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NSWC INDIAN HEAD
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ENGINEERING EVALUATION AND COST ANALYSIS OF LEAD CONTAMINATED OUTFALL
STATEMENT OF WORK NUMBER 87 NSWC INDIAN HEAD MD
12/22/1993
NSWC INDIAN HEAD

CONTRACT: N62472-92-D-0178
CONTRACT TASK ORDER # _____

22 DEC 1993

NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
PHILADELPHIA, PA

STATEMENT OF WORK

ENGINEERING EVALUATION AND COST ANALYSIS OF
LEAD CONTAMINATED OUTFALL NUMBER 87
NAVAL SURFACE WARFARE CENTER, INDIAN HEAD DIVISION
INDIAN HEAD, MARYLAND

A. INTRODUCTION/BACKGROUND

The purpose of this contract task order is to (1) prepare a sediment control plan to address particular matter entrained in the water column; (2) prepare a work plan including a sample and analysis plan and a health and safety plan; (3) conduct field sampling activities; (4) prepare an Engineering Evaluation and Cost Analysis (EE/CA) for Industrial Water Outfall 87 (IW87).

The Indian Head Division of the Naval Surface Warfare Center is located in the northwestern section of Charles County, Maryland, 25 miles southwest of Washington, D.C. The principal mission of the activity is research, development, and production of propellant and explosive ingredients and formulations used in ordnance devices.

The site, IW87, consists of an antiquated brick and mortar pit (manhole), approximately 900 feet of 24 inch terra cotta pipe, and fifteen feet of overland flow along a sandy swale. The sediment in the pit, pipe and the open swale are contaminated with Lead from the past practice of rinsing the Lead floors in Building 790. The two (2) floor drains emptied into the pit, which is immediately adjacent to Building 790, until October 1992 when the two drains were sealed. The outfall end of the pipe is 75% filled with sand and collection of water samples is very difficult. Also contributing water to the pit and outfall system are several non-contact condensation water sources and some storm water drainage.

The outfall is monitored per a requirement in the activities National Pollution Discharge Elimination System (NPDES) permit. Lead has regularly exceeded the permit allowed level of 0.082 mg/l since July 1992. Previous sampling by the activity indicates that the contamination problem is with sandy sediments in the pit, along the pipe, and at the outfall. Three samples collected for Toxic Characteristic Leaching Procedure extraction and analysis proved the Lead is leachable from the sediments with the highest detected level being 30.3 mg/l. To date, no Notice of Violation has been issued by the Maryland Department of the Environment (MDE).

B. OBJECTIVE

The objectives of this task order are to:

- (1) prepare a sediment control plan;
- (2) prepare a work plan, including a sample and analysis plan (SAP) and a health and safety plan (HSP);

- (3) conduct field activities through implementing the work plan;
- (4) analyze the samples for the required constituents;
- (5) prepare an EE/CA based on historic data and the data collected during this task order.

C. SPECIFIC TASKS

Task 1. Prepare a sediment control plan

Subtask 1.1 Conference

The contractor will attend one site visit to IW87 to discuss the sedimentation situation. The contractor will be expected to discuss possible remedies for the sample collection problem at the outfall. It is anticipated that the MDE NPDES inspector will attend.

Subtask 1.2 Preparation of sediment control plan

The contractor will prepare a sediment control plan that addresses possible solutions to the sample collection problem. The plan will recommend the most feasible in terms of (in descending priority):

- (1) Regulatory Acceptance;
- (2) Effectiveness in reducing entrained sediments;
- (3) Implementability;
- (4) Cost

The contractor is expected to research the activities NPDES permit, all applicable code of Maryland Regulations and Federal regulations, and site specific information in developing this report.

The report will be submitted in draft form for NAVY review and then finalized.

Task 2. Prepare work plan

The contractor shall prepare a work plan which shall contain a description and historical account of the site, a discussion of the objectives of the field investigation, a field sampling plan, a site specific health and safety plan, and a quality assurance project plan. The sampling effort will entail two rounds of sampling. The plan shall be reviewed by the NAVY and MDE. Government approval is required before implementing Task 3.

Task 2. Prepare Work Plan continued;

Sampling and Analysis Plan:

The SAP shall describe the number, type and location of the samples as well as the type of analysis to be performed on each sample. Sampling from the first round of sampling shall be conducted in accordance with NEESA Level C Quality Control Procedures as outlined in Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, NEESA 20.2-047B. Sampling from the second round shall be conducted in accordance with NEESA Level E Quality Control Procedures. Data validation, for Level C Quality Control, shall be performed on 100% of the first round of sampling.

The first round of sampling will be to determine what contaminants are at the site. The contractor shall take six soil samples with enough volume per sample to run Target Compound List/Target Analyte List (TCL/TAL) and full Toxic Characteristic Leaching Potential (TCLP) analysis. The NAVY anticipates that two of these samples will be taken from the pit, while at least two samples will be taken from the outfall end of the pipe.

The first round samples shall be analyzed for the TCL/TAL constituents and the full TCLP hazardous waste determination analysis

The second round sampling effort will entail surface water, surficial soil, subsurface soil, and possible terra cotta wipe or whole media samples. Some other parameters may be required such as a dynamic flow rate measurement of the pipe's flow.

The estimated number of soil samples required are 60 to 80. The estimated number of surface water samples is 10. The estimated number of pipe samples is 10 with at least three coming from the pit. All samples are to be analyzed for total Lead. This requirement may be modified depending on the results of the more complete, round one sampling.

Quality Assurance Project Plan

The quality assurance project plan shall describe the policy, organization, functional activities, data quality objectives, and measures to achieve adequate data use in planning and documenting the removal action.

Health and Safety Plan

The site specific HSP shall address site specific safety procedures and their implementation during field activities, and shall comply with all applicable Federal, State, and local health and safety regulations. As stated before, three prior samples taken by the activity from the sediments at the site failed TCLP analysis with the highest result being 30 mg/l.

Task 3. Field Investigation

The contractor shall obtain the services of an approved laboratory and proceed to implement the government approved Work Plan. The contractor may elect to sub-contract the sample collection function along with the actual analysis to a laboratory. The field investigation shall be coordinated by the contractor with the activity point of contact and the EFA Chesapeake point of contact.

The samples shall all be handled and analyzed in accordance with the approved work plan.

Task 4. EE/CA Preparation

The contractor shall prepare an EE/CA in accordance with the EPA National Oil and Hazardous Substances Pollution Contingency Plan under CERCLA (40 CFR 300) and EPA publication 9360.0-32,, Guidance on Conducting Non-Time Critical Removal Actions under CERCLA. The EE/CA shall provide an analysis of the removal alternatives for the site, recommend the most suitable removal technique, and provide cost estimates for the removal alternatives. The criteria for evaluating potential removal alternatives will include the effectiveness of the option to protect human health and the environment, the consistency with applicable or relevant and appropriate requirements (ARARs), and comply with all Federal,, State, and local environmental regulations. The document shall contain, at a minimum, the following sections:

(a) **Facility Background and Description**

The description of the facility shall include the background, history, climatology, topography, geology and hydrogeology, surface water and groundwater pathways, a description of the terrestrial, aquatic, and wetland ecosystems, threatened or endangered species, and land use. The description of the site shall incorporate relevant site-specific information regarding all of the topics included in the facility description. In addition, the site characterization will include a summary of past investigations and actions and a presentation of data gathered during this CTO. This section shall include a map which delineates the extent of soil contamination the site. This section shall also include a discussion of the conditions which justify a removal action.

(b) **Identification of Removal Actions Objectives.**

This section shall include a discussion of the removal action's scope and schedule. This section shall also address ARARs, including action specific ARARs, contaminant specific ARARs, location specific ARARs, and Land Disposal Restrictions. Based on a review of all ARARs, preliminary remediation goals shall be established for the removal action.

(c) **Identification of Removal Action Technologies.**

This section shall include a discussion of the plausible removal action technologies that should be considered for the site. For each technology, there shall be a description of the procedures, applications and limitations, and implementation considerations.

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(d) Initial Screening of Removal Action Technologies.

In this section the contractor shall perform the initial screening of the removal action technologies. The short-term and long-term aspects of the following three criteria shall be used to screen these technologies: (i) effectiveness; (ii) implementability; and (iii) cost, as defined in 40 CFR 300.430(e)(7). Those technologies that are deemed to be effective, implementable, and of reasonable cost shall be developed into site-specific removal action alternatives and analyzed in greater detail.

(e) Detailed Analysis of Removal Action Alternatives

This section shall include a detailed analysis of each of the removal alternatives, each to be evaluated on the basis of the effectiveness of the policy to minimize or stabilize the threat to public health, consistency with anticipated final remedial action, consistency with ARARs, cost effectiveness, technical feasibility, institutional considerations, and environmental impact. This section should address the applicability of the selected removal actions on the basis of site-specific parameters.

(f) Comparative Analysis of Removal Action Alternatives

The contractor shall prepare removal action alternatives on the basis of factors discussed in the previous section.

(g) Recommended Removal Action Alternative

This section shall summarize the results of the comparative analysis, and recommend a removal action alternative.

(h) Public Relations

This section address the public relations policy of NSWC Indian Head which will be supplied to the contractor by EFACHES.

(i) Appendices

Appendices shall include appropriate references, analytical results, calculations acronyms, data tabulations, and other items as required.

D. Schedule and Distribution of Originals

1. Monthly progress reports shall be submitted the first week of every month describing work completed, problems encountered and their solutions, anticipated work during the next month, subcontracting item, and financial and schedule updates.

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2. The following schedule will be followed for this CTO:

<u>Deliverable</u>	<u>Submittal Date</u>
Submit Draft Sediment Control Plan	
Government Review	
Submit Final Sediment Control Plan	
Submit Draft Work Plan w/ SAP, HSP	
Government Review	
Submit Final Work Plan	
Initiate Field Work	
Initiate Round One Sampling	
Initiate Round Two Sampling	
Complete Field Work	
Sample Analysis	
Submit Draft EE/CA	
Government Review	
Submit Draft Final EE/CA	
Government Review	
Submit EE/CA	

The following copies of these documents are required:

<u>ITEM</u>	<u># EFACHES</u>	<u>#NSWCIHD</u>
Draft Sediment Control Plan	3	4
Final Sediment Control Plan	3	4
Draft Work Plan	4	3
Final Work Plan	4	3
Draft EE/CA	4	3
Draft Final EE/CA	4	3
Final EE/CA	4	5

E. Conferences

The contractor will be required to attend the following meetings at the activity:

Sediment Control Site Visit	1
Technical Review Committee	1
Work Plan Meeting	1
EE/CA Meeting	1

All addition visits to the activity are associated with the Field Work implementation.

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F. Points of Contact

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G. Attachments

Summary, Site History of IW87 by NSWCIHD Environmental Division,
1993.

H. REFERENCES

NEESA, Sampling and Chemical Analysis Quality Assurance Requirements
for the Navy Installation Restoration Program, 20.2-047B, June 1988