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JEB FORT STORY, VA
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SAMPLING AND ANALYSIS PLAN FOR 80TH DIVISION RESERVE SITE LIGHTER
AMPHIBIOUS RESUPPLY CARGO (LARC) 60 AREA FORT STORY VA
8/1/1994
U.S. ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SAMPLING AND ANALYSIS PLAN

FOR

80th Division LARC 60 Area

Fort Story, Virginia

Prepared by

U.S. Army Corps of Engineers

Omaha District

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1 Introduction.

1.1 Project Description. The LARC Area is a 50 foot by 70 foot concrete pad surrounded by asphalt. The north side is bordered by sand. Preliminary studies indicate that soil contamination of TRPH and Lead exist at the LARC Area.

1.2 Project Objectives. The objective of the Rapid Response Action is to remove the petroleum contaminated soils from the LARC Area prior to the planned expansion of the existing LARC Area. The goal of this sampling event is to further characterize the area for the removal action and aid in determining the disposal options for the soil to be excavated.

1.2.1 Area A. Six samples will be collected from the 2.5-3 foot depth and analyzed for TCLP metals to determine if additional material needs to be excavated. Two samples will be collected from the area with the highest contamination and analyzed for disposal parameters to assist in determining the disposal options. In addition, two investigative samples will be collected from the 4-6 foot range and analyzed for volatiles to determine if additional contamination exists at lower depths.

1.2.2 Area B. The previous sampling indicated low level volatile contamination was present in this area at a six foot depth. Two samples will be collected from the 4-6 foot depth and analyzed for volatiles to determine the extent of the contamination. One composite sample will be collected from the 0-6 foot depth and analyzed for disposal parameters to determine the appropriate disposal options.

1.2.3 Area C. In this area additional investigative sampling is required. Three investigative samples will be collected from the 2-3 foot depth and analyzed for TRPH and Lead. One of these samples will be located outside the fence on the east side of the sandy area to investigate any possibilities of material disposed of in this area.

2 Sampling Procedure.

2.1 Equipment.

- Power Auger
- Stainless steel shovel
- Stainless steel mixing utensils
- Gloves (latex)
- Trash bags
- Zip-lock bags
- Sample containers
- Coolers

Chain-of-Custody forms
Tape (strapping and clear)
Indelible ink pen
Field log book
DQCR forms

2.2 Soil Sampling Procedure.

2.2.1 Don latex gloves,

2.2.2 Decontaminate sampling equipment, see Section 3

2.2.3 Sketch general sample locations in field notes,

2.2.4 With manual corer or trowel remove a sufficient amount of soil from desired location and place into the sample jar.

2.2.5 Labeling. See Section 4.2.

2.2.6 Sample Handling. The labeled, filled sample containers will be enclosed in a ziplock bag and placed in a cooler. Once the samples are collected they will be packaged as described in Section 4.

2.2.7 Sample Documentation. See Section 5.

3 Decontamination Procedures. All sampling equipment will be disposable, stainless steel, or teflon and shall be decontaminated between samples. The decontamination procedures are as follows:

- 1) Alconox wash and brushing to remove particles,
- 2) Tap water rinse,
- 3) Reagent grade isopropanol rinse, and
- 4) Triple deionized/distilled water rinse.

All decontamination water will be stored in a DOT approved drum that has been properly labeled with all pertinent information.

4 Sample Handling. Sample packaging, shipping, and chain-of-custody will follow the guidelines as outlined in the Sample Handling Protocol (Appendix E, ER 1110-1-263, 1 October 1990).

4.1 Numbering Scheme. Samples taken will be numbered consecutively.

4.2 Sample Labels. Correct sample labeling and the corresponding notation of the sample ID numbers in the field logbook report are necessary to prevent misidentification of samples and their eventual results. All sample labels will be completed legibly with indelible ink. The labels will be affixed to the sample bottle and covered with clear tape. These labels will include the following at a minimum:

- Name/initials of the collector,
- Date and time of collection,
- Place of collection, (Story)
- Sample ID number,
- Analysis required,
- Preservatives added (none),
- Designation of grab samples.

4.3 Sampling Containers and Preservation. All samples will be collected into the appropriate jar and placed in a cooler.

- Disposal Samples 32 ounce glass jars
- TCLP Metals 8 ounce glass jars
- Volatiles 8 ounce wide mouth glass with septa lid
- TRPH 8 ounce glass

4.4 Sample Packaging. Field samples will to be collected in appropriately labelled sample containers, enclosed within a plastic ziplock bag, and placed in a cooler. Once the samples for the day are acquired, and the required paperwork completed, the cooler will be packed with inert packing material, and the shipped to the laboratory. Each cooler will have a Chain-of-Custody form for the samples it contains. These forms will be placed into a plastic zip-lock bag and taped to the inside of the lid. Each cooler will be securely sealed with several pieces of strapping tape attached to the front and the rear side. Custody seals will be placed on the front and rear side of the cooler lid and covered with clear tape.

4.5 Chain-of-Custody. Chain-of-custody shall be maintained for all samples collected during this project. Chain-of-Custody forms will be completed for every cooler, and will be sealed in a zip-lock bag and taped to the inside of the lid of the cooler. Chain-of-custody procedures will be in accordance with USACE Sampling Handling Protocol and USEPA procedures. All samples will be sent overnight delivery to:

Quantera Laboratory
5103 Old William Penn Highway
Export, PA 15632

POC Carrie Smith
(412) 731-8806

4.6 Sample Shipment. The laboratory will be notified of the beginning of sampling activities by the Project Chemist.

5 Field Documentation. Several types of documentation will be prepared in the field in order to record the sampling activities and observations.

5.1 Field Note Books. Field notes regarding all sampling activities will be kept in a pre-numbered hardbound notebook. Indelible ink will be used for all entries.

5.2 Daily Quality Control Report. During the field activities, Daily Quality Control Report will be prepared (See Forms 3). These reports will include, but will not be limited to, the minimum information listed in ER 1110-1-263.

5.3 Photographic Documentation. Photographic documentation is required of all samples and of the sampling locations.

6 Analytical. The following methods will be used of analysis of the samples.

6.1 TCLP Metals. SW-846 1311/6010. Mercury will be analyzed by cold vapor.

6.2 Metals. Metals shall be analyzed by 3050/6010.

6.3 Volatiles. Volatile will be analyzed by SW-846 5030A/8240A.

6.4 TRPH. TRPH will be analyzed by Method 418.1 for petroleum hydrocarbons.

6.5 Disposal.

6.6 **Physical Tests:**

6.7 Color

Method
EPA 110.2

6.8 Phasing

6.9 Total Solids

EPA 160.3

6.10 Density (bulk)

ASTM D1298

6.11 **Characteristics Tests:**

6.12 Reactivity

6.12.1 Reactive Cyanide

SW-846 Ch. 7.3.3.2

6.12.2 Reactive Sulfide

SW-846 Ch. 7.3.4.1

6.13 Corrosivity

6.13.1 pH Test

SW-846 9045

6.14	Ignitability	
6.14.1	Flash Point	SW-846 1010 (Sludge)
6.14.2	Flame Test	SW-846 1020 (Solid)
6.15	Organics	
6.16	Volatile Organics: PP/HSL/HOC + TICs	SW-846 8240
6.17	Semivolatile Organics: PP/HSL/HOC + TICs	SW-846 8270
6.18	PCB: PP/HSL/HOC	SW-846 8080
6.19	Pesticides	
6.20	RCRA Pesticides	SW-846 8080
6.21	Herbicides	
6.22	RCRA Herbicides	SW-846 8150
6.23	Compositional Tests	
6.24	Total Cyanide	SW-846 9010 or 9012
6.25	Total Phenols	SW-846 8040/9065/ 9066/9067
6.26	Toxicity Leachate Characteristics Procedure (TCLP)	
6.27	Metals	SW-846 1311/6010/7000
6.28	Volatile Organics	SW-846 1311/8240

7 Laboratory Quality Control. Quality control related to the acquisition of the chemical data has two main elements once the samples arrive at the laboratories. The first involves the documented handling of the samples as they are processed through the laboratory. The second area involves the project requirements for the method specified quality control. These two elements are discussed separately in the following two sections.

7.1 Sample Handling in the Laboratory. The proper handling begins with the document receipt by the laboratory of the samples from the field team. For this project, the samples will be shipped to Environmental Testing and Certification Laboratory in Santa Rosa, California. After signing the chain-of-custody, the sample receipt personnel will inspect the shipping containers and samples and document the condition in which the samples were received, and especially noting any deficiencies and note this information in the "Remarks" box of the Chain-of-Custody Form and the sample log book.

7.2 Method Specific Quality Control. The methods of analysis specified in Section 6 are the standard methods that will be followed without deviation. The

analytical methods have quality control requirements and/or recommendations and the laboratory will meet or exceed all method quality control as specified by the method. This includes calibration procedures and frequency, laboratory quality control checks, detection limits, corrective actions and reporting.

7.3 Data Quality Evaluation. The data evaluation that will be completed at the laboratory will be a combination of contract compliance review and limited data evaluation. All data generated will be reviewed to ensure that they meet the written requirements. This review will be based on comparison of the information generated by the Laboratory with the written requirements of the Sampling and Analytical Plan for the project. The second portion of this process which deals more with data evaluation will involve review of the quality control results and preparation of a summary reports qualifying the data. Review will include all quality control parameters such as holding times, detection limits, method blanks, surrogate recoveries, matrix spikes, matrix spike duplicates, interference check sample results, internal standard data, GC/MS tune data and the initial and continuing calibration data. The data evaluation summary is intended to provide a qualitative judgment of the overall integrity and usefulness of the data.

8 Laboratory Turnaround Time. This project shall require no longer than a 7-day turnaround time (from receipt of sample) for analytical results.

9 Final Report. Upon completion of all fieldwork and receipt of the analytical results, a limited report will be compiled including, but not limited to:

9.1 Narrative. This will be a description of the project.

9.2 Supporting Data. The following plus any other appropriate material will be included as appendices to the final report:

Daily Chemical Quality Control Report,
Field notes,
Photographic documentation,
Chain-of-Custody, and
Certificates of Analysis.

888048784589 P.10 TO FROM RAPID RESPONSE AUG-23-1994 10:21

Legend

- ⊕ 2" monitoring well
- △ hand auger boring

- TS1 100 TPH 0-2', mg/kg
- TS2 100 TPH 2-4', mg/kg
- LS1 100 Lead 0-2', mg/kg
- LS2 100 Lead 2-4', mg/kg

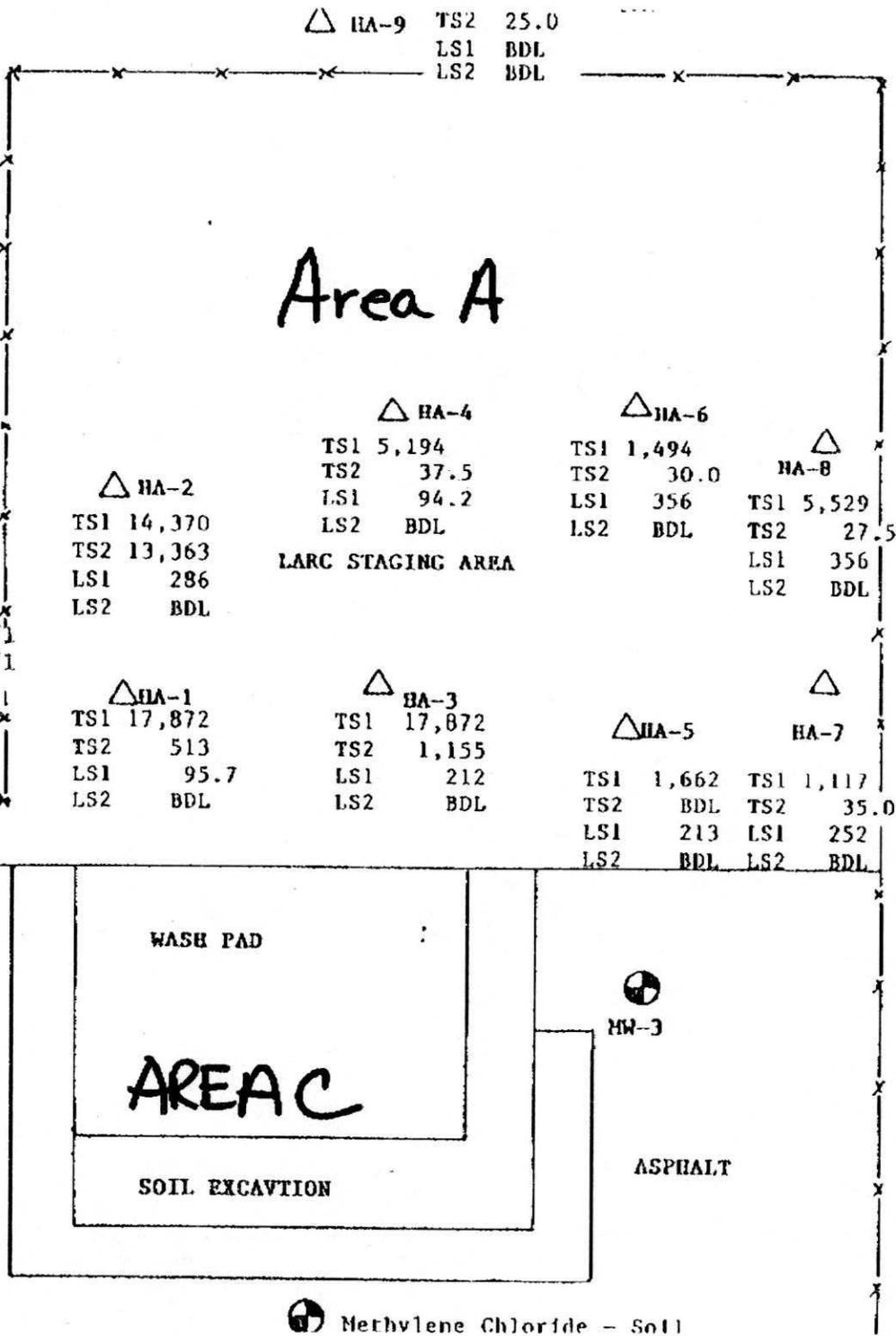
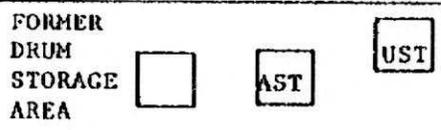
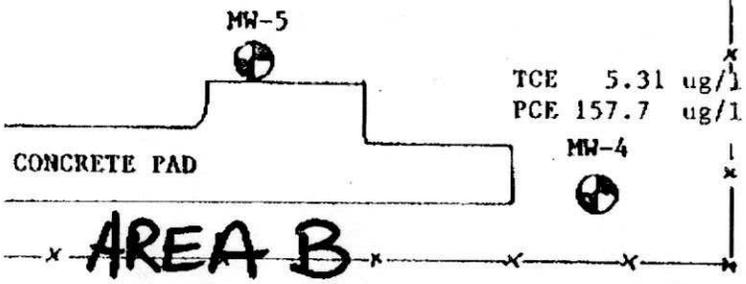


FIGURE 2
SITE OBSERVATION MAP
FORT STORY SCR
SCALE 1:30

⊕ Methylene Chloride - Soil

COOLER RECEIPT FORM

LIMS# _____

Contractor Cooler _____

HRD Cooler # _____

Number of Coolers _____

PROJECT: _____ Date received: _____

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: _____

by (print) _____ (sign) _____

1. Did cooler come with a shipping slip (air bill, etc.)? YES NO

If YES, enter carrier name & air bill number here: _____

2. Were custody seals on outside of cooler? YES NO

How many & where: _____, seal date: _____, seal name _____

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Did you screen samples for radioactivity using the Geiger Counter..... YES NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? YES NO

6. Were custody papers filled out properly (ink, signed, etc.)? YES NO

7. Did you sign custody papers in the appropriate place? YES NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. YES NO

9. If required, was enough ice used? Type of ice: _____ YES NO

10. Have designated person initial here to acknowledge receipt of coolers: _____ (date) _____

B. LOG-IN PHASE: Date samples were logged-in: _____

by (print) _____ (sign) _____

11. Describe type of packing in coolers: _____

12. Were all bottles sealed in separate plastic bags? YES NO

13. Did all bottles arrive unbroken & were labels in good condition? YES NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? YES NO

15. Did all bottle labels agree with custody papers? YES NO

16. Were correct containers used for the tests indicated? YES NO

17. Were correct preservatives added to samples? YES NO

18. Was a sufficient amount of sample sent for tests indicated? YES NO

19. Were bubbles absent in VOA samples? If NO, list by QA#: _____ YES NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called? _____ By whom? _____ (date) _____

DAILY QUALITY CONTROL REPORT

PROJECT: _____

Date: _____

LOCATION: _____

Weather: _____

Temp. _____

Wind _____

Humidity _____

PERSONNEL

Name	Position	Hours Worked

FIELD INSTALLATIONS

ID No(s): _____

Drilled: _____

from _____

to _____

Footage _____

Casing Set: _____

Screen _____

Riser _____

EQUIPMENT

Description

Hours Drilling _____

Hours Installing _____

Hours Decon _____

Hours Development _____

Hours Sampling _____

Hours Shut Down _____

of samples: _____ Type _____

Description of work performed: _____

Health and Safety Levels _____

Problems encountered: _____

Any changes from work plan? _____

Signature: _____



DEPARTMENT OF THE ARMY
 CORPS OF ENGINEERS, OMAHA DISTRICT
 215 NORTH 17TH STREET
 OMAHA, NEBRASKA 68102-4978

FACSIMILE TRANSMITTAL HEADER SHEET

For use of this form, see AR 25-11, the proponent agency is ODISO4

COMMAND/ OFFICE		NAME/ OFFICE SYMBOL	OFFICE TELEPHONE NO. (AUTOVON/Comm.)	FAX NO. (AUTOVON/Comm.)		
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