

Lower Willamette Group (LWG) Responses to EPA's May 15, 2008 Comments on the Lower Willamette Sediment Chemical Mobility Testing Field Sampling Plan

These comment responses include LWG responses to EPA comments dated May 15, 2008 on the Draft Sediment Chemical Mobility Testing Field Sampling Plan (Sediment Mobility FSP) submitted to EPA on March 24, 2008. It should also be noted that some additional details in the revised FSP were changed to be consistent with the Sediment Mobility QAPP addendum submitted to EPA on April 18, 2008.

1. General Comment:

Objectives: There is a discrepancy between the objectives of the mobility testing specified by EPA in our email dated October 17, 2007 and the objectives presented in the FSP. EPA stated that the testing should target “a variety of potential Portland Harbor contaminated sediment locations.” The Mobility FSP targets “areas with elevated chemical concentrations that are potential physical removal areas.” EPA believes that it is critical to collect mobility data from a range of locations reflective of physical and chemical conditions at the Portland Harbor site. This will provide us with a preliminary understanding of chemical mobility for the purpose of supporting the feasibility study. In particular, the testing will be able to determine whether the leaching characteristics of material at the Portland Harbor site are similar or whether certain material are unique and/or may not be suitable for certain disposal options. As a result of the limited number of sites and cores selected for testing and limitations associated with the analytical methodology for the leachate and elutriate testing, EPA would like to make clear that the results of this mobility testing is not expected to generate design level data. EPA expects that additional testing will be required to support the remedial design process.

Response: We agree that the Sediment Mobility FSP presents core locations that target “areas with elevated chemical concentrations that are potential physical removal areas.” In addition, as stated in Sections 1.2 and 2.1.1, the Sediment Mobility FSP focuses on collecting cores that would represent a range of chemical concentrations within a given iAOPC where, typically, two cores were placed in an area where iCOC concentrations exceeded the 95th percentile Site-wide concentration for a given iCOC and two cores were placed around mean and minimum iCOC concentrations so that core locations were distributed spatially across chemical gradients of iCOCs within an iAOPC. Although we think much of this data may be useful for design, we agree that additional testing may be required at some locations during remedial design.

2. General Comment:

Testing Procedures: The three proposed testing procedures (Modified Elutriate Test – MET, Sequential Batch Leachate Test – SBLT and Toxicity Characteristic Leaching Procedure – TCLP) and associated water and bulk sediment testing are expected to provide adequate information to evaluate chemical mobility associated with various removal and disposal options in the Portland Harbor Feasibility Study.

Response: We agree that the selected testing procedures in the Sediment Mobility FSP will provide adequate information to evaluate chemical mobility.

DO NOT QUOTE OR CITE

This document is currently under review by U.S. EPA and its federal, state and tribal partners and is subject to change in whole or in part.

3. General Comment:

Locations: EPA proposed a number of locations for testing in out October 17, 2001 email. The locations presented in the FSP differ somewhat from these locations. Table 1 presents a summary of EPA's proposed core locations in consideration of information presented in the Mobility FSP.

Response: The Sediment Mobility FSP has been modified to include all of the proposed EPA core locations.

4. General Comment:

Chemical Analyses: EPA generally believes that a broader suite of chemical should be analyzed for. For example, individual metals are recommended for each AOPC. EPA believes that a broader suite of metals should be analyzed for all iAOPCs (e.g. RCRA metals or priority pollutant metals).

Response: The Sediment Mobility FSP has been modified to include the analysis of the following suite of metals used in the Round 3B Comprehensive Sediment and Bioassay Testing Field Sampling Plan for all iAOPCs: aluminum, antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc.

5. Specific Comment:Section 1.2 – Sediment Chemical Mobility Sampling Objectives:

As stated in the general comments above, EPA does not necessarily agree that the stated objective of assessing areas “where iCOC concentrations are relatively high” is the sole objective of this sampling, and a more balanced approach that considers EPA's objective is needed. The application of the LWG's criteria has resulted in some anomalies in the identification of specific core samples to be included in the characterization. For example, including one sediment core near the railroad bridge on the basis of an isolated mercury detection to evaluate the mobility associated with the Arkema iAOPC. EPA agrees with the statement that removal, disposal and capping technologies “will be applied to a relatively wide area and large volumes of sediment.”

Response: We have made the EPA suggested core location changes to the Sediment Mobility FSP. Also, this section has been modified to include EPA's suggested changes to include their wider stated objective.

The iAOPC 14 extends from just upstream of the salt dock at the Arkema facility to below the railroad bridge and encompasses additional properties and potential sources beyond the Arkema property boundary. The EPA comment incorrectly implies that Arkema is the only potential source associated with iAOPC 14, when in fact there are other possible sources that may be associated with the mercury concentration at the proposed sediment core location downstream of the bridge.

6. Specific Comment:Section 2.1 – Sampling Location Rationale – MET and SBLT:

DO NOT QUOTE OR CITE

This document is currently under review by U.S. EPA and its federal, state and tribal partners and is subject to change in whole or in part.

As stated in our general comment above, EPA has identified an alternate suite of sample locations for the MET and SBLT testing based on the objective of targeting representative areas rather than “areas with higher concentrations.”

Response: See previous response.

7. Specific Comment:

Section 2.1.1 – MET and SLBT Sample Locations:

EPA agrees that within a given iAOPC targeted for MET and SBLT testing, sediment cores should be distributed spatially across chemical gradients. However, these chemical gradients should focus on the chemicals typically associated with a given iAOPC rather than an isolated chemical detection. Table 1 summarizes required changes to the sediment core locations.

Response: The Sediment Mobility FSP has been modified to include all of the proposed EPA core locations.

8. Specific Comment:

Section 2.2 – TCLP:

EPA is in agreement with the process that was used to assess locations for TCLP testing and the resulting sediment cores that were selected.

Response: We agree with the comment, which requires no change to the text.

9. Specific Comment:

Section 4.3 – Laboratory Analyses – MET and Section 5.3 – Laboratory Analyses – SBLT:

All eleven bulk sediment samples selected for chemical analysis should be analyzed for the following parameters: Total metals (Priority Pollutant metals – silver, arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, lead, antimony, selenium, thallium and zinc), semi-volatile organic compounds, PCBs (Aroclors and congeners), chlorinated pesticides, TPH, sulfide, ammonia, TOC, total solids, grain size, and specific gravity. In addition, selected samples should be analyzed for dioxins and furans as depicted on Table 4-2 and cyanide should be included for the samples collected from iAOPC 11. Surface water, MET and SBLT leachate samples should be analyzed for the same list of chemical parameters as outlined for bulk sediment samples above as well as DOC, TSS, and TDS. The expanded list of analytes is required because it is difficult to predict, based on bulk sediment chemistry alone, which chemicals will be readily leachable under the MET and SBLT testing procedures. EPA will consider reducing the analyte list for analytes that are not detected in the bulk sediment analysis of the composited sample for specific locations.

As noted in Section 4.3, the method reporting limits (MRLs) for the MET elutriate and SBLT leachate do not meet various ambient water quality criteria (AWQC). EPA agrees that the MRLs do not need to meet the combined fish consumption and water ingestion AWQC due to the short duration of any dredging or disposal activities. However, EPA notes that some MRLs do not meet the chronic AWQC. In particular, the MRLs do not meet the AWQC for DDT (a key site contaminant in which the chronic AWQC exceeds the MRL by 10X) and total sulfides (likely to

DO NOT QUOTE OR CITE

This document is currently under review by U.S. EPA and its federal, state and tribal partners and is subject to change in whole or in part.

be released during dredging and disposal activities in which the chronic AWQC exceeds the MRL by 25X). Although the analytical methodology proposed in the Mobility FSP is adequate to meet the objectives of this testing program, more rigorous detection capability may be required to support remedial design.

Response: The Sediment Mobility FSP has been modified to include the analysis of the following suite of metals used in the Round 3B Comprehensive Sediment and Bioassay Testing Field Sampling Plan for all iAOPCs: aluminum, antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. This list does not include EPA's requests for beryllium, selenium, and thallium, given that these have not been commonly tested in LWG sediment investigations up to this time and would create an inconsistent data set. Other chemical list changes have been adopted in the revised FSP per the comment. Given that EPA indicates the testing methodology is adequate, no changes have been made to FSP regarding this portion of the comment.

The EPA comment that refers to MDLs for DDT appears to have been incorrectly worded and should read "In particular, the MRLs do not meet the AWQC for DDT (a key site contaminant in which the MRL exceeds the chronic AWQC by 10X)."

10. Specific Comment:

Section 6.1 – Sediment Sampling Approach – TCLP

The amount of sample selected from each linear foot (0.2 g) for VOC analyses is too small to ensure a representative sample. Each 2 ounce jar should be able to hold approximately 150 g of sediment (60 mL x 2.5 g/mL). As a result, for each 14-foot sediment core, approximately 20g of sediment may be sampled and placed in equal 10g aliquots into each 2 ounce sampling container.

Response: In the revised FSP, the sampling approach for VOCs has been modified so that 4 grams of sediment will be sampled from each 1-foot interval and placed in equal 2-gram aliquots into each 1.5-oz VOC container. This approach is based on laboratory information that a 1.5-oz jar typically holds approximately 28 grams of wet sediment.