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DEPARTMENT OF THE NAVY
PORTSMOUTH NAVAL SHIPYARD
PORTSMOUTH, N. H. 03804-5000

IN REPLY REFER TO:

July 26, 2000

MEMORANDUM

FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB) CERCLA REMEDIAL ACTION PROGRAM, PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

The next RAB meeting will be held on Thursday, August 3, 2000 at 7 p.m. at the Courtyard Marriott in Portsmouth, NH. There will be presentations on the Mercury Burial Vault II removal action and the use of wetlands as erosion control.

Your participation is greatly appreciated. If you are unable to attend the meeting, please call me at (207) 438-3830. I look forward to seeing you at the RAB meeting.

Sincerely,

Ken Plaisted
Navy Co-Chairman
Restoration Advisory Board

Distribution:

Doug Bogen
Michele Dionne
Phil McCarthy
Roger Wells
Jeff Clifford
Eileen Foley
Jack McKenna
Carolyn Lepage
Mary Menconi
Mary Marshall
Onil Roy
Johanna Lyons
EPA Region I (M. Cassidy)
MEDEP (Iver MacLeod)
NOAA (K. Finkelstein)
MEDMR (D. Card)
NHFG (C. McBane)
USFWS (K. Munney)
North Div (F. Evans)
COMSUBGRU TWO (R. Jones)
Portsmouth Naval Shipyard (Codes 106, 106.3, 106.3R, 100PAO, 105, 105.5, NRRO)

PORTSMOUTH NAVAL SHIPYARD

RESTORATION ADVISORY BOARD

AGENDA

Date - August 3, 2000

Place - Courtyard Marriott, Portsmouth, NH

Time - 7 p.m. - 9 p.m.

Introductions

Status of Work

Regulator Updates

Mercury Burial Vault II Removal Action

Wetlands as Erosion Control

Other Issues as Required

PORTSMOUTH NAVAL SHIPYARD
INSTALLATION RESTORATION PROGRAM
STATUS OF WORK
3 August, 2000

SITE STATUS

OU 1 (SITES 10, Battery Acid Tank, & 21, Acid/Alkaline Tank #28)

Data Quality Objective meeting to be scheduled to determine additional work is needed at Site 10.

OU 2 (SITES 6, DRMO, & 29, Incinerator Site)

A removal action has been completed for Site 6 for slope stabilization along the shoreline. Closeout Report and Action Memorandum to be issued.

A risk assessment has been submitted for review and comment.

OU 3 (SITES 8, Jamaica Island Landfill, 9, Mercury Burial Vaults, & 11, Waste Oil Tanks)

The Multi-Sensor Towed Array Detection System report is undergoing review and comment.

Test pit excavations completed. Preliminary Test pitting Package submitted on March 25, 1999. The draft Test Pitting Report has been submitted.

The draft final Feasibility Study is undergoing review and comment.

Removal action taken at Mercury Burial Vault II. Closeout Report and Action Memorandum to be issued.

OU 4 (Areas off-shore that were potentially impacted by on-shore IRP sites and Sites 5 and 26)

The third round of interim off-shore monitoring will be conducted in August/September 2000.

Consensus statement to address Site 26 is more appropriately managed under other regulations will be prepared. The draft consensus statement will be submitted to the RAB for review and comment.

OU 5 (SITE 27, Berth 6 Industrial Area [formerly Fuel Oil Spill Area])

Consensus statement to address that Site 27 is more appropriately managed under the State of Maine's Petroleum Program will be prepared. The draft consensus statement will be submitted to the RAB for review and comment.

Site Screening Areas:

SITES 30, Galvanizing Plant (Building 184): 31, West Timber Basin; 32, Topeka Pier.

Site 30 Subfloor investigation scheduled for Fall 2000.

SITE 34, Oil Gasification Plant (Building 62)

The ash pile was covered with geotextile liner, top soil and grass mat to prevent erosion. A closeout report and Action Memorandum will be prepared.

DOCUMENT STATUS

ECOLOGICAL RISK ASSESSMENT (ERA) – OFFSHORE - COMPLETE

INTERIM MONITORING PLAN

PURPOSE – To establish monitoring methods to determine whether the remedial action objectives of the interim record of decision are being met.

STATUS – Received comments on the final interim monitoring plan.

Next Action: Respond to comments on final interim monitoring plan.

SEEP/SEDIMENT REPORT

PURPOSE – To evaluate whether seeps may be a current source of chemical migration from onshore sources.

STATUS – Received comments on draft final report.

NEXT ACTION – Respond to comments and issue final report.

OU 3 FEASIBILITY STUDY (FS)

PURPOSE – To establish remedial action objectives, screen remedial technologies, and assemble, evaluate, and compare remedial alternatives that will be used in selecting an alternative for OU3.

STATUS –Draft final Feasibility Study report issued.

NEXT ACTION – Respond to comments on draft final FS and issue final FS.

OU 3 TEST PITTING REPORT

PURPOSE – To summarize results of test pitting performed at Jamaica Island Landfill in February 2000.

STATUS –Draft report being prepared.

NEXT ACTION – Submit Draft Report.

PORTSMOUTH NAVAL SHIPYARD
INSTALLATION RESTORATION PROGRAM
STATUS OF WORK
3 August, 2000

DOCUMENT SCHEDULE

Offshore Ecological Risk Assessment	**COMPLETED**
Facility Background Report	**COMPLETED**
MTADS Survey Report	
Issue final report	September 2000
OU2 Revised Risk Assessment	
Receive comments on responses to comments	August 7, 2000
Submit Draft Final	September 7, 2000
OU3 Feasibility Study	
Receive comments on draft final FS	August 25, 2000
Submit final FS	September 25, 2000
OU4 Interim Monitoring Plan	
Respond to comments on final report	August 2000
Seep/Sediment Report	
Submit Final Report	August 21, 2000
Site Screening Report, Sites 30, 31, and 32	**COMPLETED**
Site Management Plan	
Submit Draft Final	August 16, 2000
Building 184 Subfloor Investigation	
Submit Draft Final	September 2000

OPERABLE UNIT (OU3) FEASIBILITY STUDY (FS) UPDATE ON THE USE OF WETLANDS FOR EROSION CONTROL

J. Peyton Doub, CEP, PWS
Tetra Tech NUS

Portsmouth Naval Shipyard
Restoration Advisory Board Meeting
August 3, 2000

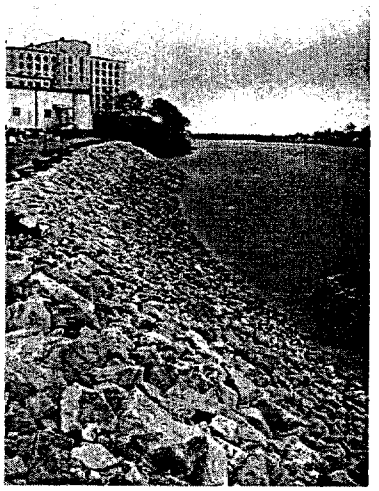
OBJECTIVES OF AUGUST 2000 RAB UPDATE

- Discuss the shoreline erosion control component of Alternatives 2 through 5.
- Describe the possible use of wetlands (tidal marsh) as part of shoreline erosion controls for OU3.
- Present benefits and design requirements for use of wetlands as erosion control at OU3.

SHORELINE EROSION CONTROLS

- Shoreline erosion controls consist of placing a revetment (e.g., riprap) or dense plant growth along a shoreline to minimize soil loss, primarily from wave action.
- Riprap is commonly used for shoreline erosion controls at the Shipyard.
- Creation of wetland vegetation (tidal marsh) within the intertidal zone, alone or in some combination with revetment, is an innovative shoreline erosion control approach.

PICTURE OF DRMO RIPRAP



TIDAL MARSHES

- Are wetlands.
- Meet Federal wetland definition.
- Are resources protected by Clean Water Act (CWA).
- Support vegetation.
- Are periodically inundated by tides.
- May be exposed to fresh, brackish, or sea water.

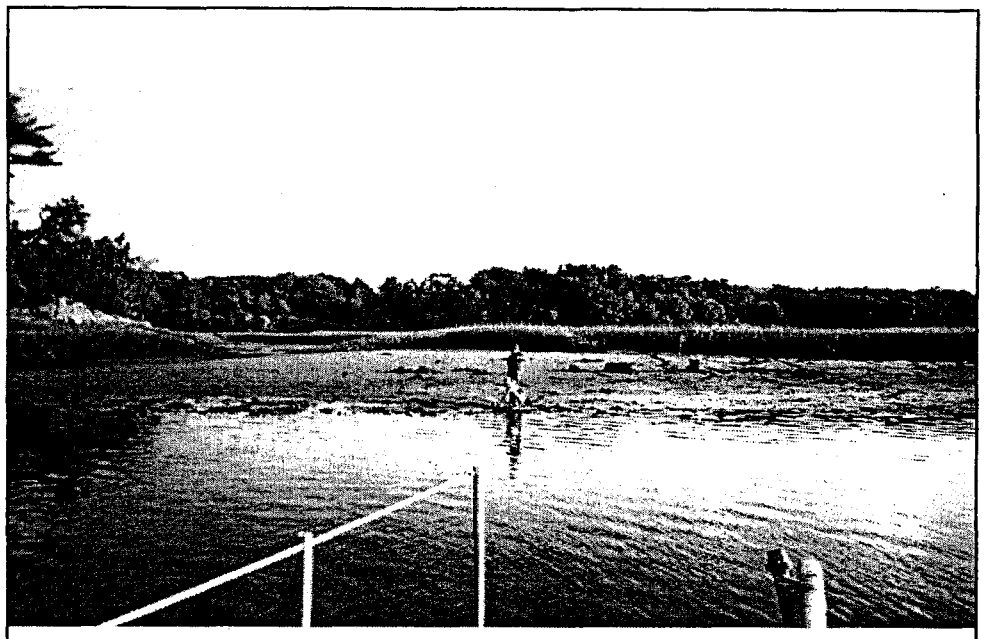
TIDAL MARSHES, CONTINUED

- Reflect tidal hydrology.
  - High vs. Low Tides
  - Spring vs. Neap Tides
  - Storm Surges
  - Salinity Fluctuations

TYPICAL TIDAL MARSH ZONATION

ZONE	ELEVATION	VEGETATION (EMERGENT)
Subtidal	<MLT	None
Tidal Flat	Lower Part: MLT - MHT	None
Low Marsh	Upper Part: MLT - MHT	*Smooth Cordgrass (Spartina alterniflora)*
High Marsh	MHT-MHHT (Spring Tides)	*Saltmeadow Hay (Spartina patens)*
Surge Zone	Adjacent to High Marsh	Coastal Shrubs
Upland	Above Frequent Surges	Upland Vegetation

MLT: Mean Low Tide; MHT: Mean High Tide;
MHHT: Mean Highest High Tide



OBJECTIVES OF WETLANDS AS SHORELINE EROSION CONTROL

- Primary Objective: Protecting the landfill shoreline from coastal erosion due to normal wave energy, storm surges, and boat wakes.
- Secondary Objectives/Advantages:
  - Provide specialized habitat for fish, shellfish, and other biota.
  - Enhance shoreline aesthetics.

CONCEPTUAL EROSION CONTROL DESIGN

- Construct the tidal marshes seaward of existing shoreline.
- Deposit clean sand or loamy sand and amend surface.
- Apply biodegradable geotextile (coir) to stabilize soils until plants establish.
- Plant sprigs or propagules of native plants into holes in the coir.
- Place permanent geotextile or rock seaward of tidal marsh, where plants will not grow.

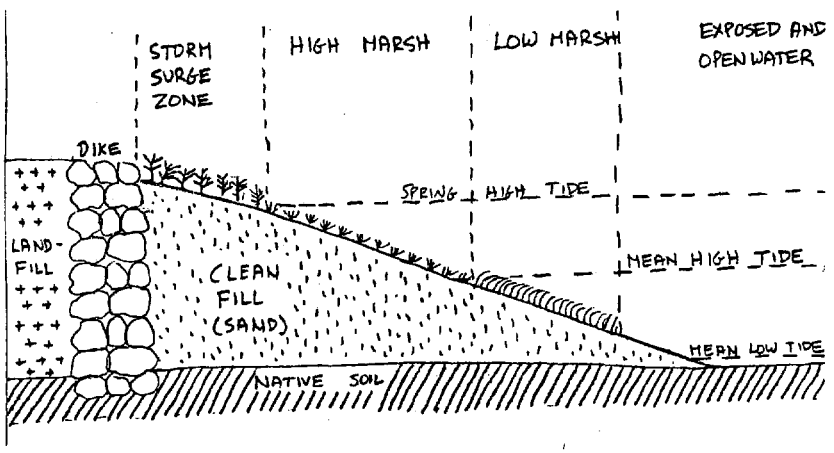
CONSIDERATIONS FOR CONCEPTUAL DESIGN

- Effectiveness for Shoreline Erosion Control
- Wave Energy
  - Normal
  - Storm Surges
  - Boat Wakes
- Steep Shoreline Dropoff
- Plant Pest Management

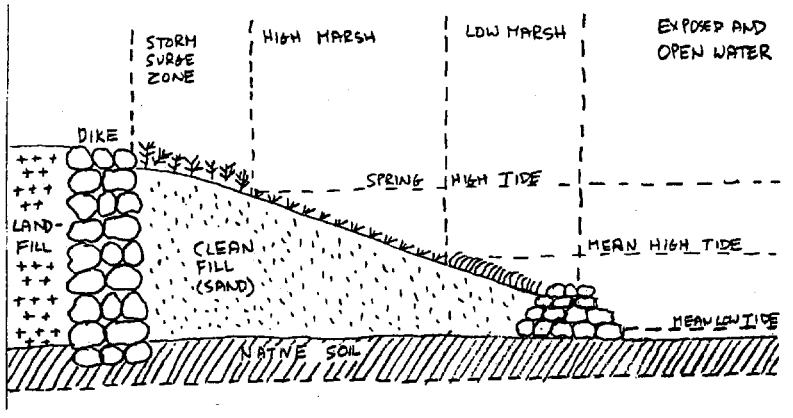
OPTIONS CONSIDERED FOR OU3

- Site conditions may preclude establishing tidal marsh along entire OU3 shoreline; therefore the following options are considered:
  - Option 1: Natural Tidal Marsh
  - Option 2: Tidal Marsh behind Rock Breakwater
  - Option 3: Riprap only
- Previously considered vegetated riprap for Option 3.

OPTION 1 FIGURE



OPTION 2 FIGURE



COMPARISON OF EROSION PROTECTION

- Option 1 (Natural Tidal Marsh): Provides good stabilization of low energy, low gradient shorelines once plant root systems develop.
- Option 2 (Tidal Marsh with Rock Breakwater): Can provide good stabilization of higher-energy, low gradient shorelines.
- Option 3 (Riprap): Can be sized to provide good stabilization of high-energy, steep gradient shorelines.

COMPARISON OF SECONDARY VALUES

- Option 1 (Natural Tidal Marsh): Highest value with respect to water quality, habitat, and aesthetics.
- Option 2 (Tidal Marsh with Rock Breakwater): Similar, but alters habitat and reduces aesthetic qualities.
- Option 3 (Riprap): Provides habitat of moderate value. Aesthetically, appears artificial.

AREAS CONSIDERED FOR EACH OPTION

- Option 1 (Natural Tidal Marsh): Requires sheltered location and gentle gradient. Jamaica Cove may provide these conditions.
- Option 2 (Tidal Marsh with Rock Breakwater): Does not require a sheltered location but shoreline must have gentle gradient. May be suitable for part of Clark Cove.
- Option 3 (Riprap): Use where Options 1 and 2 are not possible.

POTENTIAL DESIGN CONSIDERATIONS

- Site-specific tide data
- Hydraulic analysis of wave action under normal and design storm conditions
- Brief biological characterization of reference wetland site
- Fill quantities and soil amendments
- Coir specifications
- Plant species/spacings
- Riprap and breakwater rock sizing (Options 3 and 2)
- Maintenance and monitoring of erosion control measures

IN SUMMARY

- Constructed tidal marsh could provide effective erosion control for the landfill shoreline.
- Constructed tidal marsh could provide several secondary advantages not provided by traditional erosion control practices (e.g., riprap).
- Site conditions may require modifications of the tidal marsh design to include a rock breakwater or riprap.

NEXT STEP

- Receive Comments on draft final OU3 FS on August 25, 2000
- Finalize OU3 FS September 25, 2000
- Submit draft Proposed Remedial Action Plan (PRAP) October 25, 2000

DEPARTMENT OF THE NAVY
PORTSMOUTH NAVAL SHIPYARD
PORTSMOUTH, N. H. 03804-5000

IN REPLY REFER TO:

September 7, 2000

MEMORANDUM

FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD CERCLA REMEDIAL ACTION PROGRAM, PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

Enclosed please find the draft minutes from the August 3, 2000 Restoration Advisory Board meeting for your review and comment.

Comments are requested by September 28, 2000. You may provide your comments to me at (207) 438-3830.

Sincerely,

Marty Raymond for
Ken Plaisted
Navy Co-Chairman
Restoration Advisory Board

Distribution:
Doug Bogen
Jeff Clifford
Michele Dionne
Eileen Foley
Carolyn Lepage
Mary Marshall
Phil McCarthy
Jack McKenna
Mary Menconi
Onil Roy
Roger Wells
Johanna Lyons
EPA (M. Cassidy)
NOAA (K. Finkelstein)
MEDMR (D. Card)
USFWS (K. Munney)
NHF&G (C. McBane)
MEDEP (I. McLeod)
NORTHDIV (F.Evans)
COMSUBGRU TWO (R. Jones)
Tetra tech NUS (L. Klink, D. Cohen)
PNS (Codes 106, 106.3, 106.3R, 100PAO, 105, 105.5, NRRO)

RESTORATION ADVISORY BOARD MEETING
PORTSMOUTH NAVAL SHIPYARD
MARRIOTT COURTYARD, PORTSMOUTH, NH
AUGUST 3, 2000

The meeting began at 7:10 p.m. and ended at 9:20 p.m. Community members attending were: Doug Bogen, Michele Dionne, Mary Menconi, Johanna Lyons, and Jeff Clifford, Navy members Ken Plaisted and Fred Evans; and regulatory member Meghan Cassidy of EPA. Others attending were Marty Raymond, Gary Merrill and Debbie White from the Portsmouth Naval Shipyard (PNS) and Carolyn Lepage, the Seacoast Anti-Pollution League technical advisor. Among the guests were Deborah Cohen and Peyton Doub from Tetra Tech NUS, Inc. (TtNUS), Kristen Wandland from ENSR, Fred Short from the University of New Hampshire Jackson Marine Laboratory, and Macy Morse. Community members Phil McCarthy, Mary Marshall, Don Card, Eileen Foley, Roger Wells and Jack McKenna, and regulatory member Iver McLeod of MEDEP were absent.

INTRODUCTION

Doug Bogen, the community co-chair, welcomed the Restoration Advisory Board (RAB) and introduced the primary topics of the evening; the Mercury Burial Vault II Removal Action and a presentation on the use of tidal marsh wetlands as shoreline erosion control at Operable Unit 3 (OU3).

Doug Bogen first presented the RAB with information that the New Hampshire Gulfwatch Report was published in July 2000. The report includes information from 1998 sampling of blue mussels which included a sampling station in Clark's Cove. The report indicated that the highest concentrations of PAHs, PCBs, and pesticides were found in mussels collected from the North Mill Pond in Portsmouth, NH. Some dioxin results were reported.

Concerns were raised that there was little time for notification about the RAB meeting. Most RAB members attending noted that they had received notices that day or the day before. Notices had been sent July 26, but were not postmarked until July 31. The Navy made a note to send RAB notices earlier. Also, the Navy is trying to include the date and location of the next RAB meeting on the RAB update from the previous RAB meeting.

STATUS OF WORK

Fred Evans provided a handout summarizing the work status. The Navy finalized three documents; the Offshore Ecological Risk Assessment, the Facility Background Report, and the Site Screening Report for sites 30, 31, and 32. The MTADS Survey Report is set to be issued as a final report in September, 2000. Comments on the response to comments on the OU2 Revised Risk Assessment are due on August 7, and the draft final will be submitted September 7, 2000. Comments on the draft final Feasibility Study (FS) are due August 25 and the final FS will be submitted September 25, 2000. The following documents are scheduled to be submitted: Seep/Sediment Final Report on August 21, 2000; draft final Amended Site Management Plan on August 16, 2000; and the draft final Building 184 Subfloor Investigation work plan in September, 2000.

REGULATOR UPDATES

EPA --- Meghan Cassidy presented the RAB with recent EPA activities. EPA has recently been focusing on the response to comments for the OU3 Feasibility Study. Comments are being compiled on the OU2 Risk Assessment Draft Final. Meghan also announced that the EPA has granted a deviation to SAPL's technical grant. The statute allows for $100,000 of funding. The deviation provides SAPL with an additional $200,000 in funding, with $50,000 being issued immediately and the remainder to be issued at a later date.

MEDEP --- Iver McLeod did not attend the RAB meeting. No MEDEP updates were provided.

MERCURY BURIAL VAULT II REMOVAL ACTION

Marty Raymond of PNS presented a summary of the Mercury Burial Vault II (MBII) Removal Action. The Navy first attempted to locate MBII during the 1992 RCRA Facility Investigation (RFI), when they dug several test pits in the area thought to contain MBII. In 1994 during the RFI data gap investigation, additional test pits were dug in a second location, but could not locate MBII. During the MTADS survey at OU3, the area thought to contain MBII could not be surveyed with the magnetometer, because the size of the area restricted movement of the survey equipment and the are was being used as boat storage. Working with the Shipyard's historian, PNS employees involved in placing the mercury vaults in the ground (1973 – 1975), and locating an aerial photograph showing a propane tank near a building gave a good indication of where the vaults were located. The propane tank had been used as a survey tie to when MBII was placed in the ground. Digging for MBII began on July 18, 2000.

The top of MBII was located at approximately 17 feet below ground surface (ft bgs) soon after the digging began. A total of eight concrete vaults were located and removed. Digging was continued over an area approximately 100 by 30 by 22 feet to ensure all vaults had been located.

The vaults had been created in the 1970s and the concrete had been poured in-place to cover drums containing mercury-contaminated materials and liquid mercury waste. When the vaults were removed, the concrete was noted to be intact. Soil samples were collected for mercury analysis from the area of the vaults. Soils contained less than 1 part per million (ppm) mercury. The proposed MPS action level for mercury in soils is 5 ppm. Removal of the vaults was completed on July 18, 2000.

The concrete was broken open by the backhoe. A total of 23 drums were in the eight vaults, each encased in approximately 15 to 20 inches of concrete. The drums containing liquid mercury waste were metal with a poly liner, and all were intact. Fourteen of the drums contained liquid mercury waste. All liquid mercury was pumped into new plastic drums for disposal. Samples of the liquid mercury were collected for analysis. The remaining drums contained solid waste contaminated with mercury, such as light bulbs, thermometers, and batteries. This waste was transferred into new drums as well. All new and old drums, and the concrete that had encased the drums, have been transferred to the Shipyard's state-of-the-art hazardous waste transfer facility for

shipment and disposal off-site at a licensed disposal facility in accordance with Federal and state laws.

Some groundwater was noted at approximately 20 ft bgs. During the digging, the soil/fill materials were sprayed with water to minimize dust. This water may have contributed to the water observed in the test pit.

The Navy will issue a report and Action Memorandum for the removal action under CERCLA. In the report, the result of the liquid mercury waste analyses will be presented.

USE OF WETLANDS FOR SHORELINE EROSION CONTROL; FEASIBILITY STUDY UPDATE FOR OU3

Fred Evans introduced the topic to the RAB. At an earlier meeting, the FS for OU3 was presented, and the RAB expressed interest in exploring the use of wetlands as a component of a potential remedy for OU3. Of the five alternatives in the draft final FS, all but Alternative 1 (No Action, required for consideration under CERCLA) include the implementation of some form of shoreline erosion control. Peyton Doub, the senior wetland scientist at TtNUS, presented the results of a conceptual evaluation regarding the potential use of wetlands as part of shoreline erosion control in the OU3 FS.

Peyton first presented a general overview of tidal marshes. Constructed tidal marshes have been used for shoreline erosion since the 1940s, but it has gained more widespread use since the 1980s. The aboveground leafy parts of the plants reduce wave energy, and root systems hold soils and sediments in place. Additional benefits from wetlands are gained by providing habitat for wildlife and general aesthetics, as compared to riprap, the most common shoreline erosion control method. Tidal marshes meet the federal definition of wetlands and are protected under section 404 of the Clean Water Act. Tidal marshes grow in distinct vegetative zones, in response to tidal fluctuations. Subtidal areas (below mean low tide [MLT]) have no emergent vegetation, but may support eelgrass and a highly diverse submerged community. The tidal flat, defined as the area in the lower part of the zone between MLT and mean high tide (MHT), are also devoid of emergent vegetation. The low marsh (upper part of the MLT – MHT) is a monoculture of smooth cordgrass (*Spartina alterniflora*). The high marsh, located between MHT and the spring tides or mean highest high tide (MHHT; higher tide than normal), is a community dominated by saltmeadow hay (*Spartina patens*), and may also contain saltgrass. The surge zone is located in the area above the high marsh that may be affected by storm surge. coastal shrubs dominate the vegetative community in the surge zone. The upland, not part of the wetland, is predominately lawn at PNS. In natural systems, this area is often forested.

In constructing tidal marshes, clean sand or loamy sand is deposited as a base. The surface is amended to create a suitable plant medium for growth. A biodegradable geotextile (coir, or coconut fiber) is applied to stabilize soils until the plants are established. Sprigs or propagules of native species are planted into holes in the coir. Permanent geotextile or rock may be placed seaward of the marsh, in areas where plants will not grow (e.g., steep slopes).

Considerations noted during the development of the conceptual design for OU3 included wave energy and slope. Wave energy, including normal wave action, storm surges, and boat wakes, is considered. In areas where the shoreline has a steep drop-off, tidal marsh construction not may be a suitable remedy. The gradient should generally be no steeper than 5:1 finished.

At OU3, three options for shoreline erosion controls were evaluated based on site conditions. The first option would be to construct a natural tidal marsh. The second option would be the construction of a rock breakwater seaward of a tidal marsh. The third option is to use riprap. Option 1 would provide good stabilization in low gradient areas with low wave energy, such as Jamaica Cove. Option 2 would provide stabilization in low gradient areas that have higher wave energy, such as the northern portions of Clark Cove. Option 3 would be used in areas of steep grades and high wave energy, such as the southern, exposed portions of Clark Cove. Option 3 is the default remedy in areas not suitable for Options 1 or 2. It is estimated that the cost using all three options may be $1 million, whereas using riprap (Option 3) alone, the cost would be closer to $350,000.

When designing a tidal marsh construction remedy, considerations include site-specific tide data and a hydraulic analysis of wave action under normal and storm conditions. A reference wetland occurring in the vicinity of area to be considered should be characterized to determine the biological condition and species. Fill quantities and soil amendments must be calculated, and coir specifications identified. The pattern of vegetation planting, including species and spacing of individual propagules, must be designed. Final riprap and breakwater rock sizing for Options 2 and 3 must be identified, and a maintenance and monitoring plan created. Once established, a tidal marsh should be self-maintaining, and will heal holes created by incidences such as ice or storm action.

The RAB had several comments and suggestions regarding tidal marsh construction and maintenance. Some tidal marsh would be filled as a result of the construction, but the amendment to the area should provide greater biodiversity and a fuller ecosystem. The use of the breakwater on the seaward side of tidal marshes in Option 2 was a concern, and the RAB suggested creating enough baffle and using a partial breakwater to allow for the movement of organisms onto the tidal marsh. Fred Short, of the UNH Jackson Laboratory, mentioned that riprap can create areas of constant sediment resuspension due to wave action against the rock, and was highly supportive of tidal marsh construction.

Several of the RAB members concerns involved the future condition of the marsh, through ice damage, potential increases in sea level due to global warming, and other potential situations that could damage some of the marsh. TtNUS, EPA, and the Navy reminded the RAB that, under CERCLA, the Navy must provide monitoring of remedies as long as the waste is in place. A maintenance plan would be drafted under the CERCLA program, and at any time EPA and the Navy can revisit remedies should any failure occur. Additionally, as a natural system, tidal marshes are highly dynamic. Storms and other destruction are a natural part of the tidal marsh existence, and recovery should occur under most circumstances.

The RAB had several suggestions for growth media, rather than sand alone. Dense layers of peat and fibrous vegetation provide the base of natural marsh systems. Use of

coir, mixed with the sand, was suggested, as were the potential use of discarded Christmas trees or burlap bags full of sand, to provide additional media for stabilization.

The Navy mentioned that inclusion of wetlands construction as part of a remedial alternative is not a wetland restoration attempt. Restoring wetlands is not part of the alternatives in the OU3 FS. Under the IR Program, the Navy cannot pay for past damages. This would be covered under the Natural Resource Damage Assessment (NRDA) program. Ken Finkelstein, of NOAA, has remained involved in the PNS IR Program and will make any recommendation to the NRDA trustees for this action. The trustees have a time frame of approximately 2 years beyond the Final Decision to assess NRDA. EPA stated if it was felt NRDA was appropriate for PNS the Offshore Area (OU4)would be the most likely candidate. The final remedial decision for OU4 is currently scheduled for 2009.

The effect of seeps and overland rainfall on the tidal marshes was brought up by the RAB. The sand substrate of the constructed marshes should abate the flow the seeps and diffuse the energy throughout the wetland area. Rainwater flow off the landfill, once covered by the cap, will be managed as part of the remedy.

Comments on the draft final OU3 FS are due to the Navy on August 25, 2000. The final OU3 FS will be issued on September 25, 2000. A draft Proposed Remedial Action Plan (PRAP) is scheduled to be submitted on October 25, 2000 and a public comment period will likely occur in January/February 2001.

OTHER ISSUES

A question was asked regarding the use of cutoff barriers. The RAB wanted clarification regarding the alternative that proposed partial cutoff barriers downgradient to divert groundwater flow through a reactive (treatment) wall. The reactive wall is effective in treating chlorinated organics, but not the types of contamination at OU3. Use of an upgradient cutoff barrier to divert the upgradient groundwater around the landfill had been evaluated. The upgradient groundwater is contaminated with petroleum hydrocarbons and the Navy cannot be responsible for direct discharge of the contaminated groundwater. EPA re-emphasized that cost alone would not prevent selection of an alternative, and that construction of a slurry wall (Alternative 5 of the FS) would be implemented if it is decided that all groundwater must be contained.

The RAB expressed concerns about intact drums that potentially exist in the Jamaica Island Landfill. Future contamination of groundwater could be possible should any such drums degrade and leak. The in- and outflow of tides could further contaminate offshore areas. EPA's Meghan Cassidy explained that EPA and DEP are constrained by existing statutes and regulatory framework. The Navy has closed several landfills in tidally influenced areas at other facilities. The Record of Decision can be modified at any time if conditions change or other new information is gained.

FUTURE MEETINGS

The next RAB meeting is scheduled for **September 21, 2000** at the Courtyard Marriot in Portsmouth, NH. The topics for the September 21, 2000 meeting are as follows:

- Cutoff barriers in the Draft Final FS.
- The Navy will present the No Further Action documents for Sites 26 and 27.

A technical meeting will occur in September 2000 with a date to be determined. The agenda includes discussion of OU3 seeps.