

**UNILATERAL ADMINISTRATIVE ORDER  
U.S. EPA DOCKET NO. CERCLA-01-2012-0045  
APPENDIX 1**

**STATEMENT OF WORK  
FOR REMEDIAL DESIGN, REMEDIAL ACTION, AND OPERATION AND  
MAINTENANCE**

**NEW BEDFORD HARBOR SUPERFUND SITE  
UPPER AND LOWER HARBOR OPERABLE UNIT  
(OPERABLE UNIT 1)**

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ATTACHMENT A—Project Operations Plan Requirements

## **I. INTRODUCTION AND PURPOSE**

This Statement of Work (“SOW”) for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance defines the response activities and deliverable obligations that Respondent is obligated to perform in order to implement the Work required under the Unilateral Administrative Order for Remedial Design and Remedial Action (“Order”) for the Upper and Lower Harbor Operable Unit (Operable Unit 1 or “OU1”) of the New Bedford Harbor Superfund Site in New Bedford, Massachusetts (the “Site”). The activities described in this SOW are based upon the United States Environmental Protection Agency’s (“EPA”) Record of Decision (“ROD”) for OU1 signed by the Regional Administrator, EPA New England Region, on September 25, 1998 (“OU1 ROD”), as modified by an Explanation of Significant Differences (“ESD”) signed by the Regional Administrator, EPA New England Region, on September 27, 2001 (“OU1 ESD1”), an ESD signed by the Director of the Office of Site Remediation and Restoration (“OSRR”) on August 15, 2002 (“OU1 ESD2”), an ESD signed by the OSRR Director on March 4, 2010 (“OU1 ESD3”), and an ESD signed by the OSRR Director on March 14, 2011 (“OU1 ESD4”), all hereinafter referred to as “the OU1 Remedy.”

MassDEP concurred with the OU1 ROD, as documented in a September 24, 1998 concurrence letter (see Appendix D of the OU1 ROD), as well as OU1 ESD1 in a letter dated September 27, 2001, OU1 ESD2 in two letters dated February 21, 2002 and July 17, 2002, OU1 ESD3 in a letter dated February 19, 2010, and OU1 ESD4 in a letter dated March 14, 2011.

Section III(D) of this SOW sets out the requirements for a Transition Plan, Long-Term Site-Wide Monitoring Plan, Site-Wide Institutional Controls Plan, Chronology of Work, and Master Schedule of Work. In accordance with the EPA approved Chronology of Work and EPA approved Master Schedule of Work, Respondent shall implement and sequence the various components of the Work independently, and not in conjunction with any other component unless otherwise approved by EPA. In no event shall the schedule for construction extend beyond eight (8) years from the effective date of the Order, unless approved by EPA.

Respondent shall implement the Remedial Design, Remedial Action, and Operation and Maintenance for the OU1 Remedy in accordance with the requirements and schedule set forth in this SOW, EPA approved Transition Plan, EPA approved Long-Term Site-Wide Monitoring Plan, EPA approved Site-Wide Institutional Controls Plan, EPA approved Chronology of Work, EPA approved Master Schedule of Work, and plans submitted in accordance with this SOW that have been approved by EPA

## II. DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Statement of Work which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in the statute or its implementing regulations. Whenever terms listed below are used in this SOW or in the documents attached to this SOW, the following definitions shall apply:

- A. "1992 Consent Decree" shall mean the Consent Decree entered into by the United States, the Commonwealth, and AVX Corporation that was approved and entered by the U.S. District Court for the District of Massachusetts on February 3, 1992, for Civil Action No. 83-3882-Y.
- B. "Aerovox Facility" shall mean the former manufacturing plant and associated structures and land at 740 and 742 Belleville Avenue, New Bedford, Massachusetts, located adjacent to the Site along the western shore of the Upper Harbor.
- C. "ARARs" shall mean applicable or relevant and appropriate requirements under Section 121(d) of CERCLA, 42 U.S.C. § 9621(d).
- D. "Area C" shall mean EPA's facility at Sawyer Street. As discussed in Section III(D)(1) below, in the Transition Plan, Respondent shall include plans to use or not use EPA's facilities at Sawyer Street (Area C). Where Performance Standards concern Area C, they apply to Respondent's desanding operations whether or not Respondent uses EPA's facility at Sawyer Street.
- E. "Area D" shall mean EPA's facility at Hervey Tichon Avenue. As discussed in Section III(D)(1) below, in the Transition Plan, Respondent shall include plans to use or not use EPA's facility at Hervey Tichon Avenue (Area D). Where Performance Standards concern Area D, they apply to Respondent's dewatering operations (which include a waste water treatment plant) whether or not Respondent uses EPA's facility at Hervey Tichon Avenue.
- F. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601 *et seq.*
- G. "CDF" shall mean Confined Disposal Facility.
- H. "Contractor" shall mean the company or companies retained by Respondent to undertake and complete the Work required by the Order. Each Contractor and Subcontractor shall be qualified to do those portions of the Work for which it is retained.

- I. “Day” shall mean a calendar day unless expressly stated to be a working day. “Working day” shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under the Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the end of the next working day.
- J. “Design” when used in the terms “30% Design,” “60% Design,” “90% Design,” and “100% Design” in this SOW shall mean an identification of the technology and its performance and operational specifications, in accordance with all applicable Federal, State, and local laws, including, but not limited to:
1. All computations used to size units, determine the appropriateness of technologies, and the projected effectiveness of the remedial action;
  2. Scale drawings of all system layouts, including, but not limited to, excavation cross-sections, well logs and geologic cross-sections, cap cross sections, erosion and sedimentation controls, and wetland construction plans;
  3. Materials handling and system layouts for any activities—including but not limited to, excavation/dredging/removal, desanding, dewatering or any other treatment, containment, shipment and/or disposal of sediment; extraction, treatment, discharge and/or disposal of groundwater, surface water, process water and/or wastewater; capping; and decontamination and demobilization of facilities—to include size and location of units, dredge rates, treatment rates, location of electrical equipment and pipelines, and treatment of effluent discharge areas;
  4. Quantitative analysis demonstrating the anticipated effectiveness of the RD to achieve the Performance Standards;
  5. Technical specifications which include details on the following:
    - a. Size and type of each major component; and
    - b. Required performance criteria of each major component;
  6. Description of the extent of all environmental monitoring, including, but not limited to, sediment, groundwater, ambient air, and water monitoring including equipment, monitoring locations, and data handling procedures; and

7. Description of access, land easements, leases, licenses, institutional controls and any other land or water uses and needs required to be supplied with the construction plans and specifications.
- K. “EPA” shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.
- L. “EPA approval,” “approval by EPA,” “approved by EPA,” or a similar term shall mean the action described in subparagraphs (a) or (b) of Paragraph 122 of the Order.
- M. “EPA Contractors” and “EPA Subcontractors” shall mean the Federal agencies and companies contracted by or retained via an interagency agreement with EPA to undertake, oversee or perform the OU1 Remedy, including the U.S. Army Corps of Engineers and its contractors and subcontractors.
- N. “EPA disapproval,” “disapproval by EPA,” “disapproved by EPA,” or a similar term shall mean the action described in subparagraphs (c) or (d) of Paragraph 122 of the Order.
- O. “EPA Region 1,” “EPA New England,” “EPA-New England,” “EPA New England Region,” or “EPA Region I” shall mean the regional office of EPA located in Boston, Massachusetts, serving Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, and ten Tribal Nations.
- P. “LHCC” shall mean a Lower Harbor Confined Aquatic Disposal (“CAD”) Cell.
- Q. “MassDEP” shall mean the Massachusetts Department of Environmental Protection and any successor departments or agencies of the Commonwealth.
- R. “National Contingency Plan” or “NCP” shall mean the National Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.
- S. “Operation and Maintenance” or “O&M” shall mean all activities required to maintain the effectiveness of the Remedial Action, including long-term monitoring, in accordance with this SOW and the final plans and specifications developed in accordance with this SOW, including any additional activities required under Sections XI, XII, XIII, and XIV of the Order.
- T. “Order” shall mean the Unilateral Administrative Order for Remedial Design, Remedial Action, and Operation and Maintenance for the Site (Docket No. CERCLA-01-2012-0045) and all Appendices attached thereto.

- U. “OU1 ESD1” shall mean the Explanation of Significant Differences signed by the Regional Administrator, EPA Region 1, on September 27, 2001.
- V. “OU1 ESD2” shall mean the Explanation of Significant Differences signed by the Director of EPA Region 1’s Office of Site Remediation and Restoration on August 15, 2002.
- W. “OU1 ESD3” shall mean the Explanation of Significant Differences signed by the Director of EPA Region 1’s Office of Site Remediation and Restoration on March 4, 2010.
- X. “OU1 ESD4” shall mean the Explanation of Significant Differences signed by the Director of EPA Region 1’s Office of Site Remediation and Restoration on March 14, 2011.
- Y. “OU1 Remedy” shall mean the remedy described in the OU1 ROD as modified by OU1 ESD1, OU1 ESD2, OU1 ESD3, and OU1 ESD4.
- Z. “OU1 ROD” shall mean the Record of Decision for the Upper and Lower Harbor Operable Unit issued by EPA on September 25, 1998. The OU1 ROD is referred to in the 1992 Consent Decree as the “second operable unit record of decision” because, chronologically, it was the second record of decision issued by EPA for the Site.
- AA. “Paragraph” of the Order shall mean a portion of the Order identified by an Arabic numeral.
- BB. “PCBs” shall mean polychlorinated biphenyls.
- CC. “Performance Standards” shall mean those cleanup standards, standards of control, and other substantive requirements, criteria or limitations (including ARARs), identified in the OU1 Remedy, any subsequent remedy selection document that, in accordance with Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), and 40 C.F.R. § 300.435(c)(2), changes the OU1 Remedy, and this Statement of Work, that the Remedial Action and Work required by the Order must attain and maintain.
- DD. “PPM” or “ppm” shall mean parts per million.
- EE. “RCRA” shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. § 6901 *et seq.* (also known as the Resource Conservation and Recovery Act).



- FF. “Remedial Action” or “RA” shall mean those activities, except for Operation and Maintenance, to be undertaken by Respondent to implement the OU1 Remedy in accordance with this SOW and the final plans and specifications developed in accordance with this SOW, including any additional activities required under Sections XI, XII, XIII, and XIV of the Order.
- GG. “Remedial Design” or “RD” shall mean those activities to be undertaken by Respondent to develop the final plans and specifications for the Remedial Action and Operation and Maintenance pursuant to the OU1 Remedy and in accordance with this Statement of Work.
- HH. “Respondent” shall mean AVX Corporation, including the entities identified in Paragraph 2(A) of the 1992 Consent Decree.
- II. “Section” of the Order shall mean a portion of the Order identified by a Roman numeral and includes one or more Paragraphs, and “Section” of this SOW shall mean a portion of this SOW identified by a Roman numeral, alphabetical letter, or Arabic numeral.
- JJ. “Site” shall mean the New Bedford Harbor Superfund Site, as described in the OU1 ROD and the 1992 Consent Decree.
- KK. “State” or “Commonwealth” shall mean the Commonwealth of Massachusetts.
- LL. “Statement of Work” or “SOW” shall mean this Statement of Work for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance at the Site for OU1.
- MM. “TCE” shall mean trichloroethylene.
- NN. “TSCA” shall mean the Toxic Substance Control Act, as amended, 15 U.S.C. § 2601 *et seq.*
- OO. “United States” shall mean the United States of America.
- PP. “Upper and Lower Harbor Operable Unit” or “OU1” shall mean the first operable unit including the Upper and Lower New Bedford Harbor areas at the New Bedford Harbor Superfund Site identified and described in the OU1 ROD.
- QQ. “VOCs” shall mean volatile organic compounds.
- RR. “Work” shall mean all activities Respondent is required to perform under the Order, including Remedial Design, Remedial Action, Operation and Maintenance,

and any activities required to be undertaken pursuant to Sections VII through XXIX of the Order.

### III. SELECTED REMEDY

#### A. Target Cleanup Levels

The OU1 Remedy sets forth the target cleanup levels (“TCLs”) for subtidal, mudflat and shoreline areas at the Site:

1. 10 ppm PCBs for subtidal and mudflat sediment in the Upper Harbor;
2. 50 ppm PCBs for subtidal sediment in the Lower Harbor;
3. 1 ppm PCBs for shoreline areas in the Upper Harbor and Lower Harbor bordering residential areas;
4. 25 ppm PCBs for shoreline areas in the Upper Harbor and Lower Harbor bordering recreational areas; and
5. 50 ppm PCBs for other shoreline areas in the Upper Harbor and Lower Harbor with little or no public access.

#### B. Principal Features

The principal features of the OU1 Remedy include the following major components:

1. Dredging or removal of sediment in subtidal, mudflat and shoreline areas above site-specific cleanup levels, and associated activities, including:
  - a. Removal and proper disposal of all obstacles prior to dredging in subtidal, mudflat and shoreline areas, including relocation or replacement of electrical cables, and removal of depowered electrical cables;
  - b. Pre-dredging sampling, including sediment, air quality, and water quality sampling;
  - c. Hydraulic dredging of contaminated sediment from the Upper Harbor and any other areas where hydraulic dredging is required, with water decanted from the sediment and treated before discharge back into the Harbor;

- d. Mechanical dredging and passive dewatering of sediment from portions of the Upper and Lower Harbors and any other areas where mechanical dredging is required;
  - e. Land- or water-based dredging of subtidal, mudflat and shoreline areas where necessary; and
  - f. Post dredging sampling, including sediment, air quality, and water quality sampling;
2. Disposal and placement and all associated activities necessary for disposal and placement of dredged or removed contaminated sediment, including:
- a. Desanding, dewatering and off-site disposal at an appropriately licensed facility of hydraulically dredged sediment from the Upper Harbor;
  - b. Passive dewatering then placement into a Lower Harbor confined aquatic disposal (“CAD”) cell (“LHCC”) of mechanically dredged sediment from portions of the Lower Harbor and the lower section of the Upper Harbor;
  - c. Construction of confined disposal facilities (“CDFs”) A, B, and C, to be followed by dewatering and then placement of the remaining dredged material into CDFs A, B, and C;
  - d. Waste characterization sampling;
  - e. Off-site disposal of material generated from debris removal and desanding activities; and
  - f. Collection and treatment of all process, decontamination, and contaminated storm water (*e.g.*, from Cells # 2 and 3 and CDFs during construction, filling, and capping) before discharge to the Harbor and/or the City’s publicly owned treatment works (“POTW”);
3. Excavation and off-site disposal of hazardous waste and PCB-contaminated sediment temporarily stored in Cell # 1 at EPA’s Sawyer Street facility (*a.k.a.* Area C) in New Bedford;

4. Capping and closure activities associated with LHCC, CDFs (A, B, and C), and land-based units (including backfilling Cells # 1, 2 and 3 at EPA's Sawyer Street facility with clean fill), consistent with future anticipated land use. The "Debris Disposal Area" at the Sawyer Street facility could be capped and closed out as part of CDF C. Respondent shall coordinate with the City and the local community to develop appropriate plans for beneficial reuse of each CDF; and
5. Restoration of the remediated shoreline areas.

The implementation of the OU1 Remedy, including the above-described major components, shall include the following:

6. Monitoring, including but not limited to: pre-dredging sediment, post-dredging sediment, dewatered sediment, wastewater effluent, water quality, stormwater quality, groundwater quality, air quality, fish migration, and structural;
7. Establishment and implementation of institutional controls (*e.g.*, U.S. Coast Guard rulemaking concerning anchorage ground and regulated navigation area, and land use restrictions) to ensure the integrity of the CDF and the LHCC structures, the pilot underwater cap, and the protectiveness of remediated shoreline areas, consistent with reasonably anticipated future land use; and
8. Operation and maintenance of the LHCC, the CDFs, the pilot underwater cap, and remediated shoreline areas.

In addition, the OU1 Remedy includes the following additional principal features that apply site-wide (not specifically connected to a particular major component):

9. Long-term site-wide monitoring, including but not limited to long-term seafood, sediment (including, *inter alia*, benthic community, toxicity, chemistry, and bathymetry), mussel bioaccumulation, and water quality;
10. Establishment and implementation of institutional controls (*e.g.*, ensuring warning signs and seafood advisories in recreational finfish and shellfish licenses and in educational and medical outreach materials are intact, performing as intended, and are up-to-date) to minimize taking, harvesting and consumption of local PCB-contaminated seafood;
11. Data gathering for the periodic Five-Year Reviews of the OU1 Remedy; and

12. Periodic updates (*e.g.*, fact sheets, press releases, web updates, and office hours) and attendance at public informational meetings or other meetings with site stakeholders as necessary to keep the public informed about all Work activities.

C. Coordination and Cooperation

Following the issuance of the OU1 ROD in 1998, EPA has performed and continues to perform the remedial design and remedial action for the OU1 Remedy at the Site. Under the Order, Respondent shall take over the implementation of the OU1 Remedy by performing the Remedial Design, Remedial Action, and Operation and Maintenance.

Within sixty (60) days of the effective date of the Order, Respondent shall notify parties that have had a role with respect to the performance of the OU1 Remedy, including but not limited to the following entities, of Respondent's assumption of the implementation of the OU1 Remedy, so that all activities required by this SOW will be performed with existing procedures in place as necessary, ensuring a smooth transition and continued coordination and cooperation:

- Buzzards Bay Coalition
- City of New Bedford
- Commonwealth of Massachusetts, including its departments, agencies, and instrumentalities, which include but are not limited to:
  - o Massachusetts Board of Underwater Archeological Resources (“BUAR”)
  - o Massachusetts Department of Environmental Protection (“MassDEP”)—in addition to its traditional support agency role with respect to the OU1 Remedy, MassDEP is the lead agency for the Site’s State-Enhanced Remedy
  - o Massachusetts Department of Public Health (“MA DPH”)
  - o Massachusetts Division of Marine Fisheries (“MA DMF”)
  - o Massachusetts Historical Commission, which is the State Historic Preservation Officer (“SHPO”)
  - o Massachusetts Office of Coastal Zone Management (“CZM”)
  - o Massachusetts Office of Energy and Environmental Affairs (“EEA”)
- Mashpee Wampanoag Tribe
- New Bedford Community Rowing, Inc.
- New Bedford Harbor Development Commission (“HDC”)
- New Bedford Harbor Trustee Council
- New Bedford Whaling Museum
- New Bedford Whaling National Historic Park

- NSTAR
- Town of Acushnet
- Town of Fairhaven
- United States, including its departments, agencies, and instrumentalities, which include but are not limited to:
  - o Advisory Council on Historic Preservation
  - o EPA and EPA Contractors and EPA Subcontractors, including U.S. Army Corps of Engineers (“USACE”) and USACE contractors and subcontractors
  - o National Oceanic and Atmospheric Administration (“NOAA”)
  - o National Park Service (“NPS”)
  - o NOAA’s National Marine Fisheries Service
  - o U.S. Coast Guard
  - o U.S. Fish and Wildlife Service (“FWS”)
- Wampanoag Tribe of Gay Head (Aquinnah)
- Waterfront Historic Area League (“WHALE”)
- Owners, Leaseholders, Businesses, and Residents of Properties Within and Abutting the Site

D. Overall Remedy Submittals

1. Transition Plan

Within sixty (60) days of the effective date of the Order, Respondent shall submit a Transition Plan for review and approval or disapproval by EPA, after reasonable opportunity for review and comment by the MassDEP. The Transition Plan shall include efficient and cost-effective transition tasks that will enable Respondent to assume and complete the Work from EPA Contractors and EPA Subcontractors without causing delay or work stoppage. EPA may consider coordinating the use and operation of EPA’s Sawyer Street facility, including the existing desanding operations and material management areas, and the dewatering facility located at Hervey Tichon Avenue, as well as all appurtenances. The Transition Plan shall include Respondent’s plans to use or not use EPA’s facilities at Sawyer Street and Hervey Tichon Avenue. If necessary, Respondent shall obtain additional leases, licenses, access agreements, easements, or other property interests with abutters and other stakeholders that EPA determines are necessary to implement the Work. Respondent shall assume all ongoing monitoring at the Site. Respondent shall assume responsibility for all existing institutional controls and implement new institutional controls as needed as determined by EPA. The Transition Plan shall also include Respondent’s coordination and cooperation activities for the implementation of the Work with all Federal, State, local,



and private entities in accordance with Section III(C) of this SOW. Upon approval of the Transition Plan by EPA, Respondent shall implement the requirements of such Plan in accordance with the schedules set forth therein.

2. Long-Term Site-Wide Monitoring Plan

Within sixty (60) days of the effective date of the Order, Respondent shall submit a Long-Term Site-Wide Monitoring Plan for review and approval or disapproval by EPA, after reasonable opportunity for review and comment by the MassDEP. This Plan shall include monitoring for long-term seafood, sediment (including, *inter alia*, benthic community, toxicity, chemistry, and bathymetry), mussel bioaccumulation, and water quality, as well as data gathering in support of Five-Year Reviews, during the phases of Remedial Design, Remedial Action, and Operation and Maintenance for the OU1 Remedy. This Plan shall also include a Long-Term Site-Wide Monitoring Project Operations Plan (“POP”), which shall be prepared in accordance with Attachment A of this SOW (Project Operations Plan Requirements) for any fieldwork, and which shall include, at a minimum:

- a. Site Management Plan (“SMP”);
- b. Sampling and Analysis Plan (“SAP”) which includes:
  - i. Quality Assurance Project Plan (“QAPP”); and
  - ii. Field Sampling Plan (“FSP”);
- c. Site-specific Health and Safety Plan (“HSP”); and
- d. Community Relations Support Plan (“CRSP”).

Upon approval of the Long-Term Site-Wide Monitoring Plan by EPA, Respondent shall implement the requirements of such Plan in accordance with the schedules set forth therein.

3. Site-Wide Institutional Controls Plan

Within sixty (60) days of the effective date of the Order, Respondent shall submit a Site-Wide Institutional Controls Plan for review and approval or disapproval by EPA, after reasonable opportunity for review and comment by the MassDEP. This Plan shall explain how Respondent will assume responsibility for all existing institutional controls and implement new

institutional controls, set forth in the OU1 Remedy, and as needed as determined by EPA, during the phases of Remedial Design, Remedial Action, and Operation and Maintenance for the OU1 Remedy. Upon approval of the Site-Wide Institutional Controls Plan by EPA, Respondent shall implement the requirements of such Plan in accordance with the schedules set forth therein.

4. Chronology of Work

Within sixty (60) days from the effective date of the Order, Respondent shall submit for review and approval or disapproval by EPA, after reasonable opportunity for review and comment by the MassDEP, a Chronology of Work for implementation and sequencing of all components (major components and subcomponents) of the Work for review and approval or disapproval by EPA, after reasonable opportunity for review and comment by the MassDEP. At a minimum, this Chronology of Work shall list the start and end dates of all components of the Work. In no event shall the schedule for construction extend beyond eight (8) years from the effective date of the Order, unless approved by EPA.

5. Master Schedule of Work

Within thirty (30) days of EPA approval of the Chronology of Work, Respondent shall submit for review and approval or disapproval by EPA, after reasonable opportunity for review and comment by the MassDEP, a Master Schedule of Work which will provide the milestones and their deadlines between the start and end dates for every component of the Work and all subtasks of each component. In no event shall the schedule for construction extend beyond eight (8) years from the effective date of the Order, unless approved by EPA.

**IV. PERFORMANCE STANDARDS**

Respondent shall design, construct, operate, monitor, and maintain the OU1 Remedy to meet Performance Standards and protect public health or welfare or the environment. Performance standards shall include cleanup standards, standards of control, quality criteria, and other substantive requirements, criteria or limitations, identified in the OU1 Remedy, including all ARARs.

Respondent shall utilize local labor and materials to the extent practicable in all design, construction, and post-construction activities.



Respondent shall achieve the following additional Performance Standards for the principal features (including the individual components) of the OU1 Remedy:

A. Site Mobilization and Preparatory Work

Administrative requirements, such as building permits and permit fees, will not be required for the portions of the OU1 Remedy that will be conducted on-site. Nonetheless, Respondent is required to meet substantive requirements of all ARARs. Accordingly, Respondent shall coordinate with appropriate City of New Bedford (“City”) officials, including submitting a plan showing locations of structures to the City’s, Department of Public Infrastructure, Department of Public Facilities, Zoning Officer and Conservation Commission prior to mobilization of any new site trailer, or temporary structures and associated utility connections (water, sanitary sewer, electrical). Respondent shall also notify and coordinate with City officials regarding normal building and construction operation hours. With respect to work in Acushnet and Fairhaven, Respondent shall likewise notify and coordinate with officials from these towns.

B. Dredging

As required by the OU1 ROD, a portion of the dredging shall be performed with a cutterhead dredge or its equivalent. A cutterhead dredge is barge-mounted, operates under vacuum, and uses a variable-speed rotating apparatus (the cutterhead) at the sediment surface to loosen the sediments for suctioning and pumping. The cutterhead dredges will be customized as appropriate (*e.g.*, with a vacuum shroud over the cutterhead, oil sheen containment booms, and skimmer pumps to remove any sheen inside the booms) to minimize sediment resuspension and PCB volatilization. Contaminated sediment in deeper water, in the shoreline areas, and in areas where hydraulic dredging is impracticable may have to be removed by other methods (*e.g.*, by clamshell bucket or land-based excavation).

The boundaries for sediment removal and limits of dredging shall be guided using the *Draft Data Interpretation Report* (Foster Wheeler, 2002) and the *Final Volumes, Areas and Properties of Sediment by Management Unit, Rev. 2* (Foster Wheeler, 2003), and any additional sampling required by EPA to determine such boundaries.

As sediment removal progresses, actual conditions shall be monitored by performing bathymetric surveys and by collecting and analyzing sediment cores and sediment samples. The sediment cores and samples shall be used to identify the extent of the PCB contamination for dredge planning purposes, and may be used for confirmational sampling purposes.

Confirmational sampling must be performed to show that the TCLs listed in Section III(A) have been met. Confirmational sampling must be performed to determine whether the sediment left after the dredging or excavation of an area have PCB concentrations at or below the target TCL established for that area as prescribed in the OU1 Remedy. Respondent shall develop a Confirmational Sampling Plan for approval by the EPA. The Confirmational Sampling Plan should be based on the approach and methodology described in *Final Confirmatory Sampling Approach, New Bedford Harbor Superfund Site, New Bedford Harbor, Massachusetts* (Foster Wheeler, 2002), or as determined by EPA.

Respondent shall take measures to avoid impacting the annual Alewife and Blueback Herring in-migration and out-migration in the Upper Harbor with the presence of sheetpiling, barges, dredges, pipelines, boats, etc. The migration schedules for the Alewife and Blueback Herring are obtained annually from the MassDMF. Examples of mitigation measures can be found in *Final 2011 Fish Migration Impact Plan, New Bedford Harbor Remedial Action* (Jacobs, 2011). Any negative impacts or fish kills shall be immediately documented and reported to EPA.

Engineering controls need to be utilized to address the elevated levels of hydrogen sulfide in dredged sediment, including a pretreatment process using ferric sulfate to minimize the hydrogen sulfide levels in the dredge slurry. In addition, air monitoring to detect unsafe levels of hydrogen sulfide need to be performed, and worker safety protocols need to be established.

C. Desanding and Dewatering (Which Includes WWTP Facility) Operations

All hydraulically dredged sediment above the cleanup levels shall be subject to a coarse material separation process and a dewatering process before being disposed in a CDF or transported off-site for disposal at a licensed Toxic Substances Control Act (“TSCA”) facility. After removing larger debris such as large timbers and stones at the dredging platform, the dredged sediment shall be first piped to a coarse material separation facility at Area C. At the separation facility, the sediment shall be subjected to a mechanical process to separate coarse material (sand, gravel, shells, etc.) from the finer grained organic silts. This separation process shall be done in an enclosed building where point source air emissions will be collected and treated. The separated sand and gravel from the separation facility shall be sampled and, if less than 50 ppm total PCBs, may be transported off-site to a non-TSCA facility. The debris shall then be sampled to determine if it can be disposed as TSCA or non-TSCA waste.

Desanded dredged material shall be piped to the dewatering facility (which includes a waste water treatment plant (“WWTP”)) located at Hervey Tichon Avenue (Area D), where it will be processed through filter presses to remove excess water, resulting in a dewatered “filter cake” similar to damp soil in texture. The process shall be completely enclosed within the dewatering building. The filter cake shall be sent off-site to a licensed TSCA-authorized facility or to CDFs A, B, and C.

The water removed by the presses and any process water shall be treated to site-specific monthly average discharge standards listed in the Table 1 below as well as the Commonwealth of Massachusetts ambient water quality standards for Coastal and Marine Class SB waters:

Table 1 – Surface Water Discharge Standards for SB Waters			
Contaminant	Standard	Unit	Regulation
PCBs	0.065	µg/L	phased TMDL limit <sup>1</sup>
Cadmium	9.3	µg/L	AWQC
Chromium	50	µg/L	AWQC
Copper	5.6	µg/L	phased TMDL limit <sup>2</sup>
Lead	8.5	µg/L	AWQC

Contaminated storm water discharged from Cells # 1, 2 and 3, and water collected during CDF construction, filling, and capping, shall be discharged into the City’s POTW only if sample results show that it meets the requirements of the City’s Industrial Discharge Permit No. L-024. If Area D dewatering facility is in operation, then such storm water may be sent to Area D for processing. Alternatively, such storm water may be collected and sent off-site for appropriate treatment and disposal.

<sup>1</sup> EPA, under Section 121(d)(4)(B) of CERCLA, has granted a waiver of 40 C.F.R. § 122.4(i) of the Clean Water Act that will allow the discharge to New Bedford Harbor of treated dewatering filtrate that fails to meet the Ambient Water Quality Criteria (“AWQC”) for PCBs and copper. The CERCLA waiver was granted because mandatory compliance with the AWQC would prevent the sediment dredging and the cleanup of the Site. The goal with respect to these two parameters is that treated effluent will meet the AWQC for PCBs and copper through a phased Total Maximum Daily Load (“TMDL”) approach.

<sup>2</sup> See footnote above.



#### D. Material Handling

The sediment dredging, desanding and dewatering operations generate several waste streams, including, *inter alia*, the following materials generated by the dewatering/size separation processes:

- Debris removed ahead of dredging operations—The debris waste stream shall be rinsed to remove as much sediment as practicable prior to temporary storage at Area C. This material shall be sampled prior to disposal to determine appropriate characterization. If waste characterization does not indicate that these materials must be handled as TSCA, RCRA, or Massachusetts hazardous waste (MA02), this material shall be managed as a solid waste and disposed of in a permitted solid waste or construction and demolition landfill;
- Dredge slurry—Coarse phase materials (rocks, crustaceans, shellfish, pulverized roots and brush, etc.) shall be separated from the dredge slurry by means of a vibrating screen at Area C, and sand shall be separated from the dredge slurry by means of hydrocyclones and 200 mesh screens at Area C (screened material from desanding operations). The screened material at Area C shall be sampled and segregated for waste management purposes. If waste characterization does not indicate that these materials must be handled as TSCA, RCRA, or Massachusetts hazardous waste (MA02), this material shall be managed as a solid waste and disposed of in a permitted solid waste or construction and demolition landfill;
- Dewatered filter cake from filter presses at Area D—Slurry passing through the screening/desanding equipment at Area C shall be pumped to Area D for dewatering using filter presses or their equivalent. The filter cake generated is characterized as a TSCA PCB remediation waste and shall be sampled for waste characterization and disposed of at a TSCA permitted facility. If applicable, the generator (Respondent) and transporters must comply with TSCA notification requirements in accordance with 40 C.F.R. § 761.205. If waste characterization does not indicate that these materials must be handled as TSCA, RCRA, or Massachusetts hazardous waste (MA02), this material shall be managed as a solid waste and disposed of in a permitted solid waste or construction and demolition landfill; and
- Filtrate from dewatering operations at Area D (see Section IV(C) above for treatment options and standards).

E. Disposal of Dredged Sediment in the Lower Harbor CAD Cell

Per OU1 ESD4, approximately 300,000 cubic yards of mechanically dredged sediments from Dredge Management Units (“DMUs”) 25-37 shall be disposed of in a LHCC, located in the Dredged Materials Management Plan (“DMMP”) Area in the New Bedford Lower Harbor. The LHCC will be designed and constructed by the New Bedford Harbor Development Commission (“HDC”) and is expected to be completed in 2013. Respondent shall be responsible for dredging the contaminated material from DMUs 25-37, transporting the dredged material to the LHCC, disposing of the dredged material in the LHCC, capping the LHCC, implementing institutional controls, performing operation and maintenance, conducting bathymetric surveys, and monitoring the sediment, surrounding waters and ambient air during dredging, filling, settling, capping and post-capping of the LHCC (excluding air monitoring during post-capping) in accordance with the OU1 Remedy and other site-specific Performance Standards. Respondent shall coordinate with MassDEP, the HDC, the City of New Bedford, the Town of Fairhaven, and the U.S. Coast Guard with respect to O&M for the LHCC.

F. Disposal of Dredged Sediment in Confined Disposal Facilities

The CDFs shall be designed, constructed, filled, capped, monitored and maintained according to the OU1 Remedy. The CDFs shall be constructed and operated with attention to appropriate conditions, such as proper sequencing of CDF operations, proper maintenance of drainage systems, and maintenance of adequate thicknesses and appropriate types of cover materials, to prevent pollution of groundwater and surface water and deterioration of air quality. The CDFs shall be constructed and operated such that dust, odors, and other nuisance conditions are minimized. Closure of the CDFs with a cap shall be designed in accordance with the OU1 Remedy. Respondent shall coordinate with MassDEP, the City of New Bedford, and the HDC with respect to beneficial reuse of and O&M for the CDFs.

G. Navigational Dredging for North Dock

Should Respondent propose to use the North Dock for dredging operations, as approved by EPA, in order to gain access to the North Dock, built in 2008 on the north side of Area C (south side of Pierce Mill Cove), a channel shall be dredged from the main river channel, extending west 450 feet to an area adjacent to the North Dock. The channel must be 50 feet wide and allow four feet of draft at Mean Low Low Water (“MLLW”). The area adjacent to the North Dock must be dredged to allow boats and barges to maneuver at low tide. Therefore, an area 150 feet x 150 feet shall be dredged northward of the North Dock to a depth that will allow four feet of draft at MLLW.

H. Removal of High Voltage Submerged Power Cables

In order to allow for the dredging of PCB-contaminated sediment near submerged high voltage power cables, Respondent shall work with NStar to procure new cables that will replace the existing electric cables, pull and install the new cables across the river through the conduit that EPA constructed, and connect them to the substations. Respondent shall work with NStar to disconnect the existing electric cables from the substations and remove the existing electric cables from the Harbor floor. Existing cables shall be decontaminated and disposed of according to 40 C.F.R. § 761.79.

I. Removal of Contents of Cells # 1, 2, and 3 and Possible Capping of the DDA Area

The material from Cell # 1 (including approximately 23,000 cubic yards (“cy”) of material, which consist of approximately 10,000 cy of mixed PCB and RCRA characteristic (TCE) hazardous waste and approximately 13,000 cy of PCB-contaminated material) shall be removed. Contents of the Cell #1 will be characterized before disposal. PCB-contaminated material that is RCRA characteristic hazardous waste shall be disposed of in accordance with RCRA hazardous waste and TSCA requirements.

The cells shall be dewatered and such water shall be treated (see Section IV(C) above for treatment options and standards). Treated water shall be sampled for VOCs, PCBs, metals and cyanide.

The piping, liners, concrete berms, and pump housing in Cells # 1, 2 and 3 shall be removed and disposed of as TSCA waste.

Once the Cells # 1, 2 and 3 material and liner are removed, the underlying soil shall be sampled in 50' x 50' grids and analyzed for oil & grease, metals & cyanide, PCBs, VOCs, and semi-volatile organic compounds.

Cells # 1, 2 and 3 shall be backfilled with clean fill, shall be closed in a protective manner, and shall have any necessary institutional controls, to accommodate reasonably anticipated future use of the Sawyer Street facility property, in coordination with the City of New Bedford.

J. Remedial Action Monitoring

During implementation of each component of the OU1 Remedy, Respondent shall perform Remedial Action monitoring, including but not limited to the following:

1. Water Quality Monitoring

Respondent shall conduct water quality monitoring to characterize the aqueous environment, to limit potential ecologically harmful impacts of remedial operations (hydraulic and mechanical dredging of contaminated sediment, debris removal, construction and placement of sediment into the CDFs, and the LHCC, and other support activities) on water quality, and to limit redistribution of contaminated sediment. Specifically, Respondent shall conduct water quality monitoring to ensure that all Work activities are conducted in a manner that does not produce extensive turbidity plumes and potential associated impacts, such as toxicity to marine organisms, contaminant transport, or hindrance of the seasonal migrations of anadromous fish within the Acushnet River. To achieve these goals, the following monitoring activities or their equivalent shall be required:

- Adaptive boat-based monitoring with the use of in-situ instruments to track sediment plumes in real-time;
- Collection of water samples for analytical testing, which will be used to establish baseline water quality conditions and assess project compliance criteria;
- Continuous *in-situ* data collection using fixed-station instrument moorings at strategically selected locations. Data will be collected autonomously or by telemeter to provide water quality data when boat-based monitoring is not possible; and
- Observational monitoring of water quality conditions with respect to fish and wildlife impacts, so as to minimize ecological risk factors.

Site-specific water quality Performance Standards have been developed and may be found in *Water Quality Monitoring Summary Report, 2009 Remedial Dredging* (Woods Hole Group, 2010). Generally, all in-water activities associated with debris removal, dredging, CDF and LHCC implementation (*e.g.*, installing the silt curtain, passive sediment dewatering, placing material into the CDFs and LHCC, and capping the CDFs and LHCC) shall comply with the site-specific turbidity-based water quality Performance Standard of 100 ntu above background measured 300 feet down-current of the management activity. Compliance and implementation of this Performance Standard shall follow the



approach outlined on Figure 5 of the *Water Quality Monitoring Summary Report* for the 2009 dredge season (Woods Hole Group, 2010).

Respondent shall provide all water quality monitoring results for posting on EPA's website for the Site.

2. Air Quality Monitoring

The air sampling and monitoring programs described herein are in addition to those programs designed for worker safety, including Occupational Safety and Health Administration ("OSHA") requirements.

Respondent shall provide all air quality monitoring results for posting on EPA's website for the Site.

a. Ambient Air PCB Monitoring Program

Respondent shall continue the ambient air PCB monitoring program, which began with meteorological data and ambient air samples collected in 2004. Respondent shall comply with the site-specific Allowable Ambient Air Limits and reporting requirements derived in *Draft Final Development of PCB Air Action Levels for the Protection of the Public, New Bedford Harbor Superfund Site, New Bedford Harbor, Massachusetts* (Foster Wheeler, 2001) and revised in *Final Plan for the Sampling of Ambient Air PCB Concentrations to Support Decisions to Ensure the Protection of the Public During Remediation Activities* (Jacobs, 2006). The current site-specific Allowable Ambient Limits are daily average exposure rates, in  $\text{ng}/\text{m}^3\text{-day}$ , of PCBs derived for a child resident and for a commercial worker exposed for twenty-six (26) years. The current site-specific Allowable Ambient Limit for a child resident is  $202 \text{ ng}/\text{m}^3\text{-day}$ , and for a commercial worker is  $344 \text{ ng}/\text{m}^3\text{-day}$ . As the project duration will change significantly, Respondent shall, with EPA review and approval, revise the current Allowable Ambient Limits.

Ambient air samples for PCB analyses shall be collected using sample methods as specified in EPA Method TO-10A (using low volume polyurethane foam ("PUF")). Samples shall continue to be taken at the source and receptor locations and at the frequencies identified in the *Final Plan for the Sampling of Ambient Air PCB Concentrations to Support Decisions to Ensure the Protection of the Public During Remediation Activities* (Jacobs, 2006),



*Execution Plan, 2004, 2005 New Bedford Harbor Remedial Action* (Jacobs, 2004), as amended in yearly Addenda to Execution Plan (Jacobs), as well as at any additional locations and additional frequencies deemed necessary by EPA.

For Cell # 1 at EPA's Sawyer Street facility, where dredged sediment from the shoreline adjacent to the Aerovox Facility is temporarily being stored, ongoing air monitoring shall be continued semi-annually until the contents of Cell # 1 are removed; during the removal of such contents, the frequency of air monitoring will be determined by EPA.

Respondent shall submit meteorological data and ambient air data as part of the progress reports submitted in accordance with Sections VI(B)(2), VII(B)(2), VII(B)(3), and VIII(B)(2) of this SOW, and upon request by EPA. Respondent shall continue to update the Public Exposure Tracking System ("PETS") curves for the locations determined by EPA and shall provide such PETS curves as part of the annual progress reports or upon request by EPA.

b. Perimeter Air Monitoring for VOC Source Areas

For dredging and removal operations and material handling in the vicinity of known or suspected volatile organic compound ("VOC") source areas, *e.g.*, the shoreline adjacent to the Aerovox Facility and Cell # 1 at EPA's Sawyer Street facility, air monitoring shall be performed at locations determined by EPA to provide first alert values and action levels. In addition, for Cell # 1, where dredged sediment from the shoreline adjacent to the Aerovox Facility is temporarily being stored, ongoing air monitoring shall be continued semi-annually until the contents of Cell # 1 are removed; during the removal of such contents, the frequency of air monitoring will be determined by EPA.

Currently, the Perimeter Assessment Value ("PAV") has been established as one tenth of a VOC contaminant's Threshold Limit Value ("TLV")<sup>3</sup> and serves as a warning. The Perimeter Action Limit ("PAL") has been established as two tenths of a contaminant's TLV, and is the level at which an action or

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<sup>3</sup> The TLV is established by ACGIH (American Conference of Governmental Industrial Hygienists) and used by OSHA as a PEL (Permissible Exposure Level).

modification to the work operation must be made in order to maintain or lessen the contaminant concentration. The PAV and PAL are considered protective of the general public beyond the perimeter as they are one or two orders of magnitude below the EPA's Acute Exposure Guideline Levels ("AEGs"). PAVs and PALs for VOCs commonly found near known or suspected VOC source areas, *e.g.*, the shoreline adjacent to the Aerovox Facility, are listed in the Table 2 below. If additional VOC contaminants are detected, PAVs and PALs must be derived using the one-tenth and two-tenths calculations, respectively.

<u>Table 2 – Example PAVs and PALs for VOC Source Areas</u>			
Air Contaminant	8-hr TLV	PAV (1/10th of TLV)	PAL (2/10ths of TLV for 15 min)
Vinyl Chloride	1	NDA	NDA
Perchloroethene	25	2.5	5
Trichloroethene	10	1	2
1,2-Dichloroethene	200	20	40
Hydrogen Sulfide <sup>4</sup>	10	1	2
Notes: - Unit is ppm - NDA = No Detections Allowed			

For the monitoring of potential fugitive VOC emissions around Cell # 1 at EPA's Sawyer Street facility, Respondent shall collect five samples at the perimeter of Cell # 1 twice per year. Locations to be sampled are: Ropeworks Building; Riverside Park; Coffin Ave.; Cell # 1; and Cell # 1 South. Samples shall be collected with a SUMMA canister and analyzed by EPA Method TO-15. Results must be reported to EPA and must be compared to OSHA PELs and ACGIH TLVs. If an analyte is present above the lower of the PEL or TLV, mitigation measures must be put in place to prevent further fugitive emissions. To date, no emissions have required mitigation.

<sup>4</sup> H<sub>2</sub>S shall also be monitored for worker safety as per OSHA requirements.

c. Sediment Processing Air Emission Sampling (a.k.a. Stack Sampling)

Dredging activities have the potential to release PCBs, VOCs, and H<sub>2</sub>S from the contaminated sediment at the Site. Sediment processing activities may also be generation points for emissions at both EPA's Sawyer Street facility (a.k.a. Area C) and EPA's Hervey Tichon Avenue facility (a.k.a. Area D). Emissions from the desanding operations at Area C are captured by a ventilation system above the shakers, and then vented through a carbon treatment system and to the outside through an emission stack. Emissions from the agitated mix tank operations in the dewatering building at Area D are captured from each tank, pass through an activated carbon bed, and vented from within the dewatering building through an air emission stack to the outside so that the post-carbon emissions will be discharged away from the work areas to the ambient air. Respondent shall monitoring emissions by a regular sampling program, developed as part of a Field Sampling Plan, which will be part of a Project Operations Plan.

3. Groundwater Monitoring

During construction, filling, and capping of CDFs A, B, and C, Respondent shall perform groundwater monitoring for, at a minimum, PCBs and metals. In addition, Respondent shall continue the ongoing groundwater monitoring of the pilot study CDF at Area C.

K. O&M Monitoring

Respondent shall perform O&M (Post-RA) monitoring for each component of the OU1 Remedy in accordance with the OU1 Remedy. In addition, there are additional monitoring requirements for the Outer Harbor pilot underwater cap, as discussed below.

- Outer Harbor Pilot Underwater Cap Monitoring

A pilot underwater cap was placed in 2005 over contaminated sediment to evaluate the performance of an underwater cap in the Outer Harbor. This pilot underwater cap addresses contaminated sediment in the Outer Harbor that was included as part of the OU1 Remedy, as discussed in page 6 of the OU1 ROD. The cap was placed by split hull dump scows which dropped evenly spaced rows of dredged material (suitable bottom-of-confined aquatic disposal (CAD)



cell material from navigational CAD cell #1). Bathymetric surveys have been performed in 2005, 2006, 2007, 2009, 2010 and 2011 to monitor the area and thickness of the placed material. The bathymetric survey results were used to compare the pre- and post-placement bathymetry for each year. The bathymetric surveys shall continue annually and must generate the following cap statistics for each year: full placement area; percent of Intended Cap Area with thickness greater than 1 foot; and percent of Intended Cap Area with thickness greater than 2 feet.

Sediment samples have been collected in 2005, 2007, 2009, and 2010 from the Outer Harbor pilot underwater cap area and analyzed for PCBs and Total Organic Carbon (“TOC”). The sample collection and analysis shall continue bi-annually.

- North of Wood Street Sediment Monitoring

In 2002-2003 and 2005, as part of EPA’s performance of the remedial design and remedial action for the OU1 Remedy at the Site, approximately 15,000 cy of PCB-contaminated material was removed from the North of Wood Street (“NWS”) area. The NWS area was remediated using a dry excavation method to eliminate the potential for sediment resuspension and redistribution of contaminants. Annual investigations have been conducted since 2004 to assess the effectiveness of prior remediation and potential recontamination of this NWS area due to sediment transport from unremediated areas. Twenty-one stations have been sampled in the NWS area: eleven river sediment locations and ten marsh soil locations along the eastern and western shores of the Acushnet River. Samples have been analyzed for total PCB concentrations. Respondent shall continue the annual sediment monitoring of the NWS area.

L. Long-Term Site-Wide Monitoring

Respondent shall perform the following long-term site-wide monitoring, set forth in the OU1 Remedy, including but not limited to long-term seafood, sediment (including, *inter alia*, benthic community, toxicity, chemistry, and bathymetry), mussel bioaccumulation, and water quality. Such monitoring is required site-wide (not specifically connected to a particular major component of the OU1 Remedy). In addition, seafood monitoring and ecological monitoring have the following additional requirements:

1. Seafood Monitoring

Seafood monitoring is required annually until PCB levels in seafood reach the risk-based site-specific threshold of 0.02 ppm for three (3) consecutive years, and then every five (5) years, or as determined by EPA. If PCB levels in a particular species reaches 0.02 ppm for three (3) consecutive years, then the frequency of monitoring for this species can be reduced to every five (5) years. Seafood monitoring shall follow the monitoring program design described in *Contaminated [sic] Monitoring Report for Seafood Harvested in 2008 from the New Bedford Harbor Superfund Site* (MassDEP and MA DMF, 2010). Respondent shall coordinate with MassDEP and MA DMF with respect to seafood monitoring.

Sampling and analysis shall continue to be conducted and performed in accordance with methods approved by EPA; species and sampling points as agreed to by EPA; a schedule as agreed to by EPA; and will occur annually, at a minimum (however the EPA may require more frequent or additional monitoring in cases where data are determined to be unacceptable). All analytical results will be submitted to the EPA within sixty (60) days after the scheduled sampling event.

2. Ecological Monitoring

Ecological monitoring is ongoing and is required every five (5) years. Each ecological monitoring event shall be designed to continue the monitoring program described in EPA's *Final Summary Report, New Bedford Harbor Long Term Monitoring V* (Woods Hole Group, 2010), and EPA's *New Bedford Harbor Long Term Monitoring Survey IV: Summary Report* (Battelle, 2005).

Sampling and analysis shall continue to be conducted and performed in accordance with methods approved by EPA; sampling points as agreed to by EPA; a schedule as agreed to by EPA; and will occur every five (5) years, at a minimum (however the EPA may require more frequent or additional monitoring in cases where data are determined to be unacceptable). All analytical results will be submitted to the EPA within sixty (60) days after the scheduled sampling event.

V. **SELECTION OF PROJECT COORDINATOR, SUPERVISING CONTRACTOR, CONTRACTORS, AND SUBCONTRACTORS**

Within ten (10) days after the effective date of the Order, Respondent shall select a Project Coordinator and shall submit the name, address, email address, telephone

number, fax number, and technical qualifications of the Project Coordinator to EPA for review and approval. Respondent's Project Coordinator shall be responsible for overseeing Respondent's implementation of the Order and all aspects of the Work. With respect to any proposed Project Coordinator, Respondent shall demonstrate that the proposed Project Coordinator has a quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed Supervising Contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with the specifications set forth in "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA. If Respondent wishes to change its Project Coordinator, Respondent shall provide written notice to EPA, five (5) days prior to changing the Project Coordinator, of the name, address, email address, telephone number, fax number, and qualifications of the new Project Coordinator. Respondent's selection or change of a Project Coordinator shall be subject to EPA approval. If EPA disapproves of a selected Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify EPA for EPA approval of that person's name, address, email address, telephone number, fax number, and qualifications within ten (10) days following EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from EPA relating to the Order shall constitute receipt by Respondent. The Project Coordinator shall not be an attorney for the Respondent in the Order.

All aspects of the Work to be performed by Respondent pursuant to the Order shall be under the direction and supervision of a Supervising Contractor, the selection of which shall be subject to approval by EPA. Within ten (10) days after the effective date of the Order, Respondent shall notify EPA in writing of the name, address, email address, telephone number, fax number, and qualifications of the Supervising Contractor, including primary support entities and staff, proposed to be used in carrying out Work under the Order. With respect to any proposed Supervising Contractor, Respondent shall demonstrate that the proposed Supervising Contractor has a quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed Supervising Contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with the specifications set forth in "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA. If at any time Respondent proposes to use a different Supervising Contractor, Respondent shall notify EPA and shall obtain approval from EPA before the new Supervising Contractor performs any Work under the Order.



EPA will review Respondent's selection of a Supervising Contractor according to the terms of this Section of the SOW and Section XVI of the Order (EPA Review of Submissions). If EPA disapproves of the selection of the Supervising Contractor, Respondent shall submit to EPA within thirty (30) days after receipt of EPA's disapproval of the Supervising Contractor previously selected, a list of possible Supervising Contractors, including primary support entities and staff that would be acceptable to Respondent. EPA will thereafter provide written notice to Respondent of the names of the Supervising Contractors that are acceptable to EPA. Respondent may then select any approved Supervising Contractors from that list and shall notify EPA of the name of the Supervising Contractor selected within twenty-one (21) days of EPA's notice of acceptable possible Supervising Contractors.

Respondent shall notify EPA of the names, addresses, email addresses, telephone numbers, fax numbers, and qualifications of any Contractors or Subcontractors retained to perform the Work under the Order at least five (5) business days prior to commencement of such Work.

EPA retains the right to disapprove of any, or all, of the Contractors and/or Subcontractors retained by Respondent. If EPA disapproves of a selected Contractor or Subcontractor, Respondent shall retain a different Contractor or Subcontractor within thirty (30) days of EPA's disapproval.

The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out the Work.

## **VI. REMEDIAL DESIGN**

Respondent shall develop a final Remedial Design ("RD") for each component of the remedy described in the OU1 Remedy and this SOW that meets the Performance Standards specified in Section IV of this SOW and that shall incorporate, to the extent practicable, as appropriate, as determined in EPA's sole discretion, the existing remedial design. Section VI(A) of this SOW describes Respondent's responsibilities for RD project meetings. Section VI(B) of this SOW describes Respondent's responsibilities for submitting deliverables that apply to the overall RD. Section VI(C) of this SOW describes Respondent's responsibilities for submitting deliverables for each component of the OU1 Remedy during the RD.

### **A. Remedial Design Project Meetings**

Respondent and its Supervising Contractor shall meet with EPA, EPA Contractors and EPA Subcontractors, and MassDEP during the RD phase to discuss the status of the design, present the results of any investigations, and to discuss any issues associated with the development of design. These meetings shall occur on a

monthly basis, or on a schedule approved by EPA. In addition, EPA may schedule meetings to discuss any interim RD plans or any issues that arise during RD.

B. Overall Remedial Design Deliverables

Respondent shall submit to EPA and MassDEP the following required deliverables (electronic and hard copies) that apply to the overall RD. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to review and approval or disapproval by EPA, after a reasonable opportunity for review and comment by MassDEP, in accordance with Section XVI of the Order (EPA Review of Submissions).

1. Site-Wide Remedial Design POP

Within sixty (60) days of EPA approval of Respondent's Supervising Contractor, Respondent shall prepare a site-wide RD Project Operations Plan ("POP") in accordance with Attachment A of this SOW (Project Operations Plan Requirements) for any fieldwork to support investigations to take place during Remedial Design and prior to Remedial Action, and which shall include, at a minimum:

- a. Site Management Plan ("SMP");
- b. Sampling and Analysis Plan ("SAP") which includes:
  - i. Quality Assurance Project Plan ("QAPP"); and
  - ii. Field Sampling Plan ("FSP");
- c. Site-specific Health and Safety Plan ("HSP"); and
- d. Community Relations Support Plan ("CRSP").

If specific POP requirements are unique to a component of the OU1 Remedy, the RD Work Plan for that component shall provide such requirements.

2. Remedial Design Progress Reports

On the tenth (10th) working day of every month beginning in the month EPA approves the Supervising Contractor and until EPA approval of the 100% Design for all components of the Work, unless otherwise



determined by EPA, Respondent shall submit RD Progress Reports to the EPA and MassDEP in accordance with Section XVII of the Order (Progress Reports). At a minimum, these RD Progress Reports shall:

- a. Describe the actions which have been taken toward achieving compliance with the Order during the previous month;
- b. Include a summary of all results of sampling and tests and all other data received or generated by Respondent or its Contractors, Subcontractors, or agents in the previous month;
- c. Identify all work plans, plans, and other deliverables, required by this SOW, completed and submitted during the previous month;
- d. Identify community relations activities and update CRSP as needed;
- e. Describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next two months and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts, and PERT charts;
- f. Include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for the design and implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays; and
- g. Include any modifications to the work plans or other schedules for the performance of any activity that Respondent has proposed to EPA, no later than seven (7) days prior to the performance of the activity, or that have been approved by EPA.

If requested by EPA, Respondent shall also provide briefings for EPA to discuss the progress of the design and implementation of the Work.

C. Remedial Design Deliverables for Each Component of the OU1 Remedy

Respondent shall submit to EPA and MassDEP the following required deliverables (electronic and hard copies) as stated herein for each component (major component or subcomponent) of the OU1 Remedy. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to

review and approval or disapproval by EPA, after a reasonable opportunity for review and comment by MassDEP, in accordance with Section XVI of Order (EPA Review of Submissions). EPA will consider requests from Respondent to combine two or more of the deliverables described below into one or more deliverable.

1. Remedial Design Work Plan

- a. In accordance with the Master Schedule of Work approved by EPA, for each component of the OU1 Remedy, Respondent shall submit a RD Work Plan. The RD Work Plan shall include any revisions, which are unique to a component of the OU1 Remedy, to the site-wide RD POP.
- b. The RD Work Plan shall summarize all activities to be undertaken in connection with the RD phase for each component of the OU1 Remedy. The RD Work Plan shall include, at a minimum, detailed descriptions of all activities to be undertaken in connection with the RD, identification of the specific activities necessary to complete the RD, and a proposed schedule for completion of RD and all deliverables; and detail the proposed scope and schedule for all deliverables for the RD for each component of the OU1 Remedy. In addition, the RD Work Plan shall include constructability review at each design phase.
- c. Within thirty (30) days of EPA approval of the RD Work Plan for each component of the OU1 Remedy, Respondent shall initiate the design activities in accordance with the RD Work Plan and the schedules set forth therein.
- d. The RD Work Plan shall be consistent with Section XI of the Order (Work to be Performed), the OU1 Remedy, this SOW, and EPA's RD/RA guidance, then in effect.
- e. The RD Work Plan shall describe in detail, at a minimum, the activities to be undertaken during the RD phase per the OU1 Remedy, as well as any other investigations proposed by EPA or proposed by Respondent and approved by EPA. Some of these investigations may include:
  - i. Investigations to delineate the limits of contamination requiring remediation;

- ii. Identification of access to properties needed to implement the OU1 Remedy, including continuation of existing access agreements, leases, licenses, easements, as well as the need for new or expansions of these holdings;
- iii. Studies to evaluate the need for and the most appropriate form(s) of institutional controls for the various components of the OU1 Remedy, taking into account the various exposure pathways and existing institutional controls. The studies shall evaluate the estimated duration, long-term effectiveness and enforceability of various forms of existing and additional institutional controls, including but not limited to deed restrictions, easements, regulatory action, enhanced fish consumption warning, navigational restrictions, zoning ordinances, and/or other legal and/or administrative measures, either individually or in combination. The evaluation shall be consistent with all EPA, MassDEP, U.S. Coast Guard, and other Federal and State guidance documents and regulatory requirements, including any available model forms/documents applicable to institutional controls (*e.g.*, Grant of Environmental Restrictions). The studies shall also include examination of property title and related title work, and shall consider the practicality of establishing various forms of institutional controls taking into consideration the nature and scope of existing encumbrances on the subject property and the ease or difficulty of obtaining subordination agreements relative to such encumbrances;
- iv. Topographical or otherwise appropriate surveys to delineate property boundaries, boundaries of each individual area requiring institutional controls and long and short term property needs to implement the OU1 Remedy within each property (including for newly created land), utilities, rights-of-way, and easements in order to establish the necessary institutional controls; and
- v. Any other investigation required by EPA, or proposed by Respondent and approved by EPA.

2. 30% Design Submission

Within ninety (90) days of EPA's approval of the RD Work Plan for each component of the OU1 Remedy, Respondent shall submit the 30% Design for each component of the OU1 Remedy. The 30% (Conceptual) Design includes design characteristics, ideas, and possible feasibility assessment to determine if the conceptual design can proceed to a detailed design. The 30% Design submission shall include, at a minimum, the results of all field investigations and pre-design studies, a discussion of how ARARs are being met by the design, the design criteria, the project delivery strategy, preliminary plans, drawings, sketches, and calculations, an outline of the required technical specifications, and a preliminary construction schedule and costs. The 30% Design submission shall also include recommendation(s) for the most appropriate form(s) of institutional controls for the various components of the OU1 Remedy to protect human health from potential exposures to contaminated sediment and groundwater, protect the OU1 Remedy, and achieve the Performance Standards. The recommendations shall also: a) describe how the Performance Standards, monitoring and enforcement of the institutional controls for components of the OU1 Remedy will be met, and include plan(s) showing proposed areas requiring institutional controls (locations and extent) for each component of the OU1 Remedy within each property and/or areas within the property; b) be consistent with EPA, MassDEP, U.S. Coast Guard, and other Federal and State guidance documents and regulatory requirements, and any model forms/documents applicable to institutional controls; and c) take into consideration implementation and enforcement of the institutional controls.

3. 60% Design Submission

Within sixty (60) days of EPA's approval of the 30% Design for each component of the OU1 Remedy, Respondent shall submit the 60% Design for each component of the OU1 Remedy. The 60% (Preliminary) Design bridges the design concept and the detailed phase, defines the overall system configuration, and provides the schematics, diagrams and layouts. The 60% Design submission shall include, at a minimum, the results of all field investigations and pre-design studies, a discussion of how ARARs are being met by the design, the design criteria, the project delivery strategy, preliminary plans, drawings, sketches, and calculations, an outline of the required technical specifications, and a preliminary construction schedule and costs. The 60% Design submission shall also include recommendation(s) for the most appropriate form(s) of institutional controls for the various components of the OU1 Remedy to

protect human health from potential exposures due to direct contact with and incidental ingestion of contaminated shoreline sediment and ingestion of contaminated local seafood, protect the OU1 Remedy, and achieve the Performance Standards. The recommendations shall also: a) describe how the Performance Standards, monitoring and enforcement of the institutional controls for components of the OU1 Remedy will be met, and include plan(s) showing proposed areas requiring institutional controls (locations and extent) for each component of the OU1 Remedy within each property and/or areas within the property; b) be consistent with EPA, U.S. Coast Guard, MassDEP, and other Federal and State guidance documents and regulatory requirements, and any model forms/documents applicable to institutional controls; and c) take into consideration implementation and enforcement of the institutional controls.

For certain components of the OU1 Remedy, as approved by EPA, Respondent may skip the 60% Design submission and instead submit the 90% Design submission following EPA approval of the 30% Design.

4. 90% Design Submission

Within sixty (60) days of EPA's approval of the 60% Design (or, as approved by EPA, 30% Design for certain components) for each component of the OU1 Remedy, Respondent shall submit the 90% Design. The 90% (Final Pending Review) Design is a complete description of the design, which has been optimized and detailed from the preliminary design. This submittal shall address 90% of the total RD for each component of the OU1 Remedy, including, but not limited to:

- a. 90% design construction drawings, plans and specifications (general specifications, drawings, and schematics), consistent with the technical requirements of all ARARs. This submittal shall include general correlation between working construction plans/drawings and technical specifications in reproducible format;
- b. Basis of design/assumptions, noting any changes;
- c. All revisions required by EPA on the 30% and 60% Design;
- d. Draft Contingency Plan which shall address the on-site construction workers and the local affected population in the event of an accident or emergency;



- e. Draft Constructability Review report which evaluates the suitability of the project and its components in relation to the Site; and
- f. Draft detailed statement of how Performance Standards, including all ARARs, will be achieved and maintained, and a statement of all assumptions and all drawings and specifications necessary to support the analysis of compliance with all Performance Standards. This statement shall identify each Performance Standard, summarize the requirements of the Performance Standard, specify in detail all activities that will be conducted to comply with the Performance Standard, and specify in detail all activities that will be conducted to demonstrate compliance with the Performance Standard.

5. 100% Design Submission

Within thirty (30) days of EPA's approval of the 90% Design from EPA for each component of the OU1 Remedy, Respondent shall submit the 100% Remedial Design. The 100% (Final Post Review) Design is the final design for moving forward. This design submittal shall address 100% of the total RD for each component of the OU1 Remedy, including, but not limited to:

- a. Complete set of final construction drawings, plans and specifications (general specifications, drawings, and schematics), consistent with the technical requirements of all Performance Standards and in reproducible format. This submittal shall include general correlation between working constructions plans/drawings and technical specifications;
- b. Final bid documents including final drawings and technical specifications, complete cost proposal, and the required schedule;
- c. All revisions required by EPA on the 90% Design;
- d. Final Contingency Plan which shall address the on-site construction workers and the local affected population in the event of an accident or emergency;
- e. Final Constructability Review report which evaluates the suitability of the project and its components in relation to the Site; and

- f. Final detailed statement of how Performance Standards, including all ARARs, are to be achieved and shall be maintained for each component of the OU1 Remedy, and a statement of all assumptions and all drawings and specifications necessary to support the analysis of compliance with all Performance Standards.

## VII. REMEDIAL ACTION

Respondent shall implement the 100% Design for each component (major component or subcomponent) of the OU1 Remedy, as described in the OU1 Remedy and this SOW that meets the applicable Performance Standards specified in Section IV of this SOW. Section VII(A) of this SOW describes Respondent's responsibilities for RA project meetings. Section VII(B) of this SOW describes Respondent's responsibilities for submitting deliverables that apply to the overall Remedial Action. Section VII(C) of this SOW describes Respondent's responsibilities for submitting deliverables for each component of the OU1 Remedy during the RA.

### A. Remedial Action Project Meetings

#### 1. Pre-Construction Conference

Within ten (10) days of EPA's approval of the Final Remedial Action Work Plan for each component of the OU1 Remedy, Respondent shall hold a Pre-Construction Conference. The participants shall include all parties involved in the Remedial Action, including but not limited to Respondent and its representatives, EPA, EPA Contractors, EPA Subcontractors, and MassDEP.

#### 2. Meetings During Construction

During the construction period, Respondent and its construction Contractor(s) shall meet monthly, or more frequently as needed, with EPA, EPA Contractors, EPA Subcontractors, and MassDEP regarding the progress and details of construction. Conference calls may be substituted for meetings upon approval of EPA.

### B. Overall Remedial Action Deliverables

In accordance with the EPA approved Master Schedule of Work, Respondent shall submit to EPA and MassDEP the following required deliverables (electronic and hard copies) that apply to the overall Remedial Action. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to

review and approval or disapproval by EPA, after a reasonable opportunity for review and comment by MassDEP, in accordance with Section XVI of the Order (EPA Review of Submissions).

1. Site-Wide Remedial Action POP

Within thirty (30) days of EPA approval of the 90% Design for the first component of the OU1 Remedy, Respondent shall submit a site-wide Remedial Action Project Operations Plan (“POP”) which shall be prepared in accordance with Attachment A of this SOW (Project Operations Plan Requirements) for any fieldwork to support investigations to take place during Remedial Action, and which shall include, at a minimum:

- a. Site Management Plan (“SMP”);
- b. Sampling and Analysis Plan (“SAP”) which includes:
  - i. Quality Assurance Project Plan (“QAPP”); and
  - ii. Field Sampling Plan (“FSP”);
- c. Site-specific Health and Safety Plan (“HSP”);
- d. Community Relations Support Plan (“CRSP”); and
- e. Construction quality assurance components, including, at a minimum, the following elements:
  - i. Responsibility and authority of all organization and key personnel involved in the Remedial Action construction;
  - ii. Construction Quality Assurance (“CQA”) Personnel Qualifications. The Contractor shall establish the minimum qualifications of the CQA Officer and supporting inspection personnel;
  - iii. Inspection Activities. The Contractor shall establish the observations and tests that will be required to monitor the construction and/or installation of the components of the Remedial Action(s), and verify compliance with health and safety procedures and environmental requirements (*e.g.*, air quality and emissions monitoring records, waste disposal transportation manifests);



- iv. Checklists for the required tests and inspections;
- v. Documentation. The Contractor shall describe the reporting requirements for CQA activities. This shall include such items as daily summary reports and inspection data sheets;
- vi. A process for notifying EPA and MassDEP and seeking approval for changes to the design or remedial action; and
- vii. A process for responding to significant weather events during construction.

If specific POP requirements are unique to a component of the OU1 Remedy, the Remedial Action Work Plan for that component shall provide such requirements.

## 2. Monthly Remedial Action Progress Reports

On the tenth (10th) working day of each month during construction, beginning with the submission of the first Final Remedial Action Work Plan for the first component of the OU1 Remedy and until EPA approval of the last Remedy Component Completion Report for the last component of the OU1 Remedy, Respondent shall submit Monthly Remedial Action Progress Reports. The Monthly RA Progress Reports shall summarize all activities that have been conducted during each period and those planned for the next two periods. At a minimum, these Monthly RA Progress Reports shall:

- a. Describe the actions which have been taken toward achieving compliance with the Order during the previous month;
- b. Include a summary of all results of sampling and tests and all other data received or generated by Respondent or its Contractors, Subcontractors, or agents in the previous month;
- c. Submit all data received during the reporting period, and summarize the results of all analytical data received during the reporting period;
- d. Identify community relations activities and update CRSP as needed;

- e. Identify all work plans, plans, and other deliverables, required by this SOW, completed and submitted during the previous month;
- f. Describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next two months and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts, and PERT charts;
- g. Identify the percent of construction completed;
- h. Identify the status of each component of OU1 Remedy. If a component of the OU1 Remedy has been completed since the last Progress Report, the Progress Report shall provide a description and chronology of the activities completed, as-built drawings signed and stamped by a professional engineer, and sufficient documentation that the OU1 Remedy component meets the applicable Performance Standards, including sampling results and QA/QC documentation of these results;
- i. Submit, as requested by EPA, all other documentation regarding performance of the Work (*e.g.*, daily field logs for activities);
- j. If appropriate, submit photographs/videos of the on-site activities. Photographs/videos shall be labeled with the date, brief description of the activity, weather conditions and direction/orientation of the photograph/video;
- k. Identify information regarding unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays;
- l. Identify any problems encountered and/or changes to the schedule; and
- m. Include any modifications to the work plans or other schedules for the performance of any activity that Respondent has proposed to EPA, no later than seven (7) days prior to the performance of the activity, or that have been approved by EPA;

If requested by EPA, Respondent shall also provide briefings for EPA to discuss the progress of the Work.

3. Annual Remedial Action Progress Reports

By February 1, following every year during construction, beginning with the submission of the first Final Remedial Action Work Plan for the first component of the OUI Remedy and until EPA approval of the last Remedy Component Completion Report for the last component of the OUI Remedy, Respondent shall submit Annual Remedial Action Progress Reports. The Annual RA Progress Reports shall summarize all activities that have been conducted during each period and those planned for the next two periods. At a minimum, these Annual RA Progress Reports shall:

- a. Describe the actions which have been taken toward achieving compliance with the Order during the previous year;
- b. Include a summary of all results of sampling and tests and all other data received or generated by Respondent or its Contractors, Subcontractors, or agents in the previous year;
- c. Submit all data, not previously submitted with a Monthly Remedial Action Progress Report, received during the reporting period, and summarize the results of all analytical data received during the reporting period;
- d. Identify all work plans, plans, and other deliverables, required by this SOW, completed and submitted during the previous year;
- e. Describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next year and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts, and PERT charts;
- f. Identify the percent of construction completed;
- g. Identify the status of each component of OUI Remedy. If a component of the OUI Remedy has been completed since the last Progress Report, the Progress Report shall provide a description and chronology of the activities completed, as-built drawings signed and stamped by a professional engineer, and sufficient

documentation that the OU1 Remedy component meets the applicable Performance Standards, including sampling results and QA/QC documentation of these results;

- h. Report on compliance with Performance Standards;
- i. Provide annual mass balance calculations;
- j. Provide copies of disposal records;
- k. Provide a summary report listing expenditures in the local area (Bristol County) in performing the Work;
- l. Identify information regarding unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays;
- m. Identify any problems encountered and/or changes to the schedule; and
- n. Summarize all modifications to the work plans or other schedules for the performance of all activities that have been approved by EPA, and provide all anticipated modifications to the work plans or other schedules for the next year;

If requested by EPA, Respondent shall also provide briefings for EPA, EPA Contractors, and EPA Subcontractors to discuss the progress of the Work.

C. Remedial Action Deliverables for Each Component of the OU1 Remedy

Respondent shall submit to EPA and MassDEP the following required deliverables (electronic and hard copies) as stated herein for each component (major component or subcomponent) of the OU1 Remedy. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to review and approval or disapproval by EPA, after a reasonable opportunity for review and comment by MassDEP, in accordance with Section XVI of Order (EPA Review of Submissions).

1. Draft Remedial Action Work Plan

Within ninety (90) days of EPA approval of the 30% Design for each component of the OU1 Remedy, Respondent shall submit a Draft Remedial Action Work Plan. This Work Plan shall include, at a minimum:

- a. A discussion of construction strategy;
- b. A description of all activities necessary to implement the Remedial Action, in accordance with the EPA approved 30% Design, this SOW, the Order, the OU1 Remedy, including but not limited to the following:
  - i. Award of project contracts, including all agreements with off-site treatment and/or disposal facilities; and
  - ii. Contractor mobilization/site preparation, including construction of necessary utility hookups;
- c. An Implementation Schedule which shall identify all major milestones for completion of the Remedial Action for each component of the OU1 Remedy, including the commencement and completion of construction. The Implementation Schedule shall also identify the key construction dates including the initiation and completion date of the Remedial Action for each component of the OU1 Remedy. The Implementation Schedule shall also identify the projected dates of the project meetings conducted during the implementation, including those required pursuant to Section VII(A) of this SOW;
- d. Change order procedures;
- e. Lines of and frequency of communications during RA;
- f. Subcontractor submittal/approval process;
- g. Cost estimates (to be kept confidential by EPA if they are clearly marked as Confidential Business Information, following the procedures set forth in 40 C.F.R. Part 2); and
- h. A detailed statement of how all other Performance Standards, including all ARARs, will be achieved and maintained, and a



statement of all assumptions and all drawings and specifications necessary to support the analysis of compliance with all Performance Standards. This statement shall identify each Performance Standard, summarize the requirements of the Performance Standard, specify in detail all activities that will be conducted to comply with the Performance Standard, and specify in detail all activities that will be conducted to demonstrate compliance with the Performance Standard.

2. Institutional Controls Plan

Within ninety (90) days of EPA approval of the 30% Design for each component of the OUI Remedy, Respondent shall submit an Institutional Controls Plan. This Plan for each component of the OUI Remedy shall describe how existing institutional controls shall be continued, maintained and updated as necessary. The Plan shall consider the results of any institutional controls studies under Remedial Design Work Plans (*e.g.*, in accordance with Section VI(C)(1)(e)(iii) of this SOW) and recommendation of institutional controls form(s) under any approved Design submission to protect human health from potential exposures due to direct contact with and incidental ingestion of contaminated shoreline sediment and ingestion of contaminated local seafood, protect the OUI Remedy, and achieve the Performance Standards. Where institutional controls include Grant of Environmental Restriction and Easement or navigational restriction, the Grant or restriction shall be consistent with all EPA, U.S. Coast Guard, MassDEP, and other Federal and State guidance documents and regulatory requirements, including any model forms/documents applicable to institutional controls (*e.g.*, Grant of Environmental Restriction and Easement). The Plan(s) shall also include the following:

- a. All plans/drawings and maps illustrating restricted areas, including surveyed plans meeting all applicable recording requirements;
- b. All plans and schedule for compliance monitoring of institutional controls including, but not limited to, schedule and frequency of inspections, protocol for required document review prior to performing each inspection (*e.g.*, detailed list of documents to be reviewed), protocol for interviews to be performed as part of the inspections (*e.g.*, types of information to be discussed during interview); inspection checklist; list of evidence to be gathered during inspections (including videos/ photographs), and method of gathering and preserving such evidence; inspection reporting, and

actions taken to ensure compliance with institutional controls. The plan shall regularly gather information that will be useful for evaluating the effectiveness of institutional controls. This information and information gathered under the O&M Plan, as well as any other relevant information, shall also be applicable to Five-Year Reviews;

- c. Grant of Environmental Restriction and Easement, where appropriate, specific to the appropriate property and ownership;
- d. Title certification, where appropriate, specific to the appropriate property and ownership;
- e. Identification of party(ies) performing compliance monitoring and reporting; and
- f. Financial assurance plan(s) for long-term compliance monitoring and reporting.

3. Final Remedial Action Work Plan

Within thirty (30) days after EPA approval of the 100% Design submission for each component of the OU1 Remedy, and in accordance with the Master Schedule of Work approved by EPA, for each component of the OU1 Remedy, Respondent shall submit a Final Remedial Action Work Plan. The Remedial Action Work Plan shall include any revisions, which are unique to a component of the OU1 Remedy, to the site-wide Remedial Action POP.

The Final Remedial Action Work Plan shall provide a detailed description of all construction activities, operations and maintenance, performance monitoring, and an overall management strategy necessary to implement and complete the Remedial Action for each component of the OU1 Remedy. The Final Remedial Action Work Plan shall contain, at a minimum:

- a. A description of all activities necessary to implement the Remedial Action, in accordance with the EPA approved 100% Design, this SOW, the Order, the OU1 Remedy, including but not limited to the following:
  - i. Award of project contracts, including all agreements with off-site treatment and/or disposal facilities; and

- ii. Contractor mobilization/site preparation, including construction of necessary utility hookups;
- b. Revisions to the EPA approved Remedial Action POP that are unique to the particular component of the OU1 Remedy;
- c. An Implementation Schedule which shall identify all major milestones for completion of the Remedial Action for each component of the OU1 Remedy, including the commencement and completion of construction. The Implementation Schedule shall also identify the key construction dates including the initiation and completion date of the Remedial Action for each component of the OU1 Remedy. The Implementation Schedule shall also identify the projected dates of the project meetings conducted during the implementation, including those required pursuant to Section VII(A) of this SOW; and
- d. A detailed statement of how all Performance Standards, including all ARARs, will be achieved and maintained, and a statement of all assumptions and all drawings and specifications necessary to support the analysis of compliance with all Performance Standards. This statement shall identify each Performance Standard, specify summarize the requirements of the Performance Standard, specify in detail all activities that will be conducted to comply with the Performance Standard, and specify in detail all activities that will be conducted to demonstrate compliance with the Performance Standard.

4. Initiation of Construction

Within thirty (30) days of EPA's approval of the Final Remedial Action Work Plan for the each component of the OU1 Remedy, Respondent shall initiate all the Remedial Action activities specified in the schedule contained therein.

5. Pre-Final Construction Inspection

Within ten (10) days after Respondent concludes that the construction has been fully (100% complete) performed for each component of the OU1 Remedy, Respondent shall schedule and conduct a Pre-Final Construction Inspection. This inspection shall include participants from all parties involved in the Remedial Action for the particular component of the OU1

Remedy, including but not limited to Respondent, Respondent's Contractors, EPA, EPA Contractors, EPA Subcontractors, and MassDEP.

6. Remedy Component Completion Report

Upon completion of construction of the Remedial Action for each component of the OU1 Remedy, Respondent shall submit a Remedy Component Completion Report (entitled "Remedy Component Completion Report for \_\_\_\_\_ Component of the OU1 Remedy"). The report shall be submitted within forty-five (45) days of the Pre-Final Construction Inspection. The report shall be consistent with the current EPA Superfund construction completion guidance and shall include, at a minimum, the following documentation:

- a. A summary of all procedures actually used (in chronological order) during construction;
- b. Tabulation of all analytical data and field notes prepared during the course of the Remedial Design and Remedial Action to document that materials used were as specified in the EPA approved 100% Design. Full copies of all results and notes shall be available and produced for EPA and MassDEP upon request;
- c. QA/QC documentation of these results;
- d. Presentation of these results in appropriate figures;
- e. "As-built" drawings, signed and stamped by a professional engineer;
- f. Documentation of the Pre-Final Construction Inspection, including description of the deficient construction items identified during the inspection and documentation of the final resolution of all deficient items;
- g. Certification that the component of the OU1 Remedy was performed consistent with the OU1 Remedy, the Order, this SOW, the design plans and specifications, and the Final Remedial Action POP;
- h. A description, with appropriate photographs/videos, maps and tables of the disposition of the Site (including areas and volumes of soil/sediment placement and disturbance);



- i. Final, detailed cost breakdowns for the various elements of the particular component of the OU1 Remedy;
- j. Conclusions regarding conformance of construction activities with the Performance Standards and conformance with the schedule to achieve compliance with the Performance Standards;
- k. A description of the implementation of all necessary institutional controls; and
- l. Schedule for remaining maintenance activities, compliance monitoring including summary of the Operation and Maintenance Plan, and discussion of any problems/concerns.

7. Implementation of Institutional Controls

Within sixty (60) days of receipt of EPA approval of the Institutional Controls Plan (see Section VII(C)(2) of this SOW) for each component of the OU1 Remedy, after reasonable opportunity for review and comment by MassDEP, and consistent with Section XXI of the Order (Site Access and Institutional Controls), Respondent shall implement the Institutional Controls Plan. In the event that a request to MassDEP to serve as grantee of any grant of environmental restriction and easement is anticipated, Respondent shall be consistent with MassDEP guidance documents and regulatory requirements, including any model forms/documents applicable to institutional controls (*e.g.*, Grant of Environmental Restriction and Easement).

8. Certification of Completion of the Remedial Action (*a.k.a.*, Preliminary Close Out Report)

Within ten (10) days of EPA approval of the last Remedy Component Completion Report for the last component of the OU1 Remedy, after Respondent concludes that the Remedial Action has been fully performed, Respondent shall notify EPA and shall schedule and conduct a pre-certification inspection to be attended by Respondent and EPA. The pre-certification inspection shall be followed by a written report submitted within forty-five (45) days of the inspection by a registered professional engineer and Respondent's Project Coordinator certifying that the Remedial Action has been completed in full satisfaction of the requirements of this Order. If, after completion of the pre-certification inspection and receipt and review of the written report, EPA determines



that the Remedial Action or any portion thereof has not been completed in accordance with this Order, EPA shall notify Respondent in writing of the activities that must be undertaken to complete the Remedial Action and shall set forth in the notice a schedule for performance of such activities. Respondent shall perform all activities described in the notice in accordance with the specifications and schedules established therein. If EPA concludes, following the initial or any subsequent certification of completion by Respondent, that the Remedial Action has been fully performed in accordance with this Order, EPA may notify Respondent that the Remedial Action has been fully performed. EPA's notification shall be based on present knowledge and Respondent's certification to EPA.

### **VIII. OPERATION AND MAINTENANCE**

Respondent shall implement Operation and Maintenance ("O&M") for each component of the OU1 Remedy, as described in the OU1 Remedy and this SOW, that meets the applicable Performance Standards specified in Section IV of this SOW.

#### **A. O&M Project Meetings**

Until EPA approval of the last Remedy Component Completion Report for the last component of the OU1 Remedy, Respondent and its Supervising Contractor shall discuss the status of the Operation and Maintenance during the monthly Remedial Design project meetings or Remedial Action project meetings. Following EPA approval of the last Remedy Component Completion Report for the last component of the OU1 Remedy, Respondent and its Supervising Contractor shall meet with EPA, EPA Contractors, EPA Subcontractors, and MassDEP to discuss the status of the Operation and Maintenance on a quarterly basis for the first two (2) years and then semi-annually thereafter, or on a schedule approved by EPA.

#### **B. Overall O&M Deliverables**

In accordance with the EPA approved Master Schedule of Work, Respondent shall submit to EPA and MassDEP the following required deliverables (electronic and hard copies) that apply to the overall O&M. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to review and approval or disapproval by EPA, after a reasonable opportunity for review and comment by MassDEP, in accordance with Section XVI of the Order (EPA Review of Submissions).

1. Site-Wide O&M POP

Within sixty (60) days of EPA approval of Respondent's Supervising Contractor, Respondent shall submit a site-wide O&M Project Operations Plan ("POP") which shall be prepared in accordance with Attachment A of this SOW (Project Operations Plan Requirements) for any fieldwork to support investigations to take place during O&M (including environmental monitoring), and which shall include, at a minimum:

- a. Site Management Plan ("SMP");
- b. Sampling and Analysis Plan ("SAP") which includes:
  - i. Quality Assurance Project Plan ("QAPP"); and
  - ii. Field Sampling Plan ("FSP");
- c. Site-specific Health and Safety Plan ("HSP"); and
- d. Community Relations Support Plan ("CRSP").

If specific POP requirements are unique to a component of the OU1 Remedy, the Operation and Maintenance Plan for that component shall provide such requirements.

2. O&M Progress Reports

On the tenth (10th) working day after each calendar quarter, or another period as determined by EPA, beginning in the quarter EPA approves the Supervising Contractor, until EPA approval of the last Demonstration of Compliance Report for the last component of the OU1 Remedy, Respondent shall submit O&M Progress Reports for EPA review and approval or disapproval, after a reasonable opportunity for review and comment by MassDEP. The O&M Progress Reports shall summarize all activities that have been conducted during each period and those planned for the next period. The Progress Reports shall also:

- a. Identify any problems encountered and/or changes to the schedule;
- b. Include any modifications to the work plans or other schedules for the performance of any activity that Respondent has proposed to EPA, no later than seven (7) days prior to the performance of the activity, or that have been approved by EPA;

- c. Submit all data received during the reporting period, and summarize the results of all analytical data received during the reporting period;
- d. Identify the status of each component of OU1 Remedy;
- e. Identify community relations activities and update CRSP as needed;
- f. Submit, as requested by EPA, all other documentation regarding performance of the O&M (e.g., daily field logs for activities); and
- g. If appropriate, submit photographs/videos of the on-site O&M activities. Photographs/videos shall be labeled with the date, brief description of the activity, weather conditions and direction/orientation of the photograph/video.

C. O&M Deliverables for Each Component of the OU1 Remedy

Respondent shall submit to EPA and MassDEP the following required deliverables (electronic and hard copies) as stated herein for each component (major component or subcomponent) of the OU1 Remedy. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to review and approval or disapproval by EPA, after a reasonable opportunity for review and comment by MassDEP, in accordance with Section XVI of Order (EPA Review of Submissions).

1. Draft Operation and Maintenance Plan

Within sixty (60) days of EPA's approval of the 60% Design (or, as approved by EPA, 30% Design for certain components) for each component of the OU1 Remedy, or within ninety (90) days of EPA approval of Respondent's Supervising Contractor for the North of Wood Street and Pilot Underwater Cap components, Respondent shall submit a Draft Operation and Maintenance Plan. This Plan for each component of the OU1 Remedy shall be consistent with the OU1 Remedy and shall include, at a minimum, the following:

- a. Description of normal operations and maintenance;
- b. Description of potential operational problems:

- c. Description of monitoring program;
- d. Description of contingency operation and monitoring;
- e. Description of the implementation of all necessary institutional controls;
- f. Operational safety plan;
- g. Description of equipment;
- h. Annual operation and maintenance budget;
- i. Recordkeeping and reporting requirements;
- j. Well maintenance program including, at a minimum, a provision for inspection, continued maintenance and repair, if necessary, of all existing wells, and a provision for prompt and proper well abandonment, as appropriate;
- k. Establishment of financial assurance mechanisms for post-closure care consistent with the Order;
- l. Post-closure care inspection schedules and provisions for implementing such activities;
- m. Detailed discussions describing the procedures that Respondent shall use to fulfill the five-year review requirements of CERCLA; and
- n. Access plan that describes how access to all components of the remedy will be obtained for the entire period O&M is required for the component of the remedy.

2. Final Operation and Maintenance Plan

Within thirty (30) days of the 75% construction complete date for each component of the OU1 Remedy, or within thirty (30) days of EPA approval of the Draft Operation and Maintenance Plan for the North of Wood Street and Pilot Underwater Cap components, Respondent shall submit to EPA for review and approval or disapproval by EPA, after reasonable opportunity for review and comment by MassDEP, a Final Operation and Maintenance Plan for the particular component of the OU1



Remedy. The Final Operation and Maintenance Plan shall be based on the Draft Operation and Maintenance Plan approved by EPA, shall be in accordance with the EPA approved 100% Design, Final Remedial Action Work Plan, and Institutional Controls Plan, as appropriate, and shall include all aforementioned relevant requirements for the Draft Operation and Maintenance Plan.

3. Initiation of Final Operation and Maintenance Plan

Within thirty (30) days of EPA approval of the Remedy Component Completion Report for each component of the OU1 Remedy, or within thirty (30) days of EPA approval of the Final Operation and Maintenance Plan for the North of Wood Street and Pilot Underwater Cap components, Respondent shall implement all operation and maintenance activities in accordance with the terms and schedules set forth in the EPA approved Final Operation and Maintenance Plan for the particular component of the OU1 Remedy. Upon initiation of the EPA approved Final Operation and Maintenance Plan for each component of the OU1 Remedy, Respondent shall notify EPA and MassDEP in accordance with Section XXIV of the Order (Notifications and Submittals).

4. Certification of Completion of the Work

Within thirty (30) days after Respondent concludes that all phases of the Work have been fully performed, that the Performance Standards have been attained, and that all Operation and Maintenance activities have been completed, Respondent shall submit to EPA a written report by a registered professional engineer certifying that the Work has been completed in full satisfaction of the requirements of this Order. EPA shall require such additional activities as may be necessary to complete the Work or EPA may, based upon present knowledge and Respondent's certification to EPA, issue written notification to Respondent that the Work has been completed, as appropriate, in accordance with the procedures set forth in Section VII(C)(8) of this SOW for Respondent's certification of completion of the Remedial Action

**IX. SUBMISSIONS REQUIRING AGENCY APPROVAL**

- A. All plans, deliverables and reports identified in the SOW for submittal to EPA and the MassDEP shall be delivered (electronically and hard copies) to EPA and MassDEP in accordance with the Order and this SOW.



- B. Any plan, deliverable, or report submitted to EPA and MassDEP for approval or disapproval by EPA shall be printed using two-sided printing and marked “Draft” on each page and shall include, in a prominent location in the document, the following disclaimer: “Disclaimer: This document is a DRAFT document prepared by the Respondent under a government Unilateral Administrative Order. This document has not undergone formal review by the U.S. Environmental Protection Agency and Massachusetts Department of Environmental Protection. The opinions, findings, and conclusions, expressed are those of the author and not those of EPA and MassDEP.”
- C. Any plan, deliverable, or report submitted to EPA and MassDEP for approval or disapproval by EPA shall contain the following certification by a duly authorized representative of Respondent:
- “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”
- D. Approval of a plan, deliverable or report does not constitute approval of any model or assumption used by Respondent in such plan, deliverable or report.