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MINUTES AND AGENDA FOR RESTORATION ADVISORY BOARD MEETING HELD 7
DECEMBER 2010 NSY PORTSMOUTH ME
12/07/2010
NAVFAC MID ATLANTIC

**RESTORATION ADVISORY BOARD MEETING
PORTSMOUTH NAVAL SHIPYARD
KITTERY TOWN HALL, KITTERY, MAINE
December 7, 2010**

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

- RAB Community members – Doug Bogen, Jon Carter, Diana McNabb, Onil Roy, and Roger Wells.
- Navy RAB member – Lisa Joy, Portsmouth Naval Shipyard (PNS).
- Regulatory representatives – Matt Audet, United States Environmental Protection Agency (USEPA), and Iver McLeod, Maine Department of Environmental Protection (MEDEP).
- RAB Community members Peter Britz, Michele Dionne, Mary Marshall, and Jack McKenna were absent.

Guests at the RAB included:

- Ted Wolfe from MEDEP
- Bill Deane and Fred Poulin from Shaw Environmental & Infrastructure, Inc. (Shaw).
- Aaron Bernhardt, Debbie Cohen, and Matt Kraus from Tetra Tech NUS, Inc. (Tetra Tech).
- Carolyn Lepage, Technical Assistance Grant (TAG) technical advisor to Seacoast Anti-Pollution League (SAPL).

INTRODUCTION

The meeting was opened by Lisa Joy (RAB Navy Co-Chair). Ms. Joy welcomed everyone to the RAB meeting and requested that attendees introduce themselves. The attendees introduced themselves and stated the organizations they represented. Ms. Joy mentioned that Linda Cole, Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Remedial Project Manager (RPM) was absent due to unforeseen circumstances. She then reviewed the agenda and indicated that the presentation on munitions response site prioritization would be delayed until the next RAB meeting.

Doug Bogen (RAB Community Co-Chair) mentioned that he had photographs from his recent trip to Northern Russia to show after the RAB meeting. As Mr. Bogen indicated at the September 21, 2010 RAB meeting, he visited a shipyard in Northern Russia as part of the Portsmouth/Severodvinsk Connection (PSC).

STATUS OF WORK AND REGULATOR UPDATES

Debbie Cohen of Tetra Tech reviewed the update on the status of work at Operable Unit (OU) 1, OU2, OU3, OU4, OU7, OU9, and Site 30. The presentation is attached to the minutes.

Ms. Cohen indicated that the aerial photograph provided on the first slide of the presentation was updated to provide a more recent view of the Shipyard. The information on spending in Fiscal Year 2010 (FY10), planned spending in FY11, and estimated cost-to-complete is the same as the information presented at the September 21, 2010 RAB meeting.

The following are highlights of the updates on the OUs:

- OU1 (Site 10 - Former Battery Acid Tank No. 24): The final Record of Decision (ROD) was signed by USEPA on September 27, 2010, and distributed in October 2010. A public notice of availability for the ROD was published and copies of the ROD were placed in the public libraries. The Remedial Action (RA) Work Plan, Long-term Monitoring Plan, and Land Use Control Remedial Design (LUCRD) are funded and being prepared. The remedial action is expected to be conducted in 2011.
- OU2 [Site 6 - Defense Reutilization and Marketing Office (DRMO) Storage Yard, Site 29 – Former Teepee Incinerator Site, DRMO Impact Area (Quarters S, N, & 68)]: The Navy continued resolving regulatory comments on the Feasibility Study (FS) Report. The pre-design investigation work plan was finalized in November and the sampling is scheduled for December 2010 or January 2011. The DRMO Impact Area Removal Action work is progressing and an update was provided during the meeting.
- 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. Round 9 sampling, inspection, and maintenance were completed. A presentation on the evaluation of Round 1 to 9 data was provided during the meeting. The Navy and USEPA are resolving comments on the draft final LUCRD. Sampling for the next 5-year review will be conducted in spring 2011 so that the data are available to start the 5-year review in 2011 to meet the June 2012 completion date.

- OU4 (Site 5 – Former Industrial Waste Outfalls and Offshore Areas Potentially Impacted by PNS Onshore IRP Sites): The Interim Offshore Monitoring Program continues. The update to the Interim Offshore Monitoring Plan (Revision 1) was finalized in November 2010 and Round 11 will be conducted in spring 2011. The draft FS Report is still under regulatory review/comment resolution.
- OU7 (Site 32 – Topeka Pier Site): The draft Remedial Investigation (RI) Report was submitted in early October and is under regulatory review. The draft report was presented during the meeting.
- OU9 (Site 34 – Former Oil Gasification Plant, Building 62): The additional sampling to support the RI was completed and the draft RI Report is being prepared. An update on the status of the RI was presented during the meeting and the draft RI Report will be submitted in February 2011.
- Site 30 – Former Galvanizing Plant, Building 184: The draft Engineering Evaluation/Cost Analysis (EE/CA) was finalized in October 2010 and the public comment period was held from November 3 to December 2, 2010. No public comments were received and the Shipyard Commander signed the final Action Memorandum on December 7, 2010. The removal action work plan and removal action are funded and the Navy plans to begin the removal action this winter.

In answer to a question regarding the granite blocks used for the shoreline control at OU7, Ms. Cohen indicated that the granite blocks were placed at the bottom of the slope at the mid-tide level. The photograph in the status update presentation shows the shoreline when the water level is above the mid-tide level; therefore, the granite blocks cannot be seen.

REGULATOR UPDATE

USEPA --- Matt Audet indicated that USEPA's focus since the last RAB meeting has been on the OU3 LUCRD. Mr. Audet explained that the LUCRD for OU3 is the first one for PNS sites and the Navy and USEPA are trying to resolve the specific legal wording in the LUCRD that will become the standard wording for subsequent LUCRDs for other sites at PNS. A technical meeting is currently anticipated for January 2011 to resolve the final concerns. USEPA and the Navy are determining who will need to participate in the meeting (e.g., technical, legal counsel, etc.) and whether the meeting would be open to RAB members. In answer to a question on the difference in determining appropriate LUCs for sites like Brunswick and Portsmouth, Mr. Audet indicated that for Portsmouth, the delay in determining the LUCs has been related to who has control over implementing and overseeing the LUCs and also in determining language acceptable to the Navy, USEPA, and MEDEP. Ted Wolfe, MEDEP, and Ms. Joy explained that for Brunswick, the LUCs are different because the facility is transferring to public use and because the

LUC documentation was completed in a much earlier timeframe (1990s), when policies were different. Mr. Audet indicated that, although there has been a delay in finalizing the LUCs document, the Navy has been proceeding with implementation of LUCs for OU3.

MEDEP --- Iver McLeod indicated that MEDEP is reviewing various documents that have comments past due or due soon, including the draft OU7 RI Report.

OU2 DRMO IMPACT AREA REMOVAL ACTION UPDATE

Bill Deane, Shaw, provided an update on the removal action at the DRMO Impact Area. The presentation is attached to the minutes.

Mr. Deane reviewed the status of the project and provided an update on activities since the September 2010 RAB meeting. The archeological surveys have been completed and the State Historical Preservation Officer (SHPO) final approval to begin excavation activities was received. Although three potential archeological items of interest were found around Quarters N during the first phase of the archeological survey, further evaluation in the second phase of the survey indicated that these were not significant items. The final archeological report is expected in winter 2011. Mobilization for the removal action began on September 21, 2010, and included clearing trees and vegetation, and installing erosion controls.

Soil excavation was conducted in the areas identified in the work plan. Based on the confirmation sample results, additional excavation was conducted until confirmation sampling showed that the removal action goals had been met or that excavation had reached the border of the DRMO (Site 6) area. Excavation was planned to a maximum depth of 2 feet below ground surface (bgs); however, in some areas the final excavation depth was as deep as 4 feet bgs. The final excavation layout survey was completed on December 7, 2010, and site restoration is ongoing. Placement of top soil will be completed in December and revegetation will be conducted in the spring. Mr. Deane indicated that the soil characterized as hazardous (less than 300 tons) was shipped off site for disposal in November 2010. The non-hazardous soil (approximately 2,200 tons) is currently being shipped off site for disposal, and should be completed in December. The truck traffic for shipping the soil is staggered and intermittent throughout the day and there have been no concerns about an increase of truck traffic on and off the Shipyard because of the removal action. Also, there are many ongoing construction projects at the Shipyard; therefore, truck traffic from the OU2 removal action would not be noticeable from that of the other projects.

The draft project closeout report is being prepared and will be submitted after the spring planting is completed.

DRAFT OU3 ROUNDS 1 TO 9 REPORT

Ms. Cohen provided a presentation on the draft OU3 Rounds 1 to 9 Report for the post-remedial operation, maintenance, and monitoring (OM&M) program. The presentation is attached to the minutes. The draft report is out for review and comment.

The report provides an evaluation of the first nine rounds of post-remedial OM&M and recommendations for subsequent rounds. Groundwater data collected as part of the OM&M are evaluated against human health and ecological risk criteria that take into account the potential for offshore groundwater migration to adversely impact receptors in the near-shore area of OU3. The human health risk levels are based on people exposed to surface water while recreating in the intertidal areas of OU3. However, there are portions of the OU3 shoreline that do not have exposed intertidal areas and other portions that cannot be readily accessed for recreation. The ecological risk levels are based on protection of aquatic organisms exposed to surface water in the near-shore area.

Evaluation of the groundwater data showed that no chemicals were detected in groundwater at concentrations greater than the human health and ecological risk criteria. Evaluation of the concentration trend from Rounds 1 to 9 indicated that, except for arsenic in one well (JW-13D), concentrations were not predicted to exceed either human health or ecological risk criteria. Arsenic concentrations at JW-13D were predicted to potentially exceed the human health risk criteria within the next 5 years. Further evaluation of this arsenic concentration trend at JW-13D indicated that the conclusion was biased by one elevated concentration. The Navy is recommending that annual groundwater monitoring for arsenic at OU3 be continued until the next 5-year review to provide a better understanding of the concentration trend. No additional action is needed to protect human health (i.e., prevent recreational use of the offshore area) because there is no intertidal area off shore of JW-13D. The conclusion for annual sampling of groundwater does not change the planned 5-year sampling program at this time; the next 5-year sampling will be conducted in spring 2011 and will include collection of groundwater for polycyclic aromatic hydrocarbons (PAHs) and metals analysis for all OU3 OM&M sampling wells.

Landfill gas monitoring results for all nine rounds were less than the threshold value, indicating that unacceptable levels of methane gas are not present. The Navy recommends reducing monitoring to annually, concurrent with groundwater and landfill inspections.

The routine inspection and maintenance activities show that there were no major concerns for the integrity of the cover or shoreline erosion controls, and that the only major repair was replacement of the Culvert No. 4 concrete end section, which was performed in May 2010. No rapid or excessive settlement has been identified; however, slight differential settlement identified in one portion of the site (in the ball field) continues to be monitored as part of the routine inspections. After 5 years, the wetlands continue to

be healthy and function appropriately, and regularly scheduled inspections are no longer required. Recommendations, based on the inspection activities, are to conduct the inspection of the landfill components annually in the spring. Groundwater monitoring wells used for monitoring water levels within the landfill cap will continue to be inspected and maintained, other wells within the cap should be abandoned.

In answer to a question about how settlement of the landfill can affect the remedy, it was indicated that significant settlement can stress the seams in the liner system of the cap. The level of settlement at OU3 is minor and not a concern. There are regular settlement measurements taken as part of the OM&M program and the measurements are evaluated to determine whether settlement is approaching the level of concern specified in the OM&M Plan. A question was asked whether the differential settlement was noticeable from the survey of settlement monuments or from visual inspection. Ms. Cohen did not have that information available, but it is presented in the inspection reports provided in the individual data packages for the OM&M program.

In answer to a question about the approach for abandoning the wells, Ms. Cohen indicated that the OM&M Plan provides the standard operating procedure (SOP) for well abandonment within the OU3 cap system. This SOP was used for the abandonment of two wells in the past. Approximately ten wells are being recommended for abandonment.

OU9 RI STATUS UPDATE

Mr. Matt Kraus, Tetra Tech, provided an update on the status of the RI for OU9. The presentation is attached to the minutes. The presentation reviews the site history and summary of results of the September 2010 supplemental RI sampling.

OU9 consists of Site 34 – Former Oil Gasification Plant, Building 62, which generated ash from coal combustion that was deposited outside of Building 62. A removal action to remove the majority of the ash and ash-contaminated soil was conducted in 2007. Subsequently, soil sampling to support the RI was conducted in August 2009. The 2009 sampling showed that no suspected contamination (ash or tar from past operations) was found under Building 62. However, residual ash was found in the subsurface outside Building 62 after the removal action that warranted further sampling. The additional sampling was conducted in September 2010, and the ash pockets were verified to be isolated and sporadic. There was also an elevated detection of lead in the 2009 samples not found in any of the 2010 samples. This elevated lead level was found to be an anomaly and not representative of lead concentrations at the site.

Mr. Kraus reviewed the updated cross sections that show the small pockets of ash or burnt material found in the subsurface. Burnt material was distinguished from ash where the majority of the material was

generally charcoal clinkers and other burnt material that did not contain ash. The cross sections were developed using pre- and post-excavation information to estimate where ash or burnt material may still be present. It was noted that one sampling location (OU9-22) could not be installed near the northern edge of the site (north of Building 62) to confirm whether ash was present in this area because of a utility line.

In answer to a question of how deep the ash pockets were found, Mr. Kraus indicated that the shallowest was at 2 feet bgs; however, most were deeper. The ash and soil at OU9 is not in contact with groundwater; overburden groundwater has not been observed at the site. The elevation of the site is approximately 110 feet and low tide and high tide are approximately 92 and 100 feet (based on PNS 2002 vertical datum), respectively. Therefore, tidal infiltration is not a concern for this site.

In answer to a question about whether installation or removal of the railroad spur that had been located north of Building 62 could have moved ash around, Ms. Cohen indicated that the subsurface appears to be re-worked material and past construction work in the area likely did result in redistribution of ash and burnt material in this area. This probably is the reason that there are some small pockets of ash beneath the excavated area.

DRAFT OU7 RI REPORT

Ms. Cohen provided a presentation on the draft OU7 RI Report. The presentation is attached to the minutes. The draft report is out for regulatory review and comment.

OU7 consists of Site 32 – Topeka Pier Site, which is a large area that was filled with various materials from 1900 to 1945. A portion of the OU7 area that was filled in the early 1900s with material (sediment and rock) excavated as part of the construction of a dry dock, was found to contain soil and rock; no debris or waste material was found. The former timber basin, on the southeastern portion of the site, was used from 1910 until it was filled in the 1940s.

There were several environmental investigations that included sampling in the onshore and offshore areas of OU7 before it was identified as an Installation Restoration (IR) site. After it was identified as a site, a Site Screening Investigation was conducted and it was concluded that an RI was required. RI sampling was conducted in two phases. The first phase was to collect data to support the understanding of the nature and extent of contamination and to support risk assessment for the site. Based on the results of the first phase, it was determined that additional data, to understand the nature and extent of contamination in several potential hot spot areas and one potentially clean area, were needed. In one area, elevated levels of polychlorinated biphenyls (PCBs) were detected (in the former timber basin area), and the extent of the elevated levels was delineated in the second phase of RI sampling. It is not clear why PCBs were found in this one area. PCB concentrations in the remainder of OU7 are much lower.

The other potential hot spot area of investigation was because of an arsenic detection in one sample at a concentration approximately 100 times greater than the other concentrations detected at OU7. Sampling at and around the location showed that the elevated arsenic result was an anomaly. The additional sampling results were similar to the rest of OU7 and similar to facility background concentrations of arsenic. The area that was filled with sediment and excavated material from the dry dock construction was also investigated and found to consistently have much lower chemical concentrations than the rest of OU7.

Ms. Cohen reviewed the conceptual site model and potential OU7 receptors that could be exposed to site contamination. Chemical data for onsite soil and groundwater and near-shore sediment and surface water were evaluated. Soil is covered with asphalt, buildings, or vegetation; therefore, current potential exposure to soil would only be for a construction worker conducting excavation work at the site. Groundwater is brackish/saline and is not potable; therefore, a drinking water exposure scenario was not evaluated. The intertidal area off shore of OU7 is easily accessible from the site and a recreational user at OU7 could be exposed to sediment and surface water in this area of the site. The mid- to high-tide portion of the OU7 shoreline is covered with rip-rap and large granite boulders (placed at the mid-tide level). Sediment is present in the mid- to low-tide area; however, closer to the low tide elevation, sediment is mucky and difficult to impossible to walk on.

The conclusions and recommendations in the draft OU7 RI Report are as follows:

- The nature and extent of contamination has been delineated to support an FS.
- Potential unacceptable risks were identified for exposure to soil for a construction worker, occupational worker, and hypothetical resident. Potential risks were acceptable for a recreational user.
- Potential risks were acceptable for exposure to groundwater, surface water, and sediment and these were not identified as media of concern for OU7.
- Current and future migration of groundwater off shore would not result in adverse impact to the offshore area.
- There are future potential risks if shoreline erosion occurs in the future.
- An FS Report should be prepared to evaluate remedial options to address the potential risks for OU7.

In answer to a question of what the Shipyard is doing with the pier at OU7, it was indicated that the pier is deteriorating, can no longer be used, and it will be replaced. The pier is not within the OU7 boundary. In answer to a question about the results of a video camera survey of the storm drains (conducted in 2002), it was noted that the camera study confirmed that groundwater and the storm drains are interconnected. Groundwater flow at high and low tide is greatly influenced by the storm sewers.

ISSUES

Upon completion of presentations, Ms. Joy asked if there were any other issues that needed to be discussed. No other issues or topics were raised.

FUTURE MEETINGS

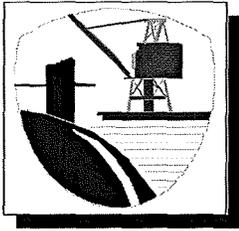
A date has not been set for the next RAB meeting. Ms. Joy will discuss available dates with Ms. Cole and Mr. Bogen and one will be proposed.

After the meeting, Mr. Bogen provided a photographic slide show of his trip to Russia.

Post-meeting note: The next RAB meeting is scheduled for March 29, 2011, and will be held in the meeting room at Kittery Town Hall, 200 Rogers Road, Kittery, Maine. Planned agenda items for the next RAB meeting are presentations on the munitions responses site prioritization protocol, the draft OU9 RI Report, field activity updates, and a general status update on the IR program.

ATTACHMENTS

AGENDA AND PRESENTATIONS FROM DECEMBER 7, 2010



Portsmouth Naval Shipyard Restoration Advisory Board Meeting Agenda



Date – December 7, 2010

Place – Kittery Town Hall, Kittery, ME

Time – 7 p.m. - 9 p.m.

- **Introductions – Ms. Lisa Joy, Navy RAB Co-chair**
- **Community RAB Co-chair Remarks – Mr. Doug Bogen**
- **Status of Work - Ms. Linda Cole, Navy**
- **Regulator Updates – Mr. Matt Audet, USEPA and Mr. Iver McLeod, MEDEP**
- **OU2 DRMO Impact Area Removal Action Update - Mr. Bill Deane, Shaw E&I**
- **Draft OU3 Rounds 1 to 9 Data Evaluation Report – Ms. Debbie Cohen, Tetra Tech**
- **OU9 RI Sampling Update – Mr. Matt Kraus, Tetra Tech**
- **Draft OU7 RI Report - Ms. Debbie Cohen, Tetra Tech**
- **Other Issues as Required**



Installation Restoration Funding History

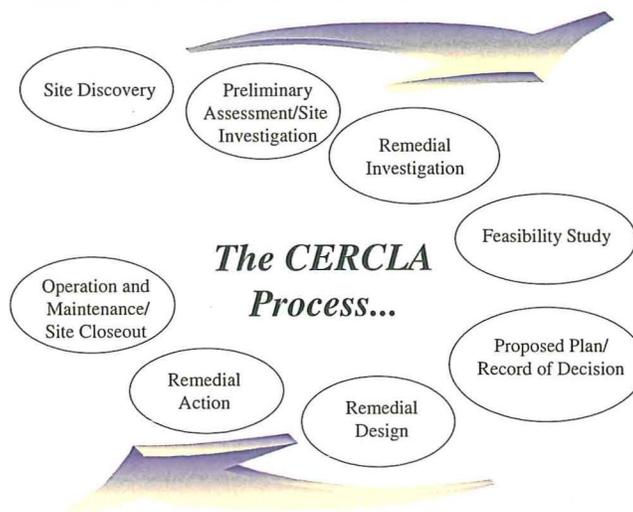


- Approximately \$60 Million spent to date
- FY 2010 spent \$1.0M (funded removal of tank vault in Bldg 184)
- FY 2011 spending plan \$3.4M (will fund removal at OU1 and investigation at OU8)
- Estimated \$31M for Cost-to-Complete

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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

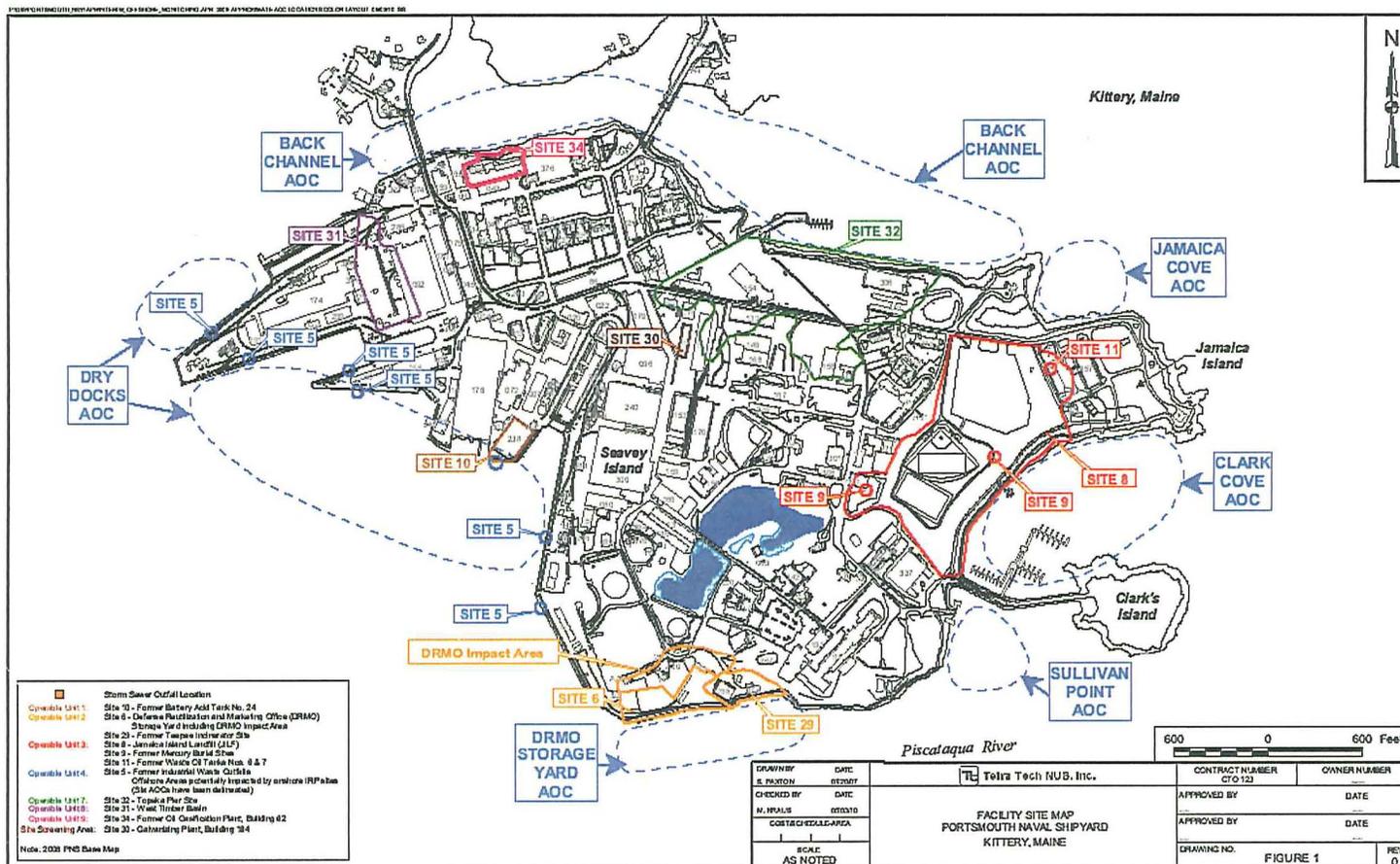
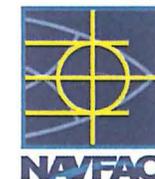
CERCLA Process



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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

IR Sites As Currently Defined



OPERABLE UNIT 1 (Site 10)



- Record of Decision (ROD) - **Final was signed September 26, 2010, and distributed locally in October 2010**
- Remedial Action Work Plan - Draft to be submitted in January 2011
- Land Use Control Remedial Design (LUCRD) - Draft will be submitted within 90 days (December 26, 2010) of signature of the ROD
- Long Term Management Plan under development



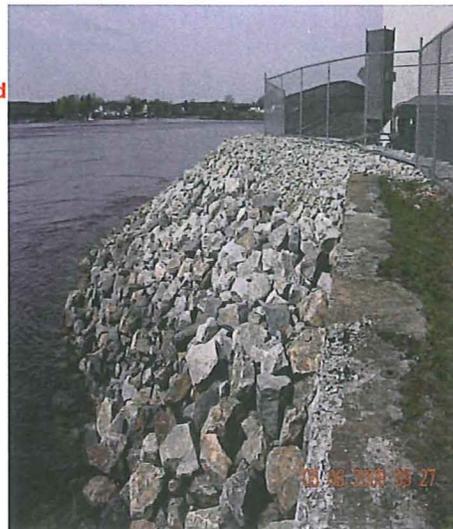
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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

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



- FS Report
 - Draft Report issued Nov 08
 - Resolving regulatory comments and preparing Draft Final**
- Draft PRAP to be issued within 90 days after Draft Final FS Report
- Draft ROD
 - To be issued 30 days after end of public comment period
 - FY11 goal (Final ROD)**
- OU2 Pre-design Investigation
 - Final Work Plan issued Nov 10**
 - Field work planned for Dec/Jan**
- Remedial Design awarded



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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

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 underway**

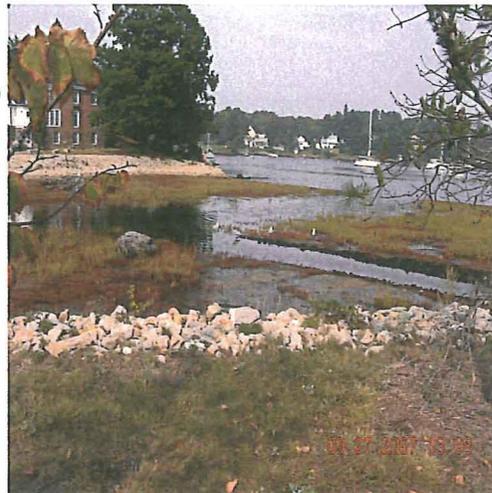


Portsmouth Naval Shipyard Installation Restoration Program, December 2010

OPERABLE UNIT 3 (Site 8)



- Continue with Post-Remedial Action Operation, Maintenance, and Monitoring (OM&M)
- OM&M field work - Round 10 planned for 2011
- Land Use Control Remedial Design (LUCRD)
 - Draft Final issued March 2010
 - *Regulatory comment resolution*
- OM&M Plan Update
 - Draft Plan issued April 2009
 - *Regulatory review/comment resolution*
- **OM&M Rounds 1 to 9 Report**
 - Draft Report issued October 2010
 - *Regulatory review*
- Five Year Review
 - Start Jul/Aug 2011
 - Due Jun 2012



Portsmouth Naval Shipyard Installation Restoration Program, December 2010

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



- FS Report
 - Draft Report issued July 2010
 - Regulatory review/resolving regulatory comments
- Interim Offshore Monitoring Plan (IOMP) Update
 - Final Report issued November 2010
 - Round 11 scheduled for Spring 2011

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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

OPERABLE UNIT 7 (Site 32)



- Draft RI issued in October 2010**
- Regulatory review/comment resolution**



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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

OPERABLE UNIT 9 (Site 34)



Draft RI Report to be submitted in February 2011

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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

SITE 30 (Former Galvanizing Plant – Building 184)



- Revised EE/CA and Action Memorandum (Revision 2)
 - Final EE/CA issued in October 2010
 - Public comment period held November 3 to December 2, 2010
 - Final Action Memorandum anticipated for December 2010
- Removal Action Work Plan will be submitted within 30 days of signature of the Action Memorandum

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Portsmouth Naval Shipyard Installation Restoration Program, December 2010

Draft OU3 Rounds 1 through 9 Data Evaluation Report

Portsmouth Naval Shipyard
Date: December 7, 2010

Presenter:
Deborah Cohen, Tetra Tech

Purpose of Discussion

- Provide a summary of the OU3 Rounds 1 through 9 data evaluation.
- Present the data evaluation results.
- Make recommendations regarding subsequent rounds of OM&M for OU3.
 - Groundwater monitoring,
 - Landfill gas monitoring,
 - Landfill inspection frequency, and
 - Maintenance activities.

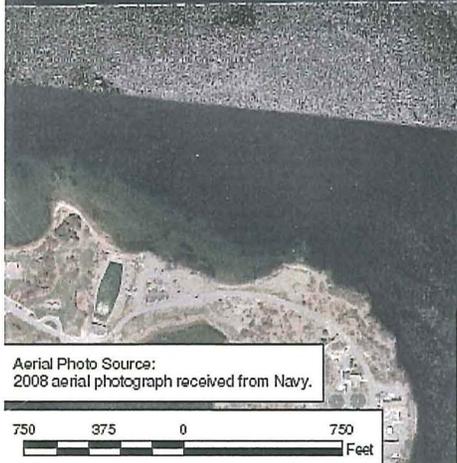
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OU3 Background

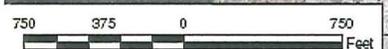
- OM&M conducted semi-annually from 2006 to 2010 (Rounds 1 through 9) in accordance with Revision 0 of the OM&M Plan, which was finalized in June 2006, and the Rounds 1 through 4 Data Evaluation Report.
- Rounds 1 through 9 data were evaluated to assess effectiveness of the OU3 remedy.
- OM&M Plan Revision 1 (draft, August 2009) with the March 2010 response to comments reflect the changes to the OM&M program based on the recommendations in the Rounds 1 through 4 Report.
- Recommendations based on the Rounds 1 through 9 Report do not change the five year sampling frequency (next sampling is 2011).

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OU3 Location



Aerial Photo Source:
2008 aerial photograph received from Navy.



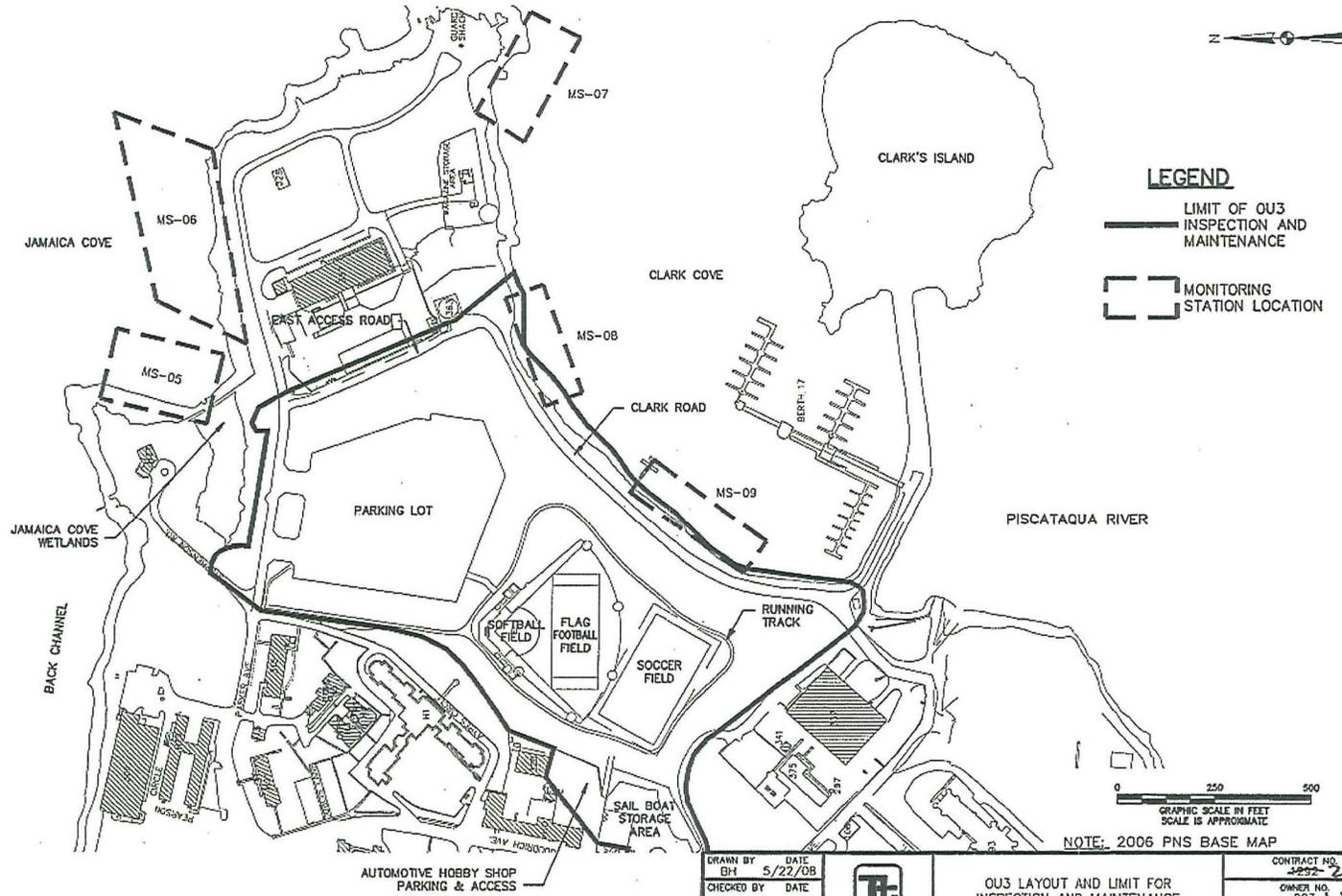
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PORTSMOUTH NAVAL SHIPYARD VICINITY
OPERABLE UNIT 3
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

CONTRACT NUMBER	OWNER NUMBER
2115	CTO WE18
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FIGURE NO.	REV
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OU3 Layout



SOURCE: U.S. ARMY CORPS OF ENGINEERS FINAL DESIGN DRAWING
C50 OU3 REMEDIAL DESIGN PHASE 2, OVERALL SITE PLAN, NOVEMBER 2002.

Data Evaluation Method

- Conducted to determine if groundwater constituent concentrations are unacceptable and identify groundwater monitoring COCs for future rounds.
 - Action Levels (ALs) are based on potential migration of groundwater to offshore area that may adversely impact people or organisms exposed to intertidal surface water and subtidal areas of OU3.
- Time series plots with confidence and prediction bands were generated for each chemical and well and the prediction bands were visually compared to the appropriate human health (HH) or ecological (ECO) AL.

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Human Health Risk Evaluation

- HH ALs are the PNS facility-wide recreational intertidal water project ALs.
- None of the detected concentrations exceeded the HH AL.
- Upper confidence and prediction bands for total arsenic in downgradient JW-13D are predicted to exceed AL in the next five years; therefore, annual monitoring for arsenic is warranted.
- Recommendation: Monitor for arsenic annually in all wells based on HH concern for arsenic. Monitor for PAHs, TAL metals, and TSS at next five year sampling.

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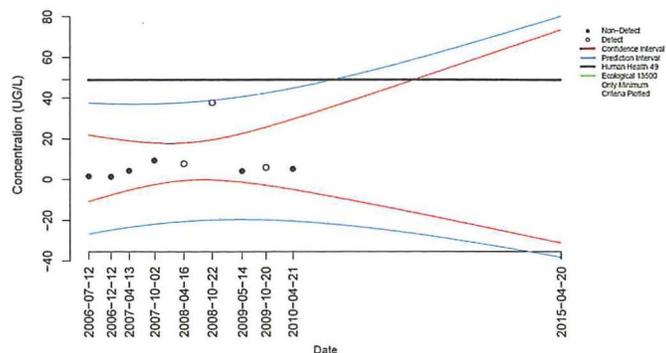
Human Health Risk Evaluation

- Because the upper confidence band exceeds the HH AL in the next 5 years in JW-13D, additional remedial action may be needed. Additional evaluation indicated:
 - Total arsenic concentrations have been consistent over time, except for one sample collected in October 2008.
 - Without the October 2008 data point, confidence/prediction bands are not predicted to exceed the HH AL in JW-13D in the next five years.
 - HH recreational exposure to water in the intertidal area offshore of JW-13D would not occur because there is no accessible intertidal area. This area consists of a constructed riprap revetment.
- Recommendation: Based on site conditions and data evaluation results no additional remedial action is needed to protect human health.

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Human Health Risk Evaluation

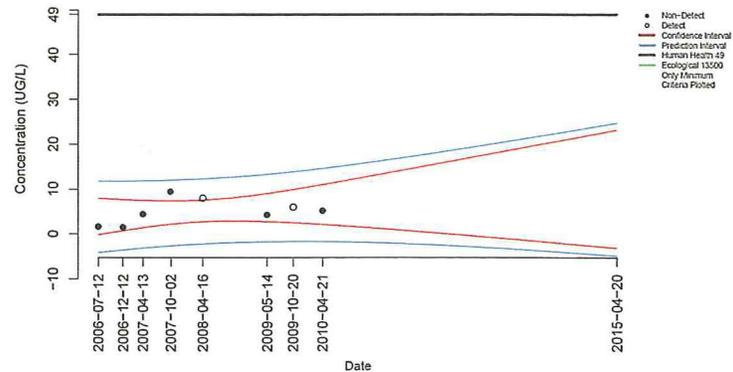
FIGURE 3-3
TOTAL ARSENIC - JW-13D
ROUNDS 1 THROUGH 9 DATA EVALUATION
O&S POST-REMEDIATION O&M PROGRAM
PORTSMOUTH NAVAL SHIPYARD, KITTERY MAINE



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Human Health Risk Evaluation

FIGURE 3-4
TOTAL ARSENIC JW-13D WITHOUT MAXIMUM DETECTION
ROUNDS 1 THROUGH 9 DATA EVALUATION
OU3 POST-REMEDIATION O&M PROGRAM
PORTSMOUTH NAVAL SHIPYARD, KITTERY MAINE



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Ecological Risk Evaluation

- ECO ALs are the chronic ECO ALs multiplied by the dilution factor (375, from the Rounds 1 through 4 Report).
- Several metals were detected but did not exceed the ECO AL.
- Time series plots with confidence and prediction bands were generated and compared to the ECO AL.
- The confidence and prediction bands do not exceed the ALs within the next five years.
- Recommendation: Monitor PAHs, metals, and TSS for ECO concern at the next Five-Year Sampling.

10

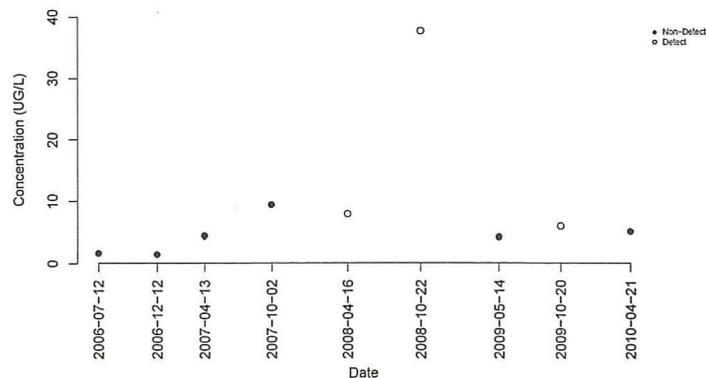
Seasonality Evaluation

- Seasonal effects were found in JW-8, JW-9, and JW-22 for metals that are major elements in seawater, which had higher concentrations in the fall (dry season) than the spring (wet season).
 - Decreased freshwater influx in the dry season likely caused the higher concentrations in the dry season.
 - These constituents are not risk drivers for OU3. The potential risk driver, total arsenic, shows no evidence of seasonality.
- Recommendation – Seasonality is not a concern for groundwater sampling. Groundwater sampling should be conducted concurrent with the best time of year for the landfill inspection (spring).

-11

Seasonality Evaluation

TIME PLOTS
TOTAL ARSENIC JW-13D
OU3 POST-REMEDIAL OM&M PROGRAM
PORTSMOUTH NAVAL SHIPYARD, KITTERY MAINE



12

Water Level Evaluation

- Water levels are used to provide information regarding groundwater flow and gradients at OU3.
- To provide additional resolution of potentiometric contours, water levels at additional wells in the vicinity of Building 357 were measured in Rounds 4 through 9.
- Recommendation: HW-1, HW-4, JW-4, and WOT-5 should be added to the OU3 OM&M program for water level measurements only.

13

Landfill Gas Data Evaluation

- Measurements of methane gas concentrations during all nine semi-annual sampling rounds were less than the threshold value of 0.45 percent volume per volume of air.
- Therefore, air around the landfill is not flammable due to concentrations of methane gas.
- Recommendation - Because the methane gas concentrations were less than the threshold values during Rounds 1 through 9, monitoring should be conducted annually at high tide only, through Rounds 10 and 11, and re-evaluated following Round 11 to determine sampling frequency in accordance with the OM&M Plan Revision 1.

14

Routine Inspection and Maintenance

- Inspection of the landfill components and wetlands showed that there were no major concerns regarding the integrity of the cover or shoreline erosion controls. The only major repair that was needed was replacement of Culvert No.4 concrete end section which was performed in May 2010.
- No rapid or excessive settlement was detected and the inspections indicate that the landfill cover is functioning as designed.
- Slight differential settlement was detected in the ball field in the vicinity of Settlement Monument 2 during Round 4 and does not require any action at this time, but should continue to be monitored as part of annual inspections.

15

Routine Inspection and Maintenance

- Wetlands are healthy and functioning appropriately. Therefore, regularly scheduled wetlands inspections will no longer be conducted in accordance with the OM&M Plan.
- Recommendations:
 - Regularly scheduled inspections of landfill components should be conducted annually in the spring.
 - Wells used for monitoring or water level measurements within the landfill cap should continue to be inspected and well integrity should be maintained for all active wells that have not been abandoned.
 - Wells that are not included in the OM&M program and extend through the OU3 cap system should be abandoned.

16

What's next?

- Comments on the draft Rounds 1 to 9 Report are due by December 16, 2010.
- Round 10 is scheduled for Spring 2011 (5-Year Sampling).
- Round 11 is scheduled for Spring 2012 (Annual Sampling).
- Round 12 is scheduled for Spring 2013 (Annual Sampling).

Update on the Remedial Investigation for Operable Unit 9

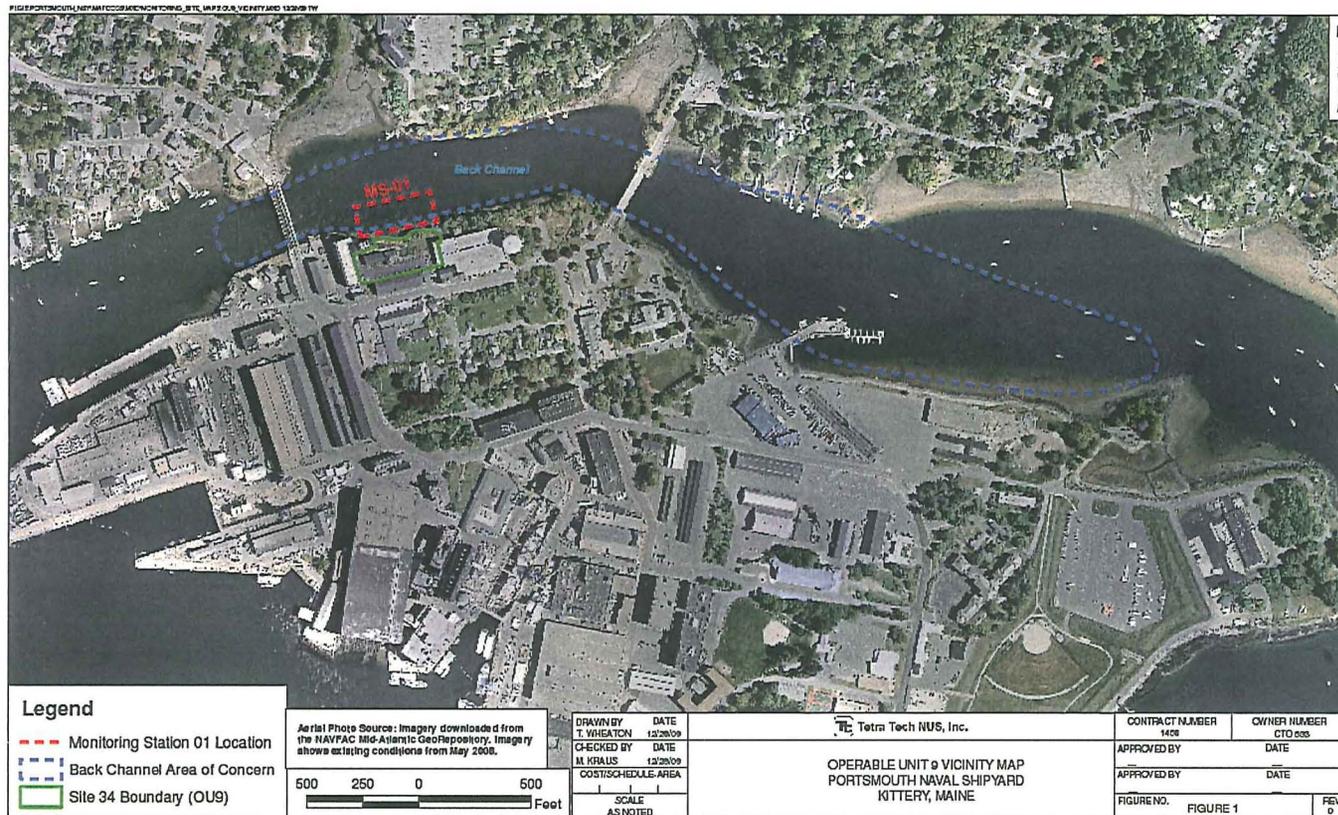
Portsmouth Naval Shipyard
Date: December 7, 2010

Presenter:
Matthew Kraus, Tetra Tech NUS, Inc.

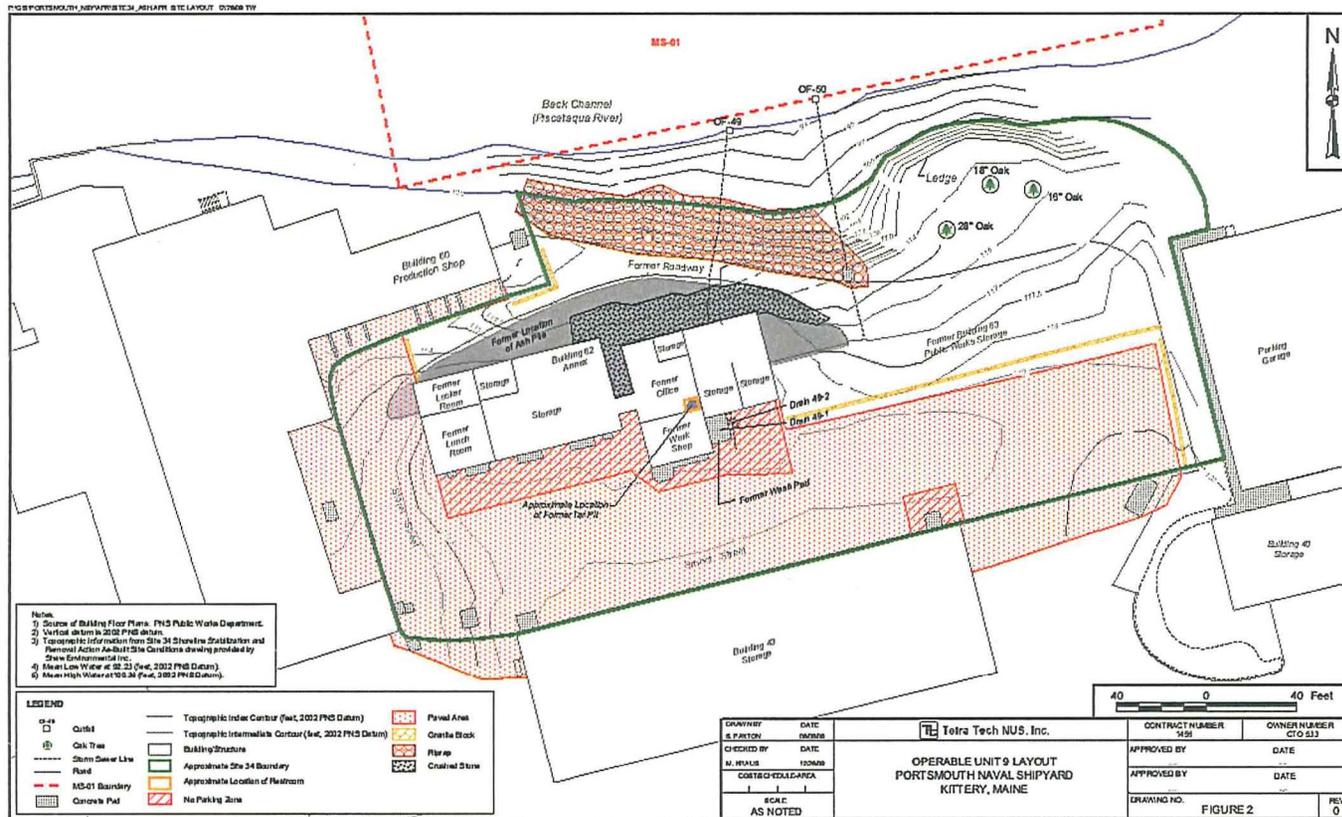
Purpose of OU9 RI Update

- Provide an update on the conceptual site model (CSM) and site conditions.
- Discuss the findings of the September 2010 additional sampling.
- Present the schedule for OU9 Remedial Investigation (RI) Report.

OU9 Vicinity Map



OU9 Site Layout



OU9 Investigation Summary

- 1998 - Site 34 was identified as a potential IRP site when ash was observed north of Building 62.
- 1999 - Limited excavation of the ash was conducted that terminated when the volume of ash exceeded two 55-gallon drums.
- 2003 - The Site 34 Site Screening Investigation (SSI), concluded that by removing ash the majority of site risks would be addressed. An interim removal action was recommended before conducting a Remedial Investigation (RI).

4

OU9 Investigation Summary – Continued

- 2004 - An investigation was performed to determine the horizontal and vertical extent of ash.
- 2005 - Engineering Evaluation/Cost Analysis (EE/CA) was completed to support a non-time critical removal action.

The EE/CA recommended excavation and off-site disposal of the ash pile and ash exposed at ledge areas.

5

OU9 Investigation Summary – Continued

- 2006 – Action Memorandum for the removal action was signed.
- 2007 – The interim removal action was completed.
- 2009 – RI field work was conducted to support evaluation of the nature and extent of residual contamination and risks after the interim removal action.

6

OU9 Investigation Summary – Continued

- 2009 – RI field work continued...
 - Samples from soil in the unexcavated area, fill material placed in the excavated area as part of the 2007 removal action, and soil below the 2007 fill material were collected.
 - Borings were installed to determine whether ash and/or tar were present under the concrete floor in Building 62.
 - Unexpected thin isolated pockets of ash were discovered in the excavated area causing a change in the conceptual site model (CSM).
- The Navy proposed additional sampling to better characterize the excavated area.

7

OU9 RI Supplemental Sampling Summary

- Additional sampling for the OU9 RI took place in September 2010.
- Ten soil borings were advanced to a depth of eight feet below ground surface or refusal.
- Ten surface soil and eighteen subsurface soil samples were collected and analyzed for the COCs listed in the SAP which are:
 - Antimony
 - Lead
 - Mercury
 - Polycyclic aromatic hydrocarbons (PAHs)

8

OU9 RI 2010 Additional Sampling Findings

- Ash pockets were verified to be isolated and sporadic.
- Chemical data was generally consistent with the finding of the 2009 investigation.
- **Antimony:** No detections were greater than residential screening levels which is consistent with the 2009 investigation results.
- **Lead:** No further elevated detections in 2010 like that found at OU9-12 during 2009. Lead concentrations were generally below residential screening levels.

10

OU9 RI 2010 Additional Sampling Findings

- **Mercury:** Results were consistent with 2009 investigation. Mercury concentrations were generally below residential screening levels.
- **PAHs:** Results consistent with 2009 investigation .
 - Elevated PAHs concentrations are associated with ash .
 - Other PAH sample concentrations (e.g., fill) are similar to facility background .

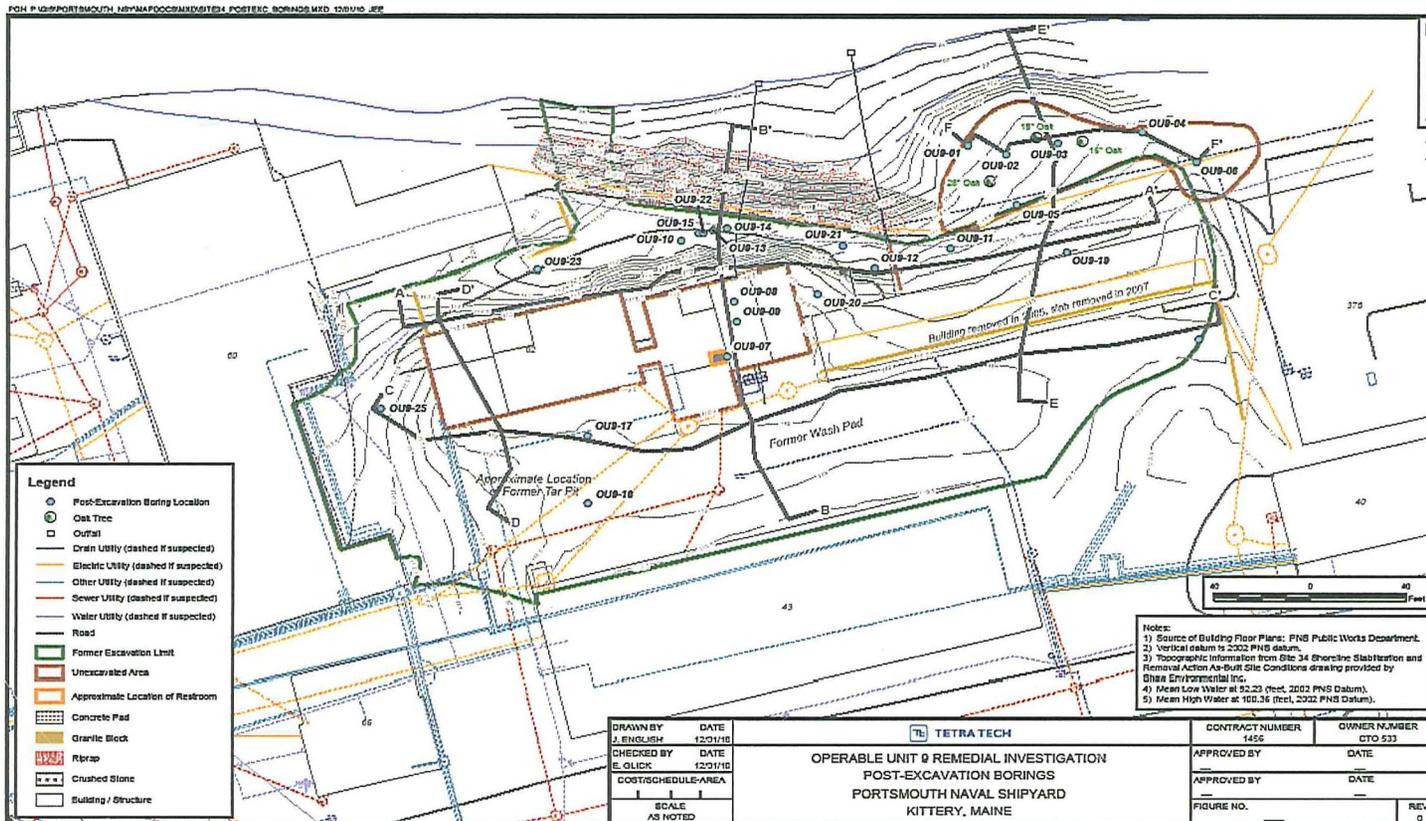
11

OU9 RI Schedule

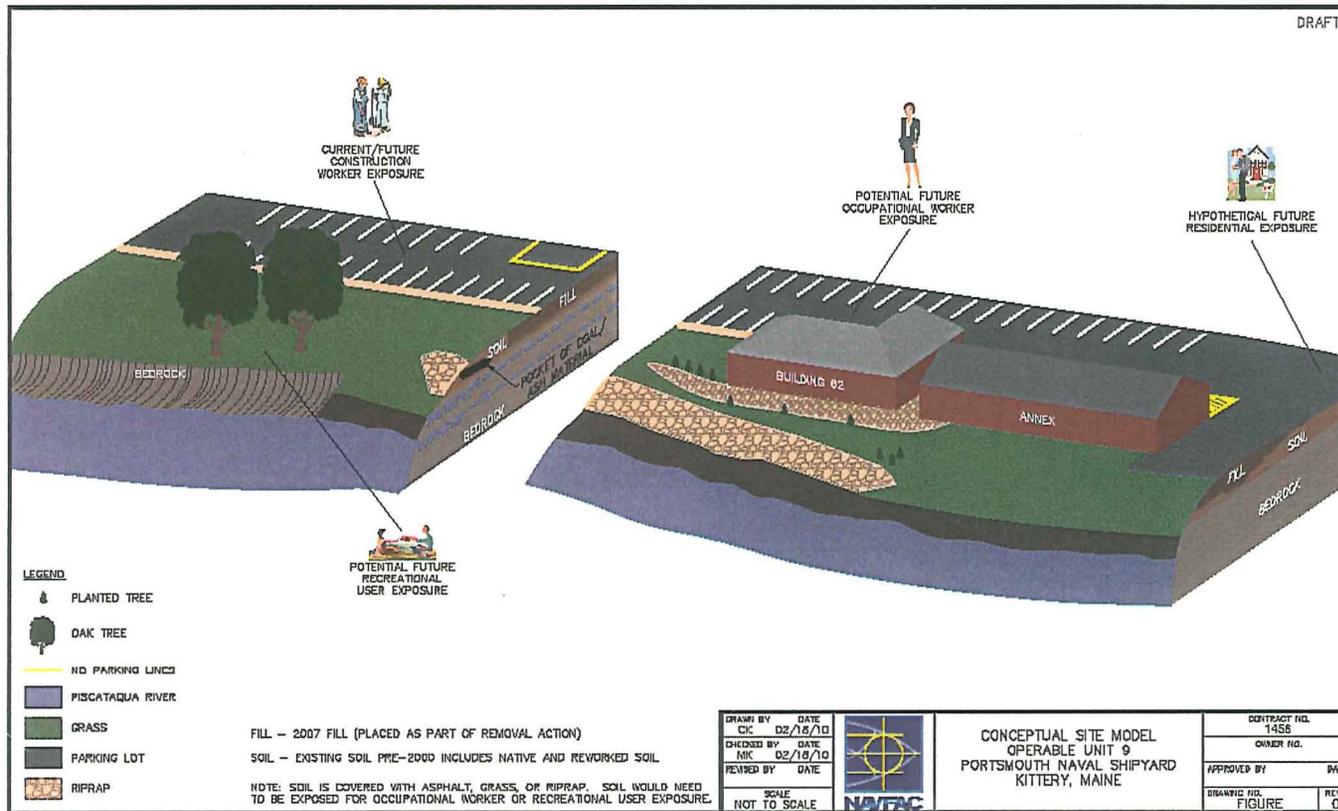
- December 22, 2010 – Preliminary Draft to USN.
- January 21, 2011 – Receive USN comments.
- February 18, 2011 – Submit Draft to USEPA, MEDEP, and RAB
- April 4, 2011 – Receive comments on Draft.
- July 19, 2011 – Submit Draft Final to USEPA, MEDEP, and RAB
- August 18, 2011 – Receive comments on Draft Final.
- September 21, 2011 – Final to USN, MEDEP, USEPA

15

Post Removal Action Sample Locations

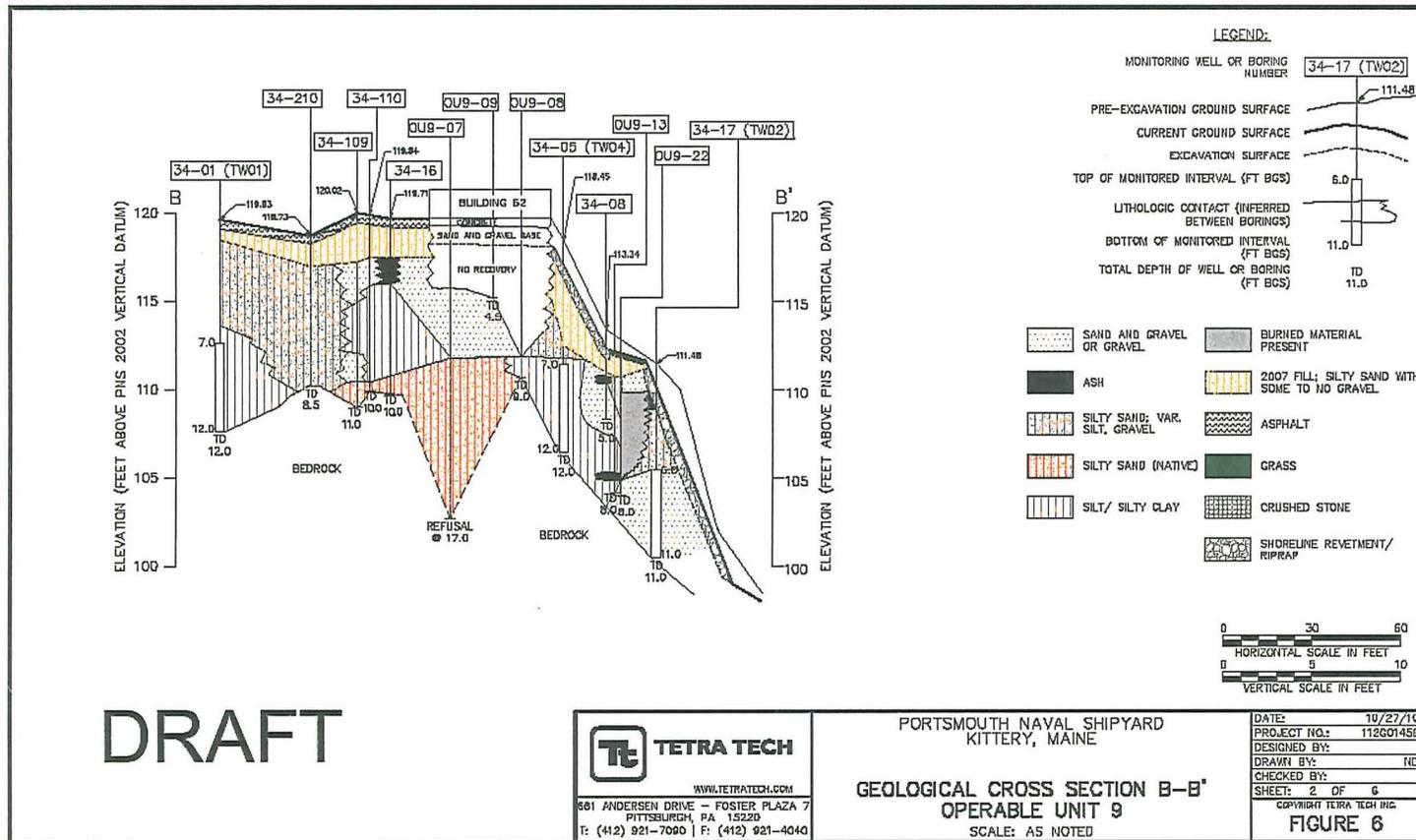


OU9 Conceptual Site Model



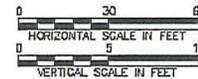
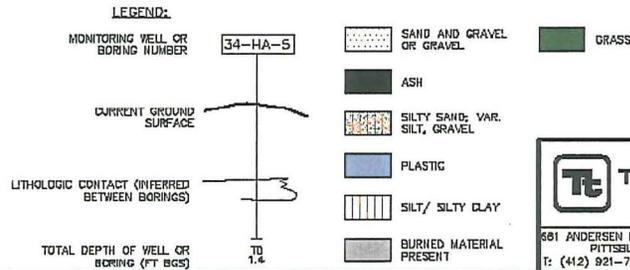
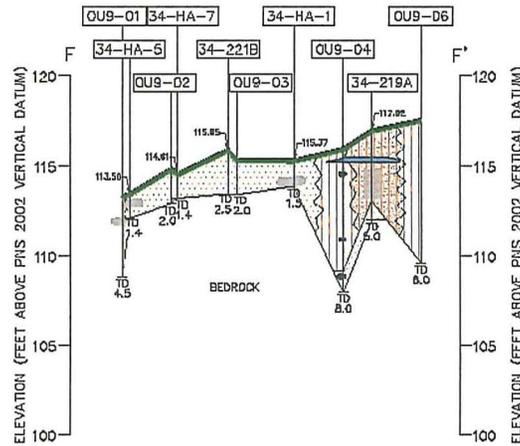
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Excavated Area Cross Section



Unexcavated Area Cross Section

DRAFT



TETRA TECH
 WWW.TETRA TECH.COM
 681 ANDERSEN DRIVE - FOSTER PLAZA 7
 PITTSBURGH, PA 15220
 T: (412) 921-7090 | F: (412) 921-4040

PORTSMOUTH NAVAL SHIPYARD
 KITTERY, MAINE
GEOLOGICAL CROSS SECTION F-F'
SITE 34
 SCALE: AS NOTED

DATE:	10/27/10
PROJECT NO.:	112G01456
DESIGNED BY:	
DRAWN BY:	CK
CHECKED BY:	
SHEET:	6 OF 6
COPYRIGHT TETRA TECH INC.	
FIGURE 10	

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Draft Remedial Investigation Report for Operable Unit 7

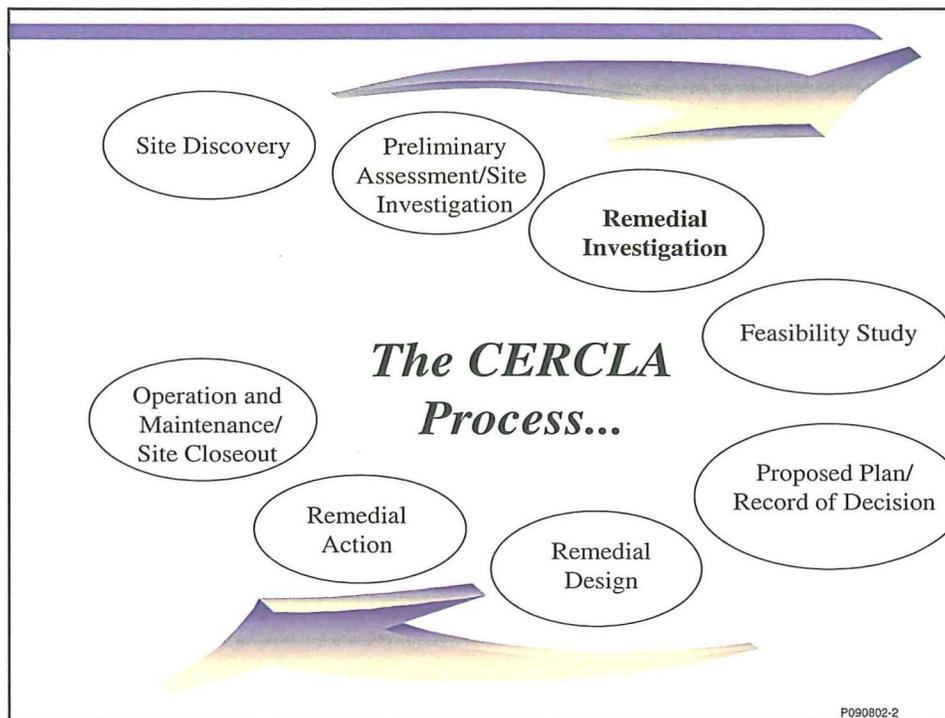
Portsmouth Naval Shipyard
Date: December 7, 2010

Presenter:
Deborah Cohen, Tetra Tech NUS, Inc.

Purpose of Presentation

- Provide a summary of the history and background for Operable Unit (OU)7.
- Present the nature and extent of contamination.
- Present the risk assessment results.
- Present the conclusions and recommendations.

1



P090802-2

Site Layout



OU7 History and Background

- OU7 consists of:
 - Site 32 – Topeka Pier.
- Site Location
 - Generally north of Goodrich Avenue along northern side of PNS.
 - Area west of Building 162 to east of Building H29.
 - Area from Back Channel to Building 129.
- Filling and past industrial uses (i.e., Timber Basin, Saw Mill) primary source of contamination.

4

OU7 History and Background

- Site History
 - 1900 to 1910
 - Material excavated from Jenkin's Gut (for Dry Dock No.2) was deposited in the northern end of channel.
 - Topeka Pier was constructed during this time period to dock the prison ship USS Topeka.
 - 1910
 - Timber basin was established and storing and milling of lumber began.
 - 1945
 - Filling ceased.
 - 1994 and 1995
 - Excavation work along Goodrich Avenue uncovered debris.

5

Previous Investigation Summary

- Onshore/Intertidal Area along OU7 Shoreline
 - Resource Conservation and Recovery Act Facility Investigation Data Gap (1999).
 - 1996 to 1997 Groundwater Monitoring Program conducted in response to RFI.
 - 1996 to 1997 Seep Sediment Investigation data collected in conjunction with groundwater monitoring.
 - Site Screening Investigation conducted in 1998 and concluded that additional investigation was necessary.

6

Previous Investigation Summary (continued)

- Offshore
 - Estuarine Ecological Risk Assessment (EERA) (1993). Ecological risk associated with surface water and sediment in the Back Channel Area of Concern (AOC) were low and intermediate, respectively.
 - 1999 Interim Record of Decision issued for OU4 requiring monitoring in the offshore area of PNS until a final remedy is selected and in place.
- Interim Action - Shoreline Stabilization (2006)
 - Conducted to address shoreline erosion along the shoreline north of Building 306.
 - Surface debris was removed, and shoreline controls were placed along the entire OU7 shoreline.

7

OU7 Remedial Investigation Summary

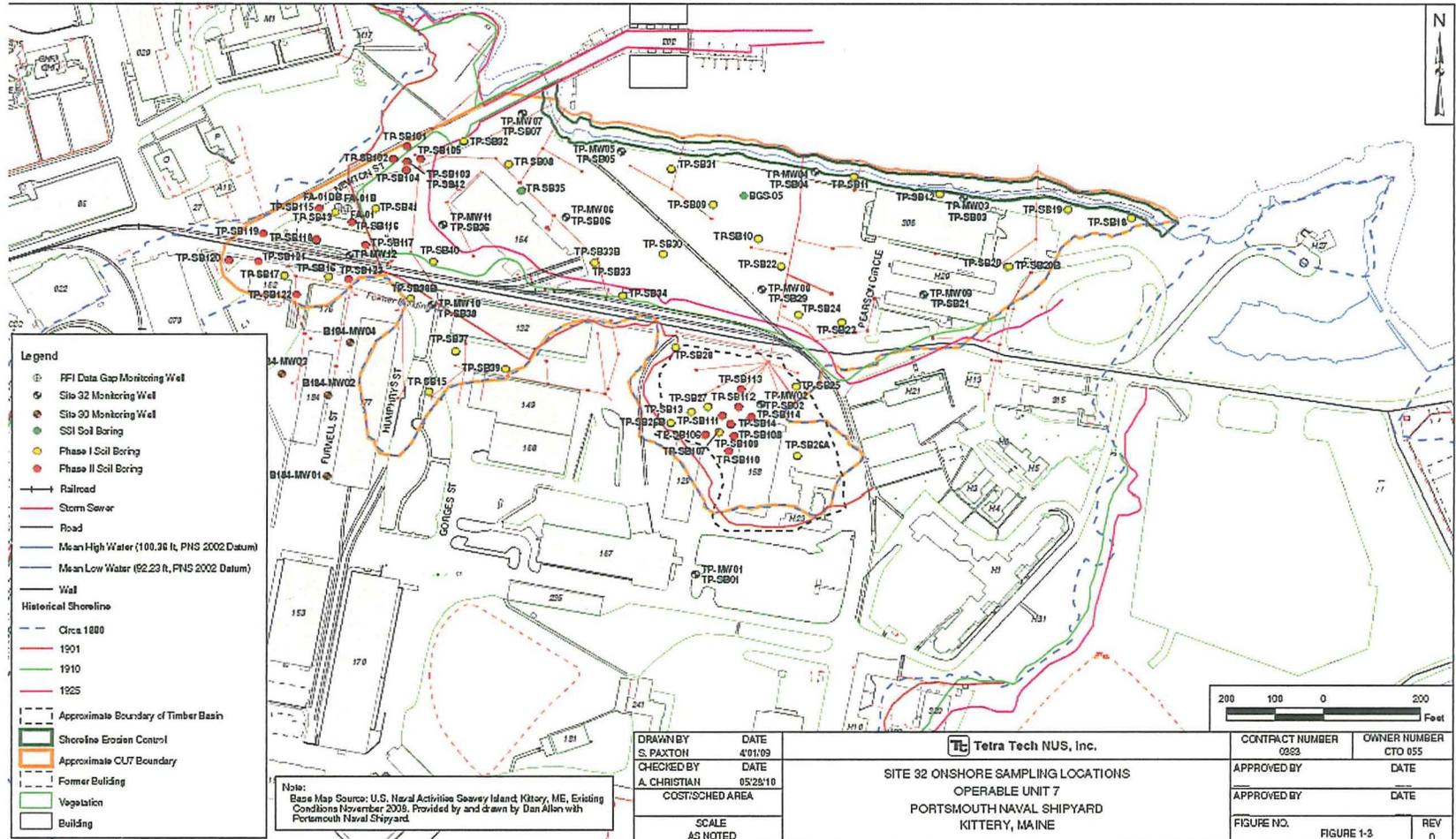
- Phase I RI (2003)

Conducted to provide data to support the risk assessment and support evaluation of potential interim action for metals sediment contamination along the shoreline. Twenty-six soil samples were taken and groundwater samples were taken from existing wells. Thirty-five sediment samples were collected, and the outfalls were sampled.

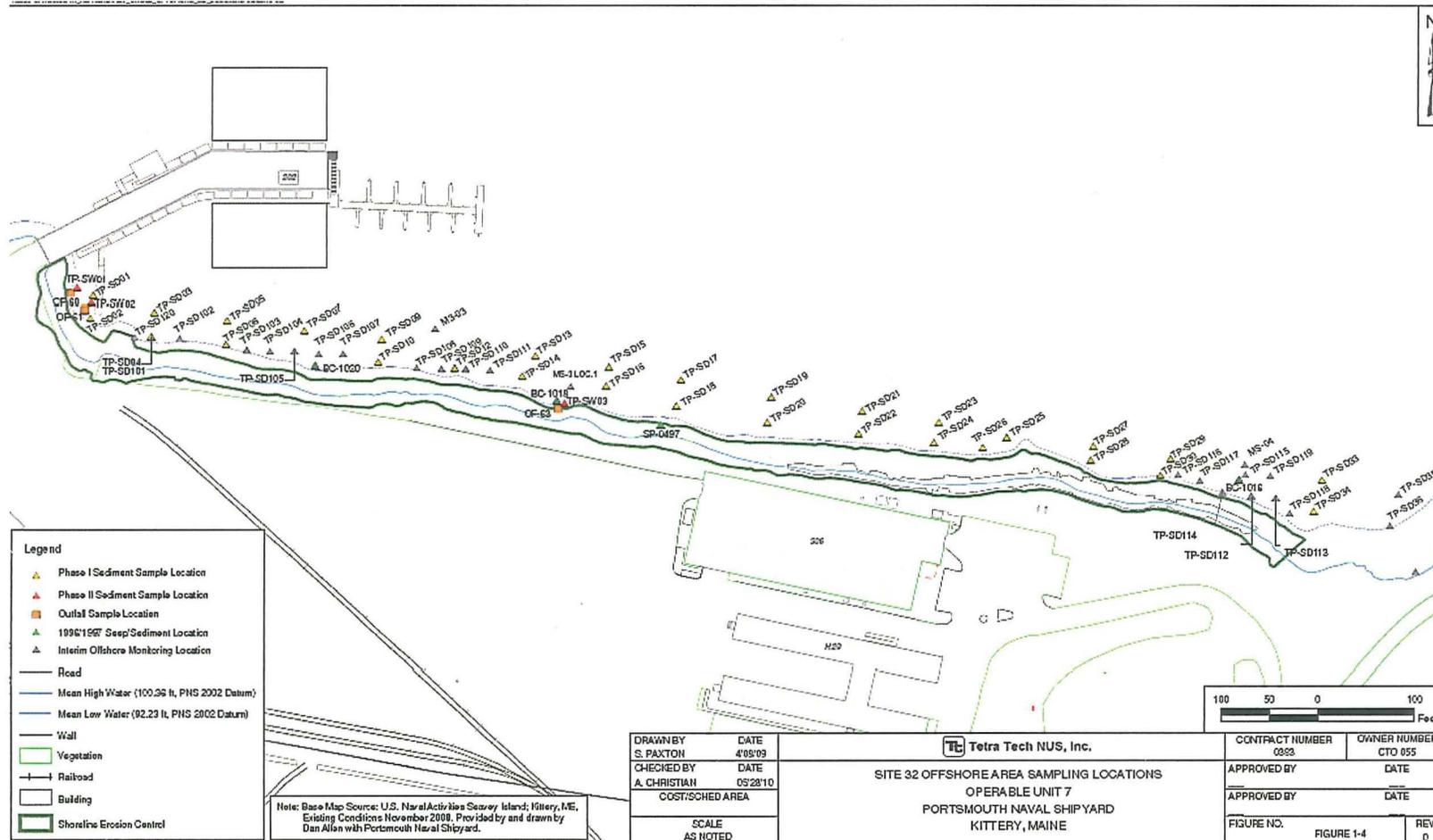
- Phase II RI Sampling (2008)

Conducted to fill data gap. Collected twenty-three soil samples and groundwater samples from OU7 wells and upgradient wells. Collected twenty sediment samples in the intertidal area. Samples were collected to support offshore shore remediation and OU4 Feasibility Study.

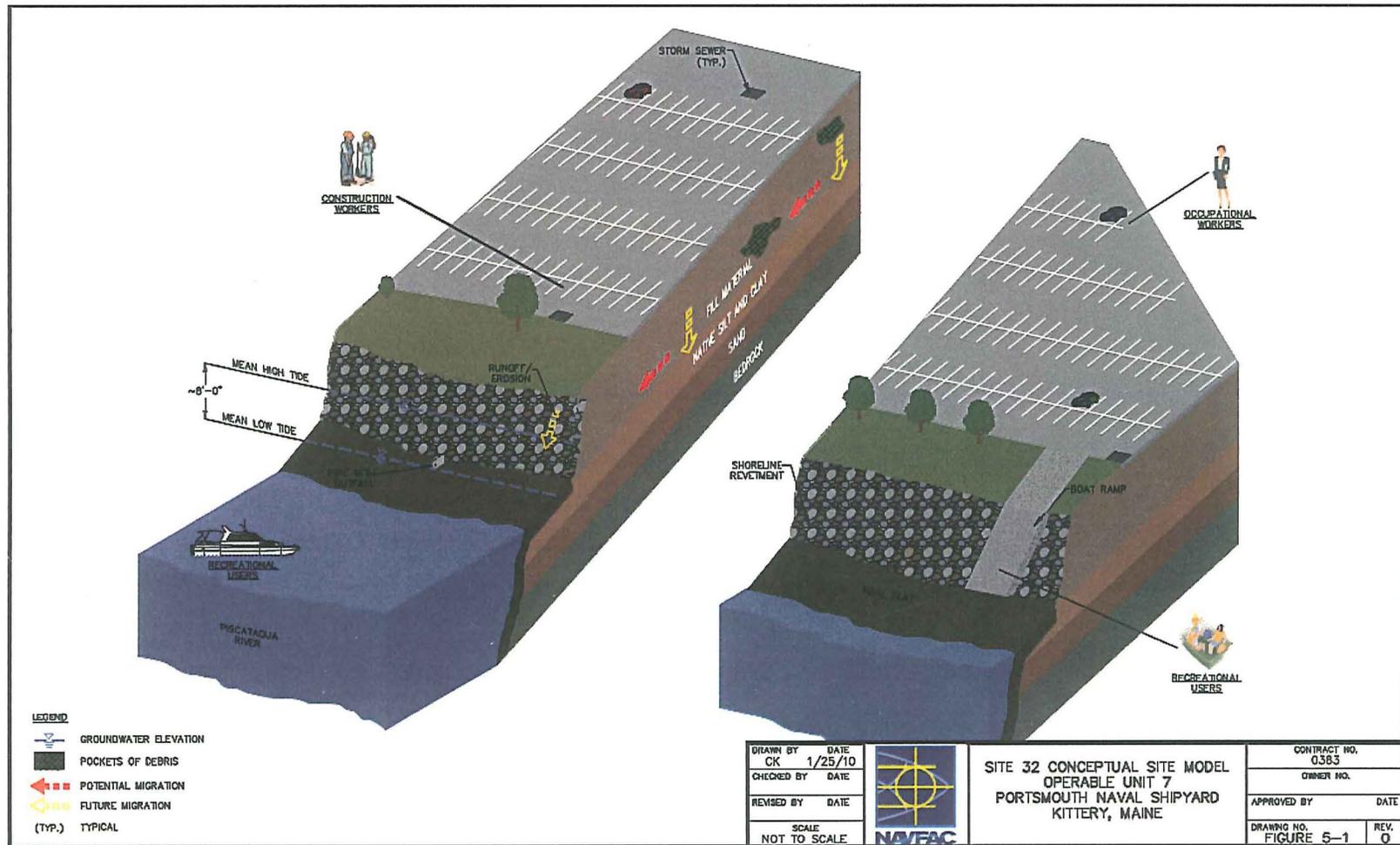
Onshore Sample Locations



Offshore Sample Locations



Conceptual Site Model



Nature and Extent of Soil Contamination

- Volatile and semi-volatile organic compounds, pesticides, PCBs, dioxins, furans, and inorganics were detected in surface and subsurface soil.
- Contaminants potentially of concern with the most wide-spread detections are PAHs and inorganics.
- Concentrations in the subsurface soil samples were generally greater than in the surface soil samples.
- Area filled before 1910 near former Building 237, never was an industrial area, does not contain debris material, and has lower chemical concentrations than the rest of the site.

12

Nature and Extent of Soil Contamination (continued)

- Outside of the area by former Building 237, the presence or absence of debris did not correspond to higher or lower chemical concentrations with one exception. Elevated concentrations of dioxins/furans were collocated with debris material.
- PCB hotspot in the timber basin area was bounded.

13

Nature and Extent of Groundwater Contamination

- PAHs and inorganics were detected in groundwater; VOCs, pesticides and PCBs were not detected.
- PAHs were detected infrequently (detected in at most four samples) at low concentrations.
- Inorganics frequently detected; however, only concentrations of aluminum, copper, and manganese exceeded a risk-based screening level.

14

Nature and Extent of Intertidal Contamination

- Inorganics were the only chemicals detected in surface water. Concentrations were less than risk-based screening levels.
- SVOCs, pesticides, PCBs, and inorganics were detected in seep samples (collected before the 2007 shoreline stabilization).
 - Only arsenic and chromium exceeded risk-based screening levels.
- SVOCs, pesticides, PCBs, and inorganics were detected in sediment.
 - PAHs, PCBs, arsenic, chromium, lead, and manganese exceeded risk-based screening levels.

15

Conceptual Site Model for Risk

- Potential Receptors
 - Construction Worker
 - Exposure to surface soil, subsurface soil, and groundwater.
 - Occupational Worker
 - Exposure to surface soil (if asphalt or buildings removed).
 - Recreational User
 - Exposure to surface soil (if asphalt or buildings removed) and sediment and surface water in the intertidal area of OU7.
 - Future Resident
 - Exposure to surface soil.
- Potential Migration to Offshore

16

Risk Assessment Results

- The HHRA evaluated risks for the entire site and for the area in the former location of Building 237. An uncertainty analysis evaluated exposure to subsurface soil if this soil were to become surface soil through future construction activities.
- Potentially unacceptable risks were found for
 - Current and future construction worker exposed to soil (entire site)
 - Future child resident exposed to surface soil.
 - Future child and adult resident and occupational worker exposed to subsurface soil (uncertainty analysis).
- The main chemicals contributing to these risks are dioxins/furans, PAHs, PCBs, antimony, copper, iron, lead, and manganese.

17

Risk Results (continued)

- Potential risks for exposure to groundwater and intertidal surface water and seep were acceptable.
- Shoreline stabilization conducted in 2007 to prevent contaminated soil and debris/waste materials from eroding.
 - Current conditions indicate no further erosion.
 - Future potential risk if the shoreline controls fail in the future.

18

Contaminant Fate and Transport Modeling

- Estimated future contaminant concentration in intertidal sediments and near-shore surface water in Back Channel if all pavement removed. Estimation done using modeling with conservative assumption that all the pavement would be removed.
 - Modeled concentrations were orders of magnitude higher than actual concentrations.
 - Groundwater, surface water, sediment, and soil data from OU7 and modeling conclusions show that migration of contaminants in groundwater to the offshore do not pose a current or future potential risk.

19

RI Conclusions and Recommendations

- Nature and extent of contamination has been delineated to support OU7 FS.
- Potentially unacceptable risks for construction worker (all soil), occupational worker (subsurface soil), future child resident (surface soil), and future resident (subsurface soil)
- Groundwater, surface water, and sediment not media of concern for OU7.
- Future potential risks if erosion occurs in the future.
- Recommend that the FS Report be prepared to address potential unacceptable for exposure to soil and future erosion.