

7-12-94



DEPARTMENT OF THE NAVY

NORTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
10 INDUSTRIAL HIGHWAY  
MAIL STOP, #82  
LESTER, PA 19113-2090

IN REPLY REFER TO

5090  
Ser 2215/1823/JMC

AUG 15 1994

MEMORANDUM

FOR THE MEMBERS OF THE TECHNICAL REVIEW COMMITTEE (TRC), CERCLA  
REMEDIAL ACTION PROGRAM, PORTSMOUTH NAVAL SHIPYARD, KITTERY,  
MAINE

This memorandum is to notify you that the next TRC meeting will be held on **Wednesday, September 21, 1994**. The meeting will begin at 9:30 AM in the Shipyard Museum and Visitor Center, Building 156.

Please note that this is a change to the date set at the 12 July TRC meeting! This change is to allow the meeting to be held the same day as a public workshop on the off-shore risk assessments and proposed off-shore media protection standards. The public workshop is tentatively scheduled for the evening of the 21st at the Kittery Lion's Hall.

If you plan to attend the TRC meeting, please notify Mr. Jim Tayan at 207-438-3832 in order for proper arrangements to be made for security passes, seating and parking.

If anyone has any items that they would like to place on the agenda please call me at (215) 595-0567, extension 117.

Also, enclosed are the minutes from the 12 July 1994 TRC meeting.

Sincerely,

A handwritten signature in cursive script that reads "Jim Conroy".

JAMES M. CONROY PE  
LT, CEC, USN  
Remedial Project Manager  
By direction of the Commanding Officer

Distribution:

TECHNICAL REVIEW COMMITTEE MEMBERS

Portsmouth Naval Shipyard (Code 120,121,121.5,122.4)

EPA Region I (E. Waterman)

MEDEP (N. Beardsley)

NOAA (K. Finkelstein)

MEDMR (B. Sterl)

USFWS (K. Carr)

Onil Roy (Town of Kittery)

Phil McCarthy (Town of Kittery)

Dr Francis Hall (Town of Durham)

Jeff Clifford (Town of Kittery)

John Nelson (NH Fish & Game)

Portsmouth Naval Shipyard (Code 910,106)

Portsmouth Medical Clinic (CDR Longstaff)

NEHAC Detachment Portsmouth (CAPT Pessoney)

NCCOSC (R. Johnston)

UNH-JEL (L. Ward)

Halliburton NUS (L. Klink)

NORTHDIV (Code 1823, Code 09TC)

COMSUBGRU TWO (B. Jones)

ATSDR EPA REG I (L. House)

NEHC (C. Grosse)

**TRC MEETING AGENDA**

**WEDNESDAY, SEP 21, 1994**

**TIME:** 9:30 AM - 11:30 AM  
**LOCATION:** Shipyard Museum, Bldg 156

<b>9:30 - 9:35</b>	<b>Introduction/Opening Remarks</b>
<b>9:35 - 9:50</b>	<b>Program Update</b>
<b>9:50 - 10:10</b>	<b>Off-Shore Risk Assessment and Media Protection Standards</b>
<b>10:10 - 10:40</b>	<b>Restoration Advisory Board Transition</b>
<b>10:40 - 11:00</b>	<b>Discussion</b>

## MINUTES OF MEETING

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**SUBJECT:** Technical Review Committee (TRC) Meeting  
Portsmouth Naval Shipyard (NSY Portsmouth)  
Schedule/Status Update, Potential New Sites, Restoration Advisory Board (RAB)

**PURPOSE:** The TRC meeting was called by the Navy to discuss the schedule and status of numerous ongoing activities at NSY Portsmouth. Additionally, two new topics were discussed - the discovery of potential new sites at the facility and implementation of the RAB.

**LOCATION:** Portsmouth Naval Shipyard  
Museum & Visitors' Center  
Kittery, Maine

**DATE:** July 12, 1994

**PREPARED BY:** Linda Klink  
Project Manager  
Halliburton NUS  
Foster Plaza VII  
661 Andersen Drive  
Pittsburgh, PA 15220

**ATTENDEES:**

**Community/Public Representatives**

Phil McCarthy, Kittery Town Manager  
Francis Hall, Durham, NH  
Jeff Clifford, Town of Kittery  
Orvil A. Roy, Town of Kittery

**USEPA Region I**

Ernest Waterman, Project Manager

**U.S. Navy, NSY Portsmouth**

Jim Tayon, Environmental Affairs, PNS Code 121.5  
Fran Endyke, Engineer, PNS Code 121.10  
Ken Plaisted, Environmental Affairs, PNS Code 121  
Mike Pedersen, Environmental Specialist, PNS Code 122.4  
Gerald Gauthier, Mercury Control, PNS Code 106.3  
CDR Jim Longstaff, Naval Medical Clinic  
Mary Anne Mascianica, Public Affairs  
James Dolph, Historian, PNS Code 870H  
Heather Wass Hall, Secretary, PNS Code 121.011

**U.S. Navy, Northern Division, Philadelphia**

Lt. Jim Conroy, Remedial Project Manager

**Maine Department of Environmental Protection (MEDEP)**

Mark Hyland, State House Station #17

**Halliburton NUS**

Linda Klink, Project Manager

**University of New Hampshire, JEL**

Fred Short, Associate Professor

**NCCOSC**

Bob Johnston, Scientist

**NOAA**

Ken Finkelstein

**Maine Department of Marine Resources (DMR)**

Brad Sterl, Biologist

**New Hampshire Field and Game**

Bruce Smith

## BACKGROUND

The subject of the July 12, 1994 Technical Review Committee (TRC) meeting at the Museum of the Naval Shipyard (NSY) Portsmouth, Kittery, Maine was to update committee members on schedule and status of numerous ongoing activities at NSY Portsmouth, including the corrective measures studies, RFI Data Gap work, the confirmation air study, and the offshore studies. Additionally, two new topics were discussed - the discovery of potential new sites at the facility and implementation of the RAB.

## DISCUSSION AND SUMMARY

The meeting was opened at approximately 9:30 a.m. by Lt. Jim Conroy and handouts were distributed. Lt. Conroy identified **five new possible study areas**, then turned over the presentation to the NSY Portsmouth historian, Jim Dolph, for further elaboration. Mr. Dolph described the new sites, including the Incinerator Site at the DRMO, the Coal Gasification Site, the Acid Dip Tank at Building 184, the Timber Basin Landfill and the Seavey Island Landfill. The Navy indicated that individual reports would be issued on each site after all existing information and photographs are obtained. The report on the Coal Gasification Site should be completed this upcoming winter. The schedule for the remaining sites is less certain since several trips to the National Archives are required; each site effort is expected to take five to six months to complete.

Lt. Conroy then provided an update on the **RFI Data Gap field work**, still in progress as follows:

- The **direct drive point** work at both areas is complete. For the area upgradient of Mercury Site II, no plume was evident from an old gas station or from contaminated fill. No permanent monitoring wells were installed. For the SWMU #11 area, contamination was evident in a radial pattern from the former waste oil tank location. Six permanent wells were installed.
- The **drilling work** is complete and consists of seven shallow wells and eight deep bedrock wells.
- The **pond/tidal study work** is in progress.
- The **mercury burial site work** is complete. The concrete sewer pipe at Mercury Site I was removed intact; associated mercury concentrations in soil were below background levels. Mercury Site II was not discovered.

The **air monitoring field work** is also in progress, with nothing of note to report.

Lt. Conroy then discussed the **Corrective Measures Study (CMS) Proposal** and specifically, the alternatives developed for each site, as per the TRC meeting handout. He also referred to the corrective measures objectives handout taken from Table 2-5 of the Draft CMS Proposal.

Lt. Conroy then turned the presentation on **Off-shore Studies** over to Bob Johnston. The presentation included a status discussion with anticipated submission dates for reports. Fred Short presented Off-Shore field work being conducted this summer. The field work consists of eelgrass transplantation experiments,

both in contaminated sediment and in water column conditions. The experiments will determine whether estuarine reconstruction alternatives for the Jamaica Island Landfill (SWMU #8) are feasible. Seeps, which are being videotaped by NSY Portsmouth on a monthly basis, will also be evaluated.

Jim Tayon presented information on the **Restoration Advisory Board (RAB)**, which will modify the current TRC meetings. The purpose of the RAB is to provide greater community involvement. Jim Tayon discussed some of the key elements of the RAB, as provided in the handout. He noted that the meetings would take place off of the NSY Portsmouth facility and would be co-chaired by the community and the Navy. Jim Tayon mentioned that the conversion to the RAB would work in conjunction with the scheduled update of the existing Community Relations Plans. Copies of the existing Community Relations Plan, as well as recent news clippings, were available for TRC members and are in the information repository.

Several options are available in establishing a selection panel to recommend members for the RAB. A workshop will be held August 24-25 in Boston; attendance is requested for the RAB co-chairs, plus representatives from NORTHDIV, MEDEP, and the EPA. Jim Tayon requested input from the TRC members so that a community co-chairperson could be selected prior to this meeting. The necessity for an additional meeting among select TRC members to discuss the RAB selection committee was confirmed. This meeting was scheduled and then modified later to Tuesday, August 9, 1994 at 9:30 a.m. at the Kittery Council Chamber, Kittery Town Hall, Roger Road.

## QUESTIONS/RESPONSES

- Jim Dolph was questioned on the potential contamination resulting from the **Coal Gasification Site**. He responded that the plant was operated in the 1800s and very little by-product was generated, if any, since paraffin oil and other various oils were utilized.
- Several questions were asked about the **Corrective Measures Study Proposal alternatives**. A TRC member questioned whether the subsequent Corrective Measures Study would be available for review by TRC members and Lt. Conroy responded that it would. A Record of Decision (ROD) would be prepared for the selected alternative at each Solid Waste Management Unit (SWMU) and a public meeting and public hearing would also take place.

Mark Hyland of MEDEP voiced a concern with the use of the **existing cap for the DRMO (SWMU #6) alternatives**. The State perceives that the existing cap may serve as a temporary measure only, since slope and runoff/runoff controls, etc. have not adequately been addressed. The Navy intends to keep the DRMO in operation and, therefore, plans on seeking waivers to "landfill" requirements. The MEDEP responded that assurances would have to be made concerning cap maintenance and restriction of activities. Linda Klink added that the purpose of alternatives involving capping is to prevent exposures to soil; any infiltration affecting groundwater would be addressed via the groundwater remediation part of the given alternative.

A brief discussion took place concerning the inclusion of **on-site disposal of fixated material at the Battery Acid Tank (SWMU #10)**. This option would not be effective due to the shallow water table and salt water influence, which would promote leaching of metals from the fixated material.

A brief discussion took place concerning alternatives for residential vs. industrial use at the **former Child Development Center (CDC)**. It was noted that the Media Protection Standard for arsenic at this site was based on background levels, so there would not be any differences for industrial or residential use.

- Ernie Waterman noted that additional effort may be necessary for establishing **Media Protection Standards for air**, since the volatile mercury source, if any, has not yet been identified.
- Phil McCarthy questioned the definition of Applicable or Relevant and Appropriate Requirements (**ARARs**).
- Linda Klink questioned the **Off-Shore Media Protection Standards vs. Risk Synthesis**. Bob Johnston explained that the risk synthesis will set action levels, rather than the Off-shore Media Protection Standards. Bob Johnston added that additional review comments on the Off-shore Media Protection Standards can be submitted.
- Several questions were asked about the **eelgrass experiments**. When asked the definition of mesocosm, Fred Short replied that for this experiment a small study volume of one cubic meter was used. The purpose of the experiments is to investigate conditions for the growth of eelgrass in Clark's Cove.

It was questioned whether the eelgrass would be **archived** at the end of the study. Fred Short responded that the material would be archived, although current funding does not allow for chemical analysis of the archived material. He added that the experiment was developed only to investigate eelgrass growth.

Linda Klink questioned whether the duration of the experiments was long enough to determine any **toxic effects** on eelgrass caused by contamination. Fred Short replied that inhibitory effects would likely be evidenced right away, and chronic effects would be evidenced in three to four months. Controls (replicates) are also included in the field experiment.

Ernie Waterman questioned whether **reproduction capabilities** of the eelgrass was included in the experiments and Fred Short replied that it was not.

It was questioned whether the study could be expanded to investigate eelgrass in **Spruce Creek**. Fred Short answered that this would be interesting but is out of scope. Ernie Waterman added that although Spruce Creek is not included in the study, results of the study can be applied to Spruce Creek and other areas where conditions appear favorable for eelgrass growth.

It was questioned whether there is a **historical basis for eelgrass growth** in Clark Cove. Fred Short indicated that there are no historical records available (except for the presence of salt marshes prior to Jamaica Island Landfill operations). Bruce Smith and Fred Short discussed that eelgrass in New Hampshire and Maine is commonly found in areas where the wave action is not present and there is not thereby a deterrent for growth of eelgrass.

Concerning the **RAB**, Bruce Smith asked whether equal consideration would be given to New Hampshire in selecting the RAB members. Lt. Conroy stated that **New Hampshire** would be represented and that the size of the RAB would be increased if necessary to reflect the "community." Jim Tayon added that in order to promote a democratic process the RAB selection committee shall be composed only of community members and, also, that all members of the TRC who desire to do so are welcome to continue on as the TRC is converted to the RAB.

Ernie Waterman asked whether a RAB selection committee member could become a RAB member; the Navy responded that this would not present a problem.

## **CONCLUSION**

Lt. Conroy tentatively scheduled the next TRC meeting, which was later modified to Monday, September 19, 1994 at 10:00 a.m. at NSY Portsmouth. (As previously discussed, several TRC meeting members will also meet on Tuesday, August 9, 1994 at 9:30 a.m. at the Kittery Town Hall to discuss the RAB selection committee).

Enclosure:

Sign-in sheet

7/12/94

TECHNICAL REVIEW COMMITTEE MEETING  
PORTSMOUTH NAVAL SHIPYARD  
MUSEUM AND VISITOR'S CENTER

NAME	TITLE	ADDRESS	TELEPHONE
LINDA KLINK	PROS. MOR.	HALLIBURTON NUS	(412) 921-7098
LT Jim Conroy	Remedial Project Mgr	NORTHDIV	(610) 595-0567 (117)
JIM TAYLOR	ENGINEER	PNS-121.5	(207) 438-3832
Fran Eudyka	Engineer	PNS-121.10	207-438-3589
JEFF CLIFFORD	TOP ENGINEER	KIPPERT ST. ME	207-439-2875
COE JAMES WINDSTATE, MC, CIVIL	UNIV. OF MICHIGAN	ANN ARBOR, MICH.	207-438-2991
MaryAnne Masciarice	Public Affairs	PNS	x 1140
Food Short	Academics Professor	UNH	603 862-2125
Bob Johnston	Scientist	NOIOSC	(401) 245-5462
Gerald A. Gauthier	Mercury Control	PNS-126.31	(207) 438-3634
Heather Mass Hall	Secretary	PNS-121	(207) 438-3832
Mike Pedersen	Env. Specialist	PNS 122.4	(207) 438-5740
DAVID A. POY	TRAP ACADEMY TOWN OF RIFTON	WILLIAMSBURG	(207) 438-7121
MARK HYLAND	ME DEP	STATE HOUSE STATION 17	(207) 287-2051
Ernest Waterman	EPA	Garban, MA	617 223-5511
Francis Hall	TRC	Durham, NH	603 868-7424
Ken Finkelstein	NOAA	Boston, MA	617-223-5530
PHIL McCARTHY	TOUR MANAGER	P.O. BOX FOR KIRBY	(207) 439-1633
BRUCE Smith	WARPINE Biologist	N.H. FZ, Durham, NH	(603) 868-1091
BRAD STERL	" "	ME. DMR	207-646-3322
KEN FINSTED	PNS - CODE 121		X3830
JAMES Dalph	PNS - Code 870H		X3550

**TRC MEETING AGENDA**

**TUESDAY, JULY 12, 1994**

**TIME: 9:30 AM - 11:30 AM**  
**LOCATION: Shipyard Museum, Bldg 156**

<b>09:30 - 0935</b>	<b>Introduction/Opening Remarks</b>
<b>09:35 - 10:00</b>	<b>Status update on the Corrective Measures Program/Schedule (Lt Conroy)</b>
<b>10:00 - 10:20</b>	<b>Off-Shore Studies Update (Bob Johnston)</b>
<b>10:20 - 10:40</b>	<b>Restoration Advisory Board (Jim Tayon)</b>
<b>10:40 - 11:30</b>	<b>Open Discussion/Closing Remarks</b>

# RESTORATION ADVISORY BOARD (RAB)

## Workshop Purpose

- Improve communication between the installation and affected stakeholders.
- Gain effective input from stakeholders on clean up activities.
- Increase installation responsiveness to community environmental restoration concerns.
- Establish, operate, and enhance the Restoration Advisory Board (RAB).

## Traditional Approaches to Community Involvement

- Provide information on program activities.
  - Establish an Administrative Record
  - Establish central repositories with convenient public access
  - Announce availability of draft documents
- Provide opportunities for public comment and respond to comments.
- Establish Technical Review Committees (TRC).
- The approaches to community involvement that we have traditionally used are:
  - Providing information
  - Soliciting and responding to comments
- These approaches are sometimes limiting and do not achieve two-way, interactive communication that truly involves community in the cleanup process.

## Enhanced Approaches to Community Involvement

FOR DISCUSSION: To what degree has the Portsmouth Naval Shipyard Community Relations Program already fulfilled the following suggested enhanced approach?

- Identify affected stakeholders and recognize their role in the cleanup process.
- Open communication channels with representatives of the community.
- Encourage local community involvement throughout the cleanup process.
- Demonstrate that community input is valuable and impacts decision making.
- Make draft reports available simultaneously to the community and regulatory agencies.
- Establish RABs at installations where there is sufficient, sustained interest.

These approaches can enhance community involvement:

- Identifying who the affected stakeholders are and recognized that they have a right to provide input to decisions that may impact their health, property values and lifestyles.
- Identify key individuals who can represent various interests within the community and begin dialogue.
- Solicit community involvement early, in the planning stages of the cleanup process, if possible and continue it throughout.
- We must demonstrate that we value community input and that it is considered in decision making.
- Making information available to the community is a first step in involving them. The community should be viewed as a full partner and receive information at the same time that regulatory agencies receive it.
- RABs should be established where there is interest. We will explain the differences between a TRC and a RAB.

## Benefits of Community Participation

<b>Installation and EPA</b>		<b>Community</b>
Increased credibility	-	Increased understanding of cleanup issues and progress
Improved community acceptance and support	-	Greater opportunities to participate in the process and impact decisions
More responsive cleanups	-	More responsive cleanups

### Purpose of the RAB

- Act as a forum for the discussion and exchange of information between the installation, regulatory agencies, and the community.
- Provide an opportunity for stakeholders to participate in the cleanup process and provide input to decision makers.
- Complement other community involvement initiatives.

### Determining the Need for a RAB

Identify sufficient, sustained community interest in the cleanup program.

- Use community involvement techniques to identify and solicit interest in a RAB.
- If the community does not express interest in a RAB, document efforts taken to solicit interest and follow up with procedures to monitor community interest on an ongoing bases.

### Minimum Steps to Identify and Solicit Community Interest

- Update the Community Relations Plan to include efforts to identify key community representatives, local concerns, and environmental equity issues, etc.
  - Review correspondence files
  - Review media coverage
  - Conduct interviews with local community members
  - Advertise in local newspapers

### Members of the RAB

- Representatives of affected community interests and/or groups.
- Interested individuals
- Installation
- EPA region (primarily NPL and BRAC installations)
- DEP
- Other federal agencies (ATSDR, DOE, DOI, etc.)
- Local government

### Selecting Community Members

CO will ensure that RAB membership mirrors the diverse interests within the community:

- Selection process must be unbiased and open.
- Selection process must be conducted in cooperation with regulatory agencies and affected community members.
- The community member selection process is probably the most critical and sensitive issue. It must be done carefully and thoughtfully.

### DoD/EPA Guidelines state:

- There must be a selection panel.
- The selection panel must reflect the diverse community interests.
- The selection panel must be made up of community members only.
- The selection panel will recommend a slate of RAB community members who represent diverse local interests.

Divers community interests include:

- Local residents/community members/base (Shipyard) community
- Business/community members
- Homeowner organizations
- Civic/public interest organizations
- Installation employees/residents
- Environmental groups/activists
- Environmental justice groups (i.e., low-income,, minority, etc.)

Some installations across DoD have experienced problems because their membership selection process did not include these key elements. To avoid falling into the same traps, all installations are encouraged to follow these guidelines when establishing selection panels.

Options for Establishing a Selection Panel

- Installation CO (in consultation with EPA and State)
  - Organizes a selection panel to nominate RAB members; or
  - Selects a neutral facilitator to establish the Selection Panel; or
  - Has community representatives choose the members of the Selection Panel; or
  - Places a paid notice in local newspapers, requesting volunteers to serve on the Selection Panel; or
  - Has existing community members of the TRC as Selection Panel; or
- Installation, EPA, and State representatives each nominate community members to be on the Selection Panel.

### Identify Stakeholder Interests

- Characterize the community's diverse needs and interests.
- Using information collected for the Community Relations Plan, i.e., interviews, surveys, the CO must characterize the communities interests, issues of concern and desire for participation.

### Organize a Selection Panel

- Panel itself should represent a cross-section of the community:
  - Local residents/community members, including disadvantaged
  - Current TRC members
  - Installation residents/residents
  - Local environmental groups/activists
  - Business community
  - Low income and minority groups
- Panelists should include both supporters and critics to generate broad input.
- The CO should organize a panel to select Community Members of the RAB
- The selection panel should represent a cross section of the community.

### Responsibilities of the RAB Selection Panel

- Select ~~the~~ methods and criteria for soliciting and selecting candidates
- Solicit nominations from the community
- Review and evaluate candidates
- Recommend a slate of candidates for acceptance

### Accept Selection Pan 1 Nominations

- CO, in consultation with EPA and State, shall accept the slate of candidates nominated by the Selection Panel.
- If candidates do not reflect the diverse community interests, the CO, in consultation with EPA and State, may reject the roster and identify weaknesses to be corrected.
- Only justification for not accepting this list is:
  - If the list does not reflect diversity in the community or
  - the list is not balanced - it is biased toward a single issue or group of issues.

### Selecting Installation Members

- Installation Commanding Officer (CO) selects one representative of sufficient grade/rank to implement RAB responsibilities as the RAB co-chair.
- CO may select a second installation member.
- Other installation representatives, such as the Public Affairs Officer and the Judge Advocate, may provide support.
- Other installation personnel may attend meetings to present information or provide other support.

### Selecting Government Members

- Each organization selects one representative who has sufficient authority to implement the RAB mandate and who can dedicate the time necessary to fulfill responsibilities.
- EPA region - usually the Remedial Program Manager
- State - the lead agency as established by Defense and State Memoranda of Agreement shall identify the appropriate representative.
- Local Government - the local government shall identify the appropriate representative.

### Size of a RAB

The number of RAB members should be large enough to reflect community diversity, yet small enough to be workable.

- Recommended approximately 20 members

### Selecting RAB Co-Chairs

Co-chairs will serve in equal partnership.

- Installation Co-chair will be selected by the CO.
  - Installation Co-chair will be selected by the CO.
  - Must be of sufficient rank/grade to implement RAB responsibilities.
- Community Co-chair will be selected by the community members of the RAB.
- They may serve simultaneously or chairmanship may rotate.

### Responsibilities of the RAB

- Provide advice to the installation and federal and state regulatory agencies.
- Address important issues related to cleanup, such as land use, cleanup levels, acceptable risk, and waste management and technology development concerns related to environmental restoration.
- Review and evaluate documents.
- Identify proposed project requirements.
- Recommended priorities among sites or projects.
- Conduct regular meetings, open to the public, at convenient times and locations.
- The RAB's focus should be the cleanup program.

TABLE 2-5  
 CORRECTIVE MEASURES OBJECTIVES FOR SOILS CURRENT USE  
 NSY PORTSMOUTH, KITTERY, MAINE<sup>4,5</sup>

SWMU	Medium	Exposure Pathway	Analyte	Corrective Measures Objective (mg/kg)	Basis for Corrective Measures Objective (mg/kg)
DRMO - SWMU #6	Surface Soils	Current Occupational Ingestion, Inhalation and Dermal Contact	Beryllium <sup>2</sup>	1.57	Background
			Cadmium	4.95	Background
			Lead <sup>3</sup>	1,000.0	USEPA Region I Directive
			Mercury	9.93	Hazard Index
			Arochlor-1254	0.6	10 <sup>-6</sup> Risk
			Benzo(a)anthracene	0.79	10 <sup>-6</sup> Risk
			Benzo(a)pyrene	0.92	Background
			Benzo(b)fluoranthene	1.33	Background
			Benzo(k)fluoranthene	0.97	Background
			Chrysene	1.29	Background
			Indeno(1,2,3-cd)pyrene	0.79	10 <sup>-6</sup> Risk
JILF - SWMU #8	Surface Soils	Current Occupational Ingestion, Inhalation, and Dermal Contact	4,4'-DDT	13.48	10 <sup>-6</sup> Risk
			Arochlor-1254	0.59	10 <sup>-6</sup> Risk
Quarters S, N & 68	Surface Soils	Current Residential Ingestion, Inhalation and Dermal Contact (Adults & Children)	Arsenic <sup>1</sup>	48.9	Background
			Lead <sup>3</sup>	500.0	USEPA Region I Directive

TABLE 2-5  
CORRECTIVE MEASURES OBJECTIVES FOR SOIL CURRENT USE<sup>4,5</sup>  
NSY PORTSMOUTH, KITTERY, MAINE  
PAGE 2

- 1 MEDEP Residential Soil Guideline for Arsenic is 75 mg/kg.
- 2 MEDEP Residential Soil Guideline for Beryllium is 375 mg/kg.
- 3 Risks currently cannot be calculated for Lead. Soil cleanup is set at 1,000 ppm for occupational, 500 ppm for residential as per USEPA Region I directive.
- 4 Soil Media Protection Standards are not necessarily protective of groundwater quality because leaching soil contamination to groundwater has not been evaluated.
- 5 Soil and Groundwater Media Protection Standards are not necessarily protective of surface water and sediment quality if soils and groundwater are found at the NSY Portsmouth to migrate to the estuary.

TABLE 2-6  
 CORRECTIVE MEASURE OBJECTIVES FOR SOILS POTENTIAL FUTURE USE  
 NSY PORTSMOUTH, KITTERY, MAINE<sup>2,3</sup>

SWMU	Medium	Exposure Pathway	Analyte	Corrective Measures Objective (mg/kg)	Basis for Corrective Measures Objective (mg/kg)
DRMO-SWMU #6	Surface Soils	Future Residential Ingestion, Dermal and Inhalation	Antimony	31.3	Hazard Index
			Beryllium <sup>4</sup>	1.57	Background
			Cadmium	4.95	Background
			Lead <sup>1</sup>	500.0	USEPA Region I Directive
			Mercury	5.5	Hazard Index
			Nickel	1,561.0	Hazard Index
			Zinc	1,559.7	Hazard Index
			Aldrin	0.0367	10 <sup>-6</sup> Risk
			Dieldrin	0.0389	10 <sup>-6</sup> Risk
			Arochlor-1254	0.0809	10 <sup>-6</sup> Risk
			Benzo(a)anthracene	0.6275	Background
			Benzo(a)pyrene	0.9192	Background
			Benzo(b)fluoranthene	1.33	Background
			Benzo(k)fluoranthene	0.97	Background
			Bis(2-ethylhexyl)phthalate	44.53	10 <sup>-6</sup> Risk
			Chrysene	1.29	Background
Dibenzo(a,h)anthracene	0.224	Background			
Indeno(1,2,3-cd)pyrene	0.488	Background			

TABLE 2-6  
 CORRECTIVE MEASURE OBJECTIVES FOR SOILS POTENTIAL FUTURE USE  
 NSY PORTSMOUTH, KITTERY, MAINE<sup>6,7</sup>  
 PAGE 2

DRAFT

SWMU	Medium	Exposure Pathway	Analyte	Corrective Measures Objective (mg/kg)	Basis for Corrective Measures Objective (mg/kg)
JILF - SWMU #8	Surface Soils	Future Residential, Ingestion, Inhalation and Dermal Contact	Copper	2,612.0	Hazard Index
			Zinc	1,068.0	Background
			4,4'-DDT	3.09	Background
			Arochlor-1254	0.063	10 <sup>-6</sup> Risk
Child Development Center	Surface Soils	Future Residential Ingestion, Inhalation and Dermal Contact	4,4'-DDD	2.01	10 <sup>-6</sup> Risk
			Benzo(a)anthracene	0.63	Background
			Benzo(a)pyrene	0.91	Background
			Benzo(b)fluoranthene	1.33	Background
			Benzo(k)fluoranthene	0.97	Background
			Chrysene	1.29	Background
			Dibenzo(a,h)anthracene	0.22	Background
			Indeno(1,2,3-cd)pyrene	0.49	Background
DRMO - SWMU #6	Subsurface Soils	Future Occupational Ingestion and Dermal Contact	Antimony	817.8	Hazard Index
			Arsenic <sup>5</sup>	48.9	Background
			Lead <sup>1</sup>	1,000.0	USEPA Region I Directive
			Arochlor-1248	7.42	10 <sup>-6</sup> Risk
			Arochlor-1254	7.42	10 <sup>-6</sup> Risk
			Benzo(a)anthracene	9.84	10 <sup>-6</sup> Risk
			Benzo(a)pyrene	9.8	10 <sup>-6</sup> Risk
			Benzo(b)fluoranthene	9.8	10 <sup>-6</sup> Risk
			Benzo(k)fluoranthene	9.8	10 <sup>-6</sup> Risk

TABLE 2-6  
 CORRECTIVE MEASURE OBJECTIVES FOR SOILS POTENTIAL FUTURE USE  
 NSY PORTSMOUTH, KITTELY, MAINE<sup>4,7</sup>  
 PAGE 3

SWMU	Medium	Exposure Pathway	Analyte	Corrective Measures Objective (mg/kg)	Basis for Corrective Measures Objective (mg/kg)
			Chrysene	9.8	10 <sup>-6</sup> Risk
JILF/Waste Oil Tank Area - SWMU #s 8 and 11	Subsurface Soils	Future Occupational Ingestion and Dermal Contact	Arochlor-1254	7.43	10 <sup>-6</sup> Risk
			Benzo(a)anthracene	9.9	10 <sup>-6</sup> Risk
Mercury Burial Sites - SWMU #9	Subsurface Soils	Future Occupational Ingestion and Dermal Contact	Benzo(a)anthracene	9.8	10 <sup>-6</sup> Risk
			Benzo(a)pyrene	9.8	10 <sup>-6</sup> Risk
			Benzo(b)fluoranthene	9.8	10 <sup>-6</sup> Risk
			Benzo(k)fluoranthene	9.9	10 <sup>-6</sup> Risk
			Chrysene	9.8	10 <sup>-6</sup> Risk
Battery Acid Tanks - SWMU #10	Subsurface Soils	Future Occupational Ingestion and Dermal Contact	Lead <sup>1</sup>	1,000.0	USEPA Region I Directive
Acid Alkaline Drain Tank - SWMU #21	Subsurface Soils	Future Occupational Ingestion and Dermal Contact	Benzo(a)anthracene	9.8	10 <sup>-6</sup> Risk
			Benzo(a)pyrene	9.8	10 <sup>-6</sup> Risk
			Benzo(b)fluoranthene	9.8	10 <sup>-6</sup> Risk
			Benzo(k)fluoranthene	9.8	10 <sup>-6</sup> Risk
			Chrysene	9.8	10 <sup>-6</sup> Risk

- 1 Risks currently cannot be calculated for Lead. Soil cleanup is set at 1,000 ppm for occupational, 500 ppm for residential as per USEPA Region I directive.
- 2 Soil Media Protection Standards are not necessarily protective of groundwater quality because leaching soil contamination to groundwater has not been evaluated.
- 3 Soil and Groundwater Media Protection Standards are not necessarily protective of surface water and sediment quality if soils and groundwater are found at the NSY Portsmouth to migrate to the estuary.
- 4 MEDEP Residential Soil Guideline for Beryllium is 375 mg/kg.
- 5 MEDEP Residential Soil Guideline for Arsenic is 75 mg/kg.

TABLE 2-7

**SUMMARY OF ANALYTES WHICH EXCEED PROPOSED MPSs  
FOR CURRENT OR FUTURE LAND USE  
NSY PORTSMOUTH, KITTERY, MAINE**

<b>SWMU of Concern</b>	<b>Medium</b>	<b>Exposure Scenario</b>	<b>Analytes</b>
#6-DRMO	Surface Soils	Future Residential	Antimony Beryllium Cadmium Lead Mercury Nickel Zinc Aldrin Dieldrin PCB 1254 PAHs Bis(2-ethylhexyl) phthalate
#8-JILF	Surface Soils	Future Residential	Copper Zinc 4,4'-DDT PCB-1254
#6-DRMO	Subsurface Soils	Future Occupational	Antimony Arsenic Lead PCBs 1248, 1254 PAHs
#8, #11-JILF/Waste Oil Tank Area	Subsurface Soils	Future Occupational	PCB 1254 Benzo(a)anthracene
#9 Mercury Burial Sites	Subsurface Soils	Future Occupational	PAHs
#10 Battery Acid Tanks	Subsurface Soils	Future Occupational	Lead
#21 Acid Alkaline Drain Tank	Subsurface Soils	Future Occupational	PAHs
<b>Non-SWMUs of Concern</b>	<b>Medium</b>	<b>Exposure Scenario</b>	<b>Analytes</b>
Quarters, S, N & 68	Surface Soils	Current Residential	Lead Arsenic
Former CDC	Surface Soils	Future Residential	4,4'-DDD PAHs

TABLE 2-8

**CORRECTIVE MEASURES OBJECTIVE FOR FUTURE USE OF FRESH GROUNDWATER  
NSY PORTSMOUTH, KITTERY, MAINE<sup>(4)</sup>**

Analyte	Corrective Measures Objective (mg/l)	Corrective Measure Objectives Basis
Benzene	0.005	MCL <sup>(1)</sup> /MMEG <sup>(2)</sup>
Methylene Chloride	0.005	MCL
4,4'-DDD	0.000036	10 <sup>-6</sup> Risk
4,4'-DDE	0.000025	10 <sup>-6</sup> Risk
Arochlor - 1242	0.00050	MCL
Arochlor - 1254	0.0005	MCL
Benzo(a)anthracene	0.0001	MCL
Benzo(a)pyrene	0.0002	MCL
Benzo(b)fluoranthene	0.000068	10 <sup>-6</sup> Risk
Bis(2-ethylhexyl)phthalate	0.008	10 <sup>-6</sup> Risk
Chrysene	0.000068	10 <sup>-6</sup> Risk

**TABLE 2-8**  
**CORRECTIVE MEASURES OBJECTIVE FOR FUTURE USE OF FRESH GROUNDWATER**  
**NSY PORTSMOUTH, KITTERY, MAINE<sup>(4)</sup>**  
**PAGE 2**

Analyte	Corrective Measures Objective (mg/l)	Corrective Measure Objectives Basis
Aluminum	105.95	Hazard Index of 1.0
Antimony	0.0146	Hazard Index of 1.0
Arsenic	0.109	Hazard Index of 1.0
Beryllium	0.00400	MCL
Cadmium	0.0182	Hazard Index of 1.0
Chromium	0.182	Hazard Index of 1.0
Copper	1.35	Hazard Index of 1.0
Lead	0.01500	Action Level <sup>(3)</sup>
Manganese	3.648	Hazard Index of 1.0
Nickel	0.73	Hazard Index of 1.0
Vanadium	0.256	Hazard Index of 1.0
Zinc	7.294	Hazard Index of 1.0

- (1) Maximum Contaminant Level; from Drinking Water Regulations and Health Advisories, Office of Water USEPA, May 1993.
- (2) Maine Maximum Exposure Guidelines; Summary of State Drinking Water Standards, Maine Dept. of Human Health Services, September 1992.
- (3) A cleanup level of 0.015 mg/kg is used based upon OSWER Directive for Superfund Cleanup Levels for Lead and USEPA Region I guidance.
- (4) Soil and groundwater media protection standards are not necessarily protective of surface water and sediment quality if soils and groundwater are found at the shipyard to migrate to the estuary.

DRAFT

TABLE 2-9

PROPOSED MEDIA PROTECTION STANDARDS FOR AIR  
NSY PORTSMOUTH, KITTERY, MAINE

SWMU	Medium	Exposure Pathway	Analyte	Corrective Measures Objectives (mg/m <sup>3</sup> )	Basis for Corrective Measures Objective (mg/m <sup>3</sup> )
DRMO-SWMU #6	Air	Current Occupational Inhalation	Volatile Mercury	4.00e-03	Hazard Index of 1.0
Mercury Burial Sites SWMU #9	Air	Current Occupational Inhalation	Volatile Mercury	4.00e-03	Hazard Index of 1.0
Quarters S, N and 68	Air	Current Residential Inhalation	Volatile Mercury	3.00e-03	Hazard Index of 1.0
DRMO - SWMU #6	Air	Future Residential Inhalation	Volatile Mercury	3.00e-03	Hazard Index of 1.0
Mercury Burial Sites - SWMU #9	Air	Future Residential Inhalation	Volatile Mercury	3.00e-03	Hazard Index of 1.0

2-27

RFI DATA GAP INVESTIGATION FIELD WORK SCHEDULE

	6/13 *	6/27 *	7/5 *	7/19 *	7/30 * *
MOBILIZATION	—				
DIRECT PUSH	—————				
DRILLING	—————	—————	—————		
SLUG TESTS				—————	
WL MEASUREMENTS				—	
GW SAMPLING				—————	
MBS EXCAVATION		—————	—————		
POND STUDIES	—————	—————	—————	—————	
TIDAL STUDIES				—————	
SEEP SAMPLING		—————	—————	—————	
DEMOBILIZATION					—

# WORK PLAN FOR THE FEASIBILITY STUDY OF SHORELINE REMEDIATION AT PORTSMOUTH NAVAL SHIPYARD

## Task One: Mesocosm Experiments of Eelgrass Transplanted into Contaminated Sediment.

Micro  
Meso  
Macro  
intermediates  
size

- A. Set up 8 mesocosms with flow-through sea water on Jamaica Island. Each mesocosm will hold thirteen 5 qt buckets that contain contaminated mud from selected sites in Clark Cove and the Jamaica Cove (in the Back Channel) and Adams Cove as an uncontaminated control source.
  - 1. Sites for obtaining contaminated sediment have been established in areas where ground water visibly seeps from the shore adjacent to the Jamaica Island Landfill.
  - 2. Eelgrass is known to take up metal contaminants in relation to their concentration in sediments and the water column and has been shown to be a good indicator of point source contamination.
- B. Eelgrass from Fishing Island will be transplanted into each bucket and monitored over time for growth and morphology.
- C. Interpretation of results will be made through an ANCOVA framework.

## Task Two: *In situ* planting of eelgrass at the same Clark Cove and Jamaica Cove sites for testing the sediment and water column conditions for eelgrass growth around Seavey Island.

- 1. Sites have been established in areas where ground water visibly seeps from the shore adjacent to the Jamaica Island Landfill.
- 2. Eelgrass is known to take up metal contaminants in relation to concentration in sediments and water the column and has been shown to be a good indicator of point source contamination.
- A. Eelgrass from Fishing Island will be transplanted in two ways:
  - 1. Rooted in the sediments of selected sites to test water and sediment contaminant sources.
  - 2. Tethered (unrooted) so that water is the only source of contaminants.
- B. Eelgrass will be monitored over time for growth, morphology and survival.
- C. Interpretation of results will be made through an ANCOVA framework.

## Task Three: Research Products

- A. A map of where eelgrass will survive within the identified contaminated areas.
  - 1. Areas where eelgrass survives will be identified as potential areas for remediation.
- B. A report summarizing the results of our study, including findings on growth, morphology and survival of eelgrass in our various experiments relating to contaminant sources around the Portsmouth Naval Shipyard.

**CORRECTIVE MEASURES PROGRAM  
PORTSMOUTH NAVAL SHIPYARD**

- **RFI DATA GAP FIELD WORK**
- **CONFIRMATION AIR STUDY**
- **CORRECTIVE MEASURES STUDY PROPOSAL**
- **NEW STUDY AREAS**
- **OFF- SHORE STUDIES**

**RESTORATION ADVISORY BOARD**

- **ATSDR VISIT**

## **RFI DATA GAP FIELD WORK**

- **MONITORING WELLS**
- **DIRECT PUSH**
- HG BURIAL SITES**
- **POND STUDIES**

## **CONFIRMATION AIR STUDY**

**MOBILIZATION**

## **SWMU 6, DRMO**

- **SURFACE AND SUB-SURFACE SOILS, AIR , GROUNDWATER**

- **ALTERNATIVES:**

**RETAIN EXISTING CAP AND USE INSTITUTIONAL CONTROLS**

**RETAIN EXISTING CAP AND GROUNDWATER HYDRAULIC BARRIER**

**RETAIN EXISTING CAP AND INSTALL GROUNDWATER CUT-OFF BARRIER**

**SOIL FIXATION WITH ON-SITE AND OFF-SITE DISPOSAL CONSIDERED**

**SOIL WASHING**

## **SWMU 8, JILF**

- **SURFACE AND SUB-SURFACE SOILS, AIR, GROUNDWATER**

- **ALTERNATIVES:**

**CAPPING AND INSTITUTIONAL CONTROLS**  
**RCRA SUBTITLE C TYPE CAP**  
**SOIL/ASPHALT CAP**

**CAPPING AND GROUNDWATER HYDRAULIC BARRIER**  
**(WILL CONSIDER BOTH TYPES OF CAPS)**

**CAPPING AND ESTUARINE HABITAT RECONSTRUCTION**  
**(WILL CONSIDER BOTH TYPES OF CAPS)**

**CAPPING AND GROUNDWATER CUT-OFF BARRIERS**  
**(WILL CONSIDER BOTH TYPES OF CAPS AS WELL AS CONVENTIONAL**  
**AND REACTIVE SLURRY WALLS)**

**SOIL REMOVAL WITH OFF-SITE TREATMENT AND DISPOSAL**

## **SWMU 11, WASTE OIL TANKS**

- **SUBSURFACE SOILS AND GROUNDWATER**

- **ALTERNATIVES:**

**INSTITUTIONAL CONTROLS**

**ADDRESS WITH SWMU 8 (JILF)**

**ADDRESS WITH SWMU 8 AND FREE PRODUCT/DNAPL REMOVAL**

## **SWMU 9, MERCURY BURIAL SITES**

- **SUBSURFACE SOILS**

- **ALTERNATIVES:**

**INSTITUTIONAL CONTROLS**

**OFF-SITE DISPOSAL**

**SOIL FIXATION/DISPOSAL WITH OFF-SITE DISPOSAL OF CONCRETE BLOCKS**

**ADDRESS WITH SWMU 8 (JILF)**

## **SWMU 10, BATTERY ACID TANKS**

- **SUBSURFACE SOILS**

- **ALTERNATIVES:**

**INSTITUTIONAL CONTROLS**

**SOIL FIXATION WITH OFF-SITE DISPOSAL**

**OFF-SITE SOIL DISPOSAL**

## **SWMU 21, ACID ALKALINE DRAIN TANK**

- **SUBSURFACE SOILS**

- **ALTERNATIVES:**

**INSTITUTIONAL CONTROLS**

**OFF-SITE SOIL DISPOSAL**

## **SWMU 27, FUEL OIL SPILLAGE AREA**

- **SUBSURFACE SOILS**

- **ALTERNATIVES:**

**INSTITUTIONAL CONTROLS**

**ASPHALT CAPPING**

**OFF-SITE SOIL DISPOSAL**

**THERMAL TREATMENT; OFF-SITE ASPHALT KILN OR  
ON-SITE LOW TEMPERATURE THERMAL STRIPPING**

**FORMER CDC**

- **SURFACE SOILS UNDER FUTURE RESIDENTIAL SCENARIO**

- **ALTERNATIVES:**

**INSTITUTIONAL CONTROLS**

**CAPPING; SOIL OR ASPHALT**

**OFF-SITE SOIL DISPOSAL**

**THERMAL TREATMENT; OFF-SITE ASPHALT KILN OR  
ON-SITE LOW TEMPERATURE THERMAL STRIPPING**

## QUARTERS S, N AND 68

- SURFACE SOILS UNDER CURRENT RESIDENTIAL USE

- ALTERNATIVES:

CAPPING; SOIL OR ASPHALT

SOIL FIXATION AND OFF-SITE DISPOSAL

OFF-SITE <sup>S</sup>SOIL DISPOSAL

## **NEW POSSIBLE STUDY AREAS**

- **INCINERATOR SITE**
- **COAL GASIFICATION SITE**
- **ACID DIP TANK, BLDG 184**
- **TIMBER BASIN LANDFILL**
- **SEAVEY ISLAND LANDFILL**

# **Offshore Study Status Report Presented to the Portsmouth Naval Shipyard Technical Review Committee**

*July 12, 1994*

**Introduction**

**Status of Tasks for Completion**

**Submission Schedule for Offshore Study Reports**

**Requirements Satisfied by Offshore Study**

**RCRA**

**CERCLA**

**Risk Management**

**Marine Environmental Compliance for Navy Shipyards**

**Description of UNH Field Work for Summer 1994**

10:19

## Status of Tasks for Completion

Task/Description	Performers	(% Comp)
1) <b>Database Integration</b> Integrate Data from All Studies	NCCOSC/CSC ERLN/ROW UNH	25% 80% 5%
2) <b>Analytical Chemistry</b> Bioassay Samples (53 samples) Reanalysis (mussel metals)	ERLN/SAIC BMSL	5% 10%
3) <b>Exposure Response Study</b> Report Study Results	SAIC	50%
4) <b>Bioaccumulation</b> Flounder and Lobster	ERLN/UNH	75%
5) <b>Assimilation Capacity</b> Report Results of Study	ERLN/NCCOSC	60%
6) <b>Chemical Markers</b> Report Study Results	ERLN/SAIC	75%

*need data to finish*

*sediment  
assimilation  
characteristics*

## Status of Tasks for Completion (Cont.)

Task/Description	Performers	(% Comp)
<b>Estuarine Ecology</b> Report Results of Studies	<b>UNH-JEL</b>	<b>90%</b>
	<i>eel grass benthos saltmarsh fish, mussel water column</i>	<i>internal review</i>
<b>Modeling and Simulation</b> Upgrade code, simulate exposure fields	<b>UNH-OEP</b>	<b>2%</b>
	<i>ocean engineering program</i>	
<b>Trace Level Inorganics-Estuarine</b> Dissolved Particulate Deployed Mussels	<b>URI-GSO</b>	<b>70%</b>
	<i>graduate school oceanography</i>	<b>48%</b>
		<b>25%</b>
<b>Trace Level Inorganics-Seeps</b>	<b>URI-GSO/NCCOSC</b>	<b>60%</b>
		<i>data now available to update fall rpt.</i>
<b>Risk Synthesis</b> Final Ecorisk Assessment	<b>Ecorisk Team</b>	<b>25%</b>

Anticipated Submission dates for OFFSHORE Reports			
Updated: 7 JULY 94			SUBMITTAL
REPORT TITLE	TYPE	Data Set	DATE
1. Phase I Report	Final		Aug-94
2. Phase 2 Work Plan	Draft Final		<b>Mar-94</b>
3. Sediment Distribution Map	Draft Final		<b>Jun-93</b>
	Final		Jul-94
4. Hydrodynamic Model	Draft Final		<b>Jun-93</b>
	Final		<b>Apr-94</b>
5. Estuarine Dynamics	Draft Data Report		<b>Aug-93</b>
6. Bioaccumulation (Field)	Draft Final	<b>May-94</b>	Aug-94
Bioaccumulation (Lab)	Draft Final	Jul-94	Aug-94
7. Monitoring Status Report	Draft	<b>May-94</b>	
8. Dispersion Model	Draft Report		<b>May-94</b>
9. Sedimentology	Draft		Sep-94
10. Estuarine Ecology	Draft Reports	<b>Dec-93</b>	Aug-94
11. Media Protection Standards	Final Draft		<b>Sep-93</b>
	Final	<b>May-94</b>	<b>Jun-94</b>
12. Assimilation Capacity	Draft Final	<b>May-94</b>	Aug-94
13. Exposure Response (4 Endpoints)	Final Report	Jul-94	Sep-94
14. Trace Level Inorganics (Estuarine)	Final Report	Sep-94	Sep-94
15. Trace Level Inorganics (Seeps)	Preliminary Rpt	<b>Nov-93</b>	<b>Nov-93</b>
	Draft Final	Aug-94	Aug-94
16. Chemical Markers	Draft Report	<b>Nov-93</b>	<b>Feb-94</b>
	Draft Final	<b>Mar-94</b>	Aug-94
17. Microbial Markers	Draft Final	<b>Mar-94</b>	Aug-94
16. Risk Synthesis	Draft	Jul-94	Sep-94

Draft - May 93

## ***RCRA Permit Requirements Addressed by Offshore Study***

<b>REQUIREMENT</b>	<b>OFFSHORE TASK</b>	<b>Comment (% Comp)</b>
<b>PART I General Cond.</b>		
Monitoring And Records	QA/QC Plan Data Management Plan	For PHASE I (100%) For PHASE II (100%)
<b>PART II Special Cond.</b>		
<b>RCRA Facility Invest.</b>		
1. Historical Information	Historical Overview	Short (ed) 1992. (100%)
8. Surface Water/ Sediment Characterization	Sediment Characterization Water Column Char.	Phase I Report (97%) Seep Report 1993b (60%)
10. Biota Characterization	Biological Resources	Phase I Report (97%)
11. Data Collection QA	QA/QC Plans, SOP Manual	(100%)
12. Data Management	Data Management Plan	Phase I (100%) Phase II (75%)
13. Health & Safety	Health & Safety Plan	For Phase I & II (100%)
14. Project Management	Scope of Work Plan of Action & Milestones	For PHASE I & II (100%) Updated Quarterly

<b>Public Health and Environmental Risk Eval.</b>	<b>Preliminary Ecological Risk Assessment</b>	<b>Problem Formulation (PHASE I 100%)</b>
	<b>Final Ecological Risk Assessment</b>	<b>Risk Characterization PHASE II (75%)</b>
<b>Media Protection Standards</b>	<b>Offshore Media: Sediments and Surface Water</b>	<b>Offshore MPS Report (100%)</b>
<b>Corrective Measures Studies (Feasibility Studies)</b>	<b>ESTABLISH RISK-BASED CLEAN UP LEVELS</b>	<b>PHASE II ( 75%)</b>
<b>Corrective Measures (Cleanup)</b>	<b>Long Term Monitoring</b>	<b>ongoing; Status (60%)</b>
	<b>Ecological Risk Synthesis &amp; Analysis</b>	<b>Ecorisk Assessment(25%)</b>
	<b>Restoration Feasibility</b>	<b>(New Start)</b>

## CERCLA Requirements Addressed by the Offshore Study

REQUIREMENT	OFFSHORE TASK	Comment (% Comp)
Preliminary Assessment Site Investigation Hazard Ranking	Information Gathering Problem Definition Conceptual Model	Phase I Report (97%)
Remedial Invest. (RI)  Feasibility Study (FS)  Selection of Remedy  Record of Decision	QA/QC Plan Data Management Plan Health & Safety Plan Preliminary Ecological Risk Assessment  Final Ecological Risk Assessment	For PHASE I (100%) For PHASE II ( 75%)  Problem Formulation (PHASE I 100%)  Risk Characterization PHASE II (75%)
Remedial Design (RD)  Remedial Action (RA)  Operation and Maintenance	ESTABLISH RISK-BASED CLEAN UP LEVELS Long Term Monitoring Ecological Risk Synthesis & Analysis Restoration Feasibility	PHASE II (75%)  ongoing; Status (60%) Ecorisk Assessment(25% )  (New Start)

REQUIREMENT	OFFSHORE STUDY	COMMENT
RISK MANAGEMENT	RESEARCH RESULTS	PHASES I & II
Management Tools	<p><b>DATABASES</b> Exposure Effects</p> <p><b>MODELS</b></p> <p><b>SEDIMENT MAP</b></p> <p><b>MONITORING</b></p> <p><b>ECOLOGICAL RISK ASSESSMENT</b></p>	<p>Relationship Between Exposure and Effects Bioaccumulation</p> <p>Dispersion &amp; Hydrodynamics</p> <p>Sedimentation Rates &amp; Accumulation</p> <p>Verification of Results Evaluate Effectiveness of Remediation</p> <p>State of Science Methods and Procedures</p>

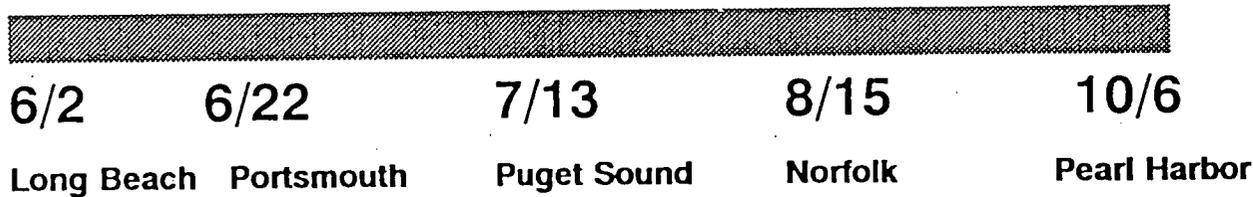
# **Marine Environmental Compliance for Navy Shipyards**

- **Naval Sea Systems Command Sponsorship**
- **Develop Long-Term Cost-Effective Strategy for Environmental Compliance at Navy Shipyards**
- **Integrate Ecological Science with Regulatory Requirements for Risk-Based Management**
- **Apply Lessons Learned from Other Navy Shipyards**

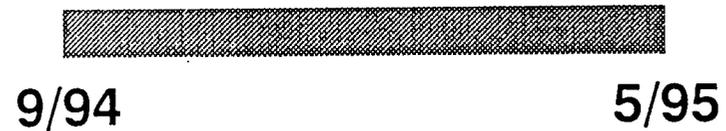


# Schedule

## Site Surveys & Data Collection



## Analysis & Phase I Report



## Design Database Structure



## Implementation of Navy Shipyard Risk Assessment Approach





DEPARTMENT OF THE NAVY  
NAVAL COMMAND, CONTROL AND OCEAN SURVEILLANCE CENTER  
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION DIVISION  
SAN DIEGO, CALIFORNIA 92152-5000

Ser 5221E/040-94  
11 JULY 94

MEMORANDUM

From: Robert K. Johnston, Marine Environmental Support Office,  
East Detachment (MESO-E)  
To: Lt. Jim Conroy, Northern Division, Naval Facilities  
Engineering Command  
Subj: MID-YEAR PROGRESS REPORT FOR THE ESTUARINE ECOLOGICAL  
RISK ASSESSMENT CASE STUDY FOR PORTSMOUTH NAVAL SHIPYARD  
  
Encl: (1) Mid-Year Progress Report  
(2) Submission Dates for Offshore Study Reports

1. The subject progress report is provided (encl. (1)) to document significant accomplishments completed as of 7 JULY 1994. The updated list of submission dates for the reports being produced by the study is provided in enclosure (2).

2. If there are any questions I can be reached at (401) 782-3128, FAX 401-782-3030. The Environmental Research Laboratory, Narragansett Project Officer, Dr. Gerald Pesch, can be reached at (401) 782-3007. Thank you for your interest and continued support.

  
R. K. JOHNSTON  
MARINE ENVIRONMENTAL SUPPORT  
OFFICE - EAST DETACHMENT  
NCCOSC RDTE DIV CODE 5221  
27 TARZWELL DRIVE  
NARRAGANSETT, RI 02882-1154

Copy to:  
NCCOSC RDTE DIV (5221, 522, 52)  
PNSY TRC Meeting Participants of 12 JUL 94  
ERLN  
SAIC  
UNH-JEL, UNH-OEP  
BMSL  
URI-GSO

NAVAL COMMAND CONTROL AND OCEAN SURVEILLANCE CENTER  
MARINE ENVIRONMENTAL SUPPORT OFFICE  
FY94 MID-YEAR PROGRESS REPORT  
July 12, 1993

PROJECT TITLE: ESTUARINE ECOLOGICAL RISK ASSESSMENT FOR NAVAL  
SHIPYARD PORTSMOUTH, KITTERY, ME.

1. PROJECT BACKGROUND.

A cooperative research and monitoring project has been developed between the Marine Environmental Support Office of NCCOSC (MESO/NCCOSC), the EPA Environmental Research Laboratory Narragansett (EPA ERLN), and the University of New Hampshire Jackson Estuarine Laboratory (UNH JEL) and Ocean Engineering Program (UNH OEP), Battelle Marine Sciences Laboratory (BMSL), and the University of Rhode Island Graduate School of Oceanography (URI GSO) to provide technical data and information in support of special conditions required by the Shipyard's RCRA permit. The project consists of two phases. The first phase was initiated in August 1991 to develop an information base to assess the extent, if any, of Shipyard chemical contaminants in the estuary. The second phase, initiated in July 1992, is designed to verify and confirm the information developed during phase I and provide a detailed ecological risk assessment for the estuary. At this time all work for Phase I has been completed; the Phase I Draft Final Report has been submitted and is in press for publication; the offshore media protection standards report has been submitted; all field work and 90% of the laboratory work for Phase II has been completed; and the Phase II reports are being completed (see attached schedule of submission dates).

2. STATEMENT OF PROGRESS:

The NCCOSC Project Officer is Robert K. Johnston with assistance from Ms. Sandi Harrell. The USEPA ERLN Project Officer is Dr. Gerald Pesch. An interagency agreement for \$80K has been approved by EPA Grants Division for completion by Sept. 1994. A contract with UNH (N66001-92-D-0092 DO 0011) in place since August 1992, was completed March 1994. Additional tasking to UNH was developed to complete the offshore study. The tasking included preparing the sedimentology report, conducting a preliminary restoration feasibility study, and performing data integration and modeling simulations. An IAG with the US Department of Energy (USDOE) Battelle Marine Science Laboratory for \$125K was approved March 1993 for completion 30 September 1993, with a no cost extension granted until Sept. 1994. A contract with the University of Rhode Island Graduate School of Oceanography (URI GSO) for \$75K was awarded (August 1993, N66001-92-D-0092 DO 0023) for completion Sept. 1994. A no cost extension to January 1995 is being requested for this task.

A narrative summary of the tasks outlined in the Scope of Work is provided below:

a. PHASE I (NCCOSC, ERLN and UNH). Work identified for PHASE I of the offshore study has been completed. The PHASE I Preliminary Report was completed (19 DEC 1992) and comments were incorporated into the PHASE I Draft Final Report (ERLN Contribution No. 1471), released May 5, 1993. Comments on the draft final report are being incorporated into the final report which is in press for publication as NCCOSC RDTE DIV Technical Report 1652. A comment-by-comment response to review comments was forwarded to reviewers first quarter FY94. The galleys and camera ready copy of the Technical Report have been reviewed and submitted for revisions. Publication is anticipated by Sept 1994.

b. PHASE II Work and Quality Assurance Plan (NCCOSC, ERLN, UNH, BMSL, and URI). The Final Workplan for PHASE II was submitted in March 1994.

c. Exposure-Response (ERLN and NCCOSC). Studies on the exposure response of Pb to marine organisms were completed during fourth quarter FY93. These included an assessment of Pb exposure and uptake to sea urchins, mussels, and submerged aquatic plants. Dosing systems included exposure to suspended and bedded sediments collected from Clark Cove, a reference location (Chauncy Creek), and Pb-spiked reference sediments. The report describing the methods and results of the bioassays is being prepared.

d. Ecological Evaluation of Salt Marsh Impacts (UNH JEL). The Draft Salt Marsh Report has completed internal review and is currently being revised for final submission.

e. Benthic Community Analysis (UNH JEL Subcontract to Campbell University). Sorting and identification of invertebrate organisms has been completed for 25 additional benthic cores collected in the lower estuary. Additional data analyses were conducted on September 1992 benthic data set. A draft report has been completed and has been submitted for internal review.

f. Bioaccumulation in Lobster and Winter Flounder (UNH JEL and ERLN). Tagging and recapture of juvenile lobsters was completed at stations around PNSY. An additional lobster population was sampled at an off coast reference location (Isle of Shoals) Tissue residue chemical analysis of juvenile, sub-legal adult and legal-sized adult lobster has been completed for all analytes. The data have been QAed, validated, and included into the PNSY database system.

g. Sedimentation Dynamics (UNH JEL). Analyses of radionuclide tracers were analyzed to determine sedimentation rates and depositional dynamics and identify cores for dating and analysis of pre-shipyard samples. Additional sediment samples taken in subtidal areas around the lower estuary were analyzed for textural characteristics to improve the accuracy of the sediment distribution map. Sediment traps were deployed and retrieved in

Clark Cove. The sedimentology final report has completed internal review and is being revised for final submission.

h. Estuarine Dynamics - R/V ECOS Survey (NCCOSC and UNH). The ECOS Survey Data Report was completed and reviewed. Data sets include hydrodynamic current profiles taken at cross-channel transects, dye-release studies, and fixed station profiles, horizontal surveys, and longitudinal up-estuary transects of current and water quality parameters. Data from the estuarine dynamics report has been incorporated into the other reports, as appropriate.

j. Dispersion Dynamics (UNH OEP). Calibration of the hydrodynamic and dispersion models have been completed. The draft dispersion modeling report was submitted May 1994.

k. Chemical Markers (ERLN). Chemical markers analysis has been completed. Samples analyzed included source samples (sewage effluent, atmospheric deposition, etc.), deep core samples (pre-Shipyard), and seep samples. The final report is in preparation.

j. Microbial Markers (UNH JEL). The analysis of water column and subtidal sediment samples from around PNSY and throughout the lower estuary for fecal microbial contaminants has been completed. Results have been incorporated into the microbial markers final report.

l. Long Term Monitoring (UNH, NCCOSC, and ERLN). Data analysis of the monitoring program is continuing in order to aid in development of a long-term plan. Quarterly monitoring has continued with samples collected during summer 1993. Chemical analysis by Battelle MSL were completed and were QAed, validated, and input into the PNSY database system.

m. Ecological Risk Synthesis (NCCOSC, ERLN, and UNH). The ecological risk assessment Problem Definition has been completed and a working Conceptual Model is being used to guide the Risk Analysis. Planning and discussions on the execution on the analysis of PHASE II data are ongoing. The media protection proposal for offshore surface water and sediment was completed, reviewed, revised, and submitted (June 1994).

### 3. PLANS FOR NEXT REPORTING PERIOD:

- a. Complete data reports according to submission schedule.
- b. Complete data integration.
- c. Conduct simulations of exposure fields.
- d. Complete Ecological Risk Assessment.
- e. Prepare long term monitoring plan.
- f. Continue analysis of PHASE II results.
- g. Continue synthesis and analysis. Report findings, as required.

4. UNEXPECTED PROBLEMS:

It has taken longer than expected to complete the integration of data from all the investigators. Currently plans have been developed to accelerate data integration facilitate data synthesis and analysis. It has taken eight months to implement the interagency agreement between NCCOSC RDTE DIV and ERLN.

5. FUNDING:

a. PHASE I (FY91 and FY92)

Task/Lab or Funding Doc.	(\$K) \$Rec/Spon	(\$K) Plan	(\$K) Oblig.	(\$K) Spent
	776.2 NDIV			
MESO NCCOSC		85.0	85.0	85.0
ERLN		390.7	390.7	390.7
UNH		300.5	300.5	300.5

b. PHASE II (FY92)

Task/Lab or Funding Doc.	(\$K) \$Rec/Spon	(\$K) Plan	(\$K) Oblig.	(\$K) Spent
	513.0 NDIV 15.0 SERP			
MESO NCCOSC (SERP \$)		15.0	15.0	15.0
(NDIV \$)		95.0	95.0	95.0
ERLN				
UNH		400.0	400.0	285.7
CHEMISTRY BOS		18.0	18.0	18.0

c. PHASE II (FY93)

Task/Lab or Funding Doc.	(\$K) \$Rec/Spon	(\$K) Plan	(\$K) Oblig.	(\$K) Spent
N6247093WR00418AA	215.0 NDIV			
N6247093WR00434AA	644.0 NDIV			
N6247093WR00438AA	25.0 NDIV			
N6247093RC00439AA	65.5 NDIV			
	105.0 SERDP			
MESO NCCOSC (SERDP\$)		105.0	105.0	105.0
(NDIV \$)		226.5	226.5	226.5
ERLN		523.0	523.0	523.0
Battelle MSL		125.0	125.0	125.0
URI GSO		75.0	75.0	22.0
Totals:	1054.5	1054.5	1054.5	1002.5

d. PHASE II Completion (FY94).

Task/Lab or Funding Doc.	(\$K) \$Rec/Spon	(\$K) Plan	(\$K) Oblig.	(\$K) Spent
N6247094WR00412	150.0 NDIV		150.0	62.0
N6247094WR00412	90.0 NDIV		66.0	28.0
N6247094WR00412	45.0 NDIV			
MESO NCCOSC		107.0	72.0	72.0
ERLN		80.0	80.0	
UNH-JEL (Sedimentology)		16.0	16.0	10.0
UNH-JEL (Restoration)		28.0	28.0	
UNH-OEP (Modeling/Data Integ.)		24.0		
SAIC (Exposure/Response)		20.0	20.0	8.0
CSC (Data Integration)		10.0		
TOTAL		285.0	216.0	90.0

BALANCE REMAINING: \$69.0K

6. REPORTS AND PRESENTATIONS

(see Attached Schedule for report submissions)

7. PREPARED BY: R.K. Johnston, Code 522 (401) 782-3128

Anticipated Submission dates for OFFSHORE Reports			Internal Review	SUBMITTAL
Updated: 7 JULY 94			Date Received	DATE
REPORT TITLE	TYPE	Data Set		
1. Phase I Report	Final		<b>May-94</b>	Aug-94
2. Phase 2 Work Plan	Draft Final			<b>Mar-94</b>
3. Sediment Distribution Map	Draft Final			<b>Jun-93</b>
	Final		<b>Apr-94</b>	Jul-94
4. Hydrodynamic Model	Draft Final			<b>Jun-93</b>
	Final			<b>Apr-94</b>
5. Estuarine Dynamics	Draft Data Report			<b>Aug-93</b>
6. Bioaccumulation (Field)	Draft Final	<b>May-94</b>		Aug-94
Bioaccumulation (Lab)	Draft Final	Jul-94		Aug-94
7. Monitoring Status Report	Draft	<b>May-94</b>	<b>Feb-94</b>	
8. Dispersion Model	Draft Report		<b>May-94</b>	<b>May-94</b>
9. Sedimentology	Draft		<b>Aug-94</b>	Sep-94
10. Estuarine Ecology	Draft Reports	<b>Dec-93</b>		Aug-94
Salt Marsh	Draft		<b>May-94</b>	
Eelgrass	Draft		<b>Jun-94</b>	
Benthic Ecology	Draft		Jul-94	
Mussels	Draft		<b>Jun-94</b>	
Flounder	Draft		<b>Jun-94</b>	
Lobster	Draft		Aug-94	
Water Quality	Draft		<b>Jun-94</b>	
11. Media Protection Standards	Final Draft		<b>Sep-93</b>	<b>Sep-93</b>
	Final	<b>May-94</b>	<b>Jun-94</b>	<b>Jun-94</b>
12. Assimilation Capacity	Draft Final	<b>May-94</b>		Aug-94
13. Exposure Response (4 Endpoints)	Final Report	Jul-94		Sep-94
14. Trace Level Inorganics (Estuarine)	Final Report	Sep-94		Sep-94
15. Trace Level Inorganics (Seeps)	Preliminary Rpt	<b>Nov-93</b>		<b>Nov-93</b>
	Draft Final	Aug-94		Aug-94
16. Chemical Markers	Draft Report	<b>Nov-93</b>		<b>Feb-94</b>
	Draft Final	<b>Mar-94</b>		Aug-94
17. Microbial Markers	Draft Final	<b>Mar-94</b>		Aug-94
16. Risk Synthesis	Draft	Jul-94		Sep-94



DEPARTMENT OF THE NAVY

NORTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
10 INDUSTRIAL HIGHWAY  
MAIL STOP, #82  
LESTER, PA 19113-2090

IN REPLY REFER TO

5090  
Ser 2160/1823/JMC

JUN 28 1994

MEMORANDUM

**FOR THE MEMBERS OF THE TECHNICAL REVIEW COMMITTEE (TRC), RCRA  
CORRECTIVE ACTION PROGRAM, PORTSMOUTH NAVAL SHIPYARD, KITTERY,  
MAINE**

This memorandum is to confirm that the next TRC meeting will be held on **Tuesday, July 12, 1994**. The meeting will begin at 9:30 am in the Shipyard Museum and Visitor Center, Building 156. This meeting will be a status update on the various portions of the Corrective Action Program, including the ongoing fieldwork. Attached is an agenda for the meeting.

In an effort to take advantage of suggested improvements we could make to these TRC meetings we will streamline the meeting. We will work to provide the information necessary to meet the needs of the TRC members while keeping the meeting time within reason.

If you plan to attend the TRC meeting, please notify Mr. Jim Tayon at 207-438-3832 in order for proper arrangements to be made for security passes, seating and parking.

If anyone has any additional items that they would like to place on the agenda please call me at (610) 595-0567 extension 117.

Sincerely,

A handwritten signature in cursive script that reads "Jim Conroy".

JAMES M. CONROY, PE  
LT, CEC, USN  
Remedial Project Manager  
By direction of the Commanding Officer

Distribution:  
TECHNICAL REVIEW COMMITTEE MEMBERS

EPA Region I (E. Waterman)  
MEDEP (N. Beardsley)  
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Onil Roy (Town of Kittery)  
Phil McCarthy (Town of Kittery)  
Dr Francis Hall (Town of Durham)  
Jeff Clifford (Town of Kittery)  
John Nelson (NH Fish & Game)  
NCCOSC (R. Johnston)  
UNH-JEL (L. Ward)  
Portsmouth Naval Shipyard (Code 120,121,121.5,122.4)  
Portsmouth Naval Shipyard (Code 870, 105.22)  
Portsmouth Naval Shipyard (Code 910,106)  
Portsmouth Medical Clinic (CDR Longstaff)  
NEHAC Detachment Portsmouth (CAPT Pessoney)  
Halliburton NUS (L. Klink)  
NORTHDIV (Code 09TC)

**TRC MEETING AGENDA**

**TUESDAY, JULY 12, 1994**

**TIME: 9:30 AM - 11:30 AM**  
**LOCATION: Shipyard Museum, Bldg 156**

<b>09:30 - 0935</b>	<b>Introduction/Opening Remarks</b>
<b>09:35 - 10:00</b>	<b>Status update on the Corrective Measures Program/Schedule (Lt Conroy)</b>
<b>10:00 - 10:20</b>	<b>Off-Shore Studies Update (Bob Johnston)</b>
<b>10:20 - 10:40</b>	<b>Restoration Advisory Board (Jim Tayon)</b>
<b>10:40 - 11:30</b>	<b>Open Discussion/Closing Remarks</b>

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