



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

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BOSTON, MA 02109-3912

MAR 25 2013

Ms. Rachel Jakuba, PhD  
Buzzards Bay Coalition  
Science Director  
114 Front Street  
New Bedford, MA 02740

Dear Dr. Jakuba:

Thanks for your comments dated November 28<sup>th</sup>, 2012 on the Invitation for Bid: New Bedford Harbor Development Commission, New Bedford Harbor Lower Harbor CAD Cell ("LHCC"). We recognize the Coalition continues to have concerns about the filling and capping of the LHCC with New Bedford Harbor sediments. Please note again that the documents you reviewed only concern the forthcoming first phase of the project in which the LHCC cell will be constructed and made ready to receive dredge materials at a later time.

On specific topics raised in your November 28<sup>th</sup> submission (more details provided in Attachment A), EPA responds as follows:

- it should be noted that currents in the areas where the LHCC will be constructed are much lower than quoted by the Coalition
- The permanent relocation of moorings was addressed in ESD #4 and will be addressed in a subsequent portion of the design dealing with the filling and the capping of the cell
- The length of time sediments exposed on barge was addressed in the air modeling that was performed prior to ESD#4
- Water quality monitoring for this contract will be conducted using the turbidity criteria utilized for the adjacent South Terminal Project CAD cell for the purpose of coordination. The monitoring approach outlined in the specifications to be put out to bid have been used successfully previously by the HDC during the excavation and filling of the other CAD cells utilized during the SER process. For more detail, see Attachment A.
- With regard to the role of EPA and Information Flow, EPA will receive information on the project at periodic meetings with the New Bedford Harbor Development Commission, the Owners Representative (APEX) and the contractor. Water quality sampling will be performed by the Owners Representative as outlined in the specification. Air quality sampling will be performed under a Corps of Engineers contract by Jacobs Engineering. The air monitoring program will be spelled out in a separate work plan that will be provided to the Coalition.
- Interested members of the public will be informed on the dredging operations by visiting EPA's project website, as well as attending public meetings held periodically on the

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entire harbor project. Decisions on operations will be made by the owner's representative (APEX) in consultation with EPA, HDC, and the contractor. The Coalition will be kept informed in a manner similar to other interested stakeholders through the EPA website and the periodic general public meetings.

- The clean material to be generated by the construction of the LHCC is not needed for the capping of State Enhanced Remedy Navigation CAD Cells because the South Terminal project is already slated to use its clean bottom of CAD cell material for this purpose. As such, it is anticipated that the LHCC clean bottom of CAD material will be disposed of off-shore as is reflected in the specification.
- EPA will continue to cooperate with the Technical Working Group process in an effort to increase understanding of the follow-on work needed to fill and cap the LHCC. The LHCC will be filled under a subsequent contract.
- EPA is confident that there will not be an impact from the re-suspension of contaminated sediment as part of the project to construct the LHCC. This is based on our experience monitoring activities associated with the filling of CAD Cell 2 in 2009. Further, EPA's understanding is that Apex Companies will independently oversee the contractor's operations under the terms of the specifications you have reviewed.

For more detailed information, please see the individual replies to Dr. Bohlen's comments, which are included in Attachment A.

To the extent that the Coalition or others have raised concerns about the LHCC or any other issues in public comments concerning EPA's proposed settlement with AVX Corporation, nothing in this response to your November 28<sup>th</sup> submission constitutes a response to such comments on the proposed settlement by EPA, the Department of Justice or the Commonwealth of Massachusetts.

Thanks for your time and attention.

Sincerely,



Dave Lederer

Office of Site Remediation and Restoration (OSRR)

cc: Paul Craffey, MA DEP  
Mark Rassmussen, Buzzards Bay Coalition  
Frank Bohlen  
David Peterson, OES  
Kelsey O'Neil, CIC

Attachment A:

More Detailed Responses to Questions and Recommendations from Buzzards Bay Coalition's Forwarded Letter from W. Frank Bohlen PhD:

**Question/Recommendation 1:** Drawings T-2, P-1 and P-2 show an existing mooring area in close proximity to the CAD cells. On T-2 the marginal notes speak to the removal and replacement of structures such as moorings. Given the sensitivity of this area and the wish to minimize future disturbance the historic mooring area should be relocated to a position well clear of the CAD cell region

**Response:** The ESD indicates that "As described in the draft and final TSCA determination (Attachment B) EPA, in collaboration with appropriate harbor stakeholders, will develop guidelines for mooring and anchor designs that will ensure that the integrity of the cap is not damaged by moorings and anchors. EPA will also assist these stakeholders in developing and implementing regulations requiring that such mooring and anchor designs are used within the cap area.

EPA will also coordinate with the U.S. Coast Guard and the National Oceanic and Atmospheric Administration (NOAA) to establish a regulated navigation area that will prohibit activities that could disturb the seabed within the LHCC and also delineate the LHCC footprint on marine navigational charts for the NBH area. These charts will note the anchorage restrictions for mariners in the harbor. "

In summary, further coordination of the location of moorings in the harbor will be the subject of further discussion at a later time.

**Question/Recommendation 2:** If the Phase I depression is to be used simply to receive the contaminated surficial sediments from the Phase II area will the Phase I area be closed and restored to pre-project contours during the dredging of Phase II? If not, over what duration will the cell remain open and who will be responsible for closure?

**Response:** It is anticipated that Phase I and Phase II will remain open long enough for sufficient consolidation of materials in them to occur. According to the 2011 ESD: "In addition, as required in the draft and final TSCA determination (Attachment B), placement of the LHCC cap shall not take place until a minimum of six months after the final placement of dredged material, to allow sufficient consolidation and development of bearing capacity."

**Question/Recommendation 3:** Portions of the clean materials being dredged from Phase I or Phase II should be stockpiled for use as cap materials in the LHCC or HDC CAD cells. It seems unfortunate that clean materials are to be simply disposed of offshore. In most projects they would represent a valuable resource. Such stockpiling may also serve to reduce costs due to the elimination of the need for transport to a distant site.

**Response:** Personnel involved with the State Enhanced remedy indicate that they do not need the LHCC clean material for capping of SER CAD cells or other uses in the Harbor. Therefore it is foreseen that the clean HCC material will be disposed of at sea as planned.

**Question/Recommendation 4:** Why is an oil boom needed? Is it simply a preferred form of floatation or are there indications that dredging in this area will result in some surface oil films? The source and type of this oil has potential implications relative to air quality

**Response:** There is no indication at this time that dredging will result in surface oil films. The boom is being required as a precaution.

**Question/Recommendation 5:** On page 249/333 there is an indication that maximum flood or ebb flows in the CAD cell area is 3.5 knots. Mean tidal range is given as 3.8 ft. The latter in fact refers to the spring tidal range. As for flow, since there is no reference provided, I find it hard to believe that flows within the Harbor can exceed 3 knots. If data do show this the maintenance and the effectiveness of the silt curtain will certainly be complicated. Experience indicates that anchoring a silt curtain in 3.5 knots of current will result in significant re-suspension of PCB contaminated sediments. After mooring, such flows can be expected to favor scour of the bottom with extent governed by the distance between the lower edge of the curtain and the sediment-water interface. This factor can significantly complicate monitoring efforts making it difficult to accurately define the effects of dredging on the local suspended material field relative to the curtain effects. The bid document does not address this issue and it is not clear how the proposed monitoring effort will assess curtain induced re-suspension. Given the time variant nature of flows in this area it seems possible that with flow maxima of 3.5 knots the turbidity criteria (50 ntu) could be exceeded for some period of time during each tidal cycle simply due to silt curtain effects. Given that such exceedance could result in project delays the potential for such re-suspension must be quantitatively evaluated.

**Response:** The maximum currents in the area in which the LHCC is being constructed are much lower than 3.5 knots. Potential re-suspension during the project was addressed in "Assessment of Contaminant Loss and Sizing for Proposed Lower Harbor Confined Aquatic Disposal Cell (CAD), May 2010" which has already been provided to the public with ESD #4 and is available on EPA's website.

Furthermore, a December 15<sup>th</sup> 2009 memo to Robert Leitch of USACE with the subject: "Turbidity Monitoring and Plume Sampling Results for City Dredge Disposal at the New Bedford Harbor CAD Cell #2 stated:

"Peak near-surface tidal flows were generally less than 35 cm/s (0.7 kts) in the immediate vicinity of the CAD cell... [t]he mid-depth tidal flows were slightly weaker than the near-surface flows with the strongest less than 30 cm/s (0.6 kts) near the CAD. "

This document was provided to the public with ESD #4, and is available on EPA's website with other information regarding the LHCC provided previously to the Technical Working Group.

**Question/Recommendation 6:** Why does the Corps letter of November 15, 2011 from Karen Kirk Adams refer to 750,000 cu.yds of material to be placed at the Rhode Island Sound Disposal Site (RISDS)? Does this include both LHCC and the HDC CAD cell sediments? Earlier discussion of the volumes to be managed in ESD #4 led to some confusion. Care should be exercised to avoid this situation arising again.

**Response:** According to Apex Companies, the higher figure refers to the total amount of bottom of CAD material to be placed at the RI Disposal Site from both the Lower Harbor CAD cell (LHCC) and the South Terminal CAD cell under the state enhanced remedy (SER).

**Question/Recommendation 7:** The bid document in discussing dredging methodology speaks only to the issue of excess water in the bucket and in the scow. Additional language should be added to make clear that in the interest of reducing excess water in the bucket the operator must not drive the bucket into the bottom beyond the upper limits of the bucket. While this "overflow" condition certainly minimizes excess water it also results in high suspended material concentrations through the water column as the bucket is drawn up to the surface and over to the scow.

**Response:** The specifications have been amended to address this concern and are quoted below: "Bucket Control: The Contractor shall demonstrate that the dredge operator has sufficient control over bucket depth in the water and bucket closure so that sediment re-suspension from bucket contact with the bottom and due to bucket overfilling can be minimized. Additionally the operator must not drive the bucket into the harbor bottom beyond the upper limits of the bucket capacity"

**Question/Recommendation 8:** The criteria used to specify the conditions under which an environmental bucket will be used rather than a common closed clamshell bucket should be clearly stated. It is expected that the "owner's representative" will be party to this decision. These details should be added to the bid document.

**Response:** The common clamshell bucket will be used when debris is present that obstructs the use of the environmental bucket.

**Question/Recommendation 9:** In considering the relationship between suspended materials in the water column adjoining the dredge site and/or the point of disposal and the associated plume of materials spread downstream by local flows it's important to remember that sediment settles as a function of both grain size and suspended material concentrations (SMC) with moderate SMC values resulting in settling velocities that are several orders of magnitude greater than those based on the grain sizes of the sediments in suspension. At the majority of dredge sites studied the influence of SMC's tends to be dominant resulting in rapid settlement of materials suspended by the bucket or entrained from the mass of sediment discharged at the disposal site. This rapid settlement favors short downstream plumes impacting a relatively small area of the bottom. With this fact in mind, careful consideration should be given to the benefit of requiring filled barges to stand idle for 12 hours to facilitate settlement before disposal. It may be that this procedure is counterproductive in that it may slow production while adversely affecting air quality with minimal benefit in terms of downstream dispersion of suspended sediments.

**Response:** The requirement for filled barges to settle for 12-hours addresses issues of disposal plume dispersion upon dumping. There was concern on the part of regulatory agencies (at the time that the first CAD Cells in New Bedford were being utilized) that high water content organic silts (such as those that exist in the upper portion of the New Bedford sediment cross section) would cause water quality issues during disposal. The concern was raised that saturated organic silts would likely disperse more readily than other dredge materials when released from a dump scow. There was a consensus reached, that passive dewatering would cause the sediment to clump together allowing it to fall through the water column as a more cohesive mass rather than disperse through the water column as it was placed in the CAD Cell. To address this concern, the original project specifications for CAD Cell 1 called for filled scows to be held for 48 hours to allow the water content of the sediment to decrease. The pore fluids were released from the consolidating sediment into the holding scow through the pressure of the weight of the sediment. Excess pore fluids collecting at the top of the scow "pocket" were filtered to clarify the effluent prior to discharge. The 48 hour standard was reviewed during the progress of the first several dredge projects using CAD Cells in the Harbor, and the contractors, engineers, and regulators worked together to fine-tune the holding time requirement based upon experience. Through successive phases of dredging, water quality monitoring results have indicated that a lesser holding periods still result in favorable turbidity levels. Thus, using empirical information, the holdings times for scows have been shortened, first to 36 hours, then to 24 hours and finally to 12 hours. Much of the Phase III navigational dredging in the Harbor was conducted using the 12 hour standard, and no water quality issues related to sediment dropping through the water column were recorded.

As continuous process improvement is always a part of the dredging program for New Bedford, the comments of the TWG are appreciated. It is indeed in the contractor's interest to reduce the holding time to the minimum required to affect a favorable water column result during sediment disposal into the CAD Cells. Based upon the TWG's comment, the engineering oversight team is proposing an alteration to the holding time requirement that will, under many circumstances reduce the amount of time a contractor will be required to hold a dump scow prior to disposal,

thus reducing some of the potential impacts noted in the TWG Comment. The proposed revised plan involves allowing the contractor to run "paint filter" tests on the sediment held in the scows (this is a test of the amount of pore water held within a sediment matrix and is the same test that sediment that is being trucked or sent by train must pass to be allowed to move over road or rail). If the sediment passes the paint filter test, the contractor will be allowed to dispose of the material in a CAD Cell. The 12 hour hold time standard will then become a maximum hold time, whereby contractors will be required to hold sediment until it can pass the paint filter test but in no case will the material be required to be held for longer than 12 hours except in special cases as defined by the resident engineer. The exact language to be placed in the specifications is currently being discussed with regulatory authorities, but the revised language will be inserted into the Specifications for the LHCC project, and will be considered for subsequent projects. We believe that this new standard will significantly reduce hold times as contractors will be highly motivated to hold sediments for the minimum amount of time necessary in order to meet these standards.

**Question/Recommendation 10:** It is extremely difficult to know just when bathymetric surveys will be taken if they are to be used to monitor the accuracy of the cut and any associated deviation from project plans. Detailing of such characteristics requires regular surveys as the cut proceeds with frequency dependent on the production rate. The bid document addresses this issue mainly in terms of pay to the contractor which could result in a relatively low survey frequency. It may be that much of this information is available in the cab of the dredge depending on the sensor system and access. If not, criteria governing the frequency of survey to provide detail on dredge accuracy and adherence to design must be added to the bid document. If the survey data are available in the operator's cab, are these data to be reviewed in near real time by the "owner's representative"? Will these data be available for review by interested parties?

**Response:** Although the Contractor typically has active "real-time" software operating within its dredge plant during construction, that information is limited to the "real-time" position of the dredge bucket and the dredge plant. The bathymetric information that is shown on the "real-time" software is based solely on the most recent bathymetric survey conducted by the Contractor, and does not vary as the Contractor conducts its work. The bathymetric surveys are uploaded on a regular basis into the "real-time" software (typically on a daily basis, but sometimes more frequently), and are used to guide the current dredging activities. Therefore, the "real-time" information on the Contractor's screen is no more or less accurate than the information collected by the Contractor within its most recent bathymetric survey, and there would be no useful purpose in recording such data, as it would provide no significant additional information.

The primary purpose of pre-construction and post-construction surveys are to determine the initial and final conditions, both to determine the final pay volume for the Contractor, and to ensure that the final conditions outside the work area do not vary from the initial conditions outside the work area. The Owner also conducts periodic surveys to determine the status of the

project; however, the Owner attempts to keep the frequency of periodic surveys to a level that will not interfere with the Contractor's completion of the work.

As stated above, the Contractor performs periodic surveys to assess how the work is proceeding (often on a daily or more frequent basis). Although the Contractor surveys are periodically requested by the Owner for comparison to Owner surveys, they are not often utilized by the Owner, as the Owner's surveys are the only data utilized to make official decisions over the course of the project.

**Question/Recommendation 11:** Throughout the bid document and drawings "hydrographic survey" is used to refer to the taking of "soundings" to detail water depths and the configuration of the bottom. Hydrography in fact refers to much more than "soundings" including flows, water temperatures and salinity, and tidal state. While this practice is not without precedent, for this case, where there will be situations requiring sampling of the water column as part of the monitoring effort, it's recommended that the term "bathymetric" be used if referring to the taking of "soundings".

**Response:** The specifications have been amended in accordance with this recommendation.

**Question/Recommendation 12:** The described monitoring program consisting of point sampling upstream (reference) and downstream of the dredging area will not adequately detail the effects of the dredging operation on the local suspended material field and cannot provide timely data for the management of dredging. Mechanical dredging is an intermittent process. Add to this the potential silt curtain effects discussed above. This variability in combination with the inherent special variability of the flow field and the resulting suspended material plume makes it extremely difficult to a priori establish a sampling location. Given that the dredging area is relatively fixed the monitoring program must include a combination of techniques sufficient to provide relatively high frequency sampling and comprehensive special coverage all in near real time. Such criteria could be satisfied by a system which includes two moored buoys with telemetry and a small boat housing an acoustic doppler current meter (ADCP), or equivalent, and a drawn water sampler.

The ADCP backscatter signal would be calibrated to provide estimates of suspended material concentrations. The buoys would be sited upstream and down of the dredge site providing time series observations of suspended material concentrations. The buoys would be deployed for the duration of the project. The small boat would survey a series of concentric lines centered on the dredge providing accurate indication of the special variability of the suspended material field and an indication of the optimum sites for drawn water sampling as well as the preferred locations for the moored buoys. Initially surveys would be conducted daily for some portion of each of the flood and ebb tidal periods. Reviews of these data may allow in time a reduction in this frequency.

**Response:** The turbidity monitoring program in the specification for the LHCC construction has in one form or another been used for the SER projects built in New Bedford Harbor over the



course of the last decade. EPA performed extensive monitoring during the filling of CAD cell 2 (as outlined in memo referenced above, Memo to Leitch, 2010) indicating no issues with the water quality from the perspective of turbidity or toxicity testing. This memo was included with ESD #4 and has already been provided to Buzzards Bay Coalition. In light of the extensive previous work done and the demonstrated protectiveness of the methods being used, EPA believes that sampling method used by the SER program is protective for the construction of the LHCC and that the much more robust methods requested by Dr. Bohlen's letter are not warranted at this time.

The construction of CAD Cell #3 for the South Terminal project is about to begin at a location near the LHCC site. Water quality monitoring for the construction of the LHCC will be conducted using the turbidity criteria utilized for the adjacent South Terminal Project CAD cell for the purpose of coordination.

**Question/Recommendation 13:** The telemetered data from the monitoring buoy array should be available in the operating cab of the dredge and used by the operator to manage production rates and/or depth of cut.

**Response:** See response to #12 above.

**Question/Recommendation 14:** The role of "owners representative" mentioned in a variety of forms throughout the bid document must be clearly described in a stand-alone section. Will this individual be an independent inspector reporting to a third party or an employee of the HDC? There are many aspects of this project that have the potential to affect the success of the operation and its ultimate environmental impact that cannot be easily defined before the project begins – i.e. contingencies.

The resolution of these issues requires close collaboration between the contractor and the inspector or "owner's representative". The matter of just how the monitoring data will be used in the management of the project is an example. This will certainly be addressed in the Contingency Plan (01135-1) but this would presumably speak more to the contractor's needs. A similar statement from the "owner" would be beneficial. In addition, this project is a matter concern for the community. It's essential that the community have confidence in the judgment and abilities of the inspector and that the inspector have a open line of communication with the community. The Buzzards Bay Coalition should consider serving as a facilitator in this regard.

**Response:** The contracting for this work is being completed under a cooperative agreement with the New Bedford Harbor Development Commission. It is anticipated that the 'owners representative' will be Apex Companies, Inc. which will be providing resident engineering services to the project. The environmental monitoring data generated during the project will be provided to the public, including the Buzzards Bay Coalition through EPA's website and periodic general public meetings held regarding the Harbor project.