

N00102.PF.003176
NSY PORTSMOUTH
5090.3b

MEETING MINUTES, AGENDA, AND PRESENTATION OF THE FINAL RESTORATION
ADVISORY BOARD (RAB) HELD ON 28 OCTOBER 2014 AT THE KITTERY COMMUNITY
CENTER NSY PORTSMOUTH ME (PUBLIC DOCUMENT)
10/28/2014
RESOLUTION CONSULTANTS

**Portsmouth Naval Shipyard
Restoration Advisory Board Meeting
Kittery Community Center, Kittery, Maine
October 28, 2014**

Attendees

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

- RAB Community Members:
 - Doug Bogen
 - Peter Britz
 - Mary Marshall
- Navy Representatives:
 - Lisa Joy, Portsmouth Naval Shipyard (PNS)
 - Linda Cole, Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Remedial Project Manager (RPM)
- Regulatory Representatives:
 - Iver McLeod, Maine Department of Environmental Protection (MEDEP)
- Other Participants:
 - Paul Dombrowski, Resolution Consultants
 - Sandy Amborn, Resolution Consultants
 - Megan Boerio-Ved, Tetra Tech
 - William Deane, CB&I
 - William Hughes, AGVIQ
 - Tim Stone, StoneHill Environmental, Inc. (SAPL TAG Coordinator)
 - Howard L. Patten, HL Patten/Palmer Federal

The following RAB members were not in attendance:

- RAB Community Members:
 - Jack McKenna
 - Diana McNabb
 - Roger Wells
- Natural Resource Trustees:
 - Denis-Marc Nault, Maine Department of Marine Resources
 - Ken Finkelstein, National Oceanic and Atmospheric Administration
 - Ken Munney, United States Fish and Wildlife Service

Opening Statements:

Doug Bogen, Community RAB Co-Chair, opened the meeting by welcoming all attendees and led introductions of all in attendance. In his capacity as the Seacoast Anti-Pollution League (SAPL) Technical Assistance Group (TAG) Coordinator, Mr. Bogen, formally introduced the new TAG technical consultant and Kittery resident Tim Stone of StoneHill Environmental, Inc. based in Portsmouth, NH.

Lisa Joy, Navy RAB Co-Chair, had no additional opening statements.

Environmental Restoration Program Status and Updates:

Linda Cole, Navy RPM, presented the status and updates on the Environmental Restoration (ER) program at PNS. Status updates were presented for the ER Program for each Operable Unit (OU) or Site, with the following update highlights:

- OU1 (Site 10: Former Battery Acid Tank No. 24): A Remedial Action was completed, and this OU is in Long Term Management (LTMgt) phase. The Draft Remedial Action Closeout Report (RACR), which is the last report prepared by the Navy for an OU, was submitted in June 2014, and the Navy is currently resolving regulatory comments. The Land Use Control Remedial Design (LUCRD) Revision was finalized in September 2014, which removed the post-Remedial Action (RA) groundwater sampling component based on results from the post-remediation groundwater sampling program. Land Use Control (LUC) inspection was performed on May 13, 2014 and will continue annually in the future along with Five-Year Reviews.
- OU2 (Site 6: Defense Reutilization and Marketing Office (DRMO) Storage Yard, Site 29: Former Teepee Incinerator Site, and DRMO Impact Area): This OU consists of two sites. Remedial Action construction at both sites at OU2 began in August 2013 and was completed during the summer of 2014. The EPA and MEDEP completed an inspection on September 4, 2014. The Draft Construction Completion Reports (CCRs) for the DRMO Area and the Waste Disposal Area are currently under Navy review for subsequent submittal for regulatory review. The Draft Long-Term Management (LTMgt) Plan will include groundwater monitoring and will be submitted following submittal of the CCRs. The first round LTMgt groundwater sampling will be conducted in 2015.
- OU3 (Site 8: Jamaica Island Landfill (JILF), Site 9: Former Mercury Burial Sites, and Site 11: Former Waste Oil Tanks Nos. 6 and 7): This OU is in Operation, Maintenance, and Monitoring (OM&M) phase with an engineered cap in place. The Final Inspection Report for the 2013 inspection was submitted in June 2014. Round 13 of landfill and LUC inspections was performed in May 2014. Minor maintenance items were completed in October 2014, which included repairs to the landfill cap where erosional damage was occurring, replacement of signs, and removal of debris from ditches. Methane gas generation was not observed, and the Final Gas Monitoring Probe Abandonment Plan was submitted in June 2014. The gas probes were abandoned in July 2014. The Draft

OU3 Gas Probe Abandonment Closure Report is currently under regulatory review. The next groundwater monitoring event (Round 14) will be conducted in 2016 to support the Five-Year Review report.

- OU4 (Site 5: Former Industrial Waste Outfalls and Off-shore Areas Potentially Impacted by PNS Onshore ER Program Sites): The selected remedy for OU4 is sediment removal, which is being addressed after on-shore sources of contamination were controlled. The Final Pre-Removal Confirmation Sediment Sampling Report was submitted in September 2014. Additional sampling was performed to further delineate areas for removal at MS-01 and MS-03 in September 2014 to bound the removal areas. The Final Remedial Action Work Plan (RAWP) was submitted in September 2014. RA began in September 2014 with an eelgrass survey at MS-04 and MS-12A. Eelgrass was found to be present at MS-04, but was absent at MS-12A. Dredging operations will begin once the Maine dredging window (November 8 through April 9) is open.
- OU7 (Site 32: Topeka Pier Site): The Final ROD was completed September 2013, and Remedial Action is scheduled to start in 2014. The Final LUCRD was submitted in September 2014. The Draft RAWP was submitted in September 2014 and is currently under regulatory review. RA is expected to begin in summer 2015. After the RA, OU7 will transition to LTMgt with annual LUC inspections. The Draft LTMgt Plan was submitted in August 2014, and the Navy is currently resolving regulatory comments. The Draft Final LTMgt Plan will be submitted in 2015 following completion of the RA.
- OU8 (Site 31 Former West Timber Basin): OU8 is the only site in Remedial Investigation (RI). The Draft Sampling and Analysis Plan (SAP) was submitted in April 2014, and the Navy is currently resolving regulatory comments. The Draft Final SAP will be submitted in 2014. The Navy hopes to begin RI field activities in December 2014.
- OU 9 (Site 34: Former Oil Gasification Plant, Building 62): The Final LUCRD was submitted in September 2014, which establishes annual inspections of land use and that the buildings remain as contamination was not removed under a building. The Draft RACR was submitted in August 2014, and the Navy is currently resolving regulatory comments. The Draft Final RACR will be submitted in 2015 following completion of the RA in offshore sediment, as MS-01 of OU4 is just offshore of OU9.

Regulator Updates:

Iver McLeod of MEDEP said that his department is in the process of reviewing recent PNS submittals and that there were no significant issues or concerns to report at this time.

Remedial Action Status Update for Operable Unit 2 – DRMO Area

William Deane of CB&I presented on the progress of the Remedial Action at the DRMO Area, which includes Excavation Areas 1 through 7 at OU2. Contaminants of concern for OU2 with Remedial Goals include: lead, antimony, PAHs (polycyclic aromatic hydrocarbons), and PCBs

(polychlorinated biphenyls). The Remedial Action Objectives (RAOs) for OU2 were reviewed, which include: preventing human exposure to soils that exceed Remedial Goals, protecting the offshore environment from erosion of contaminated soil, and preventing unacceptable risk from future potential migration of copper, lead, and nickel to groundwater.

CB&I resumed construction activities in April 2014 following a temporary halt in February 2014, primarily in Areas 6 and 7. A summary of construction activities in Areas 1 through 7 was presented, including confirmation sampling results and final excavation extents (see CB&I slides for more details on each area). These minutes highlight activities discussed in greater detail during the RAB. Initial confirmatory samples in Areas 1, 2, 3, 6 (Shoreline and Storage Area), and 7 exceeded the remedial goal (RG) of 4,000 ppm for lead, so additional excavation was conducted in these areas until all confirmatory samples met the RGs. In Area 5, initial confirmatory samples met the RGs and no additional excavation in that area was required. Initial confirmatory samples also exceeded the RG of 6 ppm for PCBs and the RG of 2 ppm for PAHs Area 6 (Shoreline) and Area 7, so additional excavation was conducted in these areas until all confirmatory samples met the RGs. The shoreline revetment in Area 6 was removed for later use and was reinstalled following excavation. Sediment logs were installed along the shoreline to prevent migration of soil/sediments and excavation was conducted above the high tide line. CB&I observed railroad tracks running along the shoreline and throughout the DRMO Area. The archaeologist that was on-site during RA did not observe any archaeologically significant findings in Area 6 (Storage Area), but believed that items of historical significance may exist deeper at the elevation of the original shoreline. CB&I encountered railroad track footings/timber pilings in the northwest sidewall of the excavation area in Area 7.

During the waste characterization program at OU2, one sample had a total PCB concentration of 710 ppm, which exceeded the Toxic Substances Control Act (TSCA) standard of 50 ppm. Following this discovery, the area was quarantined pending further action, and the Navy prepared a technical memorandum with a sampling plan, with input from USEPA and MEDEP, to delineate PCB impacts prior to excavation and for in-situ waste characterization. Samples were collected based on a grid detailed in the sampling plan. Eight additional delineation samples exceeded the TSCA standard and required additional excavation. The excavation area in Area 7 was bounded by a concrete foundation that was encountered.

Excavated soil with high lead concentrations were stabilized on-site with 4% Portland cement. On-site stabilization reduced lead Toxic Leaching Procedure (TCLP) values below the 5 mg/L TCLP criteria and allowed the material to be disposed of as non-hazardous waste. Portland cement (2 tons per each 50 ton soil pile) was applied, and each pile was homogenized using an excavator. Sampling of stabilized material was conducted at a frequency required by the disposal facility. Approximately 8,800 tons of stabilized material from OU2 was disposed of at Waste Management's Turnkey Landfill in Rochester, NH as non-hazardous waste. Approximately 5,800 tons of un-stabilized excavated soil containing concentrations of lead that was characterized as hazardous waste was transported to Stalex in Montreal, Canada. Approximately, 200 tons of PCB-impacted soil (non-TSCA) was disposed of at Waste Management's Model City facility in NY.

Backfilling was conducted in all areas using either a stone dust product or a dense aggregate stone product used near asphalt and buildings. Restoration in the shoreline areas in Areas 6 and 7 included placement of larger armoring stone to enhance shoreline stability. Restoration in all areas included placement of pavement, stone, or topsoil and re-seeding. Catch basins were replaced in Area 6 to restore drainage.

The Draft CCR was prepared and is currently under Navy review to be submitted for regulatory review in Fall 2014. Mr. Deane announced that this will be the last RAB meeting that CB&I will be attending, since they have completed construction activities.

Peter Britz, RAB Community Member, asked how the soil was managed during installation of the utility trench in Area 2. The utility trench was installed approximately 15 years ago during construction of the building. The Navy stated that the soil was managed according to the Hazardous Waste soil program for Installation Restoration (IR) Sites at PNS.

OU2 Waste Disposal Area

William Hughes of AGVIQ presented on the Remedial Action at the WDA, which includes Excavation Areas 8 through 11 at OU2 near the former Teepee Incinerator. Area 8 consists of a large area, and Areas 9, 10, and 11 are smaller areas around elevated lead detections on the slope. RA Construction began in Fall 2013 and was completed in July 2014.

In Area 8, excavation of the top two feet of soil was conducted with construction of a two-foot thick clean soil cover to prevent exposure to underlying waste material. Excavation extended to bedrock in Areas 9, 10, and 11, and the excavated areas were backfilled to existing grades. A geotextile fabric was placed prior to backfilling in all areas and restoration included placement of pavement, or topsoil and re-seeding. A number of catch basins in the WDA were replaced to maintain proper drainage. During excavation, the remainder of the foundation of the former Teepee Incinerator was encountered and removed. Groundwater monitoring, sediment accumulation monitoring, and LUC inspections will be conducted as part of LTMgt, and Five-Year Site Reviews will be implemented.

Approximately 1,200 tons of excavated soil was disposed of as non-hazardous waste at the Casella Landfill Facility in Worcester, MA. Approximately 900 tons of soil with high concentrations of lead was disposed of a hazardous waste at a disposal facility in Quebec, Canada. Approximately 190 tons of asphalt and 90 tons of concrete from site fill debris and the former Teepee Incinerator foundation were recycled at the Aggregate Recycling Corporation facility in Eliot, ME. The Draft CCR has been prepared and is under Navy review. The Draft CCR will be submitted in Fall 2014.

Mr. Bogen asked what the material in the WDA area looked like and asked if a significant amount of ash was encountered. The Navy stated that the excavated material was primarily fill material, and that visible ash or significant amounts of trash were not observed.

OU4 Pre-Removal Sediment Confirmation Sampling

Megan Boerio-Ved of Tetra Tech presented on the status of the Pre-Removal Sediment Confirmation Sampling program at OU4. The sampling program was conducted in October and December 2013 and September 2014. The objectives of the sampling program were to better define the horizontal and vertical extent of contaminants of concern (COCs) for removal and to minimize post-removal confirmation sampling. Sediment samples were collected at the following monitoring stations: MS-01, MS-03, MS12A, and MS-12B. As a result of this sampling program, contamination has been adequately bound at MS-03, MS-12A, and MS-12B. The extent of PAHs at MS-01 has not been bounded vertically; however, no further delineation of impacts will be conducted.

The excavation limits at all monitoring stations were presented. The limits of excavation at MS-01 and MS-03 will be revised based on the September 2014 sampling results, including a slight reduction in area at MS-03. Based on available data, vertical impacts in some areas at MS-01 and MS-03 extend to 4 feet below ground surface (bgs) and 3 feet bgs, respectively. The extent of impacts at MS-04 are shallow and extend to 1 foot bgs. Impacts at MS-12A and MS-12B extend to the depth of rocky substrate in those areas. In response to a question, it was noted that the figures in the presentation do not include the updated eel grass extents based on the 2014 survey.

OU4 Remedial Action Updates

William Hughes of AGVIQ presented on the status or RA at OU4. The RAOs at OU4 are to reduce risks to benthic invertebrates from exposure to bioavailable/bioaccessible COCs in sediment at OU4 Monitoring Stations to acceptable levels. COCs at OU4 include PAHs (MS-01, MS-03, MS-04, MS-12A), copper (MS-03, MS-04), and lead (MS-12A, MS-12B).

An eelgrass survey was conducted at MS-04 and MS-12A in September 2014. Eelgrass was observed at MS-12A, but not at MS-04.

Dredging will be performed to depths of 1 to 4 feet at MS-01, 1 to 3 feet at MS-03, and to a depth of 1-foot at MS-04. At MS-12A, dredging will be conducted until rocky substrate is encountered. At MS-12B, dredging will be conducted to a depth of 1 foot or until the rocky substrate is encountered. Based on proposed excavation depths in each area, the estimated total sediment dredge volume is approximately 4,845 cubic yards (CY). No backfilling will be conducted from the dredged areas.

Dredging at MS-01, MS-03, and MS-04 will be conducted within a turbidity/silt curtain installed to minimize the release of suspended sediment to the environment. A second turbidity curtain will be installed beyond the limits of the first curtain to provide additional protection. Turbidity curtains will be anchored to the river bottoms in order to withstand currents. The use of turbidity/silt curtains will not be used at the southern dredge areas (MS-12A and MS-12B) for concerns the curtain will break loose due to high river flows and the river bottom drops-off dramatically in this area. In these areas, dredging will be conducted using a mechanical dredge equipped with an environmental bucket with flaps to better control removed water, and

dredging will be conducted at slower rates to minimize suspension of sediment. Background water quality data will be collected prior to dredging and will be monitored during dredging via data buoys deployed at locations beyond the turbidity/silt curtains. Dredged sediment will be transferred to a deck barge that is lined with filter fabric and waddles that allow the sediments to dewater. The decant water will be discharged to the river. Absorbent booms will be used at MS-01 to control potential sheen. Dewatered sediment will be solidified with either Portland cement, sawdust, or wood chips and disposed of at an approved facility offsite. Prior to dredging, in-situ waste characterization samples will be collected. In response to a question on how decant water will be managed, it was stated that the decant water will not be sampled since the fiber filtration tubes are anticipated to provide adequate filtration. In response to another question, it was indicated that water quality monitoring will be conducted in the shipways area.

The group discussed the history of the monitoring stations and the extensive sampling around the island that has been conducted at OU4 that identified the areas requiring remedial action.

OU7 Remedial Action Updates (AGVIQ)

William Hughes of AGVIQ presented on the status of RA OU7. The RAOs defined in the ROD for OU7 include preventing residential exposure to COCs in surface soil and industrial worker exposure to COCs in subsurface and to protect the offshore environment from erosion of contaminated soil along the shoreline. COCs in surface soil include antimony, copper, dioxins/furans, iron, lead, PAHs, and PCBs. COCs in subsurface soil include dioxins/furans and PCBs. Excavation under the RA at OU7 focuses on two focused areas in the southeastern portion of the site to meet industrial cleanup levels. Excavation at Area 1 will address dioxins/furans. Area 2 will address PCBs. Prior to excavation, waste characterization samples and additional pre-characterization samples will be collected to delineate the extents of removal in these areas. The sampling is anticipated in December 2014, and a technical memorandum will be prepared in early 2015 to present the results.

Several underground utilities are present beneath Area 2, including an 18-inch storm drain, a 6-inch sanitary sewer, and a 1-inch steam line. Hand excavation will be conducted in the vicinity of the utilities. In addition, the 18-inch storm drain will be plugged and removed during construction. AGVIQ will replace the storm sewer and catch basins following construction.

The Final RAWP is being prepared. Construction is anticipated to begin in as early as mid-December 2014 following finalization of the RAWP and will be completed the winter. Following excavation, the area will remain a parking lot.

RAB Charter (Linda Cole, NAVFAC)

The Navy distributed printed copies of the RAB Charter with suggested edits made by Ms. Cole. The current RAB does not have a mechanism for dis-establishing the RAB, which is relevant to discuss since Remedial Action is nearly all completed at the Shipyard. The issue of whether to update the RAB Charter was initially discussed in 2012. The Navy encouraged RAB members to review the Charter and provide suggested edits, especially for frequency of RAB meetings,

establishment of public meetings, and rules for determining a quorum. Ms. Cole noted that the dis-establishment of the RAB does not have to be permanent, and that the Charter could also include a mechanism for re-establishing the RAB in the future if needed.

Ms. Cole noted that the PNS RAB Charter is going to be a model for a RAB in New York. Comments on the RAB Charter can be sent to Ms. Joy who will distribute to the group for discussion. Resolution Consultants will send an electronic copy of the RAB Charter with suggested edits to RAB members.

Community Remarks and Open Discussions and Questions -

Mr. Bogen opened the discussion, and the group had no additional issues for discussion.

Future Meetings:

The next RAB meeting was proposed for December 2, 2014. The agenda for the next meeting will include a discussion of OU8, an update on Remedial Action at OU4 and OU7, long-term management at OU7, and updates to the RAB Charter.

Portsmouth Naval Shipyard
Restoration Advisory Board Meeting
October 28, 2014

Agenda

- Introductions
- Opening Statements
 - Community Co-Chair (Doug Bogen)
 - Navy Co-Chair (Lisa Joy, NAVFAC)
- Environmental Restoration Program Status and Updates (Linda Cole, NAVFAC)
- Regulator Updates (USEPA and MEDEP)
- OU2 DRMO Storage Yard Construction Complete (CB&I)
- OU2 Waste Disposal Area Construction Complete (AGVIO)
- OU4 Pre-Removal Sediment Confirmation Sampling (Tetra Tech)
- OU4 Remedial Action Updates (AGVIO)
- OU7 Remedial Action Updates (AGVIO)
- RAB Charter (Linda Cole, NAVFAC)
- Community Remarks
- Open Discussion and Questions



Portsmouth Naval Shipyard Environmental Restoration Program Status and Updates

October 2014

OPERABLE UNIT 1 Site 10 (Former Battery Acid Tank No. 24)



- **Remedial Action Closeout Report (RACR)**

- Draft submitted June 2014
- Resolving regulatory comments

- **Land Use Control Remedial Design Revision**

- Removes groundwater monitoring based on post-remediation sampling results
- Finalized September 2014



- **Land Use Control inspection performed May 13, 2014**

OPERABLE UNIT 2

Site 6 (DRMO Storage Yard) & Site 29 (Former Teepee Incinerator Site)



• Remedial Action

- Construction started in August 2013
- Construction completed in Summer 2014
- EPA and MEDEP Inspection on September 4

• Construction Completion Report (CCR)

- CCRs for Waste Disposal Area and DRMO Area under Navy review

• Long Term Management (LTMgt) Plan

- Draft to be submitted Winter 2014
- LTMgt groundwater sampling to be conducted in 2015



3

Portsmouth Naval Shipyard Environmental Restoration Program, October 2014

OPERABLE UNIT 3

Site 8 (Jamaica Island Landfill)



• OM&M Activities

- 2013 Inspection Report finalized in June 2014
- Landfill and LUC inspection (Round 13) performed in May 2014
- Minor maintenance items and replacement of signs performed in October 2014

• Removal of landfill gas sampling points

- Draft Gas Monitoring Probe Abandonment Plan submitted October 2013
- Gas Monitoring Probe Abandonment Plan finalized in June 2014
- Gas probes abandoned in July 2014
- Draft OU3 Gas Probe Abandonment Closure Report under regulatory review



4

Portsmouth Naval Shipyard Environmental Restoration Program, October 2014

OPERABLE UNIT 4

Site 5 (Former Industrial Waste Outfalls) and Offshore Areas of Concern



- **Selected Remedy = Sediment Removal with Off-Yard Disposal**

- **Additional sampling to further delineate areas for removal completed November-December 2013**

- Draft Pre-Removal Confirmation Sediment Sampling Report submitted April 2014
- Pre-Removal Confirmation Sediment Sampling Report finalized in September 2014
- Additional sediment samples collected at September 22-24, 2014 at MS-01 and MS-03



- **Remedial Action Work Plan (RAWP) finalized in September 2014**

- **Remedial Action commenced in September 2014**

- Eel grass survey at MS-04 and MW-12A completed in September 2014
- Maine dredging window is open November 8 through April 9

5

Portsmouth Naval Shipyard Environmental Restoration Program, October 2014

OPERABLE UNIT 7

Site 32 (Topeka Pier Site)



- **Selected Remedy = Excavation with Land Use Controls**

- **Land Use Control Remedial Design (LUCRD)**

- Draft LUCRD submitted in December 2013
- LUCRD finalized in September 2014

- **Remedial Action**

- Draft RAWP submitted in September 2014
- Under regulatory review



- **Long Term Management Plan (LTMgt)**

- Draft LTMgt Plan submitted in August 2014
- Resolving regulatory comments
- Draft Final LTMgt Plan to be submitted in 2015 after Remedial Action Completion

6

Portsmouth Naval Shipyard Environmental Restoration Program, October 2014

OPERABLE UNIT 8
Site 31 (Former West Timber Basin)



• Remedial Investigation

- Draft Sampling and Analysis Plan (SAP) submitted April 2014
- Currently resolving regulatory comments
- Draft Final SAP to be submitted in 2014
- Remedial Investigation field activities to start Fall/Winter 2014-2015



<http://seacoastnh.com/postcards/yard1gh1.html>

OPERABLE UNIT 9
Site 34 (Former Oil Gasification Plant, Building 62)



• LUC RD finalized in September 2014

• Remedial Action Closeout Report (RACR)

- Draft submitted in August 2014
- Resolving regulatory comments
- Draft final to be submitted in 2015 after Remedial Action of off-shore sediment completed



CBI Presentation Goals

Provide an construction update for the completed remedial action at Operable Unit (OU) #2, DRMO Area

- Site Background
- Remedial Action Objectives
- Remedial Action Status and Schedule
- Remedial Action Activities



A World of Solutions 1

CBI Site Background

- Remedial Action focuses on OU#2, including the DRMO Storage Yard and the Interim Cap Area (Site 6).
 - Area 1 thru Area 7
- Previous Remedial Actions completed within the DRMO Impact Area, known as Quarters S&N
- Previous (Historical) Activities at OU#2
 - Storage of excess DoD Property
 - Storage items included lead and nickel-cadmium battery elements, motors, scrap metal and typewriters



A World of Solutions 2

CBI Site Layout

A World of Solutions 3

CBI Remedial Action Objectives

- Prevent human exposure through ingestion, dust inhalation and dermal contact with contaminated soil with COC concentrations that exceed cleanup levels.
- Protect the offshore environment from erosion of contaminated soil from the OU#2 shoreline.
- Prevent unacceptable risk from future potential migration of copper, lead and nickel from the unsaturated zone in the capped area at Site 6 to groundwater.

A World of Solutions 4

CBI		Remedial Action Objectives
Remedial Goal Summary		
Contaminant of Concern	Remedial Goal (mg/kg)	Basis
Antimony	516	Construction Work Exposure Scenario
Lead	4000	Site Specific Concentration to satisfy RAOs
PAHs	2	Occupational Worker Exposure Scenario (benzo(a)pyrene equivalents)
Total PCBs	6	Occupational Worker Exposure Scenario

A World of Solutions 6

CBI		Remedial Action Activities
<ul style="list-style-type: none"> ▪ Construction Mobilization/Site Setup <ul style="list-style-type: none"> – 04/21/14 ▪ Excavation of Contaminated Soils & Confirmatory Sampling <ul style="list-style-type: none"> – 04/28/14 – 07/14/14 ▪ Soil Stabilization Sampling <ul style="list-style-type: none"> – 04/23/14 – 07/15/14 ▪ Transportation and Disposal of Contaminated Soils <ul style="list-style-type: none"> – 05/19/14 – 07/31/14 ▪ Backfill/Site Restoration <ul style="list-style-type: none"> – 05/22/14 – 08/07/14 – Paving 08/05/14 – 08/07/14 	<ul style="list-style-type: none"> ▪ Construction Completion – August 2014 ▪ Completion Report <ul style="list-style-type: none"> – Preliminary Draft – August 30, 2014 – Draft – October 2014 – Draft Final Winter 2014 – Final Spring 2015 	

A World of Solutions 6

CBI Site Setup



Approved for Public Release

Stockpile Construction

- 8 oz. non-woven geotextile fabric
- 8 mil string reinforced poly sheeting
- Concrete barriers

A World of Solutions 7

CBI Excavation of Contaminated Soils

Area 1 Excavation

- Area consists of soil and rock mixture
- Initial confirmatory samples Lead > 4,000 ppm (all)
- Investigative process utilized to determine final excavation size. Excavation limits measured approximately 25 feet by 45 feet
- All samples met remedial goals



Approved for Public Release



Area 2 Excavation

- Area consists of soil and rock mixture
- Excavation conducted in 2 phases
- Initial confirmatory samples Lead > 4,000 ppm (floor, w. wall, n. wall)
- All samples met remedial goals

A World of Solutions 8

CBI
Excavation of Contaminated Soils



Area 4 Excavation

- Area consists of fill and small rock
- Initial confirmatory samples Lead > 4,000 ppm (s. wall)
- Secondary samples all below RGs
- Area backfilled

Area 3 Excavation

- Area consists of fill and small rock
- Excavation conducted in 2 phases
- Initial confirmatory samples Lead > 4,000 ppm (floor, s. wall)
- Secondary samples with RGs



A World of Solutions
9

CBI
Excavation of Contaminated Soils

Area 5 Excavation

- Area consists of fill and small rock
- Adjacent to previous excavations from DRMO Impact Area project
- All samples below RGs





Area 6 Excavation (Shoreline)

- Stripped revetment for later reuse
- Installed sediment logs to prevent migration of soils/sediments
- Initial confirmatory samples Lead > 4,000 ppm; PCBs > 6 ppm; PAHs > 2 ppm
- Secondary confirmatory samples all within RGs.

A World of Solutions
10



Excavation of Contaminated Soils

Area 6 Excavation (Shoreline)



Excavation of Contaminated Soils

Area 6 Excavation (Storage Area)

- Area consists of fill and small rock
- Lead > 4,000 ppm in two 20 foot areas (w. wall, e. wall)
- Archeological Monitoring Area
- No archeologically significant findings
- Secondary confirmatory samples within RGs



CBI Excavation of Contaminated Soils

Area 7 Excavation

- Area consists of metallic debris, fill and rock
- Depths range from 4 feet to 8 feet b.g.s.
- Remedial Goal Exceedances
 - Southwest Corner Sidewall – PAHs
 - Northeast adjacent to loading dock – Lead
 - Northwest sidewall – PCBs
 - All re-excavated until remedial goals were met

Approved for Public Release



Approved for Public Release



approved for public release.



A World of Solutions 13

CBI Area 7 PCB Contamination

Waste Profile Sampling indicated one grid had elevated PCBs

- One 5-Point Composite Sample – 710 mg/kg Total PCB concentration
- Excavation Area was quarantined pending further action
 - Technical Memorandum
 - Sampling Plan Developed for In-Situ Waste Characterization
 - Subdivide into 10' x 10' Grids
 - Collect PCBs by SW846-8082
 - All samples below TSCA limits
 - Sampling Plan developed to bound PCB contamination
 - Sidewall sample every 5 feet horizontally/1 foot vertically
 - Discretely analyzed by SW846-8082
 - 8 samples failed and required re-excavation
 - Re-excavation bounded by a concrete foundation

A World of Solutions 14

 Soil Stabilization

Based on excavated soil characterizations and estimated future soil characterizations, a soil stabilization process was evaluated to determine if the lead in the excavated soils could be successfully stabilized and disposed of in a non-hazardous facility.

- Portland cement was selected as a stabilizing agent, based on previous successful Navy and CB&I projects.
- Field scale study conducted to determine appropriate ratio for Portland cement additive.
 - 50 ton piles were isolated and by weight 4%, 6%, 8%, and 10% ratios were homogenized with the soils.
 - 4% ratio was successful in reducing TCLP from 503 mg/l to .0025 mg/l (limit of equipment)
 - 6%, 8%, & 10% successfully reduced the concentration but, remained above the RCRA limit.
 - Pre and Post study technical memorandums were developed and provided to Navy, USEPA, and MEDEP for review and acceptance

A World of Solutions  15

 Soil Stabilization

A disposal facility was selected based on the outcome of the study.

- Turnkey, a Waste Management Facility located in Rochester, NH was selected facility
- Turnkey has a previously in place process and requirements for accepting stabilized soils
 - Pre-Stabilization Characterization Samples
 - Post-Stabilization Characterization Samples
 - Project Narrative
 - Process Narrative
- Based on study results, facility has accepted the waste, however each additional volume requires additional testing, review, and acceptance.

A World of Solutions  16


Soil Stabilization

Soil Stabilization Process

- Preparation of 50 ton pile for mixing
- Mixing in excavation footprint

Approved for public release.



Approved for public release.



Soil Stabilization Process

- Ongoing mixing process
- Water is added to mitigate dust
- 2 tons of Portland cement added per 50 Ton volume

A World of Solutions
17


Transportation and Disposal of Contaminated Soils

- Multiple waste streams created during the project
 - Stablax – High Lead Concentration
 - Montreal, Canada
 - 5,746 tons disposed
 - Waste Management – Turnkey Facility
 - Stabilized lead
 - 8,754 tons disposed
 - Waste Management – Model City Facility
 - PCB contaminated soils
 - 214 tons disposed

A World of Solutions
18



Backfill / Site Restoration

- Backfilling in accordance with the Remedial Action Design
- Backfill is either a stone dust product or a dense graded aggregate stone product, placed in 12 inch lifts and compacted
- Final grading and restoration
 - Pavement, Stone, and Topsoil



Backfill / Site Restoration

Area 1 - Restoration



Area 6 - Drainage Restoration



Area 7 - Restoration



Area 7 - Restoration

CBI Backfill / Site Restoration

Area 7 Shoreline Restoration

- Built up shoreline
- Cross section includes smaller rock and geotextile fabric beneath larger armoring stone

Approved for Public Release



Approved for Public Release



Area 6 Shoreline Restoration

- Built up shoreline
- Cross section includes smaller rock and geotextile fabric beneath larger armoring stone

A World of Solutions 21

CBI Backfill / Site Restoration

Approved for Public Release



A World of Solutions 22

CBI Backfill / Site Restoration

Approved for Public Release



A World of Solutions 23

CBI Backfill / Site Restoration

Approved for Public Release



A World of Solutions 24



Remedial Action Project Closeout

- Prepare Construction Completion Report documenting all field activities
 - Text with tables and figures
 - Analytical reports
 - Site survey of project area
 - Photo documentation
 - Disposal documentation
 - Stabilization Technical Memorandums
- Provide to Navy, USEPA and MEDEP for review and comment
 - Navy submittal 08/30/14
 - Proposed Regulatory Submittal 10/31/14



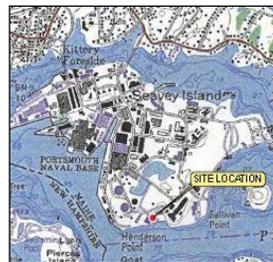
**Operable Unit (OU) #2
Waste Disposal Area (WDA)
Status Update
Portsmouth Naval Shipyard
Restoration Advisory Board
October 28, 2014**



Presentation Overview



- Site Location and Overview
- Remedial Action Objectives
- Selected Remedy
- Remedial Action Activities
- Remedial Action Status *(Complete)*
- Excavation & Cover System Construction
- Excavation Depth & Backfill Surveys
- Waste Management
- Questions



WDA Remedial Action Objectives



- Prevent human exposure through ingestion, dust inhalation, and dermal contact with contaminated soil with COC concentrations that exceed cleanup levels
- Protect the offshore environment from erosion of contaminated soil from the OU2 shoreline.



3

WDA Selected Remedy



- Excavation of soil and waste material from 0 to 2 feet bgs from WDA Area 8.
- Excavation of Areas 9, 10 and 11 to bedrock.
- Off-yard disposal to approved landfill.
- Construction of a 2-foot-thick soil cover over WDA Area 8, Replacement to Grade of cover for Areas 9, 10, and 11.
- Implementation of land use controls (LUCs).
- Groundwater monitoring.
- Sediment accumulation monitoring.
- Five-year site reviews.



4

Excavation & Cover System Construction



Area 8 next to seawall; base of excavation is covered with geotextile fabric.



Area 8 northwest of Building #310, backfilled, compacted ready for asphalt or topsoil. Rough asphalt in foreground to be edged prior to paving.

7

Excavation & Cover System Construction



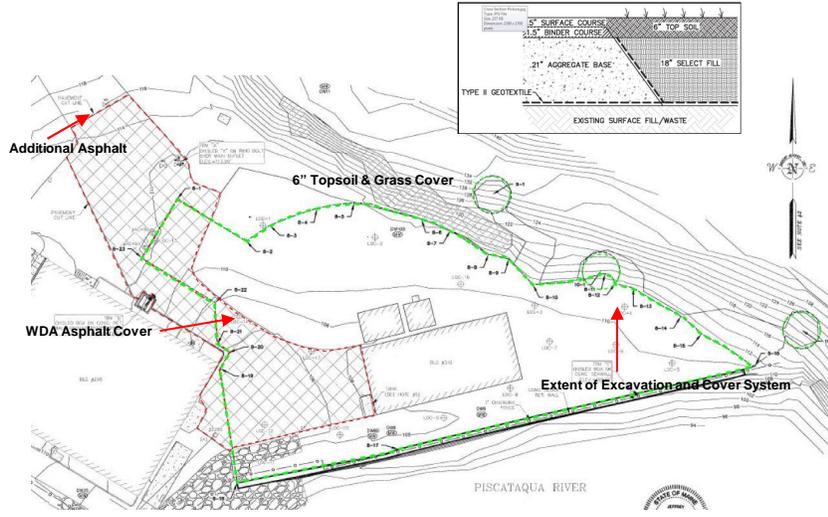
Area 9 on hill, silt fencing remained in place until grass was established.



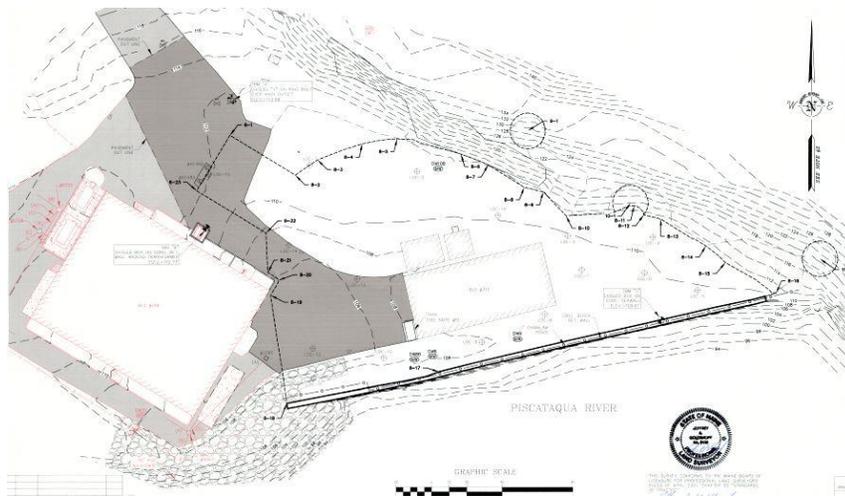
Area 8 North of Bldg. 310 undergoing backfill compaction, prior to topsoil placement.

8

WDA Cover System



"As Built" Post Restoration Site Topographic Survey



Waste Management



Materials excavated were transported and disposed of or recycled at off-yard landfill facilities, including:

- A total of **2,123 tons** of non-hazardous lead contaminated soil was disposed of at the News of Worcester LLC Cassella landfill facility, Worcester, MA.
- Disposed of **906 tons** of hazardous high-lead (D008) contaminated soil at the Horizon Environmental LLC facility, Grandes-Piles, Quebec, Canada.
- Recycled **193 tons** of asphalt at the Aggregate Recycling Corporation facility, Elliot, ME.
- Recycled **90 tons** of concrete from site fill debris and the former Teepee Incinerator foundations at the CPRG/Aggregate Recycling Corporation facility, Elliot, ME.

11

Next Steps



- Prepared Construction Completion Report documenting all field activities
 - Text with tables and figures
 - Site survey of project area
 - Photo documentation
 - Disposal documentation
- Provide to Navy, USEPA and MEDEP for review and comment
- Submittal of Draft CCR due October 30, 2014

12



Pre-Removal Sediment Confirmation Sampling for Operable Unit 4

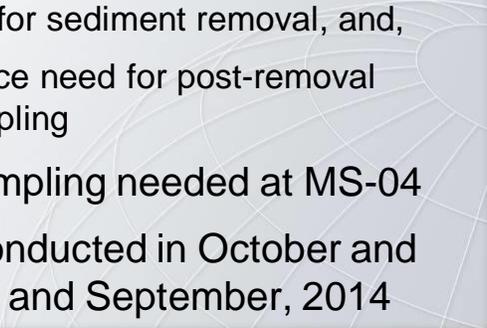
Portsmouth Naval Shipyard
Date: October 28, 2014

Presenter:
Megan Boerio, Tetra Tech



Sampling Investigation

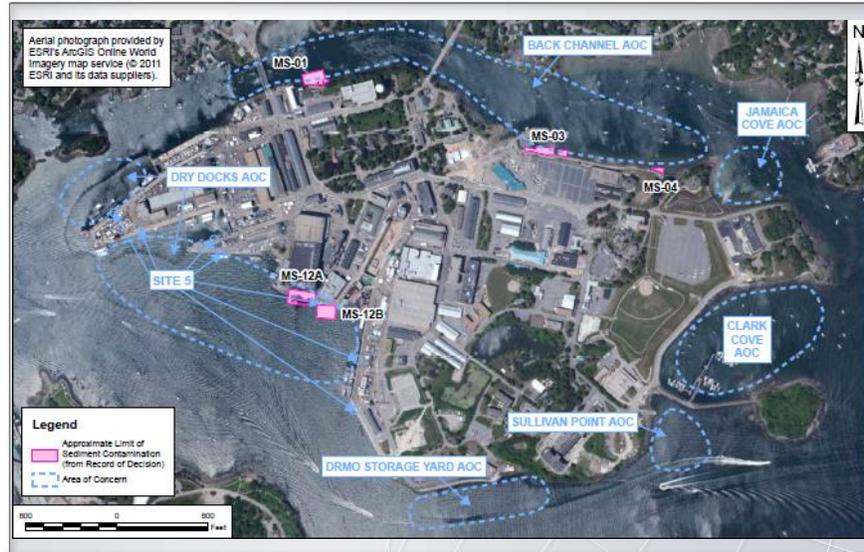
- Pre-removal sediment confirmation samples were collected at MS-01, MS-03, MS-12A, and MS-12B to:
 1. Better define the horizontal and vertical extent of contamination for sediment removal, and,
 2. Eliminate or reduce need for post-removal confirmation sampling
- No additional sampling needed at MS-04
- Sampling was conducted in October and December 2013 and September, 2014





2

Monitoring Station Locations



3



Results

- Contamination bounded adequately horizontally and vertically at MS-03, MS-12A, and MS-12B for the remedial action
- PAH Contamination not bounded vertically at MS-01
 - Vertical depth of contamination not bounded below 4 feet
 - Petroleum odors/sheens were observed in sediment samples within a small area (50 x 75 feet); petroleum-impacted sediment probably extends beyond this area

4

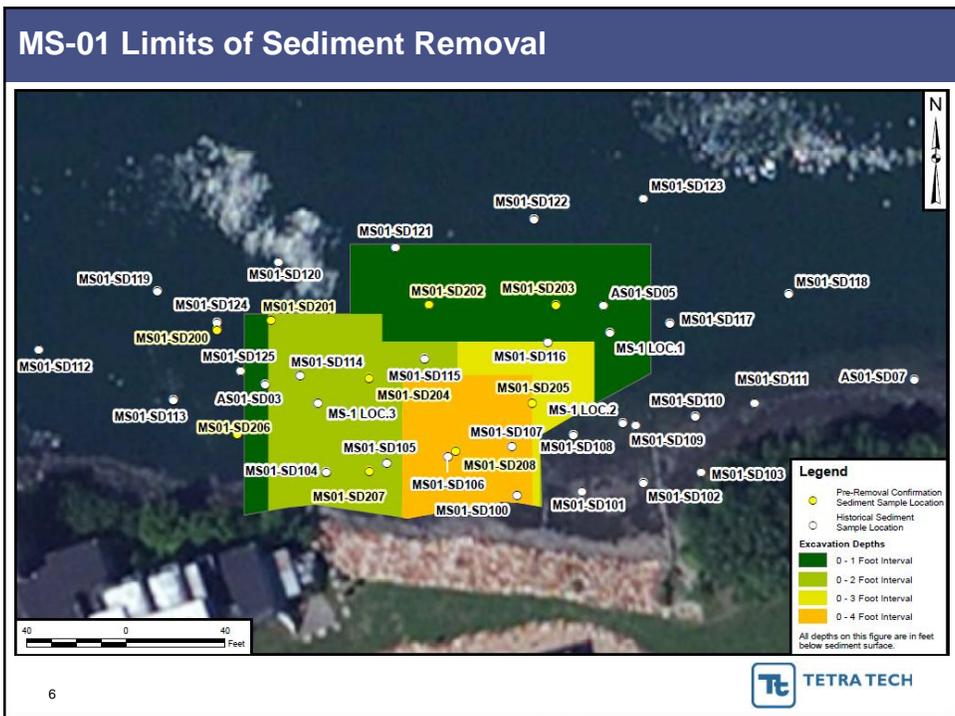


Results

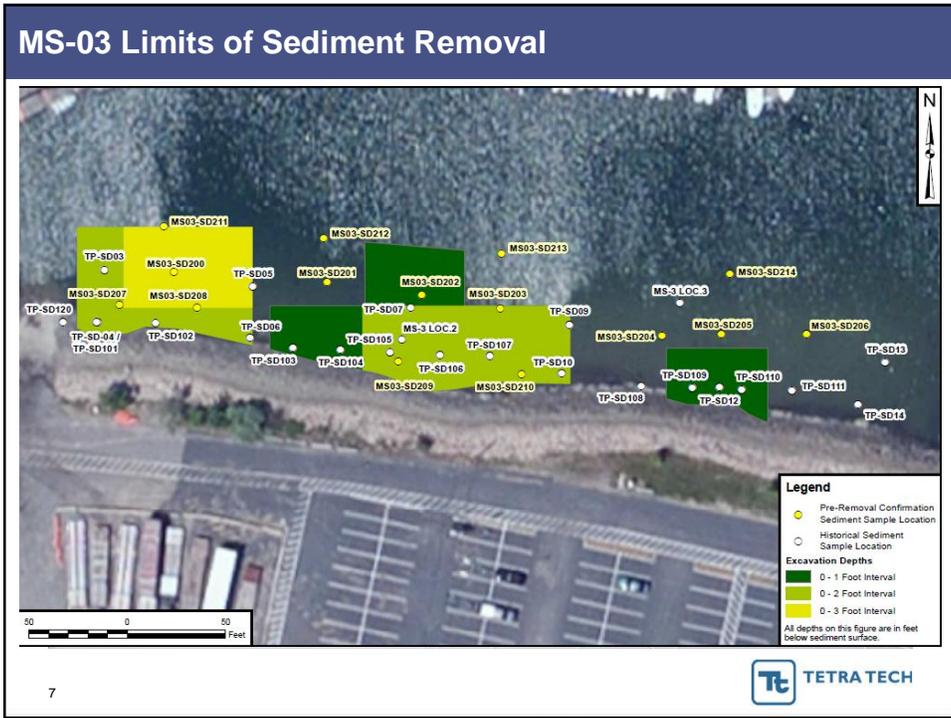
- The following figures show the limits of contaminated sediment based on the 2013 sample results.
 - Dark Green: 0-1 foot
 - Light Green: 1-2 foot
 - Yellow: 2-3 foot
 - Green: 3-4 foot
- The figures for MS-01 and MS-03 will be updated with the September 2014 results.

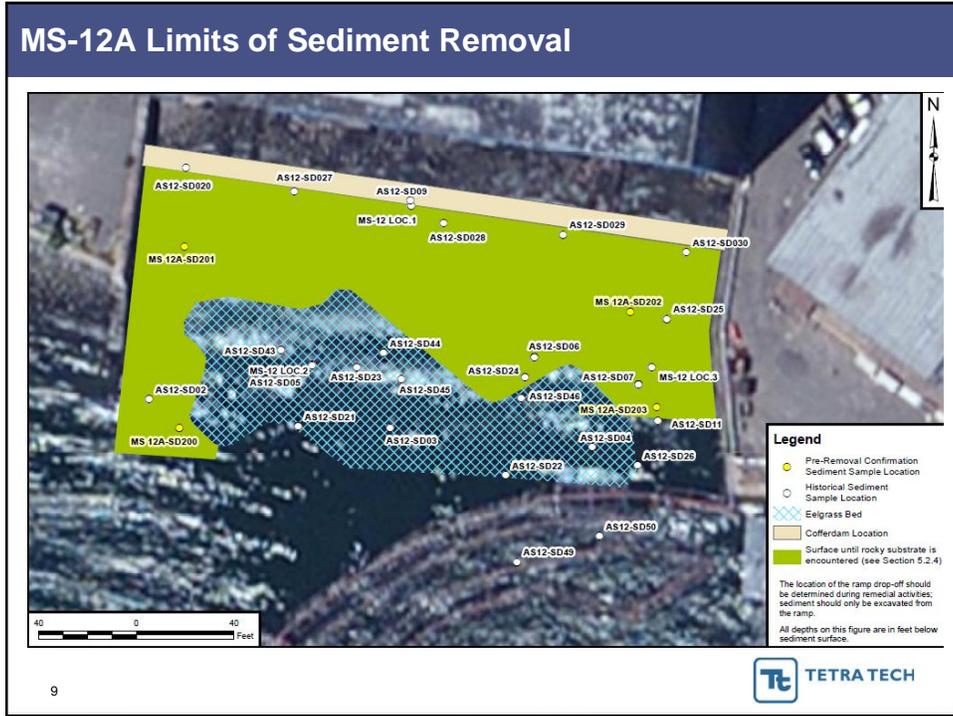


5

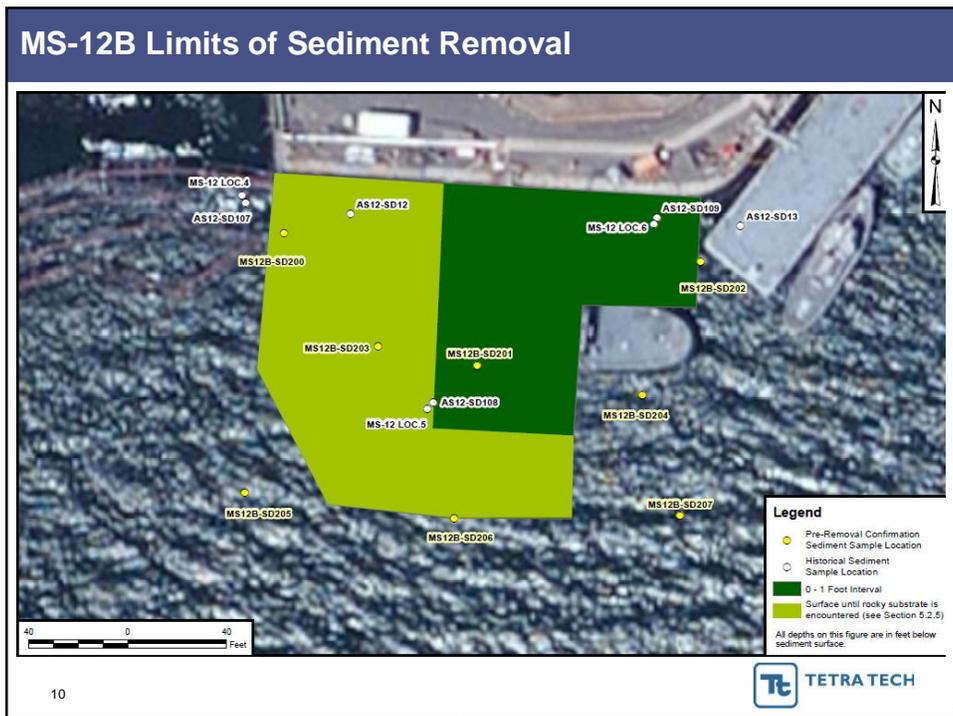


6





9



10



**Operable Unit (OU) #4
Status Update
Portsmouth Naval Shipyard
Restoration Advisory Board
October 28, 2014**

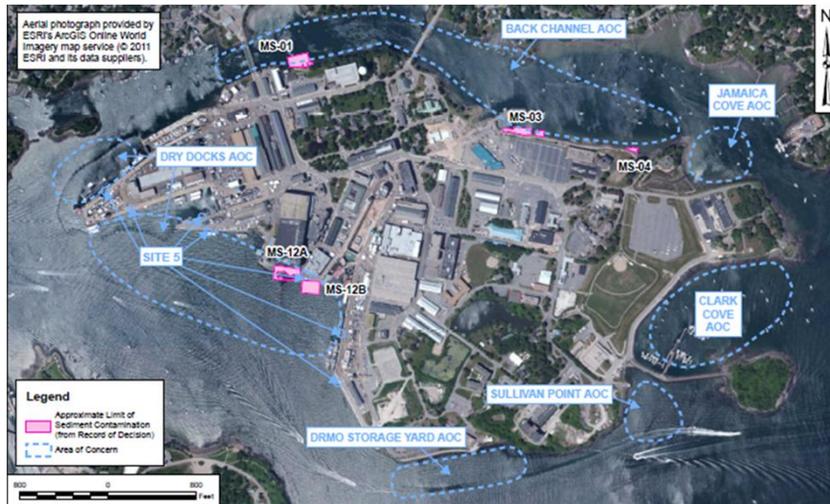


Outline



- Site Location and Overview
- Remedial Action Objectives
- Selected Remedy
- Scope of Work
- Remedial Action Activities
- Remedial Action Status
- Questions and Comments

Site Location Map



3

Remedial Action Objectives



- Reduce risks to benthic invertebrates from exposure to bioavailable/bioaccessible chemicals of concern in sediment at OU4 Monitoring Stations to acceptable levels.

4

Selected Remedy



- Dredge Monitoring Station MS-01 to depths ranging from 1 to 4-feet.
- Dredge Monitoring Station MS-03 to depths ranging from 1 to 3-feet.
- Dredge Monitoring Station MS-04 to a depth of 1-foot.
- Dredge Monitoring Station MS-12A until the rocky substrate is encountered.
- Dredge Monitoring Station MS-12B to a depth of 1-foot or the rocky substrate is encountered.
- Estimated 4,845 cubic yards of sediment is to be dredged and disposed.
- Dredged sediments will be dewatered, solidified for transport to a licensed disposal facility.

5

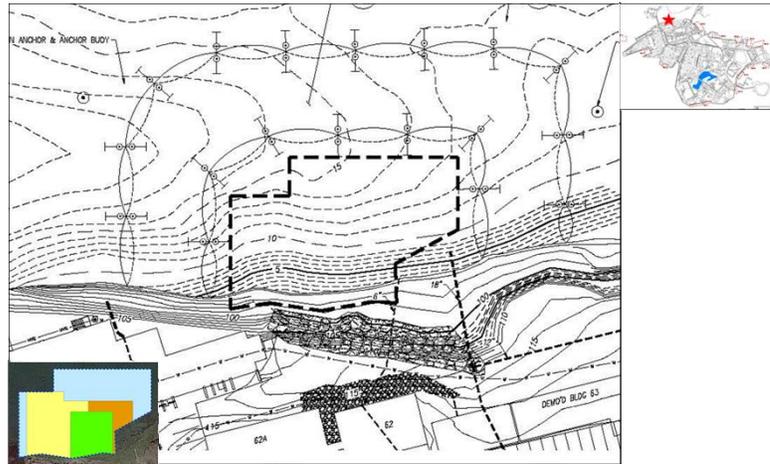
Chemicals of Concern for OU4



- **Polyaromatic Hydrocarbons**
 - MS-01
 - MS-03
 - MS-04
 - MS-12A
- **Copper**
 - MS-03
 - MS-04
- **Lead**
 - MS-12A
 - MS-12B

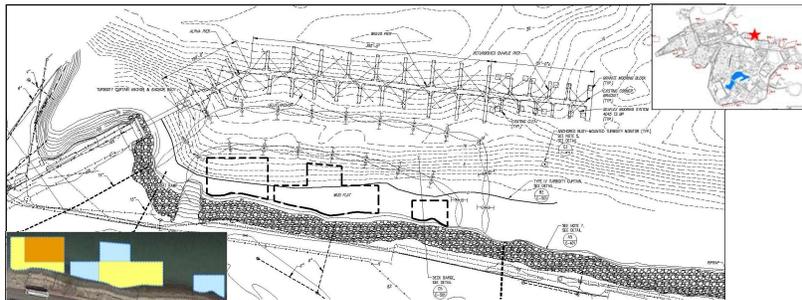
6

Monitoring Station MS-01 Layout



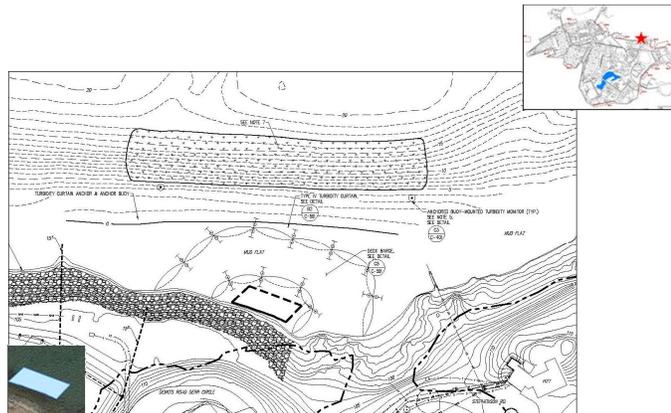
7

Monitoring Station MS-03 Layout



8

Monitoring Station MS-04 Layout



9

Monitoring Areas 12A and 12B Areas

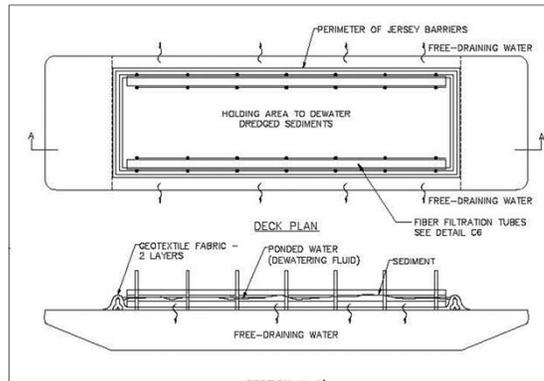


10

Sediment Dewatering, Solidification and Disposal



- Dredged sediments are allowed to gravity drain on deck barge within turbidity curtain.
- Barge is moved to Berth 7 where it is solidified with cement, sawdust or wood chips.
- Transported to landfill



11

Remedial Action Status



- Eel Grass Survey of MS-04 and MS-12A (Completed September 25, 2014)
- Collect In Situ Waste Characterization Samples from MS-01, MS-03 MS-04, and MS-12A (Completed October 2, 2014)
- Site Mobilization & Setup (Scheduled November 3, 2014)
- Collect In Situ Waste Characterization Samples from MS-01 and MS-12B
- Collect Water Quality Background Data
- Install Turbidity Curtains at MS-01, MS-03 and MS-04
- Dredge and Dewater Sediments
- Perform Bathymetric Survey to Verify Dredge Depths Achieved
- Solidify Sediments for Transport
- Load and Dispose of Sediments
- Submit a Construction Completion Report documenting the work performed

12



**Operable Unit (OU) #7
Site 32
Status Update
Portsmouth Naval Shipyard
Restoration Advisory Board
October 28, 2014**

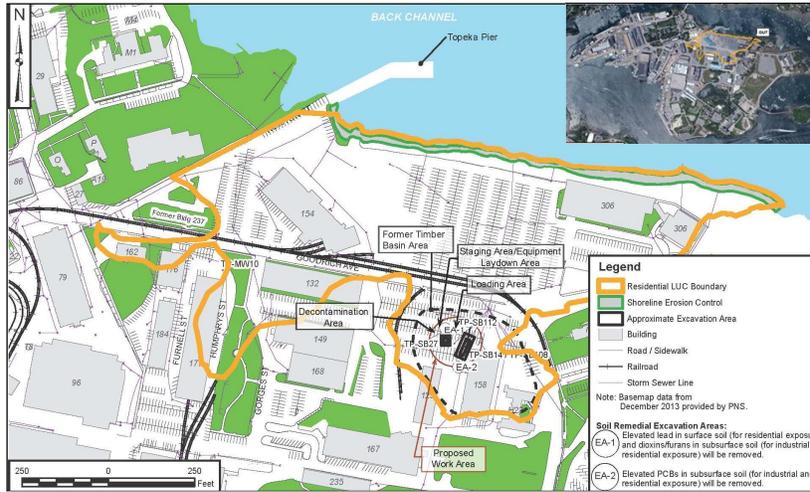


Outline



- Site Location and Overview
- Remedial Action Objectives
- Selected Remedy
- Scope of Work
- Remedial Action Status
- Questions and Comments

Site Location & Site Map



3

Site Plan



4

Remedial Action Objectives



- Prevent residential exposure through ingestion of, dust inhalation of, and dermal contact with surface soil containing lead, and subsurface soil containing antimony, copper, dioxins/furans, iron, lead, carcinogenic polycyclic aromatic hydrocarbons (PAH), and polycyclic biphenyl (PCB) concentrations exceeding residential cleanup levels/preliminary remediation goals (PRGs).
- Prevent industrial worker (construction and occupational) exposure through ingestion of, dust inhalation of, and dermal contact with subsurface soil containing dioxin/furan and PCB concentrations exceeding industrial cleanup levels/PRGs.
- Protect the offshore environment from erosion of contaminated soil from the OU7 shoreline.

5

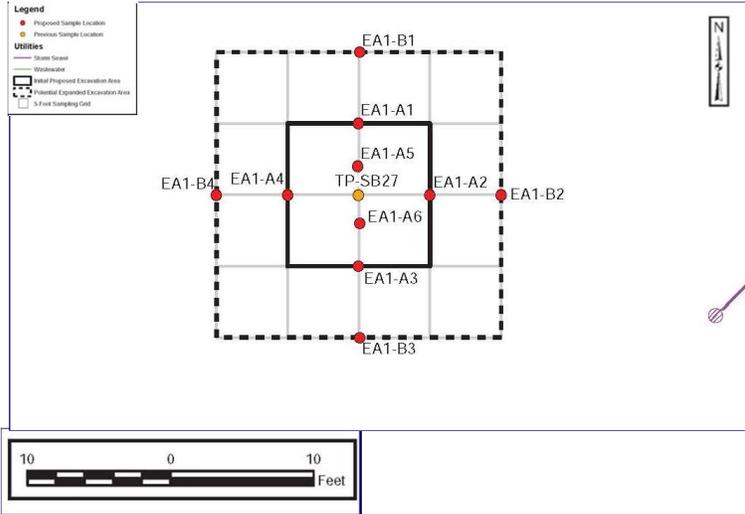
Selected Remedy



- Excavation of soil associated with potentially unacceptable risks to industrial workers. Excavation in the Areas 1 and 2 in the southeastern portion of the site will be conducted to meet industrial cleanup levels.
 - Area 1 Cleanup Level - 0.0006 milligrams per kilogram (mg/kg) for dioxins/furans, evaluated based on 2, 3, 7, 8-TCDD Toxic Equivalent (TEQ)
 - Area 2 Cleanup Level - 7.4 mg/kg for total PCBs, evaluated based on total Aroclors.
- Disposal of excavated soil in an offsite landfill and restoration of the excavated areas to pre-existing construction conditions.

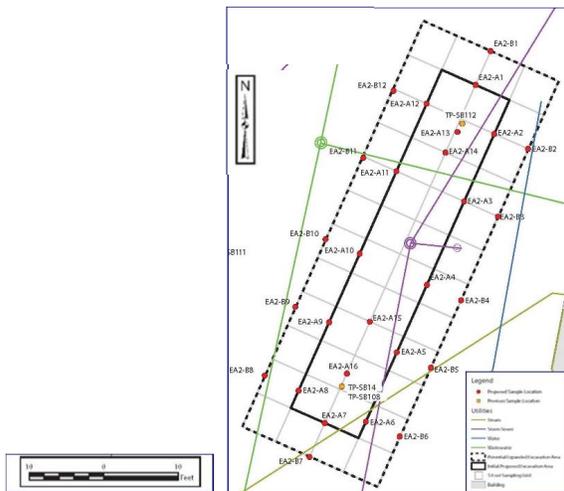
6

Area 1 Planned Excavation



7

Area 2 Planned Excavation



8

Remedial Action Status



- **Finalize Remedial Action Work Plan** (Ongoing)
- **Collect Waste Characterization and In situ Confirmation Samples** (Est. December 2014)
- **Present Analytical Results in a Technical Memorandum** (Est. January 2015)
- **Site Mobilization & Setup** (Est. February 2015)
- **Survey Site and Mark Underground Utilities**
- **Strip Asphalt, Expose & Protect Sanitary Sewer/Steam Lines**
- **Temporarily Reroute Storm Sewer Line & Demolish Line**
- **Excavate Areas 1 and 2**
- **T&D of Contaminated Soil**
- **Backfill Excavation and Replace Storm Sewer Line**
- **Replace Asphalt Pavement**
- **Demobilize from Site**
- **Prepare Construction Completion Report**

9

Questions and Comments



Questions?

10