UNILATERAL ADMINISTRATIVE ORDER FOR REMEDIAL DESIGN, REMEDIAL ACTION, AND OPERATION AND MAINTENANCE

U.S. EPA DOCKET NO. CERCLA-01-2012-0045

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

SDMS DocID 507998

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1 – EPA New England
5 Post Office Square, Suite 100
Boston, MA 02109

In the Matter of: New Bedford Harbor Superfund Site, Upper and Lower Harbor Operable Unit AVX Corporation, Respondent Proceeding Under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 U.S.C. § 9606(a))	U.S. EPA Docket No. CERCLA-01-2012-0045

UNILATERAL ADMINISTRATIVE ORDER FOR REMEDIAL DESIGN, REMEDIAL ACTION, AND OPERATION AND MAINTENANCE

I. INTRODUCTION AND JURISDICTION

1. This Order directs Respondent to perform a Remedial Design and to implement the Remedial Design by performing a Remedial Action and performing Operation and Maintenance of such Remedial Action for the remedy described in the Record of Decision ("ROD") for the Upper and Lower Harbor Operable Unit (Operable Unit 1 or "OU1") of the New Bedford Harbor Superfund Site (the "Site"), dated September 25, 1998 ("OU1 ROD"), as that remedy has been modified by Explanations of Significant Differences ("ESDs") issued on September 27, 2001 ("OU1 ESD1"), August 15, 2002 ("OU1 ESD2"), March 4, 2010 ("OU1 ESD3"), and March 14, 2011 ("OU1 ESD4"). This Order is issued to Respondent by the United States Environmental Protection Agency ("EPA") under the authority to issue "such orders as may be necessary to protect public health and welfare and the environment" vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580 (52 Fed. Reg. 2926, January 29, 1987), further delegated to EPA Regional Administrators on May 11, 1994 by EPA Delegation No. 14-14-B, and redelegated to the Director, Office of Site Remediation and Restoration, by EPA Region 1 Delegation No. 14-14-B (Class No. 1200), dated September 3, 1996. This Order is authorized under the rights reserved by the United States against Respondent in Paragraphs 16 and 18 of the Consent Decree entered into by the United States, the Commonwealth of Massachusetts, and Respondent 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.

II. DEFINITIONS

2. Unless otherwise expressly provided herein, terms used in this Order 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 Order or in the documents attached to this Order or incorporated by reference into this Order, 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. A copy of the 1992 Consent Decree is included in the Section 106 Administrative Record.

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. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601 *et seq.*, commonly known as "Superfund."

e. "CDF" shall mean Confined Disposal Facility.

f. "Contractor" shall mean the company or companies retained by Respondent to undertake and complete the Work required by this Order. Each Contractor and Subcontractor shall be qualified to do those portions of the Work for which it is retained.

g. "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 this 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.

h. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

i. "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.

j. "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.

k. "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.

l. "EPA Hazardous Substance Superfund" or "Fund" shall mean the Hazardous Substance Superfund established by the Internal Revenue Code, 26 U.S.C. § 9507.

m. "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.

n. "Hot Spot Operable Unit" or "OU2" shall mean the second operable unit, including a roughly 5-acre area in the Upper Harbor with sediment contaminated with PCBs at concentrations over 4,000 ppm, as identified in EPA's Record of Decision dated April 6, 1990.

o. "LHCC" shall mean a Lower Harbor Confined Aquatic Disposal ("CAD") Cell.

p. "MassDEP" shall mean the Massachusetts Department of Environmental Protection and any successor departments or agencies of the Commonwealth.

q. "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.

r. "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 the SOW and the final plans and specifications developed in accordance with the SOW, including any additional activities required under Sections XI, XII, XIII, and XIV of this Order.

s. "Order" shall mean this Order (Docket No. CERCLA 01-2012-0045) and all Appendices attached hereto.

t. "OU1 ESD1" shall mean the Explanation of Significant Differences signed by the Regional Administrator, EPA Region 1, on September 27, 2001.

u. "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.

v. "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.

w. "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.

x. "OU1 Remedy" shall mean the remedy described in the OU1 ROD as modified by OU1 ESD1, OU1 ESD2, OU1 ESD3, and OU1 ESD4.

y. "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.

z. "OU2 Amended ROD" shall mean the Amended Record of Decision for the Hot Spot Operable Unit issued by EPA on April 27, 1999.

aa. "OU2 ESD1"shall mean the Explanation of Significant Differences signed by the Regional Administrator, EPA Region 1, on April 27, 1992.

bb. "OU2 ESD2" shall mean the Explanation of Significant Differences signed by the Regional Administrator, EPA Region 1, on October 30, 1995.

cc. "OU2 Remedy" shall mean the remedy described in the OU2 ROD as modified by OU2 ESD1, OU2 ESD2, and OU2 Amended ROD.

dd. "OU2 ROD" shall mean the Record of Decision for the Hot Spot Operable Unit issued by EPA on April 6, 1990. The OU2 ROD is referred to in the 1992 Consent Decree as the "first operable unit record of decision" because, chronologically, it was the first record of decision issued by EPA for the Site.

ee. "Paragraph" of this Order shall mean a portion of this Order identified by an Arabic numeral.

ff. "PCBs" shall mean polychlorinated biphenyls.

gg. "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 the Statement of Work, that the Remedial Action and Work required by this Order must attain and maintain.

hh. "PPM" or "ppm" shall mean parts per million.

ii. "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).

jj. "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 the SOW and the final plans and specifications developed in accordance with the SOW, including any additional activities required under Sections XI, XII, XIII, and XIV of this Order.

kk. "Remedial Costs" shall have the meaning provided in the 1992 Consent Decree.

ll. "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 the Statement of Work.

mm. "Respondent" shall mean AVX Corporation, including the entities identified in Paragraph 2(A) of the 1992 Consent Decree.

nn. "Response Costs" shall have the meaning provided in the 1992 Consent Decree.

oo. "Section" of this Order shall mean a portion of this Order identified by a Roman numeral and includes one or more Paragraphs.

pp. "Section 106 Administrative Record" shall mean the administrative record that contains the documents that form the basis for EPA's issuance of this Order. The Section 106 Administrative Record includes, but is not limited to, the documents and information upon which EPA based the selection of the response actions for the Site (*i.e.*, the administrative records for the OU1 Remedy and the OU2 Remedy).

qq. "Site" shall mean the New Bedford Harbor Superfund Site, as described in the OU1 ROD and the 1992 Consent Decree.

rr. "State" or "Commonwealth" shall mean the Commonwealth of Massachusetts.

ss. "Statement of Work" or "SOW" shall mean the Statement of Work for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance at the Site for OU1, as set forth in Appendix 1 to this Order. The Statement of Work is incorporated into this Order and is an enforceable part of this Order.

tt. "TCE" shall mean trichloroethylene.

uu. "TSCA" shall mean the Toxic Substance Control Act, as amended, 15 U.S.C. § 2601 *et seq.*

vv. "United States" shall mean the United States of America.

ww. "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.

xx. "VOCs" shall mean volatile organic compounds.

yy. "Work" shall mean all activities Respondent is required to perform under this Order, including Remedial Design, Remedial Action, Operation and Maintenance, and any activities required to be undertaken pursuant to Sections VII through XXIX of this Order.

III. FINDINGS OF FACT

A. General Findings of Fact

3. The New Bedford Harbor Superfund Site (the "Site") is located in Bristol County, Massachusetts. The 18,000-acre Site extends from the shallow northern reaches of the Acushnet River estuary, south through the commercial harbor of the City of New Bedford ("City"), and into 17,000 adjacent acres of Buzzards Bay.

4. From the 1940s into the 1970s, two electrical capacitor manufacturing facilities in New Bedford—one located near the northern boundary of the Site (the Aerovox Facility) and the other presently located just south of the New Bedford Hurricane Barrier (the Cornell-Dubilier facility)—discharged polychlorinated biphenyl ("PCB") wastes into the Site. As determined through EPA's site-specific investigations, the Aerovox Facility was the primary source of PCBs released at and to the Site. Total PCB usage due to the electrical capacitor manufacturing at the Aerovox Facility and the Cornell-Dubilier facility in the mid-1970s was about two million

pounds per year. In 1978, the manufacture and sale of PCBs were banned by the Toxic Substance Control Act ("TSCA"), 15 U.S.C. § 2601 *et seq.*

5. The Site is contaminated with high concentrations of many hazardous substances, notably PCBs and heavy metals, with contaminant gradients generally decreasing from north to south. In addition, in 2008, analytical tests showed that PCB-contaminated sediment excavated from an area along the shoreline near the Aerovox Facility had high levels of trichloroethylene ("TCE"), a volatile organic compound ("VOC"), which made such sediment RCRA hazardous waste.

6. The Site includes three geographic areas of the Acushnet River estuary and Buzzards Bay—the Upper, Lower and Outer Harbors[1]—consistent with geographical features of the area and gradients of contamination. EPA divided the Site into three operable units ("OUs"), as defined in 40 C.F.R. § 300.5. OU1 covers the Upper and Lower Harbors, with an interim action for two locations in the Outer Harbor. OU2 addressed the hot spot sediment, defined as sediment containing PCBs at levels above 4,000 ppm, generally located in a five-acre area near the Aerovox Facility in the Upper Harbor. OU3 encompasses the entire 17,000-acre Outer Harbor area. This Order addresses OU1, specifically the Remedial Design, Remedial Action, and Operation and Maintenance for the OU1 Remedy.

7. The Upper Harbor comprises approximately 187 acres, with current sediment PCB levels ranging from below detection to approximately 4,000 parts per million. Prior to the removal of the most contaminated hot spot sediment in 1994 and 1995 as part of EPA's first cleanup phase, sediment PCB levels were reported higher than 100,000 ppm in the Upper Harbor. The boundary between the Upper and Lower Harbors is the Coggeshall Street bridge, where the width of the Harbor narrows to approximately 100 feet.

8. The Lower Harbor comprises approximately 750 acres, with sediment PCB levels ranging from below detection to over 100 ppm. The boundary between the Lower and Outer Harbors is the New Bedford Hurricane Barrier.

9. Based on currently available data, sediment PCB levels in the Outer Harbor have been found to be generally low, with only localized areas of PCBs in the 50-100 ppm range. The southern extent of the Site's Outer Harbor is approximately a straight line drawn from Rock Point (the southern tip of West Island in Fairhaven, Massachusetts) southwesterly to Negro Ledge and then another straight line continuing in a southwesterly direction to Mishaum Point in Dartmouth, Massachusetts.

10. Environmental monitoring results from 1994 and 1995 indicated that tidal action transports approximately 180 pounds of PCBs per year from the Upper Harbor to the Lower Harbor. Monitoring in 2010 at the Hurricane Barrier indicated that 95 pounds of PCBs move from the Lower Harbor to the Outer Harbor each year.

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[1] EPA has previously also referred to the "Upper Harbor" as the "Estuary" and the "Outer Harbor" as the "Bay."

11. In 1979, the Massachusetts Department of Public Health ("MA DPH") promulgated regulations prohibiting seafood consumption in three closure areas in and around the Site, due to the identification of high concentrations of PCB levels in local seafood from the Site (see http://www.lawlib.state.ma.us/source/mass/cmr/cmrtext/105CMR260.pdf). Fishing Closure Area I is described as "the waters north of the Hurricane Dyke [Barrier] in New Bedford Harbor." Fishing Closure Area II is described as "the waters generally south of area I and north of a line extending from Ricketson's Point in South Dartmouth westerly to Wilbur Point on Sconticut Neck." Fishing Closure Area III is described as "the waters generally south of area II and north of a line extending from Mishaum Point on Smith Neck in the town of Dartmouth north and west [*sic*] to Gong '3' on Hurset Rock off New Bedford Harbor and continuous north and west [*sic*] to Rocky Point on West Island in the town of Fairhaven." In 2010, based on seafood monitoring data results, EPA issued additional species-specific fish and shellfish consumption recommendations (see http://www.epa.gov/nbh/seafood.html#Recommendations).

12. Designated by the Commonwealth, pursuant to 40 C.F.R. § 300.425(c)(2), as its highest priority site, the New Bedford Site was proposed for inclusion on the Superfund National Priorities List in 1982.

13. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the New Bedford Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 8, 1983, 48 Fed. Reg. 40658-40673.

14. Pursuant to CERCLA and the NCP, EPA's site-specific investigations began with the Remedial Action Master Plan in 1983 and the Acushnet River Estuary Feasibility Study in 1984. EPA's site investigations continued through the 1980s and early 1990s, including a pilot dredging and disposal study in 1988 and 1989, which field tested different dredging and disposal techniques for Upper Harbor sediment, and extensive physical and chemical computer modeling of the Site.

15. On December 9, 1983, the United States filed a complaint on behalf of the National Oceanic and Atmospheric Administration ("NOAA") under CERCLA § 107, seeking damages for injury to natural resources at and near the Site caused by the releases of PCBs, against six defendants, including Respondent, which at various times, owned and/or operated either of the two capacitor manufacturing facilities (the Aerovox Facility and the Cornell-Dubilier facility) that disposed of PCBs at the Site. On December 10, 1983, the Commonwealth filed a complaint under CERCLA § 107 against the same defendants. The cases were subsequently consolidated.

16. On March 9, 1984, the United States amended its 1983 complaint against the six defendants, including Respondent, to include claims on behalf of EPA for recovery of response costs incurred, or to be incurred at the Site under CERCLA § 107, and for injunctive relief under CERCLA § 106, and other environmental statutes. At that time EPA had not yet issued a ROD for any operable unit at the Site.

17. On April 6, 1990, EPA issued a ROD for the Hot Spot Operable Unit ("OU2") of the Site ("OU2 ROD"), on which the Commonwealth gave its concurrence. Prior to issuing the OU2 ROD, EPA provided an opportunity for public comment on the Proposed Plan for the Hot Spot

Operable Unit, and Respondent submitted written comments. Among other public meetings held concerning the Proposed Plan, EPA held a public meeting expressly to allow Respondent an opportunity to present its alternative proposal. The OU2 ROD included a responsiveness summary through which EPA responded to the public comments. The OU2 ROD called for dredging and on-site incineration of Harbor sediment contaminated with over 4,000 ppm PCBs, located in a roughly 5-acre area in the Upper Harbor near the vicinity of the Aerovox Facility.

18. EPA performed the dredging and temporary storage of the 14,000 cubic yards of hot spot sediment from April 1994 to September 1995, but did not proceed with on-site incineration due to strong public opposition to the planned incineration. In 1995, EPA began treatability studies to evaluate disposal options for the contaminated material other than on-site incineration. Pursuant to an April 27, 1999 amendment to the OU2 ROD ("OU2 Amended ROD"), EPA determined that dewatering and transporting the temporarily stored sediment to an off-site landfill as the permanent remedial disposal location was the most cost-effective and protective alternate method of disposal. EPA completed this final off-site disposal phase of the OU2 Remedy in May 2000.

19. In July 1991, the U.S. District Court for the District of Massachusetts approved and entered a Consent Decree between the United States and the Commonwealth with two defendants other than Respondent, which required that these settling defendants pay a total of $12.6 million, plus interest, to the United States and the Commonwealth for past and future response costs and natural resource damages at the Site.

20. In January 1992, EPA published a proposed plan for OU1. In May 1992, EPA published an addendum to the proposed plan for OU1 to address the Outer Harbor following a Supplemental Feasibility Study of this area. EPA provided an opportunity for public comment on the proposed plan and the addendum, and Respondent submitted written comments.

21. On February 3, 1992, the U.S. District Court for the District of Massachusetts approved and entered a Consent Decree between the United States and the Commonwealth with Respondent (the "1992 Consent Decree"), which required, *inter alia*, that Respondent pay $66 million, plus interest, to the governments for past and future response costs and natural resource damages at the Site. Under the Covenants Not to Sue By Plaintiffs Section of the 1992 Consent Decree, Paragraphs 16 and 17 reserved the United States' and the Commonwealth's rights to institute proceedings against Respondent for unknown conditions and new information. With respect to "pre-certification" reservations, Paragraph 16 provides:

> Pre-certification reservations. Notwithstanding any other provision of this Decree, the United States and the Commonwealth reserve the right, jointly or separately, to institute proceedings in this action or in a new action, including issuance by EPA of an administrative order, seeking to compel AVX (1) to perform response actions at the New Bedford Harbor Site, and (2) to reimburse the United States and the Commonwealth for response costs, if, prior to EPA's certification of completion of the Remedial Action:

A. conditions at the New Bedford Harbor Site, previously unknown to the United States and the Commonwealth, are discovered after the issuance of the RODs, or

B. information is received, in whole or in part, after the issuance of the RODs,

and the EPA Administrator or his delegate finds, in consultation with the Commonwealth, based on these previously unknown conditions or this information, together with any other relevant information, that the Remedial Action is not protective of human health or the environment.

The term "Remedial Action" in the 1992 Consent Decree is more expansive than the one in this Order. The 1992 Consent Decree defined "Remedial Action" as "those response actions implemented or to be implemented pursuant to CERCLA at the New Bedford Harbor Site under the first operable unit record of decision for the New Bedford Harbor Site signed on April 6, 1990, and the second operable unit record of decision for the New Bedford Harbor Site for which a Feasibility Study was released on August 21, 1990, and which is presently scheduled to be signed in 1991."

At no time has EPA issued a certification of completion of the Remedial Action under the 1992 Consent Decree.

In addition, Paragraph 18 of the 1992 Consent Decree reserved the United States' and the Commonwealth's rights to institute proceedings against Respondent to the extent that Remedial Costs exceed $130.5 million. Paragraph 18 provides:

> Reservations in the event that Remedial Costs exceed $130.5 million. Notwithstanding any other provision of this Decree, the United States and the Commonwealth reserve the right, jointly or separately, to institute proceedings against AVX in this action or in a new action seeking to compel AVX (1) to perform additional response actions in connection with the Remedial Action[2] to the extent that the total Remedial Costs exceed $130.5 million, and (2) to reimburse the United States and the Commonwealth for any Remedial Costs over and above the first $130.5 million in Remedial Costs.

22. In November 1992, the U.S. District Court for the District of Massachusetts approved and entered a Consent Decree with the remaining defendants[3], which required them to pay a total of

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[2] As discussed above, there is a difference in the definition of the term "Remedial Action" in the 1992 Consent Decree as compared to in this Order.

[3] On March 27, 1986, the Court dismissed the claims of the United States and the Commonwealth against one of the named defendants due to lack of personal jurisdiction. *In re Acushnet River & New Bedford Harbor Proceedings*, 675 F.Supp. 22 (D.Mass. 1987).

$21 million, plus interest, to the governments for past and future response costs and natural resource damages at the Site.

23. In 1993, EPA and other Site stakeholders—including citizen group leaders, local and State elected officials, business representatives, MassDEP, and other State and Federal agencies—initiated a professionally mediated Community Forum process as an effort to build lasting consensus for the Site's cleanup. Based on comments on the 1992 proposed plan for OU1 and the 1992 proposed plan addendum and input from the Community Forum, EPA published a revised proposed plan for OU1 in November 1996. EPA provided an opportunity for public comment on the revised proposed plan for OU1, and Respondent submitted written comments.

24. On September 25, 1998, EPA issued a final Record of Decision ("OU1 ROD"), on which the Commonwealth gave its concurrence, for the final remedy for the Upper and Lower Harbors, as well as an interim remedy for the Outer Harbor[4]. The OU1 ROD included a responsiveness summary through which EPA responded to the public comments, submitted during the public comment periods for the January 1992 proposed plan, the May 1992 proposed plan addendum, and the November 1996 revised proposed plan. Notice of the OU1 ROD was published in accordance with Section 117(b) of CERCLA. The OU1 ROD called for *inter alia* the dredging of approximately 450,000 cubic yards of PCB-contaminated sediment from the Harbor bottom and surrounding wetlands and shorelines, and the disposal of the dredged sediment into four Confined Disposal Facilities ("CDFs")—A, B, C, and D—to be constructed along the shoreline of the Harbor. Because approximately 126,000 cubic yards of contaminated sediment are within the CDFs' footprints, the total volume of PCB-contaminated sediment estimated to be addressed under the OU1 ROD was 576,000 cubic yards.

25. Following the issuance of the OU1 ROD, from 1999 through 2004, EPA performed remedial design and remedial action activities including early action dredging and restoration of the area north of Wood Street and preparation for "full scale dredging" (dredging, desanding, dewatering, wastewater treatment, and disposal of PCB-contaminated sediment). The preparation for full scale dredging included relocation of combined sewer overflow outfalls, relocation of businesses, construction of the desanding facility, and construction of the dewatering facility.

26. On September 27, 2001, pursuant to Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), and 40 C.F.R. § 300.435(c)(2)(i), EPA issued an Explanation of Significant Differences ("OU1 ESD1") to modify the selected remedy for OU1 with five changes: (a) the identification of additional shoreline cleanup areas based on post-OU1 ROD sampling; (b) the use of mechanical dewatering of dredged sediment (to, among other things, reduce the volume of processed sediment needing disposal); (c) the incorporation of a rail spur at CDF D; (d) the revision of the wall design for CDF D; and (e) the use of the pilot study CDF as an interim Toxic Substance

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[4] EPA has not yet selected the final remedy for OU3, but is currently performing a remedial investigation for the Outer Harbor area.

Control Act ("TSCA") facility. In the OU1 ESD1, EPA explained that additional investigations performed since the OU1 ROD, including field surveys, sediment sampling and a state-of-the art dredging field test conducted in August 2000, yielded significant new information pertaining to the OU1 cleanup and were, in part, the basis for the OU1 ESD1. In particular, the OU1 ESD1 concluded that the total *in situ* sediment volume for OU1 requiring disposal could be as high as approximately 800,000 cubic yards. EPA further explained that the net effect of OU1 ESD1's five changes, listed above, was that the estimated project costs, while higher than the estimate in the OU1 ROD, were nonetheless within expected accuracy range of estimated costs, in accordance with EPA guidance.[5]

27. On August 15, 2002, pursuant to Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), and 40 C.F.R. § 300.435(c)(2)(i), EPA issued a second Explanation of Significant Differences ("OU1 ESD2") to eliminate the largest of the CDFs, CDF D, in favor of off-site disposal of the 725,000 cubic yards of sediment that otherwise would have been disposed in it. Prior to issuing this ESD, EPA provided an opportunity for public comment on the draft OU1 ESD2, and Respondent submitted written comments. The OU1 ESD2 included a responsiveness summary through which EPA responded to the public comments. In issuing the OU1 ESD2, EPA explained that eliminating CDF D avoided significant engineering challenges, including technical problems with the sediment that would have formed the base or foundation for this CDF, which were identified during the course of an extensive post-OU1 ROD sediment boring program. EPA further explained that OU1 ESD2's modifications reduced the estimated project costs by approximately 2% from the remedial cost estimate presented in OU1 ESD1.

28. In August 2004, EPA began full scale dredging of contaminated sediment. Such activities include mechanical dredging and hydraulic dredging of contaminated Harbor sediment, desanding and dewatering of the sediment prior to disposal off-site at a licensed facility, and treatment of the water from the dewatering process to acceptable levels prior to discharge back into the Harbor. EPA has been implementing these response activities through 2011, with the typical annual funding rate from the EPA Hazardous Substance Superfund of approximately $15 million allowing for the operation of approximately 2.5 to 3 months per year (or an average of about 40 days of dredging), resulting in the off-site disposal of approximately 20,000 to 25,000 cubic yards of contaminated sediment per year. In 2009, $30 million in supplemental funds from the American Recovery and Reinvestment Act allowed for 120 days of EPA dredging in 2009 and 59 days in 2010.

29. EPA's hydraulic dredging, desanding, and dewatering facilities are capable of handling greater quantities of contaminated sediment per year; however, due to annual funding limitations, EPA has been unable to operate these facilities at their full capacities. In 2002, even before the start of "full scale dredging," EPA noted "that the total project cost could become greater if

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[5] "A Guide to Preparing Superfund Proposed Plans, Records of Decisions, and Other Remedy Selection Decision Documents," EPA Office of Solid Waste and Emergency Response, EPA 540-R-98-031, OSWER 9200.1-23P, PB98-963241, July 1999. Page 3-9 of this guidance states that "the costs of remedies always should be qualified as estimated with an expected accuracy of +50% to -30%."

actual funding levels are so low as to cause significant project delays and inefficiencies." OU1 ESD2 at p. 8. Through the 2011 dredging season, a total of approximately 225,000 cubic yards of PCB-contaminated sediment that need to be addressed by the OU1 Remedy have been addressed.

30. On March 4, 2010, pursuant to Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), and 40 C.F.R. § 300.435(c)(2)(i), EPA issued a third Explanation of Significant Differences ("OU1 ESD3"), which documented the temporary storage of PCB-contaminated sediment, including sediment shown by analytical tests in 2008 to contain very high levels of VOCs (notably TCE), making such sediment RCRA hazardous waste, that was excavated from the shoreline areas near the Aerovox Facility from June to August 2008, in a single liner storage cell ("Cell #1") located at EPA's Sawyer Street facility in New Bedford. In the OU1 ESD3, EPA documented that Toxicity Characteristic Leaching Procedure ("TCLP") testing on the PCB-contaminated sediment excavated from the shoreline areas near the Aerovox Facility showed that such sediment exceeds RCRA characteristic hazardous waste standards for toxicity due to the presence of TCE. While the regulatory TCLP limit for material to be a RCRA characteristic hazardous waste for TCE is 0.5 ppm, two rounds of testing showed TCE TCLP levels ranged from 0.66 ppm to 23.0 ppm and 0.130 ppm to 43.0 ppm, respectively. Prior to issuing this ESD, EPA provided an opportunity for public comment on the draft OU1 ESD3. The OU1 ESD3 included a responsiveness summary through which EPA responded to the public comments. In issuing the OU1 ESD3, EPA explained that because the sediment temporarily stored in Cell #1 contains TCE at a level which classifies it as a RCRA hazardous waste, once the sediment is removed from Cell #1, it will have to be shipped to a licensed RCRA hazardous waste disposal facility.

31. On March 14, 2011, pursuant to Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), and 40 C.F.R. § 300.435(c)(2)(i), EPA issued a fourth Explanation of Significant Differences ("OU1 ESD4"), which modified the remedy for OU1 to include the construction and use of a Lower Harbor Confined Aquatic Disposal ("CAD") cell ("LHCC") for disposal of approximately 300,000 cubic yards of mechanically dredged PCB-contaminated sediment. OU1 ESD4 noted that, based on a post-OU1 ROD assessment of sediment volume performed in 2003[6] and refined in 2009/2010, and including an allowance for over-dredging, the total *in situ* sediment volume above the OU1 ROD cleanup standards was estimated to be approximately 900,000 cubic yards. Prior to issuing this ESD, EPA provided an opportunity for public comment on the draft OU1 ESD4, and Respondent submitted written comments. The OU1 ESD4 included a responsiveness summary through which EPA responded to the public comments. In issuing the OU1 ESD4, EPA explained that this ESD, modifying the remedy to include the construction and use of a

[6] "Volumes, Areas and Properties of Sediment by Management Units, New Bedford Harbor Superfund Site," Foster Wheeler Environmental Corporation for U.S. Army Corps of Engineers, New England District, Revision 2, September 2003.

LHCC, was expected to significantly decrease both the time and cost to complete the OU1 Remedy in comparison with a remedy without an LHCC.[7]

B. Identification of Respondent

32. Respondent AVX Corporation, a publicly traded company based in Fountain Inn, South Carolina, is liable under CERCLA as described below.

33. Respondent is the successor of Aerovox Corporation. In 1972, Aerovox Corporation created and incorporated a subsidiary, AVX Ceramics Corporation. In 1973, Aerovox Corporation and AVX Ceramics Corporation merged, resulting in AVX Ceramics Corporation as the surviving corporation. Later in 1973, AVX Ceramics Corporation changed its name to AVX Corporation.

34. From 1938 to January 2, 1973, Aerovox Corporation owned and operated the Aerovox Facility. The Aerovox Facility began to be used for electrical component manufacturing in approximately 1938. Aerovox Corporation manufactured PCB-impregnated electrical capacitors at the Aerovox Facility from at least 1947 through 1973. Various solvents were also used in manufacturing operations.

35. Aerovox Corporation's operations and disposal practices at the Aerovox Facility, which involved the use of PCBs and solvents, resulted in the release and disposal of hazardous substances that contributed to the contamination of sediment, shoreline, surface water, and biota (marine organisms) at the Site.

C. Sources of Contamination and Contaminants of Concern

36. During the period of the ownership and operation of the Aerovox Facility, located on the western shore of the Site's Upper Harbor, by Respondent's predecessor, Aerovox Corporation, from 1938 through 1973, hazardous substances, particularly PCBs, were released, deposited, disposed of, or placed at the Aerovox Facility.

37. PCBs were released, deposited, disposed, placed, or came to be located at the Site, or migrated, and may still be migrating, to the Site from the Aerovox Facility by several pathways including, *inter alia*: direct and indirect disposal at and from the Aerovox Facility; discharges of PCB wastes from the Aerovox Facility through troughs directly to the Upper Harbor; the drainage and release into the Upper Harbor of PCBs as a result of PCBs leaked and spilled onto the floor of the Aerovox Facility building and the grounds outside of the building; indirect disposal of PCBs to the Harbor via storm drains and combined sewer overflows; leaking of PCBs from the Aerovox Facility to the groundwater underlying the facility, and discharges of that

[7] For example, at an annual funding rate of $15 million per year, the time and cost to complete the remedy with the LHCC was estimated to be 40 years and $1.2 billion versus 46 years and $1.7 billion without an LHCC. At an annual funding rate of $80 million per year, the time and cost to complete the remedy with the LHCC was estimated to be six years and $422 million versus seven years and $464 million without an LHCC.

groundwater to the Harbor; and leaking of PCBs from PCB-impregnated capacitors discarded on tidal flats within the Harbor adjacent to the Aerovox Facility.

38. Dissolved or suspended substances, including PCBs, in the tidal waters adjacent to the Aerovox Facility were transported to other parts of the Site via winds, currents and tides (including flood and ebb tides).

39. Investigations identified the Aerovox Facility as the primary source of PCB contamination to the Site. Studies performed on sediment in the Harbor, surface water, shoreline, and biota (marine organisms) at the Site demonstrate decreasing north to south gradients of PCB levels (as well as metal levels in sediment, although the magnitude of the decline is lower than for PCBs) as the distance from the Aerovox Facility increases.

40. Because PCBs are resistant to degradation, bind to sediment, and bioaccumulate in fish and other organisms, PCBs released, deposited, disposed, or placed at the Site or that migrated to or otherwise came to be located at the Site continue to act as a source of contamination.

41. Sediment at the Site also contains high levels of other hazardous substances, including heavy metals (*e.g.*, cadmium, chromium, copper and lead). As discussed in Paragraph 30 above, in 2008, in excavating contaminated sediment immediately adjacent to the Aerovox Facility, EPA discovered the presence of very high levels of VOCs (TCE) at the Site.

D. Characteristics of the Contaminants of Concern

42. PCBs are mixtures of up to 209 individual synthetic chlorinated compounds. PCBs are classified as a CERCLA hazardous substance in the comprehensive list promulgated by EPA under CERCLA § 102(a), codified at 40 C.F.R. § 302.4, Table 302.4. PCBs are chemically stable, adsorb onto sediment particles readily and are resistant to biodegradation. PCBs are characterized as a probable carcinogen in humans based on limited evidence in human studies and sufficient evidence in animal studies. EPA has found evidence that PCBs have toxic effects on animals, including cancer, liver toxicity, reproductive toxicity, developmental effects, neurotoxicity, dermal toxicity, and thyroid and endocrine effects. Workers exposed to PCBs have been found to have increases in cancer of the liver, gastrointestinal tract, skin and gall bladder. PCBs can bind to sediment in water and bioaccumulate in fish and other aquatic species exposed to PCBs, increasing the risk of adverse health effects for humans who consume these contaminated species.

43. Metals are naturally-occurring inorganic substances used in industry. Certain metals are classified as CERCLA hazardous substances in the comprehensive list promulgated by EPA under CERCLA § 102(a), codified at 40 C.F.R. § 302.4, Table 302.4. Metals found at the Site include cadmium, copper, chromium, and lead. Cadmium, copper, and chromium have adverse health effects in humans and animals affecting central nervous, hematological, gastrointestinal, musculoskeletal, renal (*i.e.*, kidney), and hepatic (*i.e.*, liver) systems. Lead can be harmful to humans when ingested or inhaled, particularly to the neurological development of children under the age of six.

44. VOCs are a class of chemicals that evaporate readily into the air and that contain carbon atoms. TCE is a liquid VOC that is not thought to occur naturally in the environment. TCE is classified as a CERCLA hazardous substance in the comprehensive list promulgated by EPA under CERCLA § 102(a), codified at 40 C.F.R. § 302.4, Table 302.4. TCE is characterized as carcinogenic to humans. Ingesting or breathing substances containing high levels of TCE may cause nervous system effects, liver and lung damage, abnormal heartbeat, coma, and possibly death. Breathing smaller amounts of TCE may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating. Exposure to TCE has also been associated with developmental and immunological effects. TCE quickly evaporates from surface water, but it can bind to soil and sediment. TCE may adhere to particles in water that eventually settle to the bottom sediment.

E. Risks to Human Health

45. As described in Section VI(A) of the OU1 ROD, EPA determined that exposure to PCBs and metals at the Site results in unacceptable risks to human health. The 1989 Baseline Public Health Risk Assessment, in assessing the probability and magnitude of potential adverse health effects, both carcinogenic and non-carcinogenic, from exposure to contaminants at the Site, identified PCBs, cadmium, copper and lead as contaminants at the Site that could potentially contribute to significant adverse human health effects. The greatest human health risks result from frequent (*e.g.*, weekly) ingestion of contaminated local seafood, although unacceptable risks are also associated with human contact with, and incidental ingestion of, contaminated shoreline sediment.

46. The primary routes of human exposure to the hazardous substances at the Site found to be of most concern are as follows:

a. ingestion of contaminated local seafood;

b. direct contact with shoreline contamination; and

c. incidental ingestion of contaminated shoreline sediment (for younger children (ages 1-5)).

47. EPA's generally acceptable cancer risk range for site-related exposures to PCBs is 10^{-4} to 10^{-6} (1 in 10,000 to 1 in one million chance of getting cancer). Current EPA practice considers carcinogenic risks to be additive when assessing exposure to a mixture of hazardous substances. MassDEP considers exposures resulting in a cancer risk greater than 10^{-5} (or 1 in 100,000) to be unacceptable. In assessing the potential for adverse human health effects other than cancer, a hazard quotient ("HQ") is calculated by dividing the exposure level by the reference dose ("RfD") or other suitable benchmark for non-carcinogenic health effects for an individual compound. The HQ is often expressed as a single value (*e.g.*, 2.0) indicating the ratio of the stated exposure as compared to the RfD value (in this example, the exposure as characterized is two times that of an acceptable exposure for the given compound). A HQ less than 1.0 indicates that toxic non-carcinogenic effects from a given chemical are unlikely. The hazard index is generated by adding the HQs for all contaminants of concern that affect the same target organ (*e.g.*, liver) within or across the media to which the same individual may reasonably be exposed.

48. The OU1 ROD explained that unacceptable levels of cancer risk and non-cancer hazard caused by the actual or threatened release from the Site of the hazardous substances identified in Paragraphs 36 through 43 via the exposure pathways identified in Paragraph 46 result in the following increased risk to populations (see Paragraph 11 above for descriptions of the fishing closure areas), based on the 1989 Baseline Public Health Risk Assessment:

a. The excess total lifetime cancer risks for children and adults due to consumption of local seafood, for probable exposure scenarios, are $4x10^{-3}$ (4 in 1,000) in Fishing Closure Area I, $1.8x10^{-3}$ (1.8 in 1,000) in Fishing Closure Area II, and $1x10^{-3}$ (1 in 1,000) in Fishing Closure Area III. The excess total lifetime cancer risks for children and adults due to dermal contact and incidental ingestion of sediment, for probable exposure scenarios, are $3.5x10^{-4}$ (3.5 in 10,000) in Fishing Closure Area I and $1.3x10^{-5}$ (1.3 in 100,000) in Fishing Closure Area II.

b. The non-cancer organ-specific hazard indices exceed 1.0 (and range as high as 25) in Fishing Closure Areas I, II, and III due to the consumption of local seafood for probable exposure scenarios. The non-cancer organ-specific hazard index exceeds 1.0 in Fishing Closure Area I due to dermal contact and incidental ingestion of sediment for probable exposure scenarios.

49. In the OU1 ROD, issued in 1998, EPA explained that since the 1989 Baseline Public Health Risk Assessment was performed, new risk assessment protocols and new potency factors for PCBs have evolved. Nonetheless, the ingestion of contaminated seafood and exposure to shoreline sediment in several areas still present unacceptable risks. For example, EPA's 1997 updated assessment of risks from the consumption of contaminated seafood agrees with the conclusion made in the 1990 Feasibility Study that 0.02 ppm PCBs in seafood is still an appropriate health-based target level for local residents. Seafood at the Site continues to be contaminated at levels that are orders of magnitude above this standard. Similarly, existing shoreline PCB levels are significantly higher than those levels deemed protective in EPA's 1997 updated assessment of health risks due to exposure to shoreline PCB contamination. In the OU1 ROD, EPA explained that it calculated shoreline cleanup levels for the protection of direct contact risks in the Upper and Lower Harbors due to non-carcinogenic health effects associated with beach combing activities in non-residential areas and access to contaminated sediment and soil by young children in residential areas that abut the Harbor.

50. As stated in Paragraph 11 above, in 1979, in response to the presence of PCBs at the Site and in seafood at the Site, the MA DPH promulgated regulations prohibiting seafood consumption in three closure areas in and around the Site. These restrictions are still in effect. Further, EPA recently issued additional species-specific fish consumption recommendations (see http://www.epa.gov/nbh/seafood.html#Recommendations).

F. Risks to the Marine Ecosystem

51. As described in Section VI(B) of the OU1 ROD, EPA determined that contaminated media (sediment, sediment pore water (the water in the small spaces between sediment particles), and water column) pose risks to ecological receptors at the Site. The 1990 Baseline Ecological Risk Assessment, 1990 Feasibility Study, and the on-going long-term ecological monitoring

program reached similar conclusions regarding the state of New Bedford Harbor, and in particular the Site's Upper Harbor, as an area under high ecological stress.

52. The 1990 Baseline Ecological Risk Assessment evaluated risk to aquatic biota using a joint probability analysis in which two probability distributions, the first representing PCB, cadmium, copper, and lead levels in various areas of the Harbor, and the second representing the ecotoxicity of these contaminants to marine biota, were combined to provide a comprehensive, probabilistic evaluation of risk. The 1990 Baseline Ecological Risk Assessment supported the conclusion that aquatic organisms are at significant risk due to exposure to PCBs at the Site, as well as some risk due to exposure to metals.

53. The 1990 Baseline Ecological Risk Assessment found that PCB concentrations in sediment and sediment pore water in many areas of the Harbor are highly toxic to at least some members of all major taxonomic groups. In the Upper Harbor, the probability of pore water PCBs being toxic to marine fish, the most sensitive taxonomic group investigated, approaches certainty. Substantial risks exist also for mollusks and crustaceans due to PCB exposure at the Site.

G. Threat to Public Welfare

54. Hazardous substances, including PCBs, at the Site have affected the economic vitality of New Bedford and surrounding communities, including fishing and harbor development. The economic impact has been severe, due to long-term fishing closures, lost beach use, diminished property values, and reduced opportunities for coastal development.

55. New Bedford Demographics, Income and Employment: New Bedford is a community determined by the Massachusetts Office of Energy and Environmental Affairs as having "environmental justice" populations.[8] Environmental justice populations in Massachusetts are determined by the following criteria: households earn 65% or less of the statewide household median income; 25% or more of the residents are minority; 25% or more of the residents are foreign-born; or 25% or more of the residents are lacking English language proficiency. New Bedford meets all four criteria. In addition, the unemployment rate for New Bedford has consistently been higher than for Massachusetts as a whole and nationally.

56. Impact on Lobster Fishery: While the commercial fishery for American lobster is the most economically important fishery within the territorial waters of the Commonwealth of

[8] See *Cities and Towns that Include Environmental Justice Communities*, Massachusetts Executive Office of Energy and Environmental Affairs (http://www.mass.gov/mgis/ej_cities-towns.pdf) and *Environmental Justice Populations, Southeast Region*, Massachusetts Executive Office of Energy and Environmental Affairs, July 2007 (http://www.mass.gov/mgis/ej_southeast.pdf). The environmental justice determination was based on the 2000 U.S. Census block data.

Massachusetts,[9] PCB contamination at the Site and the resulting fishing closure areas have adversely affected local lobstermen. The fishing closure areas increase costs by: prohibiting fishing in the most accessible lobster habitat in the vicinity of the Site; forcing inshore lobstermen to travel farther to more distant fishing grounds; increasing fuel costs and time costs per trip due to increased distance to fishing grounds; increasing boat maintenance costs due to greater engine wear; and increasing exposure to harsher weather and commercial shipping traffic due to having to fish in more open fishing grounds. The fishing closure areas also decrease revenues for local lobstermen by forcing lobstermen to fish in unfamiliar or less favorable grounds. Because the waters that remain open to lobster fishing are deeper and more influenced by weather, the number of days during which it is safe for lobstermen to fish is more limited, reducing total lobster catches, and thus reducing revenues. Out of a total of 55 coastal cities and towns in Massachusetts listed as homeports by active commercial lobstermen in 2006, the City of New Bedford has the second highest number of lobstermen and the tenth highest catch of lobsters (in pounds). However, in contrast with the majority of Massachusetts ports, the total catch for New Bedford is characterized by a much higher catch from non-territorial waters (380,288 pounds) than from territorial waters (53,869 pounds).[10]

57. Impact on Other Fisheries: As discussed in Paragraph 11 above, MA DPH promulgated regulations prohibiting seafood consumption in three closure areas in and around the Site, due to the identification of high concentrations of PCB levels in local seafood from the Site. The closures of fishing areas in the Harbor have caused significant economic losses, including in the millions of dollars for quahog landings alone. The finfish industry and recreational fishing have also been negatively affected.[11]

58. Impact on Recreational Resources: According to a 1986 study, PCB contamination has lowered the value of recreational resources at the Site, including recreational beach use and local recreational fishing.[12]

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[9] See, *e.g.*, *Massachusetts Lobster Fishery Statistics for 2006*, Dean, M.J., prepared for Massachusetts Division of Marine Fisheries, Technical Report TR-39, January 2010 (http://www.mass.gov/dfwele/dmf/publications/tr39_2006_lobster_report.pdf).

[10] "Territorial waters" include all waters under the jurisdiction of the Commonwealth and are generally defined as waters within three miles of the State's shoreline, and also include all of Massachusetts Bay, Cape Cod Bay, and Buzzards Bay, which includes the Site; while "non-territorial" waters include areas lying outside the State "territorial waters."

[11] *Community Profiles for the Northeast US Fisheries* (in particular, New Bedford, MA), Clay, P.M., *et al.*, Northeast Fisheries Science Center, NOAA, posted on the web November 24, 2008, introduction added October 28, 2010 (http://www.nefsc.noaa.gov/read/socialsci/community_profiles/MA/newbedford-ma.pdf); *New Bedford Harbor Historic Overview and Natural Resources and Uses Status Report.*, Vanasse Hangen Brustlin, Inc., prepared for New Bedford Harbor Trustee Council (1996).

[12] *Assessment of Economic Losses to Recreational Activities from 1988 Marine Pollution Events and Assessment of Economic Losses from Long-Term Contamination of Fish within the New York Bight to New Jersey*, Ofiara, D.D. and Brown, B., Marine Pollution Bulletin, Volume 38, Issue 11, November 1999, Pages 990-1004 (*citing The Damages to Recreational Activities from PCBs in New Bedford Harbor*, McConnell, K.E., prepared for Ocean Assessment Division, NOAA, 1986).

59. Impact on Property Values: According to a 1986 study, PCB contamination in the Harbor was found to have adverse effects on waterfront real estate.[13]

H. Selected Remedy

60. The OU1 Remedy sets forth the selected remedy for the Upper and Lower Harbor Operable Unit of the Site. The selected remedy includes: the dredging and disposal of contaminated sediment; construction of containment facilities; long-term monitoring; and institutional controls.

61. The OU1 Remedy sets forth the target cleanup levels for subtidal, mudflat and shoreline areas at the Site:

a. 10 ppm PCBs for subtidal and mudflat sediment in the Upper Harbor;

b. 50 ppm PCBs for subtidal sediment in the Lower Harbor;

c. 1 ppm PCBs for shoreline areas in the Upper Harbor and Lower Harbor bordering residential areas;

d. 25 ppm PCBs for shoreline areas in the Upper Harbor and Lower Harbor bordering recreational areas; and

e. 50 ppm PCBs for other shoreline areas in the Upper Harbor and Lower Harbor with little or no public access.

62. The selected remedy for OU1 will address the principal human health, ecological, and public welfare threats identified in Paragraphs 45 through 53. The selected remedy addresses all current and potential future risks caused by sediment and shoreline contamination.

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

a. Dredging or removal of sediment in subtidal, mudflat and shoreline areas above site-specific cleanup levels, and associated activities, including:

i. 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;

ii. Pre-dredging sampling, including sediment, air quality, and water quality sampling;

iii. 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;

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[13] *Biological effects and subsequent economic effects and losses from marine pollution and degradations in marine environments: Implications from the literature*, Ofiara, D.D. and Seneca, J.J., Marine Pollution Bulletin 52 (2006), 844-864 (*citing Assessment of damages by PCB contamination to New Bedford Harbor amenities using residential property values*, Mendelsohn, R., prepared for Ocean Assessment Division, NOAA (1986)).

iv. Mechanical dredging and passive dewatering of sediment from portions of the Upper and Lower Harbors and any other areas where mechanical dredging is required;

v. Land- or water-based dredging of sediment from subtidal, mudflat and shoreline areas where necessary; and

vi. Post dredging sampling, including sediment, air quality, and water quality sampling;

b. Disposal and placement and all associated activities necessary for disposal and placement of dredged or removed contaminated sediment, including:

i. Desanding, dewatering and off-site disposal at an appropriately licensed facility of hydraulically dredged sediment from the Upper Harbor;

ii. Passive dewatering then placement into a LHCC of mechanically dredged sediment from portions of the Lower Harbor and the lower section of the Upper Harbor;

iii. Construction of CDFs A, B, and C, to be followed by dewatering and then placement of the remaining dredged material into CDFs A, B, and C;

iv. Waste characterization sampling;

v. Off-site disposal of material generated from debris removal and desanding activities; and

vi. 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");

c. Excavation and off-site disposal of hazardous waste and PCB-contaminated sediment temporarily stored in Cell # 1 at EPA's Sawyer Street facility in New Bedford;

d. Capping and closure activities associated with the 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

e. Restoration of the remediated shoreline areas.

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

f. 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;

g. 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

h. 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):

i. 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;

j. 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;

k. Data gathering for the periodic Five-Year Reviews of the OU1 Remedy; and

l. 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.

I. Unknown Conditions Discovered or Information Received After the RODs

64. The OU1 Remedy and the Work address conditions at the Site, including those previously unknown to the United States and the Commonwealth that have been discovered or information that has been received (hereinafter referred to as "unknown conditions and new information") after the issuance of the OU2 ROD and the OU1 ROD.

65. The conditions known to the United States and the Commonwealth, for the purpose of Paragraph 16 of the 1992 Consent Decree[14], discussed in Paragraph 21 above, are set forth in the OU1 ROD issued on September 25, 1998, the OU2 ROD issued on April 6, 1990, and the administrative records supporting these RODs.

[14] Pursuant to Paragraph 22(F) of the 1992 Consent Decree, as the United States is instituting a proceeding against AVX pursuant to Paragraph 16 of the 1992 Consent Decree through EPA's issuance of this Order, EPA is providing a summary of "Future Response Costs" (defined by Paragraph 5(M) of the 1992 Consent Decree as Response Costs incurred after the date of lodging of the 1992 Consent Decree) incurred at the Site. As of December 31, 2011, Response Costs incurred after September 25, 1991, the date of lodging of the 1992 Consent Decree, total $424,971,587.08 (refer to the Section 106 Administrative Record for a copy of an itemized cost summary of all costs for the Site incurred from September 26, 1991 through December 31, 2011).

66. These unknown conditions and new information, as well as other relevant information, include but are not limited to:

a. Increase in Estimated Volume of PCB-Contaminated Sediment:

i. As described in Paragraph 24 above, in 1998 in the OU1 ROD, EPA identified 450,000 cubic yards of PCB-contaminated sediment to be dredged as part of the OU1 ROD remedy, plus approximately 126,000 cubic yards of additional PCB-contaminated sediment that would be addressed by the construction of CDFs A, B, C, and D. Therefore, the OU1 ROD identified approximately 576,000 cubic yards of contaminated sediment to be remediated.

ii. As described in Paragraph 26 above, in 2001 in the OU1 ESD1, EPA explained that additional investigations performed after the issuance of the OU1 ROD, including field surveys, sediment sampling and a state-of-the art dredging field test conducted in August 2000, yielded significant new information about the total *in situ* sediment volume for OU1 requiring remediation. For example, based on this post-ROD sampling, EPA became aware of two additional areas in the Upper Harbor where intertidal dermal-based cleanup levels were required to protect human health. In the OU1 ESD1, EPA noted that based on this post-OU1 ROD sampling and a sediment volume calculation method of estimating the PCB concentrations between actual sediment sampling locations, the total *in situ* contaminated sediment requiring remediation for OU1 could be as high as approximately 800,000 cubic yards, which is an increase of approximately 224,000 cubic yards above the OU1 ROD estimate.

iii. As described in Paragraph 31 above, in 2011 in the OU1 ESD4, EPA noted that, based on a post-OU1 ROD assessment of sediment volume performed in 2003 and refined in 2009/2010, and including an allowance for over-dredging, the total *in situ* sediment volume above the OU1 ROD cleanup standards was estimated to be approximately 900,000 cubic yards, which is approximately 324,000 cubic yards above the OU1 ROD estimate.

b. Significant Engineering Challenges Associated with the Construction of CDF D:

i. As described in Paragraph 24 above, the OU1 ROD called for, *inter alia*, the disposal of dredged sediment into four shoreline CDFs. The OU1 ROD conceptual design called for CDF D to be the largest CDF. As EPA explained in the OU1 ESD4, CDF D was designed to be capable of addressing approximately 725,000 cubic yards of contaminated sediment.

ii. As described in Paragraph 27 above, during EPA's performance of an extensive post-OU1 ROD sediment boring program, specifically the design process for CDF D, EPA identified technical problems with the sediment that would have formed the base or foundation for CDF D. EPA

discovered that this underlying sediment was soft, silty, and geotechnically weak.

iii. In the OU1 ESD1, EPA explained that the presence of soft, geotechnically weak sediment underlying the proposed location of CDF D required a change to the OU1 ROD's conceptual design for CDF D's wall and synthetic liner. The OU1 ROD conceptual design for CDF D included a single sheet pile wall around the CDF and a synthetic liner on the inside wall of the sheet pile. After evaluating different wall and dike designs that could compensate for the new information about the weak underlying sediment, in the OU1 ESD1, EPA revised CDF D's wall design to consist of a rock filled dike design.

iv. Despite the change in CDF D's wall design, approximately 250,000 to 300,000 cubic yards of the weak underlying sediment would need to be removed before CDF D could be constructed. As this underlying sediment was not contaminated at levels exceeding OU1 ROD cleanup levels, the construction of CDF D would have required the removal of an additional approximately 250,000 to 300,000 cubic yards of sediment that was not contemplated in the OU1 ROD.

v. Because of these newly discovered significant engineering challenges, constructing CDF D became impracticable, and EPA issued OU1 ESD2 to eliminate CDF D in favor of off-site disposal of the sediment that otherwise would have been disposed in it.

c. Discovery of High Levels of Hydrogen Sulfide in the Dredged Sediment to be Processed in an Enclosed Building Which Pose Human Health Risk at the Site:

i. During the initiation of EPA's "full-scale dredging" operations, as described in Paragraph 28 above, on September 8, 2004, significant hydrogen sulfide odors were detected inside the desanding building at EPA's Sawyer Street facility. The building was evacuated and dredging was stopped. Air monitoring showed that hydrogen sulfide was present in the desanding building at levels as high as 400 ppm.

ii. Hydrogen sulfide is a flammable, colorless gas with a characteristic odor of rotten eggs. Hydrogen sulfide occurs naturally from the bacterial breakdown of organic matter, and hydrogen sulfide can also be produced by human activities. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. Brief exposure to high concentrations (greater than 500 ppm) can cause loss of consciousness and possibly death. In many individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function.

iii. Because of the 2004 discovery of dangerously high levels of hydrogen sulfide in dredged sediment to be processed in an enclosed building that pose risk to human health, engineering controls must be utilized, including

a pretreatment process using ferric sulfate to minimize the hydrogen sulfide levels in the dredge slurry. In addition, air monitoring must be performed to detect unsafe levels of hydrogen sulfide, and worker safety protocols need to be established.

d. Discovery of the Presence of VOCs in PCB-Contaminated Sediment at Levels Making this Sediment RCRA Hazardous Waste:

i. As described in Paragraph 30 above, in June to August 2008, EPA excavated approximately 6,900 cubic yards of PCB-contaminated sediment from the shoreline areas near the Aerovox Facility that contained very high levels of TCE. TCLP testing on this material in August and October 2008 showed that this sediment exceeds RCRA characteristic hazardous waste standards for toxicity due to the presence of high levels of TCE. While the regulatory TCLP limit for material to be a RCRA characteristic hazardous waste for TCE is 0.5 ppm, two rounds of testing showed TCE TCLP levels ranged from 0.66 ppm to 23.0 ppm and 0.130 ppm to 43.0 ppm, respectively.

ii. With respect to the presence of RCRA hazardous waste, the OU1 ROD stated: "With regard to other possible hazardous substances in the sediment, existing toxicity characteristic leaching procedure (TCLP) data shows the sediment does not meet the definition of a Resource Conservation and Recovery (RCRA) characteristic waste." OU1 ROD at p. 38 (emphasis in original).

iii. Because the sediment temporarily stored in Cell #1 contains TCE at a level which classifies it as a RCRA hazardous waste, once the sediment is removed from Cell #1, it will have to be shipped to a licensed RCRA hazardous waste and TSCA disposal facility. In OU1 ESD3, EPA estimated that removing the contaminated material from Cell #1 could cost approximately $15 million.

e. Land Use Changes for Shoreline Properties:

i. After issuance of the OU1 ROD, the land use for several shoreline properties along the Upper Harbor portion of the Site has changed from commercial/industrial use to residential or recreational use, increasing the potential frequency of human exposure to contamination. The shoreline cleanup levels specified in the OU1 ROD are intended to reduce the risk from human contact with contamination by reflecting the land use and exposure scenarios that apply. The land use for these shoreline areas changed before remediation of these shoreline areas has occurred.

ii. Changes from Industrial to Recreational Land Use: Examples of Upper Harbor shoreline properties where land use changed from low-exposure uses to recreational uses, as documented in the OU1 ESD1 (2001) and the First Five-Year Review for the Site (2005), include the City's River Road Park, Founder's Park, and Pierce Mill Park.

iii. Proposed Changes from Industrial to Recreational Land Use: In the mid-2000s, the City of New Bedford proposed creating a river walk park and riparian restoration project along the shoreline of the Upper Harbor, which would change the land use of these shoreline areas from industrial use to recreational use. In addition, in 2010, the City of New Bedford has proposed redeveloping a formerly industrial shoreline property adjacent to EPA's Sawyer Street facility for use as a recreational use facility including a pier and rowing boathouse.

iv. Changes from Industrial to Residential Land Use: In the First and Second Five-Year Reviews for the Site (in 2005 and 2010, respectively), EPA noted a trend that several former mills near or along the shoreline of the Upper Harbor, that were used for industrial purposes at the time of the issuance of the OU1 ROD, have been recently converted for residential use, including the Ropeworks Condominium Trust building, Whaler's Cove assisted living complex, Victoria Riverside building, Whaler's Place building, and Taber Mills apartment building. Additional shoreline properties may be redeveloped for residential use in the future.

f. Archaeological Discoveries at the Site:

i. In July 2009, an unanticipated shipwreck discovery was made during dredging activities at the Site. Because of this unanticipated shipwreck discovery, all remediation-related work in the area of the shipwreck was stopped, and a 100-x-250-foot no-work buffer zone encompassing the find site was demarcated. Debris removal operations were redirected to other areas within the Site. A marine archaeological documentation and assessment investigation was undertaken. The investigation involved performing a marine remote sensing field survey to assess site integrity and identify additional shipwreck elements potentially still lying on the Harbor floor, the subsequent recovery of identified additional shipwreck elements, the documentation and analysis of hull timbers and artifacts recovered from the site, and archival research to identify the wreck and assess its significance and eligibility for listing in the National Register of Historic Places.

ii. Protocols to address incidental discoveries of cultural resources have been put into action in accordance with "Plan and Procedures Addressing Unanticipated Discoveries of Cultural Resources and Human Remains, New Bedford Harbor Superfund Site, New Bedford, Acushnet, and Fairhaven, Massachusetts" (Foster Wheeler, 2003). These plan and procedures were developed to meet EPA's obligations under Section 106 of the National Historic Preservation Act, as amended, 16 U.S.C. § 470f.

iii. Archaeological discoveries continue to be made during dredging operations at the Site. Because of the potential for additional archaeological discoveries and Federal requirements to coordinate with a

variety of archaeological stakeholders, EPA must conduct annual archaeological surveys before and after dredging operations each year.

67. EPA finds, in consultation with the Commonwealth, based on the unknown conditions and new information as well as other relevant information described in Paragraph 66 above, that the "Remedial Action," as that term has been defined in the 1992 Consent Decree, is not protective of human health or the environment. However, if fully performed by Respondent, the Work, which will address these unknown conditions and new information, will be protective of human health and the environment.

68. As discussed in Paragraph 21 above, EPA has not certified completion of the "Remedial Action," as that term has been defined in the 1992 Consent Decree.

J. Remedial Costs Exceed $130.5 Million

69. Pursuant to Paragraph 18 of the 1992 Consent Decree, as of December 31, 2011, Remedial Costs, incurred from April 6, 1990, total $430,064,962.76 (refer to the Section 106 Administrative Record for a copy of an itemized cost summary of all costs for the Site incurred from April 6, 1990 through December 31, 2011).[15]

70. Via numerous interagency agreements ("IAs"), EPA has retained the U.S. Army Corps of Engineers ("USACE"), and USACE's contractors and subcontractors, to perform CERCLA response action activities on its behalf at the Site. Included among Remedial Costs, incurred from April 6, 1990, are costs for eight IAs with USACE to perform the remedial design and remedial action for the OU1 Remedy and the OU2 Remedy (including associated EPA indirect costs). The eight IA costs total $404,838,220.99 as of December 31, 2011 (refer to the Section 106 Administrative Record for a copy of an itemized cost summary of the eight IA costs for the Site from April 6, 1990 through December 31, 2011)).

IV. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, and the Section 106 Administrative Record, EPA has determined that:

71. The New Bedford Harbor Superfund Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

72. The Aerovox Facility is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

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[15] As of December 31, 2011, total response costs for the Site are approximately $456 million (refer to the Section 106 Administrative Record for a copy of an itemized cost summary of all costs for the Site incurred through December 31, 2011).

73. Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

74. Respondent is a successor to one or more corporate predecessors that, at the time of disposal of hazardous substances, owned and/or operated a facility at which such hazardous substances were disposed of, and from which there has been a release of hazardous substances to the Site and into the environment.

75. Respondent is a successor to one or more corporate predecessors that by contract, agreement, or otherwise arranged for disposal of hazardous substances at a facility owned or operated by another party or entity and from which there has been a release of hazardous substances to the Site and into the environment.

76. Respondent is a "liable party" as defined in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is subject to this Order under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

77. The substances listed in Paragraphs 35 through 44 are found at the Site and are "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

78. These hazardous substances have been disposed of, or migrated and may still be migrating, from the Aerovox Facility to the Site and into the environment, and have been and threaten to be disposed of, or migrated, from contaminated sediment at the Site into the environment.

79. The disposal and migration of hazardous substances from the Aerovox Facility to the Site and into the environment, and from the Site into the environment are "releases" as the term "release" is defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22), and are "actual releases" as the term "actual...release" is used in Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

80. The potential for future migration of hazardous substances from the Site into the environment is a "threatened release" as that term is used in Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

81. The actual release of one or more hazardous substances from the Aerovox Facility and the actual and threatened release of one or more hazardous substances from the Site may present an imminent and substantial endangerment to the public health or welfare or the environment. The overall factual basis for this imminent and substantial endangerment is contained in Paragraphs 3 through 11, and 35 through 59, and supported by documents maintained in the Section 106 Administrative Record.

82. <u>1992 Consent Decree's Pre-Certification Unknown Condition or New Information Reopener</u>. Pursuant to Paragraph 16 of the 1992 Consent Decree, because the actions required by this Order include those necessary to address conditions at the Site, previously unknown to the United States and the Commonwealth, that have been discovered, and information that has been received since the issuance of the OU2 ROD and the OU1 ROD, which if left unaddressed

would make the OU1 Remedy not protective of human health or the environment, as discussed in Section III(I) of this Order, the United States and the Commonwealth may institute proceedings, including through this Order, to compel Respondent to perform response actions at the Site, including the Work, and to reimburse the United States and the Commonwealth for Response Costs.

83. 1992 Consent Decree's Cost Reopener. Pursuant to Paragraph 18 of the 1992 Consent Decree, because Remedial Costs have exceeded $130.5 million, as discussed in Section III(J) of this Order, the United States and the Commonwealth may institute proceedings, including through this Order, to compel Respondent to perform additional response actions—including the Work described in the Order and the SOW—in connection with the Remedial Action, and to reimburse the United States and the Commonwealth for any Remedial Costs over and above the first $130.5 million in Remedial Costs.

84. The actions required by this Order are necessary to protect the public health, welfare, or the environment.

85. The actions specified in this Order shall be done promptly and properly by Respondent, and will be consistent with the NCP, and performed in accordance with the terms of this Order and SOW.

V. NOTICE TO THE STATE

86. On March 29, 2012, prior to issuing this Order, EPA provided written notice to the Commonwealth that EPA would be issuing this Order. As noted in Paragraph 67, EPA has consulted with the Commonwealth concerning this Order.

VI. ORDER

87. Based on the foregoing, Respondent is hereby ORDERED, jointly and severally, to comply with the following provisions, including but not limited to all attachments to this Order, all documents incorporated by reference into this Order, and all schedules and deadlines in this Order, attached to this Order, or incorporated by reference into this Order.

VII. NOTICE OF INTENT TO COMPLY

88. Respondent shall provide, not later than five (5) days after the effective date of this Order, written notice to EPA's Remedial Project Manager ("RPM") stating whether it will comply with the terms of this Order. If Respondent does not unequivocally commit to perform the RD, RA and O&M as provided by this Order, it shall be deemed to have violated this Order and/or to have failed or refused to comply with this Order. Respondent's written notice, if it does not unequivocally express its intent to fully comply with this Order, shall describe the factual and legal basis for any "sufficient cause" defenses asserted by Respondent under Sections 106(b) and 107(c)(3) of CERCLA upon which it intends to rely to justify its failure to comply.

The absence of a response by EPA to Respondent's notice required by this Paragraph shall not be deemed to be acceptance of Respondent's assertions.

VIII. PARTIES BOUND

89. This Order shall apply to and be binding upon Respondent identified in Paragraphs 32 through 35 and its directors, officers, employees, agents, successors, and assignees. Respondent is jointly and severally responsible for carrying out all activities required by this Order. No change in the ownership, corporate status, or other control of Respondent shall alter any of Respondent's responsibilities under this Order.

90. Respondent shall provide a copy of this Order to any prospective owners or successors before a controlling interest in Respondent's assets, property rights, or stock are transferred to the prospective owner or successor. Respondent shall provide a copy of this Order to each Contractor, Subcontractor, laboratory, or consultant retained to perform any Work under this Order, within five (5) days after the effective date of this Order or on the date such services are retained, whichever date occurs later. Respondent shall also provide a copy of this Order to each person representing Respondent with respect to the Site or the Work and shall condition all contracts and subcontracts entered into hereunder upon performance of the Work in conformity with the terms of this Order. With regard to the activities undertaken pursuant to this Order, each Contractor and Subcontractor shall be deemed to be related by contract to the Respondent within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Order and for ensuring that its Contractors, Subcontractors, and agents comply with this Order, and perform any Work in accordance with this Order.

IX. INCORPORATION OF DOCUMENTS

91. All appendices and attachments to this Order, and subsequent modifications to such appendices and attachments, are incorporated into this Order and are enforceable under it. Any and all other plans, specifications, schedules, and other documents required by the terms of this Order (including its appendices and attachments), and subsequent modifications to such plans, specifications, schedules, and other documents shall be incorporated herein and enforceable hereunder.

X. CURRENT STATUS OF REMEDIAL DESIGN AND REMEDIAL ACTION

92. 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. Such response activities include those described in Paragraph 28 above. Since 2004, EPA Region 1 has been provided approximately $15 million per year from the EPA Hazardous Substance Superfund to implement response activities at the Site (however, in 2009, $30 million in supplemental funds from the American Recovery and Reinvestment Act were received for cleanup at the Site). Through 2011, approximately 225,000 cubic yards of the estimated 900,000 cubic yards of PCB-

contaminated sediment that need to be remediated by the OU1 Remedy have been addressed. In the OU1 ESD4, EPA explained that the time and cost to complete the OU1 Remedy depend on annual funding rates. Under a $15 million annual funding level, it would take approximately 40 years to complete the OU1 Remedy, with the "actual" cost estimated to be $1.2 billion and the net present value ("NPV") cost to be $362 million. Under a $30 million annual funding level, it would take approximately 26 years to complete the OU1 Remedy, with the "actual" cost estimated to be $767 million and the NPV cost to be $401 million. Under an $80 million annual funding level, it would take approximately six years to complete the OU1 Remedy, with the "actual" cost estimated to be $422 million and the NPV cost to be $393 million.

93. The post-OU1 ROD documents in the Section 106 Administrative Record provide summaries of EPA's OU1 Remedy response activities to date.

94. Respondent shall finance and perform, as expeditiously as possible, at a minimum, the Work specified in the Order and the SOW (Appendix 1) attached to this Order, consistent with the OU1 Remedy, and consistent with EPA's implementation of the OU1 Remedy to date.

95. In accordance with Section XXIX of this Order (Coordination and Cooperation) and the SOW, Respondent shall make best efforts to coordinate and cooperate in the performance of the Work required by this Order with EPA, the Commonwealth, the City, other Federal agencies, other parties as required by EPA, and all contractors and representatives of these governmental agencies and other parties, including EPA Contractors and EPA Subcontractors.

XI. WORK TO BE PERFORMED

96. Respondent shall finance and perform, at a minimum, as expeditiously as possible, the Work specified in the Order and the SOW (Appendix 1) attached to this Order, consistent with the OU1 Remedy. Consistent with the SOW, in no event shall the schedule for construction extend beyond eight (8) years from the effective date of this Order, unless approved by EPA. All activities required by this Order shall be conducted in accordance with CERCLA, the NCP, EPA policies and procedures as amended, and the SOW. EPA, at its discretion, may elect to perform some of the actions identified in the OU1 Remedy and the SOW.

97. The Work performed by Respondent pursuant to this Order shall, at a minimum, achieve the Performance Standards.

98. Notwithstanding any action by EPA, Respondent remains fully responsible for achievement of the Performance Standards. Nothing in this Order, or in plans that are to be submitted by Respondent and that may be or have been approved by EPA, shall be deemed to constitute a warranty or representation of any kind by EPA that full performance of the Remedial Design, Remedial Action, or Operation and Maintenance will achieve the Performance Standards. Respondent's compliance with such plans approved by EPA does not foreclose EPA from seeking additional Work to achieve the applicable Performance Standards.

99. EPA may modify the SOW if such modification is determined by EPA to be necessary to attain the Performance Standards set forth therein, to implement the Work, or for the protection of public health or welfare or the environment. Upon written consent of the Director of the Office of Site Remediation and Restoration, EPA Region 1, such modification to the SOW shall become enforceable under this Order.

100. Respondent shall cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Respondent shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

A. Selection of Project Coordinator, Supervising Contractor, Contractors, and Subcontractors

101. Within ten (10) days after the effective date of this 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 this 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 this Order shall constitute receipt by Respondent. The Project Coordinator shall not be an attorney for the Respondent in this Order.

102. All aspects of the Work to be performed by Respondent pursuant to this 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 this 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 this 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 this Order.

103. EPA will review Respondent's selection of a Supervising Contractor according to the terms of this Paragraph and Section XVI of this 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.

104. 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 this Order at least five (5) business days prior to commencement of such Work.

105. 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.

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

B. Transition Plan, Long-Term Site-Wide Monitoring Plan, Site-Wide Institutional Controls Plan, Chronology of Work, and Master Schedule of Work

107. Respondent shall submit a Transition Plan, Long-Term Site-Wide Monitoring Plan, Site-Wide Institutional Controls Plan, Chronology of Work, and Master Schedule of Work for EPA approval in accordance with the requirements and schedule set forth in the SOW. Upon EPA approval of the Transition Plan, Long-Term Site-Wide Monitoring Plan, Site-Wide Institutional Controls Plan, Chronology of Work, or Master Schedule of Work, Respondent shall implement such EPA approved Plan in accordance with the schedule therein.

C. Remedial Design

108. Respondent shall implement the Remedial Design for the OU1 Remedy in accordance with the requirements and schedule set forth in the 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 the SOW that have been approved by EPA.

D. Remedial Action

109. Respondent shall implement the Remedial Action for the OU1 Remedy in accordance with the requirements and schedule set forth in the 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 the SOW that have been approved by EPA.

E. Operation and Maintenance

110. Respondent shall implement Operation and Maintenance for the OU1 Remedy in accordance with the requirements and schedule set forth in the 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 the SOW that have been approved by EPA.

F. Off-Site Shipments

111. Respondent shall, prior to any off-site shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's RPM of such shipment of hazardous substances. However, the notification of shipments to the state shall not apply to any off-site shipments when the total volume of all shipments from the Site to the state will not exceed ten (10) cubic yards.

a. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondent shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for Remedial Action construction. Respondent shall provide all relevant information, including information under the categories noted in Paragraph 111(a) above, on the off-site shipments as soon as practicable after the award of the contract and before the hazardous substances are actually shipped.

112. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondent shall obtain EPA's certification that the proposed receiving facility is operating in compliance with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent shall only send hazardous substances, pollutants, or contaminants

from the Site to an off-site facility that complies with the requirements of the statutory provision and regulations cited in the preceding sentence.

G. Certificate of Completion

113. In accordance with the SOW, after Respondent concludes that the Remedial Action has been fully performed, Respondent shall so 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, and shall not limit EPA's right to perform periodic reviews pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the Site, in accordance with 42 U.S.C. §§ 9604, 9606, or 9607. Even after certification of completion of the Remedial Action by EPA, Respondent shall continue to perform any ongoing elements of the Work, including Operation and Maintenance activities required by the 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 the SOW that have been approved by EPA.

114. 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 Paragraph 113 for Respondent's certification of completion of the Remedial Action. EPA's notification shall not limit EPA's right to perform periodic reviews pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the Site, in accordance with 42 U.S.C. §§ 9604, 9606, or 9607.

XII. FAILURE TO ATTAIN PERFORMANCE STANDARDS

115. In the event that EPA determines that additional response activities are necessary to meet applicable Performance Standards, EPA may so inform Respondent and identify the additional response actions as necessary.

116. Unless otherwise stated by EPA, within thirty (30) days of receipt of notice from EPA that additional response activities are necessary to meet any applicable Performance Standards, Respondent shall submit for approval by EPA a work plan for the additional response activities. The plan shall conform to the applicable requirements of Sections XI (Work to be Performed), XVIII (Quality Assurance, Sampling and Data Analysis), and XIX (Compliance with Applicable Laws) of this Order. Upon EPA's approval of the plan pursuant to Section XVI (EPA Review of Submissions), Respondent shall implement the plan for additional response activities in accordance with the provisions and schedule contained therein.

XIII. EPA PERIODIC REVIEW

117. Under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA may review the Site to assure that the Work performed pursuant to this Order adequately protects human health and the environment. Until such time as EPA certifies completion of the Work, Respondent shall conduct the requisite studies, investigations, or other response actions as determined necessary by EPA in order to permit EPA to conduct the review under Section 121(c) of CERCLA. As a result of any review performed under this Paragraph, Respondent may be required to perform additional Work or to modify Work previously performed.

XIV. ADDITIONAL RESPONSE ACTIONS

118. EPA may determine that in addition to the Work identified in this Order and attachments to this Order, additional response activities may be necessary to protect human health and the environment. If EPA determines that additional response activities are necessary, EPA may require Respondent to submit a work plan for additional response activities. EPA may also require Respondent to modify any plan, design, or other deliverable required by this Order, including any approved modifications.

119. Unless otherwise directed by EPA, within thirty (30) days after receiving EPA's notice that additional response activities are required pursuant to this Section, Respondent shall submit a work plan for the response activities to EPA for review and approval. Upon approval by EPA, the work plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. Upon approval of the work plan by EPA, Respondent shall implement the work plan according to the standards, specifications, and schedule in the approved work plan. Respondent shall notify EPA of its intent to perform such additional response activities within seven (7) days after receipt of EPA's request for additional response activities.

XV. ENDANGERMENT AND EMERGENCY RESPONSE

120. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify EPA's RPM, if the RPM is unavailable, EPA's Alternate RPM. If neither EPA's RPM nor EPA's Alternate RPM is available, Respondent shall notify the Emergency Planning and Response Branch, Region 1, United States Environmental Protection Agency, (888) 372-7341; the National Response Center, (800) 424-8802; and the Emergency Response Section, MassDEP, (888) 304-1133. Respondent shall take such action in consultation with EPA's RPM and in accordance with all applicable provisions of this Order, including but not limited to the Health and Safety Plan developed pursuant to the SOW and approved by EPA thereunder. To the extent that the site-specific Health and Safety Plan does not cover the particular situation, Respondent shall develop and submit a response plan to EPA within ten (10) days. The provisions of Section XVI of this Order (EPA Review of Submissions) apply to the submission of any such response plan, except that the time period for resubmission after EPA disapproval shall be five (5) days rather than twenty-one (21) days, unless extended by EPA. In the event that Respondent fails to take appropriate response action as required by this Section, and EPA takes that action instead, EPA reserves the right to pursue cost recovery.

121. Nothing in the preceding Paragraph shall be deemed to limit any authority of the United States: a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of hazardous substances on, at, or from the Site; or b) to direct or order such action, or seek an order from a court, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XVI. EPA REVIEW OF SUBMISSIONS

122. After review of any deliverable, plan, report, or other item which is required to be submitted for review and approval pursuant to this Order, EPA, after reasonable opportunity for review and comment by the State, may: (a) approve the submission; (b) modify the submission and approve the submission as modified; (c) disapprove the submission and direct Respondent to re-submit the document after incorporating EPA's comments; or (d) disapprove the submission and assume responsibility for performing all or any part of the response action. As used in this Order, "EPA approval," "approval by EPA," "approved by EPA," or a similar term shall mean the action described in subparagraphs (a) or (b) of this Paragraph. As used in this Order, "EPA disapproval," "disapproval by EPA," "disapproved by EPA," or similar term shall mean the action described in subparagraphs (c) or (d) of this Paragraph.

123. In the event of approval by EPA, the EPA approved plan, report, or other item shall be incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order, and Respondent shall proceed to take any action required by the plan, report, or other item, as approved by EPA.

124. Upon receipt of a notice of disapproval in Paragraph 122(c), Respondent shall, within twenty-one (21) days or such longer time as specified by EPA in its notice of disapproval, correct the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding the notice of disapproval, Respondent shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission.

125. If any submission is disapproved by EPA, Respondent shall be deemed to be in violation of this Order.

XVII. PROGRESS REPORTS

126. In addition to the other deliverables set forth in this Order, following the effective date of this Order, Respondent shall provide progress reports to EPA, in accordance with the SOW, with respect to actions and activities undertaken pursuant to this Order.

127. In accordance with the SOW, Respondent shall also provide briefings for EPA to discuss the progress of the Work.

128. Upon the occurrence of any event during performance of the Work that Respondent is required to report pursuant to Section 103 of CERCLA or Section 304 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), Respondent shall provide the following notification or report:

a. Within 24 hours of the onset of such event, Respondent shall orally notify EPA's RPM, or, in the event that EPA's RPM is not available, the Emergency Planning and Response Branch, Region 1, United States Environmental Protection Agency, (888) 372-7341; the National Response Center, (800) 424-8802; and the Emergency Response Section, MassDEP, (888) 304-1133. These reporting requirements are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

b. Within twenty (20) days of the onset of such an event, Respondent shall furnish to EPA a written report, signed by the Respondent's Project Coordinator, setting forth the events which occurred and the measures taken, and to be taken, in response thereto.

c. Within thirty (30) days of the conclusion of such an event, Respondent shall submit a report setting forth all actions taken in response thereto.

129. All reports and other documents submitted by Respondent to EPA which purport to document Respondent's compliance with the terms of this Order shall be signed by an authorized representative of Respondent.

XVIII. QUALITY ASSURANCE, SAMPLING AND DATA ANALYSIS

130. Respondent shall use quality assurance, quality control, and chain of custody procedures for all treatability, pre-design, design, compliance and monitoring samples in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R5)" (EPA/240/B-01/003, March

2001, reissued May 2006), "Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/240/R-02/009, December 2002), and subsequent amendments to such guidelines upon notification by EPA to Respondent of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Order, in accordance with the SOW, Respondent shall submit to EPA for approval a Quality Assurance Project Plan ("QAPP") that is consistent with the SOW, the OU1 Remedy, the NCP, and applicable guidance documents.

131. Respondent shall ensure that EPA personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Respondent in implementing this Order. In addition, Respondent shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring.

132. Respondent shall ensure that the laboratories it utilizes for the analysis of samples taken pursuant to this Order perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the "USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4," and the "USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2," and any amendments made thereto during the course of the implementation of this Order; however, upon approval by EPA, Respondent may use other analytical methods which are as stringent as or more stringent than the CLP-approved methods.

133. Respondent shall ensure that all laboratories it uses for analysis of samples taken pursuant to this Order participate in an EPA or EPA-equivalent QA/QC program. Respondent shall only use laboratories that have a documented Quality System which 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), and "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. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements.

134. Respondent shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Order will be conducted in accordance with the procedures set forth in the QAPP approved by EPA.

135. Respondent shall notify EPA not less than fourteen (14) days in advance of any sample collection activity unless shorter notice is agreed to by EPA. At the request of EPA, Respondent shall allow split or duplicate samples to be taken by EPA or their authorized representatives, of any samples collected by Respondent with regard to the Site or pursuant to the implementation of this Order. In addition, EPA shall have the right to take any additional samples that EPA deems necessary, including samples deemed necessary as part of EPA's oversight of Respondent's implementation of the Work.

136. Respondent shall simultaneously submit to EPA and the State the results of all sampling and/or tests or other data obtained or generated by or on behalf of Respondent with respect to the Site and/or the implementation of this Order in accordance with Section XXIV of this Order (Notifications and Submittals), unless EPA agrees otherwise.

137. If relevant to any proceeding, validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Order.

XIX. COMPLIANCE WITH APPLICABLE LAWS

138. All activities by Respondent pursuant to this Order shall be performed in accordance with the requirements of all Federal and State laws and regulations. EPA has determined that the activities contemplated by this Order are consistent with the National Contingency Plan ("NCP").

139. Except as provided in Section 121(e) of CERCLA and the NCP, no permit shall be required for any portion of the Work conducted entirely on-site. Where any portion of the Work requires a Federal or State permit or approval, Respondent shall submit timely applications and take all other actions necessary to obtain and to comply with all such permits or approvals.

140. This Order is not, and shall not be construed to be, a permit issued pursuant to any Federal or State statute or regulation.

141. The Work performed by Respondent pursuant to this Order must, at a minimum, satisfy all applicable or relevant and appropriate Federal and State standards, requirements, criteria, or limitations as specified in the OU1 Remedy, and as required under Section 121(d) of CERCLA.

142. All remedial activities must meet or attain all location, chemical, and action specific applicable or relevant and appropriate Federal and State standards, requirements, criteria and limitations ("ARARs") identified in the OU1 Remedy, the SOW, and by EPA prior to notification of completion of Work, and must attain all Performance Standards identified in the OU1 Remedy, the SOW, and by EPA prior to notification of completion of Work.

143. Respondent shall include in all contracts or subcontracts entered into for Work performed under this Order, provisions stating that such Contractors or Subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with all applicable laws and regulations.

XX. REMEDIAL PROJECT MANAGER

144. EPA's Remedial Project Manager ("RPM") for the OU1 Remedy and the Work under this Order is Elaine T. Stanley, who shall have the authority to be on the Site at all times, including when Work is being undertaken pursuant to this Order. Contact information for EPA's RPM is provided in Section XXIV of this Order (Notifications and Submittals). EPA may also

designate an Alternate RPM, who shall also have the authority to be on the Site at all times, including when Work is being undertaken pursuant to this Order.

145. EPA has the unreviewable right to change its RPM and Alternate RPM. If EPA changes its RPM or Alternate RPM, EPA will inform Respondent in writing of the name, address, email address, telephone number, and fax number of the new RPM or Alternate RPM.

146. EPA's RPM and Alternate RPM shall have the authority lawfully vested in a Remedial Project Manager and On-Scene Coordinator by the National Contingency Plan, 40 C.F.R. Part 300, or any similar provisions in future amendments or revisions to the NCP. EPA's RPM and Alternate RPM shall have authority, consistent with the National Contingency Plan, to halt any Work required by this Order, and to take any necessary response action.

147. The absence of the RPM or Alternate RPM from the Site shall not be cause for stoppage of Work.

XXI. SITE ACCESS AND INSTITUTIONAL CONTROLS

148. If any real property is subject to or affected by the Work, is where access or land/water use restrictions are needed to implement this Order, or is where access or land/water use restrictions are requested by EPA, in accordance with the OU1 Remedy and the SOW, Respondent shall use best efforts to secure from persons other than Respondent, if such property is owned in whole or in part by such persons, or Respondent shall provide, as appropriate, if such property is owned in whole or in part by Respondent, the following:

a. Agreements to provide access thereto for Respondent and Respondent's authorized representatives, Contractors, and Subcontractors, and also for the United States, the Commonwealth, and their representatives, including EPA, MassDEP, their employees, agents, consultants, contractors (including EPA Contractors and EPA Subcontractors), and authorized representatives (hereinafter in this Section referred to collectively as "the United States and the Commonwealth"), within thirty (30) days of the effective date of this Order, for the purpose of conducting any activity related to this Order, including the Work. Such agreements may be in the form of leases (refer to the Section 106 Administrative Record for representative samples of EPA's existing leases and access agreements). Such agreements shall specify that Respondent is not the United States' or the Commonwealth's representative with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA prior to Respondent's initiation of field activities. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA of its failure to obtain access. Access for the United States and the Commonwealth shall also allow the United States and the Commonwealth to:

i. Oversee and monitor the Work;

ii. Verify any data or information submitted to the United States;

iii. Conduct investigations relating to contamination;

iv. Obtain samples;

v. Use a camera, sound recording device or other documentary type equipment;

vi. Assess the need for, plan or implement response actions;

vii. Assess implementation of quality assurance and quality control practices as defined in the QAPPs approved by EPA;

viii. Inspect and copy records, operating logs, contracts, or other documents maintained or generated by Respondent or its authorized representatives, Contractors or Subcontractors, consistent with Section XXII of this Order (Data/Document Availability);

ix. Assess Respondent's compliance with this Order; and

x. Determine whether any property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted, by or pursuant to this Order;

b. Agreements, enforceable by Respondent and the United States and the Commonwealth, to abide by the obligations and restrictions required by the OU1 Remedy and the SOW, or that are otherwise necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Order;

c. For property addressed by the OU1 Remedy where access and/or land/water use restrictions are requested by EPA, or such other property where access and/or land/water use restrictions are needed to implement this Order, if EPA determines that such access rights and/or restrictions should be in the form of easements running with the land, the execution and recordation in the Bristol County Registry of Deeds or Land Registration Office, as applicable, of an easement, running with the land, that (i) grants a right of access for the purpose of conducting any activity related to this Order, and/or (ii) grants the right to enforce the land/water use restrictions that EPA determines are necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Order. The access rights shall be granted to (i) the United States, on behalf of EPA, and its representatives, (ii) the Commonwealth and its representatives, (iii) Respondent and its representatives; and (iv) other parties as directed by EPA. The rights to enforce land/water use restrictions shall be granted to (i) the Commonwealth and its representatives, (ii) Respondent and its representatives, and (iii) other parties as directed by EPA, with the United States, on behalf of EPA, and its representatives, as a third-party beneficiary to enforce the restrictions. Such grants shall be fully assignable, in whole or in part. No grant, or assignment of the grant, to MassDEP shall be recorded without MassDEP's prior written acceptance of such grant or assignment, in accordance with the provisions of Massachusetts General Laws c. 21E Section 6, as amended and any relevant regulation, guidance or policy as may be identified and/or provided by MassDEP. Respondent shall, within forty-five (45) days of the date of the receipt of written notice from EPA, of EPA's determination that such easements, as may be specified in such notice, are required, submit to EPA for review and approval with respect to such property:

i. A draft easement (for access only, in substantially the form of EPA's existing access easements that are in the Section 106 Administrative Record; for land/water use restrictions, in substantially the form attached

hereto as Appendix 2), including legal descriptions of the subject property (and any separately restricted areas therein for land/water use restrictions), based on the survey plans described below, that is enforceable under the laws of the Commonwealth of Massachusetts;

ii. A survey plan in recordable form (and a sketch plan, if registered land) of the subject property (and a survey plan of any separately restricted areas for land/water use restrictions);

iii. A current title insurance commitment or some other evidence of title acceptable to EPA, which shows title to the land described in the easement to be free and clear of all prior liens and encumbrances (except when EPA waives the release or subordination of such prior liens or encumbrances, or when, despite best efforts, Respondent is unable to obtain release or subordination of such prior liens or encumbrances); and

iv. Evidence of the authority of signatories to the easement and to any required subordination agreement or discharge of interest in the subject property.

Within fifteen (15) days of EPA's approval and acceptance of the easement and the title evidence, Respondent shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment or report to affect the title adversely, record the easement and survey plan (and sketch plan, if applicable) with the Registry of Deeds or other appropriate office of Bristol County. Within thirty (30) days of recording the easement and survey plan (and sketch plan, if applicable), Respondent shall provide EPA with title evidence updated through the time of recording and a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded easement and survey plan (and sketch plan, if applicable) showing the clerk's recording stamps. Within sixty (60) days of recording the easement and survey plan (and sketch plan, if applicable), or as soon as available thereafter, Respondent shall provide EPA with a copy of the recorded easement and survey plan (and sketch plan, if applicable), evidencing the stamped registry book and page numbers or other, final recording information. The easement and title evidence (including final title evidence) shall be prepared in accordance with the U.S. Department of Justice Title Standards 2001 (the "Standards"), and approval of the sufficiency of title must be obtained as required by 40 U.S.C. § 3111. The easement and title evidence (including final title evidence) and certificate of title or equivalent shall also satisfy any additional requirements of the Massachusetts Contingency Plan ("MCP"), 310 Code of Massachusetts Regulations ("C.M.R.") 40.0000.

In accordance with the requirements set forth in 310 C.M.R. § 40.1403(7), as amended, and within thirty (30) days after recording and/or registering the easement, Respondent shall: (i) provide the City of New Bedford Municipal Officer, Board of Health, Zoning Official and Building Code Enforcement Official with copies of such recorded and/or registered easement; (ii) publish a legal notice indicating the recording and/or registering of the easement, and including the information described in 310 C.M.R. § 40.1403(7)(b)(1), in a newspaper which circulates in the City of New Bedford; and (iii) provide copies of said legal notice to EPA and MassDEP within seven (7) days of its publication; and

d. For property addressed by the OU1 Remedy where access is requested by EPA, or such other property where access is needed to implement this Order, if EPA determines that such access rights should be in the form of fee simple ownership, a deed properly executed and recorded in the Bristol County Registry of Deeds or Land Registration Office, as applicable (refer to the Section 106 Administrative Record for representative samples of EPA's existing fee simple ownership of properties). Respondent shall, within forty-five (45) days of the date of the receipt of written notice from EPA of EPA's determination that such fee simple ownership of property, as may be specified in such notice, is required, submit to EPA for review and approval with respect to such property:

i. A draft deed, including legal descriptions of the subject property and any separately restricted areas therein, based on the survey plans described below, that is enforceable under the laws of the Commonwealth of Massachusetts;

ii. A survey plan in recordable form (and a sketch plan, if registered land) of the subject property;

iii. A current title insurance commitment or some other evidence of title acceptable to EPA, which shows title to the land described in the deed to be free and clear of all prior liens and encumbrances (except when EPA waives the release or subordination of such prior liens or encumbrances, or when, despite best efforts, Respondent is unable to obtain release or subordination of such prior liens or encumbrances); and

iv. Evidence of the authority of signatories to the deed and to any required subordination agreement or discharge of interest in the subject property.

Within fifteen (15) days of EPA's approval and acceptance of the deed and the title evidence, Respondent shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment or report to affect the title adversely, record the deed and survey plan (and sketch plan, if applicable) with the Registry of Deeds or other appropriate office of Bristol County. Within thirty (30) days of recording the warranty and survey plan (and sketch plan, if applicable), Respondent shall provide EPA with title evidence updated through the time of recording and a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded deed and survey plan (and sketch plan, if applicable) showing the clerk's recording stamps. Within sixty (60) days of recording the deed and survey plan (and sketch plan, if applicable), or as soon as available thereafter, Respondent shall provide EPA with a copy of the recorded deed and survey plan (and sketch plan, if applicable), evidencing the stamped registry book and page numbers or other, final recording information. The deed and title evidence (including final title evidence) shall be prepared in accordance with the Standards, and approval of the sufficiency of title must be obtained as required by 40 U.S.C. § 3111.

149. Based on studies and evaluations to be performed pursuant to the SOW, and in accordance with the OU1 Remedy, EPA may determine that forms of institutional controls other than the agreements and easements described above are required. If EPA requests that land/water use restrictions in the form of state or local laws, regulations, ordinances or other

governmental controls be imposed to implement the OU1 Remedy, ensure the integrity and protectiveness thereof, or ensure non-interference therewith, Respondent shall take such actions as needed to implement such governmental controls and/or cooperate with EPA's and the Commonwealth's efforts to secure such governmental controls, as directed in writing by EPA. Such government controls include seafood consumption advisories and warnings and U.S. Coast Guard rulemaking concerning anchorage ground and regulated navigation area at the Site (refer to the Section 106 Administrative Record for existing seafood consumption advisories and warnings and U.S. Coast Guard rulemaking). If EPA determines, in accordance with the SOW and the OU1 Remedy, that other forms of institutional controls, *e.g.*, educational and medical outreach materials, should be adopted to implement the OU1 Remedy, ensure the integrity and protectiveness thereof, or ensure non-interference therewith on property owned or controlled by persons other than the Respondent, Respondent shall use best efforts to implement such other types of controls and/or cooperate with EPA's and the Commonwealth's efforts to secure such controls, as directed in writing by EPA.

150. For purposes of this Section, "best efforts" includes the payment of reasonable sums of money in consideration of access, access easements, land use restrictions, and/or restrictive easements, fee simple ownership, and/or an agreement to release or subordinate a prior lien or encumbrance. If (a) any access agreements required by Paragraph 148(a) are not obtained within thirty (30) days of the effective date of this Order, or if any land use restriction agreements required by Paragraph 148(b) of this Order are not obtained within forty-five (45) days of the date of the receipt of written notice from EPA of EPA's determination that such land use restriction agreements, as may be specified in such notice, are required, or (b) any access easements or restrictive easements required by Paragraph 148(c) of this Order are not submitted to EPA within forty-five (45) days of the date of the receipt of written notice from EPA of EPA's determination that such easements, as may be specified in such notice, are required, or (c) any warranty deeds required by Paragraph 148(d) of this Order are not submitted to EPA within forty-five (45) days of the date of the receipt of written notice from EPA of EPA's determination that such fee ownerships of properties, as may be specified in such notice, are required, or (d) Respondent is unable to obtain an agreement pursuant to Paragraphs 148(c)(iii) or 148(d)(iii) of this Order from the holder of a prior lien or encumbrance to release such lien or encumbrance or to subordinate such lien or encumbrance to the easement or warranty deed being created pursuant to this Order within forty-five (45) days of the date of the receipt of written notice from EPA of EPA's determination that such easements or fee ownerships of properties, as may be specified in such notice, are required, or (e) Respondent is unable to implement other types of institutional controls and/or cooperate with EPA's and the Commonwealth's efforts to secure such controls within forty-five (45) days of the date of receipt of written notice from EPA of EPA's determination that such other institutional controls are required, Respondent shall promptly notify the United States in writing, and shall include in that notification a summary of the steps that Respondent has taken to attempt to comply with Paragraphs 148 and 149 of this Order.

151. If Respondent cannot obtain the necessary access, in the form of an access agreement, easement, or fee simple ownership, after exercising best efforts, subject to the United States' non-reviewable discretion, EPA may use its legal authorities to obtain access for the Respondent or may perform those response actions at the property in question. If EPA designates Respondent as EPA's authorized representative under Section 104(e) of CERCLA for access,

Respondent agrees to save and hold harmless the United States for any and all claims or causes of action or other causes of action arising from or on account of acts or omissions of Respondent, its officers, directors, employees, agents, Contractors, Subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Order. If EPA performs those response actions, Respondent shall perform all other activities not requiring access to that property; EPA reserves the right to seek reimbursement from Respondent for the Response Costs incurred in performing the response actions. Respondent shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. EPA reserves the right to seek payment from Respondent for all Response Costs, including cost of attorneys' time, incurred by the United States in obtaining access for Respondent, as well as in obtaining land use restrictions, restrictive easements, fee simple ownership, and agreements to release or subordinate a prior lien or encumbrance.

152. Lack of access shall not excuse or justify failure to perform any activity or to meet any deadline not requiring or directly dependent upon such access.

153. Notwithstanding any provision of this Order, the United States retains all of its access authorities and rights under CERCLA and any other applicable statutes and regulations.

XXII. DATA/DOCUMENT AVAILABILITY

154. Respondent shall provide to EPA and the State upon request, copies of all documents and information within its possession and/or control or that of its Contractors, Subcontractors or agents relating to activities at the Site or to the implementation of this Order, including but not limited to sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to EPA for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

155. Respondent may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, provided such claim is not inconsistent with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7) or other provisions of law. This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated by Respondent at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the State without further notice to the Respondent. Respondent shall not assert confidentiality claims with respect to any data related to site conditions, sampling, or monitoring.

156. Respondent shall maintain for the period during which this Order is in effect, an index of documents that Respondent claims contain confidential business information. The index shall contain, for each document, the date, author, addressee, and subject of the document. Upon

written request from EPA, Respondent shall submit a copy of the index to EPA either in writing or electronically.

XXIII. RETENTION OF RECORDS

157. Until ten (10) years after EPA provides notice pursuant to Paragraph 114, Respondent shall preserve and retain all records and documents in its possession or control, including the documents in the possession or control of its Contractors, Subcontractors and agents on and after the effective date of this Order that relate in any manner to the Site. At the conclusion of this document retention period, Respondent shall notify the United States at least ninety (90) days prior to the destruction of any such records or documents, and upon request by the United States, Respondent shall deliver any such records or documents to EPA.

158. Until ten (10) years after EPA provides notice pursuant to Paragraph 114 of this Order, Respondent shall preserve, and shall instruct its Contractors, Subcontractors and agents to preserve, all documents, records, and information of whatever kind, nature, or description relating to the performance of the Work. Upon the conclusion of this document retention period, Respondent shall notify the United States at least ninety (90) days prior to the destruction of any such records, documents or information, and, upon request of the United States, Respondent shall deliver all such documents, records, and information to EPA.

159. Within thirty (30) days after the effective date of this Order, Respondent shall submit a written certification to EPA's RPM that it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any records, documents, or other information relating to their potential liability with regard to the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding the Site. Respondent shall not dispose of any such documents without prior approval by EPA. Respondent shall, upon EPA's request and at no cost to EPA, deliver the documents or copies of the documents to EPA.

160. All data, factual information, or documents submitted to EPA by or on behalf of Respondent may be made available for public inspection unless Respondent demonstrates that the data, factual information, or documents satisfy the business confidentiality requirements of 42 U.S.C. § 9604(e)(7)(E) and (F).

XXIV. NOTIFICATIONS AND SUBMITTALS

161. All communications, whether written or oral, from Respondent to EPA shall be directed to EPA's Remedial Project Manager. Respondent shall submit to EPA one (1) copy of all documents, including plans, reports, and other correspondence, which are developed pursuant to this Order, and shall send these documents by overnight mail unless EPA notifies Respondent's Project Coordinator in writing of a change.

EPA's Remedial Project Manager is:

Elaine T. Stanley
US EPA, 5 Post Office Square, Suite 100
Mailcode OSRR07-4
Boston, MA 02109
Telephone: (617) 918-1332
Facsimile: (617) 918-0332
Email: stanley.elainet@epa.gov

No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules or any other writing submitted by Respondent shall be construed as relieving Respondent of its obligation to obtain such formal approvals as may be required herein.

Respondent shall simultaneously submit one (1) copy of all such documents to MassDEP, unless such documents pertain to Section XXI of this Order (Site Access and Institutional Controls), in which case Respondent shall simultaneously submit two (2) copies of all such documents to MassDEP.

Submissions directed to the Commonwealth shall go to:

Paul Craffey
Project Manager
New Bedford Harbor Superfund Site
Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
One Winter Street
Boston, MA 02108
Telephone: (617) 292-5591
Email: paul.craffey@state.ma.us

In addition, Respondent shall submit in electronic form all documents pursuant to this Order to stanley.elainet@epa.gov and paul.craffey@state.ma.us.

162. All written notices, reports, or other submissions required of Respondent by this Order 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."

XXV. DELAY IN PERFORMANCE

163. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondent under the terms of this Section shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondent's obligations to fully perform all obligations under the terms and conditions of this Order.

164. Respondent shall notify EPA of any delay or anticipated delay in performing any requirement of this Order. Such notification shall be made by telephone to EPA's RPM within twenty-four (24) hours after Respondent first knew or should have known that a delay might occur. Respondent shall adopt all reasonable measures to avoid or minimize any such delay. Within five (5) business days after notifying EPA by telephone, Respondent shall provide written notification fully describing the nature of the delay, any justification for delay, any reason why Respondent should not be held strictly accountable for failing to comply with any relevant requirements of this Order, the measures planned and taken to minimize the delay, and a schedule for implementing the measures that will be taken to mitigate the effect of the delay. Increased costs or expenses associated with implementation of the activities called for in this Order are not a justification for any delay in performance.

XXVI. FINANCIAL ASSURANCE

165. Respondent shall demonstrate its ability to complete the Work required by this Order and to pay all claims that arise from the performance of the Work by obtaining and presenting to EPA financial assurance for the benefit of EPA in an amount no less than $393 million[16] (hereinafter "Estimated Cost of the Work") that must be satisfactory in form and substance to EPA. The financial assurance shall be in the form of one or more of the following mechanisms (provided that, if Respondent intends to use multiple mechanisms, such multiple mechanisms shall be limited to surety bonds, letters of credit, trust funds, and insurance policies):

a. A surety bond that provides EPA with acceptable rights as a beneficiary thereof unconditionally guaranteeing payment and/or performance of the Work and that is issued by a surety company among those listed as acceptable sureties on Federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury;

b. One or more irrevocable letters of credit, payable to or at the direction of EPA, that is issued by one or more financial institution(s) (i) that has the authority to issue letters of

[16] $393 million is the total estimated net present value ("NPV") cost to complete the Harbor cleanup in six years as documented in the OU1 ESD4 (including the NPV of the estimated cost of all required O&M and long-term monitoring activities).

credit and (ii) whose letter-of-credit operations are regulated and examined by a U.S. Federal or State agency;

c. A trust fund established for the benefit of EPA that is administered by a trustee (i) that has the authority to act as a trustee, (ii) whose trust operations are regulated and examined by a U.S. Federal or State agency, and that is acceptable in all respects to EPA;

d. A policy of insurance that ensures the payment and/or performance of the Work which (i) provides EPA with acceptable rights as a beneficiary thereof; and (ii) is issued by an insurance carrier (a) that has the authority to issue insurance policies in the applicable jurisdiction(s), (b) whose insurance operations are regulated and examined by a State agency, and (c) that is acceptable in all respects to EPA;

e. A demonstration by Respondent it that it meets the financial test criteria of 40 C.F.R. § 264.143(f) with respect to the Estimated Cost of the Work, provided that all other requirements of 40 C.F.R. § 264.143(f) are satisfied; or

f. A written guarantee to fund or perform the Work executed in favor of EPA by one or more of the following: (i) a direct or indirect parent company of Respondent, or (ii) a company that has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with Respondent; provided, however, that any company providing such a guarantee must demonstrate to the satisfaction of EPA that it satisfies the financial test requirements of 40 C.F.R. § 264.143(f) with respect to the Estimated Cost of the Work that it proposes to guarantee hereunder.

166. Within thirty (30) days after approval by EPA of the first Remedial Design Work Plan for the first component of the OU1 Remedy, Respondent shall submit for EPA approval the selection of financial assurance mechanism(s) identified in Paragraph 165 above.

167. Within thirty (30) days after receiving a written decision from EPA approving the selected financial assurance mechanism(s), Respondent shall execute or otherwise finalize all instruments or other documents required to make the selected financial assurance mechanism legally binding and fully effective. Within ten (10) days thereafter, Respondent shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected financial assurance mechanism(s) legally binding to EPA in accordance with Section XXIV of this Order (Notifications and Submittals).

168. If Respondent has selected, and EPA has approved, a financial assurance mechanism for completion of the Work by means of a demonstration or guarantee pursuant to Paragraph 165(e) and 165(f) above, Respondent shall also comply with other relevant requirements of 40 C.F.R § 264.143(f), 40 C.F.R. § 264.151(f), and 40 C.F.R. § 264.151(h)(1) relating to these methods unless otherwise provided in this Order, including but not limited to: (a) the initial submission of required financial reports and statements from the relevant entity's chief financial officer and independent certified public accountant; (b) the annual re-submission of such reports and statements within ninety (90) days after the close of each such entity's fiscal year; and (c) the notification of EPA within ninety (90) days after the close of any fiscal year in which such entity no longer satisfies the financial test requirements set forth at 40 C.F.R. § 264.143(f)(1). For purposes of the financial assurance mechanisms specified in this Section XXVI, references in 40

C.F.R. Part 264, Subpart H, to "closure," "post-closure," and "plugging and abandonment" shall be deemed to refer to the Work required under this Order, and the terms "current closure cost estimate," "current post-closure cost estimate," and "current plugging and abandonment cost estimate" shall be deemed to refer to the Estimated Cost of the Work.

169. Respondent shall diligently monitor the adequacy of the financial assurance. In the event that EPA determines at any time that a financial assurance mechanism provided by Respondent pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, or in the event that Respondent becomes aware of information indicating that a financial assurance mechanism provided pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, Respondent, within thirty (30) days of receipt of notice of EPA's determination or, as the case may be, within thirty (30) days of Respondent becoming aware of such information, shall obtain and present for EPA approval a proposal for a revised or alternative form of financial assurance mechanism listed in Paragraph 165 of this Order that satisfies all requirements set forth in this Section. In seeking EPA approval for a revised or alternative form of financial assurance mechanism, Respondent shall follow the procedures set forth in Paragraph 171(b)(ii) of this Order. Respondent's inability to post a financial assurance mechanism for completion of the Work shall in no way excuse performance of any other requirements of this Order, including, without limitation, the obligation of Respondent to complete the Work in strict accordance with the terms hereof.

170. EPA's decision to take over the performance of all or any portion(s) of the Work pursuant to Paragraph 185 shall trigger EPA's right to receive the benefit of any financial assurance mechanism(s) provided pursuant to this Section. At such time, EPA shall have the right to enforce performance by the issuer of the relevant financial assurance mechanism and/or immediately access resources guaranteed under any such mechanism, whether in cash or in kind, as needed to continue and complete all or any portion(s) of the Work assumed by EPA. EPA reserves the right to bring an action against Respondent under Section 107 of CERCLA for recovery of any costs incurred as a result of EPA's takeover of all or portion(s) of the Work that are not paid for or reimbursed by the financial assurance. In addition, if at any time EPA is notified by the issuer of a financial assurance mechanism that such issuer intends to cancel the financial assurance mechanism it has issued, then, unless Respondent provides a substitute financial assurance mechanism in accordance with this Section no later than thirty (30) days prior to the noticed cancellation date, EPA shall be entitled (as of and after the date that is thirty (30) days prior to the impending cancellation) to draw fully on the funds guaranteed under the then-existing financial assurance.

171. Modification of Amount and/or Form of Financial Assurance.

a. Reduction of Amount of Financial Assurance. If Respondent believes that the estimated cost to complete the remaining Work has diminished below the amount set forth in Paragraph 165 above, Respondent may, on any anniversary date of the effective date of this Order, or at any other time agreed to by EPA, petition EPA in writing to request a reduction in the amount of the financial assurance provided pursuant to this Section so that the amount of the

financial assurance is equal to the estimated cost of the remaining Work to be performed. Respondent shall submit a written proposal for such reduction to EPA that shall specify, at a minimum, the cost of the remaining Work to be performed and the basis upon which such cost was calculated. In seeking EPA approval for a revised or alternative form of financial assurance, Respondent shall follow the procedures set forth in Paragraph 171(b)(ii) of this Order. If EPA decides to accept such a proposal, EPA shall notify Respondent of such decision in writing. After receiving EPA's written acceptance, Respondent may reduce the amount of the financial assurance in accordance with and to the extent permitted by such written acceptance. No change to the form or terms of any financial assurance provided under this Section, other than a reduction in amount, is authorized except as provided in Paragraphs 165 or 171(b) of this Order.

b. Change of Form of Financial Assurance.

i. If, after entry of this Order, Respondent desires to change the form or terms of any financial assurance mechanism provided pursuant to this Section, Respondent may, on any anniversary date of entry of this Order, or at any other time agreed to by EPA, petition EPA in writing to request a change in the form of the financial assurance mechanism provided hereunder. The submission of such proposed revised or alternative form of financial assurance mechanism shall be as provided in Paragraph 171(b)(ii) of this Order.

ii. Respondent shall submit a written proposal for a revised or alternative form of financial assurance mechanism to EPA which shall specify, at a minimum, the estimated cost of the remaining Work to be performed, the basis upon which such cost was calculated, and the proposed revised form of financial assurance mechanism, including all proposed instruments or other documents required in order to make the proposed financial assurance mechanism legally binding. The proposed revised or alternative form of financial assurance mechanism must satisfy all requirements set forth or incorporated by reference in this Section. Respondent shall submit such proposed revised or alternative form of financial assurance mechanism to EPA in accordance with Section XXIV of this Order (Notifications and Submittals). Within ten (10) days after receiving a written decision from EPA approving the proposed revised or alternative financial assurance mechanism, Respondent shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected financial assurance mechanism legally binding in a form substantially identical to the documents submitted to EPA as part of the proposal, and such financial assurance mechanism shall thereupon be fully effective. Respondent shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected financial assurance mechanism legally binding to EPA within thirty (30) days of receiving a written decision approving the proposed revised or alternative financial assurance mechanism in accordance with Section XXIV of this Order (Notifications and Submittals).

172. Release of Financial Assurance. If Respondent receives written notice from EPA in accordance with Paragraph 114 hereof that the Work has been fully and finally completed in accordance with the terms of this Order, or if EPA otherwise so notifies Respondent in writing, Respondent may thereafter release, cancel, or discontinue the financial assurance provided pursuant to this Section. Respondent shall not release, cancel, or discontinue any financial assurance provided pursuant to this Section except as provided in this subparagraph.

XXVII. INSURANCE

173. At least seven (7) days prior to commencing any Work at the Site pursuant to this Order, Respondent shall maintain until the first anniversary after issuance of EPA's certification of completion of the Remedial Action, pursuant to Paragraph 113 of this Order, commercial general liability insurance with limits of $57 million, for any one occurrence, and automobile liability insurance with limits of $2 million, combined single limit, naming the United States as an additional insured with respect to all liability arising out of the activities performed by or on behalf of Respondent pursuant to this Order. In addition, for the duration of this Order, Respondent shall satisfy, or shall ensure that its Contractors or Subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondent in furtherance of this Order. Prior to commencement of the Work under this Order, Respondent shall provide to EPA certificates of such insurance and a copy of each insurance policy. Respondent shall resubmit such certificates and copies of policies each year on the anniversary of the effective date of this Order. If Respondent demonstrates by evidence satisfactory to EPA that any Contractor or Subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that Contractor or Subcontractor, Respondent need provide only that portion of the insurance described above that is not maintained by the Contractor or Subcontractor.

XXVIII. REIMBURSEMENT OF RESPONSE COSTS

174. Respondent shall reimburse EPA, upon written demand, for all Response Costs incurred in overseeing Respondent's implementation of the requirements of this Order, including but not limited to, the following direct and indirect costs: time and travel of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, compliance monitoring costs, costs of collection and analysis of split samples, costs of inspecting Remedial Action activities, costs of Site visits, costs arising out of disputes relating to this Order, costs of review and approval or disapproval of reports, costs associated with community relations, and costs incurred in connection with obtaining Site access. EPA may submit to Respondent on a periodic basis an accounting of all Response Costs incurred by the United States with respect to this Order. EPA's Itemized Cost Summary reports, or such other summary as certified by EPA, shall serve as basis for payment demands.

175. Respondent shall, within thirty (30) days of receipt of each EPA accounting, remit payment of the demanded amount. Interest shall accrue from the later of the date that payment

of a specified amount is demanded in writing or the date of the expenditure. The interest rate is the rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13.

176. Payment shall be made to EPA by Electronic Funds Transfer ("EFT") in accordance with current EFT procedure that EPA Region 1 will provide Respondent and shall be accompanied by a statement identifying the name and address of the party(ies) making payment, the Site name (New Bedford Harbor Superfund Site), EPA Region 1, the Site/Spill ID No. 0143, and EPA Docket No. CERCLA-01-2012-0045 for this Order.

177. At the time of any payment required to be made in accordance with this Section, Respondent shall send notice that payment has been made to EPA in accordance with Section XXIV of this Order (Notifications and Submittals), and to the EPA Cincinnati Finance Office by email at acctsreceivable.cinwd@epa.gov, or by mail at 26 Martin Luther King Drive, Cincinnati, Ohio 45268. Such notice shall also reference the Site name, EPA Region 1, the Site/Spill ID No. 0143, and EPA Docket No. CERCLA-01-2012-0045 for this Order.

XXIX. COORDINATION AND COOPERATION

178. In accordance with the SOW, Respondent shall make best efforts to coordinate and cooperate with EPA, the Commonwealth, the City of New Bedford, other Federal agencies, other parties as required by EPA, and all contractors and representatives of these governmental agencies and other parties, including EPA Contractors and EPA Subcontractors, in the performance of the Work required by this Order.

179. Consistent with the SOW, Respondent shall make best efforts to coordinate in the performance of the Work required by this Order by any person not a party to this Order who offers to perform or, in lieu of performance to pay for, in whole or in part, the Work required by this Order. Best efforts to coordinate shall include, at a minimum:

a. replying in writing within a reasonable period of time to offers to perform or pay for the Work required by this Order;

b. engaging in good-faith negotiations with any person not a party to this Order who offers to perform or to pay for, the Work required by this Order; and

c. good-faith consideration of good-faith offers to perform or pay for the Work required by this Order.

180. Within thirty (30) days of an offer by a person not a party to this Order to perform or pay for the Work required by this Order, Respondent shall provide notification of such offer to EPA. On request of EPA and subject to any claims of applicable privilege(s), Respondent shall submit to EPA all documents in its possession, custody, or control relating to (a) any offer to perform or pay for, or (b) the performance of or payment for, the Work required by this Order by Respondent or any non-Respondent to this Order.

XXX. ENFORCEMENT AND RESERVATIONS

181. EPA reserves the right to bring an action against Respondent under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any Response Costs incurred by the United States related to this Order and not reimbursed by Respondent. This reservation shall include but not be limited to past costs, direct costs, indirect costs, the costs of oversight, the costs of compiling the cost documentation to support oversight cost demand, as well as accrued interest as provided in Section 107(a) of CERCLA.

182. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own studies, complete the response action (or any portion of the response action) as provided in CERCLA and the NCP, and seek reimbursement from Respondent for its costs, or seek any other appropriate relief.

183. Nothing in this Order shall preclude EPA from taking any additional enforcement actions including modification of this Order or issuance of additional orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondent in the future to perform additional activities pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), or any other applicable law. Respondent shall be liable under CERCLA § 107(a), 42 U.S.C. § 9607(a), for the costs of any such additional actions.

184. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA, and any other applicable statutes or regulations.

185. Respondent shall be subject to civil penalties under Section 106(b) of CERCLA, 42 U.S.C. § 9606(b), and the Civil Monetary Penalty Inflation Adjustment Rule, 69 Fed. Reg. 7121, 40 C.F.R. § 19.4, of not more than $37,500 for each day in which Respondent willfully violates, or fails or refuses to comply with this Order without sufficient cause. In the event of such willful violation, or failure or refusal to comply, EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Order pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606. If EPA elects to take over the performance of all or any portion(s) of the Work pursuant to this provision, EPA shall have the right to enforce performance by the issuer of the relevant financial assurance mechanism and/or immediately access any financial assurance mechanisms provided pursuant to Section XXVI (Financial Assurance) of this Order. In addition, failure to properly provide responses or action under this Order, or any portion hereof, without sufficient cause, may result in liability under Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), for punitive damages in an amount at least equal to, and not more than three times, the amount of any costs incurred by the Fund as a result of such failure to take proper action.

186. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person for any liability it may have arising out of or relating in any way to the Site.

XXXI. NO RELEASE OF LIABILITY

187. Nothing herein shall constitute or be construed as a satisfaction or release of any person from liability for any conditions or claims arising as a result of past, current, or future activities at the Site, including but not limited to any and all claims of the United States for Response Costs, money damages, and interest under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), or any other applicable statute, or the common law.

188. Notwithstanding compliance with the terms of this Order, Respondent may be required to take such further actions as may be necessary to protect public health or welfare or the environment or as may be otherwise necessary or appropriate under applicable provisions of the law.

XXXII. NO PREAUTHORIZATION

189. Nothing in this Order shall constitute or be construed as preauthorization of a CERCLA claim within the meaning of CERCLA § 111, 42 U.S.C. § 9611, or Section 300.700(d) of the NCP, 40 C.F.R. § 300.700(d).

XXXIII. ADMINISTRATIVE RECORD

190. The Section 106 Administrative Record for this Order is available for review on normal business days between the hours of 9:00 am and 5:00 p.m. at EPA, Region 1, 5 Post Office Square, Boston, Massachusetts.

191. Upon request by EPA, Respondent must submit to EPA all documents related to the performance of the Work for possible inclusion in the administrative record file.

XXXIV. EFFECTIVE DATE AND COMPUTATION OF TIME

192. This Order shall be effective sixty (60) days after the Order is signed by the Director of the Office of Site Remediation and Restoration. All times for performance of obligations under this Order shall be calculated from that effective date, unless the Order (including the SOW) specifies otherwise.

XXXV. OPPORTUNITY TO CONFER

193. Respondent may, within ten (10) days after the date this Order is signed, request a conference with EPA to discuss this Order. Such conference shall be held within thirty (30) days of the date this Order is signed by the Director of the Office of Site Remediation and Restoration at the EPA Offices at 5 Post Office Square, Suite 100, Boston, MA.

194. The purpose and scope of the conference shall be limited to issues involving the implementation of the response actions required by this Order and the extent to which Respondent intends to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this Order. It does not give Respondent a right to seek review of this Order, or to seek resolution of potential liability, and no official stenographic record of the conference will be made. At any conference held pursuant to Respondent's request, Respondent may appear in person or by an attorney or other representative.

195. Requests for a conference must be by telephone followed by written confirmation mailed and emailed that day to:

Man Chak Ng, Senior Enforcement Counsel
United States Environmental Protection Agency
5 Post Office Square, Suite 100 (Mailcode OES04-01)
Boston, MA 02109
Telephone: (617) 918-1785
Email: ng.manchak@epa.gov

XXXVI. SEVERABILITY

196. If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated or determined to be subject to a sufficient cause defense by the court's order.

XXXVII. UNITED STATES NOT LIABLE

197. The United States, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondent, or its directors, officers, employees, agents, representatives, successors, assigns, Contractors, Subcontractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by Respondent or its directors, officers, employees, agents, representatives, successors, assigns, Contractors, Subcontractors, or consultants in carrying out any action or activity pursuant to this Order.

So Ordered, this 18 day of April, 2012.

By: James T. Owens, III

James T. Owens, III, Director
Office of Site Remediation and Restoration
U.S. Environmental Protection Agency
Region 1

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:
    - Massachusetts Board of Underwater Archeological Resources ("BUAR")
    - 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
    - Massachusetts Department of Public Health ("MA DPH")
    - Massachusetts Division of Marine Fisheries ("MA DMF")
    - Massachusetts Historical Commission, which is the State Historic Preservation Officer ("SHPO")
    - Massachusetts Office of Coastal Zone Management ("CZM")
    - 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:
    - Advisory Council on Historic Preservation
    - EPA and EPA Contractors and EPA Subcontractors, including U.S. Army Corps of Engineers ("USACE") and USACE contractors and subcontractors
    - National Oceanic and Atmospheric Administration ("NOAA")
    - National Park Service ("NPS")
    - NOAA's National Marine Fisheries Service
    - U.S. Coast Guard
    - 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 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[1]
Cadmium	9.3	µg/L	AWQC
Chromium	50	µg/L	AWQC
Copper	5.6	µg/L	phased TMDL limit[2]
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.

[1] 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.

[2] 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 ng/m^3-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 ng/m^3-day, and for a commercial worker is 344 ng/m^3-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")[3] 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

[3] 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 ("AEGLs"). 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.

Table 2 – Example PAVs and PALs for VOC Source Areas

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[4]	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.

[4] H_2S 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_2S 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. <u>90% Design Submission</u>

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 OU1 Remedy and until EPA approval of the last Remedy Component Completion Report for the last component of the OU1 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 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;

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 OU1 Remedy, Respondent shall submit an Institutional Controls Plan. This Plan for each component of the OU1 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 OU1 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.

UAO SOW FOR RD, RA, AND O&M
ATTACHMENT A
PROJECT OPERATIONS PLAN REQUIREMENTS

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

APRIL 2012

Before any field activities commence on the Site, Respondent shall submit several site-specific plans to establish procedures to be followed by Respondent in performing field, laboratory, and analysis work. These site-specific plans include the:

A. Site Management Plan ("SMP"),
B. Sampling and Analysis Plan ("SAP"),
C. Health and Safety Plan ("HSP"), and
D. Community Relations Support Plan ("CRSP").

These plans shall be combined to form the Site's Project Operations Plan ("POP"). The four components of the POP are described in Sections A through D herein.

The format and scope of each Plan shall be modified as needed to describe the sampling, analyses, and other activities that are clarified as the RD, RA, and O&M progress. EPA may modify the scopes of these activities at any time during the RD, RA, and O&M at the discretion of EPA in response to the evaluation of RD, RA, and O&M results, changes in RD, RA, and O&M requirements, and other developments or circumstances.

A. Site Management Plan ("SMP")

The Site Management Plan ("SMP") shall describe how Respondent will manage the project to complete the Work required at the Site. The overall objective of the Site Management Plan is to provide EPA and MassDEP with a written understanding and commitment of how various project aspects such as access, security, contingency procedures, management responsibilities, waste disposal, budgeting, and data handling are being managed by Respondent. Specific objectives and provisions of the Site Management Plan shall include, but are not limited to the following:

1. Provide a map and a list of properties, the property owners, and addresses of owners to whose property access may be required.

2. Clearly indicate the exclusion zone, contamination reduction zone, and clean area for on-site activities.

3. Establish necessary procedures and provide sample letters to land owners to arrange field activities and to ensure EPA and MassDEP are informed of access-related problems and issues.

4. Provide for the security of government and private property on the Site.

5. Prevent unauthorized entry to the Site, which might result in exposure of persons to potentially hazardous conditions.

6. Secure access agreements for the Site.

7. Establish the location of a field office for on-site activities.

8. Provide 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 the SOW.

9. Provide contingency and notification plans for activities associated with the RD, RA, and O&M.

10. Monitor airborne contaminants released by Site activities which may affect the local populations.

11. Communicate to EPA, MassDEP, and the public the organization and management of the RD, RA, and O&M, including key personnel and their responsibilities.

12. Provide a list of contractors and subcontractors of Respondent in the RD, RA, and O&M and description of their activities and roles.

13. Provide regular financial reports of the Respondent's expenditures on the RD, RA, and O&M activities.

14. Provide for the proper disposal of materials used and wastes generated during the RD, RA, and O&M (*e.g.*, drill cutting, extracted groundwater, protective clothing, and disposable equipment). These provisions shall be consistent with the off-site disposal aspects of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601 *et seq.* ("CERCLA"), Solid Waste Disposal Act, as amended, 42 U.S.C. § 6901 *et seq.* (also known as the Resource Conservation and Recovery Act, "RCRA"), U.S. Department of Transportation ("DOT") regulations, and applicable state laws. Respondent, or its authorized representative, or another party acceptable to

EPA and MassDEP shall be identified as the generator of wastes for the purpose of regulatory or policy compliance.

15. Provide plans and procedures for organizing, manipulating, and presenting the data generated and for verifying its quality before and during the RD, RA, and O&M. These plans shall include a description of the computer database management systems that are compatible with hardware available to EPA Region 1 personnel for handling media-specific sampling results obtained before and during the RD, RA, and O&M. The description shall include data input fields, examples of data base management output from the coding of all RD, RA, and O&M sample data, appropriate quality assurance/quality control to ensure accuracy, and capabilities of data manipulation. To the degree possible, the data base management parameters shall be compatible with the EPA Region 1 data storage and analysis system.

B. Sampling and Analysis Plan ("SAP")

The SAP shall be consistent with Section XVIII of the Unilateral Administrative Order (Quality Assurance, Sampling and Data Analysis). The SAP consists of both (1) a Quality Assurance Project Plan ("QAPP") that describes the policy, organization, functional activities, and the quality assurance and quality control protocols necessary to achieve the data quality objectives dictated by the intended use of the data; and (2) the Field Sampling Plan ("FSP") that provides guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used on a project. Components required by these two plans are described below.

The SAP shall be the framework of all anticipated field activities (*e.g.*, sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on all field work (*e.g.*, sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RD, RA, and O&M, the SAP shall be revised as necessary to cover each round of field or laboratory activities. The purpose of the SAP is to ensure that sampling data collection activities will be comparable to and compatible with previous data collection activities performed at the Site while providing a mechanism for planning and approving field activities. The overall objectives of the two documents comprising the SAP are as follows:

1. Document specific objectives, procedures, and rationales for fieldwork and sample analytical work;

2. Provide a mechanism for planning and approving Site and laboratory activities;

3. Ensure that sampling and analysis activities are necessary and sufficient; and

4. Provide a common point of reference for Respondent to ensure the comparability and compatibility of all objectives and the sampling and analysis activities.

To achieve this last objective, the SAP shall document all field and sampling and analysis objectives as noted above, as well as all data quality objectives and specific procedures/protocols for field sampling and analysis.

The following critical elements of the SAP shall be described for each sample medium (*e.g.*, ground water, surface water, soil, sediment, air, and biota) and for each sampling event:

1. Sampling objectives (*e.g.*, engineering related, well yields, zone of influence, performance monitoring, demonstration of attainment, five year review, etc.);

2. Data quality objectives, including data uses and the rationale for the selection of analytical levels and detection limits (see Guidance for the Data Quality Objectives Process, EPA QA/G-4 (EPA/600/R-96/055, August 2000); Data Quality Objectives Decision Errors Feasibility Trials (DEFT) Software, QA/G-4D (EPA/240/B-01/007, September 2001); and Final Guidance Data Usability in Risk Assessment (Part A) (publication 9285.7-09A, April 1992, PB92-963356); Guidance for Data Usability in Risk Assessment (Part B) (publication 9285.7-09B, May 1992, PB92-963362)).

3. Site background update, including an evaluation of the validity, sufficiency, and sensitivity of existing data;

4. Sampling locations and rationale;

5. Sampling procedures and rationale and references;

6. Numbers of samples and justification;

7. Numbers of field blanks, trip blanks, and duplicates;

8. Sample media (*e.g.*, ground water, surface water, soil, sediment, air, and buildings, facilities, and structures, including surfaces, structural materials, and residues);

9. Sample equipment, containers, minimum sample quantities, sample preservation techniques, maximum holding times;

10. Instrumentation and procedures for the calibration and use of portable air, soil-, or water-monitoring equipment to be used in the field;

11. Chemical and physical parameters in the analysis of each sample;

12. Chain-of-custody procedures must be clearly stated (see EPA NEIC Policies and Procedures Manual, EPA 330/9-78 001-R, May 1978, revised May 1986);

13. Procedures to eliminate cross-contamination of samples (such as dedicated equipment);

14. Sample types, including collection methods and if field and laboratory analyses will be conducted;

15. Laboratory analytical procedures, equipment, and detection limits;

16. Equipment decontamination procedures;

17. Consistency with the other parts of the Work Plan(s) by having identical objectives, procedures, and justification, or by cross-reference;

18. Analysis from each medium for all Hazardous Substance List ("HSL") inorganic and organic analytes;

19. Analysis for other potential site-specific contaminants not on the HSL in each media;

20. Analysis of selected background and contaminated ground water samples for substances listed in RCRA Appendix IX, unless the exclusion of certain substances on this list is approved by EPA; and

21. For any limited field investigation (field screening technique), provisions for the collection and laboratory analysis of parallel samples and for the quantitative correlation analysis in which screening results are compared with laboratory results.

Revisions or a statement regarding the need for revisions shall be included in each deliverable describing all new field work.

The SAP shall allow for notifying EPA, at a minimum, fourteen (14) days before field sampling or monitoring activities commence. The SAP shall also allow split, replicate, or duplicate samples to be taken by EPA (or its contractor personnel). At the request of EPA, Respondent shall provide these samples in appropriately pre-cleaned containers to the government representatives. Identical procedures shall be used to collect Respondent and the parallel split samples unless otherwise specified by EPA.

Several references shall be used to develop the SAP, for example:

1. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, EPA/540/G-89/004, October 1988);

2. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition, or most recent update);

3. EPA Requirements for Quality Assurance Plans, QA/R-5 (EPA/240/B-01/003), March 2001;

4. Region I, EPA-New England Quality Assurance Project Plan Program Guidance, April 2005;

5. Guidance for the Data Quality Objectives Process, QA/G-4 (EPA/600/R-96/055), August 2000;

6. Data Quality Objectives Decision Errors Feasibility Trials (DEFT) Software, QA/G-4D (EPA/240/B-01-007), September 2001);

7. Guidance for the Data Quality Objectives Process for Hazardous Waste, QA/G-4HW (EPA/600/R-00/007), January 2000;

8. Guidance for Preparing Standard Operating Procedures (SOPs), QA/G-6 (EPA/240/B-01/004), March 2001;

9. Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996;

10. Guidance for Data Quality Assessment: Practical Methods for Data Analysis, QA/G-9 (QA00 Version, EPA/600/R-96/084), July 2000;

11. EPA Requirements for Quality Management Plans, QA/R-2 (EPA 240/B-01/002), March 2001; and

12. Guidance for Quality Assurance Project Plans, QA/G-5 (EPA/240/R-02/009), December 2002.

B.1. QUALITY ASSURANCE PROJECT PLAN ("QAPP")

The Quality Assurance Project Plan ("QAPP") shall document in writing the site-specific objectives, policies, organizations, functional activities, sampling and analysis activities and specific quality assurance/quality control activities designed to achieve the data quality objectives ("DQOs") of the RD, RA, and O&M. The QAPP developed for this project shall document quality control and quality assurance policies, procedures, routines, and specifications.

Project activities throughout the RD, RA, and O&M shall comply with the QAPP. QAPP sampling and analysis objectives and procedures shall be consistent with EPA Requirements for Quality Assurance Plans (QA/R-5) and appropriate EPA handbooks, manuals, and guidelines, including Guidance for Quality Assurance Project Plans, QA/G-5 (EPA/240/R-02/009), December 2002, Region I, EPA-New England Quality Assurance Project Plan Program Guidance, April 2005, Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR, Part 136), and Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, (EPA-600/4-84-041, April 1984).

All the QAPP elements identified in EPA QA/R-5 and EPA QA/G-5 must be addressed.

As indicated in EPA QA/R-5 and EPA QA/G-5, a list of essential elements must be considered in the QAPP for the RD, RA, and O&M. If a particular element is not relevant to a project and therefore excluded from the QAPP, specific and detailed reasons for exclusion must be provided.

Information in a plan other than the QAPP may be cross-referenced clearly in the QAPP provided that all objectives, procedures, and rationales in the documents are consistent, and the reference material fulfills requirements of EPA QA/R-5 and EPA QA/G-5. Examples of how this cross reference might be accomplished can be found in the Guidance for the Data Quality Objectives Process, QA/G-4 (EPA/600/R-96/055), and the Data Quality Objectives decision Errors Feasibility Trials (DEFT) Software, QA/G-4D (EPA/240/B-01/007). EPA-approved references, or equivalent, or alternative methods approved by EPA shall be used, and their corresponding EPA-approved guidelines should be applied when they are available and applicable.

Laboratory QA/AC Procedures:

The QA/QC procedures and SOPs for any laboratory (both fixed and mobile) used during the RD, RA, and O&M shall be included in the Respondent's QAPP. When this work is

performed by a contractor to a private party, each laboratory performing chemical analyses shall meet the following requirements:

1. Be approved by the State Laboratory Evaluation Program, if available;

2. Have successful performance in one of EPA's National Proficiency Sample Programs (*i.e.*, Water Supply or Water Pollution Studies or the State's proficiency sampling program);

3. Be familiar with the requirements of 48 C.F.R. Part 1546 contract requirements for quality assurance; and

4. Have a QAPP for the laboratory including all relevant analysis. This plan shall be referenced as part of the contractor's QAPP.

Data Validation Procedures:

Respondent is required to certify that a representative portion of the data has been validated by a person independent of the laboratory according to the Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996 (amended as necessary to account for the differences between the approved analytical methods for the project and the current Contract Laboratory Program Statements of Work ("CLP SOW")). A data validation reporting package as described in the guidelines cited above must be delivered at the request of the EPA project manager. Approved validation methods shall be contained in the QAPP.

The independent validator shall not be the laboratory conducting the analysis and should be a person with a working knowledge of or prior experience with EPA data validation procedures. The independent validator shall certify that the data has been validated, discrepancies have been resolved if possible, and the appropriate qualifiers have been provided.

Data Package Requirements:

Respondent must require and keep the complete data package and make it available to EPA on request in order for EPA to conduct an independent validation of the data. The complete data package shall consist of all results, the raw data, and all relevant QA/QC information. The forms contained in the data validation functional guidelines must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. All laboratory tracking information must also be included in the data package. An example data package deliverable is listed below:

1. A summary of positive results and detection limits of non-detects with all raw data;

2. Tabulated surrogate recoveries and QC limits and all validation and sample raw data;

3. Tabulated matrix spike/matrix spike duplicate recoveries, relative percent differences, spike concentrations, and QC limits from and all validation and sample raw data;

4. Associated blanks (trip, equipment, and method with accompanying raw data for tests);

5. Tabulated initial and continuing calibration results (concentrations, calibration factors or relative response factors and mean relative response factors, % differences and % relative standard deviations) with accompanying raw data;

6. Tabulated retention time windows for each column;

7. A record of the daily analytical scheme (run logbook, instrument logbook) which includes samples and standards order of analysis;

8. The chain of custody for the sample shipment groups, DAS packing slip, DAS analytical specifications;

9. A narrative summary of method and any problems encounter during extraction or analysis;

10. Tabulated sample weights, volumes, and % solids used in each sample calculation;

11. Example calculation for positive values and detection limits; and

12. Validation data for all tests.

The forms contained in Chapter 1 of SW-846 (Second Edition 1982 as amended by Update I, April 1984, and Update II, April 1985) or the current CLP SOW forms must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. All internal and external laboratory sample tracking information must be included in the data package.

B.2 Field Sampling Plan ("FSP")

The objective of the Field Sampling Plan is to provide EPA and all parties involved with the collection and use of field data with a common written understanding of all field work. The FSP should be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. Guidance for the selection of field methods, sampling procedures, and custody can be acquired from the Compendium of Superfund Field Operations Methods (OSWER Directive 9355.0-14, EPA/540/P-87/001), December 1987, which is a compilation of demonstrated field techniques that have been used during remedial response activities at hazardous waste sites. The FSP shall be site-specific and shall include the following elements:

1. Site Background: If the analysis of the existing Site details is not included in the Work Plan or in the QAPP, it must be included in the FSP. This analysis shall include a description of the Site and surrounding areas and a discussion of known and suspected contaminant sources, probable transport pathways, and other information about the Site. The analysis shall also include descriptions of specific data gaps and ways in which sampling is designed to fill those gaps. Including this discussion in the FSP will help orient the sampling team in the field.

2. Sampling Objectives: Specific objectives of sampling effort that describe the intended uses of data must be clearly and succinctly stated.

3. Sampling Location and Frequency: This section of the FSP identifies each matrix to be collected and the constituents to be analyzed. Tables shall be used to clearly identify the number of samples, the type of sample (water, soil, etc.), and the number of quality control samples (duplicates, trip blanks, equipment blanks, etc.). Figures shall be included to show the locations of existing or proposed sample points.

4. Sample Designation: A sample numbering system shall be established for the project. The sample designation should include the sample or well number, the sample round, the sample matrix (*e.g.*, surface soil, ground water, soil boring), and the name of the Site.

5. Sampling Equipment and Procedures: Sampling procedures must be clearly written. Step-by-step instructions for each type of sampling that are necessary to enable the field team to gather data that will meet the DQOs. A list should include the equipment to be used and the material composition (*e.g.*, Teflon, stainless steel) of equipment along with decontamination procedures.

6. Sampling Handling and Analysis: A table shall be included that identifies sample preservation methods, types of sampling jars, shipping requirements, and holding times. Examples of paperwork such as traffic reports, chain-of-custody forms, packing slips, and sample tags filled out for each sample as well as instructions for filling out the paperwork must be included. Field documentation methods including field notebooks and photographs shall be described.

Each Field Sampling Plan submitted as a part of the POP for the RD, RA, and O&M shall be sufficiently detailed to carry out the study, and shall provide data needed to address the objective of the study and to complete the study. Each study shall be designed to achieve a high performance on the first attempt. Each work plan shall be related (by cross-references) to the other requirements in the Project Operations Plan.

C. Health and Safety Plan ("HSP")

The objective of the site-specific Health and Safety Plan is to establish the procedures, personnel responsibilities and training necessary to protect the health and safety of all on-site personnel during the RD, RA, and O&M. The plan shall provide procedures and plans for routine but hazardous field activities and for unexpected Site emergencies.

The site-specific health and safety requirements and procedures in the HSP shall be updated based on an ongoing assessment of Site conditions, including the most current information on each medium. For each field task during the RD, RA, and O&M, the HSP shall identify:

1. Possible problems and hazards and their solutions;
2. Environmental surveillance measures;
3. Specifications for protective clothing;
4. The appropriate level of respiratory protection;
5. The rationale for selecting that level;
6. Criteria, procedures, and mechanisms for upgrading the level of protection and for suspending activity, if necessary; and
7. Function-specific training requirements for all project personnel.

The HSP shall also include the delineation of exclusion zones on a map and in the field. The HSP shall describe the on-site person responsible for implementing the HSP for the Respondent's representatives at the Site, protective equipment personnel decontamination

procedures, and medical surveillance. The following documents and resources shall be consulted:

- OSHA e-HASP Software – Version 1.0, September 2003 (www.osha.gov/dep/etools/ehasp/index.html)

- Hazardous Waste Operations and Emergency Response (Department of Labor, Occupational Safety and Health Administration ("OSHA"), 29 C.F.R. § 1910.120); and

- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: Appendix B (NIOSH/OSHA/EPA 1986).

OSHA regulations at 29 C.F.R. Part 1910, which describe the routine emergency provisions of a site-specific health and safety plan, and the OSHA e-HASP Software shall be the primary references used by the Respondent in developing and implementing the Health and Safety Plan.

The measures in the HSP shall be developed and implemented to ensure compliance with all applicable state and Federal occupational health and safety regulations. The HSP shall be updated at the request of EPA during the course of the RD, RA, and O&M and as necessary.

D. Community Relations Support Plan ("CRSP")

Respondent shall develop a Community Relations Support Plan, whose objective is to ensure and specify adequate support from Respondent for the community relations efforts of EPA. This support shall be at the request of EPA and may include:

1. Participation in public informational or technical meetings, including the provision of presentations, logistical support, visual aids and equipment;

2. Publication and copying of fact sheets or updates; and

3. Assistance in placing EPA public notices in print.

UNILATERAL ADMINISTRATIVE ORDER
U.S. EPA DOCKET NO. CERCLA-01-2012-0045
APPENDIX 2

FORM OF GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT

(Revised September 25, 2007)

GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT
42 U.S.C. § 9601, *et seq.* [, and M.G.L. c. 21E, § 6]
[reference Chapter 21E only if MassDEP is a Grantee]

[Note: This instrument is established as an institutional control for a federal Superfund site pursuant to _____ [add reference to Governing Agreement and any separate agreement with the landowner], as set forth below, and contains a GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT running to [the UNITED STATES on behalf of its ENVIRONMENTAL PROTECTION AGENCY] [include the following only if MassDEP is a Grantee:] [and/or] [the MASSACHUSETTS DEPARTMENT of ENVIRONMENTAL PROTECTION]]

Disposal Site Name: _____
Site Location: _____ [Town/City], MA
EPA Site Identification Number: _____
MassDEP Release Tracking No. __-_____

This GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT (the "Grant") is made as of this ____ day of _____, 20__, by _____, of _____ [*insert property owner's address*] ("Grantor").

WITNESSETH:

WHEREAS, Grantor is the owner in fee simple of that [those] certain parcel(s) of [vacant] land located in _____ [*insert Town/City*], _____ County, Massachusetts, [with the buildings and improvements thereon], pursuant to [a deed recorded with the _____ Registry of Deeds in Book _____, Page _____]; [*or insert source of title other than by deed*]; and/or [Certificate of Title No. _____ issued by the Land Registration Office of the_____ Registry District];

WHEREAS, said parcel(s) of land, known and/or numbered as _____, which is [are] more particularly bounded and described in Exhibit A ("Legal Description of the Property"), attached hereto and made a part hereof (the "Property"), is [are] subject to this Grant. The Property is shown on [a plan entitled "_____" prepared by _____, dated _____, recorded with the _____ Registry of Deeds in Plan Book _____, Plan _____], and/or on [Land Court Plan No. _____] [shown as Lot _____];

[WHEREAS, that [those] certain portion(s) of the Property subject to restrictions has [have] been designated _____ [*list names of each type of restricted area, such as "Area A" or "the Cap Area"—this reference, legal descriptions and survey plan*

must use internally consistent terminology] ([collectively, all of the foregoing restricted areas comprising] the "Restricted Area");]

[WHEREAS, the Restricted Area is bounded and described in Exhibit A-1 ("Legal Description of the Restricted Area"), attached hereto and made a part hereof;]

[WHEREAS, the Restricted Area is shown on a plan [*refers to a survey plan showing the restricted area and perimeter of each subdivided lot comprising the portion of the Property where the Restricted Area is located*] consisting of ____ sheet(s), entitled "Plan of Restricted Area" prepared by _____, dated _____, and recorded in the _____ Registry of Deeds in Plan Book ____, Plan ____; [and on a sketch plan attached hereto and filed herewith for registration]] [*note that a full-size plan must be recorded on the unregistered side, even for registered land*];

WHEREAS, the Property [and the Restricted Area] is [are] subject to covenants, restrictions, easements and other rights and obligations under the terms and conditions of this instrument;

WHEREAS, [a portion of] the Property [is part of] [contains] a federal Superfund Site, known as the _____ Superfund Site (the "Site"). The U.S. Environmental Protection Agency, an agency established under the laws of the United States, having its New England regional office at One Congress Street, Boston, Massachusetts 02114 ("EPA"), pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9605, placed the Site on the National Priorities List, set forth at 40.C.F.R. Part 300, Appendix B, by publication in the Federal Register on _____, ___ Fed. Reg. _____, due to a release of hazardous substances, as that term is defined by Section 104 of CERCLA, 42 U.S.C. § 9604.

WHEREAS, the Massachusetts Department of Environmental Protection, a duly constituted agency organized under the laws of the Commonwealth of Massachusetts, having its principal office at One Winter Street, Boston, Massachusetts 02108 ("MassDEP"), as a result of the release of oil and/or hazardous materials at the Property, as those terms are defined in the Massachusetts Oil and Hazardous Materials Release, Prevention and Response Act, M.G.L. c. 21E, as amended ("Chapter 21E"), has placed [a portion of] the Property on the Massachusetts List of Confirmed Disposal Sites and Locations to be Investigated pursuant to Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000 (the "MCP"), has classified [such portion of] the Property as a Tier IA disposal site and has assigned to thereto MassDEP Release Tracking Number(s) _____;

WHEREAS, in a document entitled, "Record of Decision, _____ Superfund Site," dated _____ [*include in this definition any ROD Amendments or Explanations of Significant Differences*] (the "ROD"), said ROD being on file at the United States Environmental Protection Agency, Region I ("EPA") Record Center located at One Congress Street, Boston, Massachusetts, EPA, with the concurrence of MassDEP on _____ [*fill in date of State concurrence letter*], has selected one or more response actions (collectively, the "Selected Remedy") for the Site in accordance with CERCLA, 42 U.S.C. §§ 9601, *et seq.*, and the National Contingency Plan, 40 CFR §§ 300.1, *et seq.* (the "NCP");

WHEREAS, the Selected Remedy is based, in part, upon the restriction of human access to and contact with hazardous substances in soil and groundwater; and the restriction of certain uses and activities occurring in, on, through, over or under the Property;

*[Using one of the two sample paragraphs below as a model, identify the **Performing Party** (the person including a federal agency who developed the GERE and is applying to MassDEP to accept it) and the **Governing Agreement** (the agreement, in addition to the ROD, pursuant to which the Performing Party developed the GERE, such as a consent decree, administrative order on consent, or other agreement; for a fund-lead site, the ROD typically would serve as the Governing Agreement)]*

[WHEREAS, _____, a _____ corporation having a mailing address of _____ (the "Performing Party") is performing a portion of the Selected Remedy pursuant to a consent decree (the "Consent Decree" also referred to herein as the "Governing Agreement") entered into with the United States and the Commonwealth of Massachusetts in the [consolidated] actions captioned *U.S. v.* _____. and *Commonwealth of Massachusetts v.* _____, Docket Numbers _____ and _____ (D. Mass.), respectively;]

[WHEREAS, the United States of America, acting through EPA (the "Performing Party"), having entered into a Superfund State contract for _____ *[reference Site and Operable Unit]* with the Commonwealth of Massachusetts, acting through MassDEP, entitled, " _____" and dated _____" on file at each agency, and pursuant to the ROD (also referred to herein as the "Governing Agreement"), is performing the Selected Remedy;

[Include the following paragraph only if MassDEP is a Grantee:]

[WHEREAS, MassDEP, pursuant to Sections 3(a) and 6 of Chapter 21E, is authorized to take all action appropriate to secure to the Commonwealth the benefits of CERCLA and to acquire an interest in real property if necessary to carry out the purposes of Chapter 21E, and is willing to accept this Grant as joint Grantee with the United States or as sole Grantee, as the case may be;]

[in the following paragraph, include a reference to the plan for inspecting and reporting on compliance with the GERE, such plan having been developed as part of the Selected Remedy, pursuant to the Governing Agreement (e.g., a consent decree and associated scope of work)]

WHEREAS, EPA has approved a plan entitled "_____," prepared on behalf of _____, by _____, and dated _____ (the "Compliance Inspection and Reporting Plan"), a copy of which is attached hereto as Exhibit B, and which is on file at the EPA Record Center located at One Congress Street, Boston, Massachusetts;

[The following paragraph should only be included if Grantor is responsible in Section 5 ("Obligations and Conditions") for performing operations and maintenance described in the

operation and maintenance plan for the Selected Remedy. Also, this paragraph and the preceding paragraph may be combined, if the ROD and/or SOW contemplate that the operation and maintenance plan will incorporate the compliance inspection and reporting plan as a component of it. In such cases, the compliance inspection and reporting plan should at a minimum be separately noted in the combined paragraph.]

[WHEREAS, EPA has approved a plan entitled "_____," prepared on behalf of _____, by _____, and dated _____ (the "Operation and Maintenance Plan"), a copy of which is attached hereto as ExhibitB-1, and which is on file at the EPA Record Center located at One Congress Street, Boston, Massachusetts;] [and]

[If EPA entered into a separate agreement with the landowner, add the following paragraph.]

[WHEREAS, Grantor and the United States of America, acting through EPA, entered into an agreement styled "_____," effective _____, EPA Docket Number CERCLA _____ (the "Agreement"), a copy of which is on file at the EPA Record Center located at One Congress Street, Boston, Massachusetts, in which Grantor agreed to perform certain response actions at the Site, including without limitation to implement environmental restrictions and an access easement such as the within Grant, pursuant to Paragraph ___ ("Access and Institutional Controls") of the Agreement;]

NOW, THEREFORE, pursuant to the terms and provisions of the Governing Agreement [and _____] [*reference any separate agreement with the landowner*] identified above, [the receipt and sufficiency of which consideration is hereby acknowledged,] _____ ("Grantor"), hereby GIVES, GRANTS and CONVEYS to the [UNITED STATES ON BEHALF OF ITS ENVIRONMENTAL PROTECTION AGENCY] [and the] [MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION] *[MassDEP should be included only if MassDEP agrees to be a Grantee]* ([collectively,] "Grantee"), as a gift, with QUITCLAIM COVENANTS, an ENVIRONMENTAL RESTRICTION ("Restriction") in, on, through, over and under the Property. Said Restriction is subject to the following terms and conditions:

1. Purpose. It is the purpose of this Grant to establish covenants and restrictions and to convey to Grantee real property rights involving access and enforcement, all of which shall run with the land, to facilitate the remediation of environmental contamination, and to protect human health and the environment by reducing the risk of exposure to contaminants.

2. Applicability. The restrictions set forth in Paragraph 3 ("Restricted Uses and Activities") shall not apply to:

A. any response action undertaken by EPA or MassDEP, or their respective agents, representatives, contractors, subcontractors or employees, pursuant to CERCLA or Chapter 21E, and their respective implementing regulations [; or]

[B. any response action undertaken by the Performing Party, or its agents, representatives, contractors, subcontractors or employees, in accordance with and pursuant to the Governing Agreement, and any approval by EPA and/or MassDEP required thereunder]; [*if the Performing Party has no obligation to perform response actions or operation and maintenance after this Grant has been recorded, or in the atypical circumstance where there is no Governing Agreement in a non-fund-lead response action, delete this paragraph*]

provided, however, that if any such response action results in a change in the areal extent or grade of any portion of the Property required to be restricted under this instrument to ensure that the Selected Remedy is protective of human health and the environment, or if Grantee otherwise determines that it is necessary or appropriate to amend or partially release this instrument as a result of such response actions, then the person performing such response action shall, in accordance with the requirements of Paragraph 14 ("Amendment and Release"), (i) obtain Grantor's agreement to amend this instrument, including the Plan of Restricted Areas, and/or to partially release this instrument, as applicable, (ii) with Grantor's agreement submit an application to Grantee therefor, and (iii) ensure that all actions necessary to effectuate such an amendment and/or partial release are taken. Further provided, and that for response actions described in Paragraph 2.B., above, all costs of performing the foregoing obligations shall be at the Performing Party's sole cost and expense, notwithstanding the provisions of Paragraph 14 ("Amendment and Release").

3. Restricted Uses and Activities. Except as provided in Paragraph 2 ("Applicability"), Paragraph 4 ("Permitted Uses and Activities") and Paragraph 6 ("Emergency Excavation"), Grantor shall not perform, suffer, allow or cause any person to perform any of the following activities in, on, upon, through, over or under [the Property] [the Restricted Area] [each Restricted Area identified below] or any portion thereof, or any of the following uses to be made of [the Property] [the Restricted Area] [each Restricted Area identified below] or any portion thereof:

[*if there are multiple restricted areas, identify each such area and list applicable restrictions for each*]

[*sample restrictions in brackets—site specific restrictions must satisfy the requirements of the Selected Remedy:*]

A. [excavation, removal or disposal of any loam, peat, gravel, sand, rock or other mineral or natural resource;]

B. [extraction, consumption or utilization of groundwater underlying the Property for any purpose, including without limitation extraction for potable, industrial, irrigation or agricultural use;]

C. [agricultural use or activity];

D. [residential use or activity;]

E. [day care or, for children under eighteen (18) years of age, educational use or activity;]

F. [recreational use or activity;]

G. [hotel or motel use or activity;]

H. [commercial use or activity;]

I. [industrial use or activity;]

J. _____ [*list any other restricted uses and/or activities*;] and

K. any use or activity which would interfere with, or would be reasonably likely to interfere with, the implementation, effectiveness, integrity, operation, or maintenance of the Selected Remedy, including but not limited to cap(s), cover(s) or other ground covering features of response actions conducted to implement the Selected Remedy; [systems to collect, contain, treat, and discharge groundwater]; [systems or containment areas to excavate, store, treat, and dispose of soils and sediments]; and [systems and studies to monitor implementation of the Selected Remedy, to provide long-term environmental monitoring of on-site groundwater, soils, and sediments, and to ensure that the remedial action is effective in the long-term and protective of human health and the environment]. Reference is made to the Plan of Restricted Areas [and to the As-Built Records, on file on file at the EPA Record Center located at One Congress Street, Boston, Massachusetts], which provide(s) information about the location within the Property and engineering details, respectively, of certain of the foregoing components of the Selected Remedy. [*include references to important site-specific components of the Selected Remedy, including where detailed information about them may be found*]

4. Permitted Uses and Activities. Grantor expressly reserves the right to perform, suffer, or allow, or to cause any person to perform (i) any use or activity in, on, upon, through, over, or under the Property that is not listed in Paragraph 3 ("Restricted Uses and Activities") of this Grant; and (ii) any of the following activities in, on, upon, through, over or under the [the Property] [the Restricted Area] [each Restricted Area identified below], or any portion thereof, or any of the following uses to be made of the [the Property] [the Restricted Area] [each Restricted Area identified below], or any portion thereof:

[*if there are multiple restricted areas, each with its own set of permitted uses and activities, then identify each such area and list its permitted uses and activities*]

[*sample permitted uses and activities:*]

[A. Notwithstanding the restriction on excavation set forth in Paragraph 3.A, above, excavation, unless such excavation would permanently modify the areal extent or grade of the [Property] [Restricted Area], is permitted, subject to the following:

[*identify any requirements including any applicable health and safety, soil management or ground water/surface water management protocols (attach protocols as appendices and incorporate by reference)*]

(i) _____;

(ii) _____; and

(iii) _____;]

[B. Notwithstanding the restriction on _____ set forth in Paragraph 3__, above, such activities and uses as may be required to perform the requirements of the Operation and Maintenance Plan set forth in Paragraph 5.A;]

[C. Notwithstanding the restriction on _____ set forth in Paragraph 3__, above, such activities and uses as may be required to perform the requirements of the Restriction Compliance Inspection Plan set forth in Paragraph 5.B;] and

[D. *list any other permitted uses and/or activities*;]

E. The provisions of this Paragraph 4 ("Permitted Uses and Activities") shall not release Grantor or any other party from liability for releases of oil or hazardous substances, nor shall this provision excuse Grantor or any other party from complying with CERCLA, Chapter 21E, or any other applicable federal, State or local laws, regulations or ordinances.

5. Obligations and Conditions. Grantor affirmatively agrees to perform the following activities [and][or] to maintain the following conditions at the Restricted Area in order to maintain the [Selected Remedy]:

A. [The following requirements of the Operations and Maintenance Plan:

(i) _____;

(ii) _____; and

(iii) _____;]

B. [The following requirements of the Restriction Compliance Inspection Plan:

(i) _____;

(ii) _____; and

(iii) _____;] and

C. [*insert other specific activities and conditions set forth in the Governing Agreement or other applicable document, if any*]

6. Emergency Excavation. If it becomes necessary to excavate within the Restricted Area as part of a response to an emergency (*e.g.*, repairing utility lines or responding to a fire or flood), and such excavation could result in a significant risk of harm from exposure to the hazardous substances located within the Restricted Area, the requirements of Paragraph 3.A of this Grant shall be suspended with respect to such excavation for the duration of such response, provided that Grantor:

A. orally notifies the following persons of such emergency as soon as possible but no later than two (2) hours after having learned of such emergency:

i. EPA Office of Site Remediation and Restoration, Emergency Planning and Response Branch; and

ii. MassDEP _____ Regional Office of Emergency Response Section;

or such other persons as [either] Grantee, [respectively], may identify in writing, from time to time, to Grantor for such emergency response notifications;

B. notifies [each] Grantee in writing of such emergency no later than five (5) days after having learned of such emergency [, with a copy to the Performing Party];

C. limits the actual disturbance involved in such excavation to the minimum reasonably necessary to adequately respond to the emergency;

D. implements all measures necessary to limit actual or potential risk to the public health and environment [, including the following:

i. _____;

ii. _____; and

iii. _____;]

E. engages a qualified environmental professional satisfactory to EPA, unless MassDEP is a Grantee, in which case Grantor must instead engage a hazardous waste site cleanup professional, who is a "Licensed Site Professional" ("LSP") as defined in the MCP at 310 CMR 40.0006(12), to oversee the implementation of this Paragraph, and to prepare and oversee the implementation of a written plan which will restore the [Property] [Restricted Area] to a condition which meets or exceeds the performance standards established under the ROD for the Selected Remedy and which is consistent with this Restriction, and to review and evaluate response actions contained in said plan to ensure minimal disturbance of the contaminated soils; Grantor to implement said plan as soon as reasonably possible following such emergency; and a copy of said plan to be submitted to MassDEP and EPA, within ten (10) days of its performance, with a statement from the LSP confirming that the [Property] [Restricted Area] has been restored to the standard described above.

7. Easements. In establishing this Restriction, Grantor hereby grants the following easements for the term of this Grant to [each] Grantee, its [their] agents, contractors, subcontractors, and employees:

A. to pass and repass over the Property for purposes of inspecting the [Property] [Restricted Area] to insure compliance with the terms of this Restriction and for purposes of conducting the activities described in Paragraph 7.B, below; and

B. in, on, through, over and under the [Property] [Restricted Area] for purposes of conducting subsurface investigations, installing groundwater monitoring wells, and conduct other investigations of the [Property] [Restricted Area] and/or response actions consistent with (i) CERCLA and the NCP and/or (ii) Chapter 21E and the MCP, related to the Selected Remedy and/or to the Governing Agreement.

8. Construction. This instrument shall be liberally construed to effect its purpose and the policies and purposes of CERCLA and/or Chapter 21E. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any interpretation that would render it invalid. Any word or defined term contained in this instrument shall be read as singular, plural, masculine, feminine or neuter as the context so requires.

9. Severability. Grantor hereby agrees, in the event that a court or other tribunal determines that any provision of this instrument is invalid or unenforceable:

A. that any such provision shall be deemed automatically modified to conform to the requirements for validity and enforceability as determined by such court or tribunal; or

B. that any such provision that, by its nature, cannot be so modified, shall be deemed deleted from this instrument as though it had never been included.

In either case, the remaining provisions of this instrument shall remain in full force and effect.

10. Enforcement.

A. Grantor expressly acknowledges that a violation of the terms of this instrument could result in the following:

i. the assessment of penalties and other action by [each] Grantee, and its [their] respective successors and assigns, to enforce the terms of this instrument, pursuant to CERCLA and/or M.G.L. c. 21E , and their respective implementing regulations, and other law and regulations, as applicable; and

ii. upon a determination by a court of competent jurisdiction, the issuance of criminal and civil penalties, and/or equitable remedies which could include the issuance of an order to modify or remove any improvements constructed in violation of the terms of this instrument at Grantor's sole cost and

expense, and/or to reimburse [each] Grantee for any costs incurred in modifying or removing any improvement constructed in violation of the terms of this instrument.

B. Notwithstanding any other provision of this instrument, all rights and remedies (including without limitation sanctions and penalties) available hereunder shall be in addition to, but not in lieu of, any and all rights and remedies (including without limitation sanctions and penalties) at law or in equity, including under CERCLA or Chapter 21E, [and/or pursuant to the Governing Agreement,] which rights and remedies [each] Grantee fully reserves. Enforcement of the terms of this instrument shall be at the discretion of [each] Grantee, and any forbearance, delay or omission to exercise its [their respective] rights under this instrument shall not be deemed to be a waiver by [either] Grantee of such term or any subsequent breach of the same or any other term, or of any of the rights of [either] Grantee under this instrument.

11. Provisions to Run With the Land. This Restriction establishes certain rights, liabilities, agreements and obligations for the Property, or any portion thereof, that shall run with the Property, or any portion thereof, for the term of this Restriction. Grantor hereby covenants for himself/herself/itself and his/her/its executors, administrators, heirs, successors and assigns to stand seized and hold title to the Property, or any portion thereof, subject to this Restriction.

The rights granted to [each] Grantee, its [their] successors and assigns, do not provide, however, that a violation of this Restriction shall result in a forfeiture or reversion of Grantor's title to the Property.

12. Concurrence Presumed. It is agreed that:

A. Grantor and all parties claiming by, through or under Grantor shall be deemed to be in accord with the provisions of this document; and

B. all such parties and any party claiming by, through, or under them, and their respective agents, contractors, sub-contractors and employees, also agree that the Restriction herein established shall not be violated and that their respective interests in the [Property] [Restricted Area] shall be subject to the provisions herein set forth.

13. Incorporation Into Deeds, Mortgages, Leases, and Instruments of Transfer. Grantor hereby agrees to incorporate this Restriction, in full or by reference, into all future deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer, whereby an interest in and/or a right to use the Property, or any portion thereof, is conveyed.

14. Amendment and Release.

A. Amendment. This instrument, including without limitation any of its Exhibits, or the Plan of Restricted Area, may be amended only with the prior, written approval of Grantee. Grantor may propose to Grantee, with a copy to the Performing Party, an amendment of a use or activity restriction set forth in Paragraph 3 ("Restricted

Uses and Activities"), or of a permitted use or activity set forth in Paragraph 4 ("Permitted Uses and Activities"), based upon changed circumstances including without limitation new analytic and engineering data. In the event that Grantor requests such an amendment, Grantor shall comply with such requirements as Grantee may identify for that purpose. Grantor agrees to cooperate with Grantee if it becomes necessary to modify this instrument in order to maintain the continued effectiveness of the Selected Remedy. All amendments shall include [each] Grantee's signed approval and shall become effective upon recording and/or registration with the appropriate registry of deeds and/or land registration office. MassDEP will provide notice to EPA prior to approving an amendment to the Grant. Such notice shall not be a condition of or a requirement for any such amendment to be effective.

B. Release. [Each] Grantee may release its [respective] interest in the Grant, in whole or in part, in its [respective] sole discretion. MassDEP will provide notice to EPA prior to releasing its interest in the Grant. Such notice shall not be a condition of or requirement for any such release to be effective. This Grant shall not be deemed released unless and until [each] Grantee has released its [respective] interest hereunder. Any such release(s) shall become effective upon recording and/or registration with the appropriate registry of deeds and/or land registration office.

C. Recordation and/or Registration. Grantor hereby agrees to record and/or register with the appropriate registry of deeds and/or land registration office any amendment to and/or release of this instrument, or other document created pursuant to this instrument for which such recording and/or registration is required, within thirty (30) days of the date of having received from Grantee(s) any such amendment, release or other such document executed by [each] Grantee and/or evidencing [each] Grantee's approval, as appropriate, in recordable form. No more than thirty (30) days from the date of such recording and/or registering of said amendment, release and/or other such document, Grantor shall provide a certified registry copy of the amendment, release and/or other such document to [each] Grantee, with a copy to the Performing Party. At that time, or as soon thereafter as it becomes available, Grantor shall provide [each] Grantee with the final recording and/or registration information for the amendment, release, and/or other such document, certified by said registry. Grantor shall pay any and all recording fees, land transfer taxes and other such transactional costs associated with any such amendment or release.

D. Notice to Local Officials. In accordance with the requirements set forth in 310 C.M.R. §40.1403(7), as amended, and within thirty (30) days after recording and/or Registering any such amendment, release, or other such document, Grantor shall: (i) provide the [City] [Town] of _____ Chief Municipal Officer, Board of Health, Zoning Official and Building Code Enforcement Official with copies of such recorded and/or registered amendment, release or other such document; (ii) publish a legal notice indicating the recording and/or registering of such amendment, release or other such document, and including the information described in 310 C.M.R. §40.1403(7)(b)(1), in a newspaper which circulates in the [City] [Town] of _____; and (iii) provide copies of said legal notice to [each] Grantee

within seven (7) days of its publication.

15. Payment of Future Costs. Grantor shall pay all costs incurred by Grantee not inconsistent with CERCLA or Chapter 21E, as applicable, including attorneys fees and interest, in connection with any request by Grantor for an approval, review or other action by Grantee pursuant to the terms of this instrument, including without limitation (i) an approval, including any presumptive approval, pursuant to Paragraph 4 ("Permitted Uses and Activities") of this instrument and (ii) for an approval, pursuant to Paragraph 14 ("Amendment and Release") of this instrument. Such costs shall be due and payable within thirty (30) calendar days of receipt of demand. Grantee reserves the right to issue any determination that may be appropriate in response to any such request from Grantor only upon receipt of payment in full of such costs.

16. No Dedication Intended. Nothing herein shall be construed to be a gift or dedication of the Property to [either] Grantee or to the general public for any purpose whatsoever.

17. Term. This Restriction shall run [in perpetuity] [for a period of ____ years] and is intended to conform to MG.L. c. 184, § 26, as amended.

18. Notices.

A. General. Any notice, delivery or other communication permitted or required under this instrument, unless otherwise provided in this instrument, shall be in writing and sent by reliable overnight delivery service, delivered in hand or mailed by postage-paid registered or certified mail, return receipt requested. Notices or other communications shall be deemed given, if by overnight delivery service, on the first business day following deposit with such delivery service; if by hand, on the date of the receipt evidencing the hand delivery thereof; or, if by registered or certified mail, three (3) days after deposit in the United States mails; provided that notice of change of address shall be deemed effective only upon receipt.

B. EPA and MassDEP. Whenever, under the terms of this instrument, written notice is required to be given or a document is required to be sent to Grantee, EPA and/or MassDEP, as the case may be, it shall be directed to both EPA and MassDEP, to the individuals at the addresses specified below, or as otherwise directed in writing by EPA and/or MassDEP, respectively.

As to EPA:

EPA Remedial Project Manager
_____ Superfund Site
United States Environmental Protection Agency, Region I
One Congress Street, Suite 1100, Mailcode HBO
Boston, MA 02114

and to:

EPA Enforcement Counsel
_____ Superfund Site

United States Environmental Protection Agency, Region I
One Congress Street, Suite 1100, Mailcode SES
Boston, MA 02114

As to MassDEP:

Bureau of Waste Site Cleanup
Department of Environmental Protection
One Winter Street, __th Floor
Boston, MA 02108
Attention: _____ Superfund Site Project Manager

[C. Performing Party. Whenever, under the terms of this instrument, written notice is required to be given or a document is required to be sent to the Performing Party, it shall be directed to the individual at the address specified below, or as otherwise directed in writing by the Performing Party:

_____
_____
_____
_____
Attention: Coordinator for _____ Superfund Site]

19. Assignment. This Grant, including without limitation all easements, rights, covenants, obligations and restrictions inuring to the benefit of [either] Grantee, herein contained, shall be freely assignable by [either] Grantee, in whole or in part, at any time. MassDEP will provide notice to EPA prior to assigning its interest in the Grant. Such notice shall not be a condition of or requirement for any such assignment to be effective.

20. Rights Reserved. Acceptance of this Restriction shall not operate to bar, diminish, nor in any way affect any legal or equitable right of [either] Grantee to issue any future order with respect to the Site or in any way affect any other claim, action, suit, cause of action, or demand which [either] Grantee may have with respect to the Site.

21. Governing Law; Captions. This instrument shall be governed by and interpreted in accordance with the laws of the United States and of the Commonwealth of Massachusetts, as applicable. All captions and headings contained in this instrument are for convenience of reference only, and shall not be used to govern or interpret the meaning or intent of any provision of this document.

22. Effective Date. This Restriction shall become effective upon its recordation with the appropriate registry of deeds and/or land registration office.

No more than thirty (30) days from the date of recording and/or registration, Grantor shall provide [each] Grantee with a certified registry and/or land registration office copy of this instrument. At that time, or as soon as practicable thereafter, Grantor shall provide [each] Grantee with a copy of this instrument, as recorded, certified by said registry and/or land

registration office.

As this Restriction is a gift, no Massachusetts deed excise stamps are affixed hereto, none being required by law.

WITNESS the execution hereof under seal this ____ day of _____, 20___.

_____

_____
[Name of Grantor]

GRANTOR

COMMONWEALTH OF MASSACHUSETTS

_____, ss

On this ____ day of _____, 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which were _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

_____
Notary Public:
My Commission Expires:

[*Include the following paragraph only if MassDEP is a Grantee:*]

In accordance with M.G.L. c. 21E, § 6, as amended, the Commissioner of the Department of Environmental Protection hereby approves this Grant of Environmental Restriction and Easement (as to form only).

Date: _____

_____
Commissioner
Department of Environmental Protection

[*Include the following paragraph only if MassDEP is a Grantee:*]

Upon recording, return to:

Bureau of Waste Site Cleanup
Department of Environmental Protection
One Winter Street, 8th Floor
Boston, MA 02108

Attention: _____ Site Project Manager

List of Exhibits

Exhibit A	Legal Description of the Property
[Exhibit A-1	Legal Description of the Restricted Area]
Exhibit B	Compliance Inspection and Reporting Plan
[Exhibit B-1	Operation and Maintenance Plan]