REGION 10
SEATTLE, WA 98101

March 1, 2024

MEMORANDUM

SUBJECT: Comments on the 2022 Monitoring and Performance Evaluation Report
Vigor Industrial LLC, Portland, Oregon
ECSI # 271
February, 28 2022

FROM: Laura Hanna, RG, Remedial Project Manager
Superfund and Emergency Management Division, EPA

TO: Ray Hoy, RG, Project Manager
NWR Cleanup, Oregon Department of Environmental Quality

The following are the U.S. Environmental Protection Agency's (EPA) comments pertaining to the February 2022 document *2022 Monitoring and Performance Evaluation Report* (MPER) prepared by Floyd|Snider for Vigor Shipyards. Vigor Industrial, LLC (Vigor) is located at 5555 North Channel Avenue in Portland, Oregon, adjacent to the Willamette River at River Mile 8.4 East. The facility is listed in Oregon Department of Environmental Quality (DEQ) Environmental Cleanup Site Information (ECSI) as #271.
The objectives of the MPER are to present stormwater data collected between fourth quarter 2019 and fourth quarter 2021, to complete a weight-of-evidence evaluation to assess the performance of stormwater source control measures (SCMs) and best management practices (BMPs), and to the provide an update on Phase I and Phase II contingency SCMs that are in progress.
EPA comments are presented in the following sections. 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 of the technical information provided in the report.

Primary Comments

1. The data points that were used in the spatially weighted average concentrations (SWACs) (Figures 4-8 and 4-10) should be identified, possibly on the maps of Figures 4-7 (copper) and 4.9 (zinc) and considered when assessing the utility of comparing SWACs across different time periods. Based on the quiescent nature of the river near many of the outfalls (particularly within Swan Island Lagoon and the dry dock areas), the sediment samples that are nearest to the outfalls are most relevant for

characterizing effects of stormwater from Vigor Shipyards. Additionally, because of the significant variation in number of samples, sample locations, and sample density in the periods evaluated, comparisons of SWACs in these different periods may be misleading. For example, Figure 4-8 seems to show a distinct pattern of decreasing copper concentrations over time in the dry dock area sediments. However, Figure 4-7 shows that before 1998 there were many samples in the vicinity of the dry docks, fewer samples were collected between 2002 and 2007, and very few samples were collected near the dry docks between 2014 and 2019 (including no samples in the area with the highest copper concentrations in sediment before 1998). It is possible that the apparent trend in Figure 4-8 is only a result of fewer samples being collected in areas with the highest copper concentrations. Because of this, EPA is not confident that the SWAC analysis is meaningful in the weight of evidence evaluation.

2. A weight of evidence evaluation is missing for Basin T and should be added to the MPER. Section 3.1.7 describes the sampling results for Basin T and states that it was separated from Group R. However, unlike the rest of the basins, Section 4 does not include an evaluation of the data that were collected in Basin T.

3. There is insufficient evidence to conclude that SCMs are controlling copper in stormwater in the group Pier C basin. Copper concentrations are above the surface water cleanup level (CUL) in all samples, one of the samples collected from Pier C (2019-2021) contained a copper concentration that was in the steep portion of the rank order curve and among the highest concentrations detected site-wide, and two other samples appear to be near the knee of the rank-order curve (Figure 4.3). Additionally, copper removal performance in the scupper inserts is highly variable, with removal efficiencies ranging from negative 17% to positive 77% across the five samples collected (Table 3.3). The two most recent sampling events had improved performance, but there is insufficient data to suggest that a trend is emerging, and the results are not related to storm-to-storm variability. EPA is supportive of continuing to monitor this basin as part of the 1200-Z program and implementing corrective actions as needed if copper concentrations continue to exceed CULs and permit benchmarks.

4. There is insufficient evidence to conclude that the SCMs are effective at controlling copper in stormwater discharge from the Group Pier D basins. Many of stormwater samples exceed the surface water CUL for copper and are at or above the knee of the rank order curve provided in Figure 4.5. The text indicates that additional filtration fabric and media were installed at the catch basin inserts to improve performance but does not provide timing of when those supplemental SCMs were installed relative to sample collection. The two most recent sampling events had improved effluent concentrations, but Table 3.3 suggests that this was largely the result of lower influent copper concentration and not improved removal efficiency. The catch basin inserts appear to be working reasonably well based on removal percentages, but because influent concentrations are often high, copper remains elevated in discharges. EPA suggests considering additional and/or improved BMPs that would prevent copper from mobilizing in stormwater in an effort to reduce influent concentrations to the Pier D catch basins. EPA is supportive of continuing to monitor this basin as part of the 1200-Z program and implementing corrective actions as needed if copper concentrations continue to exceed CULs and permit benchmarks.

To Be Considered Comments

1. **Section 2.0 Summary of Sampling Events and Figures 2.2 through 2.12:** Given the number of sampling locations and scope of the sampling program, it appears that Vigor has made a commendable effort to meet the storm event criteria and sampling protocols described in Appendix D of the Portland Harbor Joint Source Control Strategy (JSCS) (DEQ and EPA 2005). Because there were some storm events where these criteria were not achieved (e.g., there were not antecedent dry periods of 24 hours or samples were not collected within the first 3 hours of runoff), the MPER should provide a discussion of whether there are any samples that are not considered representative of stormwater runoff or that should be weighted less heavily in the weight of evidence evaluation.
2. **Section 3.1, page 3-2:** Revise the discussion in Section 3.1 to note that the method detection limit for arsenic is also above the screening criteria (i.e., the CUL). In addition, this section or related sections should explain the effect on the data evaluation goals when a chemical's reporting limits exceed screening criteria.

3. **Section 3.1 and data tables 3.1 to 3.4**: Additional text should explain the selective application of the "e" qualifier versus using the "J" qualifier, which is the national function guidelines qualifier when the result for this analyte is between the method detection limit and the quantitation limit and should be considered as estimated concentration as defined and used in the Appendix C data validation reports. As noted in the laboratory reports, the E qualifier has a different role.

4. **Section 4.3, page 4-3:** Supplemental discussion should be provided regarding the control of PCBs in stormwater. The text in Section 4.1.3 indicates that previous stormwater monitoring from 2018 to 2019 suggested that PCBs were controlled. Because many SCMs have been changed since that monitoring period, it would be beneficial to confirm that the updated SCMs and ongoing BMPs are expected to perform equivalent or better than previous SCMs at preventing PCBs from discharging in stormwater. This is particularly important since PCBs are a primary driver of active remediation in the Swan Island Basin project area.

5. **Section 4.1.5, page 4-3:** The TSS discussion in Section 4.1.5 could be improved by adding the rank order curve for TSS to the MPER. A single figure showing the 58 sample results on the TSS rank order curve (color-coded by basin) would help inform the discussion of relative TSS concentrations in stormwater discharge compared to other Portland Harbor heavy industrial sites.

6. **Section 4.4.5, page 4-9:** The statement that all copper and zinc concentrations fall on the lower portion of the rank order curves for Basin M does not appear to be correct and should be revised in the text. On Figure 4.2 it appears that at least one zinc sample and several copper samples that were collected during 2019 to 2021 monitoring in Group M stormwater fall near the "knee" of the rank order curves.

7. **Section 4.7.5 Weight of Evidence Determination, page 4-15:** Although plausible, there is insufficient evidence to conclude the elevation PAH concentration detected during Storm Event 9D from Group R was an anomaly and that the source of the high PAH concentration is no longer present. Some consideration should be given to the elevated PAH concentration detected in Storm Event 9D when evaluating which additional stormwater contingency SCM will be selected for Group R.

8. **Section 4.12 Dioxin/Furan Sampling Weight of Evidence Evaluation, pages 4-21 to 4-23:** The dioxins and furans sampling data indicate that the highest concentrations detected in stormwater

(based on the dioxins/furans TEC concentration) were at Basins N and L, which are both being rerouted to the electrocoagulation (EC) treatment system. The remaining samples appear to be relatively consistent (ranging from 2.23 J to 11.9 J pg/L). The exception is the sample collected at Pier C on 3/18/21 that had a dioxin/furan TEQ concentration of 62.6 J pg/L. The reporting and evaluation of dioxin/furan data should describe whether the relatively high concentration at Pier C on 3/18/21 of 62.6 J pg/L warrants additional investigation or consideration of enhanced BMPs.

9. **Appendix B**: The rationale for the approach for XRF sampling should be clarified in Appendix B. It is difficult to assess whether the selected sampling locations are representative and appropriate for characterizing metals content in building materials and how building materials may impact stormwater discharges. Specific comments are as follows:

    a. The text discussing Building 72 sampling states, "The building's roof and gutters were tested at two locations along the southern edge of the roof. An additional two test locations were taken of the roof near the eastern edge where no gutter existed." Revise the text to provide the rationale for the roof sampling locations.

    b. The text indicates that only select downspouts on Buildings 4 and 10 were sampled. Clarify whether the material of the sampled downspouts is representative of all downspouts, roofs, and metal siding that could potentially come into contact with stormwater. It would be helpful to include photographs of the various siding and spout materials to support this discussion.

Matters of Style Comments

1. If SWACs are retained in the report (see Primary Comment #1), error bars should be added to Figure 4.8 to show the uncertainty associated with each of the calculated SWACs.
2. Verify that the interpolated polygons are correct in Figure 4.7. Specifically, there appear to be samples with concentrations between the CUL and 3x the CUL (i.e., yellow dots) but no interpolated area surrounding those exceedances (see dry dock area between 2002 and 2007 and lagoon area between 2014 and 2019).

cc: David Lacey, DEQ
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