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January 4, 2001

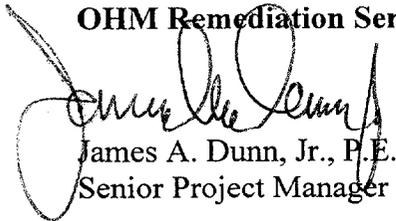
Mr. Kirk Stevens
Atlantic Division Code EV23KS
Naval Facilities Engineering Command
6506 Hampton Blvd.
Norfolk, VA 23508

Re: Contract N62470-97-D-5000
Final Work Plan, Additional Investigation and Interim Measures
SWMU 291, 310, and 358
MCB Camp Lejeune, NC

Dear Mr. Stevens:

Attached please find revised covers, spines and pages to be inserted into your existing Work Plan binders incorporating comments from all reviewers. These insertions will render the Work Plans Final.

Yours Truly,
OHM Remediation Services Corp.



James A. Dunn, Jr., P.E.
Senior Project Manager

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OHM File 803538

WORKPLAN
SITE CHARACTERIZATION and INTERIM MEASURES
For
SOLID WASTE MANAGEMENT UNITS 291, 310, and 358
MCB CAMP LEJEUNE, NORTH CAROLINA



January 2001

WORKPLAN
SITE CHARACTERIZATION AND INTERIM
MEASURES FOR
SOLID WASTE MANAGEMENT UNITS 291,
310, AND 358
MARINE CORP BASE
CAMP LEJEUNE, NORTH CAROLINA

Prepared for:

DEPARTMENT OF THE NAVY

Contract No. N62470-97-D-5000

Task Order No. 0052

Atlantic Division
Naval Facilities Engineering Command
6506 Hampton Boulevard
Building A (South East Wing) 3rd Floor

Prepared by:



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January 2001

OHM Project No. 803538

**WORKPLAN
SITE CHARACTERIZATION AND INTERIM MEASURES
FOR
SOLID WASTE MANAGEMENT UNITS 291, 310, AND 358
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA**

Prepared for:

DEPARTMENT OF THE NAVY
Contract No. N62470-97-D-5000
Task Order 052

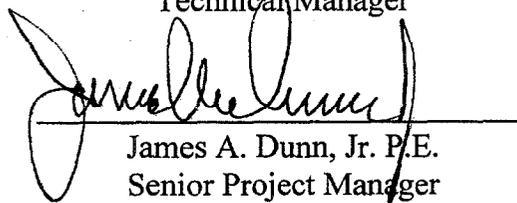
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January 2001
OHM Project No. 803538

- Section 4.0 presents a description of Environmental Protection efforts that include temporary road construction, protection of trees, shrubs and grass, water resources protection and emission control.
- Section 5.0 presents a description of the Interim Measures Activities, which include mobilization and site presentation, source removal, contaminated soil excavation, backfilling, site restoration and demobilization.
- Section 6.0 presents the Transportation and Disposal efforts that include soil, decontaminated water and PPE disposal and waste disposal coordination.
- Section 7.0 presents the Reporting procedures.
- Section 8.0 presents the Project Schedule.

1.1 SITE DESCRIPTION AND BACKGROUND

1.1.1 SWMU 291- 034 Ditch

SWMU 291 is located in the Hadnot Point Industrial Area behind Building 1450, on Dogwood Street. The location of the site is shown on Figure 1. The SWMU is a drainage ditch measuring approximately 55 feet by 80 feet, that received runoff from Building 1450 and an associated oil/water separator. A portion of the ditch has been backfilled. The area immediately surrounding the ditch exhibits vegetative growth.

1.1.2 SWMU 310- Former Ponds

SWMU 310 consists of two shallow ponds, both approximately 70 feet by 30 feet in size. The depth of impacted sediments is estimated to be 12 to 18 inches. A former oil/water separator associated with the SWMU was removed in September 1998. Samples collected at the area after removal of the structure indicated the presence of TCE in the soils. Figure 2 presents the site location for SWMU 310.

1.1.3 SWMU 358- Sneads Ferry Road Battery Dump

SWMU 358 was identified for action in May 2000. The site is approximately 15 feet by 20 feet in size, and was known to contain numerous batteries including lithium, magnesium, and nickel-cadmium type batteries. The anticipated excavation depth at this site is six to eight feet below ground surface (bgs). The site location for SWMU 358 is shown as Figure 3.

4.0 ENVIRONMENTAL PROTECTION

The Environmental Protection Plan (EPP) has been prepared in accordance with standard OHM procedures and policies. The EPP provides specific information relating to the scope of work under Task Order 052 of LANTDIV Contract No. N62470-97-D-5000 at SWMUs 291, 310, and 358, MCB Camp Lejeune, North Carolina. The plan will provide site-specific information for:

- Land resources management
- Water resource management
- Air and noise pollution control
- Non-compliance/corrective action
- Post-excavation clean-up

The control of environmental pollution will consider air, water and land impacts as well as noise and solid waste management.

The land resources within the property of MCB Camp Lejeune, but outside the limits of permanent work, will be preserved in their condition or restored to a condition that does not detract from the appearance of the area after completion of construction. To the extent possible, construction activities will be limited to areas defined by the plans and specifications.

4.1 TEMPORARY ROAD CONSTRUCTION

In the event that temporary construction roads are required at the project site, road construction will be performed in a manner as to minimize the impact to the natural environment. Water will be used for dust control, as necessary.

4.2 PROTECTION OF TREES, SHRUBS, AND GRASS

Prudent steps will be taken to protect trees and shrubs outside of the excavation zone as necessary. Trees and shrubs within the excavation zone will be cut down to ground level and removed by OHM. However, tree stumps or roots within the excavation activities will be cut into manageable pieces and moved from the project site as not to interfere with operations. Precautions will be taken to minimize the construction activities' impact on existing vegetation and will include but not limited to:

- Utilization of existing or temporary construction roads
- Closely supervise equipment operators with an emphasis place on preservation of vegetation in non-work area
- Proper guidance of heavy equipment and truck operators by site personnel to minimize damage to adjacent vegetation not directly affected by construction activities

4.3 WATER RESOURCES PROTECTION

4.3.1 Surface Water Management

To protect against damage, surface water run-off occasioned by storm flows leaving the site will be controlled by temporary erosion / sediment control techniques such as berms, silt fencing and grading. The area of bare soil at any time by construction activities will be minimized.

4.3.2 Erosion Control

Prior to disturbance of native vegetation and soils, temporary erosion/sediment control will be established on the down gradient side of each excavation. Control techniques to be utilized will involve silt fencing.

Silt fencing will be installed with the fabric a minimum of 6 inches below grade and extending 36 inches above grade and fastened to posts no more than 6 feet apart. The posts will be installed a minimum of 24 inches below grade and extend a minimum of 36 inches above grade. Fabric will be attached to the upslope side of the posts using 1-inch staples or tie wires. Silt fences will be inspected after every rain and daily during extended rainfall. Accumulated sediment will be removed before the thickness reaches 12 inches.

4.3.3 Spill and Discharge Control

Measures will be taken to prevent chemicals, fuels, oils, greases, bituminous materials and contaminated materials from entering streams, rivers and lakes. Absorbents will be available to solidify any leaks outside containment and any soil contaminated with fuel spills will be immediately removed and placed into appropriate containers and sampled to determine proper disposition.

debris from tires and undercarriage of vehicles and heavy equipment. Decontamination liquids will be containerized, sampled/analyzed (if required), and disposed.

4.8 SEEDING

Grass seed matching existing grass vegetation will be placed at a rate of 5 pounds per 1,000 square feet over topsoil areas. Fertilizer Type I, Class 2, 10-10-10 analysis will be applied at a rate of 25 pounds for 1,000 square feet.

5.2 CONTAMINATED SOIL EXCAVATION

Final limits for excavation at each SWMU will be presented in the Site Characterization Report. Based on the intended depth of excavation and site access conditions, either a rubber tired backhoe or trackhoe/ excavator will be utilized to remove soil. A temporary soil staging area will be constructed adjacent to the removal area for stockpiling the excavated soils. During deeper excavations, sidewalls may be sloped back as necessary to prevent collapse. Excavations will be secured using temporary construction fencing while awaiting analytical results or the importing of backfill soils.

5.3 CONFIRMATION SAMPLING

Confirmatory sampling will be conducted at SWMU 310 to determine if heavy metals-contaminated soil has been removed to the specified remediation goals. Samples will be collected at 50-foot intervals along the excavation sidewalls and on a 500-square-foot frequency on the bottom of the excavation, unless excavation proceeds to groundwater. The excavation will remain open while results of the laboratory confirmation testing are obtained.

Summary of Conformational Sampling

Media/Location	Parameter	Sampling Method	Sampling Frequency
<i>Soil/SWMU 310</i>	TAL Metals + Lithium	Stainless steel Hand auger	Every 50 feet along side walls. Every 500 ft ² from bottom of excavation.

Laboratories approved by the State of North Carolina will analyze all samples.

5.4 BACKFILL/COMPACTING/GRADING

Clean soil will be used to backfill the excavations. This will either be imported fill or fill from an on site source. Possible on-site sources include the on-site borrow pit.

Any off-site borrow material to be used as backfill will be sampled and analyzed for contaminants prior to transport and use on site.

After backfilling, the excavation areas will be compacted to pre-existing conditions using the equipment on site. The backfilled area will be graded to utilize existing drainage structures for surface water run-off.

6.0 TRANSPORTATION AND DISPOSAL

This section deals with the transportation and disposal of debris and PPE. Transportation and disposal of treated soil and contaminated water are described in earlier sections.

6.1 WASTE STREAMS

The waste streams identified for this project include battery debris and soils impacted with metals and VOCs.

6.1.1 Excavated Material

Debris will consist of excavated soils and batteries. The soils from Sites 291 and 310 will be transported directly to the Base landfill if acceptable analytical results are obtained during characterization sampling. The batteries and associated soils may require transport to a hazardous waste landfill, operating under Subtitle C permit.

6.2 PPE

PPE will be placed on the debris pile or stored in plastic bags, tested for the on-Base Subtitle D landfill parameters, and transported to the Base landfill if acceptable analytical results are obtained.

6.3 DOCUMENTATION

OHM will aid in the preparation of, and maintain applicable copies of all documentation relating to the transportation and disposal of wastes from the project. This will include characterization analytical and facility acceptance paperwork relating to securing a proper disposal site as well as manifests, Bill of Ladings, and landfill weight tickets associated with transporting and eventual disposal of the wastes.

IMAGE Files: 358.tif
 XREF Files: <No Xrefs>

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IMAGE	X-REF	OFFICE	DRAWING
---	---	NORCROSS, GA	NUMBER 803538-A-FIG3

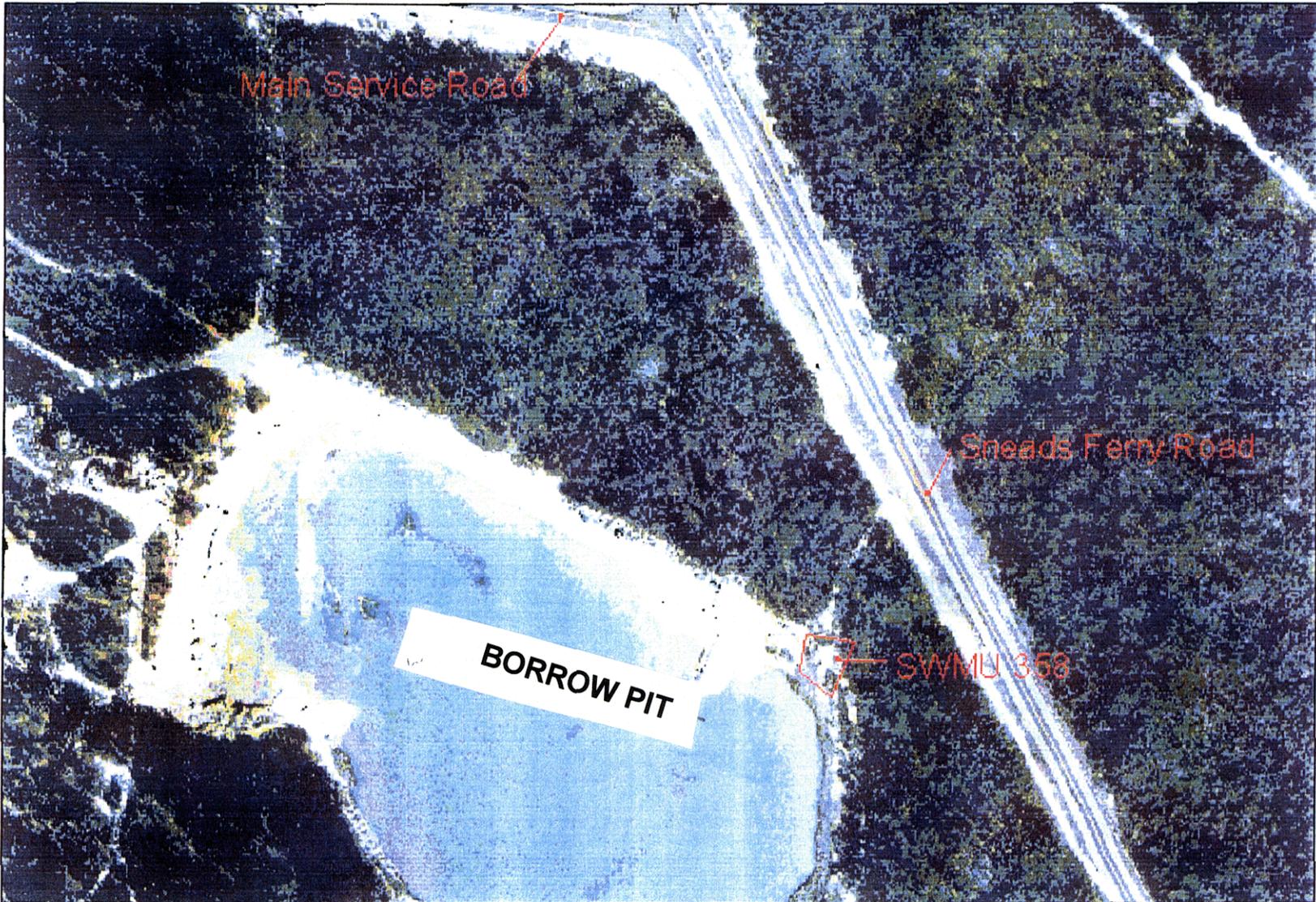


FIGURE 3
 SHEET I.D.
 CONSR. CONTRACT NO. NS2470-87-D-3000
 NAVAL DRAWING NO. 1
 SCALE: AS SHOWN
 DEPARTMENT OF THE NAVY
 NAVAL STATION
 MARINE CORPS BASE

NAVAL FACILITIES ENGINEERING COMMAND
 ATLANTIC DIVISION
 NORFOLK, VIRGINIA
 CAMP LEJEUNE, N.C.
 SITE LOCATION
 SWMU 358-SNEADS FERRY ROAD BATTERY DUMP



DESIGNED BY
 CHECKED BY
 DRAWN BY
 APPROVED BY

INT	ANM	REK					DRAFT WORK PLAN
REV	DATE	BY	CHK'D	APR'VD			DESCRIPTION/ISSUE
							REVISIONS

**SAMPLING AND ANALYSIS PLAN
SITE CHARACTERIZATION AND INTERIM MEASURES
FOR
SOLID WASTE MANAGEMENT UNITS 291, 310 AND 358
MCB CAMP LEJEUNE, NORTH CAROLINA**

Prepared for:

DEPARTMENT OF THE NAVY

Contract No. N62470-97-D-5000

Task Order 052

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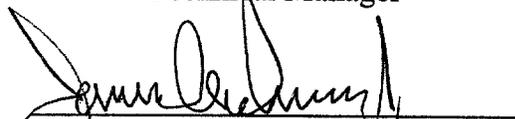
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3.0 SAMPLING PROCEDURES

3.1 SAMPLING METHODS AND PROCEDURES

The following section describes the major sampling and analytical tasks, frequencies, sample matrices, and measurements of contaminants of interest. Table A-1 presents a summary of these items.

3.1.1 Soil/Sediment Sampling

Four soil borings at each of three depths (0-1', 1-2', and 2-3') will be collected from the ditch at SWMU 291. The locations will be an equal distance apart along the approximate 85 feet of ditch. Samples from the same depths will be collected from four points in each of the two former ponds at SWMU 310. These soil samples will be sent to an off-site laboratory for analysis of VOCs, SVOCs, Pesticides, PCBs, and Metals. Soil will be sampled at 50' intervals along the side walls and 500 square foot intervals at the bottom of the excavation at SWMU 358 after removal of the batteries. The excavation at SWMU 358 is expected to be 15' x 20' x 8'. Soil will be sampled at the same intervals from the former ponds at SWMU 310 which are each anticipated to be 55' x 80' x 1'. All of these excavation samples will be analyzed for TAL metals. The samples from SWMU 358 will also be tested for lithium.

Procedure for collecting grab samples using EnCore soil samplers:

1. Don clean sampling gloves.
2. Open the EnCore reusable package and remove the core device and cap.
3. Place into the T-handle with the plunger pulled back.
4. Push into the soil to be sampled, packing the soil into the sampler.
5. Remove from the soil, brush off the sides, and put the cap seal onto the sampler.
6. Label and reseal in the original package.
7. Place into the cooler for shipment.

Procedure for collecting composite samples for the off-site laboratory:

1. Subdivide the area into five to six equally sized subareas.
2. Don clean sampling gloves.
3. Collect random grab samples within the subareas using normal grab procedures with stainless steel augers and spoons.
4. Homogenize the samples thoroughly in a stainless steel bowl.
5. Fill the required sample containers, label, and place into the cooler for shipment.

Trip Blank

Trip blanks are defined as samples that originate from analyte-free water taken from the laboratory to the sampling site and returned to the laboratory with the volatile samples. One trip blank should accompany each cooler containing volatile samples and should be stored at the laboratory with the samples, and analyzed by the laboratory. Trip blanks are only analyzed for volatile organic compounds and will not be required for disposal samples. Trip blanks will accompany all soil samples to be analyzed for VOCs.

3.5 DECONTAMINATION

All sampling equipment (hand augers, spoons, stainless steel bowls, etc.) will be decontaminated before sampling commences, between each sample location, and prior to leaving the site.

- Remove gross contamination by scraping or brushing.
- Clean with tap water and phosphate-free laboratory detergent using a stiff brush to remove all surface contaminants.
- Rinse thoroughly with tap water.
- Rinse with 1:1 nitric acid (HNO₃) metals grade (only when samples are to be analyzed for metals).
- Rinse thoroughly with tap water.
- Rinse thoroughly with deionized/distilled water.
- Rinse twice with reagent grade isopropanol or methanol.
- Rinse thoroughly with organic-free water and allow to air dry. (Do not rinse with deionized/distilled water. If organic-free water is not available, allow equipment to air dry.)
- Wrap equipment with aluminum foil prior to storage or transportation to sample locations.

Decontamination fluids will be collected, properly labeled and staged in a secure area until final disposal unless other arrangements are made.

3.6 SAMPLE LOGBOOK

It is necessary for the sampling crew to maintain daily field notes. Items that must be included are sampling protocol, any changes to the procedures, meetings, instructions, safety precautions, personnel protection, and activities pertaining to the samples. The

**QUALITY CONTROL PLAN
SITE CHARACTERIZATION AND INTERIM MEASURES
FOR
SOLID WASTE MANAGEMENT UNITS 291, 310 AND 358
MARINE CORPS BASE
MCB CAMP LEJEUNE, NORTH CAROLINA**

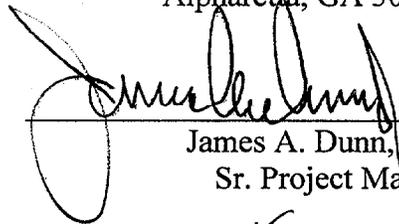
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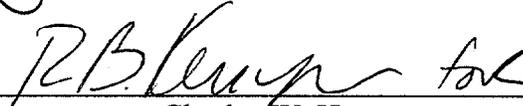
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Roland Moreau, P.E.
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January 2001
OHM Project No. 803538

Exhibit 3.2

List of Personnel Authorized to Review and Certify Submittals

Specification Section	Submittal Type	Authorized Personnel
Scope of work per Task 052	All	Randy Smith Jim Dunn Ronald Kenyon Raymond Boyd Paul Cavanaugh