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INTERIM MEASURES REMEDIATION WORK PLAN FOR SOLID WASTE MANAGEMENT
UNITS 6 AND 7 NS MAYPORT FL
1/1/1995
BECHTEL ENVIRONMENTAL

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INTERIM MEASURE
REMEDIATION WORK PLAN
FOR
SOLID WASTE MANAGEMENT UNITS 6 AND 7
U.S. NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Prepared for

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

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REVISION 0

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The engineering work described and professional opinions rendered in this document, *Interim Measure Remediation Work Plan for Solid Waste Management Units 6 and 7*, dated January 1995, for work done at the United States Naval Station, Mayport, Florida, were conducted or developed using commonly accepted engineering practices and currently applicable standards. The scope of engineering services described in this document was conducted under the supervision of a professional engineer registered in the State of Florida.

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(Florida PE Number 42508
Expires February 28, 1997)



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DISCLAIMER

This Interim Measure Remediation Work Plan was prepared using background information including subsurface/geotechnical data, design basis, and other data provided to BEI by Southern Division Naval Facilities Engineering Command, the Navy's CLEAN Contractor, and/or third parties. Bechtel has relied on this information as furnished.

FOREWORD

This Interim Measure (IM) Remediation Work Plan (RWP) has been prepared to implement the installation of an interim measure remedial action at Solid Waste Management Unit 6 and Solid Waste Management Unit 7, oily water treatment plant (OWTP), and sludge drying beds (SDBs), respectively, located at the Naval Station (NAVSTA) Mayport (Mayport, Florida).

NAVSTA Mayport is conducting remediation activities by working through the Southern Division, Naval Facilities Engineering Command. The United States Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection oversee the Navy environmental program at NAVSTA Mayport.

This IMRWP describes the approach that will be used to conduct the interim measure remedial action and describes the organization that will be employed.

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ACRONYMS AND ABBREVIATIONS

ASL	Analytical Support Levels
AST	Aboveground storage tank
CLEAN	Comprehensive Long-term Environmental Action Navy Contract
ESI	Expanded Site Investigation
FDER	Florida Department of Environmental Regulation
HDPE	High density polyethylene
HSWA	Hazardous and Solid Waste Amendments
IAS	Initial assessment study
IM	Interim measure
LET	Lead equalization tank
LNAPL	Light non-aqueous phase liquid
NAVSTA	Naval Station
NEESA	Naval Energy and Environmental Support Activity
NFPA	National Fire Protection Association
NGVD	National Geodetic Vertical Datum
OWPT	Oily water treatment plant
PCB	Polychlorinated biphenyls
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RWP	Remediation Work Plan
SAP	Sampling Analysis Plan
SDBs	Sludge drying beds
SOPs	Standard operating procedures
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SSHR	Site Safety and Health Representative
SVOC	Semivolatile organic compound
SWMU	Solid waste management unit
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total petroleum hydrocarbons
TRPH	Total recoverable petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound

1.0 INTRODUCTION

The US Department of Navy, Southern Division Naval Facilities Engineering Command (SOUTHDIIV) intends to conduct interim measure remedial actions at the Naval Station (NAVSTA) Mayport (Mayport, Florida) site. This Interim Measure (IM) Remediation Work Plan (RWP) addresses an area of the site encompassing the former location of Solid Waste Management Unit (SWMU) 6 and present location of SWMU 7. Bechtel Environmental, Inc. (Bechtel) the Environmental Response Action Contractor, will perform the interim measure remedial action.

This IMRWP is intended to document the scope of the interim measure remediation effort and the procedures to be used.

The activities described in this Plan are based upon the Draft *Interim Measures Workplan Solid Waste Management Units 6 and 7, Sludge Drying Beds Areas, U.S. Naval Station Mayport, Mayport Florida*, Southern Division, Naval Facilities Command, North Charleston, South Carolina, Prepared by ABB Environmental Services, Inc., dated May 1994 (ABB 1994).

In implementing this plan, Bechtel will supply qualified personnel and equipment to this project; coordinate, manage, and supervise construction activities onsite; ensure compliance with contract and regulatory requirements; and provide documentation to SOUTHDIIV that includes a summary of the services provided and project completion for each of the sites where work is performed.

1.1 GENERAL SITE INFORMATION

NAVSTA Mayport is located in eastern Duval County on the southern bank of the St. John's River approximately 10 miles east of downtown Jacksonville, Florida (see Figure 1-1, Appendix A). The topography is generally flat with elevations at approximately 10 ft National Geodetic Vertical Datum (NGVD).

The hazardous waste investigations at NAVSTA Mayport are presently being conducted under the Resource Conservation and Recovery Act (RCRA) Corrective Action Program. Earlier preliminary investigations had been conducted at NAVSTA Mayport under the Navy's old Naval Assessment and Control of Installation Pollutants and Installation Restoration programs following Superfund guidelines. In 1988, in coordination with the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Regulation (FDER), the hazardous waste investigations were formalized under the RCRA program (ABB 1994).

The Navy, though its contractor, ABB Environmental Services, Inc., is currently conducting a RCRA Facility Investigation (RFI) for 18 Solid Waste Management Units (SWMUs) at NAVSTA Mayport under the Comprehensive Long-term Environmental Action Navy (CLEAN) contract. The RFI is being conducted in accordance with the Hazardous and Solid Waste Amendments (HSWA) Permit No. FL9 170 024 260, issued by the USEPA on March 25, 1988, and revised and reissued on June 15, 1993. The SWMUs currently being investigated as Groups I and II are as follows:

Group I RFI SWMUs

- SWMU 2, Landfill B
- SWMU 3, Landfill D
- SWMU 4, Landfill E
- SWMU 5, Landfill F
- SWMU 13, Old Fire Training Area
- SWMU 22, Building 1600 Blasting Area

Group II RFI SWMUs

- SWMU 6, Waste Oil Pit and Sludge Drying Bed (SDB)
- SWMU 7, Oily Waste Treatment Plant (OWTP) SDB
- SWMU 8, OWTP Percolation Pond
- SWMU 9, OWTP
- SWMU 10, Hazardous Waste Storage Area
- SWMU 11, Fuel Spill Area
- SWMU 12, Neutralization Basin
- SWMU 15, Old Pesticide Area
- SWMU 16, Old Transformer Storage Yard

1.2 JUSTIFICATION AND OBJECTIVES FOR THE PROPOSED ACTION

As part of the RCRA Corrective Action Program, an interim measure may be proposed to address sites posing an immediate threat to human health and the environment. The interim measure is not to be provided as a replacement to a final solution, but is intended to complement the final remedy. Consistent with this approach, an Interim Measures Work Plan has been prepared for NAVSTA Mayport SWMUs 6 and 7 in Mayport, Florida. Implementation of the Interim Measure Work Plan will reduce a potential source of groundwater contamination and minimize the threat of a release of light non-aqueous phase liquid (LNAPL) to the nearby St. Johns River and surrounding area (ABB 1994).

The objective of this IMRWP is to describe the technologies, procedures, and methodology to implement the interim measure remedial design as described in the Draft *Interim Measures Workplan, Solid Waste Management Units 6 and 7, Sludge Drying Beds Areas, U.S. Naval Station Mayport, Mayport, Florida*, Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, prepared by ABB Environmental Services, Inc., dated May 1994 (ABB 1994). The proposed objectives of the interim measure, as presented in the Draft Interim Measures Work Plan, are as follows:

- remove LNAPL from the SWMUs 6 and 7 area to the extent practicable, based on existing site knowledge, and
- obtain site-specific interim measure experience remediating groundwater and soil contamination with petroleum hydrocarbons to obtain adequate design criteria for fullscale corrective measures.

The implementation of this IMRWP is based upon approval from USEPA and FDEP for this action. The contents of this IMRWP are based on the Draft *Interim Measures Workplan, Solid Waste Management Units 6 and 7, Sludge Drying Beds Area, U.S. Naval Station Mayport, Mayport, Florida*, Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, prepared by ABB Environmental Services, Inc., dated May 1994 (ABB 1994), and an ABB memorandum, dated September 12, 1994, that located the sumps and provided pumping rates for the sumps.

2.0 ORGANIZATION AND RESPONSIBILITIES

2.1 PROJECT ORGANIZATION

Bechtel is the Environmental Response Action Contractor for the SOUTHDIV. A project organization chart is provided in Figure 2-1.

2.2 COORDINATION AND RESPONSIBILITIES FOR FIELD WORK

As the Environmental Response Action Contractor for the Navy, Bechtel provides NAVSTA Mayport management of interim measure remedial action field activities, which includes all activities necessary to implement field work delineated in work plans. Typically, these activities include development and procurement of subcontract services; development, implementation, and overview of plans; collection and review of data, including sampling results, quality assurance/quality control submittals, and sample tracking and custody; technical guidance to onsite personnel; report preparation; cost management; and schedule control.

The Bechtel program manager is responsible to the Navy for the completion of all aspects of the work. The program manager is supported by a project manager and representatives from engineering, construction, environmental safety and health, quality control, project controls, project administration, and contract administration. A brief description of the responsibilities of the project manager and each group are described below.

2.2.1 Project Manager

- Implements overall guidance provided by the Bechtel program manager on a site-specific basis
- Manages a team of professionals from each of the disciplines described below to accomplish the goals of the Naval Facilities Engineering Command project managers and the Bechtel program manager
- Interfaces directly with Navy project managers to implement directions on a site-specific basis

2.2.2 Staff Engineer/Engineering

- Develops bid packages and technical specifications needed to subcontract any interim measure remedial action work
- Provides site interface/coordination with regulatory agencies

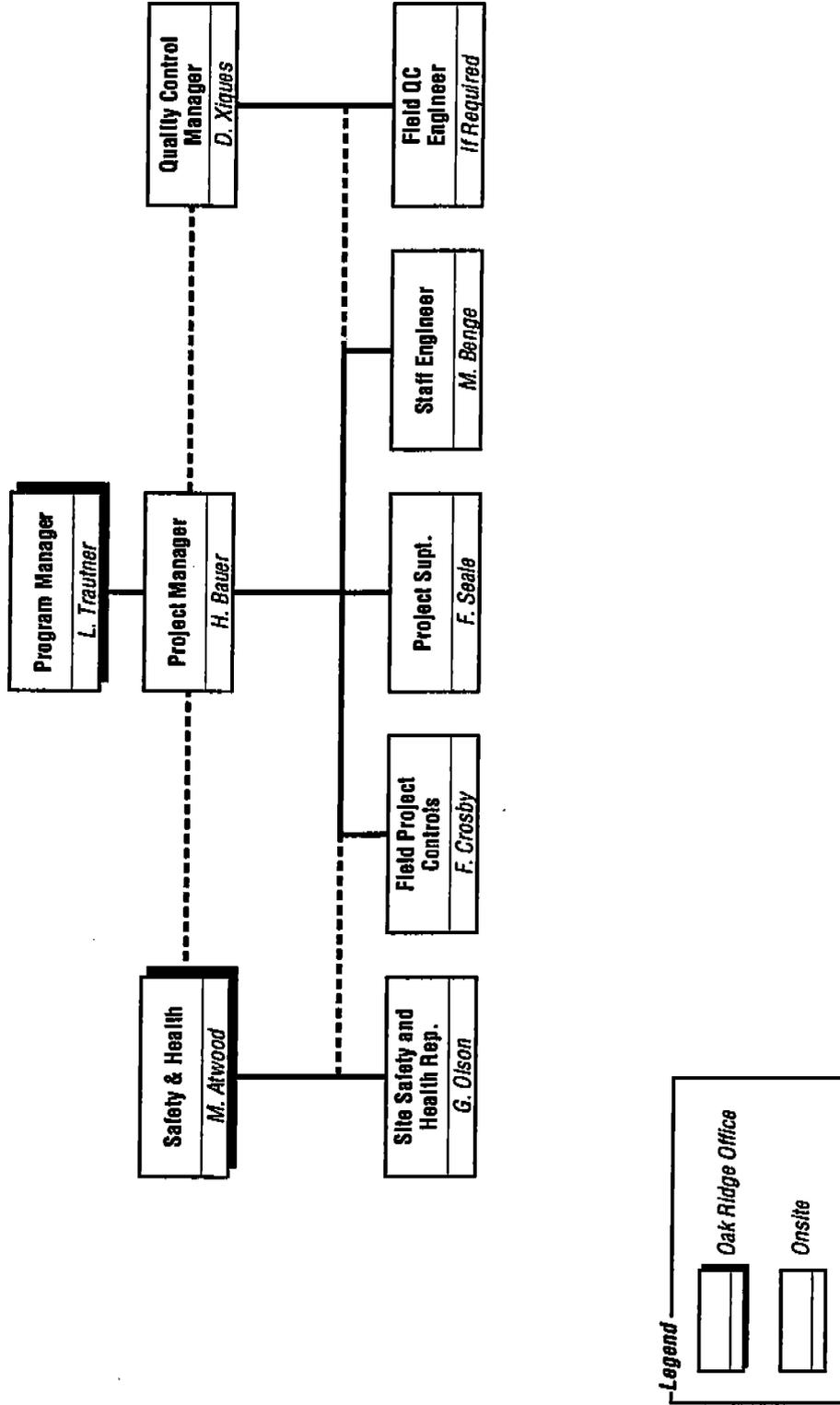


Figure 2-1
Project Organization

- Modifies technical specifications and drawings, as required
- Provides geotechnical field support to interim measure remedial action efforts
- Provides onsite waste management and identification
- Participates in technology selection
- Develops work plans for interim measure remedial action
- Manages and evaluates chemical data obtained during interim measure remedial action activities

2.2.3 Project Superintendent/Construction

- Reviews all site plans for constructibility
- Provides field engineering services to monitor onsite work
- Administers subcontracts to complete work plans (i.e., cost, completion)
- Obtains manual craft
- Directs craft to implement work plans
- The project superintendent is responsible to the Bechtel project manager for day-to-day operations at the site.

2.2.4 Environmental Safety and Health

- Develops plans, objectives, evaluations, and documentation for all environmental compliance, safety, and health matters
- Ensures that all applicable federal, state, and local regulatory requirements are met
- Supports onsite waste management
- Provides site-specific safety and health training
- Provides a site safety and health representative (SSHR)
- Performs audits of site activities to ensure implementation of the Safety and Health Plan and to assess the effectiveness of the program.

2.2.5 Quality Control

- Prepares site-specific quality control (QC) plan

- Implements the QC plan
- Audits quality assurance system and performance
- Conducts periodic reviews of program plans

2.2.6 Project Controls

- Provides cost and schedule support, including budgeting and monitoring
- Provides site automation services

2.2.7 Contract and Project Administration

Support from home office staff for Project Contract and Administration services is provided directly to the Project Manager. While these functions are not indicated on the organization chart, their duties are discussed below.

Project Contract Administration provides:

- Identifies bidders for subcontract work
- Coordinates bid and subcontract bid and award process
- Manages revisions to subcontracts
- Ensures compliance with Prime Contract

Project Administration provides:

- Provides administrative services such as document control, reproduction, archival, and mail distribution
- Provides document editing services

3.0 SITE BACKGROUND AND SETTING

3.1 GENERAL SITE DESCRIPTION

SWMU 6, the Old Waste Oil Pit, and SWMU 7 are part of a network of SWMUs that represent the OWTP area (see Figure 3-1, Appendix A). In addition to SWMUs 6 and 7, SWMU 8, the OWTP Percolation Pond, SWMU 9, the OWTP, SWMU 10, the Hazardous Waste Storage Area, and SWMU 11 (not shown), the Fuel Spill Area, are part of the OWTP area and have been characterized as a single entity. At this time, the extent, if any, to which SWMUs 8 through 11 have contributed to the LNAPL plume has not been clearly defined. Past investigations indicate that only SWMUs 6 and 7 are the main sources for the LNAPL. This IMRWP focuses on the SWMU 6 and SWMU 7 Sludge Drying Bed area (ABB 1994).

3.2 SITE HISTORY

Previous investigations at SWMUs 6 and 7 include the Initial Assessment Study (IAS), the Expanded Site Investigation (ESI), and RCRA Facility Investigation (RFI) Phase 1 and 2 studies. Results of these investigations are summarized in the Draft *Interim Measure Workplan, Solid Waste Management Unit 6 and 7, Sludge Drying Beds Area, U.S. Naval Station Mayport, Mayport, Florida*, Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, prepared by ABB Environmental Services, Inc., dated May 1994. In summary, soil, groundwater, LNAPL, surface water, and sediments at SWMUs 6 and 7 appear to be contaminated with petroleum-related substances. The available site characterization data show that the contaminated groundwater and LNAPL are petroleum hydrocarbon media that can be managed and treated using the OWTP.

3.2.1 SWMU 6, Former Waste Oil Pit and Sludge Drying Bed

Prior to the RFI, an ESI was conducted at several of the Group I and Group II SWMUs including SWMU 6 (Navy Installation Restoration Program Site 8 in the ESI). During the ESI groundwater sampling at SWMU 6, a layer of floating free-product (LNAPL), approximately 0.9 foot thick, was discovered in monitoring well MPT-8-3 just north of SWMU 6. From 1973 to 1978, this pit was used to store ship bilge water and other substances containing waste petroleum products and is suspected to be the original LNAPL source area (ABB 1994).

From February 1992 to March 1993 and again from December 1993 to the present (May 1994), the thickness of the LNAPL layer has been monitored utilizing monitoring wells MPT-8-2, MPT-8-3, and MPT-8-MW7S. The apparent thickness of the LNAPL layer averages approximately 0.5 foot. Tidal influences from the nearby Atlantic Ocean and St. Johns River cause slight fluctuations (ABB 1994).

The IAS identified SWMU 6 as the Waste Oil Pit and SDB (Site 8). SWMU 6 is located at the western edge of the four SDBs that comprise SWMU 7 (ABB 1994).

The Waste Oil Pit and SDB was used from 1973 to 1978 to contain bilge water that contained waste oil. The Waste Oil Pit and SDB was triangular and covered approximately 0.2 acres. In 1979, the Waste Oil Pit and SDB Site 8 was covered and the four SDBs that comprise SWMU 7 were constructed. The former Waste Oil Pit and SDB (Site 8) was identified in the NAVSTA Mayport HSWA permit as a SWMU requiring a RFI, hence the assignment of SWMU 6 (ABB 1994).

The ESI conducted at the SWMU 6 location in 1988 included the collection of soil and groundwater samples. Constituents detected in groundwater samples consisted of bis(2-ethylhexyl)phthalate, naphthalene, benzene, ethylbenzene, endrin aldehyde, gamma-benzene hexachloride, and lead. Only one compound, trichlorofluoromethene (Freon), was detected in a soil sample (ABB 1994).

3.2.2 SWMU 7, OWTP Sludge Drying Beds (SDBs)

SWMU 7 is comprised of four SDBs. The four SDBs received sludge collected from the clarifier of the OWTP and from bilge water receiving tanks that are part of SWMU 51. Each SDB is

approximately 150 ft in length and 50 ft wide. The SDBs are excavated, unlined beds surrounded by earthen berms approximately 15 ft above land surface. The two eastern most SDBs were formerly connected by an overflow sluice gate. The two western most SDBs are still connected by an overflow sluice gate (ABB 1994).

During the excavation of the eastern most SDB, two soil samples were collected and analyzed. Analytical results from these samples indicated a pH of 9.2 to 9.4 standard units and concentrations of oil and grease ranging from 3.093 to 3,323 milligrams per kilogram. One sample contained xylene at a concentration of 3.5 micrograms per kilogram. The leachate of the samples was analyzed by USEPA extraction procedures (SW-846, Method 1310) for eight RCRA metals. This analysis indicated that the RCRA toxicity characteristic criteria used to classify materials as hazardous waste was not exceeded (ABB 1994).

4.0 SCOPE OF WORK

The interim measure objective at NAVSTA Mayport for SWMU 6 and SWMU 7 is to remove LNAPL from the area to the extent practical in order to reduce a potential source of groundwater contamination and minimize the threat of a release to the nearby St. Johns River and surrounding area.

To accomplish these objectives, the following services will be performed:

- mobilization
- LNAPL recover system installation
- system startup and influent sampling
- normal operations and influent sampling
- system turnover

A proposed schedule for the execution of the work described in this section is provided in Appendix A.

4.1 MOBILIZATION

Mobilization will include delivering to the jobsite and work areas all construction equipment, tools, materials, supplies, and miscellaneous articles and establishing a work force sufficient to commence and sustain construction activities as required.

4.2 LNAPL RECOVERY SYSTEM INSTALLATION

The immediate goal of the proposed LNAPL recovery system is to collect free-phase LNAPL at the SWMU 6 and 7 areas to the extent practicable using total fluids pumping and gravity flow recovery in accordance with the IM objectives identified in Section 3.0. This goal will be realized by accomplishing the following objectives.

- Maximize to the extent practicable the area of influence of collection units based on their geometry, estimated performance, site conditions, LNAPL physical characteristics, extent of free-phase LNAPL, and TRPH soil and groundwater contamination (ABB 1994).

- Provide flexibility in the design of the LNAPL recovery system so that water table gradient control can be instituted at some time in the future to enhance LNAPL recovery performance and potential groundwater remediation (ABB 1994).
- Provide semi-automated recovery system which allows for manual operation of liquid transfer to the OWTP, shut-down, inspection, and maintenance of the system.

The proposed LNAPL recovery system currently consists of five 1-meter diameter recovery sumps with total fluids pneumatic pulse pumps. Additional sumps will be installed if new information is provided indicating the need. It is estimated that each sump pump will discharge approximately 2,880 gals per day (gpd) or 2.0 gals per minute (gpm) for an estimated total discharge of 14,400 gpd. Each recovery sump will be equipped with a separate compressed air supply line and total fluids discharge pipe. Total fluids will be staged in two 20,000 gal. storage tanks followed by transfer to three load equalization tanks (LET). The water in the LET will be blended with bilge water and pumped to the OWTP. Drawing 241-DD157-001 (Appendix B) shows general layout. Drawing 241-DD157-002 (Appendix B) presents a Process and Instrumentation Diagram (P&ID) which describes the general liquid handling system.

4.2.1 Large Diameter Sump Specifications

Large diameter recovery sumps are specified in Table 4-1 (Source IM Workplan, ABB, 1994) which lists the recommended dimensions and materials for the sumps. The sumps will be completed 1-ft above the surface with a vented utility box and removable water-tight covers. Utility boxes will be large enough for placement of valves, piping, and controls to service the pneumatic pulse pumps.

Sump depth will be approximately 20 ft below land surface depending on surface topography to intercept both free-phase LNAPL and groundwater. Groundwater occurs at approximately 9 ft below land surface, subject to tidal influences and seasonal fluctuation. A typical recovery sump configuration is presented in Drawing 241-DD157-003, Appendix B.

The sumps will be placed vertically to recover the free-phase LNAPL and groundwater. The sump locations shown have been chosen to maximize the likelihood of intercepting free-phase LNAPL and contaminated groundwater based on the observed distribution of TPH contamination at the site. Final sump locations will be determined at the time of construction, but will be required to be within approximately 10 ft of the shown location.

4.2.2 Sump Well Installation

The 3-ft diameter sumps will be installed by the most appropriate method with respect to site conditions, which are a high water table, approximately 9 ft below ground surface, and a fine grained, slightly silty sands extending to at least a depth of 20 ft below the ground surface. The sumps will be constructed of a 3-ft diameter corrugated metal pipe with 1/4-in. diameter perforations to an approximate depth of 20 ft. The casing will be surrounded by a minimum thickness of 3 in. of 1/2-in. diameter inert pea stone. The pea stone will be installed between a depth of 4 to 20 ft below ground surface. Hydrated bentonite pellets will then be installed from a depth of 2 to 4 ft below ground surface, followed by neat cement grout to the surface. A locking manway will complete the sump installation.

Table 4-1
Large Diameter Recovery Sump Specifications

Interim Measures Workplan
SWMUs 6 and 7 OWTP SDB Area
U.S. NAVSTA Mayport, Mayport, Florida

Parameter	Number
Number of sumps ¹	5
Sump diameter, feet (meter) ²	3 (0.9)
Sump depth, feet (meter)	20 (6)
Screen slot size, inch (centimeter)	0.25 (0.6)
Material	Corrugated steel, or approved equivalent

¹Original number of sumps indicated in the table was revised in ABB Memorandum, dated September 12, 1994.

²Original table sump diameter was 1 meter.

Drill spoils from the sump installation will be containerized in 20 yd³ capacity roll-off bins. The material in the bins will be sampled in accordance with Section 5.3.3 and managed in accordance with Section 6.2.

4.2.3 Well Head Assembly

Upon completion of the corrugated sump wells, a well head and valve assembly will be installed as detailed in Drawing 241-DD157-003, Appendix B. The key components of the well head will be a well box, a traffic rated well box lid, controllerless assembly, air supply hose fittings, a well cap, traffic bollards and a pressure controller and filter.

4.2.4 Pneumatic Pumps

The recovery sumps will be equipped with intrinsically safe, total fluids pneumatic pulse pumps capable of the specified flow rate of 2 gpm with a total head of 40 ft. Each of the five sumps will be equipped with pneumatic pulse pumps for LNAPL recovery. The pumps will be easily placed and removed from the sumps for routine maintenance or height adjustments. The pneumatic pulse pump will have a top inlet for recovery of total fluids, and initially be placed at a depth of 21 in. below groundwater surface. During pumping operations, it is anticipated that approximately 2 ft of drawdown will occur with 2 gpm pumping. Flow rate is controlled by a process control valve (throttle valve) as shown on Drawings 241-DD157-002 and -003. The valve location is determined by the particular pump manufacture as to being on the air inlet side of the pump (Drawing 241-DD157-002) or air exhaust side of the pump (Drawing 241-DD157-003). Using a controllerless pulse pump will achieve optimal LNAPL recovery even with 1 ft fluctuation of groundwater elevation. During the initial startup, the depth of the inlet will be adjusted to optimize this recovery.

4.2.5 Air Compressor

The air compressor component of the total fluids pumping system will be capable of delivering up to 100 psig at 28 cfm, or an optimum of 60 psig at 4 cfm to each pump. The compressor will include air dehumidifiers, filters, a low oil pressure shutdown switch, and a totally enclosed beltguard and beltguard aftercooler. The compressor and controls will be mounted on a steel skid and anchored on a concrete pad. An enclosure may be installed at a later date to prevent wind blown and atmospheric corrosion.

4.2.6 Piping

Piping in sumps or direct buried piping will be high density polyethylene (HDPE) pipe within a schedule 40 PVC sleeve pipe, or an approved equivalent. The primary conveyance pipe will be HDPE pressure rated at 200 psig at 73° F or an approved equivalent. Air supply piping will be 3/8 inch O.D., high pressure #11 nylon. All individual laterals will be installed approximately 18 in. below ground surface. All laterals will be run independently until they reach the compound area, where they will be manifolded together. After manifolding, the discharge lines will be equipped with a solenoid valve to direct the discharge into the selected aboveground storage tank (AST). All exposed piping will consist of galvanized steel with corrosion-resistant fittings. Each discharge line will be equipped with a totalizing flow meter.

4.2.7 Aboveground Storage Tank

Prior to discharge to the load equalization tanks (LETs) and OWTP, total fluids will be emptied into two 20,000-gal secondarily contained ASTs. Tank construction must conform to FAC Rule 17-762.500 (3) (a). Tanks constructed of steel shall meet or exceed the requirements found in UL No. 142, API Standard No. 620, 650, 12B, 12D, or 12F. Fiberglass reinforced plastic tanks shall meet or exceed the requirements found in API Specification 12P. Initially, total fluid flow from the sump pumping system would discharge into Tank One. Tank One will be equipped with High level and High-high level sensors. The High Level sensor would be connected to a solenoid valve that would switch from filling Tank One to filling Tank Two. The High-high level sensor would be set to shut down the sump pumping system should the High level sensor malfunction. Tank Two will also be equipped with High level and High-high level sensors. The High level sensor will shut down the sump pumping system and the High-high level sensor functions as a backup. To transfer the contents of the ASTs to the LETs, the LET feed pump will be operated manually. After Tank One is emptied, the system is manually reset to begin the two tank filling cycle again.

4.2.8 Transfer Pump

The pump to transfer recovered water from the ASTs to the three LETs will be capable of 50 to 100 gpm with a total dynamic head (TDH) of 50 ft.

4.2.9 Final System Tie-in

As described in the IM Workplan, the sequence of water treatment will proceed as follows: (1) sump well total fluids pump; (2) tanks; (3) load equalization tanks; and (4) OWTP. The 2-in. diameter discharge pipe from the LET feed pump (Section 4.2.8) will be hot taped into existing LET feed lines. A new totalizing flow meter will be installed on the AST discharge line prior to the connection to the existing LET lines.

4.2.10 Electricity and Logic Controls

All electrically driven devices will use 3 phase, 230 VAC. Electrical devices will be rated for intrinsically safe operations in explosive environments. For example, electrical equipment will be explosion proof in accordance with National Fire Protection Association (NFPA) 70B Class I, Division I, Group D, or otherwise approved for use in potentially explosive atmospheres. Each pump will have individual pneumatic controllers that adjust the pump cycles in response to LNAPL levels in the sump. The pneumatic storage tank and ASTs will be equipped with tank-full automatic shut-off switches. All electrical hookups will be performed at the closest designated points per Navy personnel, to be confirmed upon initiation of field operations. Electrical connection will be performed by a state of Florida licensed electrician.

4.3 SYSTEM STARTUP OPERATION AND INFLUENT SAMPLING

The following describes the cycles for start-up activities:

1. Fill Tank One to capacity.

2. Sample Tank One and analyze for Appendix IX compounds (see Section 5.0 for details on sampling and analysis).
3. Fill Tank Two to capacity.
4. Sample Tank Two and analyze for Appendix IX compounds (see Section 5.0 for details on sampling and analysis).
5. Shut down the system.
6. Review analyses from Tanks One and Two and request approval for discharging tanks to LETs.
7. Upon approval discharge tanks to LETs.
8. Request from EPA and FDEP that two tanks of total fluid flow be enough to characterize waste stream.
9. Upon approval of waste stream characterization and determination of any target compounds, begin normal operations (see Section 4.4).

4.4 NORMAL SYSTEM OPERATION AND INFLUENT SAMPLING

The following describes the cycles for normal operation:

1. Fill Tank One.
2. Fill Tank Two and begin emptying Tank One before Tank Two is full in order to keep sump pumping system in continuous operation.
3. Reverse valve to begin filling Tank One, and empty Tank Two
4. Repeat filling and emptying cycle
5. Sample influent weekly for four weeks and analyze for constituents as described in Section 5.0. If there is no noticeable increase in the concentration of analyzed constituents, collect influent samples for analyses on a quarterly basis. Discharge to the OWTP will occur prior to receipt of analytical data.

4.5 SYSTEM TURNOVER

Following the successful demonstration of the LNAPL Recovery system at the SWMU 6 AND SWMU 7 site, the subcontractor will turn over the maintenance and operations of the systems to Navy Public Works personnel. The subcontractor will be responsible for providing training and an operations and maintenance manual on the systems to the Navy.

4.6 REPORTS

A construction report will be provided at time of system turnover to the Navy. The report will include a construction completion report with as-built drawings, the operations and maintenance manual, and any analytical data obtained during startup and normal operations.

5.0 SAMPLING AND ANALYSIS PLAN

This section describes the sampling and analysis for the groundwater total fluids influent from the recovery sumps and the sampling and analyses for the sump excavated soils prior to disposal. Sampling methodology and procedures described in this Sampling and Analysis Plan (SAP) are based on USEPA Region IV Standard Operating Procedures (SOPs), *Data Quality Objectives for Remedial Response Activities*, USEPA/540/G-87/003 (OSWER Directive 9355.0-7B), *Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program*, Naval Energy and Environmental Support Activity (NEESA), FDEP's *Standard Operating Procedures for Laboratory Operations and Sample Collection Activities*, and Bechtel Quality Assurance Program Plan (QAPP) for the Southern Division, Naval Facilities Engineering Command, Navy RAC program.

5.1 SAMPLING PROTOCOL

5.1.1 Decontamination

Sampling equipment will be decontaminated prior to collection of each sample. Decontamination will be completed in accordance with Bechtel Project Procedure 6024, *Decontamination of Field Sampling Equipment* (see Appendix C), and USEPA Region IV SOPs, Appendix A, "Standard Cleaning Procedures." Used decontamination fluids will be containerized. The containerized decontamination fluid will be mixed with the total fluids from the recovery sumps in the 20,000 gal containment tanks.

5.1.2 Collection

Sampling will be performed in accordance with Section 4.0, "Sampling Procedures," of FDEP's *Standard Operating Procedures for Laboratory Operations and Sample Collection Activities*, and USEPA Region IV SOPs, Section 4, "Sampling Procedures." The total fluids sampling will be from a sample port located on the tank influent line, or from a sample port located on the tank itself. Soil samples from the roll-off bins will be collected as composite samples as discussed in Section 5.3.3.

5.1.3 Sample Identification

Sample identification will be in accordance with Project Procedure 6003, *Sample Identification and Data Encoding* (Appendix C). This procedure follows guidelines established by EPA Region IV SOP Section 3.2.2 and FDEP's *Standard Operating Procedures for Laboratory Operations and Sample Collection Activities*, Section 5.3.2.

5.1.4 Logbooks

Field logbooks will be used for recording all field activities. Entries will include sufficient detail to reconstruct all significant activities. Logbook entries will be completed in accordance with Section 5.0, "Sample Custody and Documentation," of the FDEP's *Standard Operating Procedures for Laboratory Operations and Sample Collection Activities*, USEPA Region IV SOPs Section 3.5, "Field Records," and Bechtel Project Procedure 6004, *Field Logbook Management* (Appendix C). These documents includes the minimum requirements for record keeping.

5.1.5 Chain-of-Custody Records

In order to maintain sample traceability, each sample for offsite analysis will be properly documented on a chain-of-custody record. Chain-of-custody documentation will be completed in accordance with Section 5.0, "Sample Custody and Documentation," of the FDEP's *Standard Operating Procedures for Laboratory Operations and Sample Collection Activities*, USEPA Region IV SOPs, Section 3.3, "Chain-of-Custody Procedures," and Bechtel Project Procedure 6005 (Appendix C), *Chain-of-Custody Record Procedure*. These SOPs includes the minimum requirements for record keeping. Sample tracking shall be in accordance with Bechtel Project Procedure 6006 (Appendix C), *Sample Tracking Procedures*.

5.1.6 Packaging and Holding Times

Sample volume requirements, preservation techniques, minimum holding times, and container material requirements for samples are given in Table 5-1. The Field Engineer is responsible for ensuring that a sufficient volume of each sample is collected and placed in the appropriate container with the proper preservation.

The preparation of all sampling containers and the container types, preservatives, and holding times are specified in the FDEP's *Standard Operating Procedures for Laboratory Operations and Sample Collection Activities* and USEPA Region IV SOPs, Appendix A, *Recommended Sample Containers, Sample Preservation, Sample holding Times, and Permissible Sample Type*. Section 4.4 of the FDEP standard operating procedures and The USEPA Region IV Appendix A contains the recommended container, preservation, and holding times for groundwater. Bechtel Project Procedure 6010, *Sample Container Preservation and Aliquot Requirements*, is provided as referenced in Appendix C. Sample containers will meet all specifications outlined in the above-mentioned procedures.

5.2 DATA MANAGEMENT

All data management activities for the Navy RAC projects are described in the following sections.

5.2.1 Data Documentation

Field records: All sample collection activities will be documented on forms contained in the appropriate field sample collection logbooks. These forms can be found in Bechtel Project Procedures 6002 "Field Data Acquisition Forms" (Appendix C). Information concerning sample

Table 5-1
Data Requirements for SWMU 6 and SWMU 7

Sample	Analytical Method	ASL ¹	Sample Volume	Sample Container	Preservative	Holding Time	QC Samples Required ²
TOTAL FLUIDS SAMPLING PRE-DISCHARGE (INITIAL START-UP)							
Appendix IX ³ VOC ⁴	SW-846 Method 8240	III	120 mls	40 ml VOA vial w/teflon cap	HCL, pH < 2 Cool 4°C	14 days	1 T.B.
Appendix IX ³ SVOC ⁵	SW-846 Method 8270	III	2000 mls	1 liter amber jug w/teflon cap	Cool 4°C	7 days until extraction; 40 days until analysis	None
Appendix IX ³ Organochlorine Pesticides/PCB ⁶	SW-846 Method 8080	III	1 liter	1 liter amber jug w/teflon cap	Cool 4°C	7 days until extraction; 40 days until analysis	None
Appendix IX ³ Organophosphorus Pesticides	SW-846 Method 8140	III	1 liter	1 liter amber jug w/teflon cap	Cool 4°C	7 days until extraction; 40 days until analysis	None
Appendix IX ³ Chlorinated Herbicides	SW-846 Method 8150	III	1 liter	1 liter amber jug w/teflon cap	Cool 4°C	7 days until extraction; 40 days until analysis	None
Appendix IX ³ Metal Analysis (Sb, As, Ba, Be, Co, Cu, Cd, Cr, Pb, Hg, Ni, Tl, Se, Ag, Sn, V, Zn)	SW-846 Methods 6010 7000 series 7470	III	3 liter	1 liter polyethylene or glass	HNO ₃ , pH < 2 Cool 4°C	6 months except Hg 28 days	None
Cyanide	SW-846 Method 9010	III	1 liter	1 liter polyethylene or glass	NaOH, pH > 12 Cool 4°C	14 days	None
Sulfide	SW-846 Method 9030	III	500 mls	1 liter polyethylene or glass	ZnAc, Cool 4°C, NaOH, pH > 9	7 days	None
INFLUENT⁸ TOTAL FLUIDS SAMPLING (NORMAL OPERATIONS)							
Appendix IX ³ VOC	SW-846 Method 8240	III	120 mls	40 ml VOA vial w/teflon cap	HCL, pH < 2 Cool 4°C	14 days	1 T.B.
PCB only	SW-846 Method 8080	III	1 liter	1 liter amber jug w/teflon cap	Cool 4°C	7 days until extraction; 40 days until analysis	None

See notes at end of table.

**Table 5-1 (continued)
Data Requirements for SWMU 6 and SWMU 7**

Sample	Analytical Method	ASL ¹	Sample Volume	Sample Container	Preservative	Holding Time ²	QC Samples Required ³
INFLUENT⁴ TOTAL FLUIDS SAMPLING (NORMAL OPERATIONS) (Continued)							
Total Metals Analysis (Sb, As, Ba, Be, Co, Cu, Cd, Cr, Pb, Ni, Se, Ag, V, Zn)	SW-846 Methods 6010	III	3 liter	1 liter polyethylene or glass	HNO ₃ , pH < 2 Cool 4°C	6 months except Hg 28 days	None
Oil and Grease (Infrared)	EPA Method 413.2	V	1 liter	1 liter glass jug	H ₂ SO ₄ , pH < 2, Cool	28 days	None
pH	EPA Method 150.1	II	250 mls	250 ml polyethylene or glass jug	Unpreserved	Immediate/Field	
SUMP EXCAVATED SOIL SAMPLING							
TCCLP ⁵ VOC ³	SW-846 Method 8240	III	8 oz	8 oz glass jar w/teflon lid	Cool 4°C	14 days	None
TCCLP ⁵ SVOC ⁴	SW-846 Method 8270	III	8 oz	8 oz glass jar w/teflon lid	Cool 4°C	14/14/40 days	None
TCCLP ⁵ Organochlorine Pesticides	SW-846 Method 8080	III	8 oz	8 oz glass jar w/teflon lid	Cool 4°C	14/14/40 days	None
TCCLP ⁵ RCRA Metals (As, Ba, Cd, Cr, Pb, Se, Ag, Hg)	SW-846 Method 6010 & 7000 series	III	8 oz	8 oz glass jar w/teflon lid	Cool 4°C	180 days	None
TRPH ⁶	EPA 5030/8020	III	20 gms	4 oz widemouth glass jar w/teflon lid	Cool 4°C	14 days	None

¹ ASL Analytical Support Levels. Derived from USEPA document *Data Quality Objectives for Remedial Response Actions*, March 1987, EPA/540/G-87/003.

² QC Quality Control. Quality control sample requirements based on less than 10 samples taken during each discrete sampling event. T.B. Trip Blank.

³ Select Appendix IX compounds. Refer to Table 3-13 (Appendix E) for Appendix IX Groundwater Monitoring Parameters, RFI SAP, NAVSTA Mayport (ABB 1991)

⁴ VOC Volatile Organic Compound

⁵ SVOC Semivolatile Organic Compound

⁶ PCB Polychlorinated Biphenyls

⁷ TCLP Toxicity Characteristic Leaching Procedure

⁸ Influent samples will be collected from a sample port along the total combined fluid line.

⁹ TRPH Total Recoverable Petroleum Hydrocarbons.

ID, sample collection location, date and time of sample collection and the number of sample containers collected for each sample will be recorded. Shipment of samples off site will be documented on the chain-of-custody record (Bechtel Project Procedure 6005, *Chain-of-Custody Record*, Appendix C), which will be generated for all samples shipped to an off-site laboratory. Included on the chain-of-custody record will be the requested analyses corresponding documentation levels and turn-around times.

Analytical records: Documentation of analytical results will include the analytical results and all associated QC results (blanks, spikes, and duplicates). Raw data will not be included in the sample data packages.

5.2.2 Electronic Data Storage

Field records: Sample collection performed for samples that are sent off site will be documented electronically in the Navy RAC project data base. Information such as sample ID, sampling date and location, collection method, matrix and sample type will be recorded electronically. Verification of all field records entered into the project database will be performed for 100% of the data.

Analytical records: All sample results obtained from off-site laboratory analysis will be stored in the Navy RAC project data base. One hundred percent of data loaded electronically into the project data base will be verified. Verification will consist of a comparison of hard copy data reports from the laboratory with printouts of data that has been electronically loaded.

Verification: Verification is a process that verifies that the sample identification number and the received raw data are consistent with the data in the data management data base. The verification process discussed in this section is not intended to be a data validation process. The verification includes data generated by field activities or as a result of laboratory analyses. The verification process will begin with the manual entry or electronic loading of the data. Printouts of this information from the project database will be compared with the original hard copy of the data and resolved. Documentation of all verification activities will be performed by the individual performing the verification.

5.2.3 Data Validation

A technical evaluation of data, following USEPA functional guidelines, will not be performed on data received from the off-site analytical laboratory. A contract compliance screen of all data received from the off-site laboratory will be performed. This screen will evaluate the following:

- Analytical completeness - Were all requested analyses were performed and reported?
- Holding times - Were all samples analyzed/prepared within technical holding time criteria?
- Legibility - Were all reported data is legible?
- Turn-around times - Were laboratory sample results reported within the specified contractual time?

- Appropriate units - Were sample results reported in the units consistent with the media analyzed?

Documentation of the contract compliance screen will be recorded on a contract compliance form. These forms will be included in the hard copy data package.

5.2.4 Data Delivery

Field Records

Copies of field records will be delivered to the Navy and Clean contractor at the completion of the task. These records consist of field sample collection logbooks and chain-of-custody records.

Analytical Data

All hard copy analytical data will be forwarded to the Navy and Clean contractor after all analytical data has been received and following contract compliance survey and data verification. An electronic data deliverable will be generated at the conclusion of these tasks for delivery to the Navy, and if required, the Navy's CLEAN contractor. Electronic data will be delivered in a standard Bechtel format generated from the project data base.

5.3 FIELD SAMPLING AND ANALYSIS

Sampling protocol for samples identified in this section will be in accordance with the SOPs outlined in Section 5.1. Analysis of these samples will be performed at a Navy approved laboratory and in accordance with USEPA SW-846, *Test Methods for Evaluating Solid Wastes, Third Edition*, or EPA Methods as appropriate. Table 5-1 provides a summary of the data requirements for SWMU 6 and SWMU 7, listing the analytical methods, Analytical Support Levels (ASL), sample volume, sample container, preservative, holding time, and QC requirements.

The sampling activities described in the following sections are in support of the interim measure remediation action. One or two samples will be taken during each sampling event. Since these samples are being used to provide an engineering decision for discharge or disposal, and few samples will be taken at any one time, it is proposed that the normal QA/QC field samples of duplicates, and field blanks be eliminated. The water (total fluids) samples will be taken from a sample port, utilizing direct fill into the sample container, thereby eliminating the sampling equipment and the need for equipment rinse samples.

5.3.1 Initial Startup Total Fluids Sampling

During the startup of the recovery system, two rounds of samples will be collected from the containment tanks and analyzed for select parameters in accordance with the 40 CFR 264, Appendix IX parameters indicated in the ABB RFI workplan (Table 3-13, Appendix D). As

described in Section 4.4, the first tank will be filled and a sample will be taken. After the second tank is filled another sample will be taken. Upon review of the laboratory analysis results, a reduced parameter list will be submitted for approval. Table 5-2 indicates the number of samples to be taken during the initial startup, while Table 5-1 provides a summary of the data requirements.

5.3.2 Normal Operations Influent Total Fluids Sampling

Samples of the influent process stream will be collected from a sample port located on the total fluids combined influent line. These samples will be analyzed for the parameters approved at the conclusion of the initial sampling event. Initially, sampling will take place weekly for a period of four weeks. If there is no noticeable increase in the concentration of analyzed constituents, then sampling will change to quarterly, as explained in Section 4.4 and Section 6.1. Table 5-1 provides a summary of the data requirements of the anticipated analyses for the weekly and quarterly monitoring events. Modification involving the required parameters will be made dependent upon the results of the initial startup sampling event, and approval of USEPA and FDEP. Table 5-2 provides the number of analyses, with the anticipated analytical methods, that will be taken prior to system turnover to the Navy, again dependent upon the approval of the required parameters based upon initial results.

5.3.3 Sump Excavated Soils Sampling

The excavated soils will be containerized in lined 20 yd³ capacity roll-off bins. A composite sample will be collected from each bin and analyzed as indicated in Table 5-1. Table 5-2 provides a listing of the number of samples indicated. As described in the Interim Measure Work Plan for NAVSTA Mayport, (ABB 1994), the soils excavated are anticipated to be petroleum-contaminated waste.

6.0 WASTE MANAGEMENT

Waste management practices, as defined in the Bechtel Program Hazardous Waste Management Plan, will be used as guidance and appropriately followed for the work. Waste management will be performed as described in the plan and coordinated with Navy personnel. The waste management of the sump installation soils and the excavated earthwork is based on the *Resource Conservation and Recovery Act Facility Investigation (RFI) Workplan, Addendum 1, Investigation-Derived Waste Management Plan, U.S. Naval Station Mayport, Mayport, Florida*, prepared by ABB Environmental Services, Inc., dated December 1992.

There are two types of waste management activities: (1) the soils generated during the installation of the sumps, treatment compound, and conveyance piping trenches; and (2) the LNAPL/groundwater fluids pumped from the sumps. Management of these media are addressed in the following sections.

Stormwater runoff and runoff controls will be implemented to prevent offsite migration of sediment or contaminated stormwater during site activities. The runoff will be directed into the collection sumps. Decontamination fluids will be containerized, temporarily stored onsite, then transferred to the ASTs during operations.

Table 5-2
 Number of Samples for SWMU 6 and SWMU 7

Task/Method	Matrix	No. of Samples	Duplicate	Matrix Spike	Matrix Spike Duplicate	Equipment Rinsate	Field Blank	Trip Blank
INITIAL START-UP								
Tank One								
Appendix IX ¹ VOC ²	Water	1	--	--	--	--	--	1
Appendix IX ¹ SVOC ³	Water	1	--	--	--	--	--	--
Appendix IX ¹ Organochlorine Pesticides/PCB ⁴	Water	1	--	--	--	--	--	--
Appendix IX ¹ Organophosphorus Pesticides	Water	1	--	--	--	--	--	--
Appendix IX ¹ Herbicides	Water	1	--	--	--	--	--	--
Appendix IX ¹ Metal Analysis (Sb, As, Ba, Be, Co, Cu, Cd, Cr, Pb, Hg, Ni, Tl, Se, Ag, Sn, V, Zn)	Water	1	--	--	--	--	--	--
Cyanide	Water	1	--	--	--	--	--	--
Sulfide	Water	1	--	--	--	--	--	--
Tank Two								
Appendix IX ¹ VOC ²	Water	1	--	--	--	--	--	1
Appendix IX ¹ SVOC ³	Water	1	--	--	--	--	--	--
Appendix IX ¹ Organochlorine Pesticides/PCB ⁴	Water	1	--	--	--	--	--	--
Appendix IX ¹ Organophosphorus Pesticides	Water	1	--	--	--	--	--	--
Appendix IX ¹ Herbicides	Water	1	--	--	--	--	--	--
Appendix IX ¹ Metal Analysis (Sb, As, Ba, Be, Co, Cu, Cd, Cr, Pb, Hg, Ni, Tl, Se, Ag, Sn, V, Zn)	Water	1	--	--	--	--	--	--
Cyanide	Water	1	--	--	--	--	--	--
Sulfide	Water	1	--	--	--	--	--	--

See Notes at end of table.

Table 5-2 (continued)
 Number of Samples for SWMU 6 and SWMU 7

Task/Method	Matrix	No. of Samples	Duplicate	Matrix Spike	Matrix Spike Duplicate	Equipment Rinsate	Field Blank	Trip Blank
INFLUENT TOTAL FLUIDS SAMPLING (NORMAL OPERATIONS)								
Weekly (Four Weeks)								
Appendix IX ¹ VOC ²	Water	4	--	--	--	--	--	4
PCB ⁴ Only	Water	4	--	--	--	--	--	--
Total Metals Analysis (Sb, As, Ba, Be, Co, Cu, Cd, Cr, Pb, Ni, Se, Ag, V, Zn)	Water	4	--	--	--	--	--	--
Oil and Grease	Water	4	--	--	--	--	--	--
pH	Water	4	--	--	--	--	--	--
Quarterly (One Event prior to turnover)								
Appendix IX ¹ VOC ²	Water	1	--	--	--	--	--	--
PCB ⁴ Only	Water	1	--	--	--	--	--	--
Total Metals Analysis (Sb, As, Ba, Be, Co, Cu, Cd, Cr, Pb, Ni, Se, Ag, V, Zn)	Water	1	--	--	--	--	--	--
Oil and Grease	Water	1	--	--	--	--	--	--
pH	Water	1	--	--	--	--	--	--

See Notes at end of table.

Table 5-2 (continued)
 Number of Samples for SWMU 6 and SWMU 7

Task/Method	Matrix	No. of Samples	Duplicate	Matrix Spike		Equipment Rinsate	Field Blank	Trip Blank
				Spike	Duplicate			
SUMP EXCAVATED SOILS SAMPLING								
Composite Samples (Six Roll-of Bins Anticipated)								
TCLP ⁵ VOC ²	Soil	6	--	--	--	--	--	--
TCLP ⁵ SVOC ³	Soil	6	--	--	--	--	--	--
TCLP ⁵ Organochlorine Pesticides	Soil	6	--	--	--	--	--	--
TCLP ⁵ RCRA Metals (As, Ba, Cd, Cr, Pb, Se, Ag, Hg)	Soil	6	--	--	--	--	--	--
TRPH ⁶	Soil	6	--	--	--	--	--	--

Notes:

- ¹ Select Appendix IX compounds. Refer to Table 3-13 (Appendix E) for Appendix IX Groundwater Monitoring Parameters, RFI SAP, NAVSTA Mayport (ABB 1994).
- ² VOC Volatile Organic Compounds
- ³ SVOC Semivolatile Organic Compounds
- ⁴ PCB Polychlorinated Biphenyls
- ⁵ TCLP Toxicity Characteristic Leaching Procedure
- ⁶ TRPH Total Recoverable Petroleum Hydrocarbons

6.1 RECOVERED LNAPL MANAGEMENT

The recovery system is comprised of a four step process: (1) the LNAPL is pumped from the sump via the total fluid recovery pumps; (2) the total fluids are stored in the two 20,000 gal ASTs; (3) the total fluids are transferred to the OWTP LETs; and (4) the total fluid is processed through the OWTP. The OWTP will separate the LNAPL from the groundwater. The LNAPL will then be managed as part of the oily waste generated by the OWTP, and the groundwater will be discharged to the sanitary sewer system after treatment by the OWTP process. The OWTP process information is contained in the Draft *Interim Measure Workplan, Solid Waste Management Unit 6 and 7, Sludge Drying Beds Area, U.S. Naval Station Mayport, Mayport, Florida*, Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, prepared by ABB Environmental Services, Inc., dated May 1994.

Presently, all site characterization data show that groundwater and LNAPL are petroleum hydrocarbon media that can be managed and treated using the OWTP. However, since the RFI process for SWMU 6 and 7 is not complete, sampling of the total fluids will occur during the initial startup phase to provide characterization of the fluid to be discharged to the OWTP. During the initial startup of the system, the two 20,000 gal ASTs will be filled. A sample will be taken from each of the tanks and sent to a laboratory for analysis for the Appendix IX compound list as provided in the ABB RFI Workplan (Table 3-13, Appendix D).

These data will be provided to the Navy, USEPA, and FDEP for review, and for approval to discharge the contained fluids to the OWTP LETs. Upon approval for discharge of the initial contained fluid, discharge to the OWTP will occur. Also, concurrent with the initial data package, a recommendation of future sampling parameters will be provided for review and approval. It is anticipated that the recommended sampling parameters will include a select list of VOC, metals, and PCBs only, as presented in the ABB-ES Interim Measure Work Plan (ABB 1994).

After the initial discharge of the contained fluids, the system will start normal operations. Sample of the influent to the 20,000 gal tanks will be collected once a week for the first month. These samples will be analyzed for the select parameters, with a three day turn-around-time from the laboratory. These data will be compared to the initial sample data. If significant increases in detection levels of the compounds of concern are detected, the Navy, USEPA, and FDEP will be notified. If the detection levels do not change significantly (as expected) the sampling of the influent will be reduced to quarterly events.

During the normal operations, the tanks will be discharged to the OWTP prior to receipt and review of the analytical data. This is justified by the following:

- The LNAPL will be characterized through the initial two events of Appendix IX sampling;
- All of the current RFI data do not indicate a problem with hazardous constituents;
- Ongoing RFI investigations by ABB would identify a problem with direct discharge; and
- Select analyses based on the results of the Appendix IX sampling will continue as described above.

This management of the LNAPL fluid discharge will allow for the recovery system to operate on a full time basis. To provide for sample results prior to the discharge of the fluids would reduce recovery operation time to 40 percent or less of the available time, and thereby decrease efficiency of the recovery system.

6.2 EXCAVATED SOILS MANAGEMENT

The estimated volume of soil to be generated at the SWMUs 6 and 7 SDB area during sump construction is 47 yd³. The volume of excavated soils was determined based on the installation of five 1-meter diameter sumps to a depth of 20 ft using 4-ft diameter boreholes. The soil from the installation of the sumps will be containerized in lined 20 cubic yard capacity roll-off bins. It is estimated that four bins will be required; however, spoils from each sump will be containerized separately, with one extra bin for excavation soils. Therefore, six 20 cubic yard roll-off bins will be mobilized to the site.

Each bin will be labeled with the location of the sump that generated the soil, the date the bin was filled, the date of sampling of the bin, and bin identification number. Upon completion of the installation of the sumps, one composite sample will be taken from each bin. The composite sample will be taken from four locations in each bin, at mid-depth of the bin. As discussed in Section 5.0, these samples will then be sent to a laboratory for analysis of the following parameters (see Table 5-1 and 5-2 also):

- TCLP Volatile Organic Compounds (Method SW8240)
- TCLP Semivolatile Organic Compounds (Method SW8270)
- TCLP RCRA Metals, ICP, Furnace, and Cold Vapor (Methods SW6010, SW7000 series, and SW7040)
- TCLP Organochlorine Pesticides (Method SW8080)
- Total Recoverable Petroleum Hydrocarbons (Method 5030/8020)

If the data indicates that the extract contains a regulated compound above its threshold limit, the soil is identified as RCRA hazardous waste and must be disposed of in accordance with local, state, and federal requirements. If the TCLP sample concentration is below all the regulated levels, the waste is a RCRA nonhazardous waste. With approval of FDEP and USEPA, this waste will be disposed of onsite at the SWMU 7 sludge drying beds. If onsite disposal is not approved, the waste will be disposed in a regulated Subtitle D landfill.

The construction methods used will minimize the amount of excavation and spoils generated during the installation of the conveyance piping trenches, and installation of the equipment compound. Spoils from any of the excavation work will be staged into the sixth roll-off bin. Management and characterization of these spoils will be in accordance with the procedure described above for the sump installation spoils.

Spoils will be collected and stored as described and in accordance with Specification 22567-001-SP000-005, *Technical Specification for Contaminated Earthwork and Miscellaneous Demolition* (Appendix E) while awaiting waste characteristic determination.

If shipment to offsite disposal is necessary, shipment will be as described in Specification 22567-001-SP000-003, *Transportation of Contaminated Materials* (Appendix F).

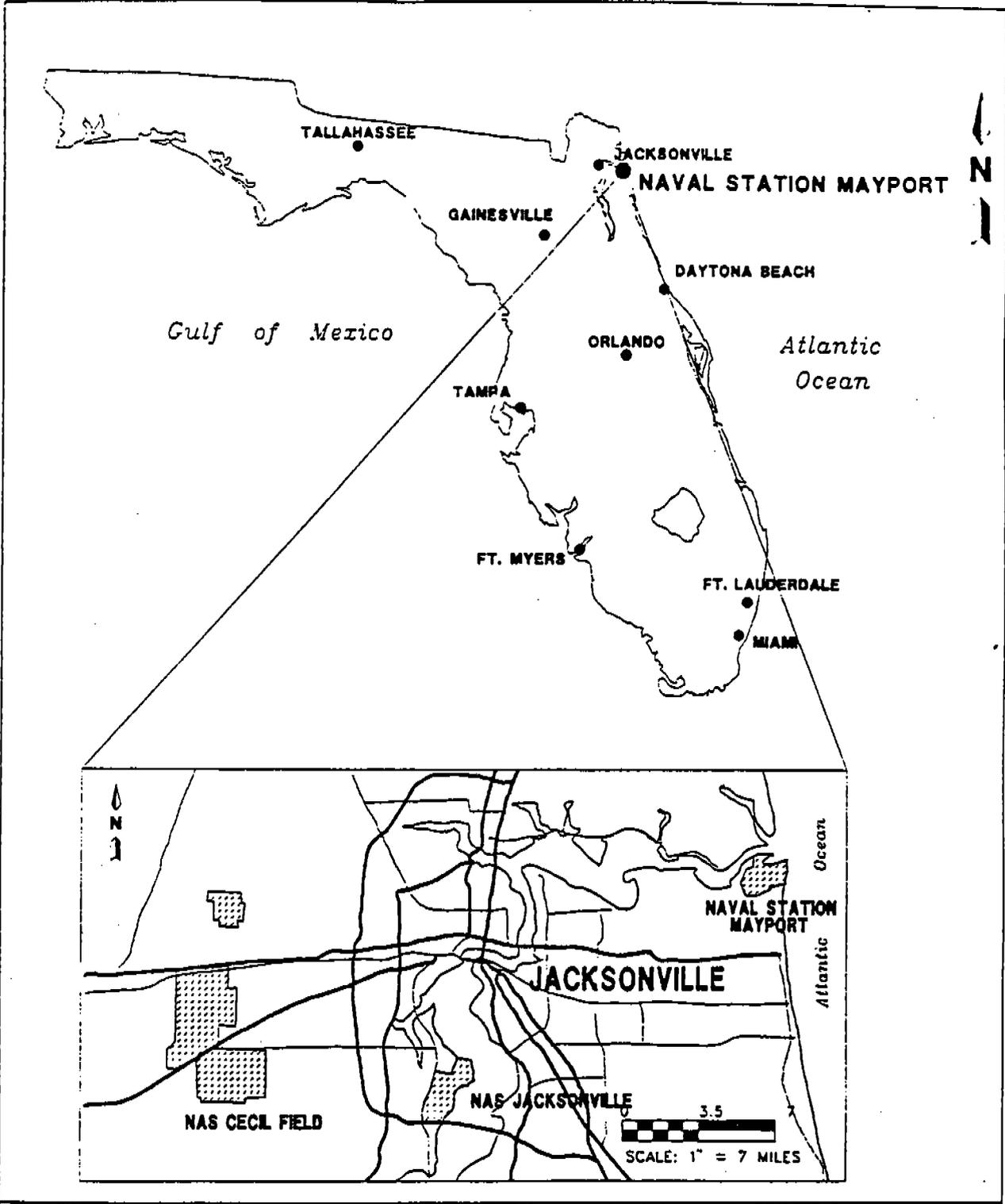
7.0 SAFETY AND HEALTH

A Program Safety and Health Plan defines policies for work on the Navy RAC Project. A Site Safety and Health Plan (SSHP) has been prepared for the Navy RAC Bases. Addendum No. 10 to the SSHP, under separate cover, defines task-specific requirements for remediation at SWMU 6 and SWMU 7.

8.0 QUALITY CONTROL PLAN

Quality control (QC) samples will be collected during sampling activities as described in this work plan and will be used as a means of evaluation data quality in terms of precision and accuracy. QC checks also verify that sampling, handling, and analysis does not introduce contaminants in the sampling process. Section 5.0, Sampling and Analysis Plan, addresses the minimum field QC sampling frequency. A task-specific addendum to the Bechtel Quality Control Plan for SWMU 6 and 7 is under separate cover.

APPENDIX A
FIGURES

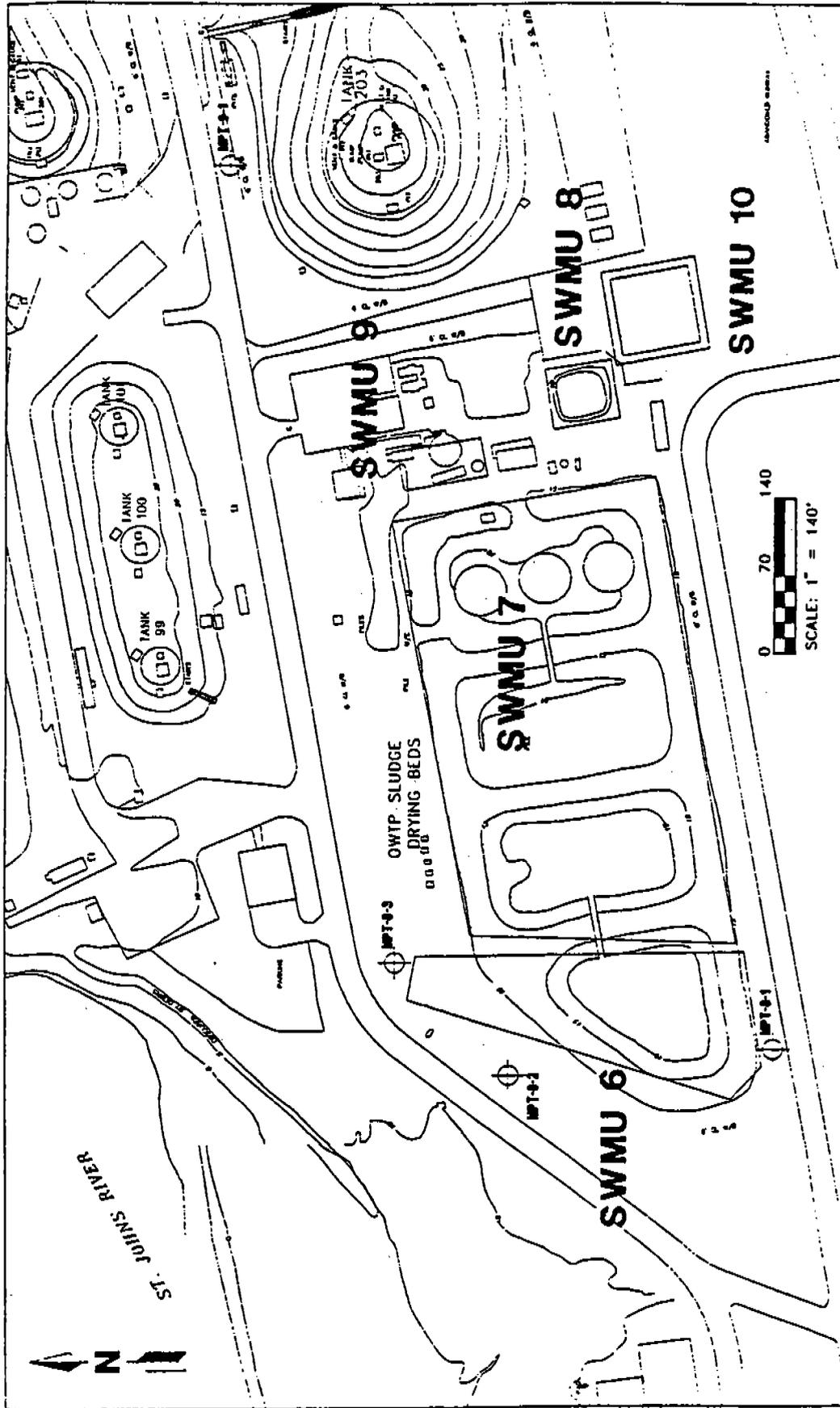


**FIGURE 1-1
REGIONAL SETTING AND
FACILITY LOCATION MAP**



**SWMU 6 AND 7,
SLUDGE DRYING BEDS**

**U.S. NAVAL STATION MAYPORT
MAYPORT, FLORIDA**



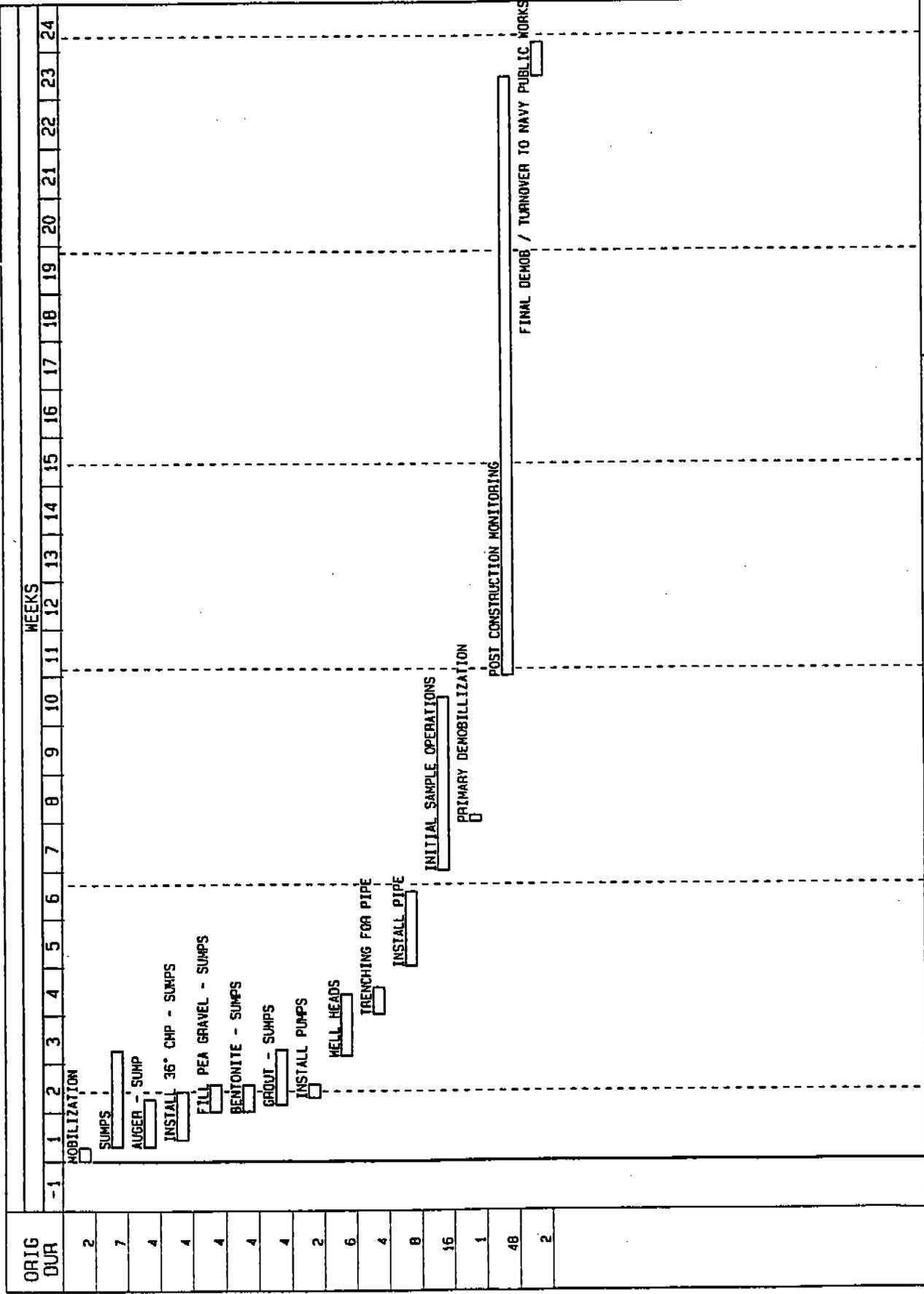
LEGEND

-  Approximate SWMU Location
-  ESI Monitoring Well Location

**FIGURE 3-1
LOCATION OF SWMUs 6, 7, 8, 9, AND 10**



**SWMU 6 AND 7,
SLUDGE DRYING BEDS
U.S. NAVAL STATION
MAYPORT, FLORIDA**



Sheet 1 of 1

NAVAL FACILITIES ENGINEERING COMMAND
MAYPORT TASK 2 PHASE 3 BASELINE

BECHTEL ENVIRONMENTAL, INC.

Date	Revised	Checked	Approved

Activity Category Codes:

 Mobilization Construction Demobilization Monitoring

WPA

McGraw-Hill Construction Systems, Inc.

APPENDIX B
CONSTRUCTION DRAWINGS

APPENDIX C
PROJECT PROCEDURES

Title: FIELD DATA ACQUISITION FORMS
Document Number: 6002
Revision Number: 0

Job No. 22567

REVIEWED: *Sauif Keller* 11/3/94
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REVIEWED: *J. Griffin* 11-7-94
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APPROVED: *J-R. Manning* 11-10-94
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APPROVED: *D. Troutman* 11/10/94
Program Manager Date

1.0 PURPOSE

The purpose of this procedure is to standardize the format for hydrologic, geologic, and field sampling documentation for the Navy RAC project using data acquisition forms bound in data logbooks.

2.0 SCOPE

This procedure applies to the recording of field data on data acquisition forms in data logbooks pertaining to activities identified in the work plan pertaining to field sample collection. This procedure is for use by project personnel as a standard guide to data collection and formatting. The specific tasks outlined in this procedure are data formatting and accurate and complete entry of information into the data logbooks.

3.0 DEFINITIONS**3.1 Field Logbook**

A field notebook with sequentially numbered pages used for recording observations and activities related to field work.

3.2 Data Logbook

A bound logbook with pages containing data entry forms used in conjunction with field logbooks to record field data in a uniform format. (An alternative to preprinted data entry forms would be to specify a format to be replicated consistently). These forms are specifically designed for each field data acquisition activity and act as checklists to improve the quality and consistency of data collection.

3.3 Piezometer

A type of observation well designed to allow water level measurements in a particular stratum or zone. It is typically constructed with a short screened section in the investigation zone using materials such as polyvinyl chloride.

3.4 Corehole

A hole drilled into bedrock to retrieve continuous rock column samples for geologic study. The hole may subsequently be used for packer testing, recovery of deep ground water samples, geophysical logging, or installation of a well, or it may be plugged and abandoned.

3.5 Multizone Well (or Multizone Piezometer)

A single borehole in which equipment is installed to vertically isolate more than one discrete interval or zone. The equipment allows access to these intervals for retrieving groundwater samples or for monitoring pressure head differences or hydraulic properties.

3.6 Monitoring Well

A type of observation well constructed in a borehole by one of several techniques and used to assess water quality, determine possible chemical and/or radiological contamination, and collect piezometric data or measure hydrologic properties. The design and materials of construction used specifically for water quality assessment are specified to meet high data quality objectives (DQOs) for the samples taken.

3.7 "No Data" Codes

Abbreviations added to spaces where no data are entered. The codes to be used are explained below:

- NA - Not applicable/available
- NA - Not encountered (refers to stratigraphic unit not encountered during drilling)
- NS - Not sampled
- ND - Not detected (unable to detect by equipment used)
- NF - Not found (information requested on form could not be located)
- NDT - Not determined (not searched for)
- NR - Not recorded (data were not entered on form)

3.8 Soil Boring

A borehole for soil sampling at depth. It can be produced by hand auguring or with a powered drill rig. Split spoons, Shelby tubes, or continuous core samples of soils are normally collected. When sampling is completed, the borehole is usually backfilled and plugged with grout, investigation-derived waste, or other approved material.

4.0 REFERENCES

- 4.1 Project Procedure 6004, "Field Logbook Management."
- 4.2 Bechtel Corporation Environmental Department. Guidance for Field Sampling Plan Development, GS-003-004.

4.3 Project Procedure 6003, "Sample Identification and Data Encoding."

4.4 Project Procedure 6006, "Sample Tracking Procedure."

5.0 PROCEDURES

5.1 Required Equipment

The Database Manager (DBM) will provide data logbooks (as previously described) and indelible black ink pens.

5.2 Recording Information In Data Logbooks

The cover of the data logbook will be labeled (using an indelible black marker) in accordance with the Field Logbook Management procedure, Reference 4.1.

Location identifications numbers for sampling events and other field activities will be determined in accordance with BEI procedure GS-003-004 "Field Sampling Plan Development," and Navy RAC PP6003, "Sample Identification and Data Encoding."

Each data logbook will include a table of contents for recording the date, sequence numbers used, location identification, and signature of data logbook user.

Standardized data acquisition forms with instructions for filling in the required information are shown as Attachments 7.1 through 7.11. The blank forms are prenumbered and bound into data logbooks and they will be referenced in field logbooks by recording the data logbook number and sequence number. If preprinted forms are not used, the same information found in Attachments 7.1 through 7.11 will be provided in a similar orientation. Data logbook forms/pages will be filled in and signed by the data logbook user concurrently with the field activity.

Header information (e.g., page and/or sequence number, location ID, name, date, logbook references, etc.) in data logbook forms will match related header information in the field logbooks that are used concurrently to record the same activities and events.

Pages will not be removed from data logbooks for any reason. Errors will be corrected by drawing a solid line through the incorrect entry and initialing and dating corrections. If needed, a brief explanation of the corrections may be made in the remarks box. Use of correction fluids, erasures, and paste-in labels (except bar codes where appropriate) is prohibited.

Entries must be legible so that data can be accurately entered from these forms into the field data base. Each unused page will be marked with a diagonal line, and the date and the signature of the logbook user will be recorded on the line.

5.6 Review, Checking, Verification, And Approval of Data Logbooks

5.3.1 Review and Checking of Data Logbooks

The appropriate discipline lead or designee will review and check geologic and hydrogeologic data logbooks covered by this procedure for technical content, correctness of calculations, and completeness and will sign and date the appropriate block provided on each form. Reviews will be performed within four weeks of data collection recorded on each form.

5.3.2 Approval of Data Logbooks

After the discipline lead has reviewed, checked, and signed the completed geologic and hydrogeologic data logbooks, the Geotechnical Supervisor will review and approve them, indicate approval on the Logbook Tracking Form, Reference 4.1, and transmit the approved data logbooks to the Project Document Control Center (PDCC) to be permanently filed as project records. If any changes are required, they will be resolved with the discipline lead (or designee). Signatures must be included on every form in data logbooks transmitted to PDCC to indicate that checking and review have been completed.

5.4 Data Format Conventions

Data acquisition forms and instructions for entering data on each form are included in this procedure as Attachments 7.1 through 7.5. The method for defining the location identification number is explained in the Field Sampling Plan, Reference 4.2.

6.0 RESPONSIBILITIES

6.1 Analytical And Data Services Supervisor (ADSS)

The ADSS or designee is responsible for the following:

- implementing this procedure
- providing administrative guidance to ensure correct interpretation and application of the requirements necessary to implement this procedure

- ensuring compliance with protocols for labeling, formatting, issuing, custody, and distribution of data logbooks; and
- coordinating environmental data collection activities
- providing formal data logbook protocol training for logbook users.

6.2 Database Manager (DBM)

The DBM or designee is responsible for:

- providing reports and manipulations of data as requested by management and the technical staff and printing out hard copies of data files for comparison with field forms by the originator (i. e., the logbook user who completed the form).
- ensuring that data are promptly and accurately entered from the data collection forms into the appropriate electronic database in accordance with the applicable instructions; and
- conducting data verification related to project data management.

6.3 Logbook User

The logbook user is responsible for the following:

- following custody protocols for data logbooks;
- recording pertinent data in the data logbooks according to applicable procedures and this protocol; and
- protecting the data logbooks from loss, damage, tampering, and contamination.

6.4 Data Coordinator

The Data Coordinator is responsible for the following:

- logging data logbooks in an out daily;
- ordering, from the DA, additional data logbooks before they are needed; and
- reporting to the ADSS any data discrepancies and/or any failure to comply with this procedure.

6.5 Geotechnical Lead

The Geotechnical Lead (GL) is responsible for:

- providing technical support to the ADSS in implementing this procedure; the review and acceptance of final hydrogeologic/geologic documentation;
- transmittal of completed data logbooks to PDCC;
- receiving hydrogeologic/geologic documentation (including all surface water, groundwater, soil, and sediment data) and checking the forms for completeness and technical accuracy; and
- ensuring that all data collection forms that require entry in to the project database are supplied to the DA in a timely manner.

6.6 Project Document Control Center (PDCC)

PDCC is responsible for:

- maintaining a permanent record of the completed and signed-off data logbooks and field data base printouts; and
- distributing copies to data management personnel and others as required.

6.7 Project Quality Assurance Manager (PQAM)

The PQAM or designee is responsible for verifying conformance to this procedure.

7.0 ATTACHMENTS

7.1 Groundwater Sampling Record

7.2 Sediment Sampling Record

7.3 Surface Water Sampling Record

7.4 Soil Sampling Record

7.5 Water Sampling Record (e.g., Field Blanks, Rinseate Blanks)

7.6 Background Location Data (example form only)

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- 7.7 Beta-gama Dose Rate Survey (example form only)
- 7.8 Gamma Exposure Rate Survey (example form only)
- 7.9 Transferrable Surface Contamination Survey (example form only)
- 7.10 Subsurface Gamma-Ray Radiation Log (example form only)
- 7.11 Walkover Gamma Scan Data Sheet (example form only)
- 7.12 Field Screening Form (example form only)

GROUNDWATER (GWT) SAMPLING RECORD**1.0 SUMMARY**

This form is bound into data logbooks and used to document groundwater sampling activities including the water level measurement and purging activities prior to sampling. General instructions for the use of this form and data logbooks are listed below.

2.0 INSTRUCTIONS

The following sections identify the fields on the form which require specific entries or for which there are limited allowable entries. Fields that are not identified in this instruction are not meant to be left blank. The fields that are not identified are those for which entry requirements are either obvious or selected from available choices, (e.g., remarks or date fields).

2.1 Header**2.1.1 Sampling Event**

Enter the Sampling Event Information Record (SEIR) number here. This number can be obtained from the Data Coordinator (DC) or the Geotechnical Lead.

2.1.2 Logbook ID

Field Data Acquisition (FDA) Logbook number that the form is in. This number will be printed on the front cover of the FDA Logbook.

2.1.3 Form ID

A sequential number identifying the order of forms in the FDA Logbook.

2.2 Sample Station**2.2.1 Station ID**

Sampling station identifier as assigned by the discipline lead for the sampling event. Each sampling station will have a unique name. The name will include a media designator and a sequence number, (e.g., GW001 groundwater samples, first in the series).

2.2.2 Station Type

Enter the station type, (e.g., well) as assigned by the DC.

2.2.3 Grid Plane

Site coordinates as determined by or from a civil survey determination or known United States Geological Survey (USGS) data.

2.3 Sample

2.3.1 Sample ID

Refer to the Sample Identification and Data Encoding procedure, Reference 4.3 for guidance.

2.3.2 Sample Type

Refer to the Sample Tracking Procedure, Reference 4.4, for valid sample types.

2.3.3 Collection Method

Choose from the following list of collection methods for the best description of the method used:

BAILER	Bailer
CENPMP	Centrifugal Pump
PERPMP	Peristaltic Pump
VACPMP	Vacuum Pump
COMBIA	Composite Bias
COMRAN	Composite Random
GRBBIA	Grab Bias
GRBRAN	Grab Random
AUTSMP	Automatic Sampler

2.3.4 Collection/By

Individual in charge or purging the sampling GW.

2.4 Weather Conditions

Descriptions of the current weather conditions.

2.4.1 Field Logbook(s)/Pgs.

Identification number (assigned by the DC) of the field Logbook, the 5" x 7" hardbound book, used during this sampling event and the page numbers used.

2.4.2 ES&H Jrnl(s)/Pgs.

The identification number of the logbook used by Health and Safety while covering this sampling event.

2.4.3 SEIR No.

See "Sampling Event" in Header information.

2.5 Instruments

This section contains information regarding the instrumentation used for data acquisition during purge and sample collection, (e.g., instrument make and model, calibration information, instrument readings).

2.6 Container Information

2.6.1 Container ID

Refer to the Sample Identification and Data Encoding procedure, Reference 4.3, for guidance.

2.6.2 Comment

List any information about the condition of the containers, concerns regarding preservatives or sample size collected, any general and/or observations.

All data acquisition forms must be signed and dated by the individual filling in the form.

NAVY RAC GROUNDWATER SAMPLING RECORD

Sampling Event:				Logbook				Form ID - 1 of 2				
SAMPLING STATION <input type="checkbox"/> Planned Coordinates <input type="checkbox"/> Estimated <input type="checkbox"/> Surveyed Coordinates												
Station ID			Station Type			Grid Plane		Northing		Easting		Units
SAMPLE												
Sample ID			Sample Type			Collection						
						Method		Date		Time		By
WEATHER												
Field Logbook(s)/Pgs.				ES&H Jrnl(s)Pgs				SEIR No.				
INSTRUMENTS												
INSTRUMENTS		Manufacturer/Mode			Serial No.		Func. Chk.		Calib Due		Reference	
pH/Eh												
Conductivity/Temp:												
Dissolved Oxygen:												
Turbidity:												
Water Level:												
GROUND LEVEL DATA (BEFORE PURGING)												
Ref Pt. Well Meas.			Meas. Method		Depth Water Below Ref. Pt			Depth Well Below Ref. Pt				
					H = (FT)			TD = (FT)				
Well Variables						Casing Volume Calculations						
Depth of Water = (TD-H) = h = (FT)						$V = .041(d)^2 \times (h)$ $V = \text{_____} \times \text{_____}$ $V = \text{_____} \text{ gallons}$						
Inside Diam. of Casing = d = (IN.)												
WELL PURGE INFORMATION												
Purge Equipment:				S/N:			Purge Method:				Pump Type:	
Prog Cyc	Date	Time	TEMP(C)	pH	Eh	Units	Cond.	Units	Turb ()	D. O ()	VolPrgd (GAL)	PURGE RT (GPM)
0												
1												
2												
3												
4												
5												
6-8												
Well purged to dryness (circle) Yes No												

SEDIMENT (SED) SAMPLING RECORD**1.0 SUMMARY**

This form is bound into data logbooks and used to document all aspects of sediment sampling activities. General instructions for the use of this form and data logbooks are contained in procedure 6002, "Field Data Acquisition Forms," to which this form is attached.

2.0 INSTRUCTIONS

The following sections identify the fields on the form which require specific entries or for which there are limited allowable entries. Fields that are not identified in this instruction are **not** meant to be left blank. The fields that are not identified are those for which entry requirements are either obvious or selected from available choices, (e.g., Remarks or date fields).

2.1 Header**2.1.1 Sampling Event**

Enter the Sampling Event Information Record (SEIR) number here. This number can be obtained from the Data Coordinator (DC) or the discipline lead.

2.1.2 Logbook

Field Data Acquisition (FDA) Logbook number that the form is in. This number will be printed on the format cover of the FDA Logbook.

2.1.3 Form ID

A sequential number identifying the order of forms in the FDA Logbook.

2.2 Sample Station**2.2.1 Station ID**

Sampling station identifier as assigned by the Geotechnical Lead for the sampling event. Each sampling station will have a unique name. The name will include a media designator and a sequence number, (e.g., SD001, Sediment samples, first in the series). These numbers will have been assigned by the DC.

2.2.2 Stations Type

Enter the station type (e.g., Ambient) as assigned by the DC.

2.2.3 Grid Plane

Site coordinates as determined by or from a civil survey determination or known United States Geological Survey (USGS) data.

2.3 Sample

2.3.1 Sample ID

Refer to Sample Identification and Data Encoding, Reference 4.3, for guidance.

2.3.2 Sample Type

Refer to the Sample Tracking Procedure, Reference 4.3, for valid sample types.

2.3.3 Collection Method

Choose from the following list of collection methods for the best description of the method used:

COMBIA	Composite bias
COMRAN	Composite Random
GRBBIA	Grab Bias
GRBRAN	Grab Random
SOLBRG	Soil Boring, drill rig or push technology

2.3.4 Collection/By

Individual performing sample collection.

2.3.5 Weather Conditions

Description of the current weather conditions.

2.3.6 Field Logbook(s)/Pgs.

Identification number (assigned by the DC) of the Field Logbook, used during this sampling event and the page numbers used.

2.3.7 ES&H Jrnl(s)Pgs.

The identification number of the logbook used by Health and Safety while covering this sampling event.

2.3.8 SEIR No.

See "Sampling Event" in Header Information.

2.4 Container Information

2.4.1 Container ID

Refer to sample identification and data encoding, Reference 4.3, for guidance.

2.4.2 Comment

List any information about the condition of the containers, concerns regarding preservatives or sample size collected, any general comments and/or observations.

All data acquisition forms must be signed and dated by the individual filling in the form.

NAVY RAC SURFACEWATER (SWT) SAMPLING RECORD

1.0 SUMMARY

This form is bound into data logbooks and used to document all aspects of surfacewater sampling activities. General instructions for the use of this form and data logbooks are contained in PjP 6002, "Field Data Acquisition Forms", to which this form is attached.

2.0 INSTRUCTIONS

The following sections identify the fields on the form which require specific entries or for which there are limited allowable entries. Fields that are not identified in these instructions are not meant to be left blank. The fields that are not identified are those for which entry requirements are either obvious or selected from available choices, (e.g., Remarks or date fields).

2.1 Header

2.1.1 Sampling Event

Enter the Sampling Event Information Record (SEIR) number here. This number can be obtained from the Data Coordinator (DC) or the discipline lead.

2.1.2 Logbook ID

Field Data Acquisition (FDA) Logbook number that the form is in. This number will be printed on the front cover of the FDA Logbook.

2.1.3 Form ID

A sequential number to indicate the order of forms in the FDA Logbook.

2.2 Sample Station

2.2.1 Station ID

Sampling station identifier as assigned by the Geotechnical Lead for the sampling event. Each sampling location will have a unique name. The name will include a media designator and a sequence number, (e.g., SW001, Surfacewater samples, first in the series). These numbers will have been assigned by the DC.

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2.2.2 Station Type

Enter the station type (e.g., Ambient) as assigned by the DC.

2.2.3 Grid Plane

Site coordinates as determined by or from a civil survey determination or known United States Geological Survey (USGS) data.

2.3 Sample

2.3.1 Sample ID

Refer to Sample Identification and Data Encoding, Reference 4.3, for guidance.

2.3.2 Sample Type

Refer to the Sample Tracking Procedure, Reference 4.4, for valid sample types.

2.3.3 Collection Method

Choose from the following list of collection methods the best description of the method used:

BAILER	Bailer
CENPMP	Centrifugal Pump
PERPMP	Peristaltic Pump
VACPMP	Vacuum Pump
COMBIA	Composite Bias
COMRAN	Composite Random
GRBBIA	Grab Bias
GRBRAN	Grab Random
AUTSMP	Automatic Sampler

2.3.4 Collection/By

Individual performing sample collection.

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2.4 Weather Conditions

2.4.1 Field Logbook(s)/Pgs.

Identification number (assigned by the DC) of the Field Logbook, used during this sampling event and the page numbers used.

2.4.2 ES&H Jrnl(s)Pgs.

The identification number of the logbook used by Health and Safety while covering this sampling event.

2.4.3 SEIR No.

See "Sampling Event" in Header information.

2.5 Instruments

This section contains information regarding the instrumentation used for data acquisition during purge and sample collection, (e.g., instrument make and model, calibration information, instrument readings).

2.6 Container Information

2.6.1 Container ID

Refer to Sample Identification and Data Encoding, Reference 4.3, for guidance.

2.6.2 Comment

List any information about the condition of the containers, concerns regarding preservatives or sample size collected, any general and/or observations.

All data acquisition forms must be signed and dated by the individual filling in the form.

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NAVY RAC SW SAMPLING RECORD

Sampling Event:		Logbook		Form ID - 1 of 2	
SAMPLING STATION <input type="checkbox"/> Planned Coordinates <input type="checkbox"/> Estimated <input type="checkbox"/> Surveyed Coordinates					
Station ID	Station Type	Grid Plane	Northing	Easting	Units
SAMPLE					
Sample ID	Sample Type	Collection			
		Method	Date	Time	By
WEATHER					
Field Logbook(s)/Pgs.		ES&H Jnl(s)Pgs		SEIR No.	
INSTRUMENTS	Manufacturer/Mode	Serial No.	Func. Chk.	Calib Due	Reference
pH/Eh					
Conductivity/Temp:					
Dissolved Oxygen:					
Turbidity:					
DESCRIPTION OF WATER BODY/SAMPLE _____					
REMARKS: _____					

NAVY RAC SOIL (SOL) SAMPLING RECORD

1.0 SUMMARY

This form is bound into data logbooks and used to document all aspects of soil sampling activities. General instructions for the use of this form and data logbooks are contained in PjP 6002, "Field Data Acquisition Forms," to which this form is attached.

2.0 INSTRUCTIONS

The following sections identify the fields on the form which require specific entries or for which there are limited allowable entries. Fields that are not identified in this instruction are not meant to be left blank. The fields that are not identified are those for which entry requirements are either obvious or selected from available choices, (e.g., Remarks or date fields).

2.1 Header

2.1.1 Sampling Event

Enter the Sampling Event Information Record (SEIR) number here. This number can be obtained from the Data Coordinator (DC) or the discipline lead.

2.1.2 Logbook ID

Field Data Acquisition (FDA) Logbook number that the form is in. This number will be printed on the front cover of the FDA Logbook.

2.1.3 Form ID

A sequential number which indicates the order of forms in the FDA Logbook.

2.2 Sample Station

2.2.1 Station ID

Sampling station identifier as assigned by the discipline lead for the sampling event. Each sampling station will have a unique name. The name will

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include a media designator and a sequence number, (e.g., SOL001, soil samples, first in the series). These numbers will have been assigned by the DC.

2.2.2 Station Type

Enter the station type (e.g., Borehole) as assigned by the DC.

2.2.3 Grid Plane

Site coordinates as determined by or from a civil survey determination or known United States Geological Survey (USGS) data.

2.3 Sample

2.3.1 Sample ID

Refer to Sample Identification and Data Encoding, References 4.3, for guidance.

2.3.2 Sample Type

Refer to the Sample Tracking Procedure, Reference 4.4, for valid sample types.

2.3.3 Collection/Method

Choose from the following list of collection methods the best description of the method used:

COMBIA	Composite Bias
COMRAN	Composite Random
GRBBIA	Grab Bias
GRBRAN	Grab Random
SOLBRG	Soil Boring, drill rig or push technology

2.3.4 Collection/By

Individual performing sample collection.

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2.3.5 Weather Conditions

Description of the current weather conditions.

2.3.6 Field Logbook(s)/Pgs.

Identification number (assigned by the DC) of the Field Logbook, used during this sampling event and the page numbers used.

2.3.7 ES&H Jrnl(s)/Pgs.

The identification number of the logbook used by Health and Safety while covering this sampling event.

2.3.8 SEIR No.

See "Sampling Event" in Header Information.

2.4 Container Information

2.4.1 Container ID

Refer to Sample Identification and Data Encoding, Reference 4.3, for guidance.

2.4.2 Comment

List any information about the condition of the containers, concerns regarding preservatives or sample size collected, any general comments and/or observations.

All data acquisition forms must be signed by the individual filling in the form.

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NAVY RAC SOIL SAMPLING RECORD

Sampling Event:		Logbook		Form ID - 1 of 1	
SAMPLING STATION <input type="checkbox"/> Planned Coordinates <input type="checkbox"/> Estimated <input type="checkbox"/> Surveyed Coordinates					
Station ID	Station Type	Grid Plane	Northing	Easting	Units
SAMPLE					
Sample ID	Sample Type	Collection	Interval start: Interval end:		
		Method	Date	Time	By
Weather Conditions: _____					
Field Logbook(s)/Pgs. _____		ES&H Jnl(s)Pgs _____		SEIR No. _____	
Container Information					
ANALYTES	CONTAINER	PRESV.	CONTAINER ID	COMMENT	
RAE/PEST/PCB	250 ML AMBER	NONE			
CYANIDE	250 ML AMBER	NONE			
METALS	250 ML AMBER	NONE			
RAD ANAL	IC Container	NONE			
VOC	125 ML	NONE			
TPH	250 ML AMBER	NONE			
PAH	250 ML AMBER	NONE			
Remarks: _____					
Recorded By: _____		Date: _____	Checked and Reviewed By: _____		Date: _____

NAVY RAC WATER (WAT) SAMPLING RECORD

1.0 SUMMARY

This form is bound into data logbooks and used to document all aspects of aqueous QC sample collection, such as rinsate blanks, field blanks, trip blanks, etc. This procedure does not apply to the collection of field duplicate samples where the matrix is not environmental media. General instructions for the use of this form and data logbooks are contained in procedure 6002, "Field Data Acquisition Forms," to which this form is attached.

2.0 INSTRUCTIONS

The following sections identify the fields on the form which require specific entries or for which there are limited allowable entries. Fields that are not identified in this instruction are not meant to be left blank. The fields that are not identified are those for which entry requirements are either obvious or selected from available choices, (e.g., Remarks or date fields).

2.1 Header

2.1.1 Sampling Event

Enter the Sampling Event Information Record (SEIR) number here. This number can be obtained from the Data Coordinator (DC) or the discipline lead.

2.1.2 Logbook ID

Field Data Acquisition (FDA) Logbook number that the form is in. This number will be printed on the front cover of the FDA Logbook.

2.1.3 Form ID

A sequential number to identify the order of forms in the FDA Logbook.

2.2 Sample Station

2.2.1 Station ID

Sampling station identifier as assigned by the discipline lead for the sampling event. Each sampling station will have a unique name. The name will

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include a media designator and a sequence number, (e.g., WAT 001 water sample, first in the series). These numbers will have been assigned by the DC.

2.2.2 Station Type

Enter the station type (e.g., Well) as assigned by the DC.

2.2.3 Gird Plane

Site coordinates as determined by or from a civil survey determination or know United States Geological Survey (USGS) data.

2.3 Sample

2.3.1 Sample ID

Refer to Sample Identification and Data Encoding, Reference 4.3, for guidance.

2.3.2 Sample Type

Refer to the Sample Tracking Procedure, Reference 4.3, for valid sample types.

2.3.3 Collection/Method

Choose front he following list of collection methods the best descriptio of the method used:

QCSAMP QC Sample

2.3.4 Collection/By

Individual in charge of collecting the sample.

2.4 Weather Conditions

Description of the current weather conditions.

2.4.1 Field Logbook(s)/Pgs.

Identification number (assigned by the DC) of the Field Logbook, used during this sampling event and the page numbers used.

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2.4.2 ES&H Jrnl(s)/Pgs.

The identification number of the logbook used by Health and Safety while covering this sampling event.

2.4.3 SEIR No.

See "Sampling Event" in Header Information.

2.4.4 Associated Samples

Any samples associated with the collection of this QC sample.

2.5 Container Information

2.5.1 Container ID

Refer to Sample Identification and Data Encoding, Reference 4.3, for guidance.

2.5.2 Comment

List any information about the condition of the containers, concerns regarding preservatives or sample size collected, any general comments and/or observations.

All data acquisition forms must be signed and dated by the individual filling in the form.

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NAVY RAC WATER SAMPLING RECORD

Sampling Event:		Logbook		Form ID - 1 of 1	
SAMPLING STATION <input type="checkbox"/> Planned Coordinates <input type="checkbox"/> Estimated <input type="checkbox"/> Surveyed Coordinates					
Station ID	Station Type	Grid Plane	Northing	Easting	Units
SAMPLE					
Sample ID	Sample Type	Collection			
		Method	Date	Time	By
Weather Conditions: _____					
Associated Samples:		Field Logbook(s)/Pgs.	ES&H Jrn(s)Pgs	SEIR No.	
_____ / _____ / _____					
Container Information					
ANALYTES	CONTAINER	PRESV.	CONTAINER ID	COMMENT	
BNAE	(2) 950 ML	NONE			
CYANIDE	1 (1) LITER	NaOH			
METALS	1 (1) LITER	HN03			
PEST/PCB	(2) 950 ML	NONE			
RADIOL	1 CUBITAINER	HN03			
SULFIDE	(1) 1 LITER	Zn Ace/NaOH			
TRITIUM	(1) 250 ML	NONE			
VOC	(2) 40 ML	HCL			
Recorded By: _____		Date: _____	Check and Reviewed By: _____		Date: _____

Title: **SAMPLE IDENTIFICATION AND DATA ENCODING**
Document Number: **6003**
Revision Number: **0**

Job No. 22567

REVIEWED:	<u><i>Ralph Keller</i></u>	<u>11/3/94</u>
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	Project Scientist	Date
APPROVED:	<u><i>J. Trautman</i></u>	<u>11/10/94</u>
	Program Manager	Date

1.0 PURPOSE

The purpose of this procedure is to define the sample identification and data encoding process to plan, track, and report environmental sample data for the Navy RAC program. This procedure provides instruction regarding the naming and documentation protocols for environmental samples collected as a part of Navy RAC activities. Note: The guidance providing herein is in support of the Bechtel Environmental, Integrated Data Management Systems (BEIDMS). If using the BEIDMS software, deviations from this procedure must be coordinated with the project database manager (DBM).

2.0 SCOPE

This procedure applies to all samples collected for the analysis of radiological, chemical, biological, or physical characteristics in conjunction with the Navy RAC program. These analyses can be performed either on site or at an off site facility. This procedure is for use by all project personnel involved in data collection activities. The specific tasks outlined within this procedure are sample identification and documentation.

3.0 DEFINITIONS

3.1 Site

Site is the Navy/Marine Corps installation, or general geographic area where samples are collected for a common purpose.

3.2 Station ID

Station is the point where samples are collected. Examples of station values include well number, borehole ID, etc. The specific geographic coordinates of the station are contained in easting and northing database fields. Examples of stations include B39W01S, BH001, etc.

3.3 Container ID

Container ID is a container identifier assigned to discrete sample containers, such as the bottle label number. Samples with the sample ID are tracked via their unique container IDs.

3.4 Sample ID

Sample ID is a unique identifier assigned to a liquid or solid sample that is transferred to a laboratory for chemical, radiological, or physical property analyses. A given sample ID can be associated with multiple sample containers.

4.0 PROCEDURE

4.1 Sample IDs

The following rules apply to sample IDs:

- Sample IDs must be unique to the facility.
- Sample IDs contain alpha and/or numeric characters only (0 through 9 or A through Z). Characters such as -, _, +, #, &, etc., are not permitted.
- Sample IDs should be seven characters in length. These characters are alphanumeric and sequential. The first two characters are alpha and represent a facility designator followed by a five-digit identifier. This allows 99,999 unique sample IDs per site. Example sample IDs are JX0001, KW08645. JX00001 indicates sample number 00001 collected at the Jacksonville, Florida, facility. A list of valid facility identification identifiers is included in Attachment 7.1.
- Sample IDs are used to identify a unique sample taken from a particular location/station at a particular time. Should the collection of a sample exceed 24 hours (i.e., poorly recovering GW well), a new sample ID will be assigned.

4.2 Container IDs

The container ID is a 9-digit alphanumeric identifier consisting of the 2-digit site designator, the 5-digit sample ID, and a 2-digit container identifier. Any given sample can have from 1 to 99 containers. The container identifier should be assigned sequentially and should begin with container 01. All samples must have a full container ID.

4.3 Preservative Identification

All sample containers will be affixed with a label indicating the preservative contained in the sample container, the date of the container preparation, and the lot number of the preservative used. If no preservative is used, this will be indicated on the preservative label. Containers used for chemical and radiological sampling should be selected based on the preservative contained in the sample container and the media being collected.

Containers used for chemical and radiological sampling that do not have a preservative label affixed, indicating the date prepared and lot number of the preservative, will not be used.

4.4 Documentation of Sample Identification

For each sample collected, the identification of each 9-digit container ID will be recorded in the appropriate sample collection form as outlined in PP 6002, "Field Data Acquisition Forms." Each 9-digit container ID will also be recorded on the chain-of-custody record that accompanies each sample shipped for offsite laboratory analysis as outlined in PP 6005, "Chain-of-Custody Record Procedure."

5.0 REFERENCES

- 5.1 Project Procedure 6002, "Field Data Acquisition Forms."
- 5.2 Project Procedure 6005, "Chain-of-Custody Record Procedure."
- 5.3 Department of Environmental Protection Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP-QA-001/92, September 30, 1992.
- 5.4 Standard Operating Procedures and Quality Assurance Manual, U.S. Environmental Protection Agency, Region IV, Environmental Services Division.
- 5.5 Bechtel Environmental Integrated Data Management System, (BEIDMS), Version 1.2. Systems Operations Manual, Revision C, June 1994.

6.0 RESPONSIBILITIES

- 6.1 Analytical and Data Services Supervisor (ADSS)

The ADSS or designee is responsible for the following:

- Implementing this procedure.
- Providing administrative guidance and training to ensure correct interpretation and subsequent implementation of this procedure.

6.2 Database Manager

The DBM or designee is responsible for ensuring that all sites are supplied with a sufficient amount of sample labels to support the projected scope of work.

6.3 Data Coordinator

The Data Coordinator or designee is responsible for the following:

- Ensuring that all sample containers are labeled with the appropriate information, including container ID and a completed preservative label.
- Conducting verification that all sample containers containing environmental media are recorded on the appropriate field data acquisition forms.
- Documenting all unused containers or broken containers for a given sample ID.

6.4 Logbook User or Sample Team Leader

The logbook user or sample team leader is responsible for the following:

- Recording all container IDs that are filled with environmental media on the field data acquisition form.
- Ensuring that all sample containers have a container ID label and a completed preservative label.
- Ensuring compliance with this procedure during field operations.

7.0 ATTACHMENT

7.1 Facility Identification Designators

ATTACHMENT 7.1

FACILITY IDENTIFICATION DESIGNATORS

Designator	Facility Identification
JX	Jacksonville, Florida
KW	Key West, Florida
AB	Albany, Georgia
MP	Mayport, Florida
CH	Charleston, South Carolina
OR	Orlando, Florida
WF	Whiting Field; Milton, Florida
PC	Panama City, Florida
PI	Parris Island, South Carolina
PE	Pensacola, Florida
AT	Athens, Georgia
CF	Cecil Field; Florida
BF	Beaufort, South Carolina
KB	Kings Bay, Georgia

Title: FIELD LOGBOOK MANAGEMENT

Document Number: 6004

Revision Number: 0

Job No. 22567

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APPROVED:	<u><i>W. Trautman</i></u>	<u>11/10/94</u>
	Program Manager	Date

FIELD LOGBOOK MEASUREMENT

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Introduction

This instruction describes how to control the issuance, tracking, review, and retention of field logbooks.

The control process is the principal subject of this instruction, but it also includes information on minimum requirements for logbook format and content. Information regarding the completion of each type of logbook form is contained in PP6002, "Field Data Acquisition Forms."

Logbook control process

The table below is a summary of the stages in the process of controlling field logbooks:

Stage	Responsible	Description
1	Logbook Coordinator	<ul style="list-style-type: none">• Assigns numbers and issues new logbooks to users• Maintains a tracking log to control logbooks from issuance through retention in PDCC
2	Logbook User	<ul style="list-style-type: none">• Records observations and maintains custody of the logbook throughout the field activity• Returns the logbook to the logbook reviewer when subject field activities are completed
3	Logbook Reviewer	<ul style="list-style-type: none">• Reviews the logbook for format, content, and technical adequacy and makes any necessary revisions• Sends the reviewed logbook to PDCC
4	PDCC	<ul style="list-style-type: none">• Microfilms and retains the logbook as a project record

Issuing and Tracking Logbooks

Issuing logbooks The logbook coordinator or designee will maintain a stock of standard field logbooks used by the project. When a new logbook is requested by a logbook user, the logbook coordinator will:

- Ensure that all logbook pages are sequentially numbered.
- Assign a unique field logbook number. Logbook numbers are derived by combining the facility name identifier (2 letter) a discipline or activity letter code, and a sequential number, as in the following examples:

Logbook Number JX-GW-006. In this example:

JX = Site identifier for Jacksonville, Florida

GW = Groundwater sampling

006 = Sixth logbook issued for subject activity

- Print the number in indelible ink on the outside cover of the logbook.
- Issue the logbook to the user.
- Ensure that the logbook number is entered into the BEIDMS database.

A list of valid discipline or activity codes is included in Attachment 1. Valid facility name identifiers are included in Attachment 2.

Tracking logbooks The logbook coordinator will develop and use a tracking form to maintain records on the inventory and status of all issued logbooks. This log will contain the following minimum information:

- Logbook number
 - Name of logbook user
 - General description of field activity
 - Date issued
 - Date returned for review
 - Date sent to PDCC for retention
 - Status of logbook (i.e., active or closed)
-

FIELD LOGBOOK MEASUREMENT

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Issuing and Tracking Logbooks, continued

Example of tracking form

An example of a form that can be used to track the status of field logbooks is shown below:

NAVY RAC FIELD LOGBOOK RECORD

LOGBOOK NO.	SITE ID	DESCRIPTION	NO OF PAGES	ISSUED TO	DATE ISSUED	DATE RETURNED TO PDCC	STATUS	DATE CLOSED
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	
							<input type="checkbox"/> ACTIVE <input type="checkbox"/> CLOSED	

Maintaining Records in Field Logbooks

User responsibilities

The logbook user is responsible for:

- Writing field observations legibly in the logbook.
- Meeting the requirements for logbook format and content listed in this instruction.
- Using reasonable caution to protect the logbook from loss, damage, tampering, and contamination.
- Returning the completed logbook to the logbook reviewer promptly when ready for review.

Special instructions

If field work is related to activities that involve chain-of-custody record forms, the logbook user will ensure that the responsible person who fills out the chain-of-custody record enters the field logbook number (as verified from the BEIDMS database) in the designated space on the chain-of-custody form.

General requirements for logbook content

Completed logbooks will include:

- A title page showing:
 - Brief title to describe nature and scope of field activity
 - Name of logbook user
 - Delivery order number
 - Starting and ending dates of logbook coverage
 - Names of field personnel
- A Table of Contents

continued on next page

Maintaining Records in Field Logbooks, continued

Rules for logbook format

The logbook user will follow these rules on format:

- Arrange entries in chronological order, with time and date noted
 - Make entries legibly using indelible ink
 - Make corrections by drawing one solid line through the incorrect entry; sign (or initial) and date beside the correction. Never erase or use correction fluid or tape.
 - Sign and date at the bottom of each page or in appropriate blanks provided.
 - Draw a diagonal line downward (for example, from upper left to lower right) across any unused page or portion of a page; and through blank lines or boxes on forms.
 - Never tear a page out of the logbook.
-

Reviewing and Retaining Field Logbooks

Review and approval

The process for review and approval of field logbooks is summarized in the following table:

Stage	Responsible	Description
1	Logbook user	<ul style="list-style-type: none"> • Submits the completed logbook to the logbook reviewer when the subject field activities have ceased, the logbook is full, and/or the necessary data have been utilized to prepare any required logs or reports; and also, if required • Submits the logbook to the reviewer periodically while the field activity is in progress.
2	Logbook reviewer	<ul style="list-style-type: none"> • Reviews field logbooks for format, content, and technical adequacy (periodically and/or when the field activity is completed). • When the review is completed, either indicates approval or makes any necessary changes (with the concurrence of the logbook user). • Documents these changes (lists affected pages and explains reasons for revisions) on special revision forms. • If changes affect information that has been (or will be) incorporated in other documents or databases, notifies the responsible party by Interoffice Memorandum.

FIELD LOGBOOK MEASUREMENT

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Reviewing and Retaining Field Logbooks, continued

Retention process

Stage	Responsible	Description
1	Logbook reviewer	Sends the completed logbook and any accompanying documentation to PDCC.
2	PDCC	Updates the logbook status to closed in field logbook tracking logs.
3	PDCC	Microfilms the logbook and any accompanying documentation and retains these materials as project records.

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LOGBOOK ACTIVITY TITLES

Activity Title	Abbreviation	Description	Responsible Department
Air Sampling	AS	Field record of activities related to air sampling events.	Engineering
Background Radiological Sampling	BR	Field record of background radiological survey readings.	Engineering
Beta Gamma Survey	BG	Field records of walkover beta gamma readings.	Engineering
Biota Sampling	BS	Field record of activities related to sampling of biological specimens.	Engineering
Corehole Drilling and Logging	CH	Field record of activities related to rock coring including drilling logs, core logs, lithologic description, discontinuities and other related descriptions.	Geotechnical
Continuous Water Level	CL	Field record of activities related to installation of data loggers for continuous recording of water levels in piezometer wells.	Geotechnical
Decontamination and Decommissioning	DD	Field record of activities related to site characterization of decontamination and decommissioning program facilities.	Engineering
Environmental Health	EH	ES&H notebooks are included in this procedure for purposes of identifying them within the uniform numbering system for all Navy RAC field logbooks.	Environmental Safety & Health
Field Activities	FA	Field record of activities related to site characterization or remediation. These records provide general information concerning activities at the site.	Engineering

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Activity Title	Abbreviation	Description	Responsible Department
Field Instrument Calibrations	FI	Field instruments and test equipment other than ES&H instruments must be periodically calibrated and repaired; this logbook provides a record of calibration history.	Engineering
Field Support Activities	FS	Logs of drilling and sampling equipment decontaminated at the decontamination facility including records of equipment blanks. Field decontamination notes and records of equipment blanks at drilling locations will be included in the Sample Team Leader's logbook. Information concerning the collection and dispensation of contaminated waste materials generated by Navy RAC activities.	Field Support Services
Gamma Exposure Survey	GE	Field record of gamma exposure measurements.	Engineering
Geophysical Investigations	GI	Field record of activities related to geophysical investigations such as seismic, electromagnetic, and ground penetrating radar.	Geotechnical
Groundwater Sampling	GW	Field record of activities related to groundwater sampling events.	Geotechnical
Hydrologic Data	HD	Field record of activities related to well development activities.	Geotechnical
Modification of Existing Well	MR	Field record of activities related to modification of an existing well including downhole workover, surface reconfigurations, recompletions, and plugging and abandonment.	Geotechnical

FIELD LOGBOOK MEASUREMENT

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Activity Title	Abbreviation	Description	Responsible Department
Project Equipment	PE	Maintenance and repair of tools and equipment other than test instruments, including general activities.	Field Support Services
Photographs	PL	Photography logbooks are mentioned herein for purposes of assigning consistent numbering to all Navy RAC field logbooks.	Field Support Services
Packer Testing Record	PT	Record of activities related to performing packer tests in single or multi-zone wells.	Geotechnical
Quality Control Sampling	QC	Field records of activities related to the collection of quality control samples such as field blanks, equipment rinsates, and preservative blanks. Field duplicates are not recorded in this logbook.	Geotechnical/ Engineering
RCRA Well Groundwater Sampling	RW	Field record of activities related to groundwater sampling of RCRA wells. The abbreviation RW will only be used to title the field data logbook.	Geotechnical/ Engineering
Soil Borings	SB	Borehole, hand auger, and geologic description, and in situ testing data such as cone penetrometer and geophysical logging.	Geotechnical
Sediment Sampling	SD	Collection of sediment samples for lab analysis.	Geotechnical/ Engineering
Surface Water Flow	SF	Measurement of surface water flow (weir studies, etc.)	Hydrology/ Modeling
Soil Gas	SG	Field record of activities related to soil gas sampling activities.	Geotechnical/ Engineering

FIELD LOGBOOK MEASUREMENT

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Activity Title	Abbreviation	Description	Responsible Department
Soil Sampling	SS	Collection of soil samples and solid waste management samples for lab analysis.	Geotechnical/Engineering
Sample Transfer	ST	Record of sample sets or individual sample container transfers.	Analytical Services
Surface Water Sampling	SW	Field record of activities related to surface water, seep sampling events, and liquid waste management sampling.	Geotechnical/Engineering
Tank Construction Activities	TA	Field record of the design and modification of underground storage tanks to facilitate subsequent sampling.	Field Support Services
Tank Leak Testing	TL	Field record of activities for installation of level monitoring equipment on inactive tanks.	Engineering
Tank Sampling	TS	Collection of samples from tanks for lab analysis.	Engineering
Transferable Surface Contamination Survey	TC	Field record of transferable radiological surface contamination.	Engineering
Video Inspection	VI	Description of activities relative to performing internal video inspections of inactive storage tanks.	Engineering
Walkover Gamma Scan Data	WG	Field record of walkover gamma readings.	Engineering
Water Level Measurement	WL	Field record of activities related to measurement of groundwater levels in wells and piezometers.	Geotechnical/Engineering

FIELD LOGBOOK MEASUREMENT

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Attachment: 1

Activity Title	Abbreviation	Description	Responsible Department
Westbay Installation	WB	Field record of activities related to installation of Westbay multizone well equipment.	Geotechnical
Well Evaluation	WE	Field record of activities related to evaluation of existing wells, such as well head description and head space gas monitoring and sampling.	Geotechnical
Well Installation	WI	Field record of activities related to well, piezometer and wellpoint installation.	Geotechnical

FIELD LOGBOOK MEASUREMENT

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FACILITY IDENTIFICATION DESIGNATORS

<u>Designator</u>	<u>Facility Identification</u>
JX	Jacksonville, Florida
KW	Key West, Florida
AB	Albany, Georgia
MP	Mayport, Florida
CH	Charleston, South Carolina
OR	Orlando, Florida
WF	Whiting Field; Jacksonville, Florida
PC	Panama City, Florida
PI	Parris Island, North Carolina
PE	Pensacola, Florida
AT	Athens, Georgia
CF	Cecil Field; Jacksonville, Florida
BF	Beaufort, South Carolina
KB	Kings Bay

Title: CHAIN-OF-CUSTODY RECORD PROCEDURE

Document Number: 6005

Revision Number: 0

Job No. 22567

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	Project Scientist	Date
APPROVED:	<u><i>[Signature]</i></u>	<u>11/10/94</u>
	Program Manager	Date

1.0 PURPOSE

The purpose of this procedure is to describe the process of maintaining and documenting chain-of-custody (COC) for environmental samples collected in conjunction with the Navy RAC Project.

2.0 SCOPE

This procedure describes the process of maintaining sample COC from the time of sample collection until the sample is relinquished to the analytical laboratory, or common carrier. This procedure does not apply to samples collected for on site screening analyses. This procedure applies to samples identified as requiring COC collected under the direction of BEI hydrogeologists, geologists, and engineers:

3.0 DEFINITIONS

3.1 Sample Custody

A sample is considered in custody if it meets any of the following criteria:

- Is in the field investigator's or the transferee's actual possession;
- Is in the field investigator's or the transferee's view after being in his/her physical possession;
- Was in the field investigator's or the transferee's physical possession and he or she has secured it to prevent tampering; or
- Is placed in a designated secure area.

3.2 Chain-of-Custody Record

A chain-of-custody record is a form used to record the custody of all samples collected and maintained by sample collection personnel. A COC record is not intended to be used to document sample collection.

3.3 Request for Analysis

This is the written form instructing the laboratory of the analyses that are being requested for a given sample. The request for analysis information is included in the COC record.

3.4 Sample Event Information Record (SEIR)

Form used to inform the laboratory and field personnel of an upcoming sampling event.

4.0 PROCEDURES

4.1 Information Required on the Chain-of-Custody Record

All COC records will contain the following information at a minimum:

- site name and location;
- date and time (military time) of data collection;
- name of supplier or person relinquishing sample;
- requested analyses;
- container ID numbers for each sample;
- preservative for each container;
- appropriate comments (if needed); and
- identification of common carrier (if used).

The COC record will serve to document the identity of the individuals who have chain of custody of the sample and information regarding the sample analysis that is necessary for the analytical laboratory.

4.2 Rules for Chain-of-Custody Use

The following rules apply when a COC record is being completed:

- Sample Event Information Record (SEIR) number and field logbook number must be completed. Information concerning the generation of a SEIR is found in Navy RAC procedure 6006, "Sample Tracking Procedure."
- An entry should be made for each container.
- All dates should be entered in six-digit month/day/year format; all time in four-digit military time.

Examples: 12/02/92 16 45

- All corrections should be made by drawing a single line through the incorrect information, writing in the correct information, and initialing and dating the correction.

- The original COC record shall be placed inside a plastic zipper-type bag and shipped inside the cooler with the samples.
- The sampler must print and sign their name in the appropriate block.
- All persons responsible for sample custody, with the exception of the carrier, must sign appropriately.
- Commercial Carrier Personnel (e.g., Federal Express, Airborne, etc.) are not required to sign the COC record.

4.3 Generating the COC Record

The COC may be generated manually or electronically. Manual generation of the COC record is performed by completing all portions of the form using indelible ink.

Electronic generation of the COC record is performed by either manual entry of the COC information into the database or upload from a bar code reader or other electronic device. The COC record is then printed from the database. Accurate entry must be verified and the verification documented through signature of the person performing the verification and the date verified. All "relinquished by" and "received by" signatures must be original unless this requirement is waived by the governing regulatory entity (e.g., EPA).

4.4 Filling Out the COC Record

Listed below are the instructions for completing the COC form manually. Instructions for completing the COC form electronically will be found in the BEIDMS Systems Operation Manual, Version 1.2, Revision C. The person filling out the form will need a copy of the SEIR form for the sample(s) being shipped. Information regarding the SEIR form is included in PP6006. Attachment 7.1 is an example of a COC record with numbers that correspond to the instructions below.

Instructions:

1. The site name, job number, and cooler number information should be identical to that on the SEIR form, see PP 6006, for the SEIR form.
2. Both the printed name and the signature of the sampler must be provided.

**CHAIN-OF-CUSTODY
RECORD PROCEDURE**

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3. Record the associated SEIR number, COC number, laboratory ID, field sample collection logbook number, and logbook page number.
4. Record the station ID and BEI sample ID in the appropriate boxes. Note: This information does not need to be entered for every container; once per cooler per sample is sufficient.
- 5a. Write the codes (provided on the form) for sample type and matrix in their respective boxes. Note: This information does not need to be entered for every container; once per cooler per sample is sufficient. Sample types and matrix codes are found in PP 6006 and provided on the COC record form.
- 5b. Record the date and time of sample collection in the date and time column.
6. Record the individual container IDs and associated preservative, pay item, and parameter (from laboratory subcontract), priority code, and QC level in their boxes. These codes are either shown on the form or may be found in PP 6006.
7. The custody record section must include signatures of all persons responsible for sample custody.
8. Comments section must include the airbill number, traffic report number, data code, and number of coolers being shipped. Comments may include chemical concentrations, concentrations of radionuclides, insufficient sample volume, etc.
9. The identity and mailing address of the shipper and the receiving party must be entered in this block.

5.0 REFERENCES

- 5.1 Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual. U. S. Environmental Protection Agency, Region IV, February 1, 1991.
- 5.2 Department of Environmental Protection Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP-QA-001/92, Sept. 30, 1992.
- 5.3 Project Procedure 6006, "Sample Tracking Procedure."

5.4 Bechtel Environmental Integrated Data Management System (BEIDMS), Version 1.2. Systems Operations Manual, Revision C, June 1994.

6.0 RESPONSIBILITIES

6.1 Field Data Coordinator (FDC)

The field data coordinator (FDC) or designee is responsible for filling out the chain-of-custody record. Two copies of the COC record will be made and the original COC will be shipped with the samples. The FDC is responsible for sending a copy of the COC to the Analytical and Data Services Supervisor (ADSS).

6.2 Analytical and Data Services Supervisor (ADSS)

The ADSS is responsible for reviewing the COC record for completeness and to evaluate that the COC is consistent with the original sampling objectives.

7.0 ATTACHMENT

7.1 Chain-of-Custody Record (Sample)

Title: **SAMPLE TRACKING PROCEDURE**
Document Number: **6006**
Revision Number: **0**

Job No. 22567

REVIEWED:	<u><i>Rauf Keller</i></u>	<u>11/3/94</u>
	Engineering Supervisor	Date
REVIEWED:	<u><i>J. R. Man</i></u>	<u>11-7-94</u>
	Quality Control Manager	Date
APPROVED:	<u><i>J. R. Man</i></u>	<u>11-10-94</u>
	Project Scientist	Date
APPROVED:	<u><i>J. T. ...</i></u>	<u>11/10/94</u>
	Program Manager	Date

1.0 PURPOSE

This procedure describes the sample tracking process.

2.0 SCOPE

Sample tracking includes populating the database with sample IDs, sample types, sample matrices, sample locations, and requested analyses; creating the Sample Event Information Record (SEIR); gathering and entering chain-of-custody information; entering final data deliverable information; and comparing what was planned (documented on the SEIR) to what was requested (documented on the chain-of-custody form) to what was received (documented on the data transmittal form).

3.0 DEFINITIONS

3.1 SEIR Form - Sample Event Information Record, also called "bottle order form."

3.2 STD Module - Sample Tracking Database, an electronic form used to track status of the SEIR form.

4.0 REFERENCES

None.

5.0 PROCEDURE

The following procedure is used in the sample tracking process:

Step	Who	Does what
1	Environmental Technology (ET) Team Lead	Submits information required for completing SEIR form
2	Data Management	Enters information provided by ET Team Lead
3	Data Management	Completes SEIR form
4	Lab Liaison	Sends SEIR to laboratory
5	Laboratory	Ships appropriate containers
6	Environmental Technician	Generates COC forms

Step	Who	Does what
7	Environmental Technician	Takes sample and records information in logbooks and on COC form
8	Environmental Technician	Completes COC form and makes two copies
9	Environmental Technician	Sends original COC form with sample to lab, send one copy to lab liaison, and keeps one copy for personal files
10	Lab Liaison	Enters information off of COC form into database
11	Lab Liaison	Receives hard copy and electronic data deliverable
12	Lab Liaison	Enters data receipt information into database
13	Lab Liaison	Updates invoice status as appropriate
14	PDCC clerk	Updates supplier document status as appropriate
15	Lab Liaison	Updates final sample disposition as appropriate

5.1 SAMPLE EVENT INFORMATION RECORD (SEIR) FORM

The Sample Event Information Record (SEIR) form is the form used to inform the project laboratory and field personnel of an upcoming sampling event and request the containers needed for a sample event from the lab, project warehouse, or vendor. The form advises the field and laboratory of the number and type of samples to be collected and analyzed and what tests are required. Typically, the lab prepares and ships the required containers in response to the SEIR. At least one form is submitted for each sampling event at least one week prior to the event. When forms are received by DM without a one week notice, container delivery cannot be assured.

- 5.1.1 The form originator can be anyone, but is usually the ET Team Lead or Environmental Scientist. The table below shows what happens when the form is used.

Stage	Who	Does what
1	Originator	Fills out part A of the form. Submits the form to the ET Team Leader.
2	ET Team Lead	Reviews the form, checking all entries. Initials the form.
3	Lab Liaison	Reviews the form for completeness and accuracy. Verifies that team leader's initials are on the form.
4	Lab Liaison	Sends copy of form to lab and environmental technician who will be taking samples.
5	Lab or other designated party	Sends containers, coolers, preservatives, packing materials, labels, and trip blanks (as appropriate) for the sampling event, as requested by the SEIR form.
6	Environmental Technician	Collects the samples.

5.1.2 Time Rule

The SEIR form must be forwarded to the laboratory at least four working days before the requested site delivery date, except for emergencies. The bottle shipment will not be guaranteed to arrive in time for sampling if the laboratory does not have sufficient lead time.

5.1.3 Example of the SEIR Form

Page one of the SEIR form is shown as Attachment 6.1. The PE, ET Team Lead or designee originates the form. These carbonless copy forms are available from the laboratory liaison.

Page two of the SEIR form is shown as Attachment 6.2. The PE, ET team lead or designee originates the form.

5.1.4 Filling Out the SEIR Form

The explanations for boxed parts on the form are given in the tables below:

Part A	Description
1	Parts filled in by the Lab Liaison.
2	Filled in by ET Team Lead for laboratory to use for shipping containers.
3	Filled in by ET Team Lead estimated time span for the samples listed on this SEIR.
4	Filled in by ET Team Lead. Site identifier chosen here must be used on all forms associated with this sampling event.
5	Filled in by ET Team Lead. Can circle more than one sampling method.
6	Filled in by ET Team Lead. Indicate purpose for which sample data will be used. Circle all that apply.
7	Filled in by ET Team Lead. Use codes on page 5 for matrix code.
8	Sample Type Code. Use from list on page 6.
9	Container type, etc.
10	Preservative. Use all applicable preservatives from list on page 7.
11	Laboratory receiving samples.
12	Pay item for requested analysis. Pay items are found in analytical subcontract.
13	Priority Level. Use one code from project specific list of codes on page 7.
14	Analytical level. Use one code to designate QC and validation level.
15	Charge code to be used by the lab for invoicing purposes.
16	Parameter as listed in pay item section of technical specification.
17	Anticipated number of regular samples. Complete this section to the best of knowledge at the time the SEIR is filled out.

Part A	Description
18	Anticipated number of quality control samples. Complete this section to the best of knowledge at the time the SEIR is filled out.
19	Initial objectives and key assumptions/Data Quality Objectives. Document anything which will help in reconstructing the logic used to make decisions for the sampling event should this ever be necessary. Also include in specific instructions for the laboratory.

Part B	Description
1	Total number of samples obtained. This is used after the sampling event is completed to record what actually happened in the field.
2	Quality Control Samples Obtained. This is also to record what actually took place in the field.
3	Special observation/comments. Use this field to document anything which would help explain the differences between planned and actual samples.
4	Complete with name and date of person making conclusions.

5.1.5 Matrix Codes

The list below gives the matrix codes to be used in area 8 on the SEIR form.

- AIR AIR
- FAU FAUNA
- FLO FLORA
- GWT GROUNDWATER
- LCH LEACHATE
- OIL OIL
- PTW POTABLE WATER
- SBS SUBSURFACE SOIL
- SED SEDIMENT
- SEP SEEPS
- SFS SURFACE SOIL
- SFW SURFACE WATER
- SOL SOLID
- SLG SLUDGE
- WWT WASTE WATER
- SLW SOLID WASTE

DIW DEIONIZED WATER
OFW ORGANIC FREE WATER

5.1.6 Data Codes

The data codes are project specific codes used by PDCC to classify information.

5.1.7 Sample Type Codes and Sample Types

The list below gives the sample type codes to be used in area 10 on the SEIR form.

ENV ENVIRONMENTAL
PTS POINT SOURCE
BLB BLIND BLANK
FDB FIELD BLANK
MXD MATRIX SPIKE DUPLICATE
MXS MATRIX SPIKE
FRP FIELD REPLICATE
FDP FIELD DUPLICATE
BLS BLIND SPIKE
PSB PRESERVATIVE BLANK
RSB RINSATE BLANK
SPL SPLIT
TPB TRIP BLANK

5.1.8 Analytical Levels

The list below gives the QC level to be used in area 11 on the SEIR form.

- C Sample results and all applicable QC results (MS, MSD, blanks, spikes, duplicates) will be reported.
- D Sample results, all applicable QC results (MS, MSD, blanks, spikes, duplicates) and all associated raw data will be reported.
- E Data to be submitted includes sample data method blanks and calibration or QC data.
- S Screening level analysis; sample results and all applicable QC (MS, MSD, blanks, spikes, duplicates) will be reported. Parameter specific deliverable specifications for each of these QC levels are included in Section 10.0 of the technical specifications.

5.1.9 The Priority Level Codes are listed below:

<u>Priority Level</u>	<u>Reporting Requirement</u>
-----------------------	------------------------------

(All times are calendar days beginning with the date of sample receipt.)

- | | |
|----|----------------------------------------------------------------------------------------------------------------------|
| 1 | Where analytically possible, hardcopy report within 1 day. Final electronic and hardcopy deliverable within 2 days. |
| 2 | Where analytically possible, hardcopy report within 2 days. Final electronic and hardcopy deliverable within 5 days. |
| 5 | Where analytically possible, hardcopy and electronic deliverable within 5 days. |
| 7 | Where analytically possible, hardcopy and electronic deliverable within 7 days. |
| 14 | Where analytically possible, hardcopy and electronic deliverable within 14 days. |
| 30 | Where analytically possible, hardcopy and electronic deliverable within 30 days. |

5.1.10 Containers

Container type and volume will be entered into this Section. Please refer to PP 6010, "Sample Container, Preservation, and Aliquot Requirements," for specific information regarding container types and volumes.

5.1.11 Preservative

The list below gives the preservatives to be used in area 14 on the SEIR form.

- | | |
|-------------------|--------------------|
| Hydrochloric Acid | Nitric Acid |
| None | Sodium Hydroxide |
| Sulfuric Acid | Zinc Acetate |
| Ascorbic Acid | Sodium Thiosulfate |
| Freeze | Cool, 4°C |
| pH > 12 | pH < 2 |

5.1.12 Pay Item Number

The pay item numbers are project specific numbers that can be found in laboratory subcontract.

5.1.13 Parameter

The parameter names can be found in the pay item section of the technical specifications.

5.2 SAMPLE TRACKING DATABASE (STD)

The Sample Tracking Database (STD) module is an electronic form used to track status from the initiation of the SEIR form through final sample disposition. It is maintained by the Laboratory Liaison with input from the Environmental Technology (ET) Team Lead and Data Management.

The following table describes the use of the STD Module.

Stage	Who	Does what
1	Environmental Laboratory	Submits the Chain of Custody (COC) form (Navy RAC PP 6005) to Data Management group within 24 hours of sample receipt.
2	Data Management	General sample information and laboratory information is taken from the COC form and entered into the sample tracking database.
3	Lab Liaison	Receives the hard copy data package and fills in appropriate information.
4	Lab Liaison	Tracks the due date and actual date received. Can give you status on the sample or data package at any step in the process.

5.2.1 The STR Form

The STR form is shown as Attachment 6.3.

5.2.2 Filling Out the STR Form

The explanations for circled parts on the form are given in the table below:

Part	Description
1	To be filled in by data management after sample collection.
2	Parts filled in by the liaison upon receipt of the Chain-of-Custody Record.
3	Filled in by liaison upon receipt of data deliverable.
4	Filled in by liaison when data has been verified.
5	Filled in by liaison when data is returned from being validated (if applicable).
6	Filled in by liaison if data package is revised and resubmitted for any reason.
7	Filled in by liaison with the status of the invoice (paid or not paid).
8	Filled in by liaison with appropriate Supplier Document status code from next page.
9	Filled in by liaison when notification of sample disposition is given by the laboratory.

5.2.3 Supplier Document Status Codes

The following codes are taken from Project Administrative Services Procedure 2.4 "Processing of Supplier Documents".

- 1 Work may proceed.
- 2 Submit final document. Work may proceed.
- 3 Revise and resubmit. Work may proceed subject to resolution of comments.
- 4 Revise and resubmit. Work may not proceed.
- 5 Review not required. Work may proceed.

5.2.4 Data Transmittal Form

The Data Transmittal Form is the form used by laboratory subcontractors to provide data to Bechtel. The purpose of the form is to document the contents of the data submittal. An example of a Data Transmittal Form is shown as Attachment 4.

SAMPLE TRACKING PROCEDURE

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- 6.0 **ATTACHMENTS**
- 6.1 SEIR Form, Page 1
- 6.2 SEIR Form, Page 2
- 6.3 STR Form
- 6.4 Data Transmittal Form

ATTACHMENT 6.1
SEIR FORM, PAGE 1

SAMPLE EVENT INFORMATION RECORD

To: Laboratory Project Manager Date Containers needed by: 2 SEIR No.: 1
 Subject: Sample Event Information Record (SEIR) Responsible Person and address to ship containers to: 2 Revision No.: _____
 Copies to: Data Manager Project Charge Code: (i) 2 Date: _____
 Field Coordinator Of: _____ (ii) _____
 _____ (iii) _____

Sampling of the indicated media for the following analysis will be initiated on or about 3 and be completed on or about _____.

PART A															
INITIAL OBJECTIVES															
1. Site:		4 Sample Event:		2. Sampling Methods (e.g., Grab, Composite, etc)								5			
3. Use (Circle all that apply)		Risk Assess.		Site Charac		Eval. Alts		Eng. Design		Monitoring Remedial Action		Other:		6	
Planned Samples	Required Containers	Matrix	Sample Type	Container Type/Size	Preservative	Lab	Pay Item Number	Priority Level	Analytical Level	Charge Code	Parameter				
←	7	→	8	9	10	11	12	13	14	15	16				

ATTACHMENT 6.2
SEIR FORM, PAGE 2

SAMPLE EVENT INFORMATION RECORD (continued)

SEIR No. _____

<p>5. Anticipated No. of Regular Samples</p> <p>Soil _____</p> <p>Subsurface Soil _____</p> <p>GW _____</p> <p>SW _____</p> <p style="text-align: right;">17</p> <p>Sediment _____</p> <p>Air _____</p> <p>Biota _____</p>	<p>6. Anticipated No. of Quality Control Samples</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Type of Sample</td> <td style="width:25%;">No. Samples</td> <td style="width:25%;">Recommended Frequency¹</td> </tr> <tr> <td>Duplicates</td> <td>_____</td> <td>5%</td> </tr> <tr> <td>Equipment Rinsate</td> <td>_____</td> <td>5%</td> </tr> <tr> <td>Field Blank</td> <td>_____</td> <td>5%</td> </tr> <tr> <td>Trip Blank</td> <td>_____</td> <td>1 per day</td> </tr> <tr> <td>Other</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Other</td> <td>_____</td> <td>_____</td> </tr> </table> <p style="text-align: right;">18</p>	Type of Sample	No. Samples	Recommended Frequency ¹	Duplicates	_____	5%	Equipment Rinsate	_____	5%	Field Blank	_____	5%	Trip Blank	_____	1 per day	Other	_____	_____	Other	_____	_____
Type of Sample	No. Samples	Recommended Frequency ¹																				
Duplicates	_____	5%																				
Equipment Rinsate	_____	5%																				
Field Blank	_____	5%																				
Trip Blank	_____	1 per day																				
Other	_____	_____																				
Other	_____	_____																				
<p>7. Initial Objectives/Key Assumptions: 19</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: right;">2</p>																						
<p>Completed By: _____ (Date) _____ (Date)</p> <p style="text-align: center;">PART B</p>																						
<p>8. Total No. Regular Samples Obtained</p> <p>Soil < 2 ft. _____</p> <p>Subsurface Soil _____</p> <p>GW _____</p> <p>SW _____</p> <p style="text-align: right;">1</p> <p>Sediment _____</p> <p>Air _____</p> <p>Biota _____</p>	<p>9. Quality Control Samples Obtained</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Type of Sample</td> <td style="width:25%;">No. Samples</td> <td style="width:25%;">Recommended Frequency</td> </tr> <tr> <td>Duplicates</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Equipment Rinsate</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Field Blank</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Trip Blank</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Other</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Other</td> <td>_____</td> <td>_____</td> </tr> </table> <p style="text-align: right;">2</p>	Type of Sample	No. Samples	Recommended Frequency	Duplicates	_____	_____	Equipment Rinsate	_____	_____	Field Blank	_____	_____	Trip Blank	_____	_____	Other	_____	_____	Other	_____	_____
Type of Sample	No. Samples	Recommended Frequency																				
Duplicates	_____	_____																				
Equipment Rinsate	_____	_____																				
Field Blank	_____	_____																				
Trip Blank	_____	_____																				
Other	_____	_____																				
Other	_____	_____																				
<p>10. Special Observation/Comments: _____</p> <p>_____</p> <p>_____</p> <p>By: 3 Date: 4</p>																						
<p>Completed By: _____ (Date) _____ (Date)</p> <p style="text-align: center;">Task Manager _____ (Date)</p>																						

¹ Frequency for the collection of QC samples is outlined in work controlling document.

ATTACHMENT 6.3

STR FORM

SAMPLE TRACKING PROCEDURE

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SAMPLE TRACKING FORM

General Sample Information		Sample ID _____ 2	Container ID _____ 2
Site Name _____ 1	Delivery Order No. _____ 1	SEIR No. _____ 1	Field QC Package No. _____ 2
			Field Logbook No. _____ 2
			Supplier Document No. _____ 2
Laboratory Information		Date Sampled ____/____/____ 2	COC Record No. _____ 2
Matrix _____ 2	Analysis _____ 2		Priority _____ 2
			Pay Item No. _____ 2
Package Information		Received by Lab ____/____/____ 3	Valid Level _____ 2
Date Hardcopy Received ____/____/____ 3	Date Electronic Received ____/____/____ 3	Date Verified ____/____/____ 4	Date Due ____/____/____ 2
			Date Due ____/____/____ 2
			Date Validated ____/____/____ 5
			QC Level _____ 2
			Revised Date ____/____/____ 6
Final Status		Invoice Status _____ 7	Supplier Document Status _____ 8
Sample Disposition: 9	1) Consumed during analysis 2) Archived by _____ 3) Disposed by lab 4) Return to site/Bechtel		

ATTACHMENT 6.4
DATA TRANSMITTAL FORM

SAMPLE TRACKING PROCEDURE

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SUBCONTRACTOR SUPPLIER DOCUMENT TRANSMITTAL

Pg 1 of ___

 NAVY RAC BECHTEL JOB 22567	SUBCONTRACTOR NAME AND ADDRESS:		TRANSMITTAL NO.:	DOCUMENT TYPE	DISCIPLINE CODE	
			DATE:			
	SUBCONTRACTOR PROJECT MGR. / CONTACT:		TELEPHONE NO.:		A - Outline Dimensions B - Cross Section And Parts List C - Catalog Cut D - Performance Data E - Wiring Diagram F - Shop Details G - Priced Rec. Spare Parts L - Data Sheet M - Equipment Manual P - Print R - Reproducible S - Samples	A - Architecture C - Civil-Structural E - Electrical J - Control System L - Licensing M - Mechanical N - Nuclear V - Environmental S - Safety R - Procurement
	SUBCONTRACT NUMBER:		()			
BECHTEL S/C REPRESENTATIVE:		INITIALS:	DATE REC'D.:			

ITEM	(1) BECHTEL CONTROL NO	(1) DOCU SHT NO	(1) SUBMTL NO	(2) G321 CATEGORY	(3) DOCUMENT DESCRIPTION	QTY (4)	TYPE	STATUS CODE (5)
1								
	(6) SUBCONTRACTOR DOC. NO.	(7) DOCU. REVISION	(8) UNIT/FACILITY	(9) DISCIPLINE	(10) INTENDED USE	(12) PARTIAL/COMPLETE	(12) SPEC REF	

ITEM	BECHTEL CONTROL NO.	DOCU SHT NO	SUBMTL NO	G321 CATEGORY	DOCUMENT DESCRIPTION	QTY	TYPE	STATUS CODE
2								
	SUBCONTRACTOR DOC. NO.	DOCU. REVISION	UNIT/FACILITY	DISCIPLINE	INTENDED USE	(12) PARTIAL/COMPLETE	(12) SPEC REF	

ITEM	BECHTEL CONTROL NO.	DOCU SHT NO	SUBMTL NO	G321 CATEGORY	DOCUMENT DESCRIPTION	QTY	TYPE	STATUS CODE
3								
	SUBCONTRACTOR DOC. NO.	DOCU. REVISION	UNIT/FACILITY	DISCIPLINE	INTENDED USE	(12) PARTIAL/COMPLETE	(12) SPEC REF	

ITEM	BECHTEL CONTROL NO.	DOCU SHT NO	SUBMTL NO	G321 CATEGORY	DOCUMENT DESCRIPTION	QTY	TYPE	STATUS CODE
4								
	SUBCONTRACTOR DOC. NO.	DOCU. REVISION	UNIT/FACILITY	DISCIPLINE	INTENDED USE	(12) PARTIAL/COMPLETE	(12) SPEC REF	

ITEM	BECHTEL CONTROL NO.	DOCU SHT NO	SUBMTL NO	G321 CATEGORY	DOCUMENT DESCRIPTION	QTY	TYPE	STATUS CODE
5								
	SUBCONTRACTOR DOC. NO.	DOCU. REVISION	UNIT/FACILITY	DISCIPLINE	INTENDED USE	(12) PARTIAL/COMPLETE	(12) SPEC REF	

LEGEND	 To be Completed by Bechtel	STATUS CODE	1 - Work May Proceed 2 - Submit Final Document, Work May Proceed 3 - Revise and Resubmit, Work May Proceed Subject to Resolution of Indicated Comments 4 - Revise and Resubmit, Work May Not Proceed 5 - Permission to Proceed Not Required

COMMENTS: _____

(Instructions for Completing the Form are on the Back)

Title: SAMPLE CONTAINERS, PRESERVATION, AND ALIQUOT REQUIREMENTS

Document Number: 6010

Revision Number: A

Job No. 22567

REVIEWED: _____ **Engineering Supervisor** _____ **Date**

REVIEWED: _____ **Quality Control Manager** _____ **Date**

APPROVED: _____ **Program Scientist** _____ **Date**

APPROVED: _____ **Program Manager** _____ **Date**

1.0 PURPOSE

This procedure gives requirements for preservation, container types, sample aliquots sizes, and holding times for specific chemical and radiological analyses. Matrices include ground and surface water, sediment, soil, and waste. This procedure further gives recommendations regarding the consolidation of analyses so that the number of containers required for analyses may be limited.

2.0 SCOPE

This procedure applies to environmental and waste samples and is not intended to apply to samples collected under Health and Safety monitoring.

3.0 DEFINITIONS

3.1 VALIDATED TIME OF SAMPLE RECEIPT

The validated time of sample receipt (VTSR) is the verified time a laboratory receives a particular set of samples. This VTSR is used to determine compliance with holding time requirements under Statement of Work analyses (References 5.3 and 5.4).

4.0 PROCEDURES

Preservation, container, and sample aliquot requirements are specific to the matrix and type of analyses requested. The sections below and Attachments 6.1 and 6.2 summarize preservation, container, sample aliquot, and holding time requirements.

4.1 INORGANICS

4.1.1 Aqueous Samples

When specifying containers for aqueous inorganic analyses, consideration should be given to consolidating analyses based upon preservation and container requirements. It is advantageous to consolidate analyses, where possible, to limit the number of containers which must be purchased, prepared, and shipped. For example, chloride, nitrite, and sulfate each require 50 mL of sample for analysis. These volumes could be supplied using three separate containers of 100 mL capacity. Since they have the same preservation and container requirements, a single container of 500 mL could be collected and all three analyses could be taken from the same container. Similarly, mercury, flame AA, graphite furnace AA, and ICP have

SAMPLE CONTAINER, PRESERVATION, AND ALIQUOT REQUIREMENTS

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identical preservation and container requirements. As a consequence, these analyses may also be consolidated from four separate containers into a single container. Attachment 6.1 summarizes container, sample aliquot, preservation, and holding time requirements. Analyses which may not be consolidated, e.g., oil and grease, are also identified in Attachment 6.1.

4.1.2 Soil/Sediment Samples

Soil analyses should be given the same consideration as aqueous samples. Since all inorganic analyses in soils have the same preservation requirements, many analyses can be consolidated into a single container. Attachment 6.2 summarizes container, sample aliquot, preservation, and holding time requirements. Analyses which may not be consolidated, e.g., oil and grease, are also identified in Attachment 6.2.

4.1.3 Toxicity Characteristic Leaching Procedure (TCLP) Samples

TCLP analyses for inorganics require a minimum sample size of 100 grams.

4.1.4 Waste Samples

Waste samples may be treated as soils/sediments for the purposes of this procedure.

4.2 ORGANICS

Preservation, container, sample aliquot, and holding time requirements are specific to the matrix and type of analyses requested. The sections below, and Attachments 6.1 and 6.2 summarize preservation, container, holding time, and sample aliquot requirements.

4.2.1 Aqueous Samples

Aqueous organic analyses may also be consolidated, although not to the same extent applicable to inorganics since most aqueous organic analyses require substantial volumes of sample. For example, a 4-liter amber glass container could be used for semivolatile, pesticide, herbicide, and phenol analyses rather than using four separate 1-liter amber glass container since each have the same preservation and container requirements. Attachment 6.1 summarizes container, sample aliquot, preservation, and holding time requirements. Analyses which may not be consolidated, e.g., volatiles, are also identified in Attachment 6.1.

4.2.2 Soil/Sediment Samples

As with soil inorganic analyses, many organic soil analyses may be consolidated. Attachment 6.2 summarizes container, sample aliquot, preservation, and holding time requirements. Analyses which may not be consolidated, e.g., volatiles, are also identified in Attachment 6.2.

4.2.3 Toxicity Characteristic Leaching Procedure (TCLP) Samples

TCLP analyses for extractables may be consolidated with inorganic analyses. The minimum sample size is 100 grams. TCLP analyses for volatiles should have a unique container and a sample size of at least 25 grams.

4.2.4 Waste Samples

Waste samples may be treated as soils/sediments for the purposes of this procedure.

4.3 OTHER CONSIDERATIONS

4.3.1 QC Samples

Consideration must be given to containers and aliquot requirements for mandatory matrix quality control samples, particularly with aqueous organic analyses. When specifying laboratory QC samples, a minimum of three times the nominal volume of sample must be supplied to the laboratory. This extra volume is for matrix spike and matrix spike duplicate (or matrix duplicate) samples. In the case of organic QC samples, consolidation of analyses may not be practical.

4.3.2 Preparation/Re-Extraction Requirements

Samples may be subject to re-preparation or re-extraction due to QC failures, samples losses, etc. The need for re-preparation cannot be anticipated in advance but should be taken into account when determining sample sizes to be collected. It is recommended that extra volume be specified for each sample collected to avoid the possibility of potential resampling.

4.3.3 Glass Versus Plastic Containers

Some analyses require either plastic or glass containers and no interchange may be made. However, other analyses may be collected in either plastic or glass. Where there is an option given as to container type, it is advisable to

SAMPLE CONTAINER, PRESERVATION, AND ALIQUOT REQUIREMENTS

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use plastic due to its durability.

4.3.4 Analytical Method Employed

Analyses which require less sample volume should be considered when deciding which analyses to perform. For example, total cyanide distillation requires a 500 mL aliquot of sample whereas a Midi distillation requires an aliquot of only 50 mL. Attachment 6.1 lists the methods available for each analysis and corresponding sample aliquot sizes.

5.0 REFERENCES

- 5.1 *Methods for the Chemical Analysis of Water and Wastes*, EPA 600/4-79-020, Revised March 1983.
- 5.2 *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA SW-846, Final Update 1, July 1992.
- 5.3 *USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi Concentration*, Document Number ILM03.0.
- 5.4 *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi Concentration*, Document Number OLM01.9, July 1993.

6.0 ATTACHMENTS

- 6.1 Container, Preservation, and Sample Aliquot Requirements for Aqueous Samples
- 6.2 Container, Preservation, and Sample Aliquot Requirements for Soil, Sediment, and Waste Samples

**ATTACHMENT 6.1
CONTAINER, PRESERVATION, AND SAMPLE ALIQUOT REQUIREMENTS
FOR AQUEOUS SAMPLES**

Analyte	Preservation	Sample Aliquot Required	Container Required	Holding Time
INORGANICS				
Acidity	4°C	100 mL	P, G	14 days
Alkalinity	4°C	100 mL	P, G	14 days
Biochemical Oxygen Demand (5 day)	4°C	1000 mL	P, G	48 hours
Bromide	4°C	100 mL	P, G	28 days
Chloride	4°C	50 mL	P, G	28 days
Chlorine	4°C	200 mL	P, G	Analyze immediately
Chromium ⁶⁺	4°C	200 mL	P, G	24 hours
Color	4°C	50 mL	P, G	48 hours
Conductance	4°C	100 mL	P, G	28 days
Fluoride	4°C	300 mL	P, G	28 days
Iodide	4°C	100 mL	P, G	24 hours
Inorganic Carbon	4°C	25 mL	P, G	28 days
MBAS	4°C	250 mL	P, G	48 hours
Nitrate	4°C	100 mL	P, G	48 hours
Nitrite	4°C	50 mL	P, G	48 hours
NTA	4°C	50 mL	P, G	24 hours
Phosphorus (ortho)	4°C	50 mL	P, G	7 days
Residue, Filterable	4°C	100 mL	P, G	7 days
Residue, Nonfilterable	4°C	100 mL	P, G	48 hours
Residue, Settleable	4°C	1000 mL	P, G	7 days
Residue, Total	4°C	100 mL	P, G	7 days
Residue, Volatile	4°C	100 mL	P, G	7 days
Sulfate	4°C	50 mL	P, G	28 days
Sulfite	4°C	50 mL	P, G	Analyze immediately
Turbidity	4°C	100 mL	P, G	48 hours

ATTACHMENT 6.1
CONTAINER, PRESERVATION, AND SAMPLE ALIQUOT REQUIREMENTS
FOR AQUEOUS SAMPLES (continuation)

Analyte	Preservation	Sample Aliquot Required	Container Required	Holding Time
Hardness	4°C, HNO ₃ to pH<2	100 mL	P, G	180 days
Mercury (Dissolved)	4°C, HNO ₃ to pH<2	100 mL	P, G	28 days
Mercury (Total)	4°C, HNO ₃ to pH<2	100 mL	P, G	28 days
Mercury	4°C, HNO ₃ to pH<2	100 mL	P, G	38 days glass
				13 days plastic
Metals (Dissolved)	4°C, HNO ₃ to pH<2	100 mL	P, G	180 days
Metals (Total)	4°C, HNO ₃ to pH<2	100 mL	P, G	180 days
Chemical Oxygen Demand	4°C, H ₂ SO ₄ to pH<2	50 mL	P, G	28 days
Nitrogen, Ammonia	4°C, H ₂ SO ₄ to pH<2	400 mL	P, G	28 days
Nitrogen, Kjeldahl	4°C, H ₂ SO ₄ to pH<2	500 mL	P, G	28 days
Nitrogen, Nitrate-Nitrite	4°C, H ₂ SO ₄ to pH<2	100 mL	P, G	28 days
Organic Carbon	4°C, H ₂ SO ₄ to pH<2	25 mL	P, G	28 days
Phosphorus, Hydrolyzable	4°C, H ₂ SO ₄ to pH<2	50 mL	P, G	28 days
Phosphorus, Total	4°C, H ₂ SO ₄ to pH<2	50 mL	P, G	28 days
Phosphorus, Total, Dissolved	4°C, H ₂ SO ₄ to pH<2	50 mL	P, G	24 hours
1, 2 Organic Halogens	4°C, H ₂ SO ₄ to pH<2	25 mL	G only, teflon-lined cap	28 days
1, 2 Oil and Grease	4°C, H ₂ SO ₄ to pH<2	1000 mL	G only	28 days
Phenolics, Total	4°C, H ₂ SO ₄ to pH<2	500 mL	G only	28 days
Silica	4°C	50 mL	P only	28 days
1 Cyanide	4°C, NaOH to pH>12, 0.6g ascorbic acid	500 mL	P, G	14 days
1 Cyanide (Midi distillation)	4°C, NaOH to pH>12, 0.6g ascorbic acid	50 mL	P, G	14 days
1 Sulfide	4°C, NaOH to pH>9, 2 mL zinc acetate	500 mL	P, G	7 days

**ATTACHMENT 6.1
CONTAINER, PRESERVATION, AND SAMPLE ALIQUOT REQUIREMENTS
FOR AQUEOUS SAMPLES (continuation)**

Analyte	Preservation	Sample Aliquot Required	Container Required	Holding Time
ORGANICS				
1. Acrolein and Acrylonitrile	4°C, 0.008% Na ₂ S ₂ O ₃ , Adjust pH to 4-5	1000 mL	G, amber, teflon-lined cap	14 days
1. Organochlorine pesticides	4°C, 0.008%, pH 5-9	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Benzidines	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Chlorinated hydrocarbons	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Dioxins and furans	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Haloethers	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Herbicides	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Nitroaromatics and cyclic ketones	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Nitrosamines	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Phenols	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Polynuclear aromatic hydrocarbons	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction

ATTACHMENT 6.1
CONTAINER, PRESERVATION, AND SAMPLE ALIQUOT REQUIREMENTS
FOR AQUEOUS SAMPLES (continuation)

Analyte	Preservation	Sample Aliquot Required	Container Required	Holding Time
2 PCBs	4°C	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Phthalate esters	4°C	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
2 Semivolatiles	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/40 days after extraction
1, 2 Nonhalogenated volatile organics	4°C, 0.008% Na ₂ S ₂ O ₃	2x40mL	G only, teflon-lined septum	14 days
1, 2 Purgeable Halocarbons	4°C, 0.008% Na ₂ S ₂ O ₃	2x40mL	G only, teflon-lined septum	14 days
1, 2 BTEX	4°C, 0.008% Na ₂ S ₂ O ₃ HCl to pH<2	2x40mL	G only, teflon-lined septum	14 days
1, 2 Purgeable Aromatic hydrocarbons	4°C, 0.008% Na ₂ S ₂ O ₃	2x40mL	G only, teflon-lined septum	14 days
1, 2 Volatiles	4°C, 0.008% Na ₂ S ₂ O ₃ HCl to pH<2	2x40mL	G only, teflon-lined septum	14 days
1, 3 Acrolein and Acrylonitrile	4°C, 0.008% Na ₂ S ₂ O ₃ No pH adjustment	1000 mL	G, amber, teflon-lined cap	3 days
3 Benzidines	4°C, 0.008% Na ₂ S ₂ O ₃	1000 mL	G, amber, teflon-lined cap	7 days to extract/7 days after extraction

Note: Holding times taken from Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020 unless otherwise noted.

¹May not be consolidated with other analyses. These must have unique, separate containers.

²Preservation, volumes, containers, and holding times taken from SW-846.

³Preservation, volumes, containers, and holding times taken from Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA 600/4-82-057

ATTACHMENT 6.2
CONTAINER, PRESERVATION, AND SAMPLE ALIQUOT REQUIREMENTS
FOR SOIL, SEDIMENT, AND WASTE SAMPLES

Analyte	Preservation	Sample Aliquot Required	Container Required	Holding Time
INORGANICS				
1 Metals	4°C	10 grams	250 mL amber glass	180 days VTSR
1 Mercury	4°C	10 grams	250 mL amber glass	26 days VTSR
1 Cyanide	4°C	50 grams	250 mL amber glass	12 days VTSR
ORGANICS				
2 Volatile Organics	4°C	50 grams	2x120 mL with teflon-lined septa	14 days
2 Semivolatiles	4°C	100 grams	250 mL amber glass	7 days to extract/40 days after extraction
2 Organochlorine Pesticides	4°C	100 grams	250 mL amber glass	7 days to extract/40 days after extraction
2 Herbicides	4°C	100 grams	250 mL amber glass	7 days to extract/40 days after extraction
3 Volatile Organics	4°C	50 grams	2x120 mL with teflon-lined septa	10 days VTSR
3 Semivolatiles	4°C	100 grams	250 mL amber glass	7 days to extract/40 days after extraction (VTSR)
3 Organochlorine Pesticides	4°C	100 grams	250 mL amber glass	7 days to extract/40 days after extraction (VTSR)

Note: Holding times for analytes not listed have not been determined by the EPA as of the date of this procedure. In the interim, holding times for those analytes will be those specified for aqueous samples.

1 Preservation, sample aliquots, containers, and holding times taken from USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi Concentration, Document Number ILM03.0.

2 Preservation, sample aliquots, containers, and holding times taken from SW-846.

3 Preservation, sample aliquots, containers, and holding times taken from USEPA Contract Laboratory Program Statement of Work for organics Analysis, Multi-Media, Multi Concentration, Document Number OLM01.9.

Title: **DECONTAMINATION OF FIELD SAMPLING
EQUIPMENT**

Document Number: 6024

Revision Number: 0

Job No. 22567

REVIEWED: *Daniel J. Hugel for K. Noff* 10/12/94
Engineering Supervisor Date

REVIEWED: *J. Smith* 10-13-94
Quality Control Manager Date

APPROVED: *J. R. Mc...* 10-13-94
Project Scientist Date

APPROVED: *J. J. ...* 10/27/94
Program Manager Date

DECONTAMINATION OF FIELD SAMPLING EQUIPMENT

Navy RAC PjP: 6024

Rev: 0

Date: 10/13/94

Page: 1 of 2

1.0 PURPOSE

This procedure is to standardize field decontamination of sampling equipment at all Navy RAC project sites in the States of Florida, Georgia, North Carolina and South Carolina.

Standardized field decontamination of sampling equipment at sites in Georgia, North Carolina and South Carolina will be accomplished by implementation of the U.S. Environmental Protection Agency (EPA) Region IV, Environmental Compliance Branch, Standard Operating Procedures and Quality Assurance Manual dated February 1, 1991 (or latest version), unless specified otherwise in this procedure.

Field decontamination of sampling equipment at sites in the State of Florida will be accomplished by implementation of the State of Florida Department of Environmental Regulation Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DER-QA-001/92, dated September 30, 1992 (or latest version), unless specified otherwise in this procedure.

2.0 SCOPE

This procedure applies to the decontamination of sampling equipment in the field. Sampling equipment includes such items as stainless steel trowels or spoons and bowls, split-spoons, bailers, pumps and other small equipment utilized in the development, purging and sampling of groundwater wells, collection of soil and sediment samples, and collection of surface and ground water samples. It includes the selection of appropriate decontamination fluids, specific methods for equipment decontamination. This procedure is for use by project personnel as a standard guide to decontamination of sampling equipment in the field. It does not include any discussion of the collection of equipment rinsate blanks. Discussion of equipment rinsate blanks and associated documentation is covered in other project procedures.

3.0 DEFINITIONS

All applicable definitions are contained within the EPA Region IV Standard Operating Procedures and Quality Assurance Manual, and the State of Florida Department of Environmental Regulation Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DER-QA-001/92.

4.0 REFERENCES

- 4.1 EPA, Standard Operating Procedures and Quality Assurance Manual, Environmental Compliance Branch, February 1, 1991.
- 4.2 State of Florida, Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DER-QA-001/92, Department of Environmental Regulation, September 30, 1992

DECONTAMINATION OF FIELD SAMPLING EQUIPMENT

Navy RAC PjP: 6024

Rev: 0

Date: 10/13/94

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5.0 PROCEDURES

5.1 The Navy RAC project will conduct field decontamination of sampling equipment in the states of Georgia, North Carolina and South Carolina in accordance with Appendix B, Section B.8 inclusive, of the EPA Region IV Standard Operating Procedures (SOPs). Exceptions to these procedures may not be taken without prior approval of the agency.

5.2 In the State of Florida the Navy RAC project will conduct field decontamination of sampling equipment in accordance with Section 4.1, inclusive, of the State of Florida SOPs, DER-QA-001/92.

5.3 A "controlled" copy of the EPA Region IV SOPs and the State of Florida SOPs, DER-QA, will be maintained at each job site for procedural guidance.

6.0 PROJECT DOCUMENT CONTROL CENTER (PDCC)

PDCC is responsible for maintaining a permanent record of the logbooks maintained by field sampling personnel that will included a record of field decontamination activities and for distributing copies to project personnel and others as required.

7.0 QUALITY CONTROL MANAGER (QCM)

The QCM or designee is responsible for verifying conformance to this procedure.

APPENDIX D
BACKGROUND INFORMATION

RCRA FACILITY INVESTIGATION WORKPLAN

**VOLUME II. SAMPLING AND ANALYSIS PLAN
U.S. NAVAL STATION
MAYPORT, FLORIDA**

UIC: N60201

Contract No. N62467-89-D-0317

Prepared by:

**ABB Environmental Services, Inc.
2571 Executive Center Circle, East
Tallahassee, Florida 32301-5001**

Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Charleston, South Carolina 29411-0068**

Jim Reed, Engineer-in-Charge

OCTOBER 1991

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Table 3-13
Appendix IX, Groundwater Monitoring List

Sampling and Analysis Plan
NAVSTA Mayport
Mayport, Florida

Parameter	Methods	Parameter	Methods
Acenaphthylene	8100	delta-BHC	8080
	8270		8250
Acetone	8240	gamma-BHC; lindane	8080
Acetophenone	8270		8250
Acetonitrile; methyl cyanide	8015	bis(2-Chloroethoxy)methane	8270
2-Acetylaminofluorene; 2-AAF	8270	bis(2-Chloroethyl)ether	8270
Acrolein	8030	bis(2-Chloro-1-methylethyl) ether;	8010
	8240	2,4'Dichlorodisopropyl ether	8270
Acrylonitrile	8030	bis(2-Ethylhexyl)phthalate	8060
	8240		8270
Aldrin	8080	Bromodichloromethane	8010
	8270		8240
Allyl chloride	8010	Bromoform; tribromomethane	8010
	8240		8240
4-Aminobiphenyl	8270	4-Bromophenyl phenyl ether	8270
Aniline	8270	Butyl benzyl phthalate; benzyl	8060
Anthracene	8100	butyl phthalate	8270
	8270	Cadmium	6010
Antimony	6010		7130
	7040		7131
	7041	Carbon disulfide	8240
Aramite	8270	Carbon tetrachloride	8010
Arsenic	6010		8240
	7080	Chlordane	8080
	7051		8250
Barium	6010	p-Chloroaniline	8270
	7080	Chlorobenzene	8010
Benzene	8020		8020
	8240		8240
Benzo(a)anthracene; Benzanthracene	8100	Chlorobenzilate	8270
	8270	p-Chloro-m-cresol	8040
Benzo(b)fluoranthene	8100		8270
	8270	Chloroethane; ethyl chloride	8010
Benzo(k)fluoranthene	8100		8240
	8270	Chloroform	8010
Benzo(ghi)perylene	8100		8240
	8270	2-Chloronaphthalene	8120
Benzo(a)pyrene	8100		8270
	8270	2-Chlorophenol	8040
Benzyl alcohol	8270		8270
Beryllium	6010	4-Chlorophenyl phenyl ether	8270
	7090	Chloroprene	8010
	7091		8240
alpha-BHC	8080	Chromium	6010
	8250		7190
beta-BHC	8080		7191
	8250	Chrysene	8100
Cobalt	6010	1,2-Dichloroethane; ethylene	8010
	7200	dichloride	8240
	7201	1,,-Dichloroethylene; vinylidene	8010
Copper	6010	chloride	8240
	7210	trans-1,2-Dichloroethylene	8010

Table 3-13 (Continued)
Appendix IX, Groundwater Monitoring List

Sampling and Analysis Plan
NAVSTA Mayport
Mayport, Florida

Parameter	Methods	Parameter	Methods
m-Cresol	8270		8240
o-Cresol	8270	2,4-Dichlorophenol	8040
p-Cresol	8270		8270
Cyanide	9010	2,6-Dichlorophenol	8270
2,4-D; 2,4-Dichlorophenoxyacetic acid	8150	1,2-Dichloropropane	8010
4,4'-DDD	8080		8240
	8270	cis-1,3-Dichloropropene	8010
4,4'-DDE	8080		8240
	8270	trans-1,3-Dichloropropene	8010
4,4-DDT	8080		8240
	8270	Dieldrin	8080
Diallate	8270		8270
Dibenz(a,h)anthracene	8100	Diethyl phthalate	8060
	8270		8270
Dibenzofuran	8270	0,0-Diethyl 0-2-pyrazinyl phosphoro- thioate; thionazin	8270
Dibromochloromethane; chlorodibromomethane	8240	Dimethoate	8270
1,2-Dibromo-3-chloropropane; DBCP	8010	p-(Dimethylamino)azobenzene	8270
	8240	7,12-Dimethylbenz(a)anthracene	8270
	8270	3,3'-Dimethylbenzidine	8270
1,2-Dibromoethane; Ethylene dibromide	8010	alpha, alpha-Dimethylphenethylamine	8270
	8240	2,4-Dimethylphenol	8040
Di-n-butyl phthalate	8060		8270
	8270	Dimethyl phthalate	8060
0-Dichlorobenzene	8010		8270
	8020	m-Dinitrobenzene	8270
	8120	4,6-Dinitro-o-cresol	8040
	8270		8270
m-Dichlorobenzene	8010	2,4-Dinitrophenol	8040
	8020		8270
	8120	2,4-Dinitrotoluene	8090
	8270		8270
p-Dichlorobenzene	8010	2,6-Dinitrotoluene	8090
	8020		8270
	8120	Dinoseb; DNB; 2-sec-butyl- 4,6-dinitrophenol	8150
	8270	D-n-octyl phthalate	8270
	8270		8060
3,3'-Dichlorobenzidine	8240		8270
trans-1,4-Dichloro-2-butene	8010	1,4-Dioxane	8015
Dichlorodifluoromethane	8240	Diphenylamine	8270
	8010	Disulfoton	8140
1,1-Dichloroethane	8240		8270
	8080	Methacrylonitrile	8015
Endosulfan I	8250		8240
	8080	Methapyrilene	8270
Endosulfan II	8080	Methoxychlor	8080
Endosulfan sulfate	8080		8270
	8270	Methyl bromide; bromomethane	8010
Endrin	8080		8240
	8250	Methyl chloride; chloromethane	8010
Endrin aldehyde	8080		8240
	8270		

INTERIM FINAL

Table 3-13 (Continued)
Appendix IX, Groundwater Monitoring List

Sampling and Analysis Plan
NAVSTA Mayport
Mayport, Florida

Parameter	Methods	Parameter	Methods
Ethyl benzene	8020 8240	3-Methylcholanthrene	8270 8010
Ethyl methacrylate	8015 8240 8270	Methylene bromide; Dibromomethane	8240 8010
Ethyl methanesul fonate	8270	Methylene chloride; Dichloromethane	8240 8015
Famphur	8270	Methyl ethyl ketone; MEK	8240
Fluranthrene	8100 8270	Methyl iodide; Iodomehtane	8010 8240
Fluorene	8100 8270	Methyl methacrylate	8015 8240
Heptachlor	8080 8270	Methyl methanesul fonate	8270
Heptachlor epoxide	8080 8270	2-Methylnaphthalene	8270
Hexachlorobenzene	8120 8270	methyl parathion; Parathion methyl	8140 8270
Hexachlorobutadiene	8120 8270	4-Methyl-2-pentanone; Methyl isobutyl ketone	8015 8240
Heachlorocyclopentadiene	8120 8270	Naphthalene	8100 8270
Hexachloroethane	8120 8270	1,4-Naphthoquinone	8270
Hexachlorophene	8270	1-Naphthylamine	8270
Hexachloropropene	8270	2-Naphthylamine	8270
2-Hexanone	8240	Nickel	6010 7520
Indeno(1,2,3-cd)pyrene	8100 8270	o-Nitroaniline	8270
Isobutyl alcohol	8015	m-Nitroaniline	8270
Isodrin	8270	p-Nitroaniline	8270
Isophorone	8090 8270	Nitrobenzene	8090 8270
Isosafrole	8270	o-Nitrophenol	8040 8270
Kepon	8270	p-Nitrophenol	8040 8270
Lead	6010 7420 7421 7470	4-Nitroquinoline 1-oxide	8270
Mercury	8270	N-Nitrosodi-n-butylamine	8270
N-Nitrosodipropylemine; Di-n-propyl- nitrosamine	8270	N-Nitrosodiethylamine	8270
N-Nitrosomethylethylamine	8270	N-Nitrosodimethylamine	8270
N-Nitrosomorpholine	8270	N-Nitrosodiphenylamine	8270
N-Nitrosopiperidine	8270	2,3,7,8-TCDD; 2,3,7,8-Tetrachloro- dibenzo-p-dioxin	8280
N-Nitrosopyrrolidine	8270	1,2,4,5-Tetrachlorobenzene	8270
5-Nitro-o-toluidine	8270	1,1,1,2-Tetrachloroethane	8010 8240
Parathion	8270	1,1,2,2-Tetrachloroethane	8010 8240
Polychlorinated biphenyls; PCBs	8080 8250	Tetrachloroethylene; Perchloro- ethylene; Tetrachloroethene	8010 8240
Polychlorinated dibenzo-p-dioxins; PCDDs	8280	2,3,4,6-Tetrachlorophenol	8270
Polychlorinated dibenzofurans; PCDFs	8280	Tetraethyl dithiopyrophosphate;	8270
Pentachlorobenzene	8270	Sulfotepp	8010
		Thallium	7840

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Table 3-13 (Continued)
Appendix IX, Groundwater Monitoring List

Sampling and Analysis Plan
NAVSTA Mayport
Mayport, Florida

Parameter	Methods	Parameter	Methods
Pentachloroethane	8240		7841
	8270	Tin	7870
Pentachloronitrobenzene	8270	Toluene	8020
Pentachlorophenol	8040		8240
	8270	o-Toluidine	8270
Phenacetin	8270	Toxaphene	8080
Phenanthrene	8100		8250
	8270	1,2,4-Trichlorobenzene	8270
Phenol	8040	1,1,1-Trichloroethane; Methyl- chloroform	8240
	8270		
p-Phenylenediamine	8270	1,1,2-Trichloroethane	8010
Phorate	8140		8240
	8270	Trichloroethylene; Trichloroethene	8010
2-Picoline	8240		8240
	8270	Trichloroethylmethane	8010
Pronamide	8270		8240
Propionitrile; Ethyl cyanide	8015	2,4,5-Trichlorophenol	8270
	8240	2,4,6-Trichlorophenol	8040
Pyrene	8100		8270
	8270	1,2,3-Trichloropropane	8010
Pyridine	8240		8240
Safrole	8270	0,0,0-Triethyl phosphorothioate	8270
Selenium	6010	sym-Trinitrobenzene	8270
	7740	Vanadium	6010
	7741		7910
Silver	6010		7911
	7760	Vinyl acetate	8240
Sivex; 2,4,5-TP	8150	Vinyl chloride	8010
Styrene	8020		8240
	8240	Xylene (total)	8020
Sulfide	9030		8240
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	8150	Zinc	6010
			7950

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**RESOURCE CONSERVATION AND RECOVERY ACT
FACILITY INVESTIGATION (RFI) WORKPLAN**

**ADDENDUM 1
INVESTIGATION-DERIVED WASTE MANAGEMENT PLAN**

**U.S. NAVAL STATION MAYPORT
MAYPORT, FLORIDA**

UIC: N60201

Contract No. N62467-89-D-0317

Prepared by:

**ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301**

Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
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Jim Reed, Engineer-In-Charge

December 1992

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Attachment A - Individual Drum Tracking Form

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Waste Management Plan

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GLOSSARY

CFR Code of Federal Regulations

IDW investigation-derived wastes

NAVSTA naval station

PPE personal protective equipment

PVC polyvinyl chloride

RCRA Resource Conservation And Recovery Act

RFA Resource Conservation And Recovery Act Facility Assessment

RFI Resource Conservation And Recovery Act Facility Investigation

SWMU Solid Waste Management Unit

TCLP toxicity characteristic leaching procedure

TSD treatment, storage, and disposal

WWTP Waste Water Treatment Plant

1.0 MAYPORT INVESTIGATION-DERIVED (IDW) MANAGEMENT PLAN

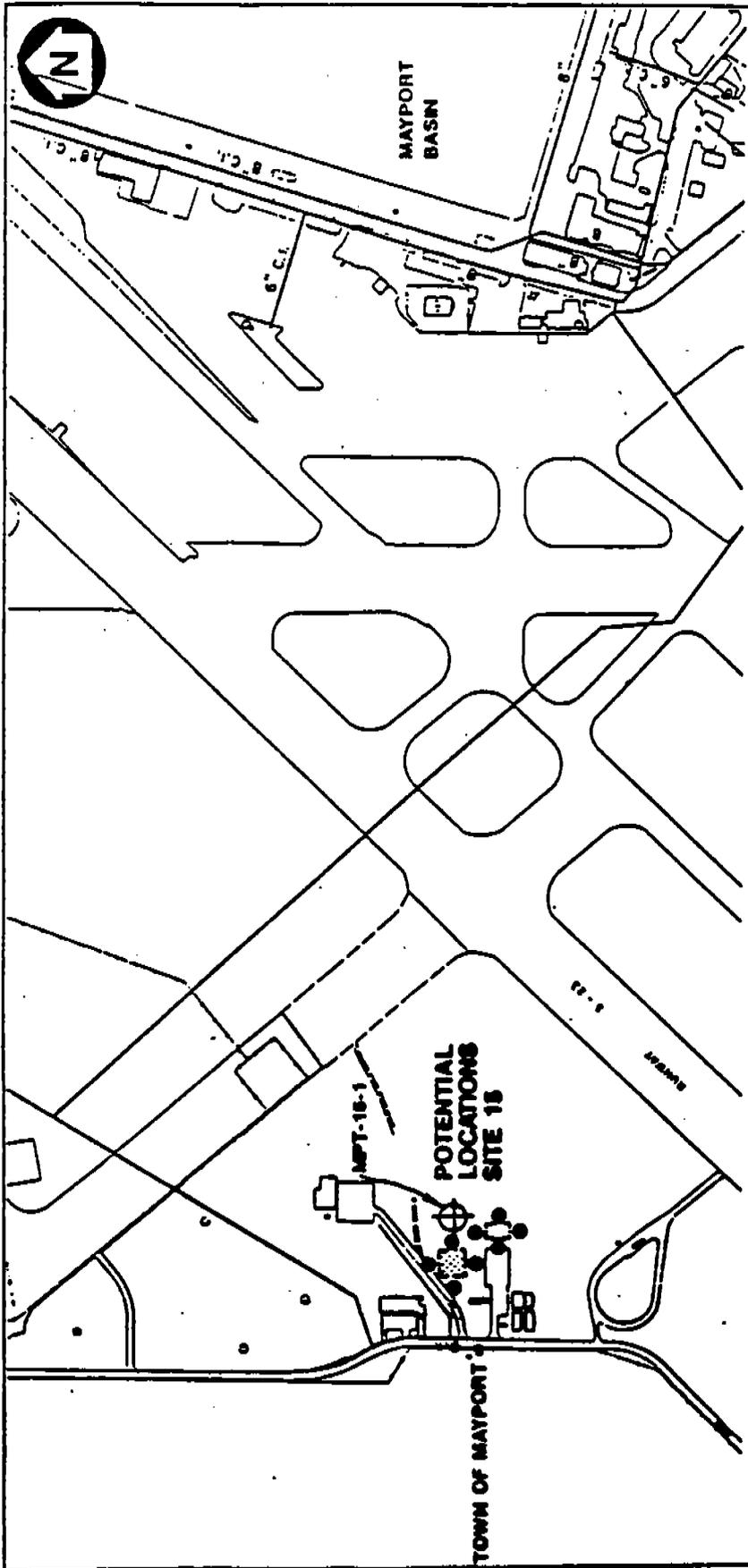
This plan details the handling of all investigation-derived wastes (IDW) expected to be generated during Phase 2 Resource Conservation and Recovery Act (RCRA) Facility Investigation/RCRA Facility Assessment (RFI/RFA) activities at U.S. Naval Station (NAVSTA) Mayport, Florida. The first section describes the types of IDW expected to be generated and the disposal options available for each. The second section describes the procedures that will be used to determine whether each IDW is an RCRA hazardous or nonhazardous waste. Finally, an IDW management decision tree is presented to follow the IDW from point of generation all the way through to proper disposal.

There are five types of IDW expected to be generated. These include soil cuttings, drilling fluids, decontamination fluids, development and purge groundwater, and disposable sampling equipment such as personal protective equipment (PPE). The following is a description of each type of IDW and their respective disposal options.

1.1 SOIL CUTTINGS. Soil or drill cuttings generated during soil boring investigations and well installation are handled depending on proximity and location of the site.

For remote or isolated sites such as Solid Waste Management Unit (SWMU) 15 (See Figure 1-1), the cuttings will be drummed, labeled, and left onsite while laboratory analyses of the media samples are completed. After identifying the soil as an RCRA hazardous or nonhazardous waste (see Section 2.0), it will be handled appropriately. Nonhazardous soils will be spread out on the ground to prevent a nuisance condition, physical hazard, or drainage problem near the well or boring where they were generated. The cuttings will be placed so that they will not be eroded by surface water and rainfall and create sediment loads to nearby surface waterways such as ditches, curbs, and swales.

For populated sites or heavy traffic areas such as SWMUs 6, 7, 8, 9, 10, 11, and 16 (Figure 1-2), the cuttings will be drummed, labeled, and transported to a



LEGEND

-  APPROX. AREA OF SITE LOCATION
-  APPROX. LOCATION OF PROPOSED SHALLOW SOIL SAMPLING
-  APPROX. LOCATION OF PROPOSED MONITORING WELL



FIGURE 1-1

**LOCATION OF EXPLORATIONS
(SITE 15)
SWMU 15**

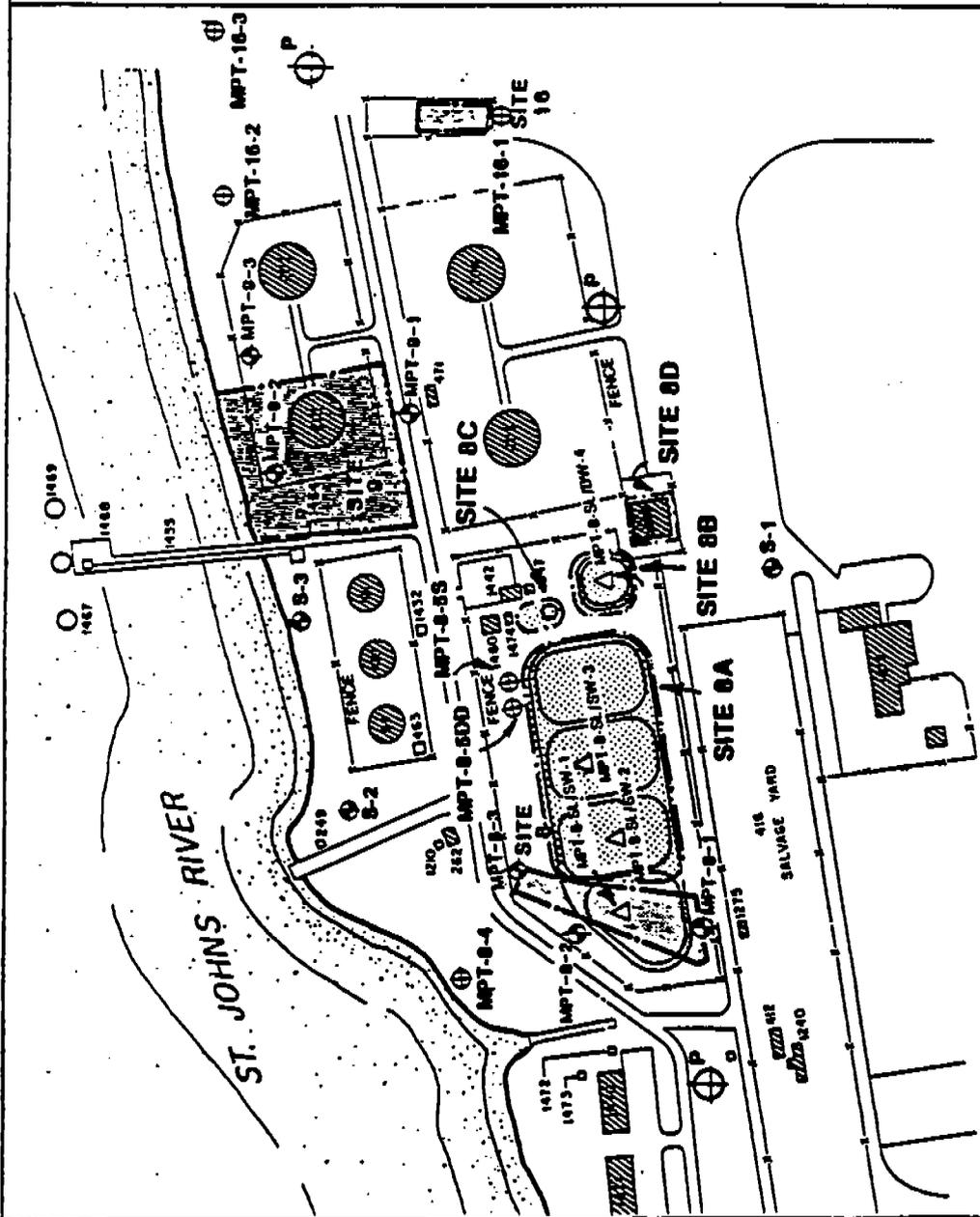


**RCRA FACILITY
INVESTIGATION WORKPLAN
ADDENDUM 1
IDW MANAGEMENT PLAN
U.S. NAVAL STATION
MAYPORT, FLORIDA**



LEGEND

- ⊕ APPROX. LOCATION OF EXISTING MONITORING WELLS
- ▲ APPROX. LOCATION OF PREVIOUS SOIL SAMPLING
- ▨ APPROX. AREA OF SITE LOCATION
- ⊕ APPROX. LOCATION OF PROPOSED MONITORING WELL
- △ APPROX. LOCATION OF PROPOSED SOIL AND SLUDGE SAMPLING
- ⊕^P APPROX. LOCATION OF PROPOSED TEMPORARY PEZOMETER



RCRA FACILITY
 INVESTIGATION WORKPLAN
 ADDENDUM 1
 IDW MANAGEMENT PLAN
 U.S. NAVAL STATION
 MAYPORT, FLORIDA



FIGURE 1-2
 LOCATIONS OF EXPLORATIONS
 (SITE 8, 8A, 8B, 8C, 8D, 9, AND 16)
 SWMU 6, 7, 8, 9, 10, 11, AND 16



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temporary storage facility to be designated by base Navy personnel. The drummed soils will remain in storage until laboratory analyses of the media samples are completed. Drummed, nonhazardous soil cuttings will be transported back to the site from which they were generated and spread out on the ground as for the remote or isolated sites.

Drummed soil cuttings generated at both remote sites and populated areas that have been identified as hazardous will be transported offsite to a hazardous waste facility for proper storage and disposal. Management of hazardous IDW will be the responsibility of the Navy.

The volume of soil cuttings expected to generated during Phase II activities is approximately 29 55-gallon drums.

1.2 DRILLING FLUIDS. Drilling fluids or muds generated during well installation will be drummed and labeled. The drummed fluids at both remote and populated sites will be handled in the same manner as the drummed soil cuttings. After identifying the fluid as an RCRA hazardous or nonhazardous waste, it will be handled appropriately. Nonhazardous fluids will be disposed of in a shallow excavation pit approximately 15 feet square by 3 feet deep which will be constructed at a location to be designated by the base Navy personnel. Ideally, the disposal pit will be constructed as close to the original point of generation as possible. Nonhazardous drilling fluids from all Phase 2 sites will be transported to the excavation pit location by the subcontractor.

Hazardous drilling fluids will be transported offsite to a hazardous waste facility. Management of hazardous IDW will be the responsibility of the Navy.

The approximate volume of drilling fluid expected to be generated is 14 55-gallon drums.

1.3 DECONTAMINATION FLUIDS. Decontamination fluids are generated from two sources. Decontamination fluids generated from steam cleaning of drilling equipment (augers, rod, split-spoons, etc.) and well material (polyvinyl chloride [PVC]) will be collected and drummed at the designated decontamination area or

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pad. This fluid will left on-site while laboratory analyses of the media samples is completed. After identifying the fluid as an RCRA hazardous or nonhazardous waste, it will be handled appropriately. Decontamination fluids generated from decontamination of sampling equipment (bowls, spoons, bailers, etc.) will be collected and drummed at the designated decontamination area unless onsite decontamination is required. In this case, decontamination fluids will be collected and transported to the decontamination area where they will be drummed.

All decontamination fluids generated from sampling equipment will be treated as waste water and will be discharged to the base Waste Water Treatment Plant (WWTP) via the sanitary sewer system.

The approximate volume of decontamination fluid expected to be generated is 10 55-gallon drums.

1.4 DEVELOPMENT AND PURGE GROUNDWATER. Well water generated from well development and well purging will be drummed and labeled. The drummed well water at both remote and populated sites will be handled in the same manner as the drummed soil cuttings. After identifying the well water as an RCRA hazardous or nonhazardous waste it will be handled appropriately. Nonhazardous well water will be disposed of as near as possible to the well location from which it was generated. This will be accomplished by pouring the well water on the ground and allowing the water to percolate into the soil. Care will be taken to assure that the well water does not flow into surface waterways such as ditches, curbs, or swales.

Hazardous well water will be transported to the base Hazardous Waste storage facility in coordination with the base Navy personnel for proper storage and disposal. Management of hazardous IDW will be the responsibility of the Navy.

The approximate volume of well development and purge water expected to be generated is 17 55-gallon drums.

1.5 DISPOSABLE SAMPLING EQUIPMENT (PERSONAL PROTECTION EQUIPMENT [PPE]).

Miscellaneous used sampling equipment such as gloves, tyvek overalls, booties and other PPE will be placed in drums onsite. Drummed disposable sampling equipment at both remote and populated sites will be handled in the same manner as the drummed soil cuttings. When it is determined whether or not these items are likely to be contaminated with an RCRA hazardous waste, they will be handled appropriately. If these items are not likely to be contaminated, they will be disposed as non-contaminated solid waste. The materials will be collected and placed in double heavy duty polyethylene bags (e.g., "hefty trash bags") and disposed of in a base dumpster used for nonhazardous industrial waste. The dumpster will be designated by base Navy personnel.

Disposable sampling equipment likely to be contaminated with an RCRA hazardous waste will be drummed and transported offsite for proper storage and disposal. Management of hazardous IDW will be the responsibility of the Navy.

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2.0 DETERMINATION OF RCRA HAZARDOUS OR NONHAZARDOUS IDW

The following procedure will be used for each type of IDW previously described. This will allow waste to be easily identified as an RCRA hazardous or nonhazardous waste and handled appropriately.

All IDW generated onsite will be characterized, drummed, and labeled at the point of generation. All IDW will remain drummed until chemical analysis results of the media samples have been received. While the results are pending, proper storage of the IDW will be determined depending on site location (See section 1.0). After receiving laboratory results for the media samples, the respective IDW will be identified as an RCRA hazardous or nonhazardous waste using the following criteria.

Media samples will be analyzed, by an approved laboratory, for RCRA hazardous waste characteristics in accordance with 40 Code of Federal Regulations (CFR), Part 261. The four characteristics are ignitability, corrosivity, reactivity, and toxicity. For expected Phase II IDW, there is adequate knowledge, based on information from previous investigations, that toxicity is the only characteristic of concern. Thus, toxicity analysis will be the basis for the determination of hazardous and nonhazardous wastes unless site-specific observations indicate otherwise.

For soils. If the media sample is shown to have greater than 20 times the regulatory threshold level for toxicity of any regulated compound (see "Management of Investigation-Derived Wastes During Site Inspections" EPA/540/G-91/009), a sample of the corresponding, drummed IDW will be analyzed for toxicity characteristic leaching procedure (TCLP) toxicity to determine the extract concentration. If the IDW extract contains a regulated compound above its threshold level, the soil is identified as an RCRA hazardous waste and must be disposed of offsite. If the media sample is less than 20 times all regulated levels or if the IDW TCLP sample concentration is below all regulated levels, the IDW is an RCRA nonhazardous waste and will be disposed of onsite at the point of generation.

For water. If the media sample is shown to have greater than the regulatory threshold level for toxicity of any regulated compound, the corresponding IDW is identified as an RCRA hazardous waste and must be disposed of offsite. If the media sample is below all regulated levels, the IDW is an RCRA nonhazardous waste and will be disposed of onsite at the point of generation.

The following step-by-step procedures and corresponding decision tree presented in Figure 2-1 takes the IDW from generation through disposal and should be used as a quick reference guide.

1. Characterize generated IDW

- soil cuttings
- drilling fluids
- decontamination fluids
- development and purge groundwater
- disposable sampling equipment

2. Drum IDW as it is generated and fill out drum tracking log (Attachment A).

3. Determine where IDW should be stored while waiting for laboratory analysis of media samples.

- if site is in remote location, store onsite
- if site is in populated area, store offsite (at base storage facility)

4. After receiving laboratory analysis results for media samples, identify IDW as an RCRA hazardous or nonhazardous waste using the following criteria.

For soils. If laboratory results are less than 20 times the regulatory threshold level for any regulated compound, the soil is an RCRA nonhazardous waste. If laboratory results of media samples show greater than 20 times the regulatory

MAYPORT PHASE II IDW MANAGEMENT

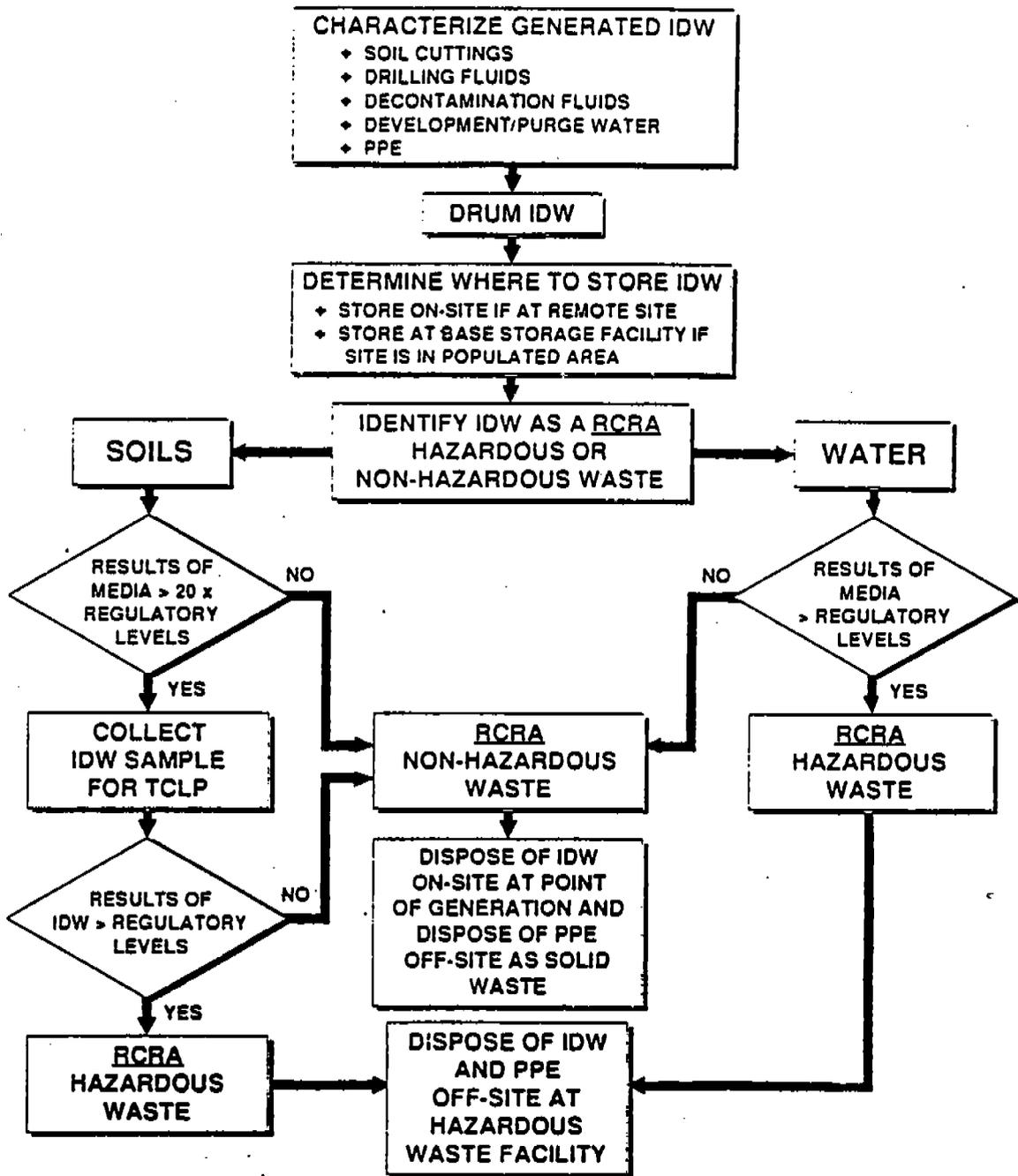


FIGURE 2-1

MAYPORT PHASE II
IDW MANAGEMENT



RCRA FACILITY
INVESTIGATION WORKPLAN
ADDENDUM 1
IDW MANAGEMENT PLAN
U.S. NAVAL STATION
MAYPORT, FLORIDA

DRAFT

threshold level for any regulated compound, collect a sample of the drummed soil for TCLP analysis.

If the TCLP analysis yields a value greater than the regulatory threshold level for any regulated compound, the soil is an RCRA hazardous waste,

If the TCLP analysis yields a value less than the regulatory threshold level for any regulated compound, the soil is an RCRA nonhazardous waste.

For water. If results of media samples show greater than the regulatory threshold level for any regulated compound, the water is an RCRA hazardous waste.

If results of sampling show less than the regulatory threshold level for any regulated compound, the water is an RCRA nonhazardous waste.

5. Dispose of IDW appropriately as follows.

For soils. If IDW is identified as an RCRA hazardous waste, dispose of offsite at RCRA treatment, storage, and disposal (TSD) Facility.

If IDW is identified as an RCRA nonhazardous waste, spread soil on ground at point of generation as previously described.

For water. If IDW is identified as an RCRA hazardous waste, dispose of offsite at RCRA TSD Facility.

If IDW is identified as an RCRA nonhazardous waste, pour water on ground near point of generation as previously described.

A summary of the anticipated disposal methods for each type of IDW at each SWMU is presented in Table 2-1. The table is based on the assumption that no IDW will be identified as an RCRA hazardous waste at any of the Phase II SWMUs.

**Table 2-1
Anticipated Investigation-Derived Wastes (IDW)¹ and Disposal Methods**

NAVSTA Mayport
Mayport, Florida

SWMU	Soil Cuttings	Drilling Fluids	Decontamination Fluids	Development and Purge Water	PPE and DE
6	Spread on ground	Transport to excavation pit.	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
7	Spread on ground	Transport to excavation pit.	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
8	Spread on ground	Transport to excavation pit.	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
9	Spread on ground	Transport to excavation pit.	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
10	Spread on ground	Transport to excavation pit.	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
11	N/A	N/A	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
12	N/A	N/A	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
15	Spread on ground	N/A	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.
16	Spread on ground	N/A	Discharge to Mayport WWTP.	Pour on ground near well.	Deposit in Mayport dumpster.

¹ Assuming non-hazardous IDW at each SWMU.

Notes: SWMU = solid waste management unit.
PPE = personal protection equipment.
DE = disposable equipment.
WWTP = wastewater treatment plant.
N/A = not applicable.

APPENDIX E

**TECHNICAL SPECIFICATION FOR CONTAMINATED EARTHWORK
AND MISCELLANEOUS DEMOLITION**

DEPARTMENT OF THE NAVY

SOUTHERN DIVISION

TECHNICAL SPECIFICATION

FOR

CONTAMINATED EARTHWORK AND MISCELLANEOUS DEMOLITION

1	1/9/95	Revised to CSI format and Section 3.8	KK	GAC	ME	JRM
0	7/21/94	Issued for use	KK	RTJ	PH	RBB
NO.	DATE	REVISION	BY	CHECK	SUPV	PE
ORIGIN		Contaminated Earthwork	NO. 22567			
			TECHNICAL SPECIFICATION			REV
			001-SP000-005			1
			SHEET 1 OF 10			

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PART 1 GENERAL

1.1 SCOPE

This Specification provides the technical requirements for the excavation of contaminated material and miscellaneous demolition. Not all work defined herein is necessarily required; reference is directed to the Scope of Work and engineering drawings for specific services required.

1.2 WORK INCLUDED

- 1.2.1 Furnishing labor, materials, tools and equipment.
- 1.2.2 Installing and maintaining dust, sediment and erosion control.
- 1.2.3 Demolishing existing concrete and asphalt surfaces.
- 1.2.4 Providing shoring as needed.
- 1.2.5 Securing area (temporary barriers) as needed.
- 1.2.6 Excavating contaminated material.
- 1.2.7 Decontaminating subcontractor-supplied equipment.

1.3 WORK NOT INCLUDED

- 1.3.1 Establishing limits of excavation.
- 1.3.2 Sampling and testing excavated material.
- 1.3.3 Backfilling
- 1.3.4 Treating contaminated material.
- 1.3.5 Loading and transporting contaminated material.
- 1.3.6 Clearing and grubbing is included in Technical Specification 001-SP000-002.
- 1.3.7 Operations of decontamination facility, other than that required for subcontractor equipment decontamination.

1.3.8 Temporary storage/placement of contaminated material.

1.3.9 Disposal of decontamination water.

1.4 REFERENCED CODES AND STANDARDS

Unless otherwise specified or shown, the latest edition at the time of bid of the following Codes and Standards shall apply to the extent indicated herein:

OCCUPATIONAL SAFETY AND HEALTH (OSHA)

29 CFR 1910 Occupational Safety and Health Regulations for General Industry

29 CFR 1926 Occupational Safety and Health Regulations for Construction

The Subcontractor shall comply with all federal, state, local, and facility codes and standards applicable to the propose work.

1.5 SUBMITTALS

Not all submittals defined herein may be required. Only engineering document requirements as summarized in Exhibit F (Attachment A), "Subcontractor Submittal Requirements Summary" (SSRS), shall apply. Submittals identified shall meet the detailed requirements defined herein. Bechtel will determine if documentation is complete as submitted and reserves the right to require the resubmittal of any submittals that do not meet specified requirements.

1.5.1 Equipment List

Submit list of equipment for use in contaminated earthwork. The list shall include the type, size, and rated capacity of the equipment proposed.

1.5.2 Drainage, Dewatering, and Stream Diversion Design

Submit proposed drainage, dewatering, and stream diversion design prior to construction not indicated on engineering drawings. Design shall be signed and stamped by a Professional Engineer licensed in the state where the work is performed.

1.5.3 Shoring Design and Calculations

Submit proposed shoring design and engineering calculations or alternate slope protection measures in accordance with Subpart P, OSHA 29 CFR 1926. Design shall be signed and stamped by a Professional Engineer licensed in the state where the work is performed.

1.5.4 Excavation Daily Inspections

Submit daily inspections of the excavation areas in accordance with OSHA 29 CFR 1910 and 1926 prior to commencing work each day.

1.5.5 Shoring Inspector

Submit name and resume of the shoring inspector to be provided for bid evaluation. Inspector shall be qualified in accordance with OSHA 29 CFR 1926, Subpart P.

1.5.6 Professional Engineer's License

Submit copy of Professional Engineer's license for bid evaluation (for the state where work is performed) of Professional Engineer(s) used for the shoring and drainage designs.

1.5.7 Alternate Methods

Submit copy of alternate shoring method when applicable at least one week prior to use. Design shall be signed and stamped by a Professional Engineer licensed in the state where the work is performed.

1.5.8 Temporary Decontamination Facility Plan

Submit plans for a temporary decontamination facility at least one week prior to mobilization.

1.5.9 Sediment Barriers

Submit copy of materials and plan for sediment barriers prior to use.

1.5.10 Erosion Control Blankets

Submit product data sheet for erosion control blankets prior to use.

1.6 QUALITY STANDARDS

Perform the work and control the quality of items and services to meet the requirements of this specification, subcontract documents, and applicable codes and standards.

PART 2 PRODUCTS

2.1 SEDIMENT BARRIERS

Materials used for sediment barriers shall consist of straw bales, hay bales, geotextile filter fabric made expressly for use as a silt screen, or other materials approved by Bechtel prior to their use. Straw and hay bales shall not be used for permanent sediment barriers unless approved by Bechtel.

2.1.1 Baled hay or straw shall be laid end to end such that no gap exists between bales. Reinforcing bars shall be #4 bar and a minimum of 2½ feet long.

2.1.2 Filter fabric shall be a material made expressly for the purpose of sediment control such as Exxon GTF 101S Silt Screen or approved equal.

2.2 EROSION CONTROL BLANKETS

Erosion control blankets shall be Curlex Blankets manufactured by American Excelsior Company or approved equal.

PART 3 EXECUTION

3.1 PRE-EARTHWORK EVALUATION

Prior to performing any earthwork, examine the work area if possible depending on the site conditions as determined by Bechtel, to identify pre-existing conditions (e.g. overhead power lines, access, etc.) that could impact the performance and completion of work. Bechtel will provide available information on the location of underground utilities. Verify these locations, provide structural support to utility lines, and coordinate inspection with and provide support to utility companies. Unless directed otherwise, the services of all underground utilities encountered during any earthwork shall be restored to their original condition. Applicable permits shall be obtained prior to commencing work unless directed otherwise.

3.2 EROSION AND SEDIMENT CONTROL

3.2.1 Potentially contaminated material shall be prevented from being eroded or transported into an uncontaminated area or an area with a lower level of contamination.

- 3.2.2** Temporary sediment barriers shall be installed in accordance with the subcontract documents and maintained during construction until permanent sediment barriers are in place.
- 3.2.3** Erosion and sediment shall be controlled by the following techniques subject to Bechtel review on a case-by-case basis:
- covering with synthetic liner material
 - covering with uncontaminated soil material
 - sediment barriers

3.3 DUST CONTROL

Dust shall be controlled by the following techniques subject to Bechtel review on a case-by-case basis:

- wetting with water
- wetting with a synthetic dust suppressant
- establishing temporary vegetative cover compaction
- sealing by rolling with a smooth drum
- maintaining slopes of exposed surfaces within defined limits

3.4 DRAINAGE, DEWATERING, AND STREAM DIVERSION

3.4.1 Drainage

Surface water shall be directed away from excavation and construction areas. Diversion ditches, check dams, dikes, and/or grading shall be developed and maintained during construction.

Excavated slopes and backfill surfaces shall have a minimum 3 percent slope to promote runoff and shall be protected from erosion and sloughing. Excavation slopes shall conform to Subpart P, "Excavation, Trenching, and Shoring," of OSHA 29 CFR 1926.

3.4.2 Dewatering

Unless noted otherwise, all excavations shall be kept in a dewatered condition. Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls; boils, uplift, and heave in the excavation; and to eliminate any interference with excavation progress. Water, which has come in contact with contaminated material, shall be collected and transported to an offsite location, which is not within the scope of this specification.

3.4.3 Stream Diversion

Stream diversion(s) shall be developed as shown on the engineering drawings or Scope of Work, and maintained to prevent the spread of contamination.

3.5 BLASTING

Blasting is not permitted.

3.6 EXCAVATION

3.6.1 General

Excavation shall conform to the lines, grades, and depths identified on the engineering drawings or Scope of Work, and field-verified by Bechtel. Excavated areas shall be maintained in a clean condition, free from leaves, brush, trash and other debris. They shall be inspected and documented daily in accordance with OSHA 29 CFR 1910 and 1926 prior to commencing work.

Rocks, 6 inches or greater in any dimension, shall be separated from the soil and cleaned of most soil material by scrapers, brushes, etc. These rocks shall be left in the excavation area.

3.6.2 Contamination Control

Excavation shall be performed such that the spread of contamination is prevented. Unless indicated otherwise, the cutting edge of the excavator(s) shall be toothless and the excavation performed in the direction of surface run-off (i.e., from high to lower elevation). Contamination spread through the improper execution of the subcontract documents shall be cleaned up to the satisfaction of Bechtel at no expense to Bechtel.

3.6.3 Shoring

Shoring, including temporary sheet piling, shall be furnished and installed as necessary to protect workers, slopes, adjacent paving, structures, and utilities. Shoring, bracing, and sheeting shall be removed as excavations are backfilled to prevent cave-ins. Alternate methods (e.g. benching, sloping, trench boxes, etc.) may be used where applicable. They shall be developed in accordance with OSHA 29 CFR 1926, Subpart P.

Care shall be taken to minimize exposure of shoring or other slope protection devices to contamination. These items shall not be released from the site until they have been decontaminated in accordance with this specification.

3.6.4 Excavation Sequence

The sequence for the excavation of contaminated material shall be as follows:

- (1) Define and isolate exclusion zones identified on the engineering drawings, Scope of Work, or as directed by Bechtel.
- (2) Construct haul road identified on the engineering drawings, Scope of Work or as directed by Bechtel.
- (3) Perform initial excavation to the lines and grades identified on the engineering drawings, Scope of Work or as directed by Bechtel.
- (4) Allow excavated area to be sampled to determine if the area meets remedial cleanup standards.
- (5) Continue excavation as directed by Bechtel. Allow area to be resampled after each lift of material is removed.
- (6) Cease excavation upon direction by Bechtel.

3.7 DEMOLITION OF CONCRETE AND ASPHALT SURFACES

- 3.7.1 Demolition shall consist of demolishing, rubblizing, scabbling and/or disposing of asphalt, concrete, or bituminous concrete surfaces within the limits to be excavated as identified on the engineering drawings, Scope of Work and/or as directed by Bechtel.
- 3.7.2 Construction joints shall be saw cut in existing concrete or asphalt, where new concrete or asphalt will be placed.
- 3.7.3 Reinforcing bars encountered during concrete removal shall be cut with a method approved by Bechtel.
- 3.7.4 Daily inspections shall be performed in accordance with OSHA 29 CFR 1910 and 1926 when fuel powered tools are used indoors. Inspections shall include the review and documentation of administrative and engineering controls and measurement of air quality in confined spaces. No personnel shall enter the work area until required corrective measures are completed.

3.8 EQUIPMENT DECONTAMINATION

- 3.8.1** The equipment decontamination facility shall have a 30-mil plastic liner and be bermed to provide containment of decontamination water.
- 3.8.2** All equipment and tools used in contaminated areas shall be decontaminated to remove all adhering dirt and mud.
- 3.8.3** Authorization shall be obtained from Bechtel before entering or exiting the decontamination facility.
- 3.8.4** Bechtel is not responsible for the operations of the decontamination facility.
- 3.8.5** Equipment that has been in contaminated areas shall be decontaminated. The decontamination facility shall be used only for light and final decontamination and not for operations that would require gross decontamination (i.e., removal of most visible materials by scrapers, brushes, etc). Gross decontamination, if required, shall be performed as part of the specified earthwork at the area where trucks are loaded or unloaded. Decontamination shall be repeated as required. Following decontamination, all equipment shall be made available for inspection by Bechtel. Equipment shall be cleaned to the satisfaction of Bechtel.
- 3.8.6** Written approval from Bechtel shall be obtained prior to removing equipment from the site.
- 3.8.7** The decontamination water shall be containerized in 55-gallon drums, which is not within the scope of this specification.

3.9 PROTECTION OF WORK

Settlement or erosion that occurs in compacted materials prior to acceptance of the work shall be repaired to required conditions at no expense to Bechtel.

3.10 SECURITY

Work areas shall be secured using barriers (e.g., rope, snow fence) to prevent inadvertent entry to work areas as determined by Bechtel.

APPENDIX F

**TECHNICAL SPECIFICATIONS FOR
TRANSPORTATION OF CONTAMINATED MATERIAL**

DEPARTMENT OF THE NAVY

SOUTHERN DIVISION

TECHNICAL SPECIFICATION

FOR

TRANSPORTATION OF CONTAMINATED MATERIALS

1	10/6/94	Revised Notice to Transporter Concerning Lead Time	<i>J.R.</i>	<i>KCN</i>	<i>KCN</i>	<i>JRM</i>
0	8/2/94	Issued for Use	KCN			
No.	Date	REASON FOR REVISION	BY	CHECK	SUPV	PE
		Transportation of Contaminated Material	JOB NO. 22567			
			TECHNICAL SPECIFICATION		REV.	
			001-SP000-003		1	
			SHEET 1 OF 20			

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**TECHNICAL SPECIFICATIONS
FOR
TRANSPORTATION OF CONTAMINATED MATERIALS**

1.0 GENERAL

1.1 PURPOSE

This Specification addresses requirements and conditions that apply to transportation of hazardous material(s) (HM), hazardous waste(s) (HW), and contaminated material(s) (CM) at U.S. Department of Navy sites under the Naval Facilities Engineering Command, Southern Division. The Subcontractor, Common Motor Carrier (if different), and motor vehicle operator(s) shall be knowledgeable of and comply with Federal Department of Transportation (DOT) regulations (49 CFR), and Environmental Protection Agency (EPA) regulations (40 CFR). Not all transport operations defined herein may be required. Reference is directed to applicable Subcontract Scope of Work and Design Drawings for specific services required.

1.2 ABBREVIATIONS

The abbreviations listed below, when used in this Specification, have the following meanings:

AAR	Association of American Railroads
BEI	Bechtel Environmental, Inc.
CDL	Commercial Driver's License
CFR	Code of Federal Regulations
CM	Contaminated Material
COFC	Container on flat car
DOT	Department of Transportation
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
HM	Hazardous Material
HW	Hazardous Waste
ICC	Interstate Commerce Commission
ISO	International Standards Organization
LSA	Low Specific Activity
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
RCRA	Resource Conservation and Recovery Act
RQ	Reportable quantity
TSCA	Toxic Substance Control Act
TSDF	Treatment, Storage, and Disposal Facility

1.3 QUALITY STANDARDS

The quality standards, as defined by Bechtel Environmental, Inc. (BEI) and Federal DOT and EPA regulations [i.e., Code of Federal Regulations (CFRs)] applicable to this Specification are identified herein and are applicable directly or indirectly to:

- roll-on/roll-off bimodal containers
- transporting vehicle (also referred to as motor vehicle)
- rail cars (flat, box, gondola)
- equipment and material
- packaging, labeling, marking, placarding, handling, and transporting of HM, HW, and CM
- qualifications of Subcontractor provided personnel.

The following CFRs, which are a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government, are identified in this Specification for the purpose of quality standards. Failure to identify an applicable CFR does not imply elimination of required Subcontractor knowledge and compliance.

Title	No.	CFR Regulations Title
	40	262 "Standards Applicable to Generators of Hazardous Waste"
	40	263 "Standards Applicable to Transporters of Hazardous Waste"
	40	761 "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions"
	49	171 "General Information, Regulations and Definitions"
	49	172 "Hazardous Materials Table, Special Provisions, Communications, Emergency Response Information and Training Requirements"
	49	173 "Shippers - General Requirements for Shipments and Packagings"
	49	174 "Carriage by Rail"
	49	177 "Carriage by Public Highway"
	49	178 "Specifications for Packagings"
	49	215 "Railroad Freight Car Safety Standards"
	49	383 "Commercial Driver's License Standards; Requirements and Penalties"
	49	385 "Safety and Fitness"
	49	387 "Minimum Levels of Financial Responsibility for Motor Carriers"
	49	391 "Qualifications of Drivers"

Title	No.	CFR Regulations Title
49	392	"Driving of Motor Vehicles"
49	393	"Parts and Accessories Necessary for Safe Operation"
49	395	"Hours of Service of Drivers"
49	396	"Inspection, Repair, and Maintenance"
49	397	"Transportation of Hazardous Materials; Driving and Parking Rules"
49	1300	"Passenger and Freight Tariffs and Schedules (of Subtitle B, "Other Regulations Relating to Transportation"; Subchapter D, "Tariffs and Schedules")"

Quality, where standards are not identified in this Specification, will be reviewed by BEI for approval on a case-by-case basis. Replacement of material, equipment, or personnel (including time lost) due to failure to meet the Subcontract specified quality standards, or BEI approval when standards are not identified, shall be at the Subcontractor's expense. When requested, and at no cost to BEI, the Subcontractor shall provide material samples, manufacturer specifications, and documentation in support of quality standards.

1.4 EQUIPMENT, MATERIAL, AND PERSONNEL REQUIRED

Equipment, material, and personnel provided to BEI by the Subcontractor shall be as follows:

1.4.1 Transportation by Highway

- Transport vehicles (e.g., dry van, flatbed, roll-off, lowboy, and ocean style trailers; truck tractors; and roll-off and ocean style containers) that meet the requirements of Title 49 CFR 393 and 396.
- Securement systems, especially tiedown assemblies (e.g., chains, cables, steel straps, and fiber webbing); load binders and hardware (e.g., hooks, bolts, welds, or other connectors); and winches or other fastening devices that are without visual damage from wear or misuse and that meet the requirements of Title 49 CFR 393, Subpart I.
- Weatherproof tarpaulins that are without visual damage from wear or misuse and of a quality highly resistant to tears, rips, snags, punctures, abrasion, cracking, peeling, weathering, and that are suitable for use as an external cargo wrap.
- Side boards that are suitable as a frame for use with tarpaulins to form a closed transport vehicle.
- Motor vehicle operators who meet the requirements of Title 49 CFR 383, 391, 392, 395, 397, and 172 Subpart H, and 177. A signed affidavit stating that all vehicle operators handling Navy

waste are HAZMAT trained in accordance with 49 CFR Part 172, Subpart H; and an outline of the course program may be submitted.

1.4.2 Roll-On/Roll-Off Bimodal Containers

Delivery

The Subcontractor shall deliver to Navy job sites roll-on/roll-off bimodal containers for BEI use. BEI will order containers through use of work releases which identify the job site, delivery rate (e.g., two per day), and the date of the first delivery. Every effort will be made by BEI to give at least 10 work days of advance notice to the Subcontractor; however, some instances may occur where only 2 days notice will be provided.

Design, Construction, and Testing

All Subcontractor roll-on/roll-off bimodal containers provided for BEI use shall be designed, constructed, and tested in accordance with the Association of American Railroads (AAR) Specification M-930-90 and shall be capable of meeting the DOT requirements as a strong-tight container. Each container offered to BEI shall be identified with a certification plate as prescribed in Section 6.13 of AAR Specification M-930-90. The Subcontractor shall provide BEI with a drawing of the roll-on/roll-off bimodal container that displays the materials of construction, door closure and fastener details, and hold down and lifting pad details.

Size of Roll-On/Roll-Off Bimodal Containers

The roll-on/roll-off bimodal container to be provided by the Subcontractor shall be either 20 cubic yard or 25.5 cubic yard capacity. Quantity and identification of container size shall be identified in the work release. The Subcontractor shall provide BEI, on the same drawing identified in 1.4.2.2, the external and internal dimensions and the tare weight and gross weight rating of the container.

Condition of Containers

At the time of delivery, the Subcontractor shall provide containers janitorially clean (broom clean), free of extraneous debris, and free of excess scale and corrosion which could be an impediment to decontamination in the event the containers should become contaminated.

Liners

The Subcontractor shall provide polyethylene bag liners that have a polyethylene nominal thickness of at least 6 mils. The polyethylene used in fabrication of the liner shall be prime virgin resins. The bag liner shall be fabricated to fit squarely in the corners to virtually eliminate tearing on filling and shall be watertight. The Subcontractor shall provide manufacturer's data sheets and certifications that bag liners provided meet the Specification's requirements.

Alternate materials and thicknesses for the liner may be offered by the Subcontractor, but the proposed change must be approved in advance by BEI as an equivalent bag liner.

The Subcontractor shall provide written procedures for the bag liner installation and proper assembly of roll-on/roll-off bimodal containers to meet DOT requirements as strong-tight containers during transport.

1.4.3 Rail Freight Cars and Siding Requirements

Defects and Restrictions

The Subcontractor shall provide BEI with rail freight cars consisting of mainly gondola cars, some flat cars, and a few box cars. All rail freight shall be in good order and shall contain no defects in accordance with 49 CFR Part 215, Subpart B, or any restrictions at time of delivery as defined in 49 CFR Part 215, Subpart C.

Freight Car Load Ratings

The Subcontractor shall provide rail freight cars having a load capacity of not less than 75 tons nor more than 100 tons. The ratings of the rail gondola cars shall be mainly 95- and 100-ton cars. Written approval, in advance, shall be obtained from BEI in order to supply rail gondola cars having a load capacity rating of less than 90 tons.

Qualification of Rail Transportation Crew

All Subcontractor personnel who handle and process BEI loaded rail freight cars and intermodal packages shall be HAZMAT trained in accordance with 49 CFR 172.700, Subpart H. A signed affidavit stating that all railroad crew members handling rail freight cars containing Navy waste are HAZMAT trained and an outline of the course program may be submitted.

Freight Car Cleanliness

The rail freight cars provided by the Subcontractor shall be free of loose debris and be janitorially clean (broom clean).

Rail Gondola Car

The Subcontractor shall provide to BEI rail gondola cars that are free of internal appurtenances which could affect the integrity of sift-proof liners that BEI will provide and install.

The Subcontractor-provided rail gondola cars shall have an internal height of not less than 4.5 feet nor greater than 5.75 feet.

The Subcontractor shall provide cars whose internal surfaces, in BEI's opinion, are free of major rust or scale which could affect the ability to easily decontaminate the car in the event it became contaminated.

Rail Siding Maintenance

Subcontractor provided rail sidings (i.e., frogs, switches, ballast, crossties, rails, fastenings) shall be maintained to at least a Class 1 standard throughout any shipping campaign in accordance with 49 CFR Part 213. The Subcontractor shall notify BEI in writing of the names and qualifications of persons designated to inspect track.

1.5 PACKAGING, LABELING, MARKING, AND PLACARDING

1.5.1 Transportation by Highway

Packaging, labeling, marking, and placarding will be performed by BEI [or Treatment, Storage, and Disposal Facility (TSDF)] in compliance with Title 49 CFR 172, 173, 178, and Title 40 CFR 262, 263, and 761. The motor vehicle operator(s) shall perform an inspection to verify, based on his training in accordance with Title 49 CFR 172, Subpart H, and experience, the packaging, labeling, marking, and placarding are in accordance with the requirements listed above and the accompanying shipping documents. Upon acceptance of the load for transport, the Subcontractor shall be responsible for maintaining the integrity of BEI's packaging, labeling, marking, placarding, and the accompanying shipping documents in compliance with 49 CFR 177.800, Subpart A. BEI shall be notified immediately (see Section 6.0, Accidents Involving Transport Vehicles, for notification procedures) upon the Subcontractor's discovery of a change in the condition of BEI's packaging, labeling, marking, or placarding (e.g., changes due to equipment failure, packaging failure, accident, adverse weather conditions, vandalism, or theft). Concerns or questions related to the inspection, maintenance, or notification procedures are to be addressed to the BEI site manager or his designee prior to the motor vehicle operator's load acceptance.

1.5.2 Roll-On/Roll-Off Bimodal Containers

BEI will inspect the roll-on/roll-off bimodal container in accordance with the Specification at the time of Subcontractor delivery and, upon acceptance, will direct where to place the container.

BEI may elect to survey the roll-on/roll-off bimodal container at the time of delivery for the presence of hazardous materials. BEI will install the Subcontractor provided bag liner, fill the container, and seal it for shipment in accordance with Subcontract provided packaging procedures. BEI will mark, label, placard, certify the packaging, and prepare required shipping documents in accordance with DOT requirements.

1.5.3 Rail Freight Cars

BEI will offer strong-tight packages to be used for packaging of some waste. These packages will be designed to meet AAR Specification M-930-90, "Closed Van-Type Dry Cargo Containers for Domestic Container-on-Flat-Car (COFC) Service." BEI will mark, label, certify, and provide shipping papers describing the packaged container contents in full compliance with 49 CFR Parts 171, 172, and 173. These containers will be turned over to the Subcontractor for loading and shipment.

Schedule adjustments shall be made by BEI, when needed, that result from weather conditions that prevent loading of Navy waste into or onto rail freight cars. The BEI Site Superintendent or designee will notify the Subcontractor of all necessary schedule adjustments due to inclement weather.

The Subcontractor shall provide equipment, such as but not limited to, clevis, slings, cranes and bridges, lifting and handling procedures, training of workers and supervision in order to transfer BEI packages to rail flat cars and to provide blocking, bracing, and load securement for the packages such that the packages will not move or fall during conditions normally incident to transportation.

The Subcontractor shall provide BEI copies of the latest certification of load testing of all lifting equipment used for COFC services for BEI packages. The Subcontractor shall also provide BEI with copies of each load test of the equipment and reason for load test (e.g., maintenance repair, periodic retest).

BEI shall placard the rail freight cars and intermodal packages in accordance with 49 CFR Part 172, Subpart F. Subcontractor rail crew members shall replace placards and car certificates that become lost in transit at the next inspection point in accordance with 49 CFR Part 174.59.

2.0 MOTOR VEHICLE REQUIREMENTS

2.1 GENERAL

The Subcontractor shall provide equipment that is appropriate to accomplish successful transportation of HM, HW, or CM either from Navy sites or to or from the TSDF. Motor vehicles shall be maintained and operated in accordance with the manufacturer's recommendations, Occupational Safety and Health Administration (OSHA) requirements, federal regulations as specified in Title 49 CFR 393, 396, and 397, and applicable state and local regulations. The Subcontractor shall take all precautions necessary for safe operation of his equipment/vehicle and to safeguard the public and the environment from injury or accidental release of HM, HW, or CM.

The Subcontractor shall provide to BEI a list of the transport vehicles to be used, broken down by identification number, type, and size.

2.2 MOTOR VEHICLE INSPECTIONS

All vehicles shall be inspected by the Subcontractor in accordance to Title 49 CFR 393, "Parts and Accessories Necessary for Safe Operation," and shall conform to all applicable local, state, and federal requirements for registration, insurance, inspection, certification, and performance.

All motor vehicle inspections shall be performed by qualified inspectors as required by Title 49 CFR 396.19, "Inspector Qualifications." The Subcontractor shall submit a copy of the current certificate of commercial motor vehicle inspection and the inspector's certificate of training to BEI prior to any transportation activities (or may provide a statement certifying that all motor vehicles supplied to BEI have been inspected in accordance with the requirements of Title 49 CFR 396.17, 396.19, and 396.23).

Brake inspections shall be performed by a certified brake inspector for commercial motor vehicles as described in Title 49 CFR 396.25, "Qualifications of Brake Inspectors." The Subcontractor shall submit a copy of the current certificate of brake inspection and the inspector's certification of training to BEI prior to transportation activities (or may provide a statement certifying that all motor vehicles supplied to BEI have been inspected in accordance with the requirements of Title 49 CFR 396).

Prior to being placed into use, and at least once each day, in accordance with the requirements of Title 49 CFR 396.11, "Driver Vehicle Inspection Report," and 396.13, "Driver Inspection," the motor vehicle operator shall perform a safety inspection of the motor vehicle. The vehicle operator upon arrival, shall provide BEI with a copy of the current signed daily safety inspection report. BEI will confirm that the transporting vehicle has been inspected in accordance with 49 CFR 396, "Inspection, Repair, and Maintenance."

All motor vehicles (and equipment) provided to BEI shall be subject to a quality surveillance by BEI prior to loading to determine that the motor vehicle (and equipment) in accordance with Title 49 CFR 393 and 396. Such inspection and approval shall not relieve the Subcontractor of responsibility for the use of proper equipment. **INSPECTION OF VEHICLES BY BEI DOES NOT IMPLY CERTIFICATION.** The Subcontractor shall allow six hours for motor vehicle inspection, loading/unloading, and release from a BEI site (or TSDF).

Motor vehicles determined by BEI to be potentially unsafe and/or unsuitable for their intended use shall be removed from the site until repaired by the Subcontractor at his expense or replaced with a different motor vehicle. Repaired or replaced motor vehicles will receive new inspections to determine if repairs are correct and meet inspection standards. Time lost due to reinspection shall be at the Subcontractor's expense.

3.0 MOTOR VEHICLE OPERATOR REQUIREMENTS

3.1 QUALIFICATION OF MOTOR VEHICLE REQUIREMENTS

Before transportation services are rendered, motor vehicle operators (drivers) shall meet the requirements, including all required endorsements (and shall provide evidence of such) specified in Title 49 CFR 383, " Commercial Driver's License Standards: Requirements and Penalties"; 391, "Qualifications of Drivers"; and 172, Subpart H, "Training."

The following information must be submitted to BEI prior to any transportation activity:

- A medical examiner's certificate, or a legible photographic copy of a certificate, or a statement attesting to a record on file with the Subcontractor of a medical examiner's certificate on each motor vehicle operator's physical qualifications to operate a motor vehicle in accordance with Title 49 CFR 391.43, "Medical examination; Certification of Physical Examination," and Title 49 CFR 391.41, "Physical Qualifications for Drivers."
- A statement certifying the Subcontractor, at least once every 12 months, reviews the driving record of each motor vehicle operator it employs in accordance with Title 49 CFR 391.25, "Annual Review of Driving Record." Included in this review shall be a list of all violations of motor vehicle traffic laws in accordance with Title 49 CFR 391.27, "Record of Violations."
- A valid commercial driver's license (CDL) for each motor vehicle operator provided to BEI (and a legible photographic copy of the CDL to be retained by BEI).

3.2 MOTOR VEHICLE OPERATORS NOT QUALIFIED

Motor vehicle operators may not be deemed qualified or acceptable in accordance with Title 49 CFR 391.51, "Disqualification of Drivers." Motor vehicle operators deemed not acceptable for transporting HW, HM, or CM shall be replaced at Subcontractor's expense, including time lost.

4.0 OTHER REQUIREMENTS

4.1 MOTOR VEHICLE WEIGHT REQUIREMENTS

Prior to arrival for loading, all Subcontractor motor vehicles provided to BEI, shall be weighed at an offsite certified (certified calibrated) scale. Upon arrival for loading, each vehicle operator shall provide BEI a legible copy of the certified tare (light) weight receipt for that motor vehicle.

Prior to releasing the loaded motor vehicle for transport, BEI will verify motor vehicle and load weight by requiring all loaded motor vehicles (truck, trailer, and load) to be weighed at an offsite certified scale located within 30 miles of the Navy site. The Subcontractor shall provide BEI with a legible copy of the certified loaded weight receipt for each motor vehicle.

BEI will only accept certified tare and loaded weight receipts containing the following information:

- Motor Vehicle identification number
- Date motor vehicle was weighed
- Name, address, and telephone number of offsite certified scale
- Weigh master's signature

Gross weight of loaded motor vehicles (tractor, trailer, and load) released from the site(s) shall not exceed 80,000 pounds (except for BEI authorized permitted over-dimension/over-weight shipments). If a motor vehicle (tractor, trailer, and load) exceeds 80,000 pounds, or the maximum axle weight limits, the motor vehicle is to return to the site to off-load the excess weight.

4.2 TRANSPORTATION SAFETY RATING

The Subcontractor shall submit to BEI a current copy of his Federal Motor Carrier Safety Rating assigned by the Federal Highway Administration (FHWA) as set forth in Title 49 CFR 385, "Determination of Safety Rating." A Subcontractor receiving notification by the FHWA of a "conditional" or "unsatisfactory" rating will be ineligible to transport HM, HW, or CM for BEI.

4.3 CONTROLLED SUBSTANCE TESTING

The Subcontractor shall submit to BEI proof of compliance with Title 49 CFR 391, Subpart H, "Controlled Substance Testing." (The Subcontractor may provide an affidavit attesting that in compliance with Title 49 CFR 391, Subpart H, a controlled substance testing program is in place with a copy of the program available to BEI by request.)

4.4 TRANSPORTER EPA ID NUMBER

The Subcontractor shall submit to BEI his EPA ID number and the EPA ID numbers of each railroad it is subcontracting with, if applicable, as specified per the Toxic Substances Control Act (TSCA) or Resource Conservation and Recovery Act (RCRA). If polychlorinated biphenyls (PCBs) are being transported, the Subcontractor is also required to have submitted a separate "Notification of PCB Activity" Form 7710-53 to the EPA as required by Title 40 CFR 761.202 and 761.205. A legible copy shall be provided to BEI prior to BEI's release of the load.

4.5 CARRIER SURETY BOND OR POLICIES OF INSURANCE

The Subcontractor shall submit to BEI proof of insurance on DOT Form MCS-82 or MCS-90, as required in Title 49 CFR 387.

4.6 TRANSPORTATION REPRESENTATIVE

The Subcontractor shall designate a competent, authorized representative, acceptable to BEI, that is knowledgeable in DOT hazardous materials regulations to represent and act for the Subcontractor.

The Subcontractor shall inform BEI in writing of the name and address of such a representative. A background statements of the representative's qualifications, along with copies of training certificates or any other documented source of training or establishment of knowledge of the DOT hazardous materials regulations, shall be submitted to BEI in writing.

4.7 REQUIRED PERMITS AND LICENSES

The Subcontractor shall obtain all required permits and/or licenses and shall make all required notifications for transporting HM, HW, or CM from Navy sites to the TSDf (or to another Navy site), including any over-dimension/over-weight permits and/or notifications. The Subcontractor shall submit to BEI a legible copy of all required permits, licenses, and/or notifications made (or the Subcontractor may provide an affidavit attesting that all permits, licenses, and/or notifications shall be obtained or made with copies available at BEI's request).

4.8 DOCUMENTATION

The Subcontractor shall be responsible for all documents/shipping papers provided by BEI prior to shipment in accordance with 49 CFR 177.817 or 49 CFR 174.24, "Shipping Papers." The Subcontractor shall comply with the directions provided by BEI prior to shipment regarding documents/shipping papers. All documents/shipping papers shall be kept with BEI's shipments at all times. BEI documents will include the following when applicable:

- Signed Uniform Hazardous Waste Manifest/Bill of Lading
- Exclusive Use Control Instruction
- Vehicle Survey Release Form (completed at the site prior to vehicle release)
- TSDf specific forms
- Emergency Response Guide Information

A copy of the signed Bill of Lading, the Uniform Hazardous Waste Manifest (when required), and any TSDf specific forms shall be included with the Subcontractor's invoice for payment of transportation services.

4.9 TRANSPORTATION ROUTES AND EMERGENCY RESPONSE PLAN

4.9.1 Transportation by Highway

The Subcontractor shall meet all existing federal, state, and local regulations for traffic control and motor vehicle operation for transportation of HM, HW, or CM on public roads and highways.

The Subcontractor shall submit a written transportation Emergency Response Plan, which includes instructions for compliance with Title 49 CFR 171.15, "Immediate Notice of Certain Hazardous Materials Incidents," and 172, Subpart G, "Emergency Response Information." The plan shall include all aspects and considerations for HM, HW, or CM transportation hazards that may arise

during transportation operations, and shall be submitted to BEI for review ten working days prior to any waste hauling. The plan shall include, at a minimum:

- Procedures for incident response
- Methods to contain and clean up releases
- Details of manpower and equipment available
- The coordination necessary to mobilize the above forces in an emergency
- Traffic maintenance/warning procedures
- List of emergency numbers for information and notification on HM, HW, or CM for each applicable state
- Name of emergency response coordinator

The Subcontractor shall notify BEI immediately upon learning that a transportation-related accident has occurred as stated in Section 6.0, "ACCIDENTS INVOLVING TRANSPORT VEHICLES" of this Specification.

The Subcontractor shall be responsible for providing BEI with the proposed transportation route that is in compliance with Title 49 CFR 397, "Transportation of Hazardous Materials; Driving and Parking Rules [397.9, "Routes," and 397, Subpart D, "Routing of Class 7 (Radioactive) Materials"] to be used between the Navy site (or TSDF) and TSDF (or another Navy site) prior to transport. Except for authorized deviations due to city hazardous material by-pass routes or detours mandated by powers of authority (e.g., detours due to construction, emergency situations, or inclement weather conditions), deviations from the submitted routes are not permitted without prior written approval by BEI. Transportation routes may be shown on BEI Design Drawings, when drawings are provided.

The cleanup cost for any release of HM, HW, or CM by the Subcontractor shall be the responsibility of the Subcontractor. The cleanup operations shall be performed at the expense of the Subcontractor. Cleanup shall be performed immediately.

A shipment that is designated by BEI to be a RCRA HW will require the Subcontractor to submit to BEI a current EPA ID# as proof of being an EPA-approved transporter of RCRA waste.

4.9.2 Railroad Routing Map

The subcontractor shall provide to BEI a map showing the proposed routing of rail freight cars from point of origin to the disposal facility. The routing map should identify all utilized railroads and indicate key milestones expressed in travel days from the time leaving the point of origin.

4.10 TRACKING AND NOTIFICATION

4.10.1 Transportation by Highway

The Subcontractor shall have in operation a satellite tracking system to be used on all BEI shipments. At least once a day, the motor vehicle/load shall be located with the time and location recorded. In conjunction with the satellite tracking system, the Subcontractor shall implement a procedure for daily contact with the motor vehicle operator. BEI will not consider messages forwarded, left with answering services, or on answering machines as daily contact. As an alternative, the Subcontractor may implement a scheduled daily telephone call-in/call-back location verification system and the call-in/call-back system require the Subcontractor to notify BEI immediately if the Subcontractor is unable to verify the motor vehicle/load location, or if the motor vehicle operator fails to make scheduled daily contacts. Motor vehicle/load location verification and motor vehicle operator daily contact information must be made available to BEI by telephone or facsimile transmittal with one hour of request. A written description of the tracking and notification system shall be submitted to BEI for approval.

The Subcontractor shall provide the capability to recall or reroute a shipment due to unforeseen events which may require the motor vehicle/load to return to the origination point or be rerouted to an alternate TSDF. This capability may be provided through the use of the satellite tracking/daily call-in system or the telephone call-in/call-back system. BEI shall be notified immediately if the Subcontractor is unable to recall or reroute a shipment.

The Subcontractor shall notify BEI immediately upon learning that a scheduled time of arrival, at either the TSDF or at a Navy site, has changed. BEI shall be notified immediately if the Subcontractor's motor vehicle is delayed due to equipment failure, accident, inclement weather, or any condition that prevents the motor vehicle/load from continuing on the approved route and/or transportation schedule. BEI shall be informed of the exact location and condition of the Subcontractor's motor vehicle and of BEI's load when a change of schedule or delay as described above occurs.

The Subcontractor shall contact the TSDF, or other destination, 24 hours in advance to schedule an arrival time. The Subcontractor shall be responsible for contacting the pickup and destination facilities before shipments begin, to identify appropriate procedures at the individual facilities (i.e., opening and closing times, pass requirements, etc.). Any cost incurred due to failure to comply with these procedures, or due to lack of appropriate planning, shall be the responsibility of the Subcontractor. The contact and telephone number for the pickup and destination facilities will be provided with the Work Release or as otherwise provided. BEI shall be notified within 24 hours of the scheduled delivery date if the shipment was not delivered to the TSDF on the scheduled delivery date.

If, during BEI's business day, the Subcontractor becomes aware of an inability to track, recall, or reroute BEI loads, or that the Subcontractor's motor vehicle is unable to maintain the approved transportation route and/or schedule, the Subcontractor shall notify BEI immediately, and if initially

unsuccessful, shall continue to attempt to notify BEI. If, after the close of BEI's business day, the Subcontractor becomes aware of a condition as described above, notification of such condition shall be made at the start of BEI's next business day. BEI will provide a contact telephone number for such notification prior to each shipment.

In addition to immediate notification by telephone, the Subcontractor shall submit to BEI within five days of loss of verified daily contact with the motor vehicle/load, a written report which shall include:

- Time, date, and location of last daily contact.
- Time, date, location, and condition of the motor vehicle/load when contact was reinstated.
- A description of the methods/agencies used to reinstate contact and to verify location of the motor vehicle/load.
- A description of the methods used to reinstate transportation services, if an interruption of services occurred.
- Any additional pertinent information concerning the incident.

4.10.2 Transportation by Rail

The Subcontractor shall notify BEI of any abnormal occurrences identified in the following subsections or any similar, but not identified, occurrences.

Location Tracking and Notification

The Subcontractor shall have in operation a system which identified the location of each BEI rail freight car grouping in transit from the Navy site to the designated TSDF. At least once per work day, the Subcontractor shall notify BEI as to the location of each rail freight car grouping. This may be accomplished by facsimile.

The Subcontractor system may be automated using bar coding reader stations, satellite tracking, or manual telephone call-in/call-back systems. Daily location verification information must be made available to BEI by telephone, computer, or facsimile transmittal within one hour of request.

The Subcontractor shall contact the disposal site 24 hours in advance of the scheduled arrival time.

Movement of Defective Cars for Repair

The Subcontractor shall notify BEI as soon as practical whenever a loaded rail freight car has been determined to have a defective component. The Subcontractor shall relay to BEI's Subcontractor

Administrator the related information and restrictions imposed by the designated inspector in accordance with 49 CFR Part 215.9.

Reporting Hazardous Material Incidents and Abnormal Occurrences

The term *abnormal occurrences* means any of, or similar to, the following conditions noted during transport of hazardous materials, substances, or wastes:

- failure of the watertight, sift-proof liner
- broken tamper-indicating devices or package seals
- deviation from the designated routing maps
- any transportation condition that is not normally incident to transportation

As soon as practical, the Subcontractor shall notify BEI of an incident which occurs during transportation in which Navy wastes are involved, whether a report is or is not required by 49 CFR Parts 171.15 and 171.16.

Leaking Rail Freight Cars and/or Intermodal Packages

The Subcontractor shall notify BEI immediately of any noted leakage of Navy waste material from any rail freight car or intermodal package during transportation.

Emergency Response Plan

The Subcontractor shall submit a written transportation Emergency Response Plan. The plan shall include instructions for compliance with 49 CFR Part 171.15, "Immediate Notice of Certain Hazardous Material Incidents." The plan shall include all aspects and considerations arising from transport incidents involving hazardous substances, materials, or wastes. The plan shall be submitted to BEI for review at least 10 working days in advance of any waste transportation as scheduled. The plan shall include the name of the Subcontractor emergency response coordinator.

4.11 PUBLISHED TARIFF RATES

The Subcontractor shall submit to BEI proof that each subcontracted item listed in Part III, Pricing and Data, b. Schedule of Quantities and Prices, of the Subcontract has been submitted and published through the Interstate Commerce Commission (ICC) tariff system as defined in Title 49 CFR 1300 through 1319.

4.12 ADDITIONAL REQUIREMENTS FOR LOOSE CONVEYANCE LOADS

Vehicles used for loose conveyance transport of soil shall meet the following requirements:

- (1) The truckbed shall be free of drain holes, cracks, or other conditions that may allow leakage of soil.

- (2) If the vehicle has a tailgate for dumping, the Subcontractor vehicle operator shall demonstrate to the BEI site superintendent or designee that the tailgate can maintain a seal. A vehicle that cannot maintain a seal will be repaired or replaced by the Subcontractor before being placed into service. If seals fail after the vehicle is placed into service, they are to be repaired immediately, and BEI shall be notified.
- (3) Vehicles are not to be equipped with side boards while transporting loose conveyances.
- (4) Material shall not be loaded higher than one foot below the top of the vehicle side walls.
- (5) Tarpaulin covers shall be installed and used on all vehicles. Before being installed, sharp objects and/or protrusions are to be eliminated to prevent cutting or puncture of the tarpaulin.
- (6) Tarpaulins are to be firmly secured over the soil with sufficient overlap so that the material will not be blown from the vehicle during transport. BEI will inspect the tarpaulin for adequate installation.

5.0 MOTOR VEHICLE LOADING AND UNLOADING OPERATIONS

All areas and buildings of the Navy sites (or TSDF) are off limits to Subcontractor motor vehicles (and motor vehicle operators) except those areas and buildings designated by BEI (or TSDF). Motor vehicle operators will be supervised by BEI (or TSDF) at all times while at BEI (or TSDF) sites and shall remain inside the tractor cab at all times, unless directed otherwise by BEI (or TSDF).

All Subcontractor motor vehicles will be monitored by BEI for external contamination prior to being allowed onto Navy sites. Subcontractor motor vehicles shall arrive at the site sufficiently clean to allow accurate monitoring. Motor vehicles shall be free of dried mud, dirt, grease, or other accumulations. If accurate monitoring is unsuccessful, due to excess mud, dirt, grease, or other accumulations, the motor vehicle shall be removed from the site and cleaned. Motor vehicle cleaning and time lost will be at the Subcontractor's expense. Only motor vehicles determined to be free of contamination will be allowed onto Navy sites.

Loading and unloading operations will be the responsibility of BEI (or TSDF) and will be conducted in a highly controlled manner that prevents contamination of motor vehicles. BEI (or TSDF) will verify that motor vehicles are free of contamination before their release from the loading/unloading area. Subcontractor motor vehicles will be checked for contamination as appropriate prior to leaving the loading/unloading area.

Motor vehicles that become contaminated during loading/unloading operations will be decontaminated by BEI (or TSDF). After decontamination, the motor vehicle will be checked again by BEI (or TSDF) to verify that it is free of contamination prior to its release for transport.

Load configurations shall be a joint effort of BEI and the motor vehicle operator(s). After loading, and prior to leaving the site (or TSDF), the motor vehicle operator(s) shall perform an inspection

to verify the load is arranged and secured properly (based on experience and training, and in accordance with Title 49 CFR 393, Subpart I, "Protection Against Shifting or Falling Cargo," and 392.9, "Safe Loading").

Upon acceptance of the load for transport, the Subcontractor shall be responsible for maintaining the integrity of the load, the load arrangement, and any security seals. The motor vehicle operator shall examine and periodically reexamine the load (load inspections during transit do not apply to sealed trailers, only to the inspection of security seals) and its load-securing devices as may be necessary to maintain the integrity of the load and the load arrangement in accordance with Title 49 CFR 392.9.

The Subcontractor shall be in compliance with the requirements of Section 6.0, "Accidents Involving Transport Vehicles," of the Specification upon discovery of a change in the condition of BEI's load, load arrangement, or security seals (e.g., changed due to equipment/packaging failure, motor vehicle accident, adverse weather conditions, vandalism, or theft) which involves a release of HM, HW, or CM.

6.0 ACCIDENTS INVOLVING TRANSPORT VEHICLES

In the event of an accident, the Subcontractor shall follow the procedures outlined in his Emergency Response Plan and shall be in compliance with the requirements of Title 49 CFR 390.15, "Assistance in Investigations and Special Studies, Subpart E, Accidents and License Revocation: Duties of Driver," and 172, Subpart G, "Emergency Response Information."

In the event of an accident involving a release of HM, HW, or CM, the Subcontractor shall notify BEI immediately upon learning of the accident, and if initially unsuccessful, will continue to attempt to contact BEI. The Subcontractor shall use a 24-hour telephone contact number for accident notification, when notification attempts are outside BEI's business day. BEI will provide the 24-hour telephone contact number for such notification prior to each shipment.

Notification of an accident shall include location, date and time of the accident, resultant damage or injury, person(s) involved, probable cause, condition of the load, if HM, HW, or CM was released and the amount, and any other pertinent information concerning the accident. Also to be included if applicable, are weather conditions, distance to water sources, government agencies on the scene and a telephone number where communications can be maintained.

The motor vehicle operator shall comply with all directions provided by BEI, unless counter to FHWA regulations, and/or the laws and ordinances of the jurisdiction in which the motor vehicle was in operation at the time of the accident. BEI will issue instructions regarding continued transportation of the load. The motor vehicle operator shall remain with the motor vehicle until assistance arrives or until otherwise directed.

The Subcontractor shall submit to BEI within five days of an accident or incident involving a release of HM, HW, or CM a written report which shall include the location, date and time of the accident

or incident, resultant damage or injury, person(s) involved, probable cause, the amount of HM, HW, or CM released, government agencies involved, and any other pertinent information concerning the accident or release. In addition, when an accident or incident occurs involving the release of HM, HW, or CM, the Subcontractor shall submit to BEI copies of any accident/incident reports required by State or other governmental entities.

7.0 SUBMITTALS

BEI engineering documentation requirements are summarized in the Subcontractor Submittal Requirements Summary of the issued Subcontract package. BEI will determine if documentation is complete as submitted by the Subcontractor, and reserve the right to reject and require resubmittal of any submittal that in BEI's opinion does not meet the Subcontract requirements.

Submittals that are specific to each individual motor vehicle operator (e.g., Brake Inspection Certificate, Brake Inspector's Certification, copy of CDL, Medical Examiner's Certificate) must be received and accepted by BEI within five working days of BEI's notification to the Subcontractor for motor vehicles. Nonshipment specific submittals (e.g., Motor Carrier Safety Rating, Carrier Surety Bond, or Policies of Insurance) required upon acceptance of the Subcontract award, must be received within five working days from time of Subcontract award notification and acceptance. Status of the submittals will be made to the Subcontractor by BEI within three working days following the receipt of required submittals. Rejected submittals must be corrected and received by BEI within three working days of notification of submittal rejection. All submittals must be accepted by BEI prior to the start of onsite work.

Affidavits submitted in lieu of specific Subcontract submittal certificates, licenses, or permits must be signed using the Subcontractor representative's full name and his/her company title. The affidavit must be dated, notarized, and have a reference to the submittal number found in BEI's Subcontractor Submittal Requirements Summary. The CFR number, if applicable, must be referenced with its relationship to the specific submittal requirement. The affidavit must be in statement form with an explanation of how the affidavit fulfills the submittal requirement. Acceptance of an affidavit in lieu of certificates, licenses, or permits is at the direction of BEI.