

N00109.AR.002643
NWS YORKTOWN
5090.3a

FINAL BASIS OF DESIGN REMEDIATION ACTION CONTRACT REQUIREMENTS PACKAGE
NWS YORKTOWN VA
5/18/1994
ROY F. WESTON

FINAL
BASIS OF DESIGN
RAC REQUIREMENTS PACKAGE
SOIL REMEDIATION NEAR BUILDING 81
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

CONTRACT TASK ORDER 0237

MAY 18, 1994

Prepared For:

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
Norfolk, Virginia

Under the:

LANTDIV CLEAN Program
Contract N62470-89-D-4814

Prepared By:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| 1.0 INTRODUCTION | 1 |
| 1.1 Purpose of the Basis of Design Report | 1 |
| 1.2 Basis of Design Report Format | 1 |
| 2.0 SITE BACKGROUND INFORMATION | 2 |
| 2.1 Site Location | 2 |
| 2.2 Site Description | 3 |
| 2.3 Site History | 3 |
| 3.0 MOBILIZATION AND PREPARATORY WORK | 5 |
| 4.0 MONITORING, SAMPLING, TESTING, AND ANALYSIS | 6 |
| 5.0 SITE WORK | 6 |
| 6.0 SURFACE WATER COLLECTION AND CONTROL | 7 |
| 7.0 THERMAL TREATMENT | 7 |
| 8.0 DISPOSAL (COMMERCIAL) | 8 |
| 8.1 Soils | 8 |
| 8.2 Rubble | 8 |
| 8.3 Fluids | 8 |
| 9.0 SITE RESTORATION | 9 |
| 10.0 DEMOBILIZATION | 9 |
| 11.0 COST ESTIMATE | 9 |
| 12.0 PROJECT SCHEDULE | 10 |
| 13.0 REFERENCES | 10 |

1.0 INTRODUCTION

The United States Navy, Naval Facilities Engineering Command, Atlantic Division (LANTDIV), has directed Baker Environmental, Inc. (Baker) to prepare a Remediation Action Contract (RAC) Design Package for Tank 81 at the Naval Weapons Station (WPNSTA), Yorktown, Virginia. The design package is to include this Basis of Design, project plans, specifications, detailed cost estimate, and project schedule.

In June 1994, Tank 81 and the associated piping system is scheduled to be removed. This removal will be performed by a contractor, contracted to WPNSTA Yorktown. The removal of the underground storage tank (UST) and associated piping will not be included within this design package.

1.1 Purpose of the Basis of Design Report

The primary objective of this project is to remove and dispose of petroleum contaminated soils in the vicinity of Tank 81 at WPNSTA located in Yorktown, Virginia. The scope of this project includes providing design information to remove contaminated soils in the vicinity of Tank 81 and dispose of these soils at a permitted off-site facility. The intent of this design contract is to keep drawings to a minimum and provide a performance based specification.

The following sections of this basis of design describe the construction details and provide a conceptual description of the remediation activities to be performed. This "Basis of Design" has been prepared generally following the Remedial Action Delivery Order Requirements Package Guide, NEESA 20.2-062 of June 1992.

1.2 Basis of Design Report Format

The basis of design information presented in this document is structured to address the major components of the remedial design, and include the following elements:

- Section 1: Introduction - Presents the purpose and objectives of the Basis of Design
- Section 2: Site Background Information - This section briefly discusses the history of the site and previous investigation activities.
- Section 3: Mobilization and Preparatory Work - Activities that the Contractor must perform prior to mobilizing to the site are discussed.

- Section 4: Monitoring, Sampling, Testing and Analysis - This section briefly discusses the sampling and analyses required to dispose of petroleum contaminated soils.
- Section 5: Site Work - This section briefly discusses the various civil details associated with the remediation services that must be performed at the site.
- Section 6: Surface Water Collection and Control - Describes the required services the Contractor must perform to control surface water runoff.
- Section 7: Thermal Treatment - Discusses the requirements of the Contractor for disposal of soils using thermal remediation methods.
- Section 8: Disposal (Commercial) - This section discusses the requirements of the Contractor for the disposal of non-contaminated materials.
- Section 9: Site Restoration - Briefly describes the Contractor's responsibilities for the condition of the site upon completion of the project.
- Section 10: Demobilization - Briefly describes what the Contractor must remove from the site and submittals to be provided to the Activity.
- Section 11: Cost Estimate - Provides an estimate of costs to perform the specified remediation at the site.
- Section 12: Schedule - Provides an estimated schedule to complete the remediation projects at the site.
- Section 13: References - Includes characterization report and corrective action plan previously prepared for the site.

2.0 SITE BACKGROUND INFORMATION

The following section provides site background information and a description of the nature of contamination found at the Building 81 site. This information is based upon information provided in the Final Site Characterization Report (SCR) and Final Corrective Action Plan (CAP) developed for the site (see references in Section 13.0).

2.1 Site Location

Building 81 is located in a relatively remote area in the east-central portion of WPNSTA Yorktown. The building houses one boiler used for steam generation, providing a heating source to nearby Buildings 79 and 80. The site is bounded to the northeast by railroad tracks. The area immediately south and west of the site is a wooded and steeply sloped ravine.

2.2 Site Description

The underground storage tank (UST) system at Building 81 consists of two tanks, UST 81.1 and UST 81.2. UST 81.1 is a 2,000 gallon, single wall steel heating oil tank installed in 1942 to replace coal as a source of fueling the boiler used to heat Buildings 79 and 80. The UST is located adjacent to the railroad tracks located east of Building 81 with the bottom of the UST being approximately three feet below the railroad track grade. A concrete retaining wall is located along the railroad tracks to stabilize the track roadbed.

The UST is within a block vault which is constructed on a concrete slab. Concrete block walls surround the slab which was previously used for the storage of coal.

Two above-ground steam lines exit Building 81 from the northeast wall and make a 90 degree turn to the northwest. The steam lines parallel the railroad line toward Buildings 79 and 80. The lines are supported by metal supports, several of which are located near Tank 81.

UST 81.2 is a 4,000 gallon capacity UST located approximately 20 feet to the southeast of Building 81. UST 81.2 was installed in 1946 and currently supplies No. 2 fuel oil to the boiler in Building 81 via subsurface fuel lines.

Details of the site are provided with the attached design drawings.

2.3 Site History

In March 1992, WPNSTA Yorktown maintenance personnel observed oily soils around UST 81.1, and signs of spillage on the concrete pad. The UST was subsequently removed from service. An Initial Abatement Measures Report was prepared by WPNSTA Yorktown personnel and presented to the Virginia Department of Environmental Quality (DEQ) on October 19, 1992.

Roy F. Weston, Inc. (Weston) performed site characterization activities in January 1993. The site characterization was performed under contract N62470-89-D-4814, Contract Task Order 0161. These activities included 11 soil borings in the vicinity of Building 81. Seven of these soil borings were completed as shallow groundwater monitoring wells. Boring logs for the eleven soil borings are provided with the design specifications.

The investigation detected the presence of subsurface petroleum hydrocarbon contamination located in the vicinity of Building 81. The following is a summary based on the results of the site characterization activities:

- Soils in the area consist of 18 to 28 feet of fine-grained sandy to silty clay with lenses of fine-grained silty sand, underlain by a 4 to 16 foot interval of clayey to silty sand with shells. In places, the silty sand is predominantly an indurated shell hash. The shelly silty sand overlies a tight, plastic, silty clay with shells, encountered throughout the site at approximately 38 feet below ground surface.
- Soils with elevated levels (> 100 mg/kg) of total petroleum hydrocarbons (TPH) were detected in the immediate vicinity of Building 81, particularly to south of the building and to the west near a floor drain outfall.
- The highest TPH concentration detected in the soils was at the soil boring for monitoring well MW-6. The 14 to 16 foot sample interval had a TPH concentration of 3,800 mg/kg.
- TPH concentrations were detected in the groundwater samples collected from the seven monitoring wells. The maximum TPH concentration was detected in monitoring well MW-1 (26.88 mg/L).
- No free product was detected in any of the monitoring wells at the site.
- Groundwater in the vicinity of Tank 81 is approximately 30 to 35 feet below ground surface.
- Volatile organic compounds detected in groundwater samples (benzene and ethylbenzene) were below State and Federal water quality standards.

On March 29, 1993, Weston submitted the Final Site Characterization Report for the site.

On September 3, 1993, Weston submitted the Final CAP for Building 81. Preparation of the CAP was performed under Contract 62470-89-D-4814, Contract Task Order 0198. The CAP proposed a remediation approach utilizing excavation of the heavily contaminated soils in the immediate vicinity of Tank 81 and natural degradation of the remaining petroleum contamination.

In June 1994, UST 81 and the associated piping is scheduled to be removed. This removal will be performed by a UST removal contractor, contracted to WPNSTA Yorktown.

3.0 MOBILIZATION AND PREPARATORY WORK

Mobilization involves the acquisition, delivery, and setup of equipment, material, and personnel to the work site that is necessary to accomplish the remediation objective.

The Contractor shall submit a work plan describing the Contractor's sampling, analytical, and quality control procedures for the performance of work required under the specifications included in this RAC requirements package. The work plan shall include a summary of work to be performed, an Environmental Protection Plan, a Chemical Quality Management Plan (CQMP), and the project organization.

The Work Plan shall describe the project objectives and how the Contractor intends to perform the remediation services. The Work Plan shall include the proposed schedule, removal and excavation procedures, transportation and disposal methods, and backfilling and compaction requirements.

The Environmental Protection Plan shall describe the precautions and methods the Contractor will follow to protect the environment. This will include the location of silt and safety fences. The Environmental Protection Plan will be prepared in accordance with Section C, Part 4.0 of the Basic Contract.

The CQMP contains the procedures to be followed to ensure that all chemical data generated are scientifically accurate and legally defensible. The type and quantity of testing shall be based on the requirements set forth in the specifications and any additional chemical analyses required by the selected disposal company.

Prior to the initiation of field activities the Contractor will submit a health and safety plan (HASP). The HASP will be based on OSHA Standard 29 CFR 1910.120 as well as the Contractor's previous experience on similar projects. Prior to the initiation of field activities, the Contractor will evaluate the HASP against current site conditions to determine if additional areas of concern need to be addressed. Any additions or changes to the HASP need to be documented and distributed as appropriate.

4.0 MONITORING, SAMPLING, TESTING, AND ANALYSIS

The Building 81 site will require sampling and analysis of soils generated from the excavation activities. The number of soil samples and associated chemical analyses, will be dependant upon the disposal facility selected by the Contractor. At a minimum, the following chemical analyses will be performed on soil samples selected from the site:

- Percent Moisture by EPA Method 160
- Total organic halogens by EPA Method 9020
- Total petroleum hydrocarbons by EPA Method 418.1
- Volatile organics by EPA Method 8020
- Polychlorinated biphenols by EPA Method 8080
- Toxicity characteristic leaching procedure (TCLP) metals (these include arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver).

Additional chemical analyses may be required by the disposal firm procured by the Contractor.

The Contractor shall also submit documentation that certifies that the testing laboratory is capable of performing chemical analyses following specified EPA methods.

The Contractor shall adhere to all EPA chain-of-custody procedures during the collection, transport, and analyses of all samples. The contractor will arrange laboratory analyses of all samples to conform with accepted EPA methods.

The Contractor will evaluate soil conditions during excavation activities using field detection devices such as a flame ionization detector (FID). The use of the FID or similar device will satisfy HASP requirements and evaluate the presence of petroleum contamination within the soils.

5.0 SITE WORK

Site work includes all clearing, fencing and equipment staging area preparation. Clearing will be limited to the removal of concrete blocks that surrounded the tank. No trees or other shrubbery removal will be required at the site. As stated earlier, the UST and associated piping are to be removed by UST removal contractor prior to these remediation activities.

The steam lines shall remain in operation during the remediation activities.

The concrete walls in contact with the excavated soils will be decontaminated prior to backfilling the excavation.

The equipment staging area for the site shall be located in the gravel parking area located southeast of Building 81 with the approval of the Contracting Officer. No detailed site preparation will be required.

Fencing construction will include the installation of silt and safety fencing. The extent of fencing required is shown on the attached design drawings.

6.0 SURFACE WATER COLLECTION AND CONTROL

The following section describes surface water controls that are required to prevent silt runoff and the migration of petroleum contamination, as well as minimize or prevent runoff from entering the excavation/work areas.

Several areas of the site appear to allow the flow of surface waters during periods of rainfall. The primary drainage features are located south and west of the site.

The Contractor will construct silt fences within these drainage features to prevent the migration of sediments. The specifications for the construction of the silt fences are provided in the attached design specification package. The proposed locations of the silt fences are shown on the design drawings. If the Contractor believes that additional areas require silt fencing, the Contractor must contact the Contracting Officer to obtain approval prior to initiating construction.

7.0 THERMAL TREATMENT

Soils generated from the excavation activities will be contaminated with petroleum products (diesel fuel). These soils must be disposed according to the Commonwealth of Virginia regulations. The soils must be disposed at a facility permitted by the Commonwealth of Virginia that is capable of treating petroleum contaminated soils. One method is thermal treatment at a permitted facility, for example, the facility operated by EnviroTech Mid-Atlantic in Chesapeake, Virginia.

The disposal facility must accept the ownership of the soils once they are received and treated. Upon disposal of the soils, the facility must provide documentation that the petroleum concentrations within the soils have been reduced to levels acceptable by the Commonwealth of Virginia. The Contractor will supply copies of this documentation to the Activity upon the completion of the project.

8.0 DISPOSAL (COMMERCIAL)

8.1 Soils

Petroleum contaminated soil will be loaded onto trucks or into roll-off containers. The loaded waste will be manifested by a licensed petroleum waste hauler and transported to an approved, permitted facility.

The disposal facility must accept the ownership of the soils once they are received and treated. Upon disposal of the soils, the facility must provide documentation that the petroleum concentrations within the soils have been reduced to levels acceptable by the Commonwealth of Virginia. The Contractor will supply copies of this documentation to the Activity upon the completion of the project.

8.2 Rubble

Concrete blocks and bricks generated by demolition activities must be disposed. It is anticipated that these materials will be disposed at a permitted sanitary landfill or at an on-site area designated by the Activity. The Contractor will supply the Activity with copies of all manifest and records regarding the disposal activities at the completion of the project.

Prior to disposal, visible petroleum staining on the blocks will be removed with a high-pressure wash. The wash area will be constructed in the equipment staging area located southeast of Building 81. The blocks will be moved to this area, washed, and then transported off site for disposal. Fluids generated by this washing process must be collected, containerized, and removed from the site for disposal.

8.3 Fluids

The fluids generated by the block washing process will be contaminated by the petroleum residue from the blocks. Fluids generated during this process are to be contained in the wash area and removed from the site for disposal. The Contractor will be responsible for the containerization, transportation, and disposal of the fluids.

Fluids generated from decontamination of personnel and other equipment must also be containerized. These fluids also will be disposed at an off-site facility.

Disposal of petroleum contaminated fluids must be performed by firms that are permitted by the Commonwealth of Virginia. The Contractor will supply the Activity with copies of all manifest and records regarding the fluid disposal activities at the completion of the project.

9.0 SITE RESTORATION

All temporary facilities, equipment, and supplies acquired for this contract will be removed from Navy property. No areas of the site will be paved upon completion of the project. Ground surfaces will be restored with topsoil to match the existing grades and reseeded. Any tracks or ruts from equipment usage will be filled with topsoil and reseeded. All debris, rubble, and other excess building materials will be removed from the site and properly disposed. Finally, disrupted vegetated areas will be reseeded.

10.0 DEMOBILIZATION

Demobilization includes the removal of all equipment and materials mobilized to the site by the Contractor. The Contractor shall submit (1) a punch list showing correction of all listed items; (2) a letter from the Contractor certifying completion of all contracted work in accordance with the contract conditions, applicable regulations, and standard practice; (3) a completed project current condition with an as-built survey of the entire site; and, (4) submittal, in one collated document, of all quality control daily reports, samples, results of the analysis of the samples, corrective actions (if required, taken to correct unacceptable deviations from required quality standards), results of corrective actions; problems encountered and resolved, and lessons learned.

The Contractor shall submit a detailed report summarizing the construction activities, lessons learned, and recommendations for inclusion in future similar projects.

11.0 COST ESTIMATE

A cost estimate to perform the specified remediation activities at the site is provided with this Basis of Design. The estimated cost for remediation activities at Building 81 is \$35,000.

Drawings for which the cost estimates are based upon are provided with this Basis of Design. These drawings illustrate the general design approach for the removal of petroleum contaminated soils at Building 81.

12.0 PROJECT SCHEDULE

The schedule for completing remediation activities at the site is provided below. All required design drawings for the remediation activities for the site is provided with this Basis of Design. It is estimated that 60 days, from the date authorization to proceed is received, will be required by the Contractor to complete the remediation activities.

| Days After Receipt of Authorization to Proceed | Activity |
|--|--|
| 15 | Submit Preconstruction Submittals |
| 30 | Begin Site Remediation Activities |
| 45 | Complete Remediation and Disposal Activities |
| 60 | Submit Post-Construction Submittals |

13.0 REFERENCES

Roy F. Weston, Inc., March 29, 1993, Final Site Characterization Report UST System at Building 81, Naval Weapons Station, Yorktown Virginia (Contract N62470-89-D-4814, Contract Task Order 0161).

Roy F. Weston, Inc., September 3, 1993, Final Corrective Action Plan, UST System at Building 81, Naval Weapons Station, Yorktown Virginia (Contract N62470-89-D-4814, Contract Task Order 0198).

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION, NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION, NORFOLK, VIRGINIA

NEESA RAC Contract No.
N62470-93-D-3033

NAVFAC Specification No. _____
Appropriation: DERA

SOIL REMEDIATION NEAR BUILDING 81
AT
NAVAL WEAPONS STATION YORKTOWN, YORKTOWN, VIRGINIA

Design by:

BAKER ENVIRONMENTAL, INC.
AIRPORT OFFICE PARK, BUILDING 3
420 ROUSER ROAD
CORAOPOLIS, PENNSYLVANIA 15108

Specification Prepared by:

BAKER ENVIRONMENTAL, INC.

MAY 18, 1994

Specification Approved by:

Specification Branch Head:

M. D. Mutter, P.E.

Engineering and Design Division Director:

W. H. Crone, P.E.

Environmental Quality Division Director:

W. H. Russell, P.E.

Date: _____

PROJECT TABLE OF CONTENTS

DIVISION 01 -- GENERAL REQUIREMENTS

01010 GENERAL PARAGRAPHS
01430 WASTE SAMPLING REQUIREMENTS
01560 TEMPORARY CONTROLS

DIVISION 02 -- SITE WORK

02050 DEMOLITION AND REMOVAL
02220 GENERAL EXCAVATION, FILLING, AND BACKFILLING
02223 TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL

-- End of Project Table of Contents --

SECTION 01010

GENERAL PARAGRAPHS

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.

CORPS OF ENGINEERS (COE)

COE EM-385-1-1 1992 Safety and Health Requirements
Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241 1989 Safeguarding Construction,
Alteration, and Demolition Operations

1.2 PRECONSTRUCTION SUBMITTALS

Submit the following in accordance with Section C, of the Basic Contract.

1.2.1 SD-18, Records

a. Work Plan G

1.2.1.1 Work Plan

Within 15 days of issuance of the delivery order, submit a work plan consisting of the following elements.

a. Narrative

Provide a brief description of the project objectives, scheduling, sampling and analysis requirements, decontamination procedures, site work and excavation procedures, construction requirements, and storage, transportation, and removal requirements.

b. Technical Specifications

Provide, in an amendment format, any additions and modifications to the contract specifications required to accurately describe the materials and work procedures envisioned to satisfy the requirements of the delivery order. Contact Code 406, Specifications Branch, Engineering and Design Division, LANTNAVFACENGCOM, (804)444-9906, for availability of guide specification sections for those sections required, but not included in the contract documents.

c. Shop Drawings

Shop drawings shall detail and describe all components of the project

not currently indicated on the contract drawings such that the shop drawings and the contract drawings, when taken together, provide a complete representation of the project requirements. Shop drawings shall include; but not be limited to. 1) an Erosion Control Plan in accordance with State and local regulations, consisting of site plans indicating locations of erosion control features during the various states of construction, details of erosion control features, and applicable notes. 2) civil/structural drawings providing details of site work. 3) piping drawings defining all pipe routing at the site, and discharge points (i.e., water, etc.), details on drainage requirements (i.e, sumps, check dams, etc.).

d. Environmental Protection Plan

Within 15 days of issue of delivery order, meet with the Navy's Technical Representative (NTR) to discuss environmental protection requirements for the project. After meeting with the NTR, prepare, and submit an Environmental Protection Plan in accordance with Section C, Part 4.0, of the Basic Contract.

e. Site Health and Safety Plan

Provide a site specific Site Health and Safety Plan in accordance with Section C, Part 3.0, of the Basic Contract.

f. QC Plan

Provide a QC Plan in accordance with Section C, Part 6.0, of the Basic Contract.

(1) Submittal Register

As part of the QC Plan, submit a completed Submittal Register to document quality control for materials, inspection, and testing in accordance with Section C, Part 7.0 of the Basic Contract. A copy of the Submittal Register is provided and attached at the end of this section.

(2) Testing Laboratory Qualifications

As part of the QC Plan, submit qualifications for each laboratory which will be used in accordance with Section C, Part 6.0, of the Basic Contract.

g. Sampling and Analysis Plan

Provide a Sampling and Analysis Plan describing all sampling and analyses requirements and procedures for the delivery order. The Plan shall contain a field sampling plan and a quality assurance plan.

1.2.2 Forwarding Preconstruction Submittals

Within 15 days of issuance of the delivery order, and before procurement, fabrication, or mobilization, submit to the Architect-Engineer: Baker Environmental, Inc., Airport Office Park, Building 3, 420 Rouser Road,

Coraopolis, PA 15108, and to distribution as directed, the preconstruction submittals required in this specification. The Architect-Engineer for this project will review the Work Plan for the NTR to determine compliance of the Contractor's Work Plan with the requirements of the contract documents for this delivery order.

1.2.3 Review Comments

The Contractor's Work Plan will be reviewed. The NTR will compile and coordinate all Government review comments, and forward consolidated review comments to the Contractor. Review comments on the Work Plan shall be resolved, and submittals modified as required. After the correction of the submittals, submit one corrected final copy of the Work Plan to the NTR for final review. The Work Plan shall be approved prior to commencement of any other work associated with this delivery order.

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 7, of the Basic Contract.

1.3.1 SD-18, Records

- a. As-Built Records G
- b. Environmental Condition Report
- c. Network Analysis Diagram
- d. Status Reports
- e. QC Meeting Minutes
- f. Test Results Summary Report
- g. Contractor Production Report
- h. QC Report
- i. Rework Items List
- j. Permits
- k. Contractor's Closeout Report

1.3.1.1 As Built Records

Maintain two sets of full size contract drawings and two sets of full size approved shop drawings marked to show any deviations which have occurred, including buried or concealed construction and utility features revealed during the course of construction. Record horizontal and vertical locations of buried utilities that differ from the contract drawings. Show the size, manufacturer's name, model number, capacity, and electrical power characteristics of the equipment installed. These drawings shall be available for review by the NTR at any time. At the completion of the

work, deliver marked sets of the contract drawings to the NTR.

1.3.1.2 Environmental Condition Report

Prior to starting work, perform a preconstruction survey with the NTR. Take photographs showing existing environmental conditions on and adjacent to the site. Prior to starting work, submit the results of the survey in an Environmental Condition Report to the NTR.

1.3.1.3 MIS Required Sorts

The MIS system shall be a system able to provide, as a minimum, the activities in sorts or groups as specified in the Basic Contract and any subsequent Delivery Orders.

a. Network Analysis Diagram

Within 15 days of approval of the Contractor's Work Plan, submit a Network Analysis Diagram in accordance with the Basic Contract and any subsequent Delivery Orders.

b. Status Report

All Status Reports shall comply with the Basic Contract and any subsequent Deliver Orders. Submit a Technical Progress Report, Cost Performance Report, Modification Log, Time-Scaled Logic Diagram, Government Materials Tracking Report, Variance Analysis Report, and Waste Materials Report. Submit the first delivery order Status Report approximately 30 days after approval of the Contractor's Work Plan. Thereafter, submit Status Reports every 30 days. Status report periods shall be consistent with the invoice reporting periods.

1.3.1.4 QC Meeting Minutes

The QC Representative shall document all QC meetings by delivering copies of the minutes to the NTR within 3 calendar days after each QC meeting. The submittals shall comply with Section C, Part 6.0 of the Basic Contract.

1.3.1.5 Test Results Summary Report

A summary report of all field tests containing both "required" and "actual" results plus "passed" or "failed" for conforming, non-conforming and repeated test results shall be submitted to the NTR at the end of each month in accordance with Section C, Part 6.0 of the Basic Contract.

1.3.1.6 Contractor Production Report (CPR)

The CPR shall be prepared and submitted daily to the QC Representative in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.1.7 QC Report

The QC Report shall be submitted by the QC Representative to the NTR every day work is performed, material is delivered, direction is pending, or a labor force is present in accordance with Section C, Part 6.0, of the Basic

Contract.

1.3.1.8 Rework Items List

The QC Representative shall deliver a copy of the rework items list to the NTR on a monthly basis in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.1.9 Permits

Fifteen days prior to beginning onsite work, submit draft copies of the following permits required for onsite activities:

- a. Excavation Permit; from the Public Works Officer, Utilities Division

1.3.1.10 Contractor's Closeout Report

Submit upon completion of the project. This report shall include: Introduction, Summary of Action, Final Health and Safety Report, Summary of Record Documents, Field Changes and Contract Modification, Final Documents, summary of Chemical and Geotechnical Testing, Offsite Disposition of Materials, and QC Summary report.

1.3.2 Forwarding Submittals

As soon as practicable after award of the contract, and before procurement or fabrication, submit, except as specified otherwise, to the NTR, the submittals required in this specification. The Architect-Engineer for this project will review and provide surveillance for the NTR to determine if Contractor-approved submittals comply with the contract requirements, and will review and approve for the NTR those submittals not permitted to be Contractor approved to determine if submittals comply with the contract requirements. At each "Submittal" paragraph in the individual specification sections, a notation "G", following a submittal item, indicates the NTR is the approving authority for that submittal item. One copy of the transmittal form for submittals shall be forwarded to the NTR.

1.4 GENERAL INTENTION

It is the declared and acknowledged intention and meaning to provide and secure petroleum contaminated soils excavation and disposal near Building 81, Naval Weapons Station Yorktown, Yorktown, Virginia, complete and ready for use.

1.5 GENERAL DESCRIPTION

The work includes excavation and disposal of petroleum contaminated soils, filling and backfilling, erosion control, site restoration, and incidental related work.

1.6 DESCRIPTION OF CONTAMINANTS PRESENT

Building 81 is located in a relatively remote area in the east-central portion of Weapons Station (WPNSTA) Yorktown. The building houses one

boiler used for steam generation, providing a heating source to nearby Buildings 79 and 80. The site is bounded to the northeast by railroad tracks. The area immediately south and west of the site is a wooded and steeply sloped ravine.

The underground storage tank (UST) system at Building 81 consists of two tanks, UST 81.1 and UST 81.2. UST 81.1 is a 2,000 gallon, single wall steel heating oil tank installed in 1942 to replace coal as a source of fueling the boiler used to heat Buildings 79 and 80. The UST is located adjacent to the railroad tracks located east of Building 81 with the bottom of the UST approximately four feet below the railroad track grade. A concrete retaining wall is located along the railroad tracks to stabilize the track roadbed.

Soils with elevated levels (>100 mg/kg) of total petroleum hydrocarbons (TPH) were detected in the immediate vicinity of Building 81, particularly to the south of the building and to the west near a floor drain outfall. The highest TPH concentration detected in the soils was at the boring for monitoring well MW-6. The 14-16 foot sample interval had a TPH concentration of 3,800 mg/kg.

1.7 LOCATION

The work shall be located at Naval Weapons Station Yorktown, Yorktown, Virginia approximately as shown. The exact location will be indicated by the NTR.

1.8 PROJECT INFORMATION

1.8.1 Drawings, Maps and Specifications

Four sets of contract drawings, maps and specifications will be furnished to the Contractor without charge, except applicable publications incorporated into the technical provisions by reference. Additional sets will be furnished on request at no charge. The work shall conform to the following contract drawings and maps, all of which form a part of these specifications and are available in the office of the NTR.

| <u>EFD Dwg No.</u> | <u>NAVFAC Dwg No.</u> | <u>Title</u> | <u>Sheet No.</u> |
|--------------------|-----------------------|-------------------------------|------------------|
| | | Cover Sheet and General Notes | T-1 |
| | | Excavation Plan | C-1 |
| | | Details | C-2 |

1.8.2 Reference Report

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

Reports

- a. Roy F. Weston, Inc., March 29, 1993, Final Site Characterization Report UST System at Building 81, Naval Weapons Station, Yorktown, Virginia (Contract N62470-89-D-4814, Contract Task Order 0161).
- b. Roy F. Weston, Inc., September 3, 1993, Final Corrective Action Plan, UST System at Building 81, Naval Weapons Station, Yorktown, Virginia (Contract N62470-89-D-4814, Contract Task Order 0198).

1.9 PROJECT SCHEDULE AND TIME CONSTRAINTS

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 60 calendar days after the required notice to proceed. The time stated for completion shall include final cleanup of the premises. The time stated for completion does not include the maintenance period for the seeding of disturbed areas.

1.10 SAFETY PROGRAM

In addition to safety requirements in the Basic Contract, the Contractor shall implement a safety program conforming to the requirements of Federal, state, and local laws, rules and regulations as specifically related to contaminated soil removal and treatment operations. The program shall include, but is not limited to, the following:

- a. Occupational Safety and Health Standards
- b. COE EM-385-1-1
- c. NFPA 241

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 FACILITIES AND SERVICES

3.1.1 Availability of Utilities Services

Government utilities will be made available without charge. The contractor will be responsible for making connections, providing transformers and meters, and making disconnections; and for providing backflow preventer devices on connections to domestic water lines. Under no circumstances will taps to base fire hydrants be allowed for obtaining domestic water.

3.1.2 Storage in Existing Buildings

Storage in existing buildings will not be allowed.

3.1.3 Open Site Storage Size and Location

The open site available for storage shall be confined to the areas identified on the drawings.

3.2 RESTRICTIONS ON OPERATIONS

3.2.1 Scheduling

3.2.1.1 General Scheduling Requirements

The Naval Weapons Station, Yorktown, Virginia, will remain in operation during the entire construction period. The Contractor shall schedule the work as to cause the least amount of interference with Base operations. Work schedules shall be subject to the approval of the NTR. Permission to interrupt Base roads shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption.

3.2.1.2 Regular Work Hours

The regular work hours for the Naval Weapons Station, Yorktown, Virginia are 0730 to 1530, Monday through Friday.

3.2.1.3 Work Outside Regular Hours

If the Contractor desires to carry on work outside regular hours or on Saturdays, Sundays or holidays, the Contractor shall submit an application to the NTR. The Contractor shall allow ample time to enable satisfactory arrangements to be made by the Government for inspecting the work in progress. At night, the Contractor shall light the different parts of the work in an approved manner.

3.2.2 Security Requirements

Contractor shall comply with general security requirements in accordance with Section C of the Basic Contract. No employee or representative of the Contractor will be admitted to the work site without satisfactory proof of United States citizenship or is specifically authorized admittance to the work site by the NTR.

3.3 ACTIONS REQUIRED OF THE CONTRACTOR

The Contractor shall comply with all requirements stated in Section C, Part 2.0, of the Basic Contract.

3.3.1 Base Permits

Permits are required for, but not necessarily limited to, welding, digging, and burning. Allow 7 calendar days for processing of the application. One copy of all applicable permits shall be posted at the job site.

3.4 PUBLIC RELEASE OF INFORMATION

The Contractor shall comply with all requirements stipulated in Section C, Part 2.0, of the Basic Contract.

3.5 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined in Section C of the Basic Contract.

3.6 REQUIRED INSURANCE

Insurance requirements from Section H of the Basic Contract are enforced in their entirety.

-- End of Section --

Contract Number: N62470-93-3033 | Project Title: Soil Remediation Near Building 81

| SPEC SECTION NO. | SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT | SPEC PARA NO. | CLASSIF/ APPR BY CO * | GOVT OR A/E REVIEWER | TRANS CONTROL NO. | PLANNED SUBMITTAL DATE |
|------------------|--|---------------|-----------------------------|----------------------|-------------------|------------------------|
| (a) | (b) | (c) | (d) | (e) | (f) | (g) |
| 1) | Analysis Results | | | | | |
| 2) 01560 | SD-08, Statements | 1.3.1 | | | | |
| 3) | MSDS | 1.6 | G | | | |
| 4) 01560 | SD-18, Records | 1.3.2 | | | | |
| 5) | Solid waste disposal permit | 1.3.2.1 | | | | |
| 6) 02050 | SD-08, Statements | 1.3.1 | | | | |
| 7) | Demolition plan | | | | | |
| 8) 02220 | SD-12, Field Test Reports | 1.3.1 | | | | |
| 9) | Fill and backfill | 3.9.2.1 | | | | |
| 10) 02223 | SD-08, Statements | 1.2.1 | | | | |
| 11) | Treatment Facility | | | | | |
| 12) | Permit*..SUBPART1.2.1.1 *Treatment Facility Permit | | | | | |
| 13) 02223 | SD-18, Records | 1.2.2 | | | | |
| 14) | Shipment Manifests | 1.2.2.1 | | | | |
| 15) | Delivery Certificates | 1.2.2.2 | | | | |
| 16) | Disposal Site Decontamination | 1.2.2.3 | | | | |
| 17) | Certificate | | | | | |
| 18) | Work Site Decontamination | 1.2.2.4 | | | | |
| 19) | Certificate | | | | | |
| 20) | Treatment and Disposal | 1.2.2.5 | | | | |

* Navy Notes:
Approved by:
G: Contracting Officer
Blank: CQC Manager

* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
Classification:
GA: Gov't Approval
FIO: For Information Only

Contract Number: N62470-93-3033 | Project Title: Soil Remediation Near Building 81

| SPEC SECTION NO. | SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT | SPEC PARA NO. | CLASSIF/ APPR BY CO * | GOVT OR A/E REVIEWER | TRANS CONTROL NO. | PLANNED SUBMITTAL DATE |
|------------------|---|---------------|--------------------------|----------------------|-------------------|------------------------|
| (a) | (b) | (c) | (d) | (e) | (f) | (g) |
| 1) 01010 | SD-18, Records | 1.2.1 | | | | |
| 2) | Work Plan | 1.2.1.1 | G | | | |
| 3) 01010 | SD-18, Records | 1.3.1 | | | | |
| 4) | As-Built Records | | G | | | |
| 5) | Environmental Condition Report | 1.3.1.2 | | | | |
| 6) | Network Analysis Diagram | 1.3.1.3 | | | | |
| 7) | Status Reports | | | | | |
| 8) | QC Meeting Minutes | 1.3.1.4 | | | | |
| 9) | Test Results Summary Report | 1.3.1.5 | | | | |
| 10) | Contractor Production Report | | | | | |
| 11) | QC Report | 1.3.1.7 | | | | |
| 12) | Rework Items List | 1.3.1.8 | | | | |
| 13) | Permits | 1.3.1.9 | | | | |
| 14) | Contractor's Closeout Report | 1.3.1.10 | | | | |
| 15) 01430 | SD-08, Statements | 1.2.1 | | | | |
| 16) | Sample Log | | | | | |
| 17) 01430 | SD-12, Field Test Reports | 1.2.2 | | | | |
| 18) | Confirmatory Sample Analysis | | | | | |
| 19) | Results | | | | | |
| 20) | Waste Characterization Sample | | | | | |

* Navy Notes:
 Approved by:
 G: Contracting Officer
 Blank: CQC Manager

* NASA Notes:
 Approved by:
 Blank: Contracting Officer

* Army Notes:
 Classification:
 GA: Gov't Approval
 FIO: For Information Only

Contract Number: N62470-93-3033 | Project Title: Soil Remediation Near Building 81

| SPEC SECTION NO. | SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT | SPEC PARA NO. | CLASSIF/ APPR BY CO * | GOVT OR A/E REVIEWER | TRANS CONTROL NO. | PLANNED SUBMITTAL DATE |
|------------------------|---|---------------------|-----------------------------------|----------------------------|-------------------------|------------------------------|
| (a) | (b) | (c) | (d) | (e) | (f) | (g) |
| 1) | Certificates | | | | | |

* Navy Notes:
 Approved by:
 G: Contracting Officer
 Blank: CQC Manager

* NASA Notes:
 Approved by:
 Blank: Contracting Officer

* Army Notes:
 Classification:
 GA: Gov't Approval
 FIO: For Information Only

BORING LOGS

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------------|--------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 34.00 |
| SITE NAME : CTO-161 / BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : BH-1 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID RIG |
| EASTING : 0.0000 estimated | DATE STARTED : 01/06/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/06/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------------------|----------------|----------|----------|--------------------|--------------------------|---|
| -2 | 2 | | | Interval Not Sampled | | | | | | |
| -4 | 4 | | 100 | Silt, ML | YELLOW RED | STF | DMP | 7 7 10 10 | OVM 0.0 | Finer sand above w/less silt & more clay. Top 0-6" is RR gravel. Bottom more sandy w/less clay. |
| -6 | 6 | | | Interval Not Sampled | | | | | | |
| -8 | 8 | | | Interval Not Sampled | | | | | | |
| -10 | 10 | | 100 | Lean clay, CL | LT GRAY | STF | DMP | 8 9 11 13 | OVM 0.5 | Mottling throughout reddish brown mostly in upper half & more red and grey in lower. No odor. |
| -12 | 12 | | | Interval Not Sampled | | | | | | |
| -14 | 14 | | 100 | Silt, ML | LT GREY | FRM | DMP | 7 9 11 | OVM 0.0 | Interbedded silty clay and clayey silt. Silty portions are soft and nonplastic. |
| -16 | 16 | | | Interval Not Sampled | | | | | | |
| -18 | 18 | | | Interval Not Sampled | | | | | | |
| -20 | 20 | | 100 | Silt, ML | YELLOW RED | FRM | MST | 5 5 7 | | |
| -22 | 22 | | | Interval Not Sampled | | | | | | |
| -24 | 24 | | 100 | Silty sand, SM | | SFT | MST | 8 9 10 10 | OVM 0.0 | |
| -26 | 26 | | | Interval Not Sampled | | | | | | |
| -28 | 28 | | | Interval Not Sampled | | | | | | |
| -30 | 30 | | 100 | Silty sand with gravel, SM | LT GREY | LSE | WET | 5 7 9 | OVM 0.0 | Shells are white. |
| -32 | 32 | | | Interval Not Sampled | | | | | | |
| -32 | 32 | | 100 | Sandy silt, ML | REDDISH YELLOW | SFT | WET | 7 8 10 7 | OVM 0.0 | Saturated below 33.3' in shelly silt with very little quartz sand. Boring terminated -34'. |
| -34 | 34 | | | | | | | | | |
| -36 | 36 | | | | | | | | | |
| -38 | 38 | | | | | | | | | |
| -40 | 40 | | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 32.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : BH-2 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/08/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/08/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------------------|---------------|----------|----------|------------|--------------------------|---|
| -2 | 2 | | | Interval Not Sampled | | | | | | 0-2' - fill material. |
| -4 | 4 | | | Silt, ML | RED YELLOW | SFT | MST | 7 | OVM 0.0 | |
| -6 | 6 | | | Interval Not Sampled | | | | 14 | | |
| -8 | 8 | | | Interval Not Sampled | | | | 13 | | |
| -10 | 10 | | 100 | Lean clay, CL | LT GREY | STF | DMP | 8 | OVM 18.0 | Slight petroleum odor. Yellow brown and red mottling. |
| -12 | 12 | | | Interval Not Sampled | | | | 11 | | |
| -14 | 14 | | 100 | Lean clay, CL | LT BROWN RED | FRM | MST | 5 | OVM 66.0 | Becomes more silty below 15.6' and odor increases. |
| -16 | 16 | | | Interval Not Sampled | | | | 10 | | |
| -18 | 18 | | | Interval Not Sampled | | | | 10 | | |
| -20 | 20 | | 100 | Silt, ML | | SFT | WET | 5 | OVM 35.0 | Sticky and goeey like mud partly due to rain. |
| -22 | 22 | | | Interval Not Sampled | | | | 6 | | |
| -24 | 24 | | | Silt, ML | | SFT | MST | 2 | OVM 25.0 | Iron stained silty deposits in lenses. |
| -26 | 26 | | | Silty sand, SM | GREENISH GREY | LSE | MST | 3 | OVM 5.0 | Very slight odor. |
| -28 | 28 | | | Interval Not Sampled | | | | 4 | | |
| -30 | 30 | | 100 | Silty sand with gravel, SM | STRONG BROWN | LSE | WET | 6 | OVM 9.0 | Saturated at 31.6'. Boring terminated 32'. |
| -32 | 32 | | | Interval Not Sampled | | | | 3 | | |
| -34 | 34 | | | Interval Not Sampled | | | | 4 | | |
| -36 | 36 | | | Interval Not Sampled | | | | 4 | | |
| -38 | 38 | | | Interval Not Sampled | | | | | | |
| -40 | 40 | | | Interval Not Sampled | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

CLIENT : BAKER/ YORKTOWN
 SITE NAME : BUILDING 81
 WELL ID : BH-3
 NORTHING : 0.0000 estimated
 EASTING : 0.0000 estimated
 ELEVATION : 0.000 estimated

TOTAL DEPTH : 31.00
 LOGGER : J.H. GHENT
 DRILLING COMPANY : FISHBURNE
 DRILLING RIG : CME 55 SKID
 DATE STARTED : 01/11/93
 DATE COMPLETED : 01/11/93

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|--|---------------|----------|----------|------------|--------------------------|---|
| -2 | 2 | | | Silt with sand, ML | LT YELLOW BRN | SFT | MST | 3 | OVM 0.0 | Black organic matter and ash present from 1-2'; slight methane odor. |
| | | | | Interval Not Sampled | | | | 4 | | |
| -4 | 4 | | 100 | Sandy silt, ML | LT YELLOW RED | SFT | MST | 3 | OVM 0.0 | Generally coarsens down from silt with little fine sand and some clay to med. sand w/some silt. |
| -6 | 6 | | | Interval Not Sampled | | | | 4 | | |
| -8 | 8 | | | | | | | | | |
| -10 | 10 | | 100 | Lean clay, CL | LT GREY | STF | DMP | 8 | OVM 0.0 | Spoon broke off ip hole. Redrilled hole 1.5' S 105 deg. Clay tight & cohesive w/lenses of silty clay. |
| -12 | 12 | | | Interval Not Sampled | | | | 11 | | |
| -14 | 14 | | | Silt, ML | | STF | DMP | 4 | OVM 101.0 | Petroleum odor and OVM readings increase with depth. Interbedded silty and clayey layers. |
| -16 | 16 | | | Interval Not Sampled | | | | 9 | | |
| -18 | 18 | | | | | | | | | |
| -20 | 20 | | 100 | Silt, ML | | SFT | MST | 3 | | OVM - lamp not working. Petroleum odor is noticeable but less prevalent than previous sample. |
| -22 | 22 | | | Interval Not Sampled | | | | 4 | | |
| -24 | 24 | | 100 | Silt, ML | BROWNISH GREY | SFT | MST | 3 | | Iron staining in horizontal bands indicative of water table fluctuations. Slight petroleum odor; very shelly. |
| -26 | 26 | | | Silty sand with gravel, SM | | LSE | MST | 8 | | |
| -28 | 28 | | | Interval Not Sampled | | | | | | |
| -30 | 30 | | 100 | Well graded sand with silt and gravel, SW-SM | | LSE | MST | 9 | | Moist to 30.2'; wet to 31'; tip of spoon saturated. Slight to mod. pet. odor. Boring ended -31'. |
| -32 | 32 | | | | | | | 14 | | |
| -34 | 34 | | | | | | | 14 | | |
| -36 | 36 | | | | | | | | | |
| -38 | 38 | | | | | | | | | |
| -40 | 40 | | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 32.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : BH-4 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/11/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/11/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------------------------|------------|----------------------|---------------|----------|----------|------------|--------------------------|--|
| -2 | 2 | [Cross-hatched pattern] | 100 | Fill | GREY | LSE | DMP | 2 | OVM 0.0 | Black ash, roots, concrete and gravel fill mixed in. |
| -4 | 4 | [Horizontal lines pattern] | 100 | Silt, ML | DK GREY BROWN | LSE | MST | 4 | OVM 0.0 | Black ash mixed in. |
| -4 | 4 | [Blank] | | Interval Not Sampled | | | | | OVM 0.0 | |
| -6 | 6 | [Dotted pattern] | 100 | Sandy silt, ML | YELLOW BROWN | SFT | MST | 4 | OVM 0.0 | |
| -6 | 6 | [Dotted pattern] | | Clayey sand, SC | BROWN GREY | LSE | DMP | 9 | OVM 0.0 | |
| -8 | 8 | [Blank] | | Lean clay, CL | LT GREY | STF | DMP | 9 | OVM 0.0 | |
| -8 | 8 | [Blank] | | Interval Not Sampled | | | | | | |
| -10 | 10 | [Dotted pattern] | 100 | Lean clay, CL | LT GREY | STF | DMP | 6 | OVM 5.2 | Heavily mottled red and yellowish red. Slight petroleum odor noticeable |
| -12 | 12 | [Blank] | | Interval Not Sampled | | | | 15 | | |
| -14 | 14 | [Dotted pattern] | 100 | Lean clay, CL | LT GREY | SFT | DMP | 4 | OVM 32.0 | Mottled red and brownish yellow. Slight petroleum odor. Silty lenses horizontal, like varves. |
| -16 | 16 | [Blank] | | Interval Not Sampled | | | | 12 | | |
| -18 | 18 | [Blank] | | | | | | | | |
| -20 | 20 | [Horizontal lines pattern] | 100 | Silt, ML | RED | SFT | DMP | 4 | OVM 4.0 | Mica and -5% mafics present with very slight petroleum odor. |
| -22 | 22 | [Blank] | | Interval Not Sampled | | | | 6 | | |
| -24 | 24 | [Horizontal lines pattern] | 100 | Silt, ML | BROWNISH-RED | SFT | DMP | 3 | OVM 5.0 | |
| -26 | 26 | [Horizontal lines pattern] | 100 | Silt, ML | GREENISH GREY | SFT | DMP | 2 | OVM 15.0 | 15% mafics with some mica present; glauconitic. |
| -26 | 26 | [Horizontal lines pattern] | | Silt, ML | | SFT | DMP | 4 | OVM 97.0 | |
| -28 | 28 | [Horizontal lines pattern] | 100 | Sandy silt, ML | GREEN | SFT | MST | 8 | OVM 126.0 | Glaucconitic shelly sand with -10% fine quartz sand and trace of mafic minerals. Mod. pet. odor. |
| -30 | 30 | [Horizontal lines pattern] | 100 | Sandy silt, ML | GREEN | SFT | MST | 4 | OVM 95.0 | Wet at 31.5'. Boring terminated at 32'. 30% shells, 10% fine sand. |
| -32 | 32 | [Blank] | | | | | | 2 | | |
| -34 | 34 | [Blank] | | | | | | 3 | | |
| -36 | 36 | [Blank] | | | | | | | | |
| -38 | 38 | [Blank] | | | | | | | | |
| -40 | 40 | [Blank] | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 39.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : MW-1 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/04/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/05/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|--|---------------|----------|----------|------------|--------------------------|---|
| -2 | 2 | | 100 | Organic soil with sand, OL/OH | BLACK & BROWN | LSE | MST | 1 | OVM 0.0 | |
| | | | 100 | No Sample Recovered | | | | 1 | | Hollow void, just below drain lines. |
| -4 | 4 | | 100 | Sandy silt, ML | | SFT | DMP | 1 | OVM 109.0 | |
| | | | 100 | Lean clay, CL | YELLOW RED | FRM | DMP | 1 | OVM 8.7 | |
| -6 | 6 | | 100 | Sandy silt with gravel, ML | GREY | SFT | WET | 1 | OVM 35.0 | |
| | | | 100 | Lean clay, CL | BROWN | FRM | MST | 1 | OVM 0.0 | |
| -8 | 8 | | 100 | Lean Clay, CL | YEL BRN | SFT | MST | 1 | OVM 8.5 | |
| | | | 100 | Lean clay, CL | | STF | DMP | 1 | OVM 8.5 | |
| -10 | 10 | | 100 | Lean clay, CL | | FRM | DMP | 1 | | |
| -12 | 12 | | 100 | Silt, ML | YELLOW RED | FRM | DMP | 1 | OVM 75.0 | |
| -14 | 14 | | 100 | Organic soil with sand and clay | YELLOW BROWN | FRM | MST | 1 | OVM 138.0 | Moderate odor in sandy lenses and pockets, like stale fuel. |
| -16 | 16 | | 100 | Silt, ML | | FRM | DMP | 1 | OVM 151.0 | |
| -18 | 18 | | 100 | Lean clay, CL | LT BROWN GREY | FRM | DMP | 1 | OVM 102.0 | |
| | | | 100 | Sandy silt, ML | LT GREY GREEN | SFT | MST | 1 | OVM 158.0 | |
| -20 | 20 | | 100 | Sandy silt, ML | REDDISH BROWN | SFT | MST | 1 | OVM 134.0 | Glauconitic moderate petroleum odor, 5 GY 6/1. Mottled greenish grey, black, and red. |
| -22 | 22 | | 100 | Silt with sand, ML | | LSE | MST | 1 | | OVM 59/144 units in bottom tip. |
| -24 | 24 | | 100 | Sandy silt, ML | DK GREEN GREY | LSE | MST | 1 | OVM 137.0 | Shell hash includes bivalved species. |
| -26 | 26 | | 100 | Well-graded gravel with silty gravel, GM | LT BRN GRY | LSE | MST | 1 | OVM 121.0 | |
| | | | 100 | Silty gravel, GM | LT BROWN GREY | LSE | MST | 1 | OVM 106.0 | |
| -28 | 28 | | 100 | Silty sand with gravel, SM | | LSE | MST | 1 | OVM 135.0 | |
| -30 | 30 | | 100 | Silty sand with gravel, SM | LT BROWN GREY | LSE | WET | 1 | OVM 48.0 | Wet at 31.3' bgs. Lithology same as previous sample. |
| -32 | 32 | | 100 | Silty sand with gravel, SM | | SFT | WET | 1 | OVM 141.0 | Petroleum odor/OVM readings diminish with depth. Shell has fines downward to mostly finer material. Shell hash with fine grey sand; OVM readings decrease with depth. |
| -34 | 34 | | 100 | Well graded sand with silt and gravel, SW-SM | GREY | LSE | SAT | 1 | OVM 61.0 | |
| -36 | 36 | | 100 | Well graded sand with silt and gravel, SW-SM | YELLOW BROWN | LSE | SAT | 1 | OVM 175.0 | Mod. petroleum odor and slight sheen. Some green glauconitic sand w/abundant mafics, ~10% of sand (10 YR 6/8); clay content increases with depth. |
| -38 | 38 | | 100 | Silty gravel, GM | BROWN YELLOW | LSE | WET | 1 | OVM 5.0 | |
| -40 | 40 | | 100 | Lean clay, CL | BLUE GREY | SFT | MST | 1 | OVM 0.0 | |

02/08/93

Borehole Log

ROY F. WESTON, Inc.

CLIENT : BAKER/ YORKTOWN
 SITE NAME : BUILDING 81
 WELL ID : MW-2
 NORTHING : 0.0000 estimated
 EASTING : 0.0000 estimated
 ELEVATION : 0.000 estimated

TOTAL DEPTH : 46.00
 LOGGER : J.H. GHENT
 DRILLING COMPANY : FISHBURNE
 DRILLING RIG : CME 55 SKID
 DATE STARTED : 01/05/93
 DATE COMPLETED : 01/06/93

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------------------------|----------------|----------|----------|------------|--------------------------|--|
| -2 | 2 | | 100 | Silty sand, SM | | SFT | DMP | 1 | OVM 0.0 | Slightly more clayey with depth of spoon. |
| | | | | Interval Not Sampled | | | | 2 | | |
| -4 | 4 | | 100 | Clayey sand, SC | RED BROWN | LSE | DMP | 3 | OVM 13.0 | More clay content toward bottom with occasional fine pebbles. |
| -6 | 6 | | | Interval Not Sampled | | | | 3 | | |
| -8 | 8 | | | | | | | | | |
| -10 | 10 | | 100 | Silty sand, SM | RED BROWN | FRM | MST | 4 | OVM 0.0 | Mottling in lower portion Sand fraction fines downward - small pebbles are present throughout. |
| -12 | 12 | | | Interval Not Sampled | | | | 7 | | |
| -14 | 14 | | 100 | Lean clay, CL | YELLOW BROWN | STF | DMP | 3 | OVM 5.0 | V. slight pet. odor in heavily mottled red pocket at 14.2' 10 R 4/8 and lt. grey mottled 5 Y 7/2. |
| -16 | 16 | | | Interval Not Sampled | | | | 3 | | |
| -18 | 18 | | | | | | | | | |
| -20 | 20 | | 100 | Silt, ML | LT BROWN | STF | DMP | 3 | OVM 80.0 | Precipitated iron deposits in clay are hard and granular. |
| -22 | 22 | | | Interval Not Sampled | | | | 3 | | |
| -24 | 24 | | 100 | Silty sand, SM | YELLOW RED | SFT | MST | 3 | OVM 4.0 | Pocket of calcareous sand quartz and shells crushed at 24.5'. |
| -26 | 26 | | | Interval Not Sampled | | | | 4 | | |
| -28 | 28 | | | | | | | | | |
| -30 | 30 | | 100 | Silt, ML | LT RED BROWN | SFT | MST | 2 | OVM 19.0 | |
| -32 | 32 | | | Interval Not Sampled | | | | 2 | | |
| -34 | 34 | | 50 | Silt with sand, ML | LT OLIVE BROWN | SFT | WET | 3 | OVM 26.0 | Dark mafic minerals are present ~5%. |
| -36 | 36 | | | Not Classified - Incomplete Data | | | | 1 | | |
| -38 | 38 | | | | | | | | | |
| -40 | 40 | | | Interval Not Sampled | LT GREY BROWN | SFT | MST | 1 | OVM 1.0 | Sat. at 40.5' in fine shelly silty sand, Dk blk mineral deposits 39-40.5' mixed w/clay, moist-wet. |
| | | | | | | | | 0 | | |

02/08/93

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 46.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : MW-2 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/05/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/06/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------------------|---------------|----------|----------|------------|--------------------------|--|
| -42 | 42 | | | Interval Not Sampled | LT GREY BROWN | SFT | MST | | 0VM 1.0 | Sat. at 40.5' in fine shelly silty sand, dk blk mineral deposits 39-40.5' mixed w/clay, moist-wet. |
| | | | | Interval Not Sampled | | | | | | |
| -44 | 44 | | 75 | Silty sand with gravel, SM | YELLOW BROWN | SFT | SAT | 4 | 0VM 0.0 | White shells and shell hash in silty clay matrix |
| -46 | 46 | | | | | | | 8 | | |
| -48 | 48 | | | | | | | | | |
| -50 | 50 | | | | | | | | | |
| -52 | 52 | | | | | | | | | |
| -54 | 54 | | | | | | | | | |
| -56 | 56 | | | | | | | | | |
| -58 | 58 | | | | | | | | | |
| -60 | 60 | | | | | | | | | |
| -62 | 62 | | | | | | | | | |
| -64 | 64 | | | | | | | | | |
| -66 | 66 | | | | | | | | | |
| -68 | 68 | | | | | | | | | |
| -70 | 70 | | | | | | | | | |
| -72 | 72 | | | | | | | | | |
| -74 | 74 | | | | | | | | | |
| -76 | 76 | | | | | | | | | |
| -78 | 78 | | | | | | | | | |
| -80 | 80 | | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

CLIENT : BAKER/ YORKTOWN
 SITE NAME : BUILDING 81
 WELL ID : MW-3
 NORTHING : 0.0000 estimated
 EASTING : 0.0000 estimated
 ELEVATION : 0.000 estimated

TOTAL DEPTH : 41.00
 LOGGER : J.H. GHENT
 DRILLING COMPANY : FISHBURNE
 DRILLING RIG : CME 55 SKID
 DATE STARTED : 01/06/93
 DATE COMPLETED : 01/07/93

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|---|----------------|----------|----------|--------------------|--------------------------|---|
| -2 | 2 | | 100 | Other | RED YELLOW BRN | SFT | DMP | 4 3 4 | OVM 0.0 | Presence of pebbles diminishes with depth. |
| | | | | Interval Not Sampled | | | | | | |
| -4 | 4 | | 100 | Silt with sand, ML | | LSE | DMP | 3 1 7 | OVM 0.0 | |
| -6 | 6 | | | Interval Not Sampled | | | | | | |
| -8 | 8 | | | | | | | | | |
| -10 | 10 | | 100 | Lean clay, CL | YEL BRN/LT GRY | STF | DMP | 4 0 9 | OVM 0.0 | Heavily mottled with red and yellowish brown, very similar to BH-1. |
| -12 | 12 | | | Interval Not Sampled | | | | | | |
| -14 | 14 | | 100 | Lean clay, CL | REDDISH YELLOW | FRM | DMP | 4 7 | OVM 1.0 | |
| -16 | 16 | | | Silty sand, SM | LT YELLOW GREY | SFT | MST | 7 10 | OVM 0.0 | |
| -18 | 18 | | | Interval Not Sampled | | | | | | |
| -20 | 20 | | 100 | Silt, ML | | SFT | MST | 2 3 4 | OVM 0.0 | Sharp contact at 21' with mottled iron stained silty clay. |
| -22 | 22 | | | Interval Not Sampled | | | | | | |
| -24 | 24 | | 10 | Well-graded gravel, GW No Sample Recovered | BLACK/WHITE | NA | DMP | 3 7 10 | OVM 0.0 | Black manganese? deposit very hard 2" diameter clogged spoon. Some shell hash with silt in tip. |
| -26 | 26 | | | Interval Not Sampled | | | | | | |
| -28 | 28 | | | | | | | | | |
| -30 | 30 | | 100 | Silty sand with gravel, SM | LT RED YELLOW | SFT | MST | 11 12 8 | OVM 0.0 | |
| -32 | 32 | | | Interval Not Sampled | | | | | | |
| -34 | 34 | | 100 | Silty sand with gravel, SM | LT GREY | SFT | SAT | 4 7 10 11 | OVM 0.0 | |
| -36 | 36 | | | Interval Not Sampled | | | | | | |
| -38 | 38 | | | | | | | | | |
| -40 | 40 | | 100 | Silty sand, SM | REDDISH YELLOW | LSE | SAT | 7 11 9 | OVM 0.0 | Some quartz sand -10-15% mixed in with predominantly shell has material. |

02/08/93

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 41.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : MW-3 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/06/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/07/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------|----------------|----------|----------|------------|--------------------------|--|
| -42 | 42 | | | Silty sand, SM | REDDISH YELLOW | LSE | SAT | | OVN 0.0 | Some quartz sand -10-15% mixed in with predominantly shell has material. |
| -44 | 44 | | | | | | | | | |
| -46 | 46 | | | | | | | | | |
| -48 | 48 | | | | | | | | | |
| -50 | 50 | | | | | | | | | |
| -52 | 52 | | | | | | | | | |
| -54 | 54 | | | | | | | | | |
| -56 | 56 | | | | | | | | | |
| -58 | 58 | | | | | | | | | |
| -60 | 60 | | | | | | | | | |
| -62 | 62 | | | | | | | | | |
| -64 | 64 | | | | | | | | | |
| -66 | 66 | | | | | | | | | |
| -68 | 68 | | | | | | | | | |
| -70 | 70 | | | | | | | | | |
| -72 | 72 | | | | | | | | | |
| -74 | 74 | | | | | | | | | |
| -76 | 76 | | | | | | | | | |
| -78 | 78 | | | | | | | | | |
| -80 | 80 | | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 36.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : MW-4 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/07/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/07/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------------|----------------|----------|----------|------------|--------------------------|--|
| -2 | 2 | | 75 | Silty sand, SM | LT BROWN GREY | LSE | MST | 3 | OVM 0.0 | -1' of loam and concrete pushed aside to place rig fill ends at top of this layer. |
| | | | | Silt with sand, ML | LT YELLOW RED | SFT | MST | 9 | OVM 0.0 | |
| | | | | Interval Not Sampled | | | | 10 | | |
| -4 | 4 | | 100 | Sandy silt, ML | LT YELLOW RED | SFT | MST | 3 | OVM 0.0 | |
| -6 | 6 | | | Interval Not Sampled | | | | 6 | | |
| -8 | 8 | | | | | | | | | |
| -10 | 10 | | 100 | Lean clay, CL | LT GREY | SFT | MST | 4 | OVM 3.0 | Sl. petrol. odor towards spoon bottom, clay content inc. to -8' and becomes tight & mod. plast. |
| -12 | 12 | | | Interval Not Sampled | | | | 8 | | |
| -14 | 14 | | 100 | Sandy silt, ML | REDDISH YELLOW | LSE | DMP | 5 | OVM 25.0 | Interbedded lenses of very fine sand and nearly pure silt. |
| -16 | 16 | | | Interval Not Sampled | | | | 6 | | |
| -18 | 18 | | | | | | | | | Slight petroleum odor. A few small shell fragments near bottom at 21'. |
| -20 | 20 | | 100 | Silt, ML | | SFT | MST | 4 | OVM 14.0 | |
| -22 | 22 | | | Interval Not Sampled | | | | 5 | | |
| -24 | 24 | | 100 | Silty sand, SM | GREENISH GREY | SFT | MST | 5 | OVM 0.5 | Shelly zone started at 21'. |
| -26 | 26 | | | Interval Not Sampled | | | | 7 | | |
| -28 | 28 | | | | | | | | | Becomes wet at 30.5' and odor diminishes below here. |
| -30 | 30 | | | Silty sand, SM | | | MST | 6 | OVM 35.0 | |
| -32 | 32 | | | Interval Not Sampled | | | | 8 | | |
| -34 | 34 | | 100 | Silty sand, SM | LT YELLOW GREY | LSE | SAT | 4 | OVM 3.0 | Saturated zone w/horizontal iron bands indicative of water table fluctuations. Boring ends -36'. |
| -36 | 36 | | | | | | | 5 | | |
| -38 | 38 | | | | | | | 6 | | |
| -40 | 40 | | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 41.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : MW-5 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/11/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/12/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|-------------------|------------|----------------------------|---------------|----------|----------|------------------|--------------------------|--|
| -2 | 2 | | | Interval Not Sampled | | | | | | |
| -4 | 4 | Diagonal Hatching | 100 | FILL | LT YELLOW RED | LSE | DMP | 4 10 10 | OVM 4.0 | 5 YR 5/8. Black ash/ organics in upper 0.5' of spoon. Clay content increases with depth. |
| -6 | 6 | | | Interval Not Sampled | | | | | | |
| -8 | 8 | | | Interval Not Sampled | | | | | | |
| -10 | 10 | Diagonal Hatching | 100 | Other | LT GREY | STF | DMP | 4 7 9 | OVM 0.0 | Mottled red yellow 7-5 YR 5/8. |
| -12 | 12 | | | Interval Not Sampled | | | | | | |
| -14 | 14 | Diagonal Hatching | 100 | Other | | FRM | DMP | 4 4 6 8 | OVM 0.5 | Silty varves inter-laminated in tight clay. |
| -16 | 16 | | | Interval Not Sampled | | | | | | |
| -18 | 18 | | | Interval Not Sampled | | | | | | |
| -20 | 20 | Horizontal Lines | 100 | Silt, ML | BROWN | SFT | MST | 2 4 4 3 | OVM 3.5 | Light tannish brown to strong brown 7.5 YR 5/8. Slight odor. |
| -22 | 22 | | | Interval Not Sampled | | | | | | |
| -24 | 24 | Horizontal Lines | 100 | Silt, ML | STRONG BROWN | SFT | MST | 3 4 2 3 | OVM 3.0 | |
| -26 | 26 | | | Interval Not Sampled | | | | | | |
| -28 | 28 | | | Interval Not Sampled | | | | | | |
| -30 | 30 | Stippled | 100 | Silty sand with gravel, SM | LT GREY | LSE | MST | 4 4 5 6 | OVM 0.0 | |
| -32 | 32 | | | Interval Not Sampled | | | | | | |
| -34 | 34 | Stippled | 100 | Silty sand with gravel, SM | | LSE | MST | 3 3 4 6 | OVM 0.5 | At 35.3' bed of 70% silt, 30% ash. At 35.7' same but saturated. |
| -36 | 36 | | | Interval Not Sampled | | | | | | |
| -38 | 38 | | | Interval Not Sampled | | | | | | |
| -40 | 40 | Horizontal Lines | 100 | Silty sand, SM | GREY | SFT | SAT | 3 3 1 2 | OVM 0.0 | Boring terminated at 41'. Some black deposits like manganese at 40'. |

Borehole Log

ROY F. WESTON, Inc.

CLIENT : BAKER/ YORKTOWN
 SITE NAME : BUILDING 81
 WELL ID : MW-5
 NORTHING : 0.0000 estimated
 EASTING : 0.0000 estimated
 ELEVATION : 0.000 estimated

TOTAL DEPTH : 41.00
 LOGGER : J.H. GHENT
 DRILLING COMPANY : FISHBURNE
 DRILLING RIG : CME 55 SKID
 DATE STARTED : 01/11/93
 DATE COMPLETED : 01/12/93

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------|-------|----------|----------|------------|--------------------------|---|
| -42 | 42 | | | Silty sand, SM | GREY | SFT | SAT | | OVM 0.0 | Boring terminated at 41'. Some black deposits like manganese at 40'. |
| -44 | 44 | | | | | | | | | |
| -46 | 46 | | | | | | | | | |
| -48 | 48 | | | | | | | | | |
| -50 | 50 | | | | | | | | | |
| -52 | 52 | | | | | | | | | |
| -54 | 54 | | | | | | | | | |
| -56 | 56 | | | | | | | | | |
| -58 | 58 | | | | | | | | | |
| -60 | 60 | | | | | | | | | |
| -62 | 62 | | | | | | | | | |
| -64 | 64 | | | | | | | | | |
| -66 | 66 | | | | | | | | | |
| -68 | 68 | | | | | | | | | |
| -70 | 70 | | | | | | | | | |
| -72 | 72 | | | | | | | | | |
| -74 | 74 | | | | | | | | | |
| -76 | 76 | | | | | | | | | |
| -78 | 78 | | | | | | | | | |
| -80 | 80 | | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

| | |
|-----------------------------|------------------------------|
| CLIENT : BAKER/ YORKTOWN | TOTAL DEPTH : 21.00 |
| SITE NAME : BUILDING 81 | LOGGER : J.H. GHENT |
| WELL ID : MW-6 | DRILLING COMPANY : FISHBURNE |
| NORTHING : 0.0000 estimated | DRILLING RIG : CME 55 SKID |
| EASTING : 0.0000 estimated | DATE STARTED : 01/12/93 |
| ELEVATION : 0.000 estimated | DATE COMPLETED : 01/12/93 |

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|--|------------|----------------|----------------|----------|----------|------------|--------------------------|--|
| -2 | 2 | Other | 100 | | GREY/BLACK | LSE | DMP | 1 | OVM 18.0 | Moderate petroleum odor like solvents; some roots present. |
| | | Silty sand, SM | | | | LSE | DMP | 1 | OVM 18.0 | |
| | | Interval Not Sampled | | | | | | | | |
| -4 | 4 | Silt, ML | 100 | | | SFT | DMP | 3 | OVM 49.0 | Some roots present. |
| -6 | 6 | Interval Not Sampled | | | | | | | | |
| -8 | 8 | Silt, ML | | | BROWN YELLOW | SFT | DMP | 3 | OVM 84.0 | Strong petroleum odor. |
| -10 | 10 | Silty sand with gravel, SM | | | GREEN | LSE | MST | 4 | OVM 84.0 | |
| -12 | 12 | Interval Not Sampled | | | | | | | | |
| -14 | 14 | Silty sand with gravel, SH | 100 | | red brown | LSE | WET | 3 | OVM 143.0 | |
| -16 | 16 | Interval Not Sampled | | | | | | | | |
| -18 | 18 | Silty sand with gravel, SM | 100 | | red brown | LSE | WET | 8 | OVM 133.0 | |
| -20 | 20 | Interval Not Sampled | | | | | | | | |
| -22 | 22 | Well graded sand with silt and gravel, SW-SH | 100 | | | LSE | WET | 5 | OVM 19.0 | |
| -24 | 24 | Sandy silt with gravel, ML | | | OLIVE GREEN | STF | SAT | 5 | OVM 19.0 | |
| -26 | 26 | Sandy silt with gravel, ML | | | BROWN | FRM | MST | 4 | OVM 69.0 | |
| -28 | 28 | Lean clay, CL | | | BLUE GREY GLEY | FRM | WET | 4 | OVM 14.0 | |
| -30 | 30 | | | | | | | | | |
| -32 | 32 | | | | | | | | | |
| -34 | 34 | | | | | | | | | |
| -36 | 36 | | | | | | | | | |
| -38 | 38 | | | | | | | | | |
| -40 | 40 | | | | | | | | | |

Borehole Log

ROY F. WESTON, Inc.

CLIENT : BAKER/ YORKTOWN
 SITE NAME : BUILDING 81
 WELL ID : MW-7
 NORTHING : 0.0000 estimated
 EASTING : 0.0000 estimated
 ELEVATION : 0.000 estimated

TOTAL DEPTH : 26.00
 LOGGER : J.H. GHENT
 DRILLING COMPANY : FISHBURNE
 DRILLING RIG : CME 55 SKID
 DATE STARTED : 01/13/93
 DATE COMPLETED : 01/13/93

| ELEVATION | DEPTH | MATERIAL | % RECOVERY | CLASSIFICATION | COLOR | STRENGTH | MOISTURE | BLOW COUNT | FIELD INSTRUMENT READING | COMMENTS |
|-----------|-------|----------|------------|----------------------|----------------|----------|----------|------------|--------------------------|---|
| -2 | 2 | | | Silt with sand, ML | GREY/BLACK | LSE | DMP | 1 | OVM 0.0 | |
| | | | | Sandy silt, ML | BROWNISH GREY | LSE | DMP | 2 | OVM 0.0 | |
| | | | | Interval Not Sampled | | | | | | |
| -4 | 4 | | 100 | Silty sand, SM | YELLOW RED | LSE | DHP | 3 | | |
| -6 | 6 | | | Interval Not Sampled | | | | | | <1% coarse to medium sand (5 YR 5/8). |
| -8 | 8 | | | | | | | | | |
| -10 | 10 | | 100 | Silt, ML | YELLOW RED | SFT | DMP | 3 | OVM 0.0 | |
| | | | | Interval Not Sampled | YELLOW RED | FRM | DMP | 3 | OVM 3.0 | 5 YR 4/6. 5 YR 4/6. |
| | | | | Interval Not Sampled | | | | | | |
| -12 | 12 | | | | | | | | | |
| -14 | 14 | | 100 | Silt, ML | DK RED BROWN | FRM | MST | 3 | OVM 0.0 | |
| -16 | 16 | | 100 | Lean clay, CL | BROWN RED | SFT | MST | 3 | OVM 0.0 | 2.5 Y 3/4, mottled yellow and black. |
| -18 | 18 | | | Silt, ML | DK RED | SFT | SAT | 3 | OVM 0.0 | Mottled yellow/grey and yellowish red 5 YR 5/6; Water entry zone at 16'. |
| | | | | Interval Not Sampled | | | | | | 2.5 YR 3/6. |
| -20 | 20 | | 100 | Silt, ML | RED | SFT | MST | 3 | OVM 0.0 | Mottled yellow. |
| | | | | Interval Not Sampled | | | | | | |
| -22 | 22 | | | | | | | | | |
| -24 | 24 | | 100 | Silty sand, SM | REDDISH YELLOW | LSE | WET | 3 | OVM 0.0 | |
| | | | | Silt, ML | olive grey | SFT | MST | 3 | OVM 0.0 | |
| -26 | 26 | | | Silt, ML | BLUE GREY | FRM | MST | 6 | OVM 0.0 | White shells & shell hash Shell hash w/red mottles 5 GY 4/1; Fossils & shells poorly preserved, highly weathered, micaceous w/f. mafics; -10% silt fraction |
| -28 | 28 | | | | | | | | | |
| -30 | 30 | | | | | | | | | |
| -32 | 32 | | | | | | | | | |
| -34 | 34 | | | | | | | | | |
| -36 | 36 | | | | | | | | | |
| -38 | 38 | | | | | | | | | |
| -40 | 40 | | | | | | | | | |

SECTION 01430

WASTE SAMPLING REQUIREMENTS

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.

NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY (NEESA)

NEESA 20.2-047B Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (June 1988)

1.2 SUBMITTALS

Submit the following in accordance with Section C, Part 7.0, of the Basic Contract.

1.2.1 SD-08, Statements

- a. Sample Log

1.2.2 SD-12, Field Test Reports

- a. Confirmatory Sample Analysis Results
- b. Waste Characterization Sample Analysis Results

1.3 DEFINITIONS

1.3.1 Contractor Generated Wastes

Contractor generated wastes shall include all materials which become contaminated with wastes as defined in the Basic Contract as a result of Contractor activity at the site after the commencement of contract work.

1.3.2 Government Generated Wastes

Government generated wastes shall include all contaminated materials existing at the site prior to the commencement of contract work.

1.3.3 Confirmation Sampling

Confirmation sampling shall include all sampling conducted in the open excavations during the post-removal stage to confirm the removal of all contaminated soil.

1.3.4 Waste Characterization Sampling

Waste characterization sampling shall include all sampling of the excavated soils to characterize the soils for disposal.

1.4 DESCRIPTION OF WORK

1.4.1 Contractor Generated Wastes

Collect and analyze environmental samples from each Contractor generated waste stream to determine applicable transportation and disposal requirements.

1.4.2 Government Generated Waste

Collect and analyze environmental samples from the excavated areas after Government generated waste has been removed to confirm the removal of all contaminated soil.

1.5 QUALITY ASSURANCE

1.5.1 Waste Sampling

Adhere to all sample acquisition, handling, custody documentation, decontamination, and quality assurance/quality control (QA/QC) requirements and procedures as required by federal, state and local regulations.

1.5.2 Analytical Laboratory

The Contractor shall be solely responsible for the execution and accuracy of the waste stream analyses. The Contractor shall use a NEESA-certified laboratory for all soil and waste analyses. All analytical standard methods shall meet, at a minimum, NEESA 20.2-047B QA/QC Level C requirements for confirmation sampling and Level C requirements for waste characterization sampling and shall also be in accordance with federal, local and state regulations.

1.5.3 Data Validation

An independent firm shall be subcontracted for data validation. Samples collected shall be evaluated using Level C quality control. Data review procedures specified by NEESA 20.2-047B and the Functional Guidelines established by EPA Region IV shall be followed to ensure that raw data are not altered and that an audit trail is developed for those data which require reduction. Specific Quality Assurance/Quality Control (QA/QC) procedures shall be included in the Sampling and Analysis Plan indicated in Section 01010. Data validation results shall be provided in the Contractor's Closeout Report as indicated in Section 01010, "General Paragraphs."

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 GENERAL

Supply all personnel, equipment, and facilities to collect and analyze the environmental samples required to characterize the wastes.

3.1.1 Sample Acquisition

Sampling procedures shall be consistent with NEESA 20.2-047B Guidelines.

After the excavation has been completed:

- a. Visually inspect the area for stained or discolored soil.
- b. Field screen the area using an organic vapor analyzer.
- c. If no stained or discolored soil is visible, and the organic vapors are below 50 ppm, collect one confirmation sample for every part of or every 500 square feet of the base of the excavation, and one sample from the largest sidewall of the excavation along the perimeter of the site.
- d. Place the sample in an appropriate sample container for shipment for off-site confirmation analyses.
- e. If stained soils are visible, or if organic vapor levels are greater than 50 ppm, or if contamination is suspected, notify the Navy's Technical Representative (NTR).

3.1.1.1 Confirmation Samples

Confirmation samples shall be collected from the walls and the bottom of the open excavations. One sample for every 500 square feet or fraction thereof of soil along the bottom of the excavation and one sample from the longest wall of the excavation shall be collected and analyzed for Total Petroleum Hydrocarbons (TPH) by EPA Method 8015.

If the detected concentration exceeds 500 ppm TPH, notify the NTR. If the concentration is less than 500 ppm TPH, no further excavation is required.

3.1.1.2 Waste Characterization Samples

Waste characterization samples shall be collected for the purposes of determining handling, transportation, and disposal requirements and for determining personal and environmental protection and monitoring requirements.

Characterization samples shall be collected from the soils to be disposed of. One thoroughly mixed composite sample shall be collected for every 100

cubic yards or fraction thereof of material.

The composite sample shall consist of six grab samples representative of the material being sampled. The grab samples shall be thoroughly mixed to obtain a relatively homogeneous mixture.

The characterization samples shall be analyzed for the following parameters:

1. TCLP Metals - EPA Methods 6010, 7060, 7131, 7191, 7421, 7470, 7740, 7760
2. TPH - EPA Method 418.1
3. Total Organic Halogens (TOX) - EPA Method 9020
4. Benzene, Toluene, Ethylbenzene, Xylene (BTEX) - EPA Method 8020
5. TCL PCBs - EPA Method 8080
6. Moisture Content - EPA Method 160

3.1.1.3 Contractor Generated Waste Samples

Collect samples from Contractor generated waste to determine applicable transportation and disposal requirements. Analyze Contractor generated waste samples for the following parameters:

1. TCLP Metals - EPA Methods 6010, 7060, 7131, 7191, 7421, 7470, 7740, 7760
2. TPH - EPA Method 418.1
3. TOX - EPA Method 9020
4. BTEX - EPA Method 8020
5. TCL PCBs - EPA Method 8080
6. Moisture Content - EPA Method 160

3.1.2 Sample Handling

Sampling, sample handling, and sampling containers must be consistent with the chemicals expected, the matrix of the sample, and planned analytical procedures. Precleaned glass sample containers with teflon lids are required.

The Contractor shall describe in the Sampling and Analysis Plan strict chain-of-custody procedures to be used during collection, transport, and analysis of all samples.

3.1.3 Sampling Documentation

Maintain a sample log containing, at a minimum, the following information:

- a. Date and Time of Sampling
- b. Sample Locations
- c. Sample Matrix
- d. Sample Identification Number

- e. QA/QC Sample Identification
- f. Analyses to be Performed
- g. Type and Number of Sample Containers
- h. Signatures of Individuals Performing Sampling

-- End of Section --

SECTION 01560

TEMPORARY CONTROLS

12/93

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.

CODE OF FEDERAL REGULATIONS (CFR)

| | |
|-------------|--|
| 29 CFR 1910 | Occupational Safety and Health Standards |
| 29 CFR 1926 | Safety and Health Regulations for Construction |
| 40 CFR 261 | Identification and Listing of Hazardous Waste |
| 40 CFR 262 | Generators of Hazardous Waste |
| 40 CFR 300 | National Oil and Hazardous Substances Pollution Contingency Plan |
| 49 CFR 178 | Shipping Container Specification |

CORPS OF ENGINEERS (COE)

| | |
|----------------|--|
| COE EM-385-1-1 | 1992 Safety and Health Requirements Manual |
|----------------|--|

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

| | |
|----------|---|
| NFPA 241 | 1989 Safeguarding Construction, Alteration, and Demolition Operations |
|----------|---|

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

Rubbish, debris, garbage, and other discarded solid materials, except hazardous waste as defined in paragraph entitled "Hazardous Waste," resulting from industrial, commercial, and agricultural operations and from community activities.

1.2.3 Rubbish

Combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.

1.2.4 Debris

Combustible and noncombustible wastes such as ashes and waste materials resulting from construction or maintenance and repair work, leaves, and tree trimmings.

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

Hazardous substances as defined in 40 CFR 261 or as defined by applicable state and local regulations.

1.2.8 Oily Waste

Petroleum products and bituminous materials.

1.2.9 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-212) | 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 |

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 4 of the Basic Contract.

1.3.1 SD-08, Statements

- e. MSDS G

1.3.2 SD-18, Records

a. Solid waste disposal permit

1.3.2.1 Solid Waste Disposal Permit

Submit one copy of a state and local permit or license showing such agencies' approval of the disposal plan.

1.4 CLASS I ODS PROHIBITION

Class I ODS as defined and identified herein shall not be used in the performance of this contract. This prohibition shall be considered to prevail over any other provision, specification, drawing, or referenced documents.

1.5 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 but not limited to water, air, and noise pollution.

1.6 SAFETY PROGRAM

The Contractor shall implement a safety program conforming to the requirements of Federal, state and local laws, rules, and regulations. Work can not proceed until the Safety Program has been approved.

- a. 29 CFR 1910, Occupational Safety and Health Standards.
- b. 29 CFR 1926, Subpart V, tagout and lockout procedures.
- c. COE EM-385-1-1.
- d. Contract Clause "FAR 52.236-1, Accident Prevention." In this clause, the date of COE EM-385-1-1 should be 1 October 1992.
- e. MSDS, supply Material Safety Data Sheet for all hazardous materials brought on-site.

1.6.1 Unforeseen Hazardous Material

If material that is not indicated on the drawings is encountered that may be dangerous to human health upon disturbance during construction operations, stop that portion of work and notify the Contracting Officer immediately. Intent is to identify materials such as PCB, lead paint, and friable and nonfriable asbestos. Within 14 calendar days the Government will determine if the material is hazardous. If the material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If the 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."

1.6.2 Station Permits

Permits are required for, but are not necessarily limited to, welding, digging, and burning. Allow 7 calendar days for processing of the application.

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.

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 Officers 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 attach ropes, cables, or guys is authorized, the Contractor shall be responsible for any resultant damage.

3.1.1.1 Protection

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. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition.

3.1.2.2 Oily Wastes

Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Surround all temporary fuel oil or petroleum storage tanks with a temporary earth berm of sufficient size and strength to contain the contents of the tanks in the event of leakage or spillage.

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.

3.3 EROSION AND SEDIMENT CONTROL MEASURES

3.3.1 Burnoff

Burnoff of the ground cover is not permitted.

3.3.2 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.

3.3.3 Temporary Protection of Erodible Soils

Use the following methods to prevent erosion and control sedimentation:

3.3.3.1 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 strawbales to retard and divert runoff to protected drainage courses.

3.3.3.2 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 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 erosion control.

- a. Seeding: Provide new seeding where ground is disturbed. Include topsoil or nutriment during the seeding operation necessary to reestablish a suitable stand of grass. The seeding operation shall be as specified in Section 02220, "General Excavation, Filling, and Backfilling."

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.

3.4.1 Disposal of Rubbish and Debris

Dispose of rubbish and debris in accordance with the requirements specified below:

3.4.1.1 Removal From Government Property

Remove and dispose rubbish and debris from Government property.

3.4.2 Garbage Disposal

Place garbage in approved containers, and move to a pickup point or disposal area, where directed.

3.5 CONTROL AND DISPOSAL OF HAZARDOUS WASTE

3.5.1 Hazardous Waste Generation

Handle generated hazardous waste in accordance with 40 CFR 262.

3.5.2 Hazardous Waste Storage

Store hazardous waste in containers in accordance with 49 CFR 178. Hazardous waste shall be identified in accordance with 40 CFR 261 and 40 CFR 262.

3.5.3 Spills of Oil and Hazardous Materials

Take precautions to prevent spills of oil and hazardous material. In the event of a spill, immediately notify the Contracting Officer. Spill response shall be in accordance with 40 CFR 300 and applicable state regulations.

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 will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will 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.

3.7 NOISE

Make the maximum use of low-noise emission products, as certified by the EPA. Blasting or use of explosives will not be permitted without written permission from the Contracting Officer, and then only during the designated times.

3.8 RESTRICTIONS ON EQUIPMENT

3.8.1 Radio Transmitter Restrictions

Conform to the restrictions and procedures for the use of radio transmitting equipment, as directed. Do not use transmitters without prior approval.

3.9 FIRE PROTECTION

3.9.1 Compliance

COE EM-385-1-1, NFPA 241, and activity fire regulations. Obtain approval from the activity Fire Chief prior to commencement of hot work operations.

3.9.2 Notification of Fire

Post the activity fire poster in conspicuous locations and at telephones in construction shacks.

-- End of Section --

1.6.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the Contracting Officer prior to beginning such work.

1.6.2 Existing Work

Protect existing work which is to remain in place, be reused, or remain the property of the Government. Repair items which are to remain and which are damaged during performance of the work to their original condition, or replace with new. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have Contracting Officer approval.

1.6.3 Trees

Conform to Section 01560, "Temporary Controls," for protection of natural resources.

1.6.4 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

1.7 BURNING

Burning will not be permitted.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

3.1.1 Structures

Remove indicated existing structures to top of concrete slab.

3.1.2 Concrete Block

Remove concrete block walls so as to prevent damage to surfaces to remain.

3.1.3 Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with

the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish.

3.2 DISPOSITION OF MATERIAL

3.2.1 Title to Materials

Except where specified in other sections, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from Government property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the Contractor's demolition and removal procedures, and authorization by the Contracting Officer to begin demolition. The Government will not be responsible for the condition or loss of, or damage to, such property after notice to proceed. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.3 CLEANUP

3.3.1 Debris and Rubbish

Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas. Clean up spillage from pavements, streets and adjacent areas.

-- End of Section --

SECTION 02220

GENERAL EXCAVATION, FILLING, AND BACKFILLING
12/93

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.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

| | |
|-------------|--|
| ASTM C 136 | 1992 Sieve Analysis of Fine and Coarse Aggregates |
| ASTM D 698 | 1991 Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft (600 kN-m/m)) |
| ASTM D 1140 | 1992 Amount of Material in Soils Finer Than the No. 200 (75-Micrometer) Sieve |
| ASTM D 1557 | 1991 Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m)) |
| ASTM D 2487 | 1992 Classification of Soils for Engineering Purposes |
| ASTM D 4318 | 1984 Liquid Limit, Plastic Limit, and Plasticity Index of Soils |

COMMERCIAL ITEM DESCRIPTIONS (CID)

| | |
|--------------|------------|
| CID A-A-1909 | Fertilizer |
|--------------|------------|

CORPS OF ENGINEERS (COE)

| | |
|----------------|--|
| COE EM-385-1-1 | 1992 Safety and Health Requirements Manual |
|----------------|--|

1.2 DEFINITIONS

1.2.1 Cohesive Materials

Materials ASTM D 2487 classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesive only when the fines have a plasticity index greater than zero.

1.2.2 Cohesionless Materials

Materials ASTM D 2487 classified as GW, GP, SW, and SP. Materials classified as GM and SM will be identified as cohesionless only when the fines have a plasticity index of zero.

1.2.3 Contaminated Soil/Cleanup Levels

Soils having contaminant concentrations greater than 500 ppm TPH as determined by sampling and analysis.

1.3 SUBMITTALS

Submit the following in accordance with Section C, of the General Contract.

1.3.1 SD-12, Field Test Reports

- a. Fill and backfill test

1.4 DELIVERY, STORAGE, AND HANDLING

Perform in a manner to prevent contamination or segregation of materials.

1.5 PETROLEUM CONTAMINATED SOILS

Transportation and disposal of petroleum contaminated soils shall be in accordance with Section 02223, "Transportation and Disposal of Contaminated Material". Assume for the purposes of on site handling and stockpiling that all soils indicated for removal are petroleum contaminated.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

Free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, and deleterious, or objectionable materials. Unless specified otherwise, the maximum particle diameter shall be one-half the lift thickness at the intended location.

2.1.1 Common Fill

Approved, unclassified soil material with the characteristics required to compact to the soil density specified for the intended location. Moisture content shall be adjusted as necessary for compaction requirements.

2.1.2 Backfill and Fill Material

ASTM D 2487, classification GW, GP, GM, SW, SP, SM, with a maximum ASTM D 4318 liquid limit of 35 maximum ASTM D 4318 plasticity index of 12 and a maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve.

2.1.3 Topsoil

Natural, friable soil representative of productive, well-drained soils in the area, free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material detrimental to plant growth. Amend topsoil pH range to obtain a pH of 5.5 to 7.

2.2 BORROW

Obtain borrow materials required in excess of those furnished from excavations from sources outside of Government property.

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Protection Systems

Provide shoring, bracing, sheeting, or proper sloping of the excavation in accordance with COE EM-385-1-1 and all applicable regulations if required as indicated. Properly brace shoring to eliminate any hazard or possibility of movement of existing buildings or existing utilities during the excavation. The contractor is responsible for structural stability of existing structures during excavation and for a time of one year after acceptance by the Government.

3.1.2 Site Drainage

Provide for the collection and disposal of surface and subsurface water encountered during construction.

3.1.2.1 Surface Drainage

So that construction operations progress successfully, completely drain construction site during periods of construction to keep soil materials sufficiently dry. Provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein.

3.1.2.2 Subsurface Drainage

Dewatering will not be required or permitted.

3.1.3 Underground Utilities

Location of the existing utilities indicated is approximate. The Contractor shall physically verify the location and elevation of the existing utilities indicated prior to starting construction. The Contractor shall scan the construction site with electromagnetic and sonic equipment and mark the surface of the ground where existing underground utilities are discovered.

3.1.4 Machinery and Equipment

Movement of construction machinery and equipment over pipes during construction shall be at the Contractor's risk. Repair, or remove and provide new pipe for existing or newly installed pipe that has been displaced or damaged.

3.2 GENERAL EXCAVATION

Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended location. Keep excavations free from water. Excavate soil disturbed or weakened by Contractor's operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Refill with backfill and fill material and compact to 95 percent of ASTM D 698 maximum density. Unless specified otherwise, refill excavations cut below indicated depth with backfill and fill material and compact to 95 percent of ASTM D 698 maximum density.

3.3 EXCAVATION OF CONTAMINATED MATERIALS

3.3.1 Materials and Equipment

3.3.1.1 General

- a. Provide all labor, materials, and equipment necessary to accomplish the work specified in these paragraphs.
- b. The Contractor shall notify the NTR at least 48 hours prior to the start of excavation of contaminated soils. The Contractor shall stage operations to minimize the time the contaminated soil is exposed to the weather. Provide protection measures around the area of contaminated soils to divert runoff of water within the excavation boundaries.

3.3.1.2 Unclassified Excavation

Excavation is unclassified. All excavation shall be completed regardless of the type, nature, or condition of the materials encountered.

3.3.2 Limits of Excavation

- a. Excavations shall be conducted in 24" cuts. The base and walls of the excavation shall be visually inspected for contaminated soils. If contaminated soils are present at the base of the excavation an additional 24" cut shall be excavated to a maximum depth of 4 feet below ground surface or until the footer of the adjacent wall is encountered. All soils removed shall be placed in the appropriate container.
- b. Once the Contractor has excavated to the specified limits of the excavation, an on-site analysis consisting of a visual inspection will be performed on the surrounding soil. If the visual inspection reveals evidence of visibly contaminated soil, the Contractor will consult with the NTR to determine the extent of

additional excavation. When the exposed excavation surfaces do not contain visual evidence of contaminated soil or the footer of the adjacent wall is encountered, confirmation samples will be collected and sent to an analytical laboratory for analysis.

- c. Following initial soil excavation activities and passive visual inspection of on-site analysis, confirmation soil samples shall be collected and submitted to a laboratory for analysis as specified in Section 01430, "Waste Sampling Requirements."
- d. Final excavation areas shall be governed by field conditions and determined by the NTR.
- e. Construct a small berm around the top perimeter of the excavation areas to prevent surface waters from entering the excavation. Remove and contain any ponded water collected in the excavations.
- f. Place excavated contaminated soil to be disposed of in the appropriate container and cover with 40 mil polyethylene sheeting and secure the edges of the sheeting.
- g. One characterization soil sample shall be collected and submitted to a laboratory for analysis as specified in Section 01430, "Waste Sampling Requirements."
- h. Contaminated soil and debris to be disposed of must not contain free liquids. The contractor may be required to dewater the soil by applying a drying agent such as kiln dust to the excavated material.
- i. Contaminated materials shall be loaded into covered containers or vehicles designed to transport such materials without spillage. Care shall be taken during loading operations to minimize the potential for spillage, tracking, or other means of deposition of contaminated materials outside the work area. Contaminated materials which become spilled on roads, street, or other areas outside the limits of excavation during the loading operation shall be immediately cleaned up to the satisfaction of the NTR.
- j. Backfilling of excavated areas will begin only after the approval of the NTR.
- k. The Contractor and the NTR shall work together closely to coordinate excavation, sampling, and analyses to minimize downtime. The Contractor shall schedule work to minimize downtime.

3.3.3 Method of Measurement

The contaminated materials shall be separated according to their final disposal requirements. The quantity of work done under this paragraph will be measured in tons, which shall be measured in tons, which shall be the actual weight of the solid waste removed. Quantity shall be verified by the certified delivery tickets provided by the treatment facility.

3.4 CONCRETE DECONTAMINATION

After completion of excavation activities and prior to backfilling the excavation, decontaminate the concrete walls and flooring in contact with the excavated soils.

3.5 FILLING AND BACKFILLING

Fill and backfill to contours, elevations, and dimensions indicated. Compact each lift before placing overlaying lift.

3.5.1 Common Fill Placement

Provide for general site. Place in 12-inch lifts. Compact areas not accessible to rollers or compactors with mechanical hand tampers. Aerate material excessively moistened by rain to a satisfactory moisture content. Finish to a smooth surface by blading, rolling with a smooth roller, or both.

3.5.2 Backfill and Fill Material Placement

Provide for contaminated soil removal area. Place in 12-inch lifts.

3.6 COMPACTION

Expressed as a percentage of maximum density. Determine in-place density of existing subgrade; if required density exists, no compaction of existing subgrade will be required. Density requirements specified herein are for cohesionless materials. When cohesive materials are encountered or used, density requirements may be reduced by 5 percent.

3.6.1 General Site

Compact underneath areas designated for vegetation and areas outside the 5-foot line of the structure to 85 percent of ASTM D 698.

3.6.2 Adjacent Area

Compact areas within 5 feet of structures to 90 percent of ASTM D 698.

3.7 FINISH OPERATIONS

3.7.1 Grading

Finish grades to match existing and as indicated within one-tenth of one foot. Grade areas to drain water away from structures. For existing grades that will remain but which were disturbed by Contractor's operations, grade as directed.

3.7.2 Seed

Scarify existing subgrade. Provide 4 inches of topsoil for newly graded finish earth surfaces and areas disturbed by the Contractor. If there is insufficient on-site topsoil meeting specified requirements for topsoil, provide topsoil required in excess of that available. Seed shall match

existing vegetation. Provide seed at 5 pounds per 1000 square feet. Provide CID A-A-1909, Type I, Class 2, 10-10-10 analysis fertilizer at 25 pounds per 1000 square feet. Provide commercial agricultural limestone of 94-80-14 analysis at 70 pounds per 1000 square feet. Provide mulch and water to establish an acceptable stand of grass.

3.7.3 Protection of Surfaces

Provide an erosion control matting to keep soils in place while allowing turf to be established. Protect newly graded areas from traffic, erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes.

3.8 DISPOSITION OF SURPLUS MATERIAL

Remove from Government property surplus or other soil material not required or suitable for filling or backfilling, and brush, refuse, stumps, roots, and timber.

3.9 FIELD QUALITY CONTROL

3.9.1 Sampling

Take the number and size of samples required to perform the following tests.

3.9.2 Testing

Perform one of each of the following tests for each material used. Provide additional tests for each source change.

3.9.2.1 Fill and Backfill Material Testing

Test fill and backfill material in accordance with ASTM C 136 for conformance to ASTM D 2487 gradation limits; ASTM D 1140 for material finer than the No. 200 sieve; ASTM D 4318 for liquid limit and for plastic limit; ASTM D 698 or ASTM D 1557 for moisture density relations, as applicable.

-- End of Section --

SECTION 02223

TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL

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.

CODE OF FEDERAL REGULATIONS 40 CFR Part 148

40 CFR Part 148

40 CFR Parts 260 to 280 Standards Applicable to Generators of
Hazardous Waste

49 CFR Parts 100 to 199 Transportation

1.2 SUBMITTALS

1.2.1 SD-08, Statements

a. Treatment Facility Permit

1.2.1.1 Treatment Facility Permit

a. Written verification that the proposed disposal site is permitted to accept the contaminated materials specified, prior to the start of excavation. All treatment and disposal facilities shall be identified. Permitting and licensing information shall be provided for each facility along with a contact person, address, and a telephone number. The specific waste types to be treated and disposed must be clearly identified.

1.2.2 SD-18, Records

- a. Shipment Manifests
- b. Delivery Certificates
- c. Disposal Site Decontamination Certificate
- d. Work Site Decontamination Certificate
- e. Treatment and Disposal Certificates

1.2.2.1 Shipment Manifests

Copies of manifests and other documentation required for shipment of waste materials within 24 hours after removal of waste from the site.

1.2.2.2 Delivery Certificates

Verification that the wastes were actually delivered to the disposal site, within 7 days of delivery.

1.2.2.3 Disposal Site Decontamination Certificate

Verification that all vehicles and containers were decontaminated prior to leaving the disposal site, within 3 days of disposal.

1.2.2.4 Work Site Decontamination Certificate

Verification that all vehicles and containers were decontaminated prior to leaving the site, were properly operating, and were covered, within 24 hours after removal of waste from the site.

1.2.2.5 Treatment and Disposal Certificates

Verification that contaminated materials were treated and disposed of within 7 days of delivery.

1.3 DEFINITIONS

The following definitions shall apply, in addition to the definitions for the various waste types described in Part 4 of the Basic Contract.

1.3.1 Government Generated Waste

Government generated waste shall include all contaminated soils at the site prior to the commencement of contract work.

1.3.2 Contractor Generated Waste

Contractor generated waste shall include all materials which become contaminated with wastes as defined in the Basic Contract as a result of contractor activity at the site after the commencement of contract work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 Materials and Equipment

Furnish all labor, materials, and equipment necessary to transport and dispose of contaminated soils in accordance with applicable Federal, State, and local requirements.

3.1.2 Waste Disposal

3.1.2.1 Processing Sampling Wastes

Wastes generated during hazard characterization and compatibility testing, which shall include but not be limited to, all surplus samples, glass jars, sampling devices, and chemical materials, shall be packed in overpack drums and labeled for off-site disposal.

3.1.2.2 Processing Rinsate Solutions

Containerize in compatible drums all rinsate solutions for sampling and disposal. The drums containing rinsate solution shall be placed in the final staging area.

3.1.3 Transportation and Disposal Records

Provide and prepare all waste shipment records/manifests for hazardous and nonhazardous wastes, required by the Resource Conservation and Recovery Act (RCRA) and the U.S. Department of Transportation (DOT). The Contractor shall complete all labels, profile sheets, and disposal restriction forms as necessary, including all DOT, USEPA, and state classifications. The Contractor shall provide a 48 hour notification to MCB Environmental Management Division for required signatures on waste manifests. Following completion of all paperwork, the Contractor shall submit this material and supporting documentation to the Navy's Technical Representative.

3.1.4 Transportation

The Contractor shall be solely responsible for complying with all federal, state, and local requirements for transporting hazardous materials through the applicable jurisdictions and shall bear all responsibility and cost for any noncompliance. In addition to those requirements, the Contractor shall do the following:

- a. The Contractor shall weigh all containers for disposal prior to leaving NWS Yorktown. The Contractor shall provide certified accuracy of the scales to ± 10 percent.
- b. Inspect and document all vehicles and containers for proper operation and covering.
- c. Inspect all vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.
- d. Perform and document decontamination procedures prior to leaving the worksite and again before leaving the disposal site.

3.1.5 Disposal

All contaminated materials classified as hazardous under RCRA (40 CFR Part 261) that are removed from the site shall be disposed of in a RCRA hazardous waste treatment/disposal facility permitted to accept such materials.

All decontaminated metal material shall be taken to an on station metal recycling facility as directed by the Contracting Officer.

3.2 Treatment Facilities

The proposed treatment methods for the contaminated soils is incineration. The Contractor shall select a permitted facility for the treatment and disposal of the contaminated soil.

-- End of Section --