNESIUM	176		
MANGANESE	2.9		
MERCURY	0.04		
NICKEL	0.66	J	F
POTASSIUM	574		
SELENIUM	0.50	U	
SILVER	0.14	U	
SODIUM	30.3		
THALLIUM	0.53	U	
VANADIUM	13.6		
ZINC	5.2		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	823	J	C
ANTIMONY	0.25	UJ	D
ARSENIC	0.65		
BARIUM	1.9		
BERYLLIUM	0.15		
CADMIUM	0.04	UJ	DF
CALCIUM	81.4		
CHROMIUM	34.8		
COBALT	0.38		
COPPER	0.70	J	D
IRON	2990		
LEAD	360	J	D
MAGNESIUM	139		
MANGANESE	4.4		
MERCURY	0.02	U	
NICKEL	0.87	J	F
POTASSIUM	366		
SELENIUM	0.47	U	
SILVER	0.13	U	
SODIUM	18.9		
THALLIUM	0.50	U	
VANADIUM	8.2		
ZINC	20.6		

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: M

nsample	SD1314	nsample	SD1315	nsample	SD1316
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-012	lab_id	0306L699-014	lab_id	0306L699-015
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	79.6	Pct_Solids	73.8	Pct_Solids	77.8
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	818	J	C
ANTIMONY	0.25	UJ	D
ARSENIC	0.86		
BARIUM	2.4		
BERYLLIUM	0.16		
CADMIUM	0.05	UJ	DF
CALCIUM	524		
CHROMIUM	29.7		
COBALT	0.11	U	
COPPER	0.64	J	D
IRON	2430		
LEAD	3.3	J	D
MAGNESIUM	184		
MANGANESE	5.9		
MERCURY	0.03		
NICKEL	0.42	J	F
POTASSIUM	436		
SELENIUM	0.48	U	
SILVER	0.14	U	
SODIUM	17.1		
THALLIUM	0.51	U	
VANADIUM	10.4		
ZINC	3.4		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1120	J	C
ANTIMONY	0.27	UJ	D
ARSENIC	1.0		
BARIUM	0.95		
BERYLLIUM	0.14		
CADMIUM	0.05	UJ	DF
CALCIUM	25.9		
CHROMIUM	26.8		
COBALT	0.12	U	
COPPER	1.3	J	D
IRON	4010		
LEAD	3.4	J	D
MAGNESIUM	259		
MANGANESE	4.5		
MERCURY	0.02	U	
NICKEL	0.82	J	F
POTASSIUM	756		
SELENIUM	0.51	U	
SILVER	0.15	U	
SODIUM	14.2		
THALLIUM	0.55	U	
VANADIUM	14.5		
ZINC	5.2		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	443	J	C
ANTIMONY	0.27	UJ	D
ARSENIC	0.56		
BARIUM	0.95		
BERYLLIUM	0.07		
CADMIUM	0.05	UJ	DF
CALCIUM	21.8		
CHROMIUM	9.6		
COBALT	0.12	U	
COPPER	0.45	J	D
IRON	1350		
LEAD	1.6	J	D
MAGNESIUM	74.7		
MANGANESE	1.8		
MERCURY	0.02	U	
NICKEL	0.34	J	F
POTASSIUM	210		
SELENIUM	0.52	U	
SILVER	0.15	U	
SODIUM	15.4		
THALLIUM	0.56	U	
VANADIUM	7.0		
ZINC	3.5		

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: M

nsample	SD1317	nsample	SD1318	nsample	SD1319
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-016	lab_id	0306L699-017	lab_id	0306L699-018
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	78.2	Pct_Solids	80.2	Pct_Solids	79.6
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	635	J	C
ANTIMONY	0.22	UJ	D
ARSENIC	0.60		
BARIUM	0.96		
BERYLLIUM	0.07		
CADMIUM	0.04	UJ	DF
CALCIUM	23.3		
CHROMIUM	13.5		
COBALT	0.10	U	
COPPER	0.72	J	D
IRON	2030		
LEAD	2.7	J	D
MAGNESIUM	119		
MANGANESE	4.7		
MERCURY	0.02	U	
NICKEL	0.45	J	F
POTASSIUM	330		
SELENIUM	0.43	U	
SILVER	0.12	U	
SODIUM	10.8		
THALLIUM	0.46	U	
VANADIUM	9.3		
ZINC	4.0		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	753	J	C
ANTIMONY	0.23	UJ	D
ARSENIC	0.52		
BARIUM	1.2		
BERYLLIUM	0.10		
CADMIUM	0.04	UJ	DF
CALCIUM	135		
CHROMIUM	12.5		
COBALT	0.17		
COPPER	0.87	J	D
IRON	2190		
LEAD	2.4	J	D
MAGNESIUM	172		
MANGANESE	9.7		
MERCURY	0.02	U	
NICKEL	0.64	J	F
POTASSIUM	450		
SELENIUM	0.45	U	
SILVER	0.13	U	
SODIUM	13.4		
THALLIUM	0.48	U	
VANADIUM	9.3		
ZINC	6.4		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	975	J	C
ANTIMONY	0.26	UJ	D
ARSENIC	0.99		
BARIUM	3.6		
BERYLLIUM	0.06		
CADMIUM	0.05	J	DF
CALCIUM	275		
CHROMIUM	6.1		
COBALT	0.78		
COPPER	2.9	J	D
IRON	3490		
LEAD	4.2	J	D
MAGNESIUM	163		
MANGANESE	27.0		
MERCURY	0.02		
NICKEL	1.5	J	F
POTASSIUM	201		
SELENIUM	0.49	U	
SILVER	3.4		
SODIUM	18.3		
THALLIUM	0.53	U	
VANADIUM	6.0		
ZINC	16.3		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. WITT** **DATE:** **JULY 22, 2003**

FROM: **EDWARD SEDLMYER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PCB**
CTO 851, NWS EARLE
SDG 0306L699

SAMPLES: 18 / Soil

FD06260301	FD06260302	SD1304
SD1305	SD1306	SD1307
SD1308	SD1309	SD1310
SD1311	SD1312	SD1313
SD1314	SD1315	SD1316
SD1317	SD1318	SD1319

OVERVIEW

The sample set for CTO 851; SDG 0306L699, NWS Earle consists of eighteen (18) soil samples. Two field duplicates were included with this SDG: FD06260301/SD1306 and FD06260302/SD1314. All samples were analyzed for polychlorinated biphenyls (PCBs).

The samples were collected by TetraTech NUS on June 26, 2003 and analyzed by Lionville Laboratory Inc. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial/continuing calibrations
* • Laboratory method blank results
* • Surrogate Recoveries
* • Blank Spike/Blank Spike Duplicate Results
* • Matrix Spike/Matrix Spike Duplicate Results
* • Compound Quantitation
* • Compound Identification
* • Detection Limits

The symbol (*) indicates that quality control criteria were not met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix D. Qualified Analytical results are presented in Appendix A. EPA Region II worksheets are presented in Appendix C.

PCBs

The recoveries for the MS/MSD performed on sample SD1305 could not be calculated because of a dilution performed due to high concentrations of PCBs

Sample dilutions were responsible for elevated detection limits in the following samples: FD06260301, SD1304, SD1305, SD1306, and SD1307.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None.

Other factors affecting data quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), EPA Region II Validation Guidelines (01/92), and the NFESC guidelines IRCDQM (Sept., 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS

Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Region II Worksheets
Appendix D – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	FD06260301	nsample	FD06260302	nsample	SD1304
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-004	lab_id	0306L699-013	lab_id	0306L699-001
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	86	Pct_Solids	78	Pct_Solids	89
DUP_OF:	SD1306	DUP_OF:	SD1314	DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	390	U	
AROCLOR-1221	780	U	
AROCLOR-1232	390	U	
AROCLOR-1242	390	U	
AROCLOR-1248	390	U	
AROCLOR-1254	860		
AROCLOR-1260	390	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	43	U	
AROCLOR-1221	86	U	
AROCLOR-1232	43	U	
AROCLOR-1242	43	U	
AROCLOR-1248	43	U	
AROCLOR-1254	43	U	
AROCLOR-1260	43	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	370	U	
AROCLOR-1221	750	U	
AROCLOR-1232	370	U	
AROCLOR-1242	370	U	
AROCLOR-1248	370	U	
AROCLOR-1254	1000		
AROCLOR-1260	370	U	

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD1305	nsample	SD1306	nsample	SD1307
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-002	lab_id	0306L699-003	lab_id	0306L699-005
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	91	Pct_Solids	84	Pct_Solids	92
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	370	U	
AROCLOR-1221	730	U	
AROCLOR-1232	370	U	
AROCLOR-1242	370	U	
AROCLOR-1248	370	U	
AROCLOR-1254	2000		
AROCLOR-1260	370	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	400	U	
AROCLOR-1221	790	U	
AROCLOR-1232	400	U	
AROCLOR-1242	400	U	
AROCLOR-1248	400	U	
AROCLOR-1254	940		
AROCLOR-1260	400	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	360	U	
AROCLOR-1221	730	U	
AROCLOR-1232	360	U	
AROCLOR-1242	360	U	
AROCLOR-1248	360	U	
AROCLOR-1254	360	U	
AROCLOR-1260	1800		

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD1308	nsample	SD1309	nsample	SD1310
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-006	lab_id	0306L699-007	lab_id	0306L699-008
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	94	Pct_Solids	90	Pct_Solids	80
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	36	U	
AROCLOR-1221	71	U	
AROCLOR-1232	36	U	
AROCLOR-1242	36	U	
AROCLOR-1248	36	U	
AROCLOR-1254	36	U	
AROCLOR-1260	36	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	37	U	
AROCLOR-1221	74	U	
AROCLOR-1232	37	U	
AROCLOR-1242	37	U	
AROCLOR-1248	37	U	
AROCLOR-1254	37	U	
AROCLOR-1260	37	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	42	U	
AROCLOR-1221	84	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	42	U	
AROCLOR-1260	42	U	

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD1311	nsample	SD1312	nsample	SD1313
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-009	lab_id	0306L699-010	lab_id	0306L699-011
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	76	Pct_Solids	76	Pct_Solids	80
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	44	U	
AROCLOR-1221	87	U	
AROCLOR-1232	44	U	
AROCLOR-1242	44	U	
AROCLOR-1248	44	U	
AROCLOR-1254	44	U	
AROCLOR-1260	44	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	44	U	
AROCLOR-1221	87	U	
AROCLOR-1232	44	U	
AROCLOR-1242	44	U	
AROCLOR-1248	44	U	
AROCLOR-1254	44	U	
AROCLOR-1260	44	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	42	U	
AROCLOR-1221	84	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	42	U	
AROCLOR-1260	42	U	

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD1314	nsample	SD1315	nsample	SD1316
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-012	lab_id	0306L699-014	lab_id	0306L699-015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	80	Pct_Solids	74	Pct_Solids	78
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	42	U	
AROCLOR-1221	84	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	42	U	
AROCLOR-1260	42	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	45	U	
AROCLOR-1221	90	U	
AROCLOR-1232	45	U	
AROCLOR-1242	45	U	
AROCLOR-1248	45	U	
AROCLOR-1254	45	U	
AROCLOR-1260	45	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	43	U	
AROCLOR-1221	86	U	
AROCLOR-1232	43	U	
AROCLOR-1242	43	U	
AROCLOR-1248	43	U	
AROCLOR-1254	43	U	
AROCLOR-1260	43	U	

PROJ_NO: 6710

SDG: 0306L699 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD1317	nsample	SD1318	nsample	SD1319
samp_date	6/26/2003	samp_date	6/26/2003	samp_date	6/26/2003
lab_id	0306L699-016	lab_id	0306L699-017	lab_id	0306L699-018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	78	Pct_Solids	80	Pct_Solids	80
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	43	U	
AROCLOR-1221	85	U	
AROCLOR-1232	43	U	
AROCLOR-1242	43	U	
AROCLOR-1248	43	U	
AROCLOR-1254	43	U	
AROCLOR-1260	43	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	42	U	
AROCLOR-1221	83	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	42	U	
AROCLOR-1260	42	U	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	42	U	
AROCLOR-1221	84	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	42	U	
AROCLOR-1260	42	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. WITT** **DATE:** **OCTOBER 24, 2003**

FROM: **JACQUELINE J. RASPANTI** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS**
CTO-851 NWS EARLE
SAMPLE DELIVERY GROUP (SDG) – 0309L573

SAMPLES: 13/Sediment/

FD09250301	SD13200006	SD13210006
SD13211218	SD13220006	SD13230006
SD13240006	SD13241218	SD13250006
SD13260006	SD13261218	SD13270006
SD13281218		

Overview

The sample set for CTO 851, NWS, Earle, SDG 0309L573, consists of thirteen (13) sediment environmental samples. One (1) field duplicate pair (FD09250301 / SD13240006) is included within this SDG.

All samples were analyzed for target analyte list (TAL) metals. The samples were collected by Tetra Tech NUS on September 25, 2003 and analyzed by Lionville Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of mercury, were conducted using SW-846 method 6010B. Mercury analyses were conducted using SW-846 method 7471A.

Metals analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA).

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Calibration Data
* • Laboratory Blank Analyses
* • ICP Interference Check Sample Results
* • Laboratory Control Sample Results
• Matrix Spike Results
* • Laboratory Duplicate Results
• Field Duplicate Results
• ICP Serial Dilution Results
* • Sample Quanitation
• Detection Limits

* - All quality control criteria were met for this parameter.

Calibration Data

The Contract Required Detection Limit (CRDL) percent recovery (%R) for mercury was > 120% quality control limit. Positive results reported for mercury were qualified as estimated (J).

Matrix Spike Results

The Matrix Spike (MS) %R for antimony was < 75% quality control limit. Positive results reported for antimony were qualified as estimated (J).

The MS %R's for potassium and vanadium were > 125% quality control limit. Positive results reported for potassium and vanadium were qualified as estimated (J).

Field Duplicate Results

Field duplicate imprecision (difference > 2X CRDL) was noted for arsenic, potassium, and vanadium. Positive results reported for arsenic, potassium, and vanadium were qualified as estimated (J).

ICP Serial Dilution Results

The ICP serial dilution percent difference for beryllium was > 10% quality control limit and the initial sample result was > 10X the instrument detection limit (IDL). The positive results > CRDL reported beryllium in the samples were qualified as estimated (J).

Detection Limits

Percent solids in sediment samples SD13250006 and SD13260006 were < 50% quality control limit. All the results reported for these samples were qualified as estimated (J).

Notes

The sample identification numbers for Lionville Laboratory were truncated by the laboratory due to limitations in their data reporting software. The data reviewer did not amend the Form 1's.

Sample descriptions are not included on the Form 1's.

The CRDL's were not displayed on the Form 10's in the data package. CRDL's from the USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Document Number ILM04.0, were used to evaluate the data.

The MS percent recoveries for aluminum, chromium, iron, mercury, and silver and the MSD percent recoveries for aluminum, chromium, iron, lead, mercury, and silver were outside of the 75-125% quality control limits. No validation action was necessary because the initial samples results were greater than four times the amounts of these analytes added in the spiking solution.

The ICP serial dilution percent differences for antimony and cobalt were > 10% quality control limit and the initial sample results were > 10X the instrument detection limit (IDL) for these analytes. No validation action was required because all reported results for these analytes were < CRDL.

The qualifier code Y used in this package stands for percent solids < 50%.

Executive Summary

Laboratory Performance: Mercury was qualified due to calibration noncompliance.

Other Factors Affecting Data Quality: Antimony, potassium, and vanadium were qualified due to MS noncompliance. Arsenic, potassium, and vanadium were qualified due to field duplicate imprecision. Beryllium was qualified due to ICP serial dilution noncompliance. Two samples were qualified due to percent solids being < 50%.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", as amended for use within EPA Region II, January 1992 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Jacqueline J. Raspanti
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4. Appendix D - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferenc
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <~~30%~~50%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: M

nsample	FD09250301	nsample	SD13200006	nsample	SD13210006
samp_date	9/25/2003	samp_date	9/25/2003	samp_date	9/25/2003
lab_id	0309L573-013	lab_id	0309L573-001	lab_id	0309L573-002
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	87	Pct_Solids	87.4	Pct_Solids	93.4
DUP_OF:	SD13240006	DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1520		
ANTIMONY	1.0	J	D
ARSENIC	4.1	J	G
BARIUM	6.2		
BERYLLIUM	0.21		
CADMIUM	0.51		
CALCIUM	137		
CHROMIUM	41.3		
COBALT	0.48		
COPPER	15.7		
IRON	9330		
LEAD	33.0		
MAGNESIUM	287		
MANGANESE	17.4		
MERCURY	0.16	J	C
NICKEL	2.8		
POTASSIUM	872	J	DG
SELENIUM	0.33	U	
SILVER	11.6		
SODIUM	14.4		
THALLIUM	0.62	U	
VANADIUM	24.8	J	DG
ZINC	22.8		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	2080		
ANTIMONY	0.56	J	D
ARSENIC	2.9	J	G
BARIUM	4.0		
BERYLLIUM	0.26		
CADMIUM	0.14		
CALCIUM	51.4		
CHROMIUM	36.9		
COBALT	0.36		
COPPER	3.8		
IRON	9080		
LEAD	11.5		
MAGNESIUM	467		
MANGANESE	9.7		
MERCURY	0.36	J	C
NICKEL	1.4		
POTASSIUM	1420	J	DG
SELENIUM	0.25	U	
SILVER	14.3		
SODIUM	15.0		
THALLIUM	0.47	U	
VANADIUM	39.4	J	DG
ZINC	16.5		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1500		
ANTIMONY	0.46	J	D
ARSENIC	2.5	J	G
BARIUM	2.4		
BERYLLIUM	0.18		
CADMIUM	0.07		
CALCIUM	29.8		
CHROMIUM	30.9		
COBALT	0.30		
COPPER	3.6		
IRON	7300		
LEAD	14.9		
MAGNESIUM	363		
MANGANESE	6.1		
MERCURY	0.06	J	C
NICKEL	1.1		
POTASSIUM	1100	J	DG
SELENIUM	0.30	U	
SILVER	4.5		
SODIUM	9.3		
THALLIUM	0.56	U	
VANADIUM	32.9	J	DG
ZINC	8.5		

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: M

nsample	SD13211218	nsample	SD13220006	nsample	SD13230006
samp_date	9/25/2003	samp_date	9/25/2003	samp_date	9/25/2003
lab_id	0309L573-003	lab_id	0309L573-004	lab_id	0309L573-005
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	79.4	Pct_Solids	63.9	Pct_Solids	88.9
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6090		
ANTIMONY	1.8	J	D
ARSENIC	8.1	J	G
BARIUM	12.5		
BERYLLIUM	0.62	J	I
CADMIUM	0.63		
CALCIUM	157		
CHROMIUM	88.2		
COBALT	0.98		
COPPER	25.2		
IRON	21700		
LEAD	106		
MAGNESIUM	1310		
MANGANESE	22.3		
MERCURY	0.38	J	C
NICKEL	4.2		
POTASSIUM	3650	J	DG
SELENIUM	0.35	U	
SILVER	18.2		
SODIUM	24.3		
THALLIUM	0.67	U	
VANADIUM	87.0	J	DG
ZINC	33.2		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	22000		
ANTIMONY	7.9	J	D
ARSENIC	37.0	J	G
BARIUM	32.8		
BERYLLIUM	1.8	J	I
CADMIUM	2.2		
CALCIUM	133		
CHROMIUM	284		
COBALT	2.6		
COPPER	109		
IRON	69200		
LEAD	302		
MAGNESIUM	3870		
MANGANESE	48.7		
MERCURY	2.0	J	C
NICKEL	13.4		
POTASSIUM	11100	J	DG
SELENIUM	1.4		
SILVER	55.8		
SODIUM	57.0		
THALLIUM	0.85	U	
VANADIUM	253	J	DG
ZINC	108		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1800		
ANTIMONY	2.0	J	D
ARSENIC	5.3	J	G
BARIUM	6.9		
BERYLLIUM	0.20		
CADMIUM	0.46		
CALCIUM	60.0		
CHROMIUM	31.3		
COBALT	0.82		
COPPER	42.8		
IRON	16600		
LEAD	116		
MAGNESIUM	379		
MANGANESE	49.9		
MERCURY	0.51	J	C
NICKEL	4.1		
POTASSIUM	912	J	DG
SELENIUM	0.27	U	
SILVER	42.3		
SODIUM	15.2		
THALLIUM	0.51	U	
VANADIUM	25.4	J	DG
ZINC	86.5		

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: M

nsample	SD13240006	nsample	SD13241218	nsample	SD13250006
samp_date	9/25/2003	samp_date	9/25/2003	samp_date	9/25/2003
lab_id	0309L573-006	lab_id	0309L573-007	lab_id	0309L573-008
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	88.2	Pct_Solids	60.3	Pct_Solids	43
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	3360		
ANTIMONY	1.1	J	D
ARSENIC	7.5	J	G
BARIUM	5.1		
BERYLLIUM	0.36		
CADMIUM	0.46		
CALCIUM	106		
CHROMIUM	84.5		
COBALT	0.32		
COPPER	12.4		
IRON	15700		
LEAD	33.7		
MAGNESIUM	623		
MANGANESE	9.0		
MERCURY	0.19	J	C
NICKEL	2.3		
POTASSIUM	2080	J	DG
SELENIUM	0.49		
SILVER	7.6		
SODIUM	14.0		
THALLIUM	0.48	U	
VANADIUM	44.1	J	DG
ZINC	22.4		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	12400		
ANTIMONY	8.1	J	D
ARSENIC	21.7	J	G
BARIUM	38.2		
BERYLLIUM	0.80		
CADMIUM	3.3		
CALCIUM	221		
CHROMIUM	122		
COBALT	1.9		
COPPER	114		
IRON	37700		
LEAD	435		
MAGNESIUM	1420		
MANGANESE	49.1		
MERCURY	2.6	J	C
NICKEL	10.3		
POTASSIUM	3930	J	DG
SELENIUM	1.6		
SILVER	76.6		
SODIUM	49.1		
THALLIUM	0.89	U	
VANADIUM	112	J	DG
ZINC	110		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5150	J	Y
ANTIMONY	2.7	J	DY
ARSENIC	10	J	GY
BARIUM	41.4	J	Y
BERYLLIUM	0.53	J	Y
CADMIUM	2.2	J	Y
CALCIUM	235	J	Y
CHROMIUM	39.0	J	Y
COBALT	0.83	J	Y
COPPER	36.9	J	Y
IRON	12500	J	Y
LEAD	88.4	J	Y
MAGNESIUM	315	J	Y
MANGANESE	12.6	J	Y
MERCURY	0.46	J	CY
NICKEL	5.8	J	Y
POTASSIUM	874	J	DGY
SELENIUM	1.7	J	Y
SILVER	12.3	J	Y
SODIUM	34.8	J	Y
THALLIUM	1.3	U	
VANADIUM	31.4	J	DGY
ZINC	53.7	J	Y

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: M

nsample	SD13260006	nsample	SD13261218	nsample	SD13270006
samp_date	9/25/2003	samp_date	9/25/2003	samp_date	9/25/2003
lab_Id	0309L573-009	lab_Id	0309L573-010	lab_id	0309L573-011
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	44.6	Pct_Solids	82.7	Pct_Solids	63.7
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	12000	J	Y
ANTIMONY	7.7	J	DY
ARSENIC	28.7	J	GY
BARIUM	47.2	J	Y
BERYLLIUM	0.80	J	Y
CADMIUM	6.8	J	Y
CALCIUM	303	J	Y
CHROMIUM	118	J	Y
COBALT	2.5	J	Y
COPPER	96.8	J	Y
IRON	33600	J	Y
LEAD	290	J	Y
MAGNESIUM	1320	J	Y
MANGANESE	25.9	J	Y
MERCURY	1.8	J	CY
NICKEL	14.6	J	Y
POTASSIUM	3800	J	DGY
SELENIUM	2.7	J	Y
SILVER	60.7	J	Y
SODIUM	87.8	J	Y
THALLIUM	1.2	U	
VANADIUM	118	J	DGY
ZINC	175	J	Y

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1260		
ANTIMONY	1.2	J	D
ARSENIC	1.7	J	G
BARIUM	7.2		
BERYLLIUM	0.14		
CADMIUM	0.84		
CALCIUM	41.6		
CHROMIUM	292		
COBALT	0.22		
COPPER	7.6		
IRON	2540		
LEAD	23.8		
MAGNESIUM	126		
MANGANESE	4.9		
MERCURY	0.37	J	C
NICKEL	1.5		
POTASSIUM	378	J	DG
SELENIUM	0.68		
SILVER	4.4		
SODIUM	13.3		
THALLIUM	0.60	U	
VANADIUM	9.9	J	DG
ZINC	17.7		

Parameter	Result	Val Qual	Qual Code
ALUMINUM	16800		
ANTIMONY	4.8	J	D
ARSENIC	23.4	J	G
BARIUM	36.0		
BERYLLIUM	0.92	J	I
CADMIUM	2.9		
CALCIUM	123		
CHROMIUM	132		
COBALT	1.7		
COPPER	91.5		
IRON	40300		
LEAD	231		
MAGNESIUM	1530		
MANGANESE	24.5		
MERCURY	1.8	J	C
NICKEL	9.8		
POTASSIUM	4420	J	DG
SELENIUM	2.4		
SILVER	79.5		
SODIUM	42.3		
THALLIUM	0.82	U	
VANADIUM	120	J	DG
ZINC	73.0		

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: M

nsample	SD13281218
samp_date	9/25/2003
lab_id	0309L573-012
qc_type	NM
units	MG/KG
Pct_Solids	86.6
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	1360		
ANTIMONY	1.5	J	D
ARSENIC	1.8	J	G
BARIUM	3.0		
BERYLLIUM	0.22		
CADMIUM	0.07		
CALCIUM	36.1		
CHROMIUM	28.9		
COBALT	0.55		
COPPER	18.3		
IRON	8500		
LEAD	118		
MAGNESIUM	249		
MANGANESE	30.7		
MERCURY	0.11	J	C
NICKEL	2.9		
POTASSIUM	788	J	DG
SELENIUM	0.33	U	
SILVER	8.3		
SODIUM	12.7		
THALLIUM	0.63	U	
VANADIUM	29.2	J	DG
ZINC	12.7		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: D. WITT **DATE: OCTOBER 27, 2003**

FROM: SETH C. STAFFEN **CC:** DV FILE

SUBJECT: **ORGANIC DATA VALIDATION – PCB**
CTO 851, NWS EARLE
SDG: 309L573

SAMPLES: 13/Solid

FD092503 01	SD13200006	SD13210006
SD13211218	SD13220006	SD13230006
SD13240006	SD13241218	SD13250006
SD13260006	SD13261218	SD13270006
SD13271218		

OVERVIEW

The sample set for CTO 851, NWS Earle, SDG: 309L573, consisted of thirteen (13) sediment environmental samples. The samples were analyzed for polychlorinated biphenyls (PCBs). One field duplicate pair was included within this SDG: FD09250301 / SD13240006.

The samples were collected by Tetra Tech NUS, Inc. on September 25th, 2003 and analyzed by Lionville Laboratory Inc. The samples were analyzed under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 8082 analytical and reporting protocols.

The data was evaluated according to the following parameters:

- Data completeness
- * Holding Times
- * Laboratory method and field quality control blank results
- Initial and continuing calibrations
- Surrogate spike recoveries
- * Blank Spike recoveries
- * Matrix spike/matrix spike duplicates
- * Field Duplicate Precision
- * Compound identification
- * Compound quantitation
- Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and supporting documentation is presented in Appendix D.

PCBs

The continuing calibration on 09/30/03 at 0223am contained a percent difference (%D) that exceeded the 15% quality control limit for Aroclor-1016 on column RTX-5. No qualification action was taken because column RTX-35 was compliant and all results for Aroclor-1016 were nondetected in the associated samples.

The continuing calibration on 09/30/03 at 1045pm contained a percent difference (%D) that exceeded the 15% quality control limit for Aroclor-1260 on column RTX-35. Positive results for Aroclor-1260 were qualified as estimated, J, in samples SD13241218 and SD13270006 because the results were reported from column RTX-35.

The continuing calibration on 10/01/03 at 0529am contained a percent difference (%D) that exceeded the 15% quality control limit for Aroclor-1016 on column RTX-5. No qualification action was taken because column RTX-35 was compliant and all results for Aroclor-1016 were nondetected in the associated samples.

The continuing calibration on 10/01/03 at 1213pm contained percent differences (%Ds) that exceeded the 15% quality control limit for Aroclor-1016 and Aroclor-1260 on column RTX-5. No qualification action was taken for Aroclor-1016 because column RTX-35 was compliant and all results for Aroclor-1016 were nondetected in the associated samples. The positive result for Aroclor-1260 was qualified as estimated, J, in sample SD13260006 because the result was reported from column RTX-5.

Surrogate recoveries were not reported in ten out of thirteen samples, because of dilution. Therefore, an evaluation of extraction efficiency could not be preformed. Recoveries from only one column were reported. The laboratory also did not report the undiluted analyses. No reason was provided in the case narrative.

The Form Xs were missing from the data package. The reviewer could not determine whether the %Ds were compliant and whether the higher of the two results was reported. Per conversation with the laboratory, the lower of the two results were reported and the Form Xs will be submitted a later date. However, the data reviewer calculated the percent differences between columns for Aroclor-1260 based on the information provided in the raw data for all samples since the laboratory did not provide the data initially and in a timely manner.

The percent difference between analytical columns exceeded the 25% quality control limit for Aroclor-1260 in samples SD13230006, SD13240006, and FD09250301. The positive results for Aroclor-1260 were qualified as estimated, J, in the aforementioned samples.

The recoveries for the MS/MSD performed on sample SD13220006 could not be calculated because of a dilution performed due to high concentrations of PCBs. However, the blank spike recoveries were compliant.

Ten samples were analyzed at a dilution: FD09250301 (10X), SD13210006 (10X), SD13211218 (10X), SD13220006 (10X), SD13230006 (10X), SD13240006 (10X), SD13241218 (10X), SD13260006 (50X), SD13270006 (50X), and SD13281218 (10X). The dilutions caused elevated reporting limits.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Continuing calibration %D criteria noncompliances were noted for Aroclor-1016 and Aroclor-1260. Percent difference between columns criterion was not met for Aroclor-1260 in three samples. The laboratory did not provide a summary of the percent differences between columns for positive results in the initial data package. Surrogate recoveries were not reported from both columns on the Form IIs.

Other factors affecting data quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999), USEPA Region II Standard Operating Procedures for The Validation of Organic Data (January 1992), and the NFESC guidelines "Navy IRCDQM" (September 1999).

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP).

Tetra Tech NUS

Seth C. Staffen
Environmental Scientist/Data Validator

Tetra Tech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A – Qualified Analytical Results
2. Appendix B – Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	FD09250301	nsample	SD13200006	nsample	SD13210006
samp_date	9/25/2003	samp_date	9/25/2003	samp_date	9/25/2003
lab_id	0309L573-013	lab_id	0309L573-001	lab_id	0309L573-002
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	87	Pct_Solids	87.4	Pct_Solids	93.4
DUP_OF:	SD13240006	DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	380	U	
AROCLOR-1221	380	U	
AROCLOR-1232	380	U	
AROCLOR-1242	380	U	
AROCLOR-1248	380	U	
AROCLOR-1254	380	U	
AROCLOR-1260	700	J	U

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	38	U	
AROCLOR-1221	38	U	
AROCLOR-1232	38	U	
AROCLOR-1242	38	U	
AROCLOR-1248	38	U	
AROCLOR-1254	38	U	
AROCLOR-1260	250		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	360	U	
AROCLOR-1221	360	U	
AROCLOR-1232	360	U	
AROCLOR-1242	360	U	
AROCLOR-1248	360	U	
AROCLOR-1254	360	U	
AROCLOR-1260	970		

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD13211218	nsample	SD13220006	nsample	SD13230006
samp_date	9/25/2003	samp_date	9/25/2003	samp_date	9/25/2003
lab_id	0309L573-003	lab_id	0309L573-004	lab_id	0309L573-005
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	79.4	Pct_Solids	63.9	Pct_Solids	88.9
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	420	U	
AROCLOR-1221	420	U	
AROCLOR-1232	420	U	
AROCLOR-1242	420	U	
AROCLOR-1248	420	U	
AROCLOR-1254	420	U	
AROCLOR-1260	2500		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	520	U	
AROCLOR-1221	520	U	
AROCLOR-1232	520	U	
AROCLOR-1242	520	U	
AROCLOR-1248	520	U	
AROCLOR-1254	520	U	
AROCLOR-1260	4400		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	380	U	
AROCLOR-1221	380	U	
AROCLOR-1232	380	U	
AROCLOR-1242	380	U	
AROCLOR-1248	380	U	
AROCLOR-1254	380	U	
AROCLOR-1260	2400	J	U

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD13240006
samp_date	9/25/2003
lab_id	0309L573-006
qc_type	NM
units	UG/KG
Pct_Solids	88.2
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	380	U	
AROCLOR-1221	380	U	
AROCLOR-1232	380	U	
AROCLOR-1242	380	U	
AROCLOR-1248	380	U	
AROCLOR-1254	380	U	
AROCLOR-1260	860	J	U

nsample	SD13241218
samp_date	9/25/2003
lab_id	0309L573-007
qc_type	NM
units	UG/KG
Pct_Solids	60.3
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	550	U	
AROCLOR-1221	550	U	
AROCLOR-1232	550	U	
AROCLOR-1242	550	U	
AROCLOR-1248	550	U	
AROCLOR-1254	550	U	
AROCLOR-1260	4900	J	C

nsample	SD13250006
samp_date	9/25/2003
lab_id	0309L573-008
qc_type	NM
units	UG/KG
Pct_Solids	43
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	77	U	
AROCLOR-1221	77	U	
AROCLOR-1232	77	U	
AROCLOR-1242	77	U	
AROCLOR-1248	77	U	
AROCLOR-1254	77	U	
AROCLOR-1260	520		

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD13260006	nsample	SD13261218	nsample	SD13270006
samp_date	9/25/2003	samp_date	9/25/2003	samp_date	9/25/2003
lab_id	0309L573-009	lab_id	0309L573-010	lab_id	0309L573-011
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	44.6	Pct_Solids	82.7	Pct_Solids	63.9
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	3700	U	
AROCLOR-1221	3700	U	
AROCLOR-1232	3700	U	
AROCLOR-1242	3700	U	
AROCLOR-1248	3700	U	
AROCLOR-1254	3700	U	
AROCLOR-1260	9600	J	C

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	40	U	
AROCLOR-1221	40	U	
AROCLOR-1232	40	U	
AROCLOR-1242	40	U	
AROCLOR-1248	40	U	
AROCLOR-1254	40	U	
AROCLOR-1260	46		

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	2600	U	
AROCLOR-1221	2600	U	
AROCLOR-1232	2600	U	
AROCLOR-1242	2600	U	
AROCLOR-1248	2600	U	
AROCLOR-1254	2600	U	
AROCLOR-1260	7200	J	C

PROJ_NO: 6710

SDG: 0309L573 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	SD13281218
samp_date	9/25/2003
lab_id	0309L573-012
qc_type	NM
units	UG/KG
Pct_Solids	86.6
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
AROCLOR-1016	380	U	
AROCLOR-1221	380	U	
AROCLOR-1232	380	U	
AROCLOR-1242	380	U	
AROCLOR-1248	380	U	
AROCLOR-1254	380	U	
AROCLOR-1260	780		