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SUPERFUND &
EMERGENCY
MANAGEMENT DIVISION

**MEMORANDUM**

**DATE:** August 13, 2019

**SUBJECT:** Riverbank Sampling and Analysis Plan
River Bank Chemical Characterization and Evaluation
Premier Edible Oils
ECSI # 2013
July 2019

**FROM:** Eva DeMaria, Remedial Project Manager

**TO:** Erin McDonnell, Project Manager
Oregon Department of Environmental Quality (DEQ)

The following are the United States Environmental Protection Agency's (EPA's) comments pertaining to the July 2019 document titled *Riverbank Sampling and Analysis Plan, River Bank Chemical Characterization and Evaluation* (SAP) for the Premier Edible Oils (PEO) site. The SAP was prepared for Burgard, a Series of MMGL LLC (MMGL) by ERM-West, Inc. (ERM). The purpose of the proposed work is to provide chemical characterization data for river bank soil/sediment and identify areas of the river bank where concentrations of chemicals of concern (COCs) exceed the Portland Harbor Superfund Site (PHSS) chemical-specific criteria listed in the Record of Decision (ROD). Information collected will be used to determine areas of the river bank where chemical concentrations exceed these criteria and to identify areas potentially requiring remedial actions.

The PEO site is listed as Oregon Department of Environmental Quality (DEQ) ECSI # 2013 and located at 10400 North Burgard Way in Portland. The site is an industrial property located on the Portland Harbor waterfront along the east bank of the Willamette River at River Mile (RM) 3.5E and is a river bank of known contamination identified in the PHSS ROD based upon concentrations exceeding criteria and the presence of principal threat waste (PTW) as light non-aqueous phase liquid (LNAPL). The groundwater plume at the PEO site is identified in ROD Figure 6 and Section 6.3.3 (EPA 2017) as a pathway of dissolved phase contamination to the river. The site is being addressed by MMGL Corporation, within the DEQ Voluntary Cleanup Program.

EPA's review focuses on the how the SAP conforms to the ROD requirements for addressing contaminated river banks.

The EPA comments are presented in the following sections. Comments are separated as: "Primary," which identify concerns that must be resolved to achieve the assessment's objective; "To Be Considered," which, if addressed or resolved, would reduce uncertainty, improve confidence in the document's conclusions, and/or best support the assessment's objectives; and "Matters of Style," which substantially or adversely affect the presentation of the technical information provided in the report.

**Primary Comments for the SAP**

1. The SAP should be revised to include the components of a SAP and quality assurance project plan (QAPP) based on EPA guidance. Revisions to the SAP are needed to follow EPA's systematic planning process and must include presentation of a conceptual site model (CSM) and data quality objectives (DQOs). These key components should have format and content to guide the planned sampling and analysis to characterize the river bank and provide data that will support evaluations consistent with the PHSS ROD. Refer to Attachment 1 to these comments, which provides a crosswalk table describing the elements to be included in SAP/QAPPs. These elements are EPA's expectations for SAP/QAPPs at PHSS for river banks and sediment.

2. Section 1, Introduction, second paragraph, should be revised to state that the purpose of river bank soil/sediment sampling is to provide data to support chemical characterization of the river bank soil/sediment with respect to the applicable Portland Harbor PTW threshold values, remedial action levels (RALs), and cleanup levels (CULs) for the default list of COCs identified in ROD Tables 17 and 21. The SAP introductory paragraph identifies a limited list of four constituents, DDx, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and dioxin and furan compounds, which is misleading because it does not refer to the list of COCs for river bank soil/sediment listed in ROD Table 17.

3. The specific rationale for the list of analytes presented in Table 1 should be clearly defined in the SAP. Deviations from the ROD Tables 17 and 21 analyte list should be based on the CSM, including previous analytical results at the site and adjacent sediments.

4. Section 2.5.1 that summarizes previous river bank soil data should be revised to report the PCB data. The report referenced in this section identifies a maximum PCB concentration of 446 ug/kg, and other data tables report PCB concentrations greater than the RAL (75 ug/kg). In addition, the discussion of screening out PCB must be clarified to note the risk-based screening criteria used was a pre-ROD value that was greater than the RAL. The river bank soil delineation must include delineation of PCB impacted soil exceeding the RAL.

5. The CSM in Appendix A is inappropriate for planning sampling and analyses and should be revised to follow EPA guidance. The figures presented in Appendix A are pathway receptor exposure diagrams, which are described in SAP Section 2.5 as specifically for the 2014 human health and ecological risk assessment and are not a complete CSM. EPA expects that a complete CSM will be provided that is based upon guidance and industry standard procedures for environmental or remedial design investigations and will be used for developing detailed DQOs and identifying the analyses necessary to conduct chemical characterization to identify the extent of river bank contamination.

6. Section 3.1 Data Quality Objectives, should be revised to correctly identify that the criteria in the ROD related to RAO 9 are for river bank soil/sediment and not limited to dry or unsaturated media. In addition, the section should correctly identify that the ROD has established PTW thresholds, RALs, and CULs as cleanup standards, not screening values. Therefore, only analytical results from discrete samples should be compared to these criteria for the purpose of delimiting areas where COCs exceed these criteria.

7. Section 4.1 should be revised to present a location specific sampling rationale that addresses the two items below;

    a. The objectives of the study cannot be accomplished by limiting the sampling area with an arbitrary elevation. The section incorrectly states the definition of a river bank and uses that definition to artificially limit the extent of the planned chemical characterization (Figure 6). The ROD and the RBG do not specify a lower elevation limit for the river bank region. Chemical characterization is expected to be conducted over an area that is spatially determined by the nature of chemicals exceeding the CULs. The RBG document refers to the mean low water only as a reference elevation relative to planning access and determining sampling techniques. The elevations mentioned in the RBG do not identify the limits of characterization that might be necessary for evaluating contamination associated with cleanup at PHSS.

    b. The zones, the related sampling areas, and the rationale, should be revised to address the locations where previous samples results have exceeded CULs and/or RALs, and other potential source areas, such as outfalls and chemical or waste handling areas. The correlation of the numbered sample areas with past sample results could be accomplished in a table.

8. The multipoint composite sampling method provided in Section 4.1 and sampling analysis presented in Section 4.2 and on the flow chart presented in Figure 9 should be revised to be based upon analytical results of discrete samples only. The decision process in Figure 9 would function adequately and efficiently with discrete sample. The multipoint composite sampling method is not suitable for accomplishing the DQOs. Multipoint composite samples average the chemical concentrations in an area and cannot be used to define the nature and extent of areas that exceed the PTW, RAL, or CUL criteria. In addition, the complex logistics of preparing composite and associated discrete samples and managing the samples from each location and completing the decision process within the laboratory analyses holding times has a high probability of failure.

9. In Section 3.1, the third paragraph should be revised to include both unsaturated and saturated soil/sediment for characterization. ROD Section 6.5 describes contaminated media on a continuum for the river bank and shallow regions, and contamination must be delineated to the full extent horizontally and vertically with the river bank and adjacent sediment areas. River bank soil/sediment exceeding PTW thresholds, RALs, or CULs in affected areas must be addressed to meet the requirements in the ROD.

10. The SAP should state that delineation of river bank PTW present as LNAPL is not include in this planned work and will be undertaken in a separate phase of remedial design work. Delineation of the extent of PTW as LNAPL in the river bank is necessary to meet the ROD requirements for remediation of PTW-NAPL. The data presented is insufficient to support the conclusion made in Section 2.5.3 of the SAP that the presence of LNAPL in the river bank is unlikely. The available data confirm the presence of uncontained PTW as LNAPL that occurs riverward of the groundwater barrier wall (GWBW) and historic groundwater data confirm PTW-LNAPL as the source for benzene in groundwater at concentrations 10 to 100 times the CUL. There are multiple arguments

presented in Section 2.5.3 of the SAP that EPA consider to be invalid. EPA considers the extent of PTW-NAPL in the river bank as undefined and has multiple lines of supporting evidence for a future discussion.

11. Section 4.1, Sampling Rationale, the fifth paragraph provides rationale for not collecting characterization samples along the southern portion of the river bank adjacent to the International Slip is based on incomplete information. The rationale is limited to the presumption of no contaminant transport or receptor exposure attributed to the presence of armoring on part of the river bank. However, this assessment does not consider the requirements of the ROD to remediate PTW in river banks and contaminant migration via other mechanisms, such as LNAPL migration, leaching of contaminants from river banks soils, and large flood events. This incomplete assessment of contaminant transport should not be used as the basis for developing the river bank sampling locations. Sampling locations should be based on the CSM and historical operations in this area of the site, placement of undocumented fill, chemical use or spills, existing soil, sediment and transition water zone data, and migration of LNAPL.

**Primary Comments for the QAPP**

1. The specific rationale for the list of analytes presented in Table 2 should be more clearly defined in the QAPP. The QAPP should state in the development of the DQOs that the list of COCs selected for analysis includes all chemicals listed in Table 17 of the PHSS ROD for which a CUL for river bank soil/sediment exists. It is unclear from the text in the QAPP how the DQOs were developed to select the list of analytes shown in Table 2. See Primary Comment #3 under Primary Comments on the SAP.
2. Section 2 of the QAPP (A5) should present the project's CSM. Data gaps and uncertainties associated with the CSM need to be clearly identified. Development of the quality objectives (A7) should be integrated with the CSM and developed in Section 3. The CSM is a tool to assist in the development of DQOs. The CSM uses primarily text and/or figures but may also include tables to succinctly convey what is currently known about the site, and it should be updated as new data are collected. As with the QAPP in general, the level of detail in the CSM should be based on a graded approach. If an investigation includes multiple sites, or portions of a site with unique characteristics or problems, then a separate CSM should be prepared for each site or portion thereof. The CSM should include the following information:
    a. Background information, i.e., site history
    b. Sources of known or suspected hazardous waste
    c. Known or suspected contaminants or classes of contaminants;
    d. Primary release mechanism
    e. Secondary contaminant migration
    f. Fate and transport considerations
    g. Potential receptors and exposure pathways

h. Land use considerations;

i. Key physical aspects of the site (e.g., site geology, hydrology, topography, climate)

j. Current interpretation of nature and extent of contamination to the extent that it will influence project-specific decision-making

3. The QAPP should include a project schedule (A6) showing specific tasks, the person or group responsible for their execution, and planned start and end dates. Options for presenting this information include the following template, or a Gantt chart can be attached and referenced. Examples of activities that should be listed include key on- and off-site activities. Any critical steps and dates should be highlighted.

4. QAPP Section 4.2, Sampling Methods (B2), should clearly reference all existing standard operating procedures (SOPs). In addition to the soil sampling SOP, at a minimum, the Sample Custody, Field Measurement of Organic Vapors, Packaging and Shipping Environmental Samples, Field Logbook Content and Control, Photographic Documentation of Field Activities, Field Equipment Decontamination, and Control of Measurement and Test Equipment SOPs should also be included. Not including SOPs for field personnel to follow decreases EPA's confidence that field methods will follow industry standard practices, which if not followed could compromise the quality of data being collected. Field SOPs should be readily available to all field personnel responsible for their implementation. The QAPP must explain any planned modifications to field SOPs. Modifications should be clearly noted on the SOPs themselves. The specific type(s) of SOP modifications/deviations should be summarized, or a reference provided.

5. Section 3, Measurement Quality Objectives and Criteria, should be revised and expanded to discuss the reporting limit shown in Table 2 for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) that does not meet the CUL for river bank soil. Analytical methods are expected to achieve reporting limits that are less than the CULs. EPA's expectation is that all efforts will be made to achieve the lowest reasonably achievable reporting limits to meet the criteria. If the sampling techniques and analytical methods cannot achieve reporting limits compatible with the criteria, the QAPP should describe how the data will be used to meet the study objectives and what effects the reporting limits have on achieving the objectives.

6. Section 4.9, Data Management, should be revised and expanded for consistency of the data set within the PHSS. Calculations for summation of carcinogenic polyaromatic hydrocarbons (cPAHs) as benzo(a)pyrene equivalent (BaP eq) should follow the data summation rules in Appendix A of the Portland Harbor remedial investigation/feasibility study (RI/FS) (EPA 2016). Section 4.9 should also be expanded to include the data summation rules in Appendix A of the RI/FS for PAHs and PCBs.

7. The QAPP should include a discussion of the methods used to calculate totals for cPAHs as BaP eq, PAHs, and PCBs and the potential impacts on the DQOs given the reporting limits listed in Table 2. The QAPP should assess whether the data summing rules in Appendix A of the Portland Harbor RI/FS (EPA 2016) will impact the quality objective of meeting the criteria of the CULs. If the

assessment concludes no potential impacts to achieving the DQOs are expected for these constituents, the QAPP should provide the conclusions.

**To Be Considered Comments**

Table 1 of the SAP should show chlordanes instead of chlordane. Definitions for how chlordanes, DDx, PCBs, and cPAHs are summed should also be included in the notes of the table. Refer to Appendix A of the Portland Harbor RI/FS for additional information.

**Matters of Style Comments**

1. Complex documents of this size, which are submitted for agency review in PDF format, should contain working bookmarks to assist the reviewer of the report in navigating the document. Failure to provide working bookmarks in the draft version of the SAP/QAPP significantly reduces the efficiency of EPA's review of the document and ability to provide thorough comments.
2. Section 3.1, fifth paragraph should be corrected where it refers to the tiered sampling analysis approach described in Section 5.1. Section 5.1 discusses only sample handling. This comment is secondary to Primary Comments for the SAP #5 because EPA does not approve of a tiered sampling approach to chemical characterization of the river bank.
3. The list of appendices in the Table of Contents of the SAP contains errors and should be corrected. Appendix C and Appendix D should be reversed. The list of sequential appendices in the Table of Contents of the QAPP, which duplicates letters of appendices in the SAP is confusing.

**Attachments -** Attachment A – QAPP Crosswalk Table

**References**

EPA. 2019. *Guidance for River Bank Characterizations and Evaluations at the Portland Harbor Superfund Site*. July 17. 2019.

EPA. 2017. *Record of Decision, Portland Harbor Superfund Site, Portland, Oregon*. January.

EPA. 2016. *Portland Harbor RI/FS Feasibility Study Report*. Prepared by United States Environmental Protection Agency and CDM Smith. June. 2016.

EPA. 2012. *Uniform Federal Policy for Quality Assurance Project Plans, Optimized UFP-QAPP Worksheets.* Prepared by Intergovernmental Data Quality Task Force, EPA, DoD, DOE. March.

Found at: https://www.epa.gov/sites/production/files/documents/ufp_qapp_worksheets.pdf

EPA 2006. *Requirements for Quality Assurance Project Plans (QA/R-5)* - March 2001 (Reissued May 2006), EPA/240/B-01/003.

Found at https://www.epa.gov/sites/production/files/2016-06/documents/r5-final_0.pdf