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UNITED STATES MARINE CORPS
ENVIRONMENTAL MANAGEMENT DEPARTMENT
INSTALLATION RESTORATION PROGRAM
CAMP LEJEUNE, NORTH CAROLINA

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COMMENTS: COMMENTS ON DRAFT INTERIM REMEDIAL INVESTIGATION/FEASIBILITY STUDY PROJECT PLAN O.U. UNIT 10 (SITE 35)

PLEASE CALL

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DRAFT

INTERIM REMEDIAL INVESTIGATION/ FEASIBILITY STUDY PROJECT PLAN

OPERABLE UNIT NO. 10
(SITE 35)

MARINE CORPS BASE,
CAMP LEJEUNE, NORTH CAROLINA

CONTRACT TASK ORDER 0160

Prepared for:

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

Under:

LANTDIV CLEAN Program
Contract N62470-89-D-4814

Prepared by:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

JULY 2, 1993

1.0 INTRODUCTION

This document is an Interim Remedial Investigation/Feasibility Study (Interim RI/FS) Project Plan for the investigation and evaluation of impacted soil at Site 35 - Camp Geiger Area Fuel Farm (Site 35), Marine Corps Base (MCB), Camp Lejeune, North Carolina. The Interim RI/FS Project Plan has been prepared by Baker Environmental, Inc. (Baker) for presentation to the Department of the Navy (DoN), Naval Facilities Engineering Command, Atlantic Division (LANTDIV) under Navy CLEAN Contract Number N62470-89-D-4814, Contract Task Order (CTO) 0160. This RI/FS Project Plan includes the Interim RI/FS Work Plan, Field Sampling and Analysis Plan (FSAP), and the Quality Assurance Project Plan (QAPP).

This Interim RI/FS Project Plan has been prepared in accordance with the requirements delineated in the National Contingency Plan (NCP) for remedial investigation/feasibility study and selection of remedy (40 CFR 300.430). The NCP regulations were promulgated under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) commonly referred to as Superfund, and amended by the Superfund Amendments and Reauthorization Act (SARA) signed into law on October 17, 1986. The United States Environmental Protection Agency's (USEPA's) document Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (USEPA, 1988) has been utilized to prepare this document.

SPELL OUT WHOLE TITLE "NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN (NCP)"

1.1 Purpose of the Interim RI/FS

The purpose of the Interim RI/FS is to evaluate the soil at Site 35 that, based on data obtained from previous investigations, has been identified as contaminated with oil and fuel constituents from past operations at the Camp Geiger Fuel Farm. An Interim RI/FS that is focused on oil and fuel impacted soil at the site was deemed necessary by LANTDIV because:

- The existing site conditions potentially expose nearby human populations, animals, or food chains to hazardous substances, pollutants, or contaminants.
- High levels of hazardous substances or pollutants or contaminants in soils are largely at or near the surface that may migrate.

The above factors are especially prevalent in the topographically lower lying areas along Brinson Creek and the drainage channels located off "F" Street and north of the Fuel Farm which discharge to Brinson Creek.

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2.3 Site Geology and Hydrogeology

Site 35 is underlain by layers of silty sand with interbedded layers of clayey sand, coarse sand and gravel. Site investigations to date have provided subsurface stratigraphic data to a depth of 44.5 feet. Shallow groundwater generally occurs at 8 to 10 feet below ground surface (bgs) across most of the site and at lesser depths where the ~~topographically dips~~ TOPOGRAPHY SLOPES towards Brinson Creek. A low permeability zone of soil occurs at roughly 35 to 44 feet bgs. This zone has been speculated (Law, 1992) to be a confining zone between the water table aquifer and the underlying Castle Hayne aquifer. The Castle Hayne aquifer is the principle water supply aquifer in the region.

2.4 Results of Previous Investigations

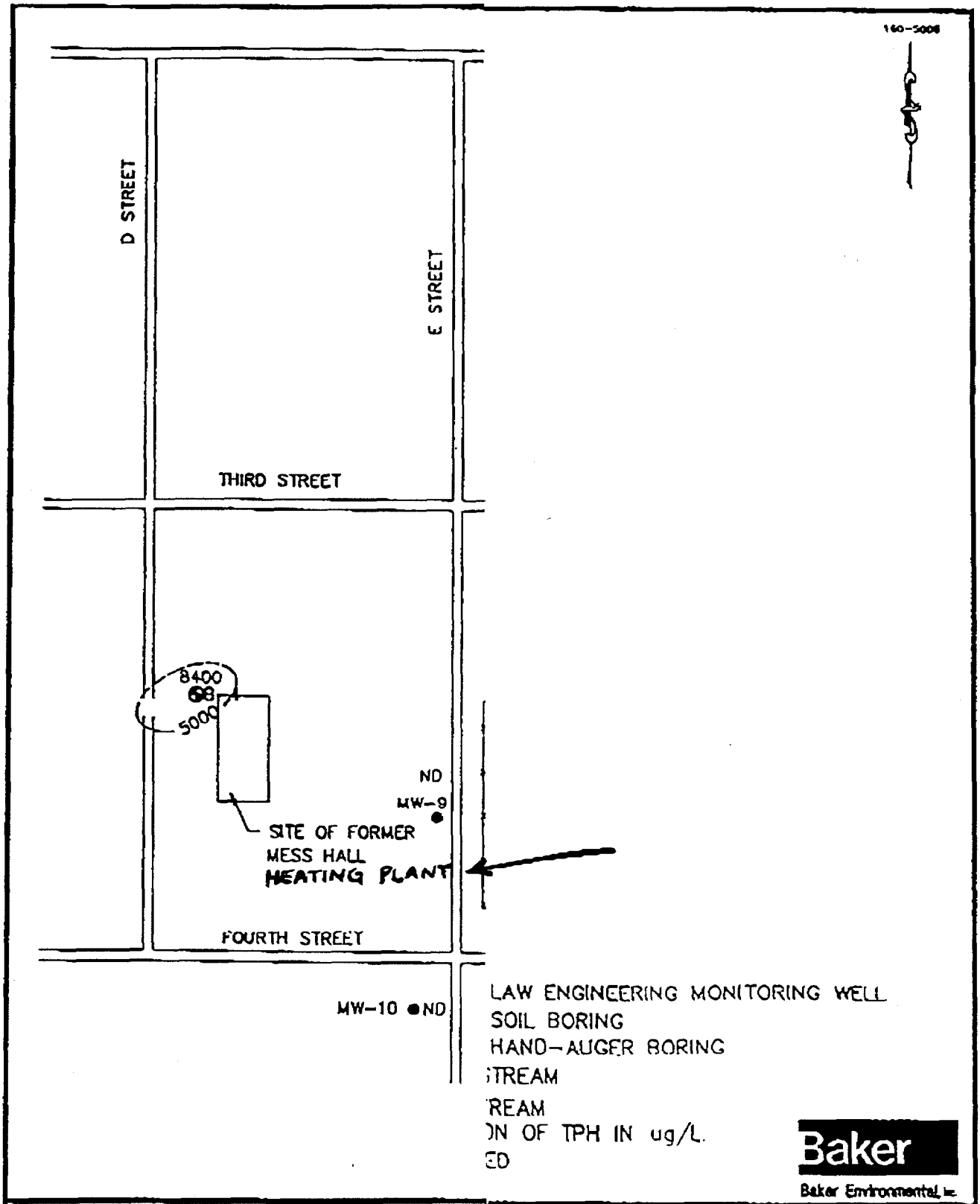
Previous investigations performed at Site 35 include the following:

- Initial Assessment Study (IAS) by Water and Air Research, Inc. (WAR), dated 1983;
- Confirmation Study (CS) by Engineering Science and Environmental, Inc. (ESE), dated 1990;
- Focused Feasibility Study (FFS) by NUS Corporation (NUS), dated 1990;
- Comprehensive Site Assessment (CSA) by Law Engineering, Inc. (LAW), dated 1992; and,
- Addendum to the CSA by Law, dated 1993.

The locations of various data points (i.e., monitoring wells, soil borings, etc.) from previous investigations are depicted in Figure 2-3.

The results of the investigations performed to date identify areas of elevated petroleum hydrocarbon constituents in both soil and groundwater at Site 35. The petroleum hydrocarbons encountered in these media are the result of past operations and uncontrolled releases of oil and fuel at the site. The extent of contaminated soil was identified in the CSA (Law, 1992). The extent of soil contamination is depicted in Figure 2-4.

In addition to petroleum hydrocarbons, elevated levels of halogenated organics were encountered in shallow groundwater samples at the site. The origin of these contaminants has not been determined to date. Soil samples from Site 35 were not analyzed for halogenated organic constituents under any of the previous investigation.



LEGEND

FIGURE 2-4
NG TPH SOIL CONTAMINATION
CAMP GEIGER AREA FUEL FARM
M REMEDIAL INVESTIGATION/
SIBILITY STUDY CTO-0160
IE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

SOURCE: LAW ENGINEERING INC., NOV. 1991

? DRIVER FOR 6-12" BGS SAMPLES

- Obtaining shallow (6 to 12 inches bgs) soil samples (SS-1 through SS-10; see Figure 3-1) from along the topographically low areas near Brinson Creek and from along the drainage channels located north of the Fuel Farm that discharge into Brinson Creek. The samples will be obtained via hand augering.

The above field investigations will result in a total of 17 soil samples (not including QA/QC samples) under the Interim RI/FS. All of the samples identified for shipment to an off-site laboratory shall be analyzed for TCL volatile and semi-volatile organics (Level III data quality), TAL inorganics (Level III data quality), and TPH (via EPA Methods 5030, 3550, and 9071 as per North Carolina guidelines). In addition, two samples will be obtained for full TCLP analysis, and the analysis of RCRA hazardous waste characteristics (e.g., corrosivity, ignitability, and reactivity).

3.4 Task 4 - Sample Analysis and Validation

Task 4 involves efforts relating to the following post-field sampling activities:

- Sample management
- Laboratory analysis
- Data validation

Level III data will be validated per the CLP criteria as outlined in the following documents:

- National Functional Guidelines for Organic Data Review, USEPA, 1991.
- National Validation Functional Guidelines for Inorganic Data Review, USEPA, 1988.

3.5 Task 5 - Data Evaluation

The additional data obtained under the RI/FS will be combined with the existing soil data and evaluated in total.

3.6 Task 6 - Risk Assessment

Under the Interim RI/FS, a more qualitative RA is will be performed to identify receptors and approximate the level of environmental risk posed by soil conditions at Site 35. It is anticipated that acceptable soil

6.0 SAMPLING AND ANALYSIS PLAN

This section details the sampling procedures to be followed during the field investigative activities of th Interim RI/FS. These procedures are limited to soil sampling via borings and hand augering.

6.1 Soil Borings Advanced by Drilling Rig

Soil samples from borings advanced by a drilling rig will be collected using a split-spoon sampler. The borings will be advanced via 3-1/4-inch outside diameter (O.D.), hollow-stem augers. A 2-inch O.D. [1-3/8-inch inside diameter (I.D.)] standard split-spoon steel sampler will be utilized. The standard spoon is available in two common lengths providing either 20-inch or 26-inch longitudinal clearance for obtaining 18-inch or 24-inch long samples, respectively. Split-spoons capable of obtaining 24-inch long samples will be utilized during this investigation.

The procedures to BE followed for soil sampling are as follows:

1. This split-spoon will be driven into unconsolidated materials using a drive weight (140 lbs) connected to a drilling rig that is allowed to free fall a distance of 30 inches in accordance with ASTM D 1586-84. Each hammer drop is called a blow. The total number of blows required to drive the spoon each 6-inch interval over its 24-inch length will be recorded in a field log book.

2. Once recovered and brought to the ground surface, the sampler will be split open and undergo an initial screening with a photoionization detector (PID) or organic vapor analyzer (OVA). The physical characteristics of the sample will be recorded in a field log book by the site field geologist.

3. The center portion of the sample will be removed from the sampler and divided unequally with one portion equal to roughly 75 percent of the sample and the other portion equal to roughly 25 percent of the sample. The smaller portion will be placed in an 8-ounce glass jar, sealed with aluminum foil and the jar lid, and placed in a crock pot. The sample will be heated at a constant temperature for 10 minutes upon which a head-space reading will be obtained via PID or OVA. The reading will be recorded in a field log book. The larger sample portion will be placed in a laboratory-prepared sample jar. The larger portion sample associated with the smaller portion sample that exhibited the highest head-space reading will be submitted to the

As the sampling under this Interim RI/FS may encounter oil, grease, or other hard to remove materials, it may be necessary to rinse the equipment several times with pesticide-grade acetone or hexane to remove the materials before proceeding to Step 1.

- Large Field Equipment

  The large field equipment such as the drilling rig, hollow-stem augers, and drill rods shall be cleaned and decontaminated before entering the designated drill site or between borings. Al equipment shall be inspected before entering to ensure that no fluid leaks are present and the all gaskets and seals are intact.

The drill rig, hollow-stem augers, and drill rods shall be pressure steam cleaned between boreholes to the satisfaction of the attending field geologist. A temporary decontamination pad constructed of wood and plastic will be constructed so that decontamination fluids are not spilled on the ground surface. Further, decontamination fluids will be placed into 55-gallon drums and stored on site at a location designated by Camp Lejeune personnel.

6.4 Field Record Keeping

All pertinent sampling information such as soil description, sample depth, sample number, sample location, and time of sample collection shall be recorded in the field logbook.

6.5 Sample Handling

All samples will be label in accordance with Baker SOPs. Chain-of-custody records will be completed and maintained.

6.6 Waste Handling

It is anticipated that all borehole cuttings and excess soil will be placed in USDOT-approved 55-gallon steel drums upon the completion of drilling. The drums will be sealed and marked with a paint marker as to the boreholes from which the material placed in the drum was obtained along with the date on which the drum was filled. All drums will be placed at a central site location subject to the approval of Camp Lejeune personnel.

STENCIL DRUM LABEL ! (SPRAY PAINT)

- Field duplicates
- Equipment rinsates
- Field blanks
- Trip blanks
- Method blanks
- Matrix spike/matrix spike duplicates

Frequency of performance for these QC samples is presented in the site-wide QAPP (Baker, 1993).

7.5 Laboratory Data Validation

A detailed quality assurance review will be performed by a data validation subcontractor to verify the qualitative and quantitative reliability of the data presented. The primary tools which will be used by the data validation personnel will be USEPA guidance documents, established criteria, and professional judgement.

7.6 Corrective Action

Corrective Action is taken whenever a non-conformance occurs. A non-conformance is defined as an event which is beyond the limits established for a particular operation by the plan. Non-conformances can occur in a number of activities. Such activities include sampling procedures, sample receipt, sample storage, sample analysis, data reporting, and computations.

7.7 Quality Assurance Reporting Procedures

The Project Manager will be responsible for assessing the performance of measurement systems and data quality related to the field investigation. A written record will be maintained of: the results of laboratory QC reports and other periodic assessments of measurement, data accuracy, precision, and completeness; performance and system audits; and any significant QA problems and recommended solutions. Each deliverable will contain a QA/QC assessment section. Also, a QA/QC assessment will be performed any time a siguificant problem is identified.

The Project Manager will keep in contact with the Navy Engineer-in-Charge through informal, verbal reports during the project as well as through mont

? IS THIS THE RIGHT TITLE ?

2.0 BACKGROUND

This section provides a brief overview of pertinent MCB Camp Lejeune and Site 35 background information. A more complete review of background information is provided in the site-wide RI/FS for Site 35 (Baker, 1993).

2.1 Location and Setting

MCB Camp Lejeune is located in ~~the southeast corner of~~ EASTERN North Carolina in Onslow County. The facility covers approximately 170 square miles and is bordered to the east by the Atlantic Ocean, to the west by U.S. Route 17 and to the north by North Carolina Route 24. The City of Jacksonville, North Carolina is located north of the Base (see Figure 2-1).

Camp Geiger is located in the extreme northeast corner of the Base. Its main entrance is off U.S. Route 17 about 3.5 miles southeast of the City of Jacksonville, North Carolina. Site 35, the Camp Geiger Area Fuel Farm refers primarily to five, 15,000-gallon aboveground storage tanks (ASTs), a pump house, and a fuel unloading pad at the corner of Fourth and "G" Streets (see Figure 2-2).

2.2 History

Construction of MCB Camp Lejeune, including Camp Geiger dates to the early 1940's. MCB, Camp Lejeune ~~was designed to be~~ HAS BEEN DESIGNATED AS the "Worlds Most ~~Complex~~ COMPLETE Amphibious Training Base". Site 35 remains active as a fuel depot, primarily serving the nearby New River Marine Corps Air Station. Over the years, the Fuel Farm has dispensed gasoline, kerosene, diesel, and No. 6 oil.

Reports of a gasoline leak in an underground distribution line at Site 35 date back to 1957-58 (ESE, 1990). The leak resulted in an estimated loss of thousands of gallons of product which migrated toward Brinson Creek. Interceptor trenches were excavated and the captured fuel was ignited and burned as was the product which discharged into Brinson Creek.

Another reported leak apparently occurred more recently (dates unknown) and involved a buried distribution line. The leaking line, which was subsequently sealed and replaced, reportedly resulted in a loss of over 30 gallons per day over an unspecified period.

* EIGHT SPILL INCIDENT APRIL '90