NAVAL ORDNANCE STATION, INDIAN HEAD, MARYLAND
CONFIRMATION STUDY WORK PLAN

INTRODUCTION

The Confirmation Study at the Naval Ordnance Station (NAVORDSTA), Indian Head, is designed to carry out some of the recommendations of the Initial Assessment Study (IAS) completed in May of 1983. Investigations will be conducted at three sites identified in the IAS. These three sites are:

- Site 5--X-ray Building (Building 731), where wastewater from the development of x-ray film was discharged into an open ditch. The wastewater may have contained silver.
- Site 8--Biazzi Plant, NG Plant office (Building 776), where wastewater containing mercury was discharged to a manhole, which in turn emptied into an open ditch.
- Site 12--Town Gut Landfill, which received unknown kinds and quantities of hazardous materials. High concentrations of arsenic were found in water near a drum at the site. The IAS concluded that a number of other metals and organic compounds might also be present in the landfill.

The Confirmation Study will consist of field sampling and laboratory analyses to determine the nature and extent of contamination at the three sites; and preparation of a Confirmation Study report (1) describing the methods and results of the investigation, (2) assessing the effects of any contamination found, (3) providing a list of recommendations and proposed corrective measures, and (4) providing cost estimates for all recommended actions.

Tasks to complete the Confirmation Study are discussed in more detail below. The costs of these tasks are given in Appendix A of this work plan. The project schedule is given in Table 1.

SCOPE OF SERVICES

TASK 1--INITIAL SITE VISIT

An initial site visit to the NAVORDSTA, Indian Head, was made on August 15, 1983, to allow CH2M HILL personnel to obtain information on the three sites, discuss overall objectives and approach, and establish channels of communication.

Table 1
NAVORDSTA, INDIAN HEAD CONFIRMATION STUDY SCHEDULE

Initial Site Visit	8/15/83
Draft Work Plan Submitted	12/14/83
QA/QC Plan Submitted	12/19/83
Progress Report	1/2/84
CHESDIV Review Comments on Work and QA/QC Plans	1/2/84
Final Work and QA/QC Plans	1/9/84
Field Investigations and Laboratory Analysis	1/9/84 - 3/5/84
Progress Report	2/1/84
Progress Report	3/1/84
Progress Report	4/2/84
Draft Report and Meeting	4/2/84
CHESDIV Comments on Draft Report	4/23/84
Progress Report	5/1/84
Final Report and Meeting	5/21/84

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TASK 2--PREPARE WORK PLAN

This work plan describes the proposed tasks and methods of investigation. It is based on information obtained from the IAS and during the initial site visit (Task 1). This plan will be reviewed and approved by the Engineer-in-Charge (EIC) prior to the initiation of the field investigation.

TASK 3--PREPARE QA/QC PLAN

A Quality Assurance/Quality Control (QA/QC) plan will be prepared describing laboratory quality assurance procedures, sampling methods, sample preservation, analytical techniques, document control, and quality assurance for report preparation. The QA/QC plan will be reviewed and approved by the EIC prior to the field investigation.

TASK 4--PREPARE HEALTH AND SAFETY PLAN

A site-specific health and safety plan will be prepared discussing measures taken to minimize health risks during sampling. The plan will include general information on site characteristics and recommend levels of protection for field sampling personnel. This plan will be submitted to the EIC prior to the field investigation.

TASK 5--FIELD INVESTIGATION

If requested by the EIC, CH2M HILL will provide a briefing for activity personnel prior to initiation of the investigation.

The field investigation will consist of water and/or sediment sample collection on the three sites (5, 8, and 12) described above. Only one sampling event will occur.

The sampling plan is summarized in Table 2 and described in more detail below. Sample collection, storage, and identification methods will be discussed in the QA/QC plan (Task 3). Chemical analyses will be conducted by the CH2M HILL laboratory; analytical methods will also be discussed in the QA/QC plan.

Task 5.1--Site 5, X-ray Building

Six sediment samples will be collected at Site 5 for analysis for elemental silver. Sample stations, shown on Figure 1, are:

- Station 1. A composite sample will be taken from the north fork of the drainage ditch. It will consist of equal parts by volume of sediment collected from 3 substations (1A, 1B, and 1C)

Table 2
FIELD SAMPLING SUMMARY

Sampling Station Number	Medium Sampled		Analysis		
	Sediment	Water	Silver Only	Mercury Only	Table 3 Parameters
1	X		X		
2	X		X		
3	X		X		
4	X		X		
5	X		X		
6	X		X		
7	X	X		X	
8	X	X		X	
9	X	X		X	
10	X	X		X	
11	X	X			X
12	X	X			X
13	X	X			X
14	X	X			X

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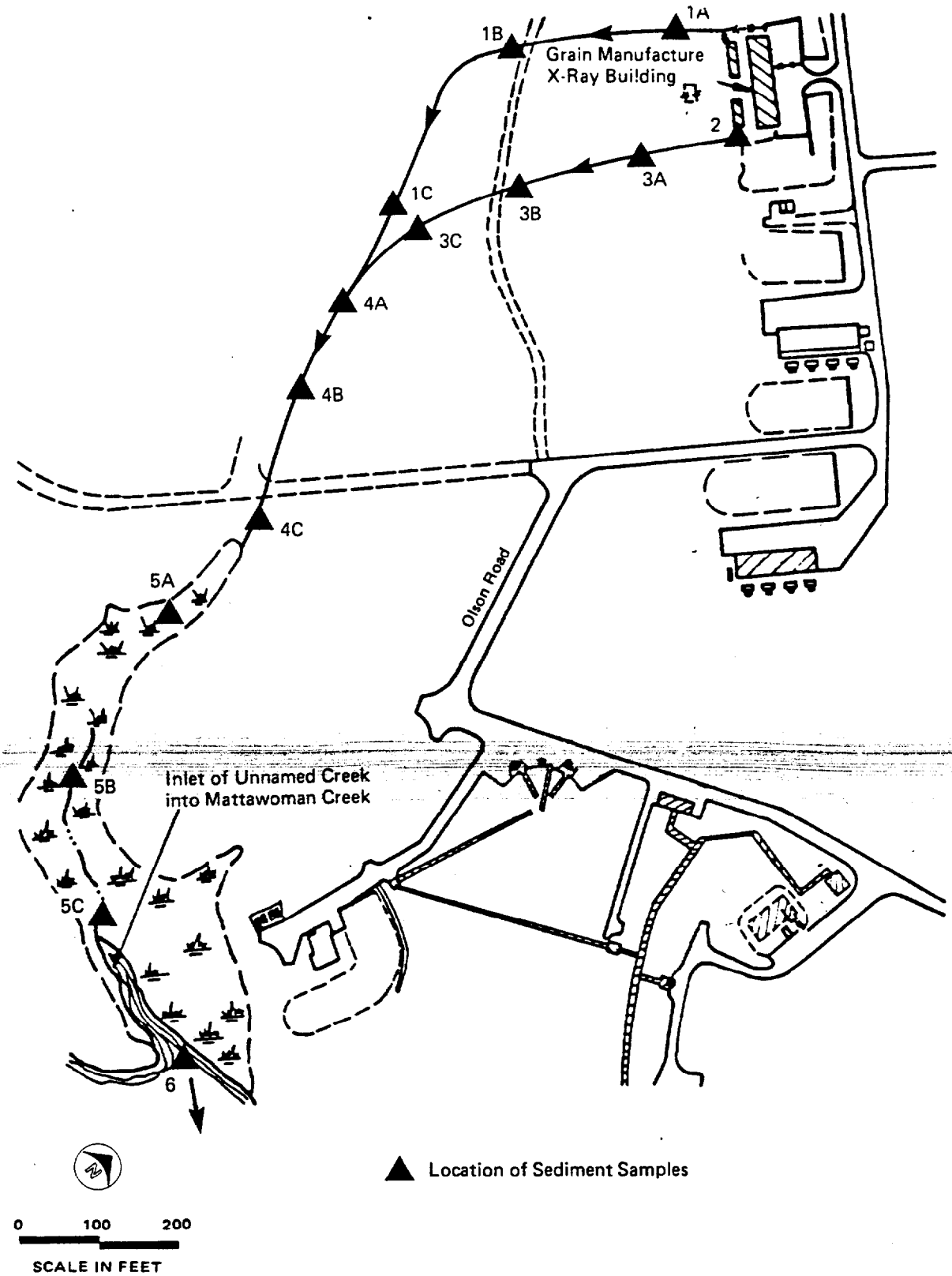

Figure 1
Sediment Sampling Locations at Site 5, X-Ray Building

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between the x-ray building and the confluence of the north and south forks of the ditch.

- Station 2. A sample will be taken at the suspected discharge point to the south drainage ditch.

- Station 3. A composite sample will be taken from the south fork of the drainage ditch. It will consist of equal parts by volume of sediment from three substations (3A, 3B, and 3C) between Station 2 and the confluence of the north and south forks of the ditch.

- Station 4. A composite sample will be taken between the confluence of the north and south ditches and the wetland near Mattawoman Creek. It will consist of equal parts by volume of three sub-samples (4A, 4B, and 4C).

- Station 5. A composite sediment sample, consisting of equal parts by volume of three substations (5A, 5B, and 5C), will be collected from the drainage ditch in the wetland.

- Station 6. A sample will be collected near the discharge point of the drainage ditch to Mattawoman Creek.

Task 5.2--Site 8, Biazzi Plant Mercury Discharge

Four water and four sediment samples will be collected at Site 8 for analysis for elemental mercury. Two additional water and sediment samples will be collected from a tidal wetland which may receive contaminants from both Site 8 and Site 12; these additional samples are discussed below (Task 5.3). Sample stations, shown on Figure 2, are:

- Station 7. One water and one sediment sample will be collected from the west drainage ditch above the mercury discharge to provide an indication of background mercury levels.

- Station 8. One water and one sediment sample will be collected in the ditch immediately below the manhole discharge point.

- Station 9. One composite sediment and one composite water sample will be collected in the drainage ditch between Station 8 and the lowlands leading to the marsh. Both composites will consist of equal parts by volume from three substations (9A, 9B, and 9C).

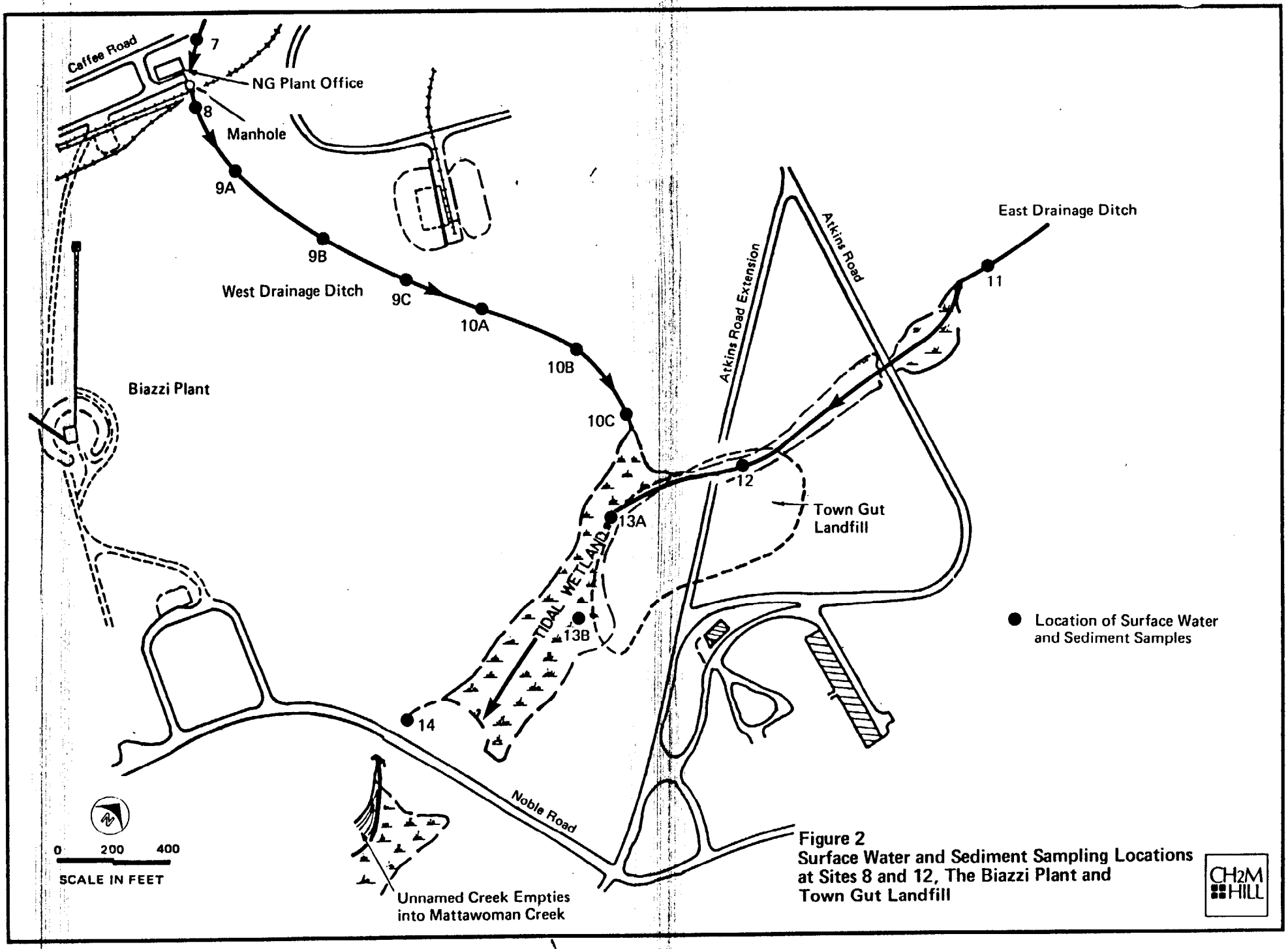

Figure 2
Surface Water and Sediment Sampling Locations at Sites 8 and 12, The Biazzi Plant and Town Gut Landfill

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- Station 10. One composite sediment and one composite water sample will be collected in the lowlands leading to the marsh. Both composites will consist of equal parts by volume from three substations (10A, 10B, and 10C).

Task 5.3--Site 12, Town Gut Landfill

Four water and four sediment samples will be collected at Site 12 and analyzed for the metals and volatile organic substances listed in Table 3. All samples will be collected from the tidal wetland during ebb tide. Sample stations, shown on Figure 2, are:

- Station 11. One sediment and one water sample will be collected north of Atkins Road above the tidally influenced area of the wetland. This will help define background levels of contaminants in the vicinity of the landfill.

- Station 12. One sediment and one water sample will be collected north of the Atkins Road Extension.

- Station 13. One composite sediment and one composite water sample will be collected from two substations (13A and 13B) in the wetland.

- Station 14. One sediment and one water sample will be collected north of Noble Road at the outlet of the wetland to Mattawoman Creek.

TASK 6--REPORT PREPARATION AND REVIEW

A Confirmation Study Report will be prepared containing the following:

- A summary of the IAS findings and conclusions.

- Maps showing the locations of sampling stations.

- A description of analytical findings, including specific concentrations found; an assessment of actual or potential contaminant migration; and standards, if available, for acceptable contaminant levels. The quality assurance plan and laboratory reports will be included in appendices to the report.

- A list of alternative corrective measures, or other recommended actions (including the no-action alternative), and their anticipated effectiveness

Table 3
ANALYSES TO BE MADE ON SAMPLES COLLECTED FROM
SITE 12, THE TOWN GUT LANDFILL

LABORATORY--WATER AND SEDIMENT

Volatile Organics

Acrolein
Acrylonitrile
Benzene
Carbon tetrachloride
Chlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
Chloroethane
2-Chloroethyl vinyl ether
Chloroform
1,1-Dichloroethylene
1,2-trans-Dichloroethylene
1,2-Dichloropropane
1,3-Dichloropropene
Ethylbenzene
Methylene chloride
Methyl chloride
Methyl bromide
Bromoform
Dichlorobromomethane
Trichlorofluoromethane
Dichlorodifluoromethane
Chlorodibromomethane
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl chloride
bis (Chloromethyl) ether

Metals

Arsenic
Cadmium
Zinc
Lead
Mercury
Silver

Field-Water

pH
Temperature
Conductivity

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for each of the three sites. Order-of-magnitude cost estimates for proposed measures will be prepared and included as an appendix to the report.

After the draft report is submitted, CH2M HILL project staff will meet at the NAVORDSTA with the EIC and Indian Head personnel to present and discuss the report. Review comments will be incorporated into a final report.

TASK 7--PROJECT MANAGEMENT

The Confirmation Study Project Manager will submit monthly progress reports to the EIC. He will also review all documents submitted to the EIC for technical soundness and accuracy. He or his appointed representative will give a formal presentation at the NAVORDSTA of the findings and recommendations of the Confirmation Study.

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