U.S. NAVY NORTHERN DIVISION
REMEDIAL ACTION CONTRACT (RAC)
CONTRACT NO. N62472-94-D-0398
DELIVERY ORDER NO. 0006
FOSTER WHEELER ENVIRONMENTAL CORPORATION

WORK PLAN
FOR
SITE 02 AND STUDY AREA 4
AT
NAVAL CONSTRUCTION BATTALION CENTER (NCBC)
DAVISVILLE, RI

March 1996

Prepared for

U.S. Navy Northern Division

Revision	Date	Prepared by	Approved by	Pages Affected
1	3/20/96	Lawrence E. Kahrs, P.E.	Arthur B. Holcomb, P.E.	All

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ACRONYMS

AETS	Advanced Environmental Technical Services
CAA	Clear Air Act
CBC	Construction Battalion Center
CED	Construction Equipment Division
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Chain of Custody
CRC	Contamination Reduction Corridor
CRZ	Contamination Reduction Zone
CSO	Caretaker's Site Office
DI	Deionized
EPA	Environmental Protection Agency
EZ	Exclusion Zone
FARs	Federal Acquisition Regulations
HCL	Hydrochloric Acid
HEPA	High Efficiency Particulate Air
IRP	Installation Restoration Program
MSDSs	Material Safety Data Sheets
NCBC	Naval Construction Battalion Center
NET	National Environmental Testing, Inc.
NORTHDIV	Northern Division
PCBs	Polychlorinated Biphenols
PID	Photo-Ionization Detector
PMO	Program Management Office
PPE	Personal Protective Equipment
ppm	parts per million
PQCM	Program Quality Control Manager
QA	Quality Assurance
QC	Quality Control
RAC	Removal Action Contract
RCRA	Resource Conservation Recovery Act
RIDEM	Rhode Island Department of Environmental Management
RIEDC	Rhode Island Economic Development Corporation
RIPDES	Rhode Island Pollutant Discharge Elimination System
ROICC	Resident Officer In Charge of Construction
SHERP	Safety, Health, and Emergency Response Plan
SHSO	Site Health and Safety Officer
SQCM	Site Quality Control Manager
SZ	Support Zone
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxic Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
UIC	Underground Injection Control
UST	Underground Storage Tank
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compound

1.0 INTRODUCTION

1.1 Project Description

Foster Wheeler Environmental Corporation (Foster Wheeler Environmental) has prepared this Work Plan for Delivery Order No. 0006 under the U.S. Navy Northern Division Remedial Action Contract (RAC) N62472-94-D-0398. This Work Plan is based upon the Time-Critical Removal Action For Sites 02 and 13 At CBC Davisville, Rhode Island, prepared by Stone & Webster Environmental Technology & Services (Stone & Webster); the site visit conducted on July 26, 1995; the Statement of Remediation Services, prepared by the Northern Division (NORTHDIV) on September 22, 1995 outlining the scope of work for Study Area 4; and the Change in Scope and Schedule, prepared by NORTHDIV on February 20, 1996. These aforementioned documents are herein referred to as the "Project Specifications". Foster Wheeler Environmental also reviewed the Action Memorandum For Study Area 4 At CBC Davisville, Rhode Island and the Time-Critical Action Memorandum For Sites 02 and 13 At CBC Davisville, Rhode Island, prepared by Stone & Webster. This Work Plan was finalized with comments received from the United States Environmental Protection Agency (EPA) Region I, the Rhode Island Department of Environmental Management (RIDEM), NORTHDIV, and Stone & Webster. It should be noted that this Work Plan addresses only removal actions at Site 02 and Study Area 4, as Site 13 requires additional investigation prior to any removal action implementation. A site vicinity map is provided as Figure 1-1. The location of each removal action is shown on Figure 1-2.

The removal action at Site 02, the Construction Equipment Division (CED) Battery Acid Disposal Area, involves the removal of lead-contaminated water and sediment from a drywell, the removal and demolition of the drywell chamber and associated piping, and the excavation of adjacent lead-contaminated soil, as necessary. Sampling of the water, sediment, and soil will be conducted for waste characterization, and these materials will be disposed of off-site. The drywell chamber and associated piping will also be disposed of off-site.

The removal action at Site 02 also includes the cleaning of the Battery Acid Room inside Building 224 and the interior of Building A10CT for lead residues.

The removal action at Study Area 4, the CED Asphalt Disposal Area, consists of the removal of asphaltic material from a trench and the excavation of adjacent soil, as necessary. These materials exhibit contamination by Total Petroleum Hydrocarbons (TPH) and polychlorinated biphenols (PCBs). Sampling of the asphaltic material and adjacent soil will be conducted for waste characterization, and the materials will be disposed of off-site.

1.2 Overview of Work Plan

This Work Plan presents the proposed implementation of the project. Section 2.0 outlines the project management structure. Section 3.0 presents the Environmental Protection Plan, which discusses the regulatory requirements for the project. Section 4.0 includes the Construction Quality Control (QC) Plan. Sections 5.0, 6.0, and 7.0 discuss the sequencing of the work in the field relating to excavation, demolition, and transportation and disposal. Sampling and laboratory analytical procedures can be found in Section 8.0. Section 9.0 describes the site restoration activities which will be performed. Reporting and close-out documentation is discussed in Section 10.0.

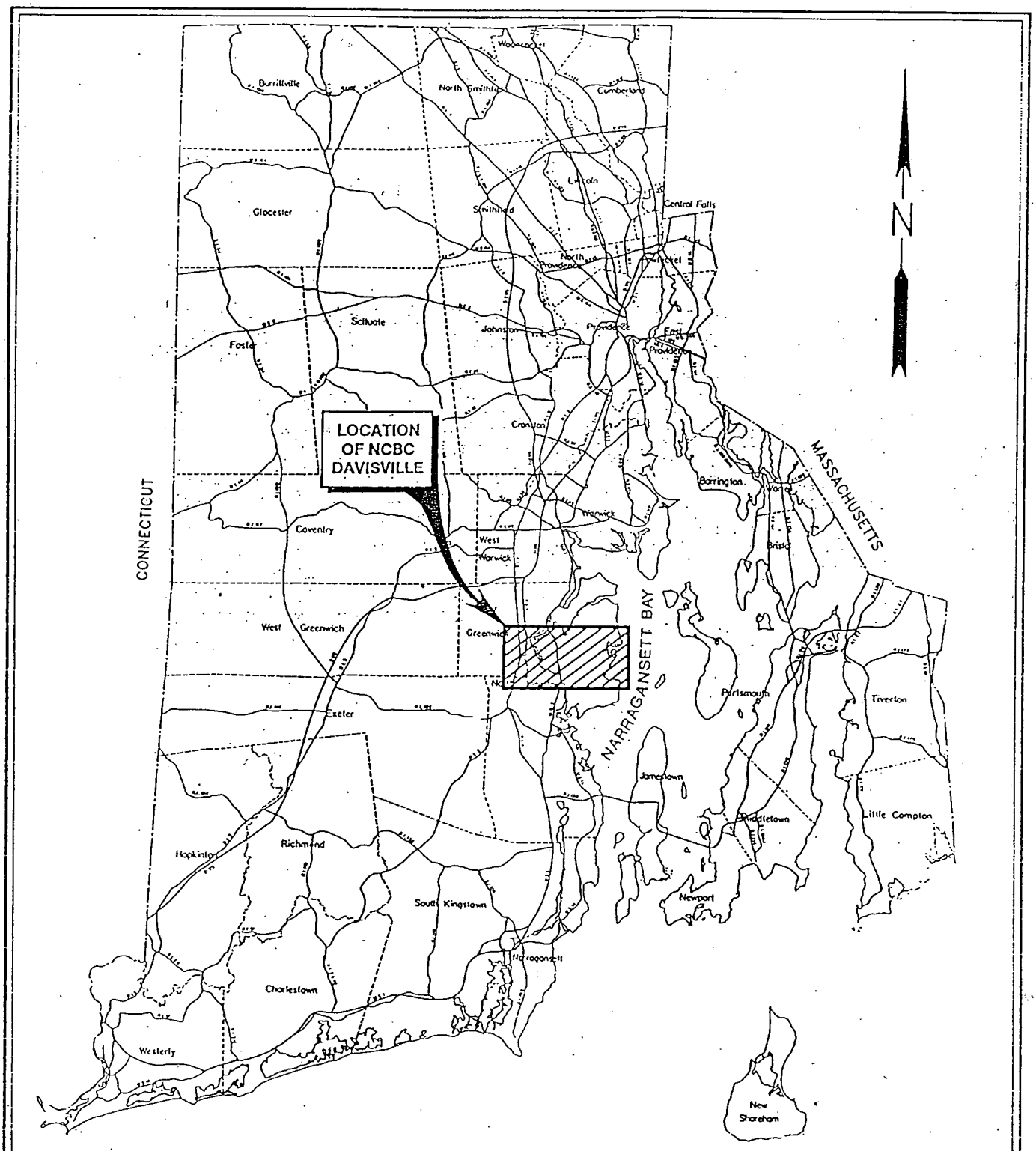


FIGURE 1-1

Naval Construction Battalion Center
Davisville, Rhode Island

SITE VICINITY MAP

SCALE: AS SHOWN

STUDY AREA 4

SITE 02

1000 0 1000 2000 3000 4000
SCALE IN FEET

Source: USGS 7.5 Minute Series (Topographic) Quadrangle: Wickford, R.I., 1957, photorevised 1970 and 1975.

FIGURE 1-2

Naval Construction Battalion Center
Davisville, Rhode Island

SITE LOCATION MAP

SCALE: AS SHOWN

2.0 PROJECT MANAGEMENT

2.1 Project Organization

Figure 2-1 depicts the Foster Wheeler Environmental project organization for this Delivery Order. As noted on the chart, and discussed during negotiations, several key Foster Wheeler Environmental personnel will perform dual roles at the site for project implementation. The responsibilities for each of the roles are discussed in the following sections. Resumes for key individuals are included in Appendix A.

The project management team is configured such that one person, Mr. Larry Kahrs, has overall administrative and technical responsibilities for this Delivery Order. As the Delivery Order Manager, Mr. Kahrs reports directly to Mr. Art Holcomb, the Program Manager. Mr. Kahrs is responsible for planning and scheduling the removal actions, ensuring project deliverables are submitted on a timely basis, tracking and managing budgets and schedules, and maintaining a safe work environment and a record of site activities.

William Dolhancey is the Project Superintendent. Mr. Dolhancey will be responsible for managing and directing all on-site activities. These activities will include supervision of all subcontractors, site procurement of materials, interfacing with the Navy Resident Officer In Charge of Construction (ROICC) and Navy consultant, and ensuring compliance with the removal action scope.

Doug Murphy will act as the Site QC Manager, ensuring compliance with the QC Plan, Test Plan and Log, and Submittal Register.

Mr. Murphy will also serve as the Site Health and Safety Officer (SHSO) and will be responsible for adherence to the Safety, Health, and Emergency Response Plan (SHERP).

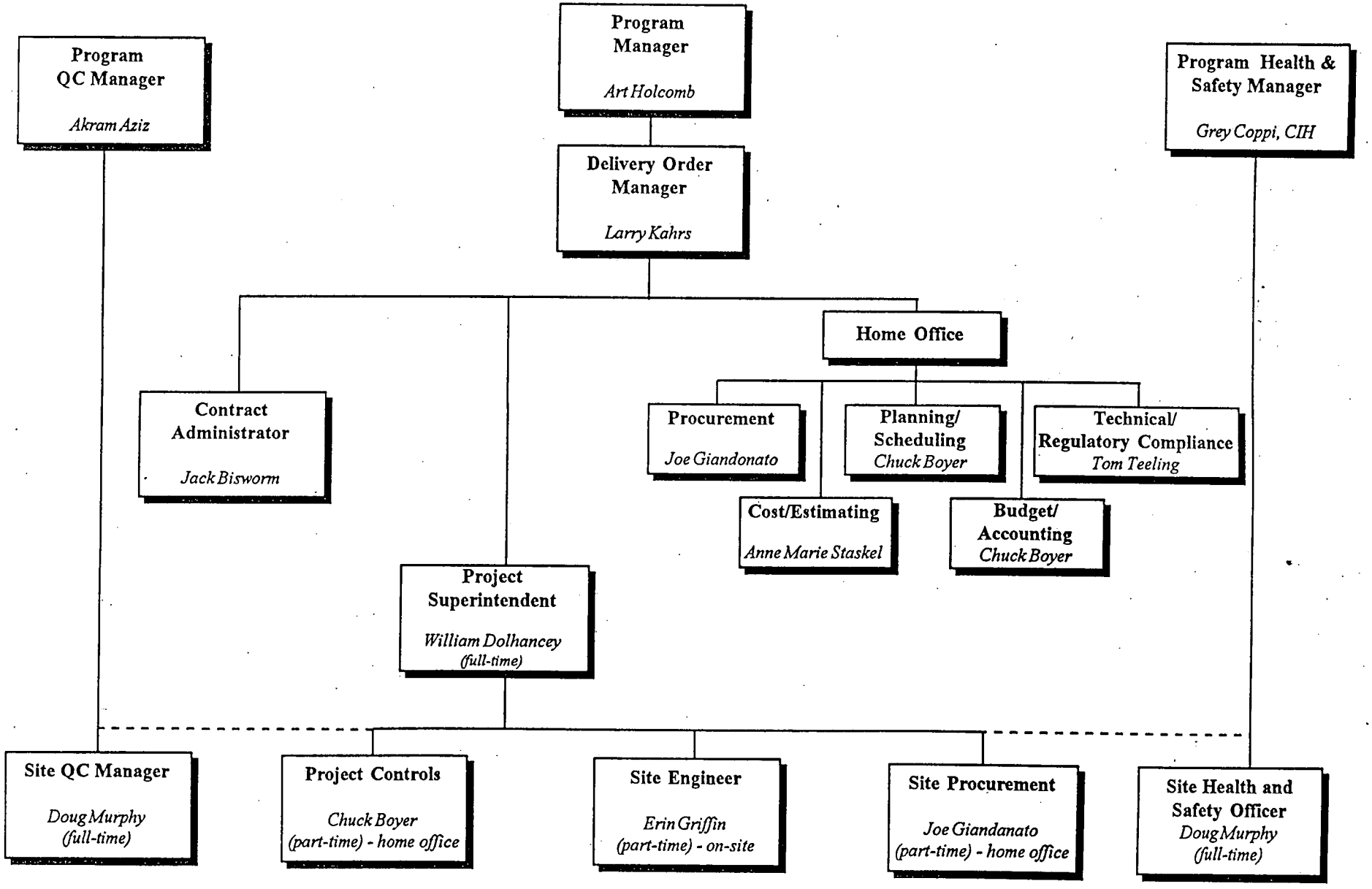
The Site Engineer's responsibilities will be handled by Erin Griffin on a part-time basis. Ms. Griffin will be responsible for all engineering documentation, including sample tracking, hazardous waste characterization and manifesting, and field records.

During the site activities, field staff will receive assistance from procurement and project controls personnel at both the Boston, MA and Langhorne, PA offices. These personnel will assist those on-site with field procurement, scheduling, status reports, and punch lists.

Prior to mobilization, procurement activities will be supported on a part-time basis through the Program Office in Langhorne, PA. Joe Giandonato will be responsible for procurement of materials at the site, management of subcontracts, and field accounting activities. Procurement and site mobilization personnel will be on-site full-time for the first week of the project, then will provide support on an as-needed basis from the Program Office for the remainder of the project.

Chuck Boyer will provide part-time site Project Controls services on an as-needed basis from the Langhorne, PA office. Once developed, the Project Controls function will include updating the project schedule and cost tracking databases, and preparing status reports and punch lists.

Figure 2-1
Foster Wheeler Project Organizational Chart
NCBC Davisville



NA95-008

2.2 Work Approach

The execution of this project will involve various distinct tasks beginning with mobilization and ending with the preparation of the Site Assessment Report. These tasks include:

- Mobilization
- Removal Action at Site 02 (Drywell and Piping)
- Removal Action at Site 02 (Building A10CT and Battery Acid Room in Building 224)
- Removal Action at Study Area 4
- Demobilization
- Site Assessment Report

A detailed description of specific items included under these tasks, or definable features of work, can be found in Section 4.0.

2.3 Schedule

The schedule, enclosed as Figure 2-2, illustrates the major tasks and their anticipated start and completion dates. The duration of the actual field activities is five weeks. The removal actions will be conducted consecutively, such that the majority of the work can be conducted at one site while awaiting laboratory results from the other site. In this manner, down time is minimized and work can proceed in a logical fashion.

2.4 Subcontracting and Procurement

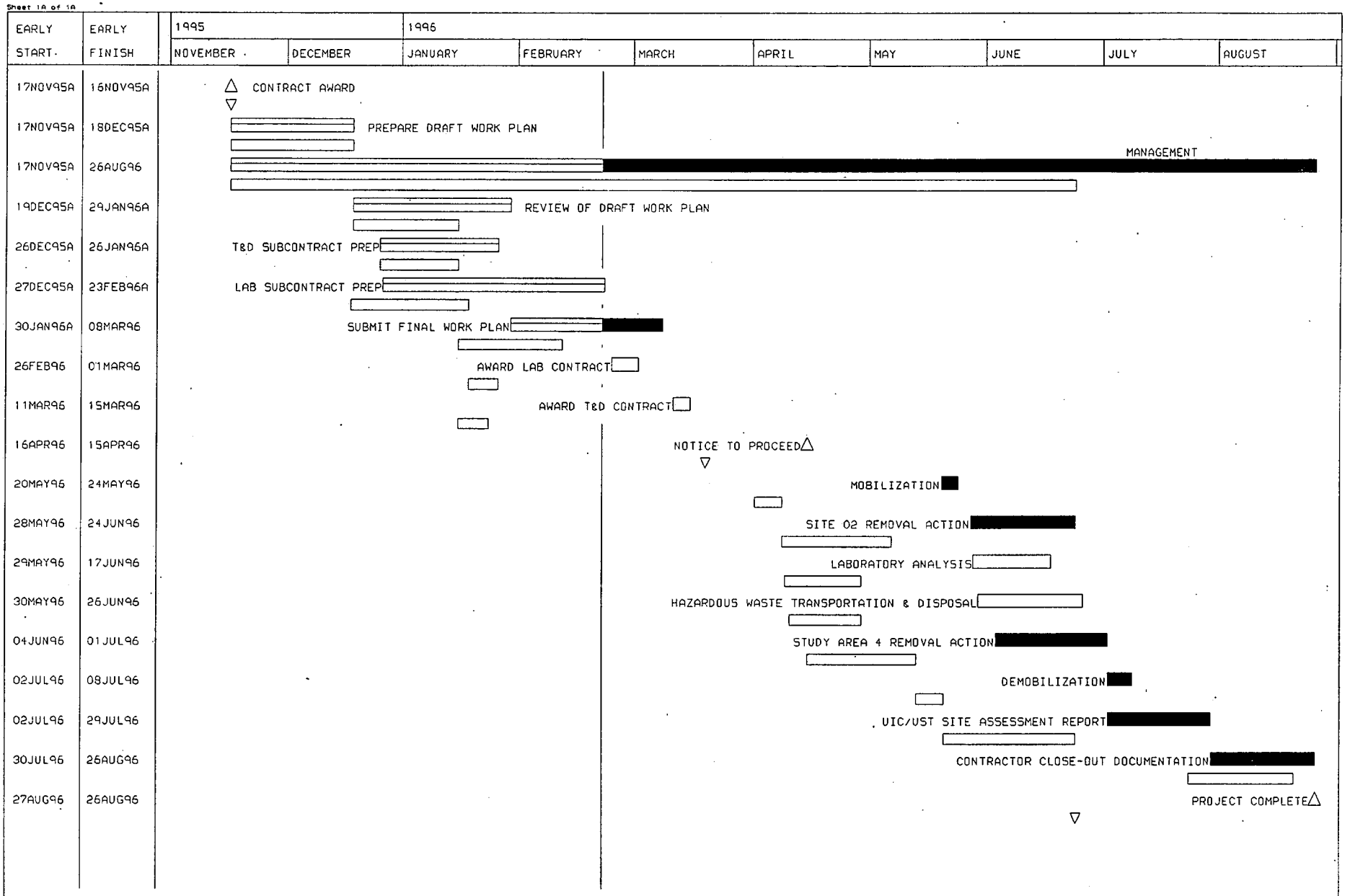
The acquisition of materials and services to support this Delivery Order will be in conformance with the Federal Acquisition Regulations (FARs). The work has been divided into procurement efforts which are identified in Table 2-1. These material and subcontract procurements will be initiated in the home office to support initial site activities, and will be managed from the field for the remainder of project activities.

Table 2-1

Summary of Subcontract Procurement Efforts

Subcontractor	Materials/Services	Type of Contract
NET Cambridge Cambridge, MA	Laboratory Analyses	FUR[1]
Smoke Testing	Piping Configuration at Site 02	FP[2]
AETS Marlborough, MA	T&D of Hazardous Waste	FUR
Testing Service	Geotechnical/Materials Testing	FP
Surveyor	Record Drawings	FP
Paving Service	Site Restoration	FP

Note: [1] FUR: Fixed Unit Rate
[2] FP: Field Procurement



DESC
MILESTONE
CRITICAL
PROGRESS
PLANNED

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PROGRAM MANAGER: A. HOLCOMB

DOM: L. KAHRS

FIGURE 2-2

PROJECT SCHEDULE

RUN DATE	20MAR96
START DATE	17NOV95
DATA DATE	23FEB96
FINISH DATE	26AUG96

NCBC DAVISVILLE, RI

D 0 0006

REMEDIATION ACTION

BASELINE VS CURRENT

SURETRAK

NCBC DAVISVILLE, RI

For subcontract services, statements of work will be prepared by engineering staff to accompany the Project Specifications. These documents identify the scope of services required, schedule constraints, and submittal requirements. In addition, they provide a site background summary and health and safety requirements for site work. Procurement personnel will provide the contractual and administrative portions of the package for subcontract services.

Procurement of materials and equipment will be performed using purchase requisitions, to which the appropriate Project Specifications will be attached. In addition to these procurements, local vendors will be identified and accounts established to supply commodity items such as office supplies, lumber, rental tools, building supplies, etc. to the site.

3.0 ENVIRONMENTAL PROTECTION

The purpose of this section is to provide an Environmental Protection Plan which identifies the applicable environmental regulatory requirements for the removal actions to be conducted at NCBC Davisville and establishes the appropriate project controls to fulfill these requirements. This section also details environmental compliance procedures and training requirements for this project. The Delivery Order Manager will be responsible for verifying that all project personnel are aware of the requirements outlined in this Plan.

3.1 Regulatory Drivers

NCBC Davisville is a National Priority List "Superfund" site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). EPA and RIDEM will review all work pertaining to the removal actions at Site 02 and Study Area 4.

These removal actions will be conducted in accordance with the Project Specifications and all applicable federal, state, and local regulations. Foster Wheeler Environmental will be responsible for obtaining all environmental permits required for activities at the site.

3.2 Potential Permit Equivalency Activities

As this is a removal action under Superfund, all work must meet the substantive requirements of applicable federal, state, and local regulations. The following activities and regulations may trigger equivalency requirements.

Underground Storage Tank/Underground Injection Control

An Underground Injection Control (UIC) or Underground Storage Tank (UST) Notification Form will be completed and submitted to RIDEM within thirty (30) days after the on-site removal activities are completed. Foster Wheeler Environmental will notify RIDEM two (2) weeks prior to the removal of the drywell chamber.

EPA Hazardous Waste Generator Identification Numbers

The anticipated hazardous wastes generated during the removal actions will be disposed of using the EPA Hazardous Waste Generator Identification Number RI6170022036. The Navy will be responsible for obtaining and supplying to Foster Wheeler Environmental any additional Generator Identification Numbers required. Transporter and disposal facility identification numbers will be obtained and verified by Foster Wheeler Environmental.

Air Pollution Control

The site is located within the authority of RIDEM, which is authorized by EPA to enforce the Clean Air Act (CAA). NORTHDIV will be responsible for obtaining a Record of Non-Applicability for the CERCLA exemption of the CAA conformity rule. Foster Wheeler Environmental shall meet the substantive state permit requirements for any point source air discharges during removal actions. The removal actions will not involve on-site treatment of any excavated soil. Any fugitive dust emissions resulting from project operations will be controlled using the Best Available Technology. This includes utilizing water spraying to keep surfaces adequately wet to prevent fugitive dust emissions.

Clean Water Act

RIDEM has been delegated authority from EPA to administer the Rhode Island Pollutant Discharge Elimination System (RIPDES) permit program. A RIPDES permit will be required to discharge treated groundwater into the sanitary sewer system at the site. Such discharge will not occur unless dewatering is required at Site 02. Foster Wheeler Environmental will be responsible for obtaining a RIPDES permit if dewatering is required. Foster Wheeler Environmental's responsibilities will also include monitoring the discharge for pollutants specified in the RIPDES permit, monitoring the volume of effluent discharged, preparing Discharge Monitoring Reports for submittal to RIDEM, and notifying RIDEM of any permit exceedances in a timely manner. Based upon the reported site conditions, however, the depth to water at Site 02 should not necessitate dewatering during removal activities.

Of concern to water quality is the control of stormwater runoff during excavation activities. Sediment and potentially contaminated water generated during excavation will be prevented from entering the sanitary sewer system at the site. Best Management Practices will be used during excavation and demolition to minimize contaminated water migration and sediment suspension and transport. Erosion control measures will be applied in the vicinity of each work area to prevent the migration of contaminated soils away from the areas of concern.

Wetlands Protection

No wetlands are identified within 200 feet of Site 02 or Study Area 04. However, substantive compliance with the regulations listed below will be met if the potential to impact or disturb wetlands arises:

- Clean Water Act Section 404/401
- Executive Order 11990
- National Environmental Policy Act
- Rhode Island Rules and Regulations for wetlands

Endangered Species Act

The areas of concern have not been identified as containing any endangered species. Therefore, the Endangered Species Act is not applicable to this project.

Coastal Zone Determination

NORTHDIV personnel will be responsible for obtaining the necessary documents for a Coastal Zone Consistency Determination.

3.3 Release Reporting

An Emergency Response Plan and a Spill Control and Response section are both contained in the SHERP. Information contained in these sections details how Foster Wheeler Environmental will address spill control, prevention, and emergency response activities on-site.

3.4 Training and Certification Requirements for Project Personnel

As indicated in the SHERP, and pursuant to 29 CFR 1910.120, site personnel performing intrusive activities in any exclusion zone must have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations. In addition to the required initial training, each employee must have received three (3) days of directly supervised on-the-job training appropriate for the activities they will be required to perform. Annual 8-hour refresher training will be required of all hazardous waste site personnel in order to maintain their qualifications for field work. Both the SHSO and the Project Superintendent will also have received 24 hours of on-the-job supervised training, 8-hour supervisor training, and First Aid/CPR with blood borne pathogens training.

3.5 Inspection and Audit Procedures

Inspections by Regulatory Agencies

Site personnel will notify the Project Superintendent if contacted by a regulatory agency for a site inspection. The Project Superintendent will contact the Delivery Order Manager, who will notify the NORTHDIV Remedial Project Manager and the Foster Wheeler Environmental Director of Regulatory Compliance. In the event of an unannounced inspection, the NORTHDIV Project Manager and the Foster Wheeler Environmental Director of Regulatory Compliance will be contacted immediately.

Inspections by Third Parties

Any outside party requesting access to the site will be referred to the Project Superintendent who will initiate the appropriate notification of the Delivery Order Manager and the NORTHDIV Remedial Project Manager. Foster Wheeler Environmental personnel will not grant site access or answer questions for unauthorized personnel.

4.0 CONSTRUCTION QUALITY CONTROL

4.1 Quality Organization

General

Foster Wheeler Environmental's RAC Program Organization is specifically designed to control work performed by the Foster Wheeler Environmental Team in accordance with the contract requirements. Foster Wheeler Environmental will manage this contract through a dedicated Program Management Office (PMO) located in Langhorne, PA.

The organizational structure program is organized into four elements under the Program Manager: 1) Contract Administration; 2) Quality Control; 3) Health and Safety; and 4) Senior Project Engineer/Manager, along with the home office support groups which will provide assistance to the PMO on an as-needed basis. The home office support groups themselves are organized into five elements: 1) Procurement; 2) Planning and Scheduling; 3) Cost Estimating; 4) Budgeting and Accounting; and 5) Technical and Regulatory Compliance. Five of the above elements (Contract Administration, Planning and Scheduling, Cost Estimating, Budgeting and Accounting, and Technical and Regulatory Compliance) are non-remediation related and are not addressed in this QC Plan. The major function of the QC Plan is to ensure that all organizational elements perform the assigned removal actions in compliance with the contract.

The QC Plan provides for monitoring, auditing, and conducting field inspections to ensure compliance is being maintained. Maintenance of the project records and required reports and logs is also addressed. A program to assure that all submittals are correct and complete before forwarding to the Contracting Officer's Representative is included in this Plan.

QC Group

The QC Group assigned to the Program is technically responsible to the Foster Wheeler Environmental Corporate Quality Assurance (QA) Officer. The group is headed by the Program QC Manager (PQCM) who receives administrative direction from the Program Manager for the purpose of coordinating QC activities with the Delivery Order operations, testing sequences and schedule, and achieving timely resolution of quality issues.

The QC Group consists of the PQCM and the Site QC Manager (SQCM). The Quality Organization for the Program is shown in Figure 2-1.

Program QC Manager (PQCM)

The PQCM is responsible for approving the QC Plan for the project; assuring that all relevant portions of the Plan are implemented during the project through audits and surveillance of project activities; issuing reports to the Delivery Order Manager of any deviation from the approved plans; and authorizing the SQCM to act on his behalf for all site-related quality activities.

Site QC Manager (SQCM)

The SQCM will implement the Foster Wheeler Environmental Corporation QC Program and will have sole responsibility for ensuring compliance with the Project Specifications. He will have the authority to reject material or workmanship which does not comply. In addition, the SQCM will review and modify or correct all contract submittals prior to forwarding to the Contracting Officer's Representative. The SQCM, or a designated representative acceptable to the Navy, will be present at the project site whenever work or testing is in progress.

The major responsibilities of the SQCM, as outlined in Part 6.0 (Quality Control) of the Basic Contract, include:

- Managing and implementing an effective QC Program;
- Notifying EPA and RIDEM at least one (1) week in advance of any field activities and at least 24 hours in advance of any cancellations of work;
- Conducting QC meetings at the site with the Project Superintendent each week, notifying the Contracting Officer's Representative at least 48 hours in advance of each meeting, and preparing and submitting the meeting minutes to the Contracting Officer's Representative within two (2) working days after the meeting;
- Ensuring submission of weekly QC meeting minutes to EPA and RIDEM;
- Ensuring documentation of field activities daily in the Contractor Production Report and the Contractor QC Report (See Appendix C);
- Ensuring, through audits or surveillance, conformance of all items of work and subcontractor performance to the applicable Project Specifications with respect to the materials, workmanship, construction finish, and functional performance;
- Ensuring monthly submission of the Testing Plan and Log, field test summary, and rework items list, as required by the Basic Contract;
- Performing preparatory, initial, and follow-up inspections as needed on each phase of work to ensure that materials are installed in accordance with the Project Specifications;
- Utilizing the services of qualified agencies or contractors to perform testing services or inspections as deemed necessary;
- Reviewing and modifying or correcting, as needed, submittals prior to forwarding to the Contracting Officer's Representative;
- Identifying, controlling, and assuring resolution of deficiencies, including corrective action implementation;
- Maintaining a current set of the Project Specifications noting all changes approved by the Contracting Officer's Representative; and
- Maintaining project records as required by the contract or statute.

4.2 Submittals Processing

General

The number and type of submittals to be issued are outlined in the Project Specifications. Foster Wheeler Environmental will institute and maintain a submittal system to track submittals from issue to approval (see Appendix B - Submittal Register) and to comply with the Navy requirement for submittals. Foster Wheeler Environmental will forward submittals requiring Navy approval and will submit these items as listed on the Submittal Register and Test Plan and Log. Units of weights and measures used on all submittals will be the same as that used in the Project Specifications.

Each submittal will be complete and in sufficient detail for ready determination with the contract requirements. All items will be checked and approved by the SQCM and will be transmitted via Transmittal Form 4025 (see Appendix C) which will be initiated and dated by the SQCM indicating that the accompanying submittal conforms or does not conform to contract requirements.

All submittals must be stamped with a QC Certification Stamp in accordance with the Project Specifications.

Receipt of Submittals

Submittals, in the quantity required by the contract, will be sent to:

Commanding Officer
Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop #82
Lester, PA 19113-2090

and Navy personnel as specified under the Delivery Order distribution schedule.

Each transmittal will be identified with:

- Contract Number and Delivery Order Number;
- Unique sequential transmittal number (specification number followed by sequential number);
- Name and address of the submitting organization;
- Date of submittal;
- Description of item being submitted, including reference to specification section and specification paragraph number relevant to item; and
- Approval of submitting organization indicating conformance to requirements.

The SQCM will enter each transmittal into the Submittal Register, determine if approval is required by the Contracting Officer's Representative, and proceed with review of submitted material.

Review and Processing of Submittals Which Do Not Require Navy Approval

Material submitted for review by the SQCM or designated representative will indicate that it either conforms to established requirements or does not conform to established requirements. The SQCM will advise the submitter of the results of the review. The submittal log will be updated to indicate status.

Conforming submittals will be transmitted to Project and Navy personnel as determined by the distribution schedule.

Non-conforming submittals are returned to the submitter for correction, resolution of comments, and re-submittal.

Review and Processing of Submittals Which Require Navy Approval

Material submitted for review by the SQCM or designated representative will be signed to indicate that it conforms to requirements. The submittal will then be transmitted in accordance with the project distribution schedule for review and approval. All items sent to the Navy will be done so through Transmittal Form 4025 which will indicate each item transmitted, the date reviewed by the SQCM, and its review status. Upon completion of review, the Contracting Officer's Representative will return the transmittal form to the SQCM for further action.

The SQCM will advise the submitter of the results of the review in writing and include any comments. The submittal log will be updated to indicate status.

Non-conforming submittals will be returned to the submitter for correction, resolution of comments, and re-submittal if required.

Revised Submittals

Revised submittals will be logged, reviewed, and processed in a manner identical with the initial submittal and will comply with the Navy requirements under the Basic Contract.

4.3 Testing and Sampling Methodology

Chemical Testing and Sampling

Testing and sampling activities, which are used to establish chemical content or degree of contamination, will be covered in Section 8.0 - Field Sampling and Laboratory Testing. The frequency of testing and sampling is indicated in Table 4-1.

Geotechnical Testing and Sampling

Geotechnical testing and sampling of materials will be carried out using approved methodology and at the frequency indicated in Table 4-1. The SQCM will be the responsible person, supervising all testing and sampling activities and reviewing the qualifications of the independent testing laboratory prior to submitting any samples for test. The Contracting Officer's Representative will approve the independent testing laboratory. Samples to be tested by the independent laboratory may be collected by either laboratory or trained field personnel.

The qualifications of the independent testing laboratory are to be provided to the Contracting Officer's Representative when they become available.

Chain of Custody

A Chain of Custody (COC) form will be used to provide evidence that samples for chemical analysis are under continuous control up until the analysis or test is complete. The COC form for laboratory chemical analysis is included in Appendix C.

Table 4-1
Test Plan and Log

CONTRACT NUMBER N62472-94-D-0398/ D.O. # 0006		PROJECT TITLE AND LOCATION REMOVAL ACTIONS, SITE 02 & STUDY AREA 4, NCBC, DAVISVILLE, RI								CONTRACTOR FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED	TESTED BY	LOCATION OF TEST		FREQUENCY	DATE COMPLETED	DATE FORWARDED TO CONTR. OFF	REMARKS
			YES	NO			ON SITE	OFF SITE				
02082 / 3.18.1	SITE 02 DISPOSAL CHARACTERIZATION ANALYSES	DRYWELL WATER - TOTAL LEAD SEDIMENTS - TCLP LEAD SOIL - TCLP LEAD ASPHALT DEBRIS - TCLP LEAD WOOD DEBRIS - TCLP LEAD DECON WATER - TOTAL LEAD PPE - TCLP LEAD	X X X X X X X					X X X X X X X	ONE TIME ONE TIME ONE/50 YDS^3 ONE/50 YDS^3 ONE/50 YDS^3 ONE TIME ONE TIME			
02082 / 3.18.1	SITE 02 BACKFILL ANALYTICAL TESTING	TCLP, TOTAL LEAD, TPH	X					X	ONE/50 YDS^3			
02082 / 3.18.2	SITE 02 DRYWELL EXCAVATION CONFIRMATORY SOIL SAMPLING	TOTAL LEAD, TPH	X					X	TWO/BASE			
02082 / 3.18.3	SITE 02 PIPING EXCAVATION CONFIRMATORY SOIL SAMPLING	TOTAL LEAD, TPH	X					X	ONE/25 FT ONE/CHANGE DIRECTION ONE/JOINT			
02082 / 3.18.2	SITE 02 DRYWELL EXCAVATION RISK ASSESSMENT SOIL SAMPLING	TCL, TAL, TCLP	X					X	TWO/BASE			
02082 / 3.18.3	SITE 02 PIPING EXCAVATION RISK ASSESSMENT SOIL SAMPLING	TCL, TAL, TCLP	X					X	ONE/25 FT ONE/CHANGE DIRECTION ONE/JOINT			
02999 / 3.3.1 02999 / 3.3.3	SITE 02 WIPE SAMPLING	BUILDING 224 - TOTAL LEAD BUILDING A10CT - TOTAL LEAD	X X					X X	ONE/100 FT^2 ONE/100 FT^2			
02999 / 3.3.2	SITE 02 PERSONAL AREA MONITORING	BUILDING 224 - TOTAL LEAD BUILDING A10CT - TOTAL LEAD	X X					X X	25% WORK CREW OR MIN. 2 WORKERS			
02220 / 3.7.1.2	SITE 02 BACKFILL GEOTECHNICAL TESTING	GRADATION LIQUID LIMIT PLASTIC LIMIT MOISTURE DENSITY RELATIONSHIP	X X X X					X X X X	ONE/ SOURCE ONE/SOURCE ONE/SOURCE ONE/SOURCE			
02220 / 3.4	SITE 02 BACKFILL COMPACTION TESTING	IN-PLACE DENSITY	X				X		ONE/12-IN LIFT			
02510 / 1.3.1.1	ASPHALT PAVING	MIX DESIGN		X				X	ONE/MIX			
SRS / 1.2.2A	STUDY AREA 4 DISPOSAL CHARACTERIZATION ANALYSES	ASPHALTIC MATERIAL - TPH, PCBs SOIL - TPH, PCBs DECON WATER - TPH, PCBs PPE - TPH, PCBs	X X X X					X X X X	ONE/50 YDS^3 ONE/50 YDS^3 ONE TIME ONE TIME			

Table 4-1 (cont'd)
Test Plan and Log

CONTRACT NUMBER N62472-94-D-0398/ D.O. # 0006		PROJECT TITLE AND LOCATION REMOVAL ACTIONS, SITE 02 & STUDY AREA 4, NCBC, DAVISVILLE, RI								CONTRACTOR FOSTER WHEELER ENVIRONMENTAL CORPORATION		
SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED	TESTED BY	LOCATION OF TEST		FREQUENCY	DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE				
SRS / 1.2.2A	STUDY AREA 4 CONFIRMATORY SOIL SAMPLING	TPH, PCBs	X					X	ONE/30 FT SIDEWALL ONE/80 FT^2 BASE			
SRS / 1.2.2B	STUDY AREA 4 BACKFILL ANALYTICAL TESTING	TCLP, TPH, PCBs	X					X	ONE/50 YDS^3			
SRS / 1.2.2B	STUDY AREA 4 BACKFILL GEOTECHNICAL TESTING	GRADATION LIQUID LIMIT PLASTIC LIMIT MOISTURE DENSITY RELATIONSHIP	X X X X					X X X X	ONE/ SOURCE ONE/SOURCE ONE/SOURCE ONE/SOURCE			
SRS / 1.2.2B	STUDY AREA 4 BACKFILL COMPACTION TESTING	IN-PLACE DENSITY	X				X		ONE/12-IN LIFT			

Note: SRS refers to the Statement of Remediation Services, prepared by NORTHDIV on September 22, 1995

Equipment Calibration

Equipment calibration frequency and methodology for the geotechnical tests performed by the independent test laboratory will be as described in the qualification statement of the laboratory. Calibration of air monitoring and other in-situ chemical concentration or characteristic measuring instruments are described in the SHERP.

Outside Organizations

Qualifications for any subcontractors who will provide on-site testing and services will be provided to the Navy at the time of service.

4.4 Site Quality Control Activities

Control of Subcontractors and Vendors

Construction subcontractor's qualifications to perform the required work will be evaluated by the SQCM. He will be responsible for ensuring Project Specification compliance in all work performed by these subcontractors. All subcontractor activities will be subject to QC inspection.

Material and equipment vendors will be required to submit certifications of compliance or manufacture data sheets for their products. Materials and equipment delivered to the job site will be inspected upon receipt for conformance to purchasing documents. All vendor materials and equipment will be subject to QC inspection.

Certificates of compliance will be filed in the Project Files by the SQCM and will be submitted to the Contracting Officer's Representative.

Receiving inspection activities will be documented in the Contractor QC Report.

QC Inspection Activities

The SQCM will perform three (3) phases of control to ensure that work complies with contract requirements. The three (3) phases of control, as defined below, will adequately cover both on-site and off-site activities for each definable feature of work. A definable feature of work is a task which is separate and distinct from other tasks and requires separate control requirements. The definable features of work are identified in Table 4-2.

- Preparatory Phase

  The SQCM will notify the Contracting Officer's Representative at least two (2) work days in advance of each preparatory phase inspection to allow the Contracting Officer's Representative to participate in the inspection if desired. Preparatory phase inspections will be documented in the Preparatory Inspection Checklist (see Appendix C) and the Contractor QC Report. The SQCM will perform the following prior to the commencement of each definable feature of work:

  a. Review each paragraph of the applicable Project Specification sections;
  b. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved, and verify receipt of approved factory test results when required;

Table 4-2
Definable Features of Work
Delivery Order No. 0006 - NCBC Davisville

Item No.	Definable Work Phases and Specific Items to be Evaluated
1.0	**Mobilization**
1.1	Review Submittals
	Work Plan
	SHERP
1.2	Mobilization
	Photo documentation
	Verification of Emergency Response Plan
	Verification of availability of spill and discharge control materials
1.3	Establish Work Zones
	Assurance that work areas are posted and security barriers are in place
	Assurance that ingress/egress sites are in place and that pathways in/out of zones are clearly marked
1.4	Provide Temporary Utilities
	Verification of telephone utility installation as specified
	Verification that portable/ temporary utilities are installed, connected, and tested in accordance with approved shop drawings and Contract Documents
1.5	Construct Decontamination (Decon) Facilities
	Verification that decon facilities are located and erected in accordance with Contract Documents and SHERP
1.6	Fencing and Signs
	Verification that fencing is repaired or replaced per Contract Documents
	Verification that signs are sized and located per Contract Documents
1.7	Establish Staging Areas
	Verification that staging and stockpile areas are located and constructed per Contract Documents
1.8	Erosion, Dust, and Stormwater Control
	Verification that sediment erosion control procedures are followed
	Verification that runoff controls are in place per Contract Documents
	Verification that measures are in place to suppress dust generation
2.0	**Removal Action at Site 02 (Drywell and Piping)**
2.1	Cut and Remove Asphalt Over Drywell and Piping
	Assurance that asphalt is stored in accordance with Project Specifications
2.2	Excavate Soil to Expose Piping and Top of Drywell
	Assurance that soil is managed in accordance with Section 5.0 - Excavation and Material Handling
2.3	Smoke Testing
	Identify orientation and configuration of drain system leaving Building 224 towards drywell
	Record configuration of drywell system
2.4	Rinse Piping Leading to Drywell
	Assurance that piping has been triple rinsed
	Assurance that piping has been cleaned to removed sediment and remaining liquid

Item No.	Definable Work Phases and Specific Items to be Evaluated
2.5	Cut and Remove Piping Leading to and Leaving Drywell
	Verification that plastic sheeting is placed beneath the piping prior to cutting and removal
	Verification that piping is managed according to Project Specifications
2.6	Grout Drains and Piping
	Verification that drains inside the Battery Acid Room in Building 224 are sealed
	Verification that any remaining piping leaving Building 224 is sealed
	Verification that piping leaving drywell is sealed
2.7	Collect and Analyze Initial Characterization Samples
	Assurance that representative samples are collected from waste streams for disposal characterization
	Assurance that samples are submitted to laboratory and disposal facility for analysis
2.8	Remove Sediment and Liquids from Drywell
	Assurance that sediment and liquids are containerized and managed in accordance with Project Specifications
	Assurance that sediment and liquids are manifested and volumes recorded
2.9	Remove Drywell Structure
	Assurance that all free liquids are removed from structure prior to demolition
	Assurance that drywell structure debris is handled in accordance with Project Specifications
2.10	Collect Soil Samples in Excavation and Beneath Piping Run
	Assurance that number and location of soil samples is in accordance with Project Specifications
	Assurance that duplicates and field blanks are collected
	Assurance that Chain of Custody paperwork is completed and samples are submitted to laboratory
	Assurance that laboratory results meet Project Specifications
2.11	Remove Additional Soil if Necessary
	Assurance that contaminated materials are handled in accordance with Project Specifications
	Assurance that soils are manifested and volumes recorded
	Assurance that soils are stored and covered properly if not disposed immediately
	Assurance that soils are sampled according to frequency in the Project Specifications
	Verification that soil sampling results meet closure criteria
2.12	Secure Stockpiled/Staged Wastes Until Disposal
	Assurance that all drummed wastes are labeled and transported to the on-site RCRA staging area
	Assurance that all other wastes are covered and secure
2.13	Site Restoration
	Assurance that backfill material meets criteria established in Project Specifications
	Assurance that backfill material is placed and tested according to Project Specifications
	Assurance that subgrade material meets Project Specifications
	Assurance that asphalt paving is placed according to Project Specifications and test results are submitted
3.0	**Removal Action at Site 02 (Building A10CT and Battery Acid Room in Building 224)**
3.1	Collect and Analyze Baseline Wipe Samples
	Identify all homogeneous surfaces and distribute samples to adequately characterize the contamination
	Assurance that duplicates and field blanks are collected
	Assurance that Chain of Custody paperwork is completed and samples are submitted to laboratory
3.2	Remove Wooden Racks and Debris
	Assurance that debris is handled and containerized in accordance with Project Specifications

Item No.	Definable Work Phases and Specific Items to be Evaluated
3.3	Clean All Surfaces With Amended Water
	Assurance that cleaning extends to all affected areas of each building
	Assurance that all rinsate is collected, containerized, and labeled
	Assurance that personal air monitoring is performed in accordance with Project Specifications
3.4	Collect and Analyze Final Wipe Samples
	Identify all homogeneous areas originally sampled and resample same areas
	Assurance that duplicates and field blanks are collected
	Assurance that Chain of Custody paperwork is completed and samples are submitted to laboratory
	Assurance that analytical results meet Project Specifications
4.0	**Removal Action at Study Area 4**
4.1	Collect and Analyze Initial Characterization Samples
	Assurance that representative sample are collected from waste streams for disposal characterization
	Assurance that samples are submitted to laboratory and disposal facility for analysis
4.2	Removal of Asphaltic Material
	Assurance that all material is removed from each section of trench
	Assurance that material is managed in accordance with Section 5.0 - Excavation and Material Handling
4.3	Removal of Contaminated Soil
	Assurance that visibly contaminated soil in contact with asphaltic material is removed
	Assurance that contaminated soil is containerized and sampled in accordance with Project Specifications
4.4	Collection of Soil Samples
	Assurance that number and location of soil samples is in accordance with Project Specifications
	Assurance that duplicates and field blanks are collected
	Assurance that Chain of Custody paperwork is completed and samples are submitted to laboratory
	Verification that laboratory results meet Project Specifications
4.5	Remove Additional Soil if Necessary
	Assurance that contaminated materials are handled in accordance with Project Specifications
	Assurance that soils are manifested and volumes recorded
	Assurance that soils are stored and covered properly if not disposed immediately
	Assurance that soils are sampled according to frequency in the Project Specifications
	Verification that soil sampling results meet closure criteria
4.6	Secure Stockpiled/Staged Wastes Until Disposal
	Assurance that all drummed wastes are labeled and transported to the on-site RCRA staging area
	Assurance that all other wastes are covered and secure
4.7	Site Restoration
	Assurance that backfill material meets criteria established in Project Specifications
	Assurance that backfill material is placed and tested according to Project Specifications
	Assurance that topsoil meets Project Specifications
	Assurance that area is seeded according to Project Specifications
5.0	**Demobilization**
5.1	Work Zones
	Assurance that all work zones and equipment are removed
5.2	Temporary Utilities
	Assurance that all temporary utilities are removed

Item No.	Definable Work Phases and Specific Items to be Evaluated
5.3	Decontamination Facilities
	Assurance that all equipment is fully decontaminated
	Assurance that decontamination facilities are dismantled and containerized for disposal
	Assurance that all waste material staged/stored on-site is removed
6.0	**Site Assessment Report**
6.1	Submittals
	Assurance that Submittal Register is complete
6.2	Report Documentation
	Assurance that all documentation required in Project Specifications has been submitted

c. Review the testing plan and ensure that provisions have been made to provide the required QC testing;
d. Examine the work area to ensure that the required preliminary work has been completed;
e. Examine the required materials, equipment, and sample work to ensure that they are available and conform to the approved shop drawings and submitted data;
f. Review the SHERP and appropriate activity hazard analysis to ensure that applicable safety requirements are met and that required Material Safety Data Sheets (MSDSs) are submitted; and
g. Discuss construction methods.

- Initial Phase

The SQCM will notify the Contracting Officer's Representative at least two (2) work days in advance of each initial phase inspection. When construction crews are ready to start a definable feature of work, an initial phase inspection will be conducted with the Project Superintendent and the foreman responsible for that definable feature of work. The initial segment of the definable feature of work will be observed to ensure that the work complies with contract requirements. An initial phase inspection will be repeated for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Initial phase inspections will be documented in the Initial Inspection Checklist (see Appendix C) and the Contractor QC Report. The SQCM will perform the following for each definable feature of work:

a. Establish the quality of workmanship required;
b. Resolve conflicts;
c. Review the SHERP and the appropriate activity hazard analysis to ensure that applicable safety requirements are met; and
d. Ensure that testing is performed by the approved laboratory.

- Follow-Up Phase

Follow-up phase inspections are similar in content and approach to initial phase inspections, and will be performed daily during on-going work. Follow-up phase inspections will be documented in a Follow-Up Inspection Checklist and the Contractor QC Report. The SQCM will perform the following for each definable feature of work:

a. Ensure the work is in compliance with contract requirements;
b. Maintain the quality of workmanship required;
c. Ensure that testing is performed by the approved laboratory; and
d. Ensure that rework items are being corrected.

In the final follow-up phase inspection, the SQCM shall develop a punch list of any open items requiring completion and which potentially do not conform to the Project Specifications. The punch list shall be included in the Contractor QC Report along with an estimated date of when the work will be completed and when non-conforming items will be corrected.

Notification of QC Inspection Activities for Off-Site Work

The SQCM will notify the Contracting Officer's Representative at least two (2) weeks prior to the start of the preparatory and initial phase inspections.

Work Features Requiring Inspection or Testing

Prior to implementation of individual phases of work activities, the SQCM and Project Superintendent will meet to identify specific work requirements, including submittal information, construction sequence and scheduling, and QC forms and acceptance criteria. This joint review allows close coordination of work and maximizes efficiency of operations. Project roles, potential problems, and procedures for resolving issues will be established up-front at these discussions to allow for clarification of direction and immediate response to any problems which may arise. As a result of this approach, QC activities will be maintained as an integral component of the overall project approach.

4.5 Documentation

General

All inspection and testing activities performed will be documented. The SQCM or his designee will record his inspection activities in the Contractor QC Report. In addition to the forms provided in this Work Plan, forms required by the Navy will be completed and submitted to the Contracting Officer's Representative as applicable.

Contractor QC Report

The Contractor QC Report will be completed by the SQCM and submitted to the Navy's representative daily. Reports for weekends and holidays will be included on the first working day's report following those periods.

Results of Tests

Copies of test results will be included in the Contractor QC Report for the day the test was performed. Test results of field sampling or in-situ testing will be included in the appropriate phase inspection. Formal test reports will be submitted monthly with the updated Test Plan and Log.

4.6 Corrective Action Program

Identification and Control of Deficiencies

Deficient conditions have been divided into three categories:

- In-Process Deficiencies - In-process deficiencies are those conditions discovered during the course of QC inspections which are intended to be corrected or brought into conformance with requirements. These are noted briefly on the Contractor QC Report and in detail on the In-Process Deficiency Punch List (see Appendix C). The SQCM will maintain a file of the punch lists. Items on the punch list which cannot be corrected will be treated as installed deficiencies.

- Installed Deficiencies - Installed deficiencies are those conditions discovered during the course of QC inspection of completed work which do not meet established acceptance criteria or requirements, and are not intended to, or cannot, be brought into conformance with requirements. These conditions will be noted on a Rework Items List in addition to, or instead of, a Construction Deficiency Notice for evaluation and disposition (see Appendix C). The Deficiency Notice will be issued by the SQCM within 24 hours of the discovery of installed deficiencies and will summarize any discrepancies with the contract requirements and may outline suggested corrective actions. In

the event that a Deficiency Notice is not resolved with seven (7) calendar days after its issuance, a notice of non-response will be issued to the Delivery Order Manager. Each notice will be consecutively numbered, logged, and statused by the SQCM. Resolution of installed deficient conditions will be approved by the Delivery Order Manager. Copies of completed notices will be sent to the Navy Representative.

- Conditions Which Require a Stop-Work Order - If corrective actions are insufficient, resolution cannot be reached, or results of prior work are indeterminate, work may be stopped by a Stop-Work Order. The Stop-Work Order can only be authorized by the Project Superintendent and the SQCM in writing. If there is a disagreement between the SQCM and the Project Superintendent, the difference will be brought to the attention of succeeding levels of management until resolution is achieved.

  The conditions for which the Stop-Work Order was issued will be described in sufficient detail on a Rework Items List (punch list) to allow evaluation of the problems and to effect proper corrective action. Work will not continue until the Stop-Work Order has been rescinded by the individual who authorized the Order.

Contracting Officer's Representative Notification of Construction Deficiency Conditions

In the event the Navy notifies Foster Wheeler Environmental of a construction deficiency condition, the party so notified will immediately contact the Project Superintendent or SQCM to begin action which will resolve the condition. The Navy Representative may issue a Stop-Work Order if Foster Wheeler Environmental does not institute, or fails to promptly institute, corrective action.

Cause and Action to Prevent Recurrence

The SQCM will track the Construction Deficiency Notices, analyze the corrective actions required, and take the necessary steps to resolve the causes of the deficient conditions in order to prevent recurrence.

4.7 Quality Management

Quality Overview of Site Activities

In addition to the performance of the QC field function, the Foster Wheeler Environmental Corporate QC Program requires a Quality Management overview of the site QA/QC Program implementation. The Program QC Manager will perform regular internal QC checks on the site implementation of the QA/QC Program. These checks will include the following:

- Possession and use of the latest approved procedure(s), standards, and/or project specific instruction(s);
- Conformance to appropriate procedures, standards, and instructions;
- Thoroughness of the performance; and
- Identification and completeness of documentation generated during performance.

These QC management checks will be conducted by the PQCM or qualified auditors using written checklists. Reports of any deficiencies will be reported to Project Management for corrective action.

5.0 EXCAVATION AND MATERIAL HANDLING

Mobilization

Mobilization will involve set-up of the site trailer, temporary utilities, portable facilities, and decontamination areas. The anticipated location for the office trailer, craft trailer, parking, sanitary facilities, and equipment storage area are shown on Figure 5-1. Temporary telephone service will also be established at this location. All other utilities and facilities will be portable and temporary (i.e. a generator, portable toilets, and portable water tanks). Detailed site maps of Site 02 and Study Area 4 are provided as Figure 5-2 and Figure 5-3, respectively.

During mobilization, and prior to any excavation activities, Foster Wheeler will contact Rhode Island Economic Development Corporation (RIEDC) and the Caretaker's Site Office (CSO) to identify buried obstructions and utilities in the removal action areas.

Site Preparation

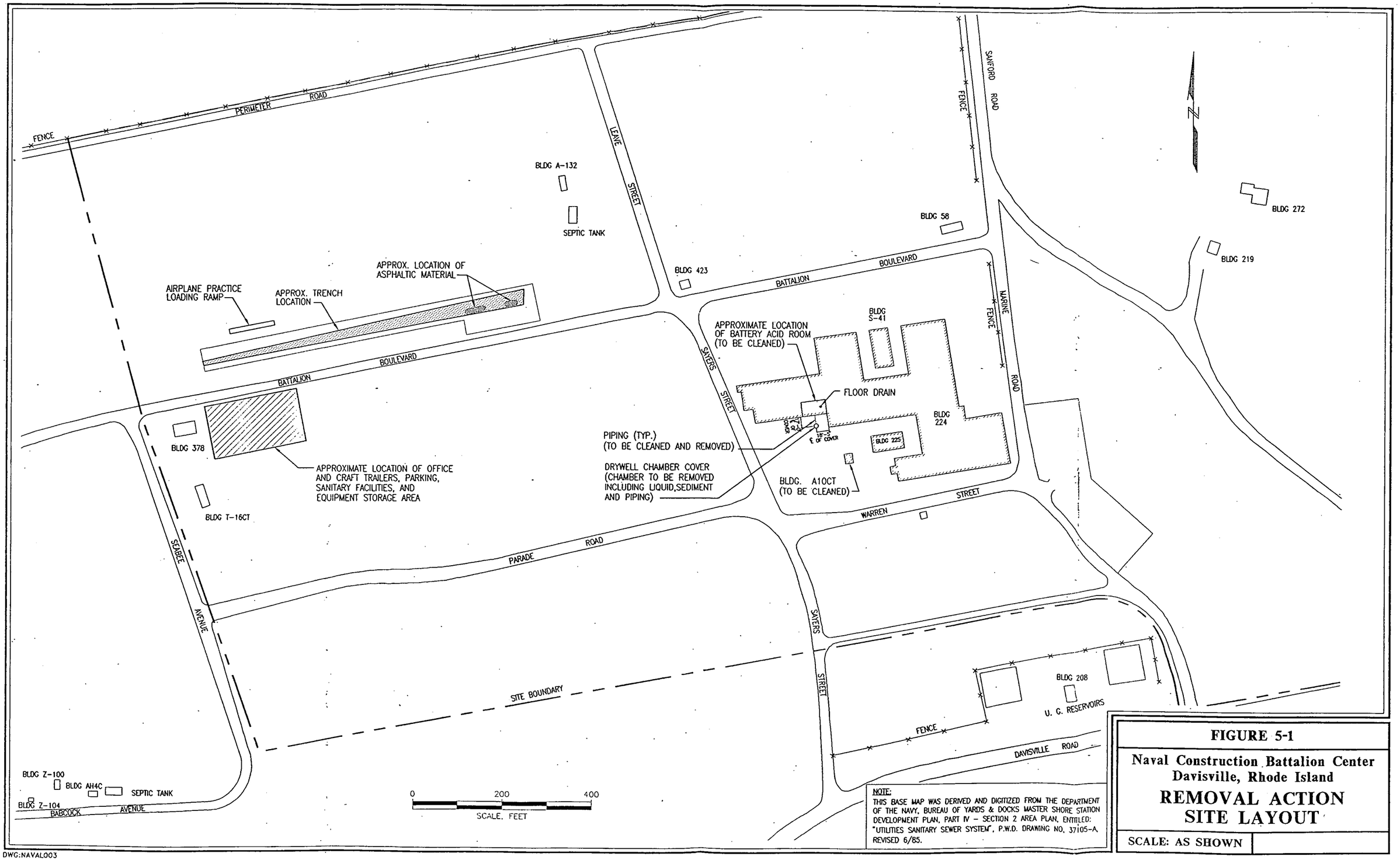
Site preparation will occur in accordance with the SHERP and the Construction QC Plan (Section 4.0). Site zones will be used in preparation of excavation and are intended to control the spread of contamination throughout NCBC Davisville and off-site roadways. Specific zones (an exclusion zone, a contamination reduction zone, and a support zone) have been established for each work site and are shown on Figure 5-4 and Figure 5-5, respectively. Note that the SHSO and Project Superintendent may need to adjust the boundaries of the specific zones prior to commencement of work. Should the configurations of the zones change, the changes will be incorporated into the SHERP. A description of each zone is as follows:

- All intrusive activities which may involve exposure to hazardous materials and/or conditions will be contained within an exclusion zone (EZ). This zone will be clearly delineated by a fence, tape, cones, or other means. The area will be prepared to accommodate all excavation activities, field personnel, and emergency equipment.

- The area just beyond the EZ is called the contamination reduction zone (CRZ). The CRZ contains the contamination reduction corridor (CRC) which provides an area for decontamination of heavy equipment, hand-held equipment, and personnel. The CRC will be used for EZ entry and egress in addition to access for heavy equipment and emergency support services.

- The support zone (SZ) is the uncontaminated area following the CRZ and will be the field support area for most operations. The SZ provides for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone.

As established in the SHERP, the initial level of personal protective equipment (PPE) will be modified Level D. For excavation activities, Level C PPE may be required if action levels indicate the need to upgrade.



NOTE:
THIS BASE MAP WAS DERIVED AND DIGITIZED FROM THE DEPARTMENT OF THE NAVY, BUREAU OF YARDS & DOCKS MASTER SHORE STATION DEVELOPMENT PLAN, PART IV – SECTION 2 AREA PLAN, ENTITLED: "UTILITIES SANITARY SEWER SYSTEM", P.W.D. DRAWING NO. 37105-A, REVISED 6/85.

FIGURE 5-1

Naval Construction Battalion Center
Davisville, Rhode Island

REMOVAL ACTION SITE LAYOUT

SCALE: AS SHOWN

DWG:NAVAL003

ND96-007
3/20/96

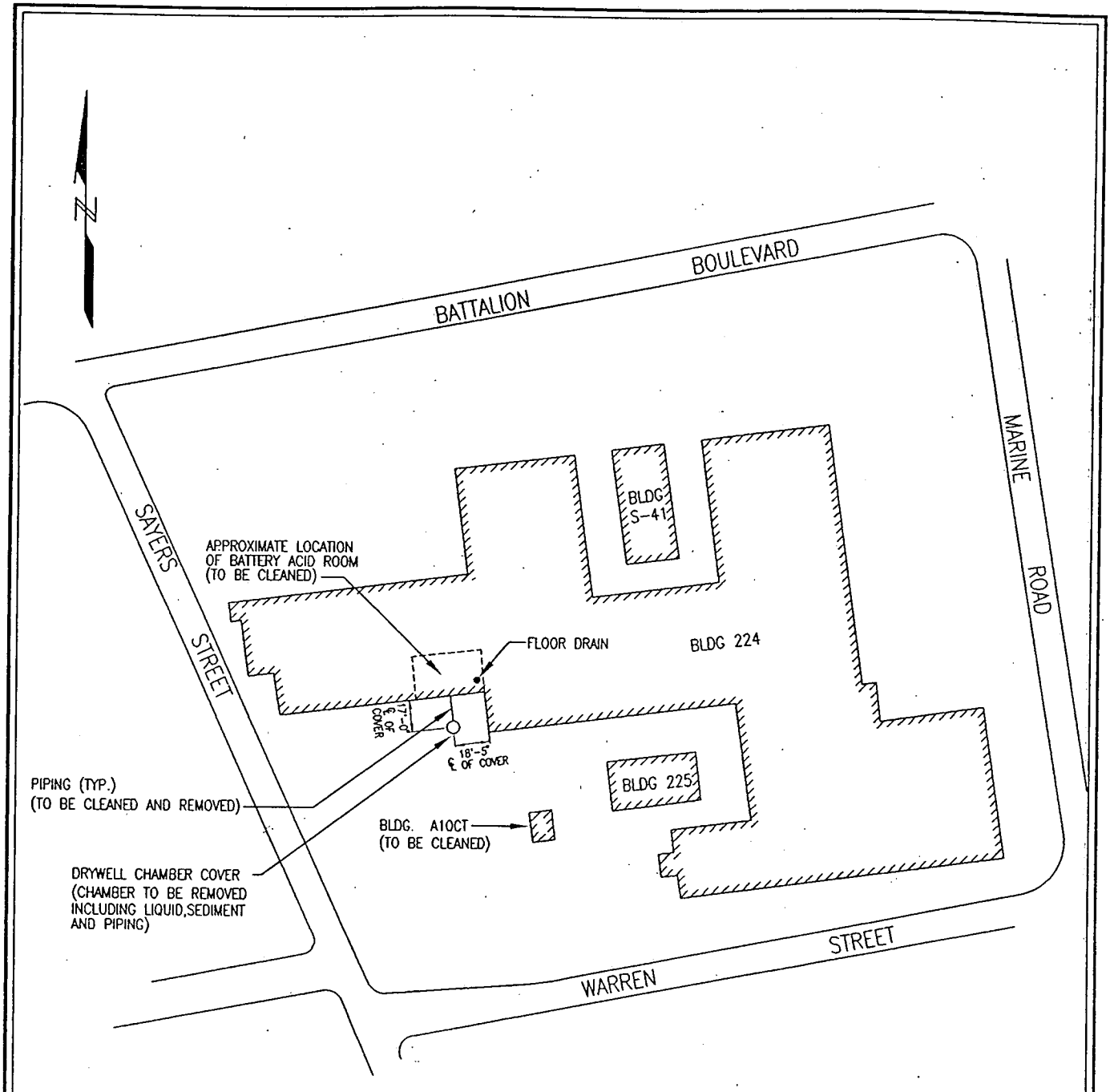


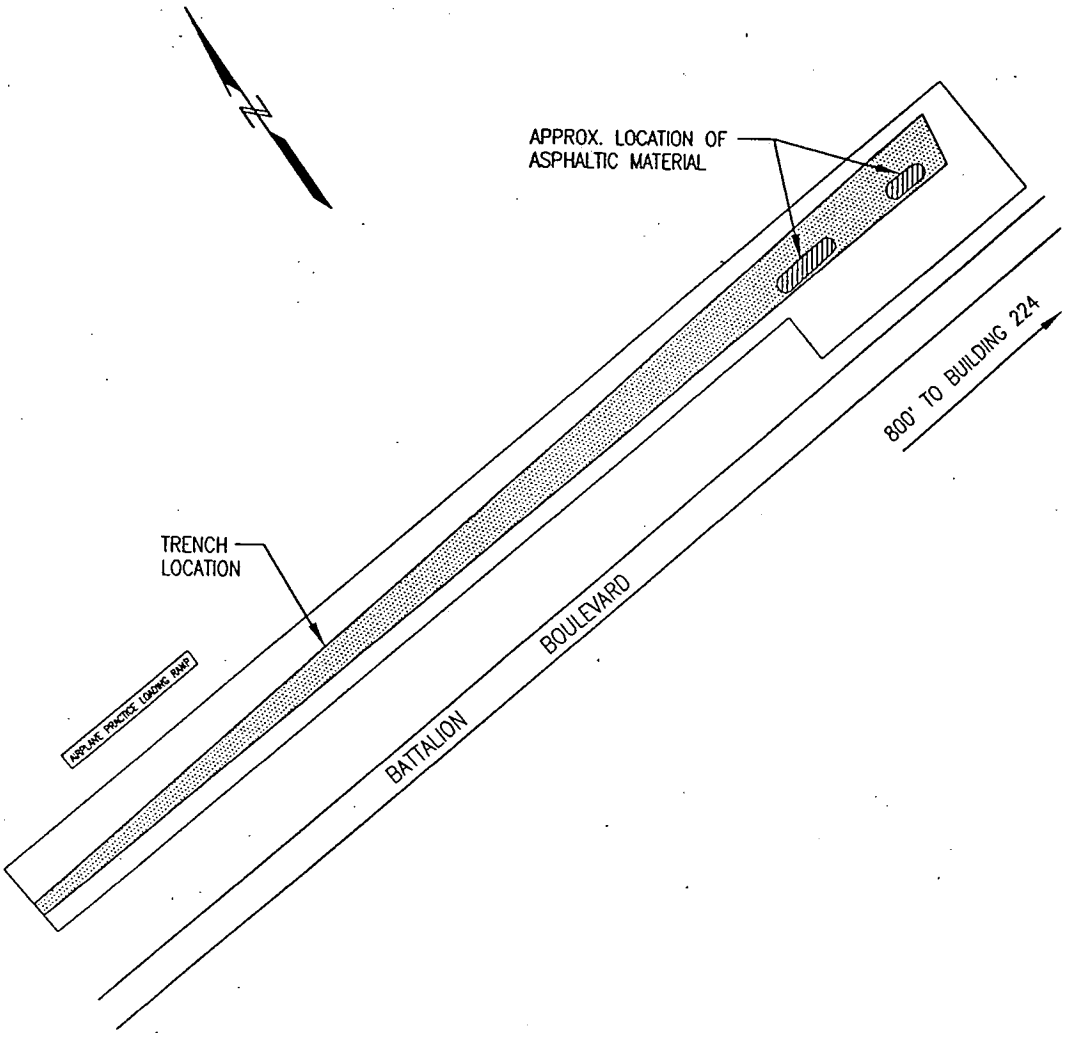
FIGURE 5-2

Naval Construction Battalion Center
Davisville, Rhode Island

SITE MAP
SITE 02

SCALE: AS SHOWN

DWG:NAVAL001



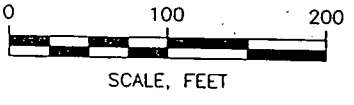


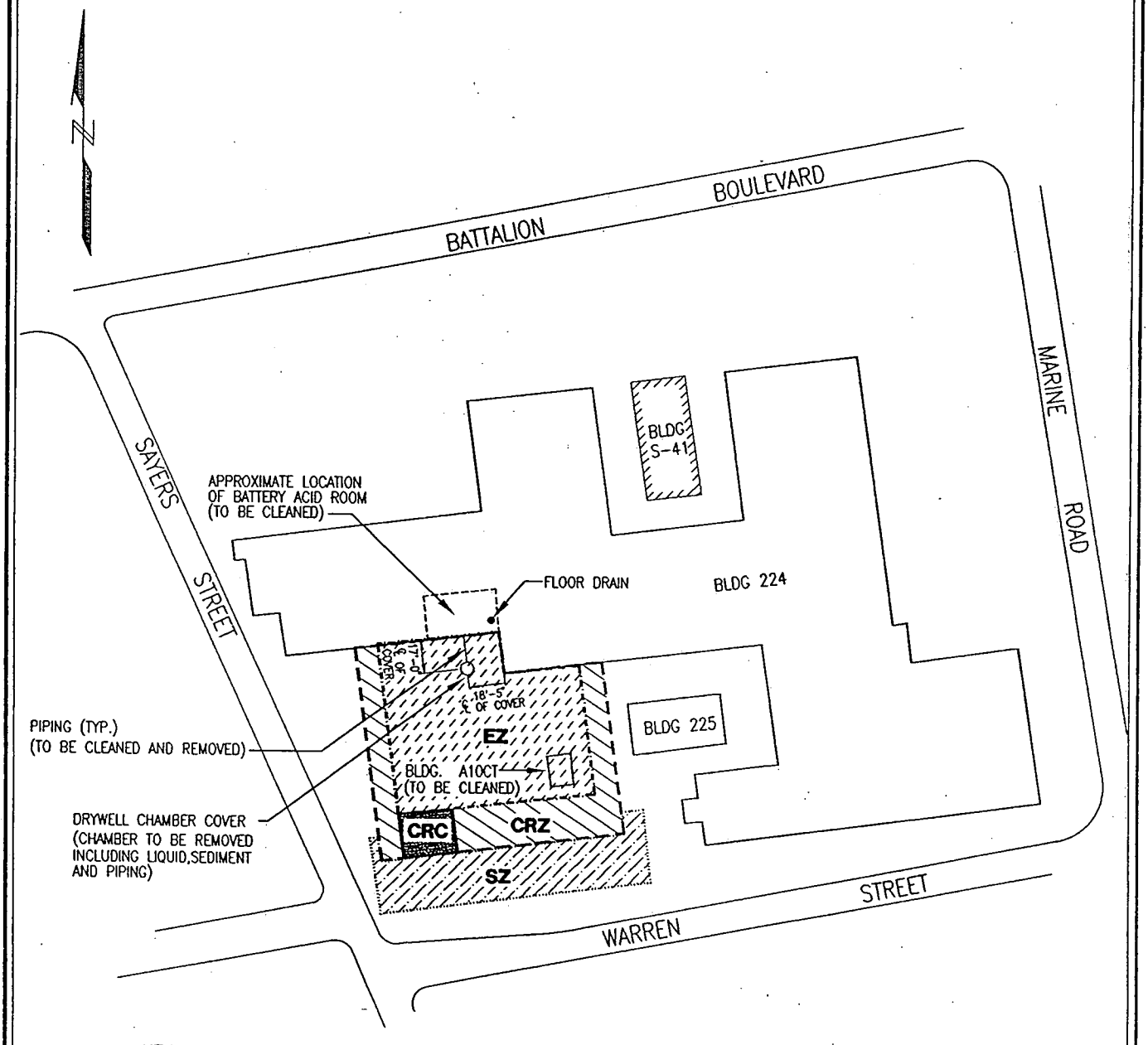
FIGURE 5-3

Naval Construction Battalion Center
Davisville, Rhode Island

SITE MAP
STUDY AREA 4

SCALE: AS SHOWN

DWG:NAVAL002



DWG:NAVAL004

FIGURE 5-4

Naval Construction Battalion Center
Davisville, Rhode Island

SITE ZONES MAP
SITE 02

SCALE: AS SHOWN

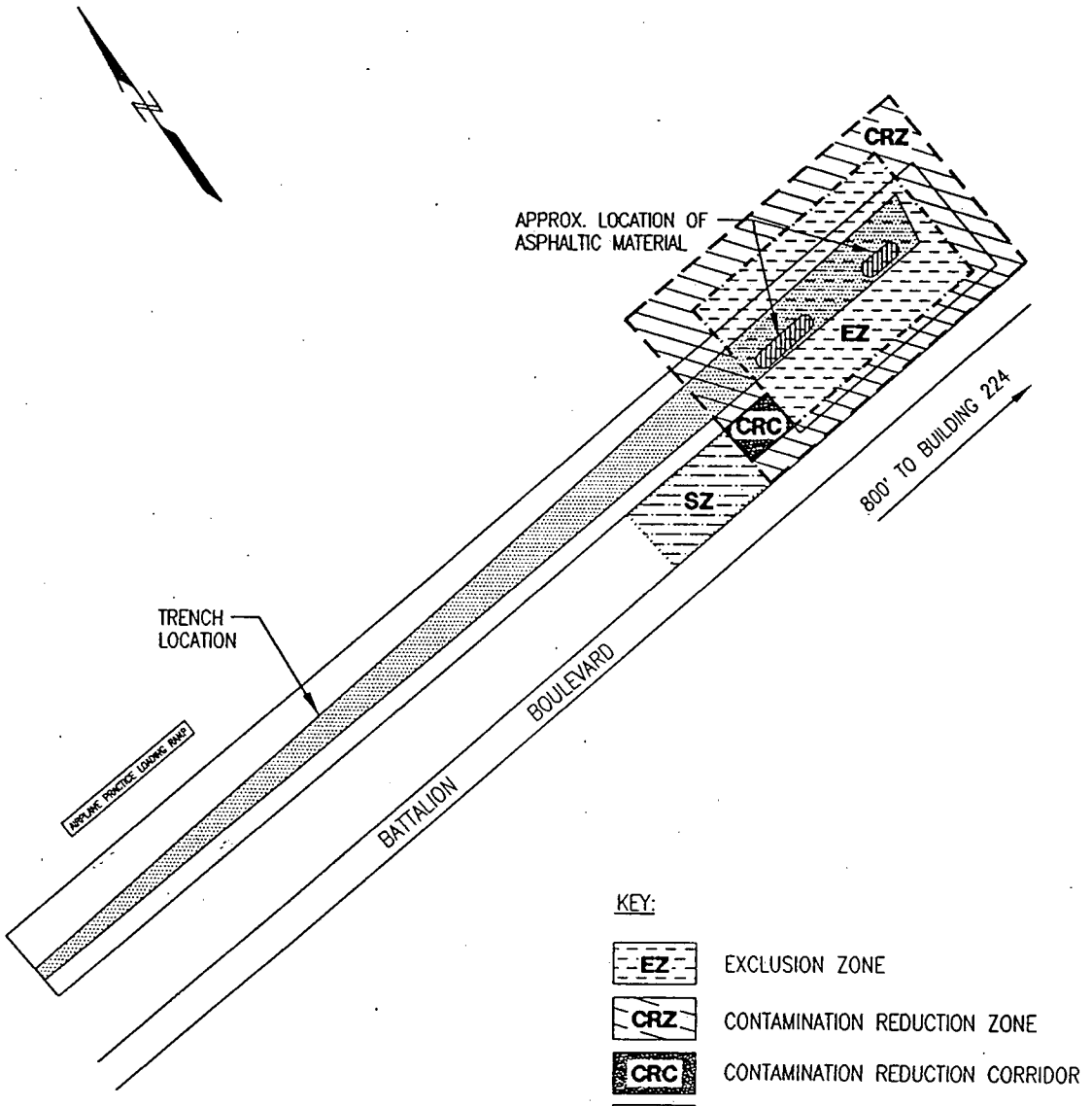


FIGURE 5-5

Naval Construction Battalion Center
Davisville, Rhode Island

SITE ZONES MAP STUDY AREA 4

SCALE: AS SHOWN

DWG:NAVAL005

Heavy Equipment Decontamination

A temporary equipment decontamination pad will be constructed at each site with a portable water tank or truck and a high-pressure hot water washer. Each pad will be constructed of an impervious barrier, with hay bales forming a berm at the perimeter. An electrical sump pump will be placed at the lowest point inside the pad, and all rinsate will be pumped into 55-gallon drums. Each pad will be sized so as to accommodate the largest piece of equipment to be used at each site. Any solids which accumulate in the pad will be placed into 55-gallon drums. All drums will be labeled and equipped with resealable lids. At the conclusion of each removal action, the collected rinsate and solids will be characterized and disposal arrangements will be made. At the conclusion of the project, the materials used to construct the pad will be handled and disposed of along with the PPE.

Hand Held Equipment and Personnel Decontamination

Personnel and hand held equipment leaving the exclusion zone shall be thoroughly decontaminated in accordance with the SHERP. The following will be provided at the CRC for personnel and hand held equipment decontamination: four small tubs (two sets of wash and rinse water), scrub brushes, towels, a PPE disposal bag or drum, and respiratory cleaning solution. Non-phosphate detergent and water will be used as the decontamination solution. All receptacles for PPE will be equipped with lids that can be closed to prevent the release of contaminants and the collection of rainfall. At the conclusion of the project, collected PPE and decontamination water will be characterized and disposed of off-site.

5.1 Site 02

The proposed activities at Site 02 consist of the removal of lead-contaminated water and sediment from a drywell, the removal and demolition of the drywell chamber and associated piping, and the excavation of adjacent lead-contaminated soil, as necessary. Sampling of the water, sediment, and soil will be conducted for waste characterization, and these materials will be disposed of off-site. The drywell chamber and associated piping will also be disposed of off-site. A detailed description of the removal and demolition of the drywell chamber and associated piping can be found in Section 6.0.

The proposed activities at Site 02 also include the cleaning of the Battery Acid Room inside Building 224 and the interior of Building A10CT for lead residues. Baseline wipe sampling and confirmatory wipe sampling will be performed before and after decontamination, respectively. All rinsate will be pumped into 55-gallon drums and characterized for off-site disposal. A detailed description of the removal of wooden structures and debris contained within the rooms can be found in Section 6.0.

Drywell Chamber

The drywell chamber is rectangular in shape with concrete sidewalls. It is approximately 6 feet wide by 5.4 feet deep and has an assumed length of 20 feet. The chamber is located underground and is covered by asphalt concrete paving. Lead, present at levels of 0.529 parts per million (ppm) in the drywell water and 1,010 ppm in the sediment, is the primary contaminant of concern. The estimated quantity of lead-contaminated soil adjacent to the drywell chamber is approximately 30 cubic yards.

Excavation Procedures

All excavation will occur in accordance with the Project Specifications. Excavation procedures are as follows:

- For surface preparation, there will be a need for removal of vegetation, debris, decayed vegetable matter, sod, mulch, and rubbish. These materials will be included with the soils for off-site disposal.

- The Contractor will scan the construction site with electromagnetic and sonic equipment and mark the surface of the ground where existing underground utilities are discovered.

- Dust generated during excavation activities will be kept down at all times by keeping surfaces adequately wet and covering transported material.

- The asphalt paving covering the drywell and associate piping will be removed with a hydraulic excavator and stockpiled or put into roll-off containers until initial waste characterization is complete. Any stockpiled material will be covered, as described below, to prevent migration of contaminants from the site. If contaminated, the material will be shipped off-site for disposal as asphalt debris. If clean, the material will be shipped off-site as non-hazardous construction debris.

- Surface soils below the asphalt paving will be stockpiled until initial waste characterization is complete. Any stockpiled soil will be covered, as described below, to prevent migration of contaminants from the site. If contaminated, the material will be shipped off-site for disposal. If clean, the material may be used as backfill once the removal and demolition of the drywell chamber and associated piping is complete.

- The piping extending from Building 224 to the drywall chamber will be triple rinsed and cleaned to ensure that all sediment and liquids are removed. The drains inside Building 224, which lead to the drywell chamber, will then be sealed.

- After initial characterization of the waste streams, water and sediments contained within the drywell will be pumped directly into a vacuum truck for immediate off-site disposal. Additional water may be needed for rinsing the sides and floor of the chamber to ensure complete removal of all sediment. This additional water will also be pumped directly into the vacuum truck for immediate off-site disposal. Water and/or sediment which cannot be directly loaded into vacuum trucks for immediate off-site disposal will be placed into 55-gallon drums which will be labeled and stored at a Resource Conservation Recovery Act (RCRA) staging area on-site until proper disposal arrangements can be made (up to 90 days). The RCRA staging area is designated as Building 56 and is located near the CSO Building at the entrance to NCBC Davisville.

- The drywell chamber and associated piping will be removed and demolished as described in Section 6.0.

- After initial characterization of the waste stream, underlying or adjacent soils will be excavated, as necessary, and placed into roll-off containers for off-site disposal.

- During excavation activities, if additional asphalt pavement, concrete slabs, or other structures are encountered, they will be removed and high-pressure washed before characterization and off-site disposal.

- Entry into the excavation by site personnel will not be permitted. However, if entry is required to continue or complete work, shoring, bracing, cribbing, underpinning, and sheeting will be provided in accordance with the U.S. Army Corps of Engineers (USACE) Safety and Health Requirements Manual EM-385-1-1. Banks, however, may be sloped when approved by the Contracting Officer's Representative.

- Excavation will be complete when confirmatory sampling analysis, performed by an EPA and RI Certified Laboratory, indicates that soil samples taken from the completed excavation have lead levels less than 10,000 ppm.

Transportation and disposal of this material off-site is discussed in detail in Section 7.0.

Stockpiled Material

All stockpiled material will be placed on 30 mil polyethylene sheeting and covered by 6 mil polyethylene sheeting. A hay bale berm will be installed around the perimeter of the contaminated area and covered with polyethylene sheets to prevent rainfall infiltration and run-off. The stockpiles will be monitored to maintain sufficient containment until initial waste characterization is performed and off-site disposal arrangement are made.

Battery Acid Room Cleanup

Cleanup of the lead contamination associated with the Battery Acid Room inside Building 224 and the interior of Building A10CT will be conducted using vacuums equipped with High Efficiency Particulate Air (HEPA) filters and water amended with a lead dissolving, anionic detergent product. Cleanup includes the removal of all wooden structures and debris (as discussed in Section 6.0) and the vacuuming and wiping of all affected areas.

5.2 Study Area 4

Study Area 4 consists of an open trench containing asphaltic material and other potential contaminants resulting from the asphalt disposal procedures of the CED. The trench is approximately 600 to 700 feet in length, 8 to 15 feet wide and 2 to 4 feet deep. It becomes wider and deeper from the west end to the east end.

The proposed activities at Study Area 4 include excavation and off-site disposal of asphaltic material and adjacent contaminated soil. The area of concern is the eastern 150 feet of the trench where asphaltic material was disposed of in two distinct areas. One pile is 19.5 feet by 9.5 feet and 3 to 4 feet in depth; the other pile is 45 feet by 9.5 feet and 1 to 2 feet in depth. The total volume of asphaltic material is estimated to be 40 to 45 cubic yards. The assumed weight of asphaltic material and contaminated soil to be disposed of is 63 tons each. The material was not found to be hazardous; however, TPH concentrations were significantly elevated (703,000 ppm). Soil samples also indicated evidence of the PCB Aroclor 1260.

Excavation Procedures

All excavation will occur in accordance with the Project Specifications. Excavation procedures are as follows:

- For surface preparation, there will be a need for removal of vegetation, debris, decayed vegetable matter, sod, mulch, and rubbish. These materials will be included with the soils for off-site disposal.

- Underground utilities are not assumed to be in the area of excavation. If utilities are encountered, the contractor will cease work and contact the Contracting Officer's Representative.

- Dust generated during excavation activities will be kept down at all times by keeping surfaces adequately wet and covering transported material.

- After initial characterization of the waste streams, asphaltic material and soil from the trench will be excavated with both a hydraulic hammer and an excavator, and loaded directly into separate roll-off containers for immediate off-site disposal. If contaminated material cannot be taken off-site for immediate disposal, the roll-off containers will remain on NCBC Davisville property until proper disposal arraignments can be made (up to 90 days). An attempt at stockpiling and berming of wastes will be avoided. If stockpiling is required, the material will be covered, as described below, to prevent migration of contaminants from the site.

- Due to the shallow nature of the excavation, no excavation controls are anticipated. Should the excavation extend to greater depths and entry is required, shoring, bracing, cribbing, underpinning, and sheeting will be provided in accordance with the USACE Safety and Health Requirements Manual EM-385-1-1. Banks, however, may be sloped when approved by the Contracting Officer's Representative.

- Excavation will be complete when confirmatory sampling analysis, performed by an EPA and RI Certified Laboratory, indicates that soil samples taken from the completed excavation have TPH levels less than 300 ppm and PCB levels less than 10 ppm.

Transportation and disposal of this material off-site is discussed in detail in Section 7.0.

Stockpiled Material

All stockpiled material will be placed on 30 mil polyethylene sheeting and covered by 6 mil polyethylene sheeting. A hay bale berm will be installed around the perimeter of the contaminated area and covered with polyethylene sheets to prevent rainfall infiltration and run-off. The stockpiles will be monitored to maintain sufficient containment until initial waste characterization is performed and off-site disposal arrangement are made.

6.0 DEMOLITION

This section of the Work Plan describes the methodology and procedures which will be employed during the demolition activities at Site 02. Based upon the Project Specifications, there are two (2) tasks at Site 02 which will involve demolition:

- Removal of the drywell chamber, anchors, slabs, and associated piping; and
- Removal of any wooden racks and debris from the Battery Acid Room in Building 224 and the interior of Building A10CT.

A description of these tasks are as follows:

Drywell Chamber and Piping Removal and Disposal Plan

Upon excavation of the asphalt and soil overlying the drywell chamber and associated piping, smoke testing will be performed to determine the configuration of the piping system extending from Building 224 to the drywell chamber. Water and sediment contained within the piping will be removed as described in Section 5.0. The drains inside Building 224, which lead to the drywell chamber, will then be sealed.

The entire length of inlet piping extending from Building 224 and 10 feet of the outlet piping will be cut into sections with a portable saw. Plastic sheeting will be placed beneath all piping to collect any liquid which may be present and to prevent any contamination of the surrounding environment. At a minimum, the inlet piping will be cut at the point it exits the building and also at the point it enters the drywell structure. The piping will then be lifted from the excavation using a track-mounted excavator and chains, and placed on an impervious barrier adjacent to the excavation. The piping leaving the building will be grouted at the building wall.

If the drywell structure is determined to have a concrete lid which is separate from main structure, the excavator will be used to lift the lid using chains. If this is not the case, the excavator will be fitted with a hydraulic hammer and the upper portion of the structure will be broken into manageable pieces. Care will be taken not to pulverize any of the concrete structure. Dust control, consisting of a fine water spray, will also be employed as necessary. The drywell structure will then be further inspected and any liquid and sediment remaining will be removed as described in Section 5.0. The remaining portions of the structure will be broken into smaller sections using the hydraulic hammer, if necessary. Each section will then be removed using the excavator and placed on plastic sheeting adjacent to the excavation.

As outlined in the Project Specifications, all of the concrete sections and the piping will be pressure-washed prior to placement in a roll-off container for characterization and off-site disposal. All of the rinsate from these activities will be managed according to the procedures described in Section 5.0.

Wooden Rack and Debris Disposal Plan

All of the wooden structures and debris located in the Battery Acid Room in Building 224 and in Building A10CT will be cut immediately below the ceiling level, removed, and placed in a roll-off container for characterization and off-site disposal. Any metal piping and conduit found will not be removed but will be wiped down with amended water per the Project Specifications. The asbestos-containing material identified during previous investigations will not be disturbed.

7.0 TRANSPORTATION AND DISPOSAL

This section identifies the procedures that the Foster Wheeler Environmental team will follow to ensure safe transportation of hazardous and non-hazardous waste streams from Site 02 and Study Area 4. This section has been prepared in accordance with the Project Specifications.

Foster Wheeler Environmental has subcontracted Advanced Environmental Technical Services (AETS) to provide all Transportation and Disposal services for these removal actions. The anticipated disposal facilities and technologies are indicated in Table 7-1.

Table 7-1
Disposal Facilities and Technologies

Waste Stream	Disposal Facility	Technology
Drywell Water	Cecos Niagara Falls, NY	Wastewater Treatment
RCRA Solids (includes drywell sediment, soils, PPE)	Chemical Waste Management Model City, NY	Secure Chemical Landfill
Asphalt & Concrete Debris and Wood Debris	Chemical Waste Management Model City, NY	Secure Chemical Landfill
Asphaltic Material	ARC Kittery, ME	Asphalt Batching
Decontamination Water (in drums)	DuPont Deepwater, NJ	Wastewater Treatment

The following information will be provided to the Contracting Officer's Representative in accordance with the Submittal Register upon characterization of each waste steam:

- Copies of all permits and contaminant level limitations for the receiving facilities
- Written confirmation from each of the disposal facilities indicating that they will accept the materials generated
- Contaminated Materials Transporter:
  - Name:
  - Address:
- Out-of State Contaminated Material Transporter:
  - Name:
  - Address:
- EPA Hazardous Waste Generator Identification Number: RI6170022036
- Proof of permit, license, or authorization to transport oil and hazardous materials in all affected states

For every load disposed of at the approved disposal facilities, copies of the manifests, bills of lading, and tare and gross weight slips will be provided to the Contracting Officer's Representative.

7.1 Waste Streams

The estimated quantities and analyses of waste streams generated from the removal actions as Site 02 and Study Area 4 are indicated in Table 7-2 and Table 7-3, respectively. Any other analyses necessary for disposal of each waste stream will be performed by AETS. The results of such analyses will forwarded to the Contracting Officer's Representative in accordance with the Submittal Register.

Table 7-2

Estimated Quantities and Analyses of Site 02 Wastes For Transportation and Off-Site Disposal

Waste Stream	Estimated Quantity	Planned Analyses (Performed By Foster Wheeler Environmental)
1. Drywell Water	900 gals	Total Lead
2. Drywell Sediment	10 tons	TCLP Lead
3. Soils	43 tons	TCLP Lead
4. Asphalt & Concrete Debris	20 tons	TCLP Lead
5. Wood Debris	1 ton	TCLP Lead
6. Decontamination Water	20 55-gal drums	Total Lead
7. PPE	5 55-gal drums	TCLP Lead

Table 7-3

Estimated Quantities and Analyses of Study Area 4 Wastes for Transportation and Off-Site Disposal

Waste Stream	Estimated Quantity	Planned Analyses (Performed by Foster Wheeler Environmental)
1. Asphaltic Material	63 tons	TPH and PCBs
2. Soils	63 tons	TPH and PCBs
3. Decontamination Water	10 55-gal drums	TPH and PCBs
4. PPE	5 55-gal drums	TPH and PCBs

7.2 Transportation Routes

The transportation routes that will be taken when the contaminated and non-contaminated material in the roll-off containers are removed from both locations will be dependent upon the Navy-approved location provided by the transportation and disposal subcontractor.

7.3 Spill Prevention

Every effort will be made, through proper planning and management of the transportation process, to prevent the potential for a spill or release of hazardous substances. However, contingency measures will be in place in the case of such an occurrence. This includes providing personnel, equipment, and materials to control, contain, and cleanup any spilled material that may adversely affect the health of the public or the environment. Transporters responsible for taking waste materials to the designated disposal facilities will be required to provide and implement their own Emergency Response Plan which will be reviewed and approved by Foster Wheeler Environmental prior to the start of work. All vehicles will be inspected prior to leaving the area of contamination for leakage or materials adhering to the wheels or undercarriage. If necessary, vehicles will be cleaned with a high pressure hot water washer to remove contaminated material.

The following equipment will be available at both locations at all times for quick response to unexpected spills:

- Sorbents and spill cleanup materials, including spill control pillows, absorbent booms, packs, and blankets
- 55-gallon containers
- Shovels, brooms, and similar hand tools
- Pressure washer

Additional information relative to spill response can be found in the SHERP.

8.0 FIELD SAMPLING AND LABORATORY TESTING

8.1 Overall Objective

General

The proposed sampling effort for each site was developed to determine the levels of contamination for initial characterization of different waste streams and for confirmatory sampling analysis upon completion of excavation/cleanup activities.

The removal actions to be performed at NCBC Davisville require field sampling and analysis data for the decision making process. To be valuable, this data must accurately describe the characteristics and concentration of constituents in the samples analyzed. The field sampling program will ensure that the chemical data meet the Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, NEESA 20.2-047B, revised June 1988, requirements for completeness, precision, accuracy, representativeness, comparability, dependability, and legal defensibility.

All laboratory analysis will be performed by National Environmental Testing, Inc. (NET) of Cambridge, MA. NET is an EPA and RI Certified Laboratory using EPA-approved methodologies. NET's lab certification will remain current throughout the duration of the project. Specific information concerning NET's certifications will be submitted in accordance with the Project Specifications. Analytical results will be provided to the Contracting Officer's Representative within 24 hours of their receipt. Boundaries of the control area will not be removed until the site is determined to be satisfactorily clean by the Contracting Officer's Representative.

Field Decontamination Procedures

All sampling equipment will have to be decontaminated in the field and at the conclusion of sampling activities using the following procedures:

- A non-phosphate detergent wash
- A potable water rinse
- A hexane rinse
- A deionized (DI) water rinse

Sampling Quality Control

Duplicates, field blanks, and trip blanks will also be submitted to the laboratory with each round of samples in order to ascertain a measure of QC. The purpose, usage, and designation of each of these types of samples is described below.

- Duplicates: Duplicate samples will be collected during each sampling event. The procedure for collecting duplicate samples consists of collecting equal portions of the sample simultaneously. Field duplicates will be collected at a frequency of 10% per sample matrix. A minimum of one (1) field duplicate will be collected for each sampling event. Each duplicate sample will be assigned a designated field identification number similar to the other samples collected during that sampling event. There will be no reference to the fact that the sample is a field duplicate. In this manner, the sample will be submitted to the testing laboratory and analyzed as a "blind" duplicate.

- Field Blanks: Field blanks will be collected in order to determine the effectiveness of the decontamination of sample collection equipment. The field blank will be collected by pouring laboratory-supplied, analyte-free DI water directly over the decontaminated sample collection equipment (e.g., stainless steel spoon, hand auger, etc.) and into the appropriate sample containers. Field blanks will be collected for each matrix sampled. All field blanks will be analyzed for the same analytical parameters as the sample matrix. A minimum of one field blank will be collected for every 20 samples, or a minimum of one field blank per day per matrix will be collected. All field blank samples will have "FB" at the end of the sample designation.

- Trip Blanks: Trip blanks are defined as samples that originate as analyte-free water which is placed in volatile organic vials (preserved with HCL) in the laboratory and shipped to the site with the field sampling kit. These vials are subsequently returned to the laboratory with any VOC samples. One trip blank will accompany each cooler containing samples to be analyzed for VOCs, and will be stored at the laboratory with the samples. Trip blanks will be analyzed in order to evaluate the effect of ambient site conditions and sample shipment on sample integrity, and to ensure proper sample container preparation and handling techniques. All trip blank samples will have "TB" at the end of the sample designation.

8.2 Sampling Methods and Sample Designations

8.2.1 Water and Sediment Sample Collection

Water and sediment samples will be collected from the drywell chamber at Site 02 in the following manner:

- Water samples will be collected with disposable bailers. When sampling, the water samples will be collected first to avoid collecting sediment particles disturbed by sediment sampling. Water samples will be screened with a Photo-Ionization Detector (PID), or similar devise, immediately upon collection. All readings will be recorded in a field notebook. Visible characteristics of all water samples (e.g., turbidity, color, odor) will also be recorded.

- Depending on sediment type and depth, samples will be collected either with 2- to 3-inch diameter stainless steel tubes, a petite ponar grab sampler, a shovel, or stainless steel spoons. Sediment samples will be screened with a PID, or similar devise, immediately upon collection. All readings will be recorded in a field notebook. The physical characteristics of each sediment sample will also be recorded.

Water and Sediment Sample Designations

All water and sediment samples submitted for laboratory analysis will be assigned a designated field identification number which will reference the sample location, sample type, sample number, and sampling date. Below are examples of water and sediment sample identification numbers:

- Water Samples:

  Example: 02-WS1-053196
  where: 02 = Site 02 - CED Battery Acid Disposal Area
  WS = Water Sample
  1 = Sample Number
  053196 = Sampling Date

- Sediment Samples:

  Example: 02-SD1-053196
  where: 02 = Site 02 - CED Battery Acid Disposal Area
  SD = Sediment Sample
  1 = Sample Number
  053196 = Sampling Date

According to the Project Specifications, the final sampling reports will show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and QC procedures.

8.2.2 Soil Sample Collection

Soil samples will be collected directly with stainless steel spoons. In some instances (e.g., dense, hard, dry, or compact soil) stainless steel, hand bucket augers will be used to assist in the collection of the samples. Soil samples will be screened with a PID, or similar device, immediately upon collection. All readings will be recorded in the field notebook. A geologic and general description (staining, odor) of each surface soil sample collected will also be recorded.

Soil Sample Designation

All soil samples will be assigned a designated field identification number which will reference the sample location, sample type, sample number, and sampling date. Below is an example of soil sample identification number:

Example: 02-SS2-053196
where: 02 = Site 02 - CED Battery Acid Disposal Area
SS = Soil Sample
2 = Sample Number
053196 = Sampling Date

According to the Project Specifications, the final sampling reports will show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and QC procedures.

8.2.3 Asphaltic Material Sample Collection

Asphaltic material will be collected directly with stainless steel spoons or hand bucket augers. The samples will be screened with a PID, or similar device, immediately upon collection. All readings will be recorded in the field notebook. The physical characteristics of each asphaltic material sample collected will also be recorded.

Asphaltic Material Sample Designation

All asphaltic material samples will be assigned a designated field identification number which will reference the sample location, sample type, sample number, and sampling date. Below is an example of asphaltic sample identification number:

Example: SA4-AM1-053196
where: SA4 = Study Area 4 - CED Asphalt Disposal Area
AM = Asphaltic Material Sample
1 = Sample Number
053196 = Sampling Date

According to the Project Specifications, the final sampling reports will show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and QC procedures.

8.2.4 Other Sample Collection

Other samples to be collected include those for asphalt and concrete (construction) debris, wood debris, wipes, decontamination water, and PPE. Each sample will be assigned a designated field identification number which will reference the sample location, sample type, sample number, and sampling date.

Construction Debris Sample Designation

Example: 02-CD1-053196
where: 02 = Site 02 - CED Battery Acid Disposal Area
CD = Construction Debris Sample
1 = Sample Number
053196 = Sampling Date

Wood Debris Sample Designation

Example: 02-WD1-053196
where: 02 = Site 02 - CED Battery Acid Disposal Area
WD = Wood Debris Sample
1 = Sample Number
053196 = Sampling Date

Wipe Sample Designation

Example: 02-WP4-053196
where: 02 = Site 02 - CED Battery Acid Disposal Area
WP = Wipe Sample
4 = Sample Number
053196 = Sampling Date

Decontamination Water Sample Designation

Example: SA4-DW1-053196
where: SA4 = Study Area 4 - CED Asphalt Disposal Area
DW = Decontamination Water Sample
1 = Sample Number
053196 = Sampling Date

PPE Sample Designation

Example: SA4-PP1-053196
where: SA4 = Study Area 4 - CED Asphalt Disposal Area
PP = PPE Sample
1 = Sample Number
053196 = Sampling Date

According to the Project Specifications, the final sampling reports will show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and QC procedures.

8.3 Site 02

Objective

The initial waste characterization samples of drywell water, sediment, and soil will be analyzed at the off-site laboratory to determine disposal requirements. Confirmatory soil samples will be collected from the completed excavation to determine if they fulfill the cleanup criteria of less than 10,000 ppm Total Lead. Wipe samples will also be taken from the buildings before and after decontamination to determine the extent of lead contamination. For a concise summary of analytical testing see Table 4-1, Test Plan and Log.

Initial Waste Characterization

Prior to removal, one (1) sample of each waste stream (water, sediment, and soil) will be collected for initial waste characterization to determine disposal requirements. If more than 50 cubic yards of soil are removed, then one soil sample will be collected for every 50 cubic yards. Each solid sample will be analyzed for Toxic Characteristic Leaching Procedure (TCLP) Lead. The water samples will be analyzed for Total Lead. A maximum of 20 wipe samples will be collected for Total Lead analysis before decontamination of the buildings.

Confirmatory Sampling Analysis

Once the drywell and associated piping have been removed, soil samples will be collected in accordance with the Project Specifications and analyzed for Total Lead and TPH to determine whether to extend the limits of the excavation beyond what was necessary to remove the drywell and piping. A minimum of two (2) soil samples will be collected from the floor of the drywell excavation. If the chamber is greater than 20 feet in length, three (3) samples will be collected. One (1) confirmatory sample will be collected for every 25 linear feet of piping, at every change in piping direction, and at every mechanical joint. The need for additional excavation will be determined by the results of the analyses performed on these samples.

Also, a maximum of 20 wipe samples will be collected after decontamination of the buildings for Total Lead analysis.

All confirmatory sampling must meet RCRA Criteria for excavation and decontamination to be complete. Target Compound List (TCL) organic analysis, less pesticide/PCB; Target Analyte List (TAL) metals and cyanide analysis; and TCLP analysis, less pesticides and herbicides, will be then be performed on soil samples taken from the completed excavation for post-removal risk assessment in accordance with the Project Specifications.

Total Lead Analysis Associated With Building Decontamination

A total of nine (9) air samples will be collected for Total Lead analysis during building decontamination activities in conjunction with the personal air monitoring requirements.

Decontamination Water Characterization

One (1) disposal characterization sample of decontamination water is anticipated. This sample will be analyzed for Total Lead.

Backfill Material

Backfill material will be analyzed for the following parameters and must meet the established criteria: TCLP (indicates non-hazardous), Total Lead (less than 10,000 ppm), and TPH (less than 500 ppm).

8.4 Study Area 4

Objective

The initial waste characterization samples of the asphaltic material in the trench and the soil beneath the trench will be analyzed at the off-site laboratory to determine off-site disposal requirements. Confirmatory soil samples will be collected from the completed excavation to determine if they fulfill the cleanup criteria of less than 300 ppm TPH and less than 10 ppm PCBs. For a concise summary of analytical testing see Table 4-1, Test Plan and Log.

Initial Waste Characterization

Prior to removal, one (1) sample of each waste stream (asphaltic material and adjacent soil) will be collected for initial waste characterization to determine off-site disposal requirements. If more than 50 cubic yards of each waste stream are removed, then one sample of each waste stream will be collected for every 50 cubic yards. Each sample will be analyzed for TPH and PCBs.

Confirmatory Sampling Analysis

Once the asphaltic material and adjacent soil have been removed, soil samples will be collected from the floor and sidewalls and analyzed for TPH and PCBs to determine whether to extend the limits of excavation. One (1) confirmatory sample will be collected for every 80 square feet of excavation base and for every 30 linear feet of sidewall. Confirmatory soil sampling must meet RCRA Criteria for excavation and to be complete.

Decontamination Water Characterization

One (1) disposal characterization sample of decontamination water is anticipated. This sample will be analyzed for TPH and PCBs.

Backfill Material

Backfill material will be analyzed for the following parameters and must meet the established criteria: TCLP (indicates non-hazardous), TPH (less than 300 ppm), and PCBs (less than 10 ppm).

9.0 SITE RESTORATION

Upon completion of excavation activities and after the soils meet cleanup goals, the Contractor will proceed to grade, backfill, and cover the excavated areas with a minimum of 6 inches of clean fill or topsoil to the final design grade. Imported soil from off-site locations will be used as necessary. Testing will be required so as not to introduce or reintroduce contaminated material to the excavation sites. Borrow materials will be compacted in-place by proof rolling. The clean fill will then be paved and the topsoil seeded.

9.1 Soil Materials

Backfill Material

Backfill material will be free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, and deleterious or objectionable materials. Geotechnical requirements for fill material can be found in the Project Specifications. Analytical requirements for fill material can be found in Section 8.0 and the Project Specifications. If these requirements are met, backfilling may occur and the materials will be covered with 6 inches of clean fill or topsoil.

Clean Fill

Clean fill will be used as a subbase just below Site 02 pavement. Before this material can be used, it must meet certain geotechnical requirements and fulfill sampling criteria for a clean fill.

Topsoil

Topsoil, used for seeding Study Area 4, will be natural, friable soil representative of productive, well-drained soils in the area, free of subsoil, stumps, rocks larger than 25 mm (one inch) diameter, brush weeds, toxic substances, and other material detrimental to plant growth. Topsoil pH ranges will be amended to obtain a pH of 5.5 to 7.

9.2 Compaction

Compaction requirements are expressed as a percentage of maximum dry density found at an undisturbed location on the site. In-place density of existing subgrade will be determined using the methods described in the Project Specifications. If the 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 requirement may be reduced by 5%. Compaction requirements for paved areas (Site 02), areas to be vegetated (Study Area 4) and areas adjacent to these excavated sites can be found in the Project Specifications.

9.3 Finish Operations

Grading

Final grading will be similar to existing grades and will blend with the surrounding area. Excavated or disturbed areas will be graded in such a way as to drain water away from structures. Existing grades that were disturbed by Contractor's operations will be regraded as directed by the Contracting Officer's Representative.

Asphalt Paving

Portions of existing pavement will be repaired or replaced at the location of the drywell chamber and associated piping at Site 02. Mix design and mixture properties of the asphalt are described in detail in the Project Specifications. Construction, including subgrade, subbase, and pavement course, can also be found in the Project Specifications.

To comply with RIDEM's regulations for lead management, this paved surface will be maintained at Site 02 where lead concentrations in the soil may range from 500 to 10,000 ppm. Visual inspection of the paved area will be conducted annually to ensure that all soil remains permanently covered.

Seeding

Seeding at the location of the trench at Study Area 4 will be done in compliance with the Project Specifications.

10.0 REPORTING

Site Assessment Report

At the completion of the project, Foster Wheeler Environmental will prepare a Site Assessment Report describing the removal of the drywell chamber at Site 02. The following is a proposed outline for this report:

I. Introduction

II. Summary of Action
   - A. Removal Procedures
   - B. Description of Drywell Chamber and Piping Removed
   - C. Cubic Yards of Soil Removed
   - D. Location of Disposal Sites
   - E. Dates of Excavation

III. Summary of Record Documents
   - A. Site Plan
   - B. Laboratory Testing Reports (Including Data and Test Results)
   - C. Hazardous Waste Manifests
   - D. Disposal Site Certifications
   - E. UIC/UST Notification Form

The Site Assessment Report is intended to satisfy the requirements set forth by RIDEM relative to permanent closure of a UIC/UST facility. This report, along with the Permanent Closure Application For Shallow Injection Well Facilities, will be submitted to the RIDEM Underground Injection Control Program.

Contractor's Close-out Documentation

Foster Wheeler Environmental will also submit Contractor's Close-out Documentation for both Site 02 and Study Area 4 to EA Engineering, Science, and Technology (EA) following the completion of the removal actions. A site description, an Installation Restoration Program (IRP) history, a post-removal risk assessment, and data validation will be provided by EA. The data validation will be based on a Tier II or Level C data validation as defined in Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, revised June 1988. Conclusions and recommendations relative to the findings obtained as a result of the removal actions will also be provided by EA.

Final Report

Foster Wheeler Environmental's Contractor's Close-out Documentation, along with the information provided by EA, will compromise the Final Report for the removal actions at Site 02 and Study Area 4 which will be issued by EA for review.

APPENDIX A

Resumes of Key Individuals

LAWRENCE E. KAHRS, P.E., C.P.G.
Senior Engineer

EXPERIENCE SUMMARY

Mr. Kahrs is a senior engineer with 11 years of experience in the environmental field. This experience includes design, implementation, managerial and technical supervision of government and private-sector projects in both the civil engineering and geological fields. As an senior engineer in the Geosciences Group in the New England office since July, 1995, he is engaged in the management of large projects, in addition to providing technical oversight to ensure and maintain engineering and geological quality on specific project tasks. He is currently involved in several removal action projects and is assisting in the design and installation of groundwater treatment systems.

EDUCATION:	B.S., Engineering Geology, Purdue University - 1984
TRAINING:	40-hour Hazardous Waste Site Health and Safety Training
CERTIFICATION/ REGISTRATION:	Registered Professional Engineer - Indiana, Illinois (inactive), Connecticut Certified Professional Geologist, AIPG, #8324 Certified Professional Geologist, Indiana, #963 Licensed Site Professional, Massachusetts, (full license) #2890
PROFESSIONAL AFFILIATIONS:	National Water Well Association Licensed Site Professional Association American Institute of Professional Geologists

REPRESENTATIVE PROJECT EXPERIENCE

U.S. Navy (USN), Naval Weapons Industrial Reserve Plant (NWIRP) (Bedford, MA) - Project Engineer for the design of a groundwater extraction system involving chlorinated VOCs. Responsible for interpretation of hydrogeologic conditions at the site, development of remedial alternatives, and development of drawings and specifications for the selected remedy. Duties also include providing technical support to the Project Manager relative to the construction of a groundwater treatment plant at the site.

U.S. Environmental Protection Agency (USEPA), W.R. Grace Superfund Site (Acton, MA) - Project Engineer for the USEPA ARCS I contract for oversight of Potentially Responsible Parties (PRP) activities. Responsibilities involve oversight of sludge solidification, landfill construction and groundwater remediation. Specific responsibilities include review and evaluation of PRP design criteria, coordination of field operations, and evaluation of PRP conclusions and recommendations to Government parties.

PRIOR PROJECT EXPERIENCE

Prior to joining Foster Wheeler Environmental, Mr. Kahrs managed environmental divisions in both Indianapolis and Boston for a national environmental consulting firm. He was responsible for the coordination of projects, in addition to the supervision of subordinate geologists, engineers and environmental scientists. As the operations manager, he was responsible for ensuring technical quality and meeting the financial goals of senior management.

U.S. Air Force (USAF), Hanscom Air Force Base (Bedford, MA) - Project Manager for a Indefinite Quantity (IQ) Contract involving petroleum clean-up activities. Contract involved UST removal and installation, remedial action involving soil excavation, and preparation of Removal Action Measure (RAM) plans and Response Action Outcome (RAO) submittals as defined under the Massachusetts Contingency Plan (MCP). Mr. Kahrs provided management, scheduling and budgeting services as the primary point of contact during the preparation of subcontractor specifications, field activities, and negotiations.

United Airlines, UAL Maintenance Center (Indianapolis, IN) - Assisted in the management of all phases of pre-construction activities for the siting of the United Airlines Indianapolis Maintenance Center. Activities included geotechnical study to evaluate subsurface conditions for design and construction criteria, base-line environmental study to determine existing conditions and establish spill contingency plans, and obtaining permits for construction and operation of the facility. This work involved developing specifications, bid documents for subcontractors, scheduling, and developing a framework for regulatory review and permit acquisition. Mr. Kahrs was specifically responsible for execution of the environmental portion of the project and analyzing the subsurface conditions beneath the site to allow the client to determine preferential flow paths and migration rates in the event of a release of fuels, fire retardants, and other hazardous materials.

General Motors Corporation, Delco Moraine NDH (Bristol, CT) - Project Manager for environmental assessment and remediation at a General Motors manufacturing facility. Investigative activities involved the installation of monitoring wells and the collection of groundwater and soil samples for laboratory analysis. Based upon the initial findings, two areas of concern were identified; chromium-contaminated soil beneath a plating area, and area of free-phase product beneath a heat treating area. Follow-up work included sampling and analysis in the area of soil contamination to determine the extent of contamination, and the installation of a product recovery system.

AKRAM I. AZIZ
Quality Control Site Supervisor

EXPERIENCE SUMMARY

Mr. Aziz has over ten years of experience performing quality assurance engineering activities in the design, development and implementation of systems and programs for environmental, industrial and related applications.

Currently the Program Quality Control Manager on the U.S. Navy Northern Division Remedial Action Contract (RAC). Previously was the Quality Control System Manager on the BROS Project which consists of hazardous waste cleanup operation involving a 12-acre lagoon with its attendant dredging work, lagoon surface cleanup and all those support activities to enable thermal destruction of dredged spoil and surface excavation. Responsible for supervision, quality control, inspection and document activities. The department methodology consists of an environmental auditing, monitoring, review and submittal process.

Previous assignment responsibilities have included performance of QA audits, surveillance, QC inspection, engineering design for environmental and civil projects including landfills, hazardous waste, multistory structures, geotechnical and foundation design, laboratory analysis and interpretation of tests performed on soil samples. On construction projects, responsibilities have included control of earth work operations, foundation excavation including blasting and quality assurance and quality control aspects of construction. Also, performed project documents and procedures review for Enserch's environmental projects.

EDUCATION:
M.S., Engineering Management (in progress), Drexel University
B.S., Civil Engineering, College of Engineering, Alexandria University, Egypt , 1986

TRAINING:
40-Hour OSHA Hazardous Waste Health and Safety Training - 1991
8-Hour OSHA Hazardous Waste Health and Safety Supervisor Training
8-Hour OSHA Hazardous Waste Health and Safety Refresher Course - Current
Troxler Electronic Laboratories, Inc., Training course for the Use of Nuclear Testing Equipment (radiological safety and gauge operation)
Red Cross First Aid Certified
Red Cross CPR Certified
MSA Level II SCBA
Special Concentrated Course on RCRA Regulations
Special Concentrated Course on CERCLA/Superfund Laws and Regulations
Special Concentrated Course on Environmental Reporting and Recordkeeping Requirements
Special Concentrated Course on Practical Environmental Science
Special Concentrated Course on Chemistry for Hazardous Materials
Special Concentrated Course on Environmental Sampling and Data Analysis
Special Concentrated Course on Environmental Audits

PROFESSIONAL AFFILIATIONS:
Egyptian Association of Civil Engineers - 1986

CERTIFICATION/
REGISTRATION: Engineer-in-Training for the State of Delaware

REPRESENTATIVE PROJECT EXPERIENCE

BROS Project (Superfund), Bridgeport, NJ - Responsible for providing and maintaining an effective quality control program; ensuring, through audits or surveillance, conformance of all items of work to applicable specifications or drawings; performing preparatory, initial, follow-up and identification of any safety deficiencies; reviewing and modifying or correcting as needed all submittals for approval. Identifying, controlling and assuring resolution of deficiencies, including corrective action implementation. Maintaining project records as required by the contract or statute and supervises QC inspectors.

Sterling Drug Project, Collegeville, PA - Interacted with client and contractor to perform testing and inspection for the construction of the research complex. Reviewed field quality assurance/quality control reports, Laboratory test results and vendor surveillance reports. Responsible for performance of record maintenance and document control of the project records. Updated job specifications, shop drawings and architectural drawings. Prepared and analyzed routine quality control charts. Submitted daily reports and scheduled manpower requirements. Provided technical support to the field team, utilizing job specifications, ASTM, ACI and AWS standards, and Pennsylvania DOT requirements.

Client	Project	Size	Type	Position
USACE	BROS Project	12 Acre Lagoon Cleanup	Hazardous Waste Cleanup	QC System Manager
Gilbane	Sterling Drug	Research Complex	Commercial Construction	QC Engineer
Camden County	Camden County Water Facility	N/A	Environmental Sampling Facility	Field Water QA Engineer
PENN DOT	Devon Site Road	State Road	State Road	Field Engineer
Gilbane	Hudson County Correctional Facility		Commercial Construction	Field Engineer
Gilbane	Squibb	Lab-Cogen Facility	Commercial Construction	Field Engineer
Millville Municipal	Millville Municipal Airport	Municipal Airport	Municipal Airport	Field Engineer
Trans Continental Gas Company	Hackensack Water Crossing	Gas Pipeline	Commercial Construction	Field Engineer

PRIOR PROJECT EXPERIENCE

Lippincott Engineering Associates
Riverside, NJ

Field Engineer - Responsible for the testing and inspection of concrete (normal and steel reinforced); structural fill placement and compaction testing utilizing the sand cone method and the nuclear density gauge; soil borings and classification; piles installation; and utilities installations. Participated in environmental field sampling work related to groundwater monitoring and soil sampling. Familiar with use of field instruments for environmental monitoring. Projects included: Hudson County Correctional Facility, South Kearny, NJ; Squibb Chemical Development Plant, North Brunswick, NJ; Millville Municipal Airport, Millville, NJ; Hackensack Water Crossing (Transcontinental Gas Company), Hackensack, NJ; and Devon State Road (PENN DOT), Chester County, PA.

The Architectural Engineering Contracting Office
Alexandria, Egypt

Project Engineer - Duties included design and inspection of shallow and deep foundation and retaining structures, reinforced concrete analyses and design, and design and inspection of steel structures. Projects included design and inspection for the construction of a 40-story hotel and construction of the waste water pipelines for the greater Alexandria area.

GREY P. COPPI, CIH
Health and Safety Supervisor

EXPERIENCE SUMMARY

Mr. Coppi is a Certified Industrial Hygienist and a Certified Safety Professional with over 11 years of technical and managerial experience in occupational health and safety.

Background includes experience with a Federal regulatory agency that involved health and safety standard applications and enforcement in the manufacturing, chemical, construction and maritime industries. Additional private sector experience has included performing site audits, training course development and presentations and written health and safety program creation. Areas of expertise include Health and Safety Plan preparation and implementation, site auditing and air monitoring methods and applications.

Joined Foster Wheeler Environmental Corporation in September 1995, and was assigned to the five-year, $250 million US Navy Northern Division Remedial Action Contract Program to provide health and safety support for contracts awarded within this region. Also responsible for supporting the administration of the Foster Wheeler Environmental internal Health and Safety Program.

Provided technical and site support to over 100 projects that involved the USACE, USDOE and commercial clients. Project activities included, soil and groundwater sampling, test pit excavations, well installations, soil excavation, in-situ treatment of soil and water, stabilization, landfill capping, drum removal and sampling and groundwater pump and treat plant construction. Contaminants included PCB's, metals, VOC's, dioxins and pesticides.

EDUCATION:	M.S., Environmental Health Science, City University of New York, Hunter College, 1986 B.S., Health Science, City University of New York, Brooklyn College, 1980
TRAINING:	40-Hour OSHA Health and Safety Hazardous Waste Training, 1988 8-Hour OSHA Health and Safety Hazardous Waste Supervisory Training, 1991, 1993, 1995 8-Hour OSHA Health and Safety Hazardous Waste Refresher, Current Red Cross First Aid and CPR - 1994 Confined Space Entry, 1988, 1993
CERTIFICATION/ REGISTRATION:	Certified Industrial Hygienist (CIH), #5279 - 1991 Certified Safety Professional (CSP), #11120 - 1992 Certified Hazard Control Manager (CHCM), #2379 - 1992

REPRESENTATIVE PROJECT EXPERIENCE

Provided technical, managerial and leadership oversight to the New Jersey Turnpike Authority (NJTA) during their $500,000,000 roadway widening program that involved the excavation, segregation and placement of soil contaminated with lead and VOC's. Responsible for assessing compliance with Contractual specifications for 13 separate contracts. Specific duties included the approval of all on-site

health and safety personnel (25) employed by the construction contractors; performed site audits and assessments, and developed an audit checklist and communicated results and recommendations to contractors and the NJTA; provided oral and written correspondence to NJTA, environmental firms, contractor's and section engineers, evaluated air monitoring data and maintained training records.

Provided project health, safety and environmental support to a construction firm who was involved in a $10,000,000 plus addition to an existing NYC waste water pollution control plant located on Wards Island, NYC. Wrote the HASP, supervised the on-site health and safety officer and performed bi-weekly site audits to assess compliance with the Contract Specifications and with the site-specific HASP.

Functioned as the full-time on-site Health and Safety Officer for a $15,000,000 residential remediation located in Northern New Jersey. Over the years, soil had become contaminated with lead and mercury from a nearby explosives manufacturing plant. This project involved the excavation, transportation and disposal of 100,000 tons of soil, backfilling and restoration of lawns, walkways, garages, decks, etc. Duties involved ensuring adherence with the HASP, maintenance of training, air, medical and biological monitoring records; provided training to all personnel; supervised and implemented perimeter and personal air monitoring strategies for dust, lead and mercury. Interfaced with client, NJDEP and oversight engineer.

Functioned as the on-site CIH for a $12,000,000 plus project for a construction contractor who was tasked with capping a municipal landfill located in Westchester, New York. The 65- acre site activities included clearing and grubbing, swale construction, regrading, leachate and methane gas collection systems and monitoring well construction and installation. Potential on-site hazards included methane gas, VOC's and ionizing radiation.

Functioned as Eastern Division Industrial Hygienist for a large hazardous waste remedial firm. Oversaw projects that included remediation of PCB containing soils for three New Jersey compressor stations belonging to a natural gas pipeline transmission company; remediation of soil containing mercury and lead at a New Jersey explosives facility complying with an ACO agreement; remediation of ponds and lagoons containing VOC's at a fragrance manufacturer located in New Jersey; performed weekly site visits for a building demolition and UST removal for a chemical manufacturer located in New Jersey; functioned as health and safety officer for a building decon (mercury) of piping, ladders, walkways and for the excavation and removal of soil and AST decommissioning; responsible for health and safety operations for a USACE cleanup and capping for a $20,000,000 municipal landfill located in Pennsylvania; responsible for health and safety operations for the construction and closure of a TSD landfill located in Ohio; responsible for chemical and township sewer cleanup (Buffalo, NY) contaminated with mercury and dioxin; and a number of sites contaminated with herbicides and insecticides were remediated.

William F. Dolhancey

(Primary Residence)
457 Pine Crest Road
Springfield, PA 19064
(610) 543-8180

(Current Residence)
36 Brek Drive
Merrimack, NH 03054
(603) 880-8761

Job Title: Superintendent
Proposed Project Title: _____
Years Experience with Environmental Remediation
With This Firm: >1 With Other Firms: 8

OBJECTIVES:

To obtain a full time position with the potential for advancement.

EDUCATION & CERTIFICATIONS:

G.E.D. New Hampshire State Department of Education
Certified Pennsylvania State Inspection Mechanic License #17-685-643
Certified CPR and First Aid, American Red Cross (current)
Certified Level B-Supervisor (Hazardous Waste) (Roy F. Weston)
Certified Health and Safety Coordinator (Roy. F. Weston)
Certified Health and Safety Coordinator (Foster Wheeler Environmental)
Department of Defense R-13 Security Clearance
Certified JLG Arial Lift Operator
OSHA 1910.120 (e) (40) Remedial Response Health and Safety Training Course
OSHA 1910.120 (e) (8) Refresher Training (current)
OSHA 1910.120 (e) (4) Supervisor Training (current)
Qualitative Respirator Fit Test (current)

ADDITIONAL TRAINING:

Blood Borne Pathogen Training
29 CFR 1926 10 Hour Construction Industry Outreach Training
80 Hour Transportable Incineration System Control Room Operator Training

TECHNICAL SKILLS:

All types of Heavy Equipment Operation
Underground utility installation and repair
Carpentry
Hydraulic installation and repair
Refractory repair and installation
Personnel Management
Erosion Control
Concrete - pour, form and finish
Auto, Truck and Marine engine and related systems operation and repair
Site Development
Transportable Incineration Erection and Operation
Welding and Metal Fabrication
Pipe fitting and plumbing
Grade Setting, Minor Surveying
Roofing and Siding
Demolition
AST and UST Removal and Installation
Potable Water Distribution
Land clearing, Tree surgery
Paving
Excavation
Landfill Installation and Capping
Contaminated Soil Excavation, Remediation and Transportation

EXPERIENCE AND QUALIFICATIONS: Mr. Dolhancey is a certified level B Protection - Supervisor and Health and Safety Coordinator with over eight (8) years of experience.

His background includes extensive experience implementing and supervising various safety, sampling, air monitoring, remediation construction and demolition plans. He has extensive experience in heavy equipment inspection, maintenance, supervision and operation, including lattice and hydraulic boom cranes.

Mr. Dolhancey's areas of expertise include construction of waste water treatment facilities, health and safety, hazardous waste remediation, and incineration of PCB and TNT contaminated soils.

Mr. Dolhancey has extensive experience working with USACE, DOE, EPA, USAF, USN, as well as with the private sector.

REPRESENTATIVE PROJECT EXPERIENCE

08/94 - Present
N.W.I.R.P. Bedford, MA NAV-RAC
Bedford, MA
USN
Site Superintendent/Health and Safety Officer

Construction of Ground Water Treatment Facility.
Project Ongoing.

Silresim Superfund Site NE Total Environmental Remediation Contract (TERC)
Lowell, MA
USACE
Site Superintendent

Construction of on-site water treatment facility. Installation of twenty-five (25) extraction wells. Soil capping utility installation, and final restoration in vinyl chloride contaminated soil. Fifteen (15) months with no lost time incidents.

12/90 - 08/94
Roy F. Weston (Construction Remediation Services Division)

Earl Naval Weapons Station
Coltsneck, NJ
USN
Senior Crew Chief

Soil, ground water sampling, removal, disposal and restoration of twenty-three (23) underground #2 fuel oil tanks. Performed air monitoring for confined space entry with CGI/O_2 meter for entry of personnel.

Rocky Mountain Arsenal
Denver, CO
USACE
Training Supervisor

Decontamination and removal of sixteen (16) above ground pesticide tanks. Demonstrated and trained operators in the correct use of a Trachoe mounted rotating shear, aerial lift and fall protection equipment used in the decontamination and dismantling of 100,000 gallon above ground tanks. Tank demolition procedure was documented on film by the client to be used as a precedent for safely completing this type of demolition. Worked closely with on-site health and safety personnel during equipment inspection. PPF requirements for decontamination activities, and containment to prevent cross contamination.

Savanna Army Depot
Savanna, IL
USACE, IL E.P.A.
Site Foreman/Health and Safety Officer/Control Room Operator

Removal of 50,000 cubic yards of TNT contaminated soil and water treatment for stream discharge of seven (7) million gallons of leachate. Performed the role of Health and Safety Officer and was responsible for soil remediation and the construction of a twenty (20) ton per hour transportable incineration system. Also performed duties as a Control Room Operator responsible for emission requirements under the permit guidelines set by the IL E.P.A.

Mobile Chemical Company
Holyoke, MA
Construction Health and Safety Officer

Removal and installation of four (4) 50,000 gallon styrene tanks and related ancillary equipment. Work performed included extensive use of two (2) 75 ton lattice boom cranes, sheet pile driving equipment, perimeter air monitoring and real-time air monitoring, as well as confined space permitting for tank cleaning. Excavation in excess of twenty (20) feet required in depth training for fall protection and confined space entry. Mobil Chemical of Holyoke is the first member of the OSHA S.T.A.R. program with an untarnished record for safety. We were able to complete our contract with no recordable incidents.

07/90 - 12/90
Canonie Environmental
Operating Engineer, Night Shift Foreman

60 acre Claymax containment area of PCB contaminated soils in wetlands.

06/89 - 06/90
RTP Highway Contractors
Operating Engineer, Foreman

All types of highway and curb construction. Asphalt paving and milling. Utility relocation. 90% of work performed for PA and DE D.O.T.

09/87 - 06/89
Roy F. Weston (Weston Services)
Thermal Group, Beardstown, IL
Crew Chief, Operating Engineer

Excavation of PCB contaminated salvage yard. All types of Incinerator Maintenance. Kiln nose ring reconstruction. Welding, pipe fitting and mechanical applications.

Pickering Group, Morgantown, PA
Crew Chief, Operator

Refurbish entire potable water treatment facility. Clear well, filter tanks, floc tank, pumps, valves, chemical system and polishing ponds.

Blue Route, PA D.O.T., (Springfield, PA)
Crew Chief, Operator

Four Million Dollar disposal and containment of PCB's and heavy metals. Land clearing, on Site scale construction, bridge pier excavation, sanitary sewer by-pass and removal and transportation of 750 loads of contaminated soil.

Pantex, Amarillo, TX
Crew Chief, Operator

Tank removal on high security ammunition facility. Removal, demolition and restoration of chemical storage facilities.

Selas, Fort Washington, PA
Crew Chief, Operator

Sludge removal and sewer relocation, site restoration. On site septic filed remediation for sale of property.

03/85 - 09/87
R.T. Stewart & Sons
Operator, Foreman

Sub-contractor to Coatesville Water Authority. Water and sewer distribution maintenance and Installation for entire CCA system. Underground distribution, reservoir and treatment plant maintenance.

02/83 - 03/85
R.N. Pizio
Operator, Truck Driver, Mechanic

Heavy equipment operation and maintenance.

06/81 - 02/83
Alan Funk General Contractor
Operator, Carpenter, Hydraulic Lift Installation

04/77 - 06/81
Tom's Auto Repair
Certified State Inspection Mechanic

Custom metal fabrications. All types car/truck repair and welding.

02/75 - 04/77
International House Restaurants
Manager, Assistant Manager, Cook

Responsible for 15 - 20 employees.

06/74 - 04/77
General Electric Company
Foundry

Foundry pour-off. Casting and pouring of alloys, ferrous and non-ferrous metals.

04/72 - 06/74
Miley Brown Chrysler Plymouth
Auto Mechanic

DOUGLAS W. MURPHY

921 Providence Highway, Norwood, MA (617) 762-7871

EXPERIENCE SUMMARY:

Over twenty-five (25) years of engineering design and construction experience on environmental and hazardous waste projects. Experience encompasses roles as engineering designer, construction inspector and manager, construction quality control and quality assurance inspector on projects for USACE, USEPA, numerous municipal and state clients, and private industry. Expertise includes landfill construction and closure, soil treatment, construction of water and wastewater pipeline and treatment facilities, and groundwater pumping and treatment.

WORK EXPERIENCE:

1/94 - Present: **FOSTER WHEELER ENVIRONMENTAL CORPORATION**
Quality Control System Manager

Project involves soil and groundwater treatment, extraction wells and treated water discharge line construction. Major responsibilities include: ensuring that Quality Control inspections and testing are performed and documented to comply with the Construction Quality Control Plan. Monitoring, overseeing, and/or performing periodic on-site inspections of work in progress to determine if the work is proceeding in accordance with the Contract Documents. Ensuring that health and safety and project chemistry functions are being properly and effectively implemented by their respective lead personnel in accordance with their approved project plans. Expected project cost is $ 60 million.

9/78 - 11/94 **ROY F. WESTON, INC.**
Quality Control Inspector

Extensive construction quality control inspection, management and design experience.

- Construction Quality Assurance of Surface Remediation Project, General Motors, Inland Fisher Guide Division, Flint, MI. - CQA Inspector on project involving soil excavation, stabilization, and placement in new 0.5 million cubic yard capacity landfill. The landfill is double-lined with leachate collection and leak detection. The liner is 60 mil HDPE. Total project cost was $ 25 million.

- Wastewater Treatment Plant Construction, Sanford Sewerage District, Sanford, ME - Construction Inspector on Wastewater Treatment Plant project. Total project cost was $ 7 million with a construction period of 2 years.

- Construction and Operation of the Gilson Road Groundwater Treatment Pilot Plant, State of New Hampshire, Nashua, NH - The project included a 2-month operation period for the 10 gpm pilot plant.

- Construction and Inspection and Management of New Water Supply and Distribution Project, U.S.E.P.A. Tibbetts Road Superfund Site, Barrington, NH - Construction Inspector on $ 1 million new water supply project for 75 homes with contaminated well water. Project involved installation of intake piping in the source lake and construction of a pumping and treatment plant with remote slow sand filters and distribution piping.

- Construction Oversight of Landfill closure, Illinois Environmental Protection Agency, Belvedere, Illinois. - Construction Inspector on project involving a 25-acre landfill with a clay cap, venting and monitoring well, groundwater collection, and transportation. Total project cost was $7 million.

- Construction Inspection of Town of Derry Landfill Closure, Derry, NH - Construction Inspector on project involving a 21-acre municipal landfill with a 20 mil PVC cap, which was chemically bonded. The construction period was 1 year, including road relocation. Total project cost was $850,000.

- Drafting and Design Assistance on Secure Ash Landfill, Derry, NH - Draftsman.

- Sewer Rehabilitation Project, Construction Management and Inspection, Various locations, Sanford Sewerage District, Sanford, ME and Town of Lincoln, NH - Construction Inspector. Construction inspection and management on sewer system rehabilitation projects over a period of 2 years.

- Construction Inspection on Town of Plymouth Sewer Separation Project, Plymouth, NH - Construction Inspector.

- Other Representative Projects:

  - Construction Inspector on Sewer System Extension Project, Beaver Lake Area, Derry, NH - Construction Inspector.

  - Design of Sewer System Extension, Beaver Lake Area, Town of Derry, NH - Designer.

  - Field Survey and Drafting Assistance for the U.S. Army Corps of Engineers, Avco Lyncoming, Stratford, CT - Surveyor and Draftsman.

  - Field Study and Review of Infiltrating Sewer System, Shenango Township, PA.

  - Source Emissions Testing for Pennsylvania Power and Light Company, Martins Creek, PA - Team Member.

- Sewer System Evaluation Survey, Various Locations, Multiple Clients - Surveys were performed for Towns of Lincoln and Littleton, NH; also Kennebunkport and South Berwick, ME.

3/73 - 9/78

TOWN PLANNING AND ENGINEERING, INC.
Transitman

Transitman on Field Survey Crew - Land surveying on various projects for USACE and Commonwealth of Massachusetts.

9/69 - 3/73

FAY SPOFFORD AND THORNDIKE, INC.
Draftsman

Draftsman and Field Survey Crew Member - Drafting and field survey on projects for Boston, Cambridge, Malden and Worcester, Massachusetts Redevelopment Authorities.

EDUCATION:

Drafting Major, Northeast Institute of Industrial Technology, (1968-1969)

REFERENCES:

Excellent references will be furnished upon request.

ERIN P. GRIFFIN
Associate Engineer

EXPERIENCE SUMMARY

Ms. Griffin is an Associate Engineer with over three years of experience in Civil and Environmental Engineering. She has experience with field investigations (sampling and analyses), U.S. Environmental Protection Agency (USEPA) field oversight, environmental site assessments, oil pollution prevention plans, and procurement. She is currently involved in procuring services for a Superfund site under the U.S. Army Corps of Engineers' (USACE) Total Environmental Restoration Contract (TERC).

EDUCATION:	B.S., Civil/Environmental Engineering, Cornell University, 1992
TRAINING:	40-Hour OSHA Hazardous Waste Health and Safety Training 8-Hour OSHA Hazardous Waste Site Supervisor Training OSHA Supervisor Training DOT Employee Training Environmental Compliance Assessment System Training
PROFESSIONAL AFFILIATIONS:	American Society of Civil Engineers

REPRESENTATIVE PROJECT EXPERIENCE

U.S. Army Corps of Engineers (USACE), TERC, Raymark Superfund Site (Stratford, CT) - Currently providing technical/engineering support for government procedure procurements of materials and services to support construction of a RCRA cap, a NAPL groundwater extraction system, and a soil gas collection and treatment system for the remediation of the Raymark Superfund Site. Responsibilities include reviewing technical drawings and specifications, developing statements of work, identifying potential vendors, and performing technical evaluation of work plans and proposals received from vendors.

U.S. Environmental Protection Agency (USEPA), ARCS I, W.R. Grace Superfund Site (Acton, MA) - Assisted Field Operations Leader in the oversight of field activities at a Superfund hazardous waste site in Acton, MA. Field oversight activities conducted at the site included monitoring remedial activities such as excavation and landfilling of contaminated soils and sludges from several lagoons and other waste areas, post excavation confirmatory soil sampling, stormwater management, worker and public health and safety air monitoring, vehicle decontamination, and quality control implementation. Oversight responsibilities also included coordinating split soil sampling efforts; communicating with various government parties; maintaining daily logs, daily reports, and photographic documentation; issuing non-conformance reports; communicating with quality assurance/control personnel; and providing technical support for the EPA during weekly construction progress meetings.

Confidential Client (Plainville, MA) - Performed soil, sediment, and groundwater sampling for a fortune 500 industrial client whose site is subject to cleanup requirements of the USEPA RCRA Corrective Action Program, TSCA, and the Nuclear Regulatory Commission.

USACE, New England Division, Nyanza Chemical Site (Ashland, MA) - Field Operations Leader whose responsibilities included the implementation of a Chemical Data Acquisition Plan and Statement of Work for predesign investigations at a 5-acre mercury-contaminated wetland and associated streams. The field program included installation of over 50 subsurface soil borings and extensive surface water and sediment sampling. Acted as Field Operations Leader during the field program, directing and overseeing drilling and soil sampling;

packaging, labeling, and completing necessary sampling paperwork according to EPA Contract Laboratory Program (CLP) criteria; communicating with the Project Manager and on-site USACE representative; and completing daily logs and QA/QC paperwork.

USACE, Mobile District, Defense Fuel Support Points (Searsport, ME; Melville, RI; and Verona, NY) - Assisted Project Engineer in the preparation of Spill Prevention Control and Countermeasure Plans, Oil Pollution Prevention Operation Manuals, and Facility Response Plans for three Government-owned, contractor-operated, fuel storage and distribution terminals in accordance with applicable federal and state regulations. These plans address the facility's spill response and mitigation procedures, response training and drills of personnel, emergency notification procedures, and appropriate pollution prevention containment and/or diversionary structures.

USACE, Mobile District, Defense Fuel Support Points (Martinez, San Pedro, and Norwalk, CA) - Assisted in consolidating and updating Response Plans for Onshore Oil Pipelines for three Government-owned, contractor-operated, fuel storage and distribution terminals in accordance with applicable federal and state regulations. These plans address spill response and mitigation procedures, response training and drills of facility personnel, and emergency notification procedures.

USACE, Mobile District, Redstone Arsenal Installation (Huntsville, AL) - Assisted in the preparation of an Environmental Assessment for Redstone Arsenal. Areas of responsibility included socioeconomic, biological resources, infrastructure, wetlands, geology, and soils. The action evaluated in the Environmental Assessment is the implementation of the Redstone Arsenal Master Plan through its component plans, particularly the Natural Resource Management Plan, for continued operational support of the installation for the next 15 to 20 years.

USACE, Mobile District, Fort McClellan (Anniston, AL) - Lead data gathering for, and assisted in the preparation of, an Environmental Assessment for Fort McClellan. The action proposed by the U.S. Chemical and Military Police Centers and Fort McClellan in its Environmental Assessment is to continue its ongoing mission and operations in accordance with the installation Master Plan Narrative for the next 15 to 20 years.

USACE, Mobile District, Army National Guard Sites (Mississippi and Puerto Rico) - Performed technical reviews of environmental audits using the Environmental Compliance Assessment System (ECAS) developed for the Army National Guard.

APPENDIX B

Submittal Register

Submittal Register
Delivery Order No. 0006 - NCBC Davisville

Line No.	Spec. Section Number	SD Number & Type of Material or Product	Spec. Paragraph Number	Northern Division	ROICC	A E	Transmittal Control Number
1	01010	Preconstruction Submittals	1.2				
2		Draft SHERP	1.2.1.1	X			
3		Response to comments on SHERP	1.2.1.3	X			
4		Final SHERP	1.2.1.4	X			
5		Draft Work Plan	1.2.2.1	X		X	
6		Response to comments on Work Plan	1.2.2.3	X	X	X	
7		Final Work Plan	1.2.2.4	X	X	X	
8	01010	SD-18, Records	1.3.1				
9		Status Reports	1.3.1.1		X		
10		QC Meeting Minutes	1.3.1.2		X		
11		Test Results Summary Report	1.3.1.3		X		
12		Permits	1.3.1.4		X		
13		Contractor's Production Report	1.3.1		X		
14		Contractor's Closeout Report	1.3.1.5		X		
15		Miscellaneous Documentation	1.3.1.6		X		
16	02082	SD-08, Statements	1.3.1				
17		Excavation and Material Handling Plan	1.3.1.2		X		
18		Demolition Plan	1.3.1.3		X		
19		Field Sampling and Laboratory Testing Plan	1.3.1.4		X		
20		Drywell & Piping Removal and Disposal Plan	1.3.1.5		X		
21		Spill and Discharge Control Plan	1.3.1.6		X		
22	02082	SD-09, Reports	1.3.2				
23		Identification and Location of Drywell	1.3.2 a.	X	X	X	
24		Reporting Periods	1.3.2 b.	X	X	X	
25		Closure Report	1.3.2 c.	X	X	X	
26		Laboratory Testing Reports	1.3.2 d.	X	X	X	
27		Quantities of Soil Excavated	1.3.2 e.	X	X	X	
28	02082	SD-18, Records	1.3.3				
29		UIC/UST Permits	1.3.3 a.	X	X	X	
30		Results of Excavation	1.3.3 b.	X	X	X	
31		Drywell Chamber Disposal	1.3.3 c.	X	X	X	
32		Contaminated Solids Disposal Paperwork	1.3.3 d.	X	X	X	
33		Contaminated Water Disposal Paperwork	1.3.3 e.	X	X	X	
34	02220	SD-04, Drawings	1.3.1				
35		Supporting System Drawings	1.3.1.1	X	X		
	Northern Division & ROICC: Specific Submittal Review/Approval - Lester, PA /Newport, RI						
	AE: Complex Submittal Review/Approval by Navy-Retained Consultant Office Staff						

Submittal Register
Delivery Order No. 0006 - NCBC Davisville

Line No.	Spec. Section Number	SD Number & Type of Material or Product	Spec. Paragraph Number	Northern Division	ROICC	A E	Transmittal Control Number
36	02220	SD-05, Design Data	1.3.2				
37		Supporting System Calculations	1.3.2.1	X	X		
38	02220	SD-08, Statements	1.3.3				
39		Supporting Systems Work Plan	1.3.3 a.	X	X		
40	02220	SD-12, Field Test Reports	1.3.4				
41		Fill and Backfill Tests	1.3.4 a.		X		
42		Density Tests	1.3.4 b.		X		
43	02510	SD-10, Test Reports	1.3.1				
44		Mix Design	1.3.1.1		X		
45	02510	SD-12, Field Test Reports	1.3.2				
46		New Bituminous Mix Trial Batch	1.3.2 a.		X		
47	02510	SD-13, Certificates	1.3.3				
48		Paving Materials	1.3.3 a.		X		
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	Northern Division & ROICC: Specific Submittal Review/Approval - Lester, PA /Newport, RI AE: Complex Submittal Review/Approval by Navy-Retained Consultant Office Staff						

APPENDIX C

QC Forms

Includes the following:

- Contractor Production Report
- Contractor Quality Control Report
- Transmittal Form 4025
- Chain of Custody Record
- Preparatory Inspection Checklist
- Initial Inspection Checklist
- Test Plan and Log
- In-Process Deficiency Punch List
- Rework Items List
- Construction Deficiency Notice
- Statement of Compliance
- Statement and Acknowledgment
- Mishap Reporting Procedures
- Contractor Significant Incident Report

CONTRACTOR PRODUCTION REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE		
CONTRACT NO.	TITLE AND LOCATION	REPORT NO.
CONTRACTOR	SUPERINTENDENT	
AM WEATHER / PM WEATHER	MAX TEMP: °F	MIN TEMP: °F

WORK PERFORMED TODAY

WORK LOCATION AND DESCRIPTION	EMPLOYER	NUMBER	TRADE	HRS

JOB SAFETY

WAS A JOB SAFETY MEETING HELD THIS DATE? ☐ YES ☐ NO
(If YES attach copy of the meeting minutes)

WERE THERE ANY LOST TIME ACCIDENTS THIS DATE? ☐ YES ☐ NO
(If YES attach copy of completed OSHA report)

WAS TRENCHING/SCAFFOLD/HV ELECTRICAL/HIGH WORK DONE? ☐ YES ☐ NO
(If YES attach statement or checklist showing inspection performed)

WAS HAZARDOUS MATERIAL/WASTE RELEASED INTO THE ENVIRONMENT? ☐ YES ☐ NO
(If YES attach description of incident and proposed action)

TOTAL WORK HOURS ON JOB SITE THIS DATE	
CUMULATIVE TOTAL OF WORK HOURS FROM PREVIOUS REPORT	
TOTAL WORK HOURS FROM START OF CONSTRUCTION	

LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED

☐ SAFETY REQUIREMENTS HAVE BEEN MET.

EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY

REMARKS

CONTRACTOR/SUPERINTENDENT _____ DATE _____

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

PHASE | Y - YES; N - NO, SEE REMARKS; BLANK - NOT APPLICABLE | IDENTIFY DEFINABLE FEATURE OF WORK, LOCATION AND *LIST PERSONNEL PRESENT*

PREPARATORY

THE PLANS AND SPECS HAVE BEEN REVIEWED.	
THE SUBMITTALS HAVE BEEN APPROVED.	
MATERIALS COMPLY WITH APPROVED SUBMITTALS.	
MATERIALS ARE STORED PROPERLY.	
PRELIMINARY WORK WAS DONE CORRECTLY.	
TESTING PLAN HAS BEEN REVIEWED.	
WORK METHOD AND SCHEDULE DISCUSSED.	

INITIAL

PRELIMINARY WORK WAS DONE CORRECTLY.	
SAMPLE HAS BEEN PREPARED/APPROVED.	
WORKMANSHIP IS SATISFACTORY.	
TEST RESULTS ARE ACCEPTABLE.	
WORK IS IN COMPLIANCE WITH THE CONTRACT.	

TESTING PERFORMED & WHO PERFORMED TEST

FOLLOW-UP

WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE.	

TESTING PERFORMED & WHO PERFORMED TEST

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

REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

REMARKS

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

AUTHORIZED QC MANAGER AT SITE _____ DATE _____

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

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

GOVERNMENT QUALITY CONTROL MANAGER _____ DATE _____

FORM 01400-1 6/91

(Back)

CONTRACTOR QUALITY CONTROL REPORT CONTINUATION SHEET

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE

CONTRACT NO.

REPORT NO.

PHASE | IDENTIFY DEFINABLE FEATURE OF WORK, LOCATION AND *LIST PERSONNEL PRESENT*

Y - YES; N - NO, SEE REMARKS; BLANK - NOT APPLICABLE

PREPARATORY

	THE PLANS & SPECS HAVE BEEN REVIEWED.
	THE SUBMITTALS HAVE BEEN APPROVED.
	MATERIALS COMPLY WITH APPROVED SUBMITTALS.
	MATERIALS ARE STORED PROPERLY.
	PRELIMINARY WORK IS DONE CORRECTLY.
	SAFETY REQUIREMENTS HAVE BEEN MET.
	TESTING PLAN HAS BEEN REVIEWED.
	WORK METHOD/SCHEDULE DISCUSSED.

INITIAL

TESTING PERFORMED & WHO PERFORMED TEST

	PRELIMINARY WORK IS DONE CORRECTLY.
	SAMPLE HAS BEEN APPROVED/PREPARED.
	SAFETY REQUIREMENTS HAVE BEEN MET.
	TEST RESULTS ARE ACCEPTABLE.
	WORK IS IN COMPLIANCE WITH THE CONTRACT.

CONTRACTOR QUALITY CONTROL REPORT CONTINUATION SHEET

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE	
CONTRACT NO.	REPORT NO.

PHASE	IDENTIFY DEFINABLE FEATURE OF WORK, LOCATION AND *LIST PERSONNEL PRESENT*	Y - YES; N - NO, SEE REMARKS; BLANK - NOT APPLICABLE	
		TESTING PERFORMED & WHO PERFORMED TEST	WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE.
FOLLOW-UP			

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE *(Read instructions on the reverse side prior to initiating this form)*	DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____

SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)* SOW	PROJECT TITLE AND LOCATION: STRATFORD SUPERFUND SITES

ITEM NO.	DESCRIPTION OF ITEM SUBMITTED *(Type size, model number/etc.)*	MFG. OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See Instruction No. 8)*	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE	VARIATION *(See Instruction No. 6)*	FOR CE USE CODE
				SPEC. PARA. NO.	DRAWING SHEET NO.			
a.	*b.*	*c.*	*d.*	*e.*	*f.*	*g.*	*h.*	*i.*

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

_____
NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

FOSTER WHEELER ENV. CORP.

CHAIN OF CUSTODY RECORD

PROJECT

SAMPLERS: (Signature)

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	NO. CONTAINERS	TCL VOA	TCL BNA	TCL PEST./PCB	TAL METALS	CYANIDE	REMARKS OR SAMPLE LOCATION	PRESERVATION: ICED	PRESERVATION: SPECIFY CHEMICALS ADDED AND FINAL pH IF KNOWN

Relinquished by: (Signature) (1)	Date / Time	Received by: (Signature)	Relinquished by: (Signature) (4) / Date / Time / Shipped via:
Relinquished by: (Signature) (2)	Date / Time	Received by: (Signature)	Received for Laboratory by: (Signature) / Date / Time / Shipped Ticket No.
Relinquished by: (Signature) (3)	Date / Time	Received by: (Signature)	Remarks:

PREPARATORY INSPECTION CHECKLIST

CONTRACT NO: _____ DATE: _____

TITLE: _____ SPECS SECTION: _____

MAJOR DEFINABLE SEGMENT OF WORK: _____

A. PERSONNEL PRESENT:

	NAME	POSITION	COMPANY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

B. TRANSMITTALS INVOLVED:

	NUMBER & ITEM	CODE	CONTRACTOR OR GOVERNMENT APPROVAL
1.			
2.			
3.			
4.			
5.			
6.			
7.			

B-I. Have all items involved been approved? Yes _____, No _____

PREPARATORY INSPECTION CHECKLIST (Cont'd)

B-II. What items have not been approved?

	ITEM	STATUS
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

C. ARE ALL MATERIALS ON HAND? Yes ___, No ___

C-I. Are all materials on hand in accordance with approvals? Yes ___, No ___

C-II. Items not on hand or not in accordance with transmittals:

1. _____
2. _____
3. _____
4. _____

D. TESTS REQUIRED IN ACCORDANCE WITH CONTRACT REQUIREMENTS:

	TEST	PARAGRAPH
1.	_____	_____
2.	_____	_____
3.	_____	_____

E. ACCIDENT PREVENTION PREPLANNING - HAZARD CONTROL MEASURES:

E-I. Applicable Outlines (Attach completed copies):

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

PREPARATORY INSPECTION CHECKLIST (Cont'd)

E-II. Operational Equipment Checklists

ATTACHED FOR:

1. _____
2. _____
3. _____

ON FILE FOR:

1. _____
2. _____
3. _____

_____

SITE QUALITY CONTROL MANAGER

INITIAL INSPECTION CHECKLIST

CONTRACT NO: _____ DATE: _____

DESCRIPTION AND LOCATION OF WORK INSPECTED: _____

_____

REFERENCE CONTRACT DRAWINGS: _____ SPEC SECTION: _____

A. PERSONNEL PRESENT:

	NAME	POSITION	COMPANY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

B. MATERIALS BEING USED ARE IN STRICT COMPLIANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS: YES _____, NO _____

IF NOT, EXPLAIN: _____

_____

_____

C. PROCEDURES AND/OR WORK METHODS WITNESSED ARE IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. YES _____, NO _____

IF NOT, EXPLAIN: _____

_____

_____

INITIAL INSPECTION CHECKLIST (Cont'd)

D. WORKMANSHIP IS ACCEPTABLE. YES _____, NO _____

STATE AREAS WHERE IMPROVEMENT IS NEEDED: _____

E. SAFETY VIOLATIONS AND CORRECTIVE ACTION TAKEN: _____

_____

SITE QUALITY CONTROL MANAGER

TEST PLAN AND LOG

CONTRACT NUMBER	PROJECT TITLE AND LOCATION	CONTRACTOR

SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED /APPROVED LAB		SAMPLED	TESTED BY	LOCATION OF TEST		FREQUENCY	DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE				

Sheet _____ of _____

INPROCESS DEFICIENCY PUNCH LIST

LOCATION _____

OR FEATURE INSPECTED: _____

_____

_____

Report Reference Numbers if a Deficiency
Report is Required

_____

_____

ITEM NO.		OBSERVATION DATE	CORRECTION DATE

REMARKS:

SQCM: _____

Final Issue Date: _____

REWORK ITEMS LIST

Contract No. and Title: _____

Contractor: _____

NUMBER	DATE IDENTIFIED	DESCRIPTION	CONTRACT REQUIREMENT (Spec. Section and Par. No., Drawing No. and Detail No., etc.)	ACTION TAKEN BY QC MANAGER	RESOLUTION	DATE COMPLETED

FOSTER WHEELER ENVIRONMENTAL CORP.

CONSTRUCTION DEFICIENCY NOTICE

CDN No. _____ Issue Date_____ Sheet ____ of ____
Closure Date

Work Area or Feature Inspected: _____ Deficient Subcontractor:_____

Applicable Plans, Drawings, Specifications: _____

Description of Deficient Condition:

Project Superintendent Signature:_____ Date:_____

Recommended Disposition: _____

Recommenders Signature: _____ Date: _____

Subcontractor Response:

Reinspection Required ____ Yes ____ No

Performed on _____

Acceptable ____ Yes ____ No

Distribution:
Site Engineer
Project Superintendent
Quality Control Manager
Project Manager
Subcontractor

STATEMENT OF COMPLIANCE

PAYROLL NUMBER	PAYROLL PAYMENT DATE	CONTRACT NUMBER

Date _____

I, _____ (Name of signatory party), _____ (Title) do hereby state:

(1) That I pay or supervise the payment of the persons employed by _____ (Contractor or subcontractor) on the _____ (Building or work); that during the payroll period commencing on the _____ day of _____, 19 _____ and ending the _____ day of _____, 19 _____, all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said _____ (Contractor or subcontractor) from the full weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 *(29 CFR Subtitle A)*, issued by the Secretary of Labor under the Copeland Act, as amended *(48 Stat. 948,63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and described below:*

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training. United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

☐ - In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ - Each laborer or mechanic listed in the above referenced payroll has been paid as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (Craft)	EXPLANATION

REMARKS

NAME AND TITLE	SIGNATURE

The wilful falsification of any of the above statements may subject the contractor or subcontractor to civil or criminal prosecution. See Section 1001 of Title 16 and Section 231 of Title 31 of the United States Code.

STATEMENT AND ACKNOWLEDGMENT

FORM APPROVED OMB NO. 9000-0014

PART I – STATEMENT OF PRIME CONTRACTOR

1. PRIME CONTRACT NO.	2. DATE SUBCONTRACT AWARDED	3. SUBCONTRACT NUMBER

4. PRIME CONTRACTOR (Name, address and ZIP code)	5. SUBCONTRACTOR (Name, address and ZIP code)

6. The prime contractor states that under the contract shown in Item 1, a subcontract was awarded on date shown in Item 2 by (Name of Awarding Firm) _____

to the subcontractor identified in Item 5, for the following work:

7. PROJECT	8. LOCATION

9. NAME AND TITLE OF PERSON SIGNING	10. BY (Signature)	11. DATE SIGNED

PART II – ACKNOWLEDGMENT OF SUBCONTRACTOR

12. The subcontractor acknowledges that the following clauses of the contract shown in Item 1 are included in this subcontract:

Contract Work Hours and Safety Standards Act - Overtime Compensation - Construction	Davis-Bacon Act
	Apprentices and Trainees
Payrolls and Basic Records	Compliance with Copeland Regulations
Withholding of Funds	Subcontracts
Disputes Concerning Labor Standards	Contract Termination-Debarment
	Certification of Eligibility

13. NAME(S) OF ANY INTERMEDIATE SUBCONTRACTORS, IF ANY

14. NAME AND TITLE OF PERSON SIGNING	15. BY (Signature)	16. DATE SIGNED

(11/95)

MISHAP REPORTING PROCEDURES FOR CONTRACTORS PERFORMING WORK ON NAVFAC CONTRACTS

Requirement - each contractor shall be required to provide to the Contracting Officer a copy of a mishap report as described below.

The definitions of the mishap categories and the "Contractor Significant Incident Report (CSIR-1)" form are attached.

Mishap Category	Investigating & Reporting Requirements
Tier One Serious	Provide notification to OSHA and the Contracting Officer within 8 hours. Submit form CSIR-1 with appropriate information completed.
Tier Two Significant	Provide notification to the Contracting Officer within 24 hours. Submit form CSIR-1 with appropriate information completed.
Tier Three Other	Provide a copy of all written reports to the Contracting Officer within 5 work days. Submit copies of OSHA required reports.

4.5.2 Definitions.

a. Activity Safety Office - EFD/EFA/Independent OICC/PWC/CBC/NFESC Safety Office.

b. Tier One - Serious Contractor Mishap: Any contractor mishap involving a fatality or the hospitalization of three or more workers, or resulting in property damage exceeding $200,000 in value.

c. Tier Two - Significant Contractor Mishap: Any contractor mishap which involves:

(1) Falls of 4 feet or more which result in a lost time injury, or property damage of $10,000 or more, but less than $200,000.
(2) Electrical mishaps which result in a lost time injury; property damage of $10,000 or more, but less than $200,000; fire department or emergency medical treatment (EMT) assistance.
(3) Confined space mishaps which result in a lost time injury; property damage of $10,000 or more, but less than $200,000; fire department or emergency medical treatment (EMT) assistance.
(4) Diving mishaps which result in a lost time injury; property damage of $10,000 or more, but less than $200,000; or emergency medical treatment (EMT) assistance.
(5) Crane mishaps which result in a lost time injury; property damage of $10,000 or more, but less than $200,000.
(6) Trenching/entrapment mishaps which involve a depth of four feet or greater and result in a lost time injury.
(7) Hazardous Material/Hazardous Waste mishaps which result in a lost time injury or a spill of a reportable quantity.
(8) Equipment mishaps which result in a lost time injury; property damage of $10,000 or more, but less than $200,000.
(9) Fire mishaps which result in a lost time injury; property damage of $10,000 or more, but less than $200,000; or emergency medical treatment (EMT) assistance.
(10) Any mishaps which result in lesson(s) learned that may affect government contracts or a new OSHA standard.

d. Tier Three - General Contractor Mishap: Any OSHA recordable mishap not meeting the definitions of tier one - serious or tier two - significant contractor mishap.

e. Lost time injury - Any injury or illness which results in a loss of time from work beyond the day or shift on which it occurred.

f. OSHA recordable - Any lost time injury.

Contractor Significant Incident Report

Report Date:	Contracting Activity/ROICC Office:

1. Accident Classification:

☐ Injury ☐ Illness ☐ Fatality ☐ Property Damage ☐ Procedural Issues ☐ Environmental

Involving:

☐ Hazardous Materials ☐ Electrical ☐ Equipment/Motor Vehicle/ Material Handling ☐ Diving ☐ Falls

☐ Confined Space ☐ Crane/Rigging ☐ Trenching/Entrapment ☐ Fire ☐ Other

☐ Waterfront Operations ☐ Demolition/Renovation

2. Personal Data:

A. Name (Last. First. M.)	B. Age	C. Sex	D. Social Security Number

E. Job Description/Title	F. Employed By	G. Supervisor's Name

3. Witness Personal Data (Attach Signed Witness Statements To Report):

A. Name (Last. First. M.)	B. Age	C. Sex

D. Job Description/Title	E. Employed By

4. General Information:

A. Date of Accident (Month/Day/Year)	B. Time of Accident	C. Exact Location of Accident	D. Type of Construction Equipment (Make. Model. Serial Number. Vin Number)

E. Contract Number/Title	F. Construction Activity SIC	G. Hazardous Material Spill/Release

H. Type of Contract

☐ Construction
☐ A/E
☐ Service
☐ RAC
☐ CLEAN
☐ JOC
☐ Other _____

I. Contractor's Name/Address/Phone Number

(1) Prime:

(2) Sub:

J. Safety Manager's Name	Phone #	K. Insurance Carrier	
(1) Prime:	(2) Sub:	(1) Prime:	(2) Sub:

L. Work Activity Involved at Time of Accident	M. Personal Protective Equipment?
	(1) Available & used ☐ (2) Not required ☐ (3) Available & not used ☐ (4) Not related to mishap ☐ (5) Wrong PPE for job ☐ (6) List type(s) used:

5. Injury/Illness/Fatality Information:

A. Severity of Illness/Injury	B. Estimated Days Lost	C. Estimated Days Hospitalized	D. Estimated Days Restricted Duty

E. List Body Part(s) Effected	F. Nature of Illness/Injury	G. Type and Source of Injury/Illness
		(1) Type: (2) Source:

6. A. Accident Description (Describe in your own words) (Use additional paper, if necessary):

B. Who provided first aid and/or cleanup of mishap site?

C. Any blood borne pathogen exposure by other than EMTs? If so who?

D. Was site secured and witness statements taken immediately?

E. List OSHA and EM-385-1-1 standards that were violated?

7. Casual Factors (Explain **yes answers on supplementary sheet**)	Yes	No
Design - Was design of facility, workplace or equipment a factor?	☐	☐
Inspection/Maintenance - Were inspection & maintenance procedures a factor?	☐	☐
Persons Physical Condition - In your opinion, was the physical condition of the person a factor?	☐	☐
Operating Procedures - Were operating procedures a factor?	☐	☐
Job Practices - Were any job safety/health practices not followed when the accident occurred?	☐	☐
Human Factors - Did any human factors such as size or strength of person, etc., contribute to accident?	☐	☐

	Yes	No
Environmental Factors - Did heat, cold, dust, sun, glare, etc., contribute to the accident?	☐	☐
Chemical & Physical Agent Factors - Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents such as noise, radiation, etc., contribute to the accident?	☐	☐
Office Factors - Did office setting such as lifting office furniture, carrying, stopping, etc., contribute to the accident?	☐	☐
Support Factors - Were inappropriate tools/resources provided to properly perform the activity task?	☐	☐
Personal Protective Equipment - Did the improper selection use, or maintenance of personal protective equipment contribute to the accident?	☐	☐
Drugs/Alcohol - In your opinion, was drugs or alcohol a factor?	☐	☐
Job Hazard Analysis - Was the lack of an adequate (IAW EM-385-1-1 Sec 01.A) activity hazard analysis a contributing factor?	☐	☐
- Was it site specific and addressed the type of work/operations performed when the mishap occurred?	☐	☐
Management - Did a lack of adequate supervision contribute to the accident?	☐	☐
- Was inadequate information provided at pre-con meeting?	☐	☐
8. Training:		
A. Was person trained to perform activity/task?	☐	☐
B. Type of training?		
C. Date of most recent formal training? / / D. List topics discussed		
9. Fully Explain What Allowed Or Caused The Accident, Include Direct And Indirect Causes:		
A. Direct Cause		
B. Indirect Cause		
C. Action(s) taken to prevent occurrences or provide on-going corrective actions.		

D. Corrective Action Dates	
(1) Beginning (Mo/Da/Yr) / /	(2) Anticipated Completion (Mo/Da/Yr) / /

10. OSHA:

A. Date OSHA Was Notified: / /	C. Date of OSHA Citation: / / (Include cy of citation)
B. Date OSHA Investigated. / /	D. $ Amount of Penalties: $_____

11. Report Preparer

Print Name & Title of Supervisor Completing Report

Signature _____ Date (Mo/Da/Yr) _____

12. Management Review (Contracting Officer)

A. ☐ Accepted	B. ☐ Amendments Required	C. ☐ Comments (include program improvements required for your command, NAVFACHQ construction safety program, and EM-385-1-1)

D. Print Name & Title of Official Completing Report

Signature _____ Date (Mo/Da/Yr) _____

13. Safety And Occupational Health Office Review

A. ☐ Concur	B. ☐ Non Concur	C. ☐ Additional Actions/Comments

D. Print Name & Title of Safety Personnel Reviewing

Signature _____ Date (Mo/Da/Yr) _____