U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 1

Date: September 29, 2014

Re: **New Bedford Harbor Superfund Site—Brief Summary**

This document provides a brief summary about the New Bedford Harbor Superfund Site ("the Site"), broken down by topic. For more detailed information regarding each topic, please see New Bedford Harbor Superfund Site Summary, which also provides hyperlinks to many underlying documents which are available on EPA's website for the Site at: www.epa.gov/nbh.

1. **Introduction—**Site Description; History

Site: The New Bedford Harbor Superfund 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 and the Town of Fairhaven, and into 17,000 adjacent acres of Buzzards Bay. The Site was listed as a Superfund Site on September 8, 1983.

Contamination: Polychlorinated biphenyls ("PCBs") and heavy metals in underwater subtidal sediment and intertidal sediment, with decreasing contamination from north to south.

Primary Source: The former Aerovox Facility, which was located near the northern boundary of the Site along the shoreline of the Upper Harbor, was the primary source of PCBs released at the Site. AVX is the corporate successor. In 1991 and 1992, EPA and the State secured approximately $100 million in three settlements with five settling defendants, including AVX. Under the 2013 Supplemental Consent Decree, AVX is paying $366.25 million, plus interest.

2. **Risks Posed at the Site**

   a. **Risks to Human Health**: (1) ingestion of contaminated seafood; (2) dermal contact with contaminated shoreline sediment; (3) incidental ingestion of contaminated shoreline sediment, for children ages 1-5.

   b. **What are Not Significant Risks to Human Health:** (1) inhalation of air, (2) swimming and boating (but note that the Superfund cleanup is not addressing adverse health effects related to combined sewer overflows); (3) dioxin—levels were found to be significantly below EPA's screening level for risk.

   c. **Ecological Risks**: Ecological risks to biota from PCB contamination in sediment and surface water.

3. Upper and Lower Harbor Selected Remedy

In 1998, EPA selected the cleanup plan for the Upper and Lower Harbor by issuing the OU1 Record of Decision ("OU1 ROD"), including dredging of contaminated sediment and disposal in on-site Confined Disposal Facilities ("CDFs") to be constructed along the New Bedford shoreline. EPA has modified the Site cleanup plan four times in decision documents called Explanations of Significant Differences ("ESDs") to address new information obtained through additional site investigations in 2001, 2002, 2010, and 2011. Among the modifications, EPA eliminated the largest CDF ("CDF D") due to engineering and construction challenges and costs in favor of off-site disposal for a portion of sediment slated for CDF D, and added on-site disposal for the remaining portion of sediment slated for CDF D in a Lower Harbor Confined Aquatic Disposal Cell ("LHCC").

a. **Cleanup Components**:

Hydraulic and mechanical dredging of sediment contaminated with PCB concentrations above EPA's cleanup levels, and a combination of disposal methods, including off-site disposal; permanent isolation in an on-site Lower Harbor Confined Aquatic Disposal ("CAD") cell; and on-site disposal in three CDFs to be built along the New Bedford shoreline of the Upper Harbor (EPA has recently initiated a Focused Feasibility Study, to consider other protective, more cost-effective measures for the disposal of contaminated sediment other than the selected CDFs).

b. **Sediment Cleanup Levels**:

Removal and permanent isolation of contaminated sediment above the cleanup levels will reduce human health risks from ingestion of contaminated seafood and from dermal contact with, and incidental ingestion of, contaminated sediment. EPA selected the cleanup levels based on a careful consideration of multiple factors including: how to best balance the protection of public health with the protection of sensitive ecosystems, such as the Site's valuable saltmarsh habitat; the large geographic area covered by the Site; the wide range of potential direct contact exposure rates at the Site, varying with shoreline land uses; and the fact that portions of the Lower Harbor are within a Designated Port Area, with concentrated maritime industrial uses. Most if not all of the remaining Lower Harbor will be dredged for navigational purposes over time by the State as part of the State-Enhanced Remedy.

The OU1 Remedy includes separate PCB cleanup levels for different areas of the Harbor. For subtidal areas, the cleanup levels, to attain applicable water quality and seafood consumption standards, are the following:

- 10 ppm PCBs for subtidal and mudflat sediment in the Upper Harbor (north of the Coggeshall Street bridge), which has most of the PCB contamination; and
- 50 ppm PCBs for subtidal and mudflat sediment in the Lower Harbor (between the Coggeshall Street bridge and the New Bedford Hurricane Barrier); and

For the shoreline intertidal areas, the cleanup levels, to reduce risk from human contact with contaminated sediment, are the following:

- 1 ppm PCBs for areas bordering residential areas
- 25 ppm PCBs for shoreline areas bordering recreational areas; and
- 50 ppm PCBs for other shoreline areas with little or no public access.

c. **State Enhanced Remedy ("SER")**:

The Commonwealth requested that EPA integrate navigational dredging and on-site disposal into EPA's cleanup plan. These SER activities are integrated into the cleanup plan for the Upper and Lower Harbors and are completely funded by the Commonwealth.

4. Public Process

a. **Selection of Cleanup Plan for the Upper and Lower Harbor**:

Through a thoroughly vetted public process that reached consensus with the community and local municipalities, EPA selected a cleanup plan to address PCB contamination in the Upper and Lower Harbor of the Site. In 1993, EPA initiated a Community Forum process, which was a professionally mediated process to consider cleanup plans for the Site. The Community Forum was made up of a wide variety of site stakeholders, including citizen group leaders, local and state elected officials, business representatives, EPA, MassDEP, Hands Across the River Coalition ("HARC"), and other relevant state and federal agencies.

In July 1996, as a result of a comprehensive focus on the OU1 ROD, all members of the Community Forum, including HARC, documented their consensus on a proposed cleanup approach for the Upper and Lower Harbor, including: (1) the dredging remedy; (2) the Site's cleanup levels; and, (3) the on-site disposal of dredged sediment into confined disposal facilities ("CDFs").[1] The Buzzards Bay Coalition also provided comments, prior to the issuance of the 1998 OU1 ROD, in support of the CDF-based cleanup plan.[2] EPA's Harbor cleanup plan was also supported by the Sea Change, Inc. public review panel and EPA's National Remedy Review Board.

Since 1998, EPA has modified the Site cleanup plan four times in decision documents called Explanation of Significant Differences ("ESDs") to address new information obtained through Site investigations. EPA provided an opportunity for public comment and included responsiveness summaries responding to the public comments for the last three ESDs.

b. **Public Process for Location of CAD Cells in the Harbor**:

The New Bedford-Fairhaven Harbor is one of 11 Designated Port Areas ("DPA's") in the Commonwealth. "State policy seeks to preserve and enhance the capacity of the DPAs to

[1] OU1 ROD at 5; and New Bedford Harbor Superfund Site Community Forum Phase 2 Agreement (July 1996) (part of the Administrative Record for the OU1 ROD and available at the EPA-maintained website for the New Bedford Harbor Superfund Site at http://www.epa.gov/region1/superfund/sites/newbedford/63639.pdf).

[2] Comments of The Coalition for Buzzards Bay (later renamed BBC) in support of the remedy are included as part of the OU1 ROD Administrative Record and are available at the EPA-maintained website for the New Bedford Harbor Superfund Site at: http://www.epa.gov/region1/superfund/sites/newbedford/54624.pdf.

accommodate water-dependent industrial uses and prevent significant impairment by non-industrial or nonwater-dependent types of development, which have a far greater range of siting options."[3]

Dredged Material Management Plan: "From 1998 through 2004, the Massachusetts Office of Coastal Zone Management (CZM) developed technical information in support of the Massachusetts Dredged Material Management Plan (DMMP). The goal of the DMMP was to identify management solutions for dredged materials to facilitate channel dredging and port development while minimizing impacts to marine and cultural resources. Under the DMMP, CZM developed Environmental Impact Reports (EIR) and other documents to address state regulatory and management issues. A major component of the EIRs is a description of marine and cultural resources that may be impacted by dredged material disposal."[4]

In 2003, the Commonwealth issued a Final Environmental Impact Report for New Bedford/Fairhaven Harbor. "The purpose of the EIR project was to provide state designation of a disposal site in the New Bedford/Fairhaven Harbor (Harbor) for dredged material determined to be unsuitable for open-water disposal (hereinafter referred to as 'unsuitable dredged material' or UDM). UDM in the Harbor is representative of environmental degradation caused by anthropogenic influences over the last century and a half." In this report, CZM:

(1) designated CAD cells as the preferred disposal method for unsuitable dredged material (UMD) generated by navigational dredging; and,

(2) designated a portion of the Lower Harbor of the Site as a DMMP area for CAD cell construction.[5]

The Commonwealth approved the DMMP area after it was analyzed in a full public process by the Commonwealth, the City of New Bedford, and the Town of Fairhaven, among other federal, state, and local stakeholders.

The New Bedford Harbor Development Commission has constructed and filled four navigational CAD cells created through the State Enhanced Remedy, under the oversight of the Massachusetts Department of Environmental Protection. These CAD cells were constructed in the Lower Harbor within the DMMP area.

c. **Lower Harbor CAD Cell**:

In March 2011, after receiving and responding to extensive public comment, EPA issued the Fourth ESD. This ESD selected the disposal of 300,000 cubic yards of PCB-contaminated sediment with concentrations ranging from 50 to 190 ppm into an on-site CAD cell to be built underwater in the Lower Harbor in the State-approved DMMP area.

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[3] See the Commonwealth's website on Designated Port Areas at: http://www.mass.gov/eea/agencies/czm/program-areas/port-and-harbor-planning/designated-port-areas/.

[4] See the Commonwealth's website on Dredged Material Management Plans at: http://www.mass.gov/eea/agencies/czm/program-areas/port-and-harbor-planning/dredge-reports/.

[5] The October 2003 Final Environmental Impact Report for the New Bedford/Fairhaven Harbor Dredge Material Management Plan.

Many public comments supported the construction of a Lower Harbor CAD cell, including the comments submitted by the City of New Bedford and by the Town of Fairhaven. EPA selected the construction of an on-site CAD cell in an effort to adopt a protective remedy that would also reduce the time and cost necessary to complete the OU1 cleanup.

EPA provided the Buzzards Bay Coalition with funding via a Technical Assistance Grant ("TAG") to review technical information about the Lower Harbor CAD cell project. As part of the EPA decision to design, construct, and fill a CAD cell, a Technical Working Group open to individuals and organizations interested in the project was formed to review and discuss design and construction documents. During the ongoing Technical Working Group meeting process, the Buzzards Bay Coalition, HARC, and other members of the public have had extensive opportunities to discuss the technical design for the Lower Harbor CAD cell with EPA.

5. State Enhanced Remedy ("SER")

Under the SER, navigational dredging will address an estimated 1.7 million cubic yards of sediment contaminated with heavy metals and lower levels of PCBs up to 50 ppm in the Lower Harbor. Since 2005, approximately 231,000 cubic yards of sediment has been dredged. In the areas addressed by the SER's navigational dredging, the overall average PCB concentration level in the pre-dredge sediment were found to have been approximately 12 ppm. In general, by removing PCB-contaminated sediment below 50 ppm PCBs, navigational dredging in the Lower Harbor to date has resulted in post-dredging PCB levels approaching 1 ppm or less at these locations. Moreover, EPA's long-term monitoring program, which assesses remedial effectiveness every five years, has found that in 2009 the average concentration levels of surficial sediment (2 cm) in the Lower Harbor to be approximately 5 ppm PCBs.

On November 19, 2012, EPA issued the Final Determination for the South Terminal Project, which modified the SER to include the terminal project. As part of the project, the Commonwealth is constructing a 28.45-acre marine terminal, consisting of a bulkhead and upland area, as well as dredging and construction and filling of a CAD cell.

6. Lower Harbor CAD Cell

Confined Aquatic Disposal ("CAD") Cell: Based on EPA's water and air quality monitoring and data from navigational CAD cell construction in New Bedford Harbor, modeling, and the successful use of CAD cells in many ports throughout the United States, EPA determined that a Lower Harbor CAD cell will be a protective remedial component to hold sediment with PCB concentrations of 50 to 190 ppm. CAD cells have been used successfully for permanently containing PCB-contaminated sediment dredged for navigational purposes in New Bedford Harbor. Since 2004, the HDC has been successfully constructing and using CAD cells to contain PCB-contaminated sediment with weighted average concentration levels ranging from 8 ppm to 22 ppm PCBs resulting from navigational dredging in the Lower Harbor as part of the State Enhanced Remedy. EPA conducted computer modeling of potential leakage of contaminants which shows that a CAD cell located in New Bedford Harbor would be stable and not subject to leakage to the environment. EPA has and will continue to conduct an extensive program of monitoring air, water, and sediment during the project and will make the data available to the public.

Phase I of EPA's Lower Harbor CAD cell construction began in November 2013 and was completed in July 2014. Phase II construction will begin this fall and will proceed Monday through Saturday, 6:30 A.M. to 10:30 P.M., with completion scheduled for next fall. No overnight work within New Bedford Harbor will be allowed under the Phase II LHCC contract.

The results of air monitoring performed so far support the conclusion that no significant air impact is occurring as a result of the LHCC project. The data for Phase I portion of the project is available on EPA's LHCC website at: http://www2.epa.gov/new-bedford-harbor/lower-harbor-confined-aquatic-disposal-cad-cell. For information on the progress on construction, please see our weekly updates at http://www2.epa.gov/new-bedford-harbor/lower-harbor-cad-cell-construction-updates.

For more background information, technical documents, presentations, and fact sheets, please see EPA's website for the LHCC, which is available at: http://www2.epa.gov/new-bedford-harbor/lower-harbor-confined-aquatic-disposal-cad-cell.

7. Air

EPA began performing ambient air monitoring in the 1990s, and EPA continues to perform regular air monitoring at air monitoring stations located throughout the Site in both New Bedford and Fairhaven. None of air monitoring results collected exceed levels of concern and data continues to support that there is no unacceptable risk posed by PCBs in air from the EPA cleanup activities at the Site. EPA will continue to perform air monitoring which will be performed during dredging of contaminated material and the dredging and placement of top of CAD material. Dredged materials will not be allowed to dry out prior to placement to avoid generation of airborne dust.

8. Economic Development

The Site has been contaminated since the 1940s and was listed as a Superfund Site in 1983. A remediated New Bedford Harbor will have a positive impact on the economic vitality of the community. EPA recognizes that contamination at the Site poses a threat to public welfare, including affecting the economic vitality of New Bedford, Fairhaven, and surrounding communities, including fishing and harbor development. EPA's remediation of the Harbor, now accelerated by the 2013 settlement with AVX will have a positive impact on the use of the Harbor by the community and local businesses and will promote shoreline development. The State Enhanced Remedy is allowing the State to perform navigational dredging and CAD cell disposal to keep the Harbor a successful port. The State Enhanced Remedy has also allowed the State to construct the New Bedford Marine Commerce Terminal at the Harbor. As EPA completes the cleanup, the Agency will continue to coordinate and cooperate with the City of New Bedford, the Town of Fairhaven, the Town of Acushnet, private developers, and other stakeholders in their efforts to promote economic and recreational growth in and abutting the Site.

9. Environmental Justice

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The community located near New Bedford Harbor is a community with environmental justice concerns, and as such, EPA and the

Commonwealth have attempted and continue to attempt to provide fair treatment for and allow meaningful involvement from that community.

EPA takes its responsibilities to address environmental justice concerns seriously and has taken the necessary steps to ensure compliance with applicable policies and guidance with respect to the Site and the community living near the Harbor. EPA will strive to continue to provide fair treatment and allow for meaningful involvement of the community by providing information to the public, providing opportunities for the public to participate, and considering public comments regarding the Site. For over 20 years, EPA has made public outreach for New Bedford Harbor a high priority. .

Following the September 29, 2014 Town of Fairhaven meeting, EPA will post an additional responsive Site summary document with further detail, including hyperlinks to responsive publicly available documentation and a complete summary of the over 20 years of outreach activities EPA has conducted related to the Superfund Site. EPA will provide the Board of Selectmen a link to this document as soon as it is available.