



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10**

1200 Sixth Avenue, Suite 155  
Seattle, WA 98101-3123

SUPERFUND &  
EMERGENCY  
MANAGEMENT DIVISION

**MEMORANDUM**

**DATE:** August 25, 2023

**SUBJECT:** Interim Source Control Evaluation: Updated Data Transmittal for 2020 Groundwater, Transition Zone Water, Surface Water, and Surface Sediment Sampling and Analyses, 4950, 5034, and 5200 NW Front Avenue, Portland, Oregon (ECSI # 1239)  
Tube Forgings of America, Inc / Front Ave LLCs Site, Portland, OR  
ECSI #1239  
July 5, 2022

**FROM:** Laura Hanna, RG   
Remedial Project Manager

**TO:** Rob Hood  
Project Manager  
Oregon Department of Environmental Quality

Following are the U.S. Environmental Protection Agency's (EPA's) comments on the *Interim Source Control Evaluation: Data Transmittal for 2020 Groundwater, Transition Zone Water, Surface Water, and Surface Sediment Sampling and Analysis, 4950, 5034, and 5200 NW Front Avenue, Portland Oregon (ECSI # 1239)*, dated March 10, 2022 (Report). The document was prepared by the Bridgewater Group, Inc. (Bridgewater) on behalf of Tube Forgings of America, Inc. / Front Avenue LLCs (TFA).

The TFA Site is located at 4950, 5034, and 5200 NW Front Avenue in Portland, Oregon, and is listed in the Oregon Department of Environmental Quality's cleanup program as ECSI #1239. The TFA Site is located on the west bank of the Willamette River near river mile 8.2W. The site is adjacent to an in-river sediment management area (SMA) of the Portland Harbor Superfund Site (PHSS). The remedial action in the adjacent SMA is addressing sediments contaminated with polychlorinated biphenyls (PCBs) and pentachlorodibenzo-p-dioxin (PeCDD) and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). The SMA is shown on Figure 29 of the PHSS record of decision (ROD) (EPA 2017a). The TFA Site includes the Hampton Lumber and Glacier NW riverbanks, which are shown in Figure 9 of the PHSS ROD as properties with known contaminated riverbanks (EPA 2017a).

EPA understands that the purpose of the Report is transmitting the validated groundwater, transition zone water (TZW), surface water, and surface sediment results collected at and offshore of the facility in 2020. The objective of the sampling and analyses was to evaluate whether groundwater could be contributing polychlorinated biphenyls (PCBs) and metals to sediment and surface water in the adjacent SMA. The tasks were performed in accordance with the *Source Control Evaluation Work Plan (SCE Work Plan)* and *Sampling, Analysis and Quality Assurance Project Plan (SAP/QAPP)* and *Addendum to 2017 Sampling and Analysis and Quality Assurance Project Plan (SAP/QAPP Addendum)*.

Comments are categorized 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 or understanding of the technical information provided in the report.

### **Primary Comments**

1. The groundwater and TZW data presented are insufficient evidence to differentiate between the source of metals contamination in the upland soil and river sediment, or the cause for metals (arsenic and manganese) mobilization in groundwater and TZW. The source of metals in upland soil is unknown but may be both the result of naturally occurring background concentrations and the result of anthropogenic site activities, including the historical emplacement of contaminated fill material. Metals present in upland soil and surface sediment in the river, regardless of the source, may be mobilized by naturally occurring geochemical processes, or by anthropogenic causes related to historical site activities and past releases of chemicals. The discussion should acknowledge the possibility that arsenic and manganese in soil are commonly mobilized in groundwater due to changes in oxidation/reduction chemistry that occurs as a result of the natural biodegradation of petroleum hydrocarbons and other organic contaminants.
2. In the Groundwater Section, Results sub-section, page 3: the report references the nine upland sites with plots shown in Attachment E, and concludes that arsenic and manganese in groundwater are representative of background levels. The nine referenced upland sites where the Pre-RD Group conducted sampling are not considered a complete dataset for use in determining universal background metals concentrations in groundwater across the PHSS. To conclude whether arsenic and manganese concentrations are representative of background levels, additional sampling beyond the nine locations collected in the downtown and upstream reaches of Portland Harbor is needed. Alternatively, a more thorough review of potential sources through development of the conceptual site model (CSM), combined with a weight of evidence evaluation integrating Pre-RD group data and additional studies on regional metals background concentrations in groundwater may be presented to support evaluation of the effect of As and Mn CUL exceedances on achieving the long-term remedial action objectives of the selected remedy. The refined CSM and evaluation of As and Mn could be used as a line of evidence to support area-specific source control decisions.
3. The Summary section should include additional discussion and evaluation of the groundwater to surface water pathway and riverbank erosion pathway. The groundwater and TZW data indicate the pathways may be complete and represent uncontrolled sources of contamination in groundwater and in the riverbank with the potential to impact the Willamette River.

### **To Be Considered Comments**

1. Consistent with passive sampling guidance (EPA 2017b), EPA recommends using stable isotope labeled PCBs as Performance Reference Compounds (PRCs) for the low-density polyethylene passive samplers instead of the rare PCB congeners used in the 2020 TZW sampling. Based on experience at other sediment superfund sites, using PCB congeners as PRCs leads to issues with not being able to separate these congeners from target PCBs during analysis. Additionally, the assumption that these congeners are not present at the site at concentrations that would influence PRC correction calculations may not be valid, which would impact the results.
2. Organization of the provided PDF packages could be improved. Some sections of the main text have

a results paragraph, others do not. Frequently, the Results sections contained conclusion that were not contained in the Summary section at the end of the Report. The Report is incomplete without a comprehensive Summary section that clearly summarizes all of the conclusions within the report and provides an evaluation of the contaminant transport pathways. For example, surface water results and sediment sampling results discussed in the body of the report are not discussed in the last Summary section of the Report.

3. In the Groundwater Section, Water-Level Monitoring Sub-section on page 2, the document states “*Review of the hydrographs demonstrates groundwater elevations were nearly always higher than the concurrent river elevations indicating a nearly uniform potential for groundwater to discharge to the river during TZW sampling in July and August 2020*”. Use of “nearly always” is vague, inconclusive, and warrants presentation of empirical data and/or analysis of the conditions that were lower than concurrent elevations and why they are not evaluated.
4. In the Groundwater Section, Water-Level Monitoring Sub-section on page 2, the document states “*Based on strong conductivity and temperature contrasts between surface water and TZW, eight potential discharge zones were mapped offshore of the Site (Figure 3)*.” Strong as an adjective is vague and warrants empirical evaluation. At minimum, the criteria used to define discharge zones should be provided, supported by the results, with descriptions of the characteristics and/or parameters that are common and/or consistent that clearly support grouping data into zones. Additionally, this section should summarize the highlights of the report referenced in section B that are useful to any conclusions discussed in this section including parameters for conductivity contrast and Sum-Z score on Figure 3.
5. The last sentence should be revised in the Groundwater Section, Results sub-section, page 3. The Results summary discusses a source for the PCBs as the entrainment of PCB-impacted particulates in the whole water sample. EPA notes that entrainment of PCB-impacted particulates is not a source, it is an observation. In the Summary section at the end of the Report, PCBs are discussed as being from a source that is attributed to solubilization from fill materials including large volumes of dredge fill from the Willamette River and steel mill debris deposited with large volumes of slag during pre-1978 site operations. The Groundwater Results section should be revised for consistency with the Summary section of the Report.
6. In the Transition Zone Water Section, Scope of Filed Work sub-section, page 3: Bullet 1 Pre Screening states “*TZW sampling areas were surveyed to confirm the presence of anoxic conditions...*” This sentence implies but does not state that DO conditions were less than 0.5 mg/L. Consider revising the text to explicitly state that measured DO conditions of less than 0.5 mg/L confirm the presence of anoxic conditions.
7. In the Transition Zone Water Section, Scope of Filed Work sub-section, page 3, Bullet 1, Pre Screening, should discuss the depths targeted and analyzed for the sediment cores that were used to screen for the presence of anoxic conditions.
8. Revisions should be made to better correlate empirical results in the text with those in tables and provide more complete quality assurance of the analytical data. In the Surface Sediment Section, Results sub section, page 10, Lines 8 and 9 states, “*Detected concentrations of total PCBs ranged from 17 microgram per kilogram ( $\mu\text{g}/\text{kg}$ ) (T1-SS) to 310  $\mu\text{g}/\text{kg}$  and 410  $\mu\text{g}/\text{kg}$  (T15-SS and its duplicate).*” However, Table 9 and the accompanying laboratory report in Appendix D shows T15-SS has a concentration of 330  $\mu\text{g}/\text{kg}$  not 310.

9. The Summary Section, page 10 does not discuss historical operations and or building materials on the site that could be a source of PCBs or metals contamination. Historical activities associated with the site including overwater activities that may have resulted in metals and PCB contamination to upland soil and river sediment should be more thoroughly discussed in the summary section.
10. The Surface Sediment Section, Results sub section, page 10 provides lists of data summaries. The data developed should be provided on a series of maps indicating concentrations of PCBs and metals collected throughout the investigation to accurately display the spatial distribution of contamination.

### **Matters of Style Comments**

1. The document should be provided as a fully bookmarked pdf file to facilitate access to and understanding of the information contained therein. There are no section numbers just larger headers which makes it difficult to provide comments and none of the bookmarks in the PDF were usable.
2. “SPeepers” should be corrected to “Peepers” in the Transition Zone Water Section, Scope of Filed Work sub-section, page 3: on the 6<sup>th</sup> line.
3. Transition Zone Water Section, Scope of Filed Work sub-section, page 6: Bullet 6 Sampler Deployment, Retrieval, and Processing should be revised to state how many samplers were deployed instead of stating, all samplers were deployed, except three samplers.
4. The second to last paragraph in the Transition Zone Water Section, Scope of Filed Work sub-section, page 6: Bullet 6 Sampler Deployment, Retrieval, and Processing has an SPeepers typo.
5. In the Transition Zone Water Section, Laboratory Analyses and Calculation of Freely Dissolved Metals and PCB Concentrations sub section, page 7: Line 2 has a small 3 next to the word weights and no footnotes are on the page, clarify what this footnote is referring to.
6. In the Surface Water Section, page 7, there is no description or summary of Table 7 which describes the results. Revise this section to discuss Table 7.

### **References**

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

EPA. 2017b. *Laboratory, Field, and Analytical Procedures for Using Passive Sampling in the Evaluation of Contaminated Sediments: User's Manual*. EPA/600/R-16/357. Prepared by EPA's Office of Research and Development and the Department of Defense's Strategic Environmental Research and Development Program (SERDP)/Environmental Security Technology Certification Program (ESTCP).