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RESTORATION ADVISORY BOARD MEETING MINUTES 4 OCTOBER 2011 NSY
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NSY PORTSMOUTH

**RESTORATION ADVISORY BOARD MEETING
PORTSMOUTH NAVAL SHIPYARD
KITTERY TOWN HALL, KITTERY, MAINE
October 4, 2011**

Restoration Advisory Board (RAB) members at the meeting included the following:

- RAB community members – Doug Bogen, Peter Britz, Michele Dionne, Mary Marshall, Diana McNabb, and Roger Wells.
- Navy RAB members – Lisa Joy, Portsmouth Naval Shipyard (PNS), and Linda Cole, Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Remedial Project Manager (RPM).
- Regulatory representative – Iver McLeod, Maine Department of Environmental Protection (MEDEP).

Absent RAB members included the following:

- Regulatory representative – Matt Audet, United States Environmental Protection Agency (USEPA).
- RAB community members – Jack McKenna.

Guests at the RAB included:

- Matt Thyng, PNS.
- Ken Bowers and Jan Nielson, Navy.
- Bill Deane and Fred Poulin, Shaw Environmental & Infrastructure, Inc. (Shaw E&I).
- Debbie Cohen and Matt Kraus, Tetra Tech NUS, (Tetra Tech).
- Carolyn Lepage, Technical Assistance Grant (TAG) technical advisor to Seacoast Anti-Pollution League (SAPL).

INTRODUCTION

The meeting was opened by Doug Bogen, RAB Community Co-Chair. Mr. Bogen welcomed everyone to the RAB meeting and requested that attendees introduce themselves. The attendees introduced themselves and stated the organizations they represented. Mr. Bogen indicated that former RAB community member Jim Horrigan passed away recently.

Lisa Joy, RAB Navy Co-Chair, encouraged continued open dialogue during RAB meetings. Since the last meeting, Onil Roy resigned as a Community Member on the RAB, and Jon Carter is no longer the Kittery Town Manager and will no longer be participating on the RAB.

STATUS OF WORK AND REGULATOR UPDATES

Linda Cole, NAVFAC Mid-Atlantic RPM, reviewed the status updates for Installation Restoration Program (IRP) work at Operable Unit (OU) 1, OU2, OU3, OU4, OU7, OU9, and Site 30. The presentation is attached to the minutes.

Ms. Cole indicated that the spending plan for Fiscal Year (FY) 2012 is approximately \$5 million and is mostly for the OU2 remedial action. The current cost-to-complete estimate is \$24 million..

The following highlights updates on the OUs:

- OU1 (Site 10 – Former Battery Acid Tank No. 24): Remedial action planning continues. Field work was delayed because of Shipyard operations. A presentation on the status OU1 was provided at the RAB meeting.
- OU2 [Site 6 – Defense Reutilization and Marketing Office (DRMO) Storage Yard, Site 29 – Former Teepee Incinerator Site, DRMO Impact Area (Quarters S, N, & 68)]: Since the last RAB meeting, the proposed remedial action plan was finalized, a public comment period and public hearing were held, and the Record of Decision (ROD) was signed on September 29, 2011. The next step is preparation of the remedial design documents. Ms. Cole noted that the delay in the Construction Completion Report for the DRMO Impact Area removal action is because of the archeological component of the report, which requires an additional internal review process.
- OU3 [Site 8 – Jamaica Island Landfill (JILF), Site 9 – Former Mercury Burial Sites (MBI and MBII), and Site 11 – Former Waste Oil Tanks Nos. 6 & 7]: The Post-Remedial Operation, Maintenance, and Monitoring (OM&M) program continues. The Round 10 data package, which discusses the April 2011 sampling and inspection, was submitted in August 2011. The Land Use Control (LUC) Remedial Design (RD) was finalized in August 2011. The second five-year review began in August 2011 so that the final document can be completed by June 2012. Ms. Cole explained that in addition to OU3, the second five-year review will include review of the other sites that have final or interim remedies, which includes OU1 (ROD signed in 2010), OU2 (ROD signed in 2011), and OU4 (interim remedy being conducted). The review evaluates the selected remedy to determine whether the remedy is still or will be protective of human health and the environment. If the remedy is not protective, necessary additional actions are identified to make the remedy protective. In answer to a question of whether sites without a ROD (or interim ROD) would be included in the five-year review, Ms. Cole indicated that the sites without a ROD would

not be included and that information on these sites can be found in the Site Management Plan that is updated annually.

- OU4 (Site 5 – Former Industrial Waste Outfalls and Offshore Areas Potentially Impacted by PNS Onshore IRP Sites): The Interim Offshore Monitoring Program continues. Round 11 sampling was conducted in April 2011 in accordance with the Interim Offshore Monitoring Plan update (Revision 1).
- OU7 (Site 32 – Topeka Pier Site): The Navy continued resolving final regulatory comments on the draft final Remedial Investigation (RI) Report and began preparation of the draft Feasibility Study (FS) Report.
- OU9 (Site 34 – Former Oil Gasification Plant, Building 62): The Navy continued resolving regulatory comments on the draft RI Report.
- Site 30 – Former Galvanizing Plant, Building 184: The Navy began removal action activities, including excavation of the fill material in the vault. All of the fill material has been removed. The Navy found very little crystalline growth, and no tank or tank components were found in the vault. There was little water in the vault at the time of excavation. However, some rain water was observed coming in through an opening by an old window air conditioning unit. The air conditioner was removed and the opening covered. The vault has remained dry, even after several recent heavy rainfall events. In 2008, placement of a French drain on the outside building wall and repaving of the adjacent parking area prevented storm water runoff from entering the vault. Groundwater was ruled out as a source of water in the vault.
- Community Involvement Plan (CIP): The CIP is an update to the 1996 Community Relations Plan (CRP). There was delay in the internal review of the document; however, the draft is now under preparation.

REGULATOR UPDATE

USEPA --- Matt Audet was absent.

MEDEP --- Iver McLeod indicated that the Commissioner signed the concurrence letter on the OU2 ROD on September 29, 2011. MEDEP is reviewing the post-remediation groundwater monitoring Sampling and Analysis Plan (SAP) for OU1 and the draft final OU7 RI Report. Mr. McLeod explained that the Maine DEP Land and Water Division is concerned about diminishing eelgrass beds in the State of Maine. One offshore area of PNS, the MS-12 area, has an eelgrass bed. Although contamination was not found in the sediments of this eelgrass bed, the MEDEP will communicate to the Navy any concerns for work that could impact the eelgrass beds. In addition, MEDEP will visit the Shipyard on October 5, 2011, to see the Site 30 removal action work.

OU1 UPDATE

Matt Kraus of Tetra Tech provided a presentation with an update on the remedial activities for OU1. The presentation is attached to the minutes.

The main components of the OU1 remedial action are the Remedial Action Work Plan and associated field work for excavation of contaminated soil, the LUC RD, the Post Remedial Groundwater Monitoring SAP, and the Long-Term Management (LTMg) plan.

OU1 consists of Site 10 – Former Battery Acid Tank No. 24, where pre-1984 operations in Building 238 resulted in releases of wastewater to soil and groundwater at the site. Human exposure to lead in site soil is the primary potentially unacceptable risk for the site. Lead concentrations in groundwater are at acceptable concentrations for exposure to groundwater and migration of groundwater to the offshore.

The ROD was signed in September 2010, and the components of the remedy include excavation and offsite disposal of contaminated soil around the drain lines within the crawl space of Building 238, implementation of LUCs to prevent future residential use of the site, and groundwater monitoring (for lead) to confirm that groundwater has not been adversely impacted by soil excavation activities. It was explained that approximately 400 cubic yards of soil will be excavated and disposed of at an appropriate disposal facility. Disposal options depending on the characterization of the excavated material are beneficial reuse as cover material in a disposal facility or disposal in a hazardous waste or non-hazardous waste facility. Mr. Kraus reviewed the excavation boundary and the LUC boundary. The Remedial Action Work Plan, finalized in September 2011, provides the remedial action activities related to soil excavation and site restoration. The revised draft LUC RD, submitted in August 2011, describes the institutional controls necessary for the site. The LUC objectives are based on the objectives provided in the ROD.

The draft OU1 Post-Remediation Groundwater Monitoring SAP provides the proposed groundwater monitoring and procedures for the data evaluation to determine whether any groundwater impacts occurred due to the remedial action. Although there are no unacceptable risks to human health and the environment posed by lead concentrations detected in groundwater at OU1, post-remediation groundwater monitoring will be conducted to confirm that lead concentrations in groundwater at OU1 after the soil excavation remain at levels that do not adversely impact human health or the environment.

After the remedial action field work is complete, a LTMg plan will be prepared that outlines the long-term activities for the site. The Navy is responsible for conducting the LTMg, and the LTMg reports will be reviewed by the regulators. In addition, five-year reviews will be conducted by the Navy to evaluate the continued protectiveness of the remedy.

Mr. Kraus explained that the remedial action field work is scheduled for fall 2011, after completion of the Site 30 removal action. Groundwater monitoring will begin within 3 months of completion of soil excavation.

NAVY ENVIRONMENTAL RESTORATION PROGRAM MANAGEMENT AND MONITORING APPROACH

Jan Nielsen and Ken Bowers of the Navy provided a presentation on the Navy's Management and Monitoring Approach. The presentation is attached to the minutes.

The Navy is sharing the approach with as many people as possible and using feedback received to improve the approach. As more remedies are being implemented, more sites are moving into the LTMg stage, and LTMg costs for IRP sites are increasing. The Navy developed this approach to provide transparent site information to support making good decisions regarding LTMg activities for sites. The information in the LTMg reports will support recommendations for modifications to the LTMg program and facilitate stakeholder review and discussion and subsequent implementation of the recommendations. Ms. Nielsen explained that the approach has been presented to various government environmental organizations, and the Navy has received good feedback. She also explained that the LTMg program for OU3 at PNS will be a prototype for the approach and a LTMg Report is anticipated to be complete in 2012. The approach allows for an interactive format and is flexible so that the necessary components can be included depending on site conditions and the complexity of the site.

Mr. Bowers provided a demonstration on the interactive components, showing how information can be linked to the text, tables, and figures in a document. The document can be prepared without hyperlinks and can provide references to appropriate documents that can be provided on a CD included with the document. Several of the interactive links Mr. Bowers demonstrated included figures with links to site photographs, data tables, trend graphs, and groundwater plume maps. The information for these interactive links may be taken from other reports or created for the LTMg report, depending on the information needed to evaluate LTMg for the site. The approach allows for optimization of the LTMg program and presentation of exit strategies for monitoring, including decision trees based on monitoring results. The conclusions and recommendations section is where additional or reduced LTMg activities are considered and recommended as appropriate. The approach also allows for discussion of new initiatives and lesson learned, and supports five-year review planning and cost evaluation.

Ms. Cole explained that OU3 is being used as a prototype because the LTMg program has been in place for a while, there are a lot of data for this OU, and the OU3 OM&M program will continue as long as waste is left in place. The Navy and contractors have been doing optimization all along as part of the OU3 OM&M program, but the Navy sees this as another way to get additional "brain power" to optimize the program. Ms. Cole also indicated that OU2 was another example of an OU where waste will be left in place requiring LTMg that could benefit from this approach.

The following summarizes questions and answers related to the presentation:

- Are there data interpretations in the report? Yes, trend graphs, evaluation tables, and groundwater plume maps are examples of data interpretations that could be included. Mr. McLeod noted that trend evaluations that have been prepared as part of the OU4 interim offshore monitoring program for decision making are examples of some of the data interpretations that could be included in a LTMg report.
- Does the report need to be updated regularly? Yes, as new data become available, the report is updated based on the requirements of the LTMg program. The format of the report was developed to be easily updated throughout the LTMg program. Each time the document is updated, it can capture what was implemented and what may still need to be implemented.
- Will the approach be required for all Navy Superfund sites? No. Navy Headquarters likes the approach, especially for providing consistency in documentation and format. The format also makes it easier to present and share the results with stakeholders. However, use of the approach would depend on the status of the site and how beneficial it would be based on site conditions. The approach has been shared with USEPA and other Department of Defense (DoD) personnel (e.g., Air Force and Army Corps personnel), and they showed interest and may use this approach for their LTMg sites.
- How is the approach different than a five-year review? This approach would evaluate data on a more frequent basis than a five-year review. Depending on the LTMg requirements, the approach looks at the data as they are collected. The approach is a tool to understand data and site conditions on an on-going basis. The five-year review is conducted every 5 years to document the protectiveness of the remedy, and the five-year review report is a required document that is approved by the Navy and USEPA. The LTMg reports will support and facilitate preparation of the five-year reviews. After the first LTMg report is prepared, it can be updated easily. Also, the LTMg report will help identify data gaps earlier and provide for earlier evaluation of additional data needs to ensure that the remedy remains effective.

During the presentation, the RAB members indicated they liked the approach. The interactive component would help to access background information easily. There was a suggestion to include all of the analytical data in the document. Also, a suggestion was made to provide the Administrative Record Number for documents so people know which document to access for the entire reference. The administration record identification number will be included as a recommendation for reports prepared using this format. Ms. Nielsen indicated that while many of the PNS documents already provide good, well thought out decision processes for LTMg, having consistency in the reporting format and easy

access to background information will be helpful to provide long-term continuity throughout the LTMg program, even when there are Navy and stakeholder personnel changes.

ISSUES

Upon completion of the presentations, Mr. Bogen asked whether there were any other issues that needed to be discussed. No other issues or topics were raised.

FUTURE MEETINGS

Ms. Joy indicated that the Navy was proposing December 6, 2011, as the next meeting. The agenda will include an update on OU1 and Site 30 field activities.

Post-meeting note: The next RAB meeting is scheduled for December 6, 2011, and will be held in the meeting room at Kittery Town Hall, 200 Rogers Road, Kittery, Maine. Planned agenda items will be provided with the invitation to the next meeting.

ATTACHMENTS

AGENDA AND PRESENTATIONS FROM OCTOBER 4, 2011



Portsmouth Naval Shipyard Restoration Advisory Board Meeting Agenda



Date – October 4, 2011

Place – Kittery Town Hall, Kittery, ME

Time – 7 p.m. - 9 p.m.

- **Introductions – Mr. Doug Bogen,
Community RAB Co-chair**
- **Navy Co-chair Remarks – Ms. Lisa Joy**
- **Status of Work – Ms. Linda Cole, Navy**
- **Regulator Updates – Mr. Matt Audet, USEPA and
Mr. Iver McLeod, MEDEP**
- **Operable Unit 1 Update – Mr. Matt Kraus,
Tetra Tech, NUS**
- **Navy Environmental Restoration Program
Management and Monitoring Approach –
Ms. Jan Nielsen and Mr. Ken Bowers, Navy**
- **Other Issues as Required**



Portsmouth Naval Shipyard Installation Restoration Program, October 2011

Installation Restoration Funding History



- **Approximately \$60 Million spent to date**
- **FY 2010 spent \$1.0M**
- **FY 2011 spent \$1.9M**
- **FY 2012 spending plan \$4.9M**
- **Estimated \$24M for Cost-to-Complete**

OPERABLE UNIT 1 (Site 10)



- Remedial Action (RA) Work Plan
 - Final Report issued Sep 11
 - *OU1 RA was delayed because of SY operations (scheduled for after Site 30 removal action)*
- Land Use Control Remedial Design (LUC RD)
 - Revised Draft issued 17 Aug 2011
 - Regulatory review
- Groundwater Monitoring Plan Component of Long Term Management Plan
 - Draft Post Remediation Groundwater Monitoring SAP issued 30 Aug 2011
 - Regulatory review



OPERABLE UNIT 2 (Sites 6 and 29 and the DRMO Impact Area)



- **PRAP**

- Issued 19 July 2011
- Public meeting held 10 Aug 2011
- Public comment period began 21 July 2011, and extended to 19 Sep 2011

- **ROD**

- Draft Issued 15 Aug 2011
- Regulatory comments received and resolved
- Final signed 29 Sep 2011

- **OU2 Pre-design Investigation**

- Data Package Issued Jul 11

- **Remedial Design awarded**



Removal Action - DRMO Impact Area at Operable Unit 2



- First phase of archeological survey in Spring 2010
- Second phase of archeological survey in September 2010
- Soil excavation completed
- **Site restoration activities completed.**
- **Construction Completion Report being prepared**



OPERABLE UNIT 3 (Site 8)



- **Continue with Post-Remedial Action Operation, Maintenance, and Monitoring (OM&M)**
- **OM&M field work - Round 10**
 - **Data Package issued 18 Aug 2011**
- **Land Use Control Remedial Design (LUCRD)**
 - **Final issued 17 Aug 2011**
- **OM&M Plan Update**
 - **Final Plan being prepared**
- **Five Year Review**
 - **Started Aug 11**
 - **Final Due Jun 12**



OPERABLE UNIT 4 (Site 5 and Offshore Areas of Concern)



- **FS Report**
 - Draft Report issued 9 Jul 2010
 - Regulatory review/resolving regulatory comments

- **Interim Offshore Monitoring Plan (IOMP) Update**
 - Final Report issued 15 Nov 10
 - Round 11 Data Package issued 21 Sep 11

- **RI Report**
 - Draft Final RI issued 29 Jul 11
 - Regulatory review/comment resolution
- **FS Report**
 - Being prepared



OPERABLE UNIT 9 (Site 34)



RI Report

- Draft Report issued 28 Feb 11
- Regulatory review/comment resolution*

- **Removal Action Work Plan**

- **Final issued Jul 11**

- ***Mobilization activities began***

- **Welding booths and concrete slab removed**

- **Crystalline growth only found at perimeter slab expansion joints and along back wall.**

The Community Involvement Plan (CIP) is an update to the 1996 Community Relations Plan (CRP).

- **Face-to-face interviews were conducted the week of 14 Mar 2011**
- **Telephone interviews were completed the following week**
- **The Draft CIP will be submitted for regulatory and RAB review**
- **Under internal review**

Operable Unit 1 Update

Portsmouth Naval Shipyard

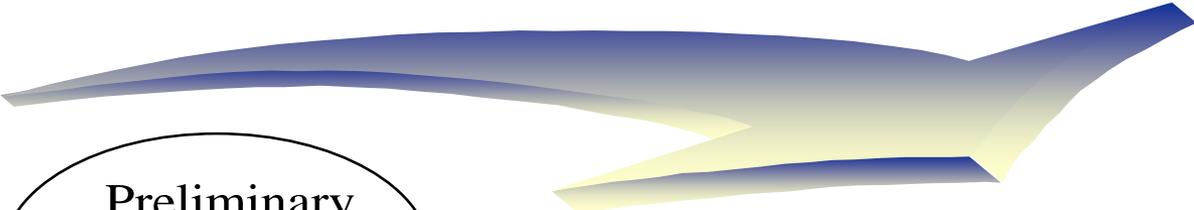
Date: October 4, 2011

Presenter:

Matthew Kraus, Tetra Tech NUS, Inc.

Purpose of OU1 Update

- To provide updates on the remedial activities for OU1 including:
 - Remedial Action Work Plan
 - Land Use Control Remedial Design (LUC RD) document
 - OU1 Post Remediation Groundwater Monitoring Sampling and Analysis Plan (SAP)
 - Long Term Management Plan



Site Discovery

Preliminary
Assessment/Site
Investigation

Remedial
Investigation

***The CERCLA
Process...***

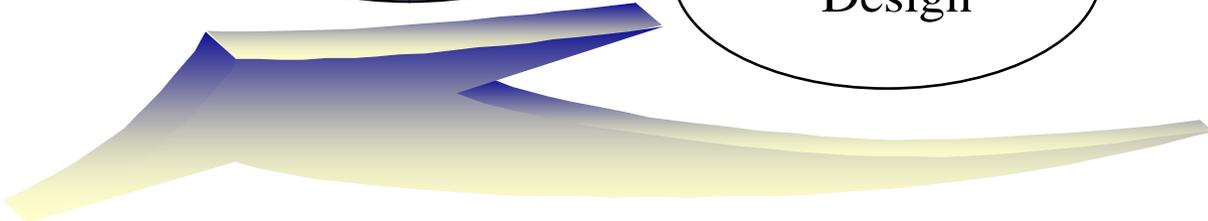
Feasibility Study

Operation and
Maintenance/
Site Closeout

Proposed Plan/
Record of Decision

Remedial
Action

Remedial
Design



OU1 Vicinity Map



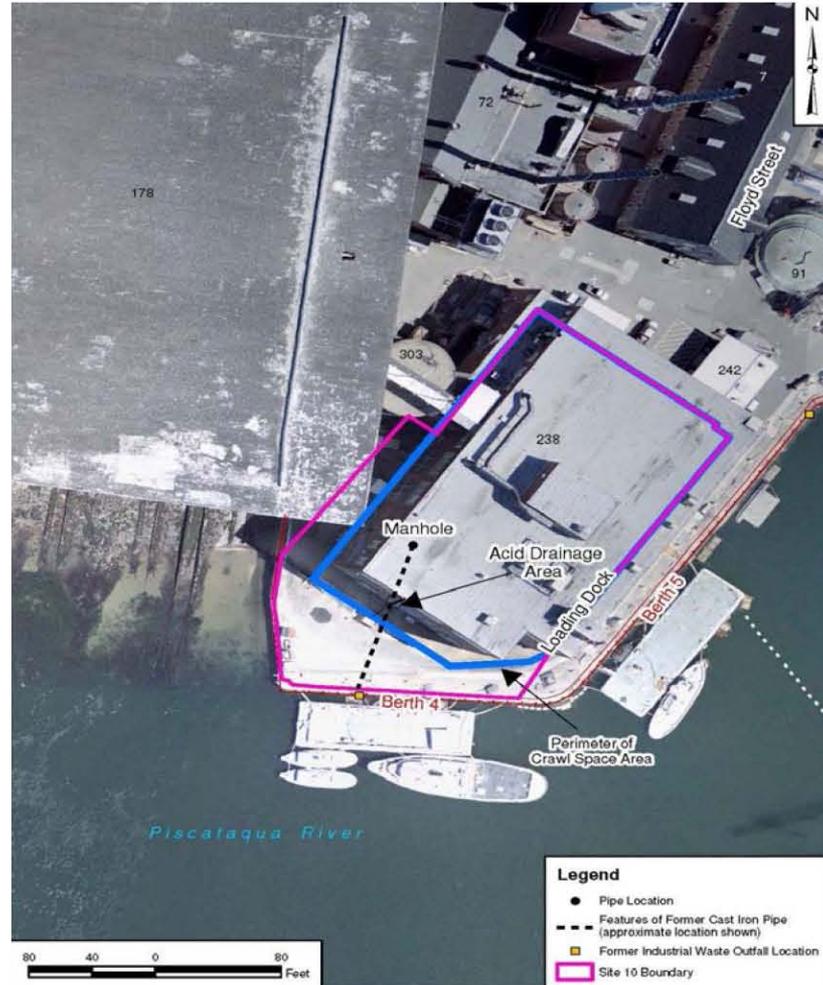
Site Background

- OU1 consists of Site 10 – Former Battery Acid Tank No. 24
- Site 10 is located on filled land in a controlled area currently and historically used for industrial activities at PNS.
- Building 238, constructed in 1955 and used for battery charging operations, is located at the site.
- Building 238 operations resulted in CERCLA releases to soil underneath and outside of that building prior to 1984.
- Potential risks to human receptors exist from exposure to lead in site soils.

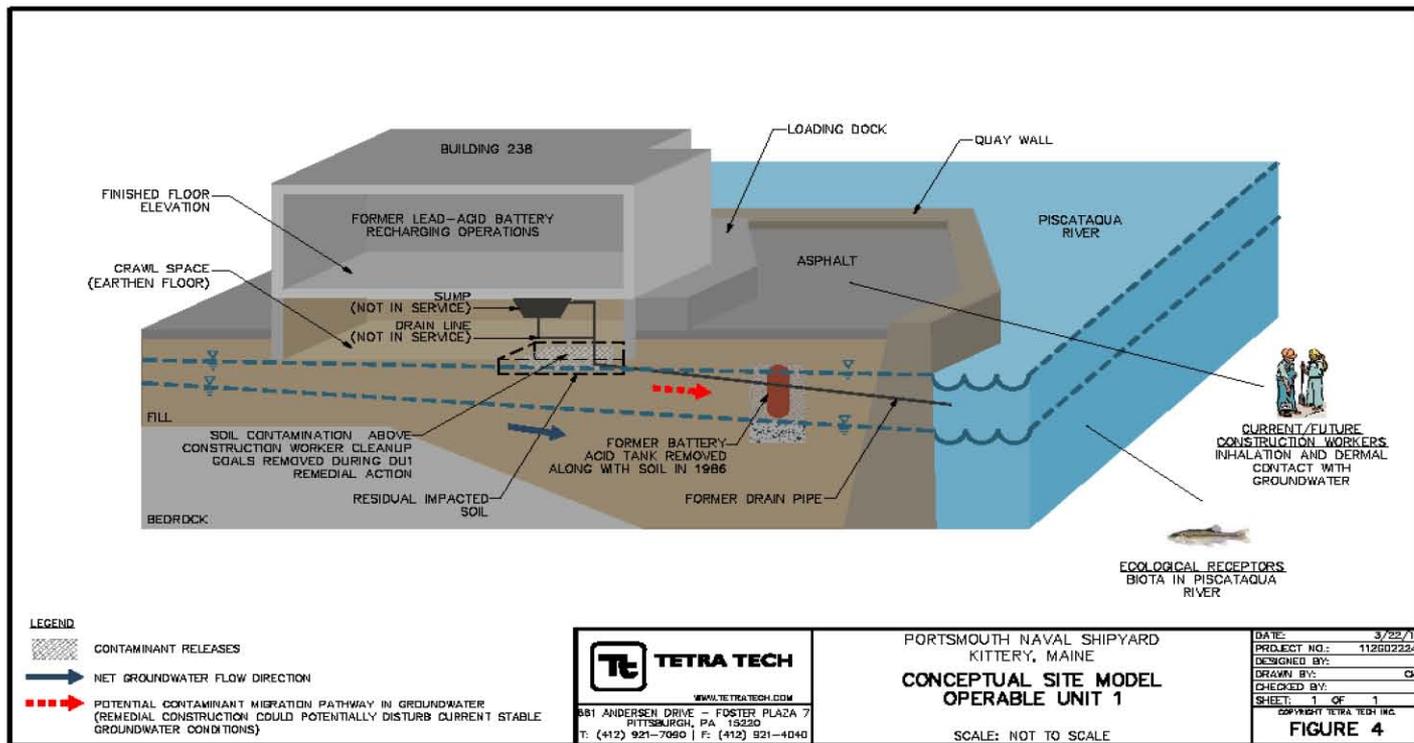
Site Background (continued)

- Record of Decision (ROD) signed Sep 10
- The selected remedy
 - Excavation and off-site disposal of contaminated soil around the drain lines within the crawl space of Building 238.
 - Implementation of LUCs to prevent future residential use.
 - Groundwater monitoring to confirm that groundwater has not been adversely impacted by soil excavation.

OU1 Site Layout



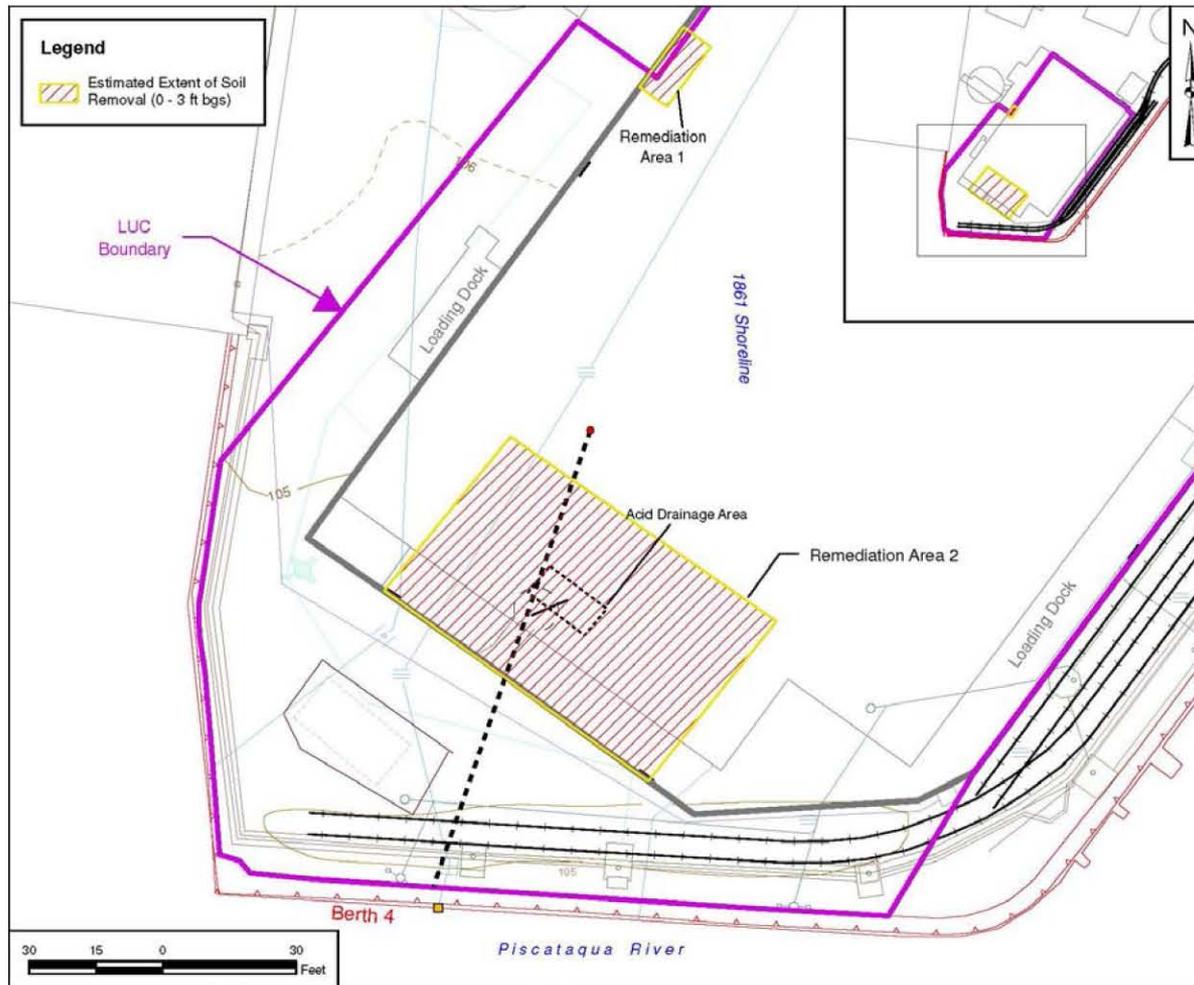
OU1 Conceptual Site Model



Remedial Action Work Plan

- Draft OU1 Remedial Action Work Plan includes the following remedial activities:
 - Installation of project safety controls and a temporary conveyor system
 - Excavation of contaminated soil in Bldg 238 crawl space
 - Transportation and disposal of contaminated soil
 - Confirmatory sampling
 - Backfill/site restoration
- Final Work Plan completed Sep 11.

Excavation Area and LUC RD Boundary



LUC RD

- Aug 11 Revised Draft LUC RD
 - Describes institution controls (e.g. no residential land use without further action)
 - Outlines LUC implementation actions (e.g. monitoring compliance with LUCs, submittal of monitoring reports, etc.)
- LUC Objectives
 - Prohibit residential reuse of the site unless additional action is undertaken to prevent residential exposure to lead-contaminated soil throughout OU1.
 - Maintain current site features including Building 238 and asphalt pavement to prevent exposure to underlying contaminated soil.
 - Implement requirements for proper management of excavated soil as part of any future construction and maintenance activities at OU1.

OU1 Post Remediation Ground Water Monitoring SAP

- Objective

- Monitor groundwater after remedial action to determine if any groundwater impacts occur due to remedial action

- Aug 11 Draft

- No unacceptable risk to human health or the environment posed by lead concentrations in groundwater
- Post-remediation groundwater monitoring will be conducted to confirm that the soil remediation does not adversely impact lead concentrations in groundwater
- Two rounds of groundwater monitoring will be conducted and data evaluated to determine whether additional groundwater monitoring is necessary

Long Term Management Plan

- Describes maintenance and monitoring requirements for OU1 remedy
- Outlines record keeping and reporting requirements
- Contains final LUC RD, final Groundwater Monitoring SAP, inspection forms, and checklists
- Completed after remedial action (Construction Completion Report)

What's Next

- Resolve regulatory comments and finalize OU1 Post Remedial Groundwater Monitoring SAP
- Remedial action excavation anticipated Fall 2011 (to be completed after removal action at Site 30)
- First round of groundwater monitoring will be conducted within 3 months of remedial action excavation



Restoration Advisory Board Management and Monitoring Approach

October 2011

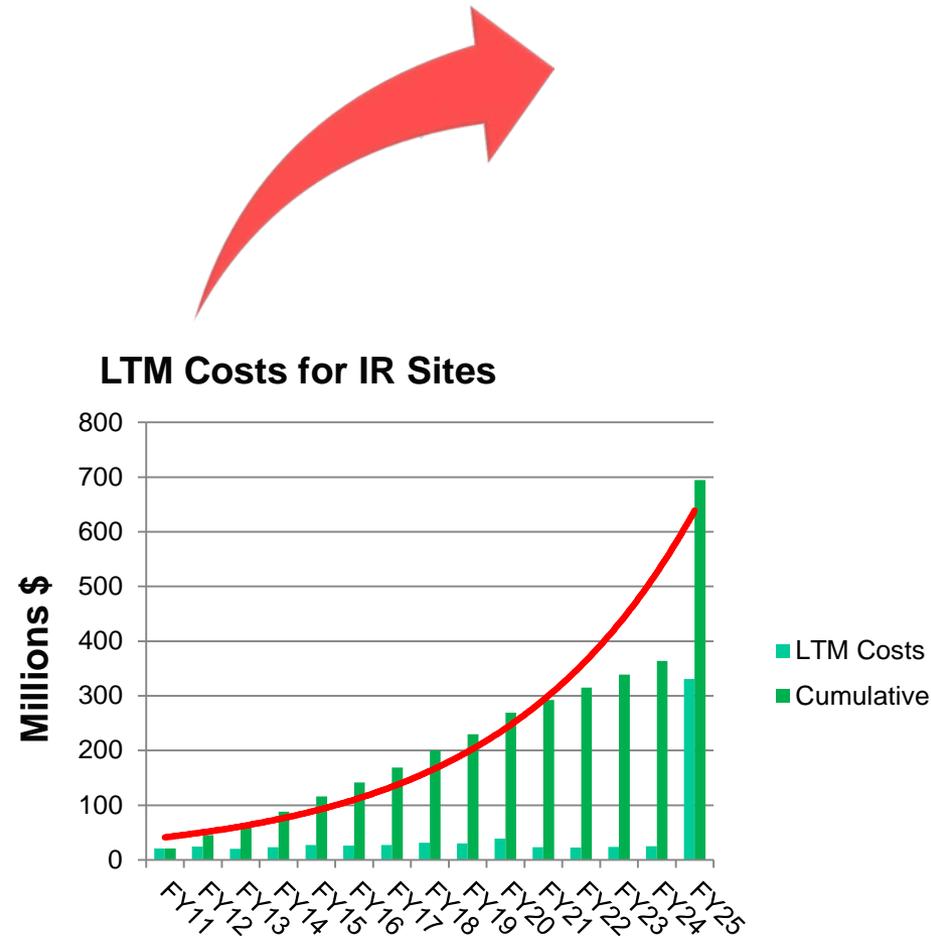
Jan Nielsen, NAVFAC LANT

Ken Bowers, NAVFAC LANT

Why Develop this Approach?



- Long Term Management Costs
- Power in Decision Making
 - Consistent High Quality Information
 - Transparency Promotes Understanding
 - Document Sampling Strategy and Methods
 - Site Closure Requirements
- Smart Tool
 - Tells the Story of the Site
 - Captures Past Actions and Agreements
 - Reinforces Exit Strategy

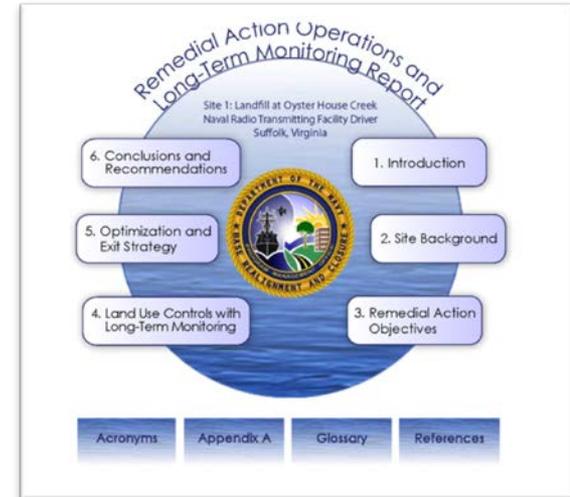


Source: NAVFAC NORM Database Spring 2011

Evolution of Template



- Navy Reviewed Actions at a Site
- Identified Areas Where Optimization Made Sense
- Prepared a Report that Captured Key Information
- Wanted to Share this Approach
- Well Received
 - Navy Remedial Project Managers
 - State and EPA Regulators
 - Stakeholders



Monitoring Report Template

Introduction to the Monitoring Report Template

As part of the Navy's effort to incorporate continual process improvements, this template has been developed for preparing annual monitoring reports for the environmental restoration program. This template encourages consistency in the format for reporting monitoring results and managing sites in the monitoring phase. This was designed for Remedial Project Managers to use as a resource for developing and publishing monitoring reports to support the Navy's cleanup program.

Objectives

Develop a Standardized Approach and Template for Monitoring Reports

The goals of this effort are as follows:

- Provide a consistent format for use across the Navy
- Identify and report clean up goals
- Develop reporting format for results of trends
- Site Closure

This template is set up to provide insight on each element in the report. Each numbered section matches the Report Elements. The write up provides insight into the content and purpose of the section and suggested ways to achieve the goals for that element. The left hand column discusses the purpose of the section and information to be included. The right hand column provides examples or additional information to understand how to present the content.

Opportunity for Improvement?

- Program Dollars Shifting to Monitoring
- Opportunity to Improve the Report Formats
- Opportunity to Include Optimization as Standard Step
- Capture Clear Conclusions and Recommendations

Graph: Unmet Fiscal Projection Over the Next 10 Years NAVFAC-Wide for all LTM (Nomin Date FY 2010). Estimated Accumulative Costs over \$400 Million in FY 2020.

Data Input: A circular diagram showing a cycle of Data Input, Review, and Update.

Distribution Statement A: Approved for public release; distribution is unlimited.

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Interactive Report Format



2011 Monitoring Report Format



- BRAC Approach Published
 - Applied Successfully
 - Saved 50% - 70% of Future Costs
 - Reduced Number Samples
 - Reduced Frequency of Samples

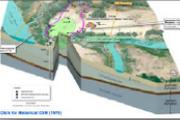
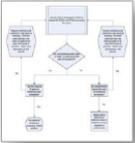
Monitoring Report Template

Report Elements

- 1 Introduction**
 - 1.1 Objective – Introduces the report including the site name, facility, stakeholders, decision documents and cleanup program.
 - 1.2 Table of Contents – Presents the report layout to familiarize readers with content.
- 2 Selected Remedy**
 - 2.1 Remedial Action Objectives (RAOs) – Restates the current RAOs developed.
 - 2.2 Site Closeout Strategy – Provides a clear path to allow for completion of efforts at the site and reduces the possibility of straying from the agreed to path forward. This section should identify any interim goals, final goals and status of effort to meet those goals.
- 3 Monitoring Program**
 - 3.1 Monitoring Objectives – Data Quality Objectives- Provides clearly stated objectives and questions that the data being gathered will answer.
 - 3.2 Sample Approach – Provides enough detail that the locations, constituents of concern, other parameters to be sampled, frequency, sampling procedures and methods for analysis are understood.
- 4 Data Evaluation**
 - 4.1 Sampling Results – Compiles results from the current rounds of sampling and appropriate historical data. This section includes figures and tables to clearly show the results of the monitoring efforts.
 - 4.2 Trend Analysis Concentrations of Constituents of Concerns – Presents trends to allow reader to readily understand if the site conditions are as anticipated based on the CSM or if there are other conditions that need to be considered. It documents the status of the site to allow for understanding of where the site is on the path to closeout. Answers the question of whether the RAOs are being met or if the site is moving towards response complete.
 - 4.3 Trend Analysis Costs – Documents historical and current cost to allow for an understanding of the use of limited resources to meet the requirements for the site.
 - 4.4 Optimization and Site Closeout Progress – Documents third party and routine optimization efforts at the site and captures the history and outcome of optimization. Trend analyses are discussed to document progress towards site closeout.
- 5 Conclusions** – Clearly and concisely states conclusions drawn from the trend analysis.

Format Features

- Decision Trees
- Conceptual Site Models
- Trend Charts



U.S. Navy

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Refined Approach



- **Living Document**

- New Initiatives
- Lessons Learned
- Promote Successes

- **New Elements**

- Monitoring Details
- Protectiveness
- 5-Year Review Planning
- Cost
- Optimization
- Recommendations

The image shows the cover of a report titled "Draft Navy Environmental Restoration Program Management and Monitoring Approach". At the top left is the NAVFAC logo. The title is prominently displayed in white text on a dark blue background. Below the title are three images: a photograph of yellow monitoring posts in a wooded area, a 3D topographic map of a site with various colored zones, and a photograph of a construction site with a large pile of rocks and a metal grate. The date "September 2011" is printed in the bottom right corner, along with a small circular seal.

On the Right Road



U.S. Navy