

EPA Comments on Draft Sufficiency Assessment B1 Navigation Channel Project Area Dated June 24, 2020

Comments dated July 28, 2020

The following are the U.S. Environmental Protection Agency (EPA) comments on the *Navigation Channel Project Area Sufficiency Assessment (SA)*, prepared by Anchor QEA, LLC on behalf of NW Natural and dated June 24, 2020. The SA is a deliverable prepared for the B1 Navigation Channel Project Area under the Administrative Settlement Agreement and Order on Consent for Removal Action, CERCLA Docket No. 10-2009-0255 (ASAOC), executed between NW Natural and EPA.

General Comments on SA Report:

- 1. Upland Source Control:** Revise the upland source control portion of the SA to include upland sources that are likely to contribute contaminants of concern (COCs) to the Navigation Channel Project Area. The upland sources likely to result in contaminant migration directly to the Navigation Channel Project Area should be identified (if there are any) and the status of these source should be evaluated. NW Natural's proposal in Section 4 to defer detailed evaluations of potential uplands sources of contamination and incorporating the findings into remedial design (RD) could result in the identification of data gaps after completion of pre-design investigation (PDI) work. Sufficiency assessments will be conducted at all the EPA-identified project areas to evaluate upland and in-water sources of contaminants to determine whether they have been adequately investigated and sufficiently controlled such that remedial action can proceed. If potential sources remain, the sufficiency assessments will identify how those sources will be addressed or integrated into the in-water design.
- 2. Project-Specific Conditions:** The conceptual site model (CSM) presented in Section 3 needs to be updated to include more project-specific information and a specific CSM for the Navigation Channel Project Area. The CSM in Section 3 presents useful information on a site-wide basis but also needs to include a focused discussion for the Navigation Channel Project Area. The maps and figures referenced in Section 3 all present site-wide physical conditions, and a more focused evaluation of characteristics of the project area is missing. While some of this site-wide information is helpful for the CSM, Section 3 must be revised to include additional information or discussion to enhance understanding of the Navigation Channel Project Area. Maps and figures specific to the Navigation Channel Project Area (in addition to site-wide figures) would help support the project-specific CSM.
- 3. Contamination Conceptual Site Model:** A discussion of contamination in the Navigation Channel Project Area must be included in the CSM. Sediment samples with contaminant concentrations above remedial action levels (RALs), principal threat waste (PTW) thresholds, and cleanup levels (CULs) from the Portland Harbor Record of Decision (ROD) (EPA 2017a) should be described and contaminated groundwater discharging to the project area should also be described. The sources of these contaminants should be identified (if known) and a discussion of fate and transport should be provided. All migration pathways to and from the project area need to be identified, and this information should be used to support the evaluation of source control and potential for recontamination that is presented in Section 4.

4. **Section 4 In-Water Recontamination Potential Evaluation:** The discussion in this section should focus on areas with potential to recontaminate the project area based on migration pathways identified in the CSM. It is not appropriate to “assume that upland sources to other project areas would have the potential to enter the Project Area as suspended sediments in surface water, bedload sediments transported into the Project Area through river flow, or by sediment disturbance associated with remediation or maintenance dredging in other project areas.” This type of statement must be substantiated by a complete migration pathway identified in the CSM, and preferably with site-specific data that provides evidence of potential recontamination. The SA should assess potential in-water sources of contamination that are most likely to delay remedy implementation. Evaluation of the project areas immediately adjacent, upstream, and downstream of the Navigation Channel Project Area provides the most representative information regarding potential recontamination.
5. **Sufficiency Assessment Summary Table:** As described in the *Remedial Design Guidelines and Considerations* (EPA 2020), “the goal of this table is to serve as the basis for EPA’s sufficiency determination in informing respondents whether cleanup can go forward, and if potential sources remain, how those sources should be integrated into the in-water design.” The project areas identified in Table 5-1 are already being evaluated as part of the in-water design under EPA oversight. Table 5-1 should be revised to identify sources specific to the Navigation Channel Project areas and evaluate the status of those sources. Instead of listing every project area, EPA recommends organizing Table 5-1 based on migration pathways in upland and in-water sources. Specific upland and in-water sources with potentially complete migration pathways to the Navigation Channel Project Area based on the CSM should be evaluated and the status should be provided on Table 5-1.
6. **Remedy Sequencing:** EPA recognizes that consideration of remedy sequencing will be a component of remedy implementation, as described in Section 14.2.11 of the ROD. Remedy implementation under EPA oversight will consider appropriate sequencing of remedial actions and operational best management practices such that recontamination potential from upstream sources is minimized during remedy construction. Specific decisions on remedy sequencing are not within the scope of the SA. The text in Section 4.4 and 5 should be revised to focus on discussions relative to evaluation of upland and in-water sources of contaminants and determining whether they have been adequately investigated and controlled. During the RD process NW Natural may elect to include considerations or criteria for subsequent evaluations of sources that are currently uncontrolled.
7. **Newfields Data:** In footnote 1 on page 7, NW Natural notes that the SA does not include the 2014-2015 Newfields data for reasons stated in the Gasco Sediments Site Sufficiency Assessment. As stated in EPA’s comment on the PDI work plan for the B1 Navigation Channel, after collection of the 2014-2015 Newfields data, EPA reviewed and approved the dataset for use during RD and it was posted on the interim data portal. NW Natural may not entirely agree with the source assessment data quality objectives (DQOs) but use of the data should be considered for making RD decisions in this project area. EPA expects NW Natural to review the data in relation to RALs and PTW thresholds to determine if there are any impacts to sediment management area (SMA) delineation.
8. **Sufficiency Assessment Summary:** For "C" status sites, the Sufficiency Assessment Summary (Table 5-1) should differentiate between uncontrolled sources and sources where additional assessment is recommended, perhaps using a C(u) for uncontrolled sources and a C(a) for sites for which additional assessment is recommended.

9. **Recontamination Potential Chemicals:** References to recontamination potential chemicals (RPCs) should be removed from the SA. The SA appears to use the term “RPCs” to describe all chemicals that were screened to evaluate recontamination potential (i.e., all ROD Table 17 COCs) and the report should clarify that all ROD Table 17 COCs were screened.

Specific Comments on SA Report:

1. **Section 3.1.5 Vessel Propeller Wash, page 11:** The text in Section 3.1.5 should be updated to accurately identify project areas with potential propeller wash impacts. The SA states: “The River Mile 11 East Project Area was identified as the area in Portland Harbor with the majority of potential propeller wash impacts and associated erosion and mobilization of contaminated sediments, while these forces are limited to non-existent in other in-water areas.” However, Figure 3-4 appears to show propeller wash in the Navigation Channel Project Area (among other project areas).
2. **Section 3.1.6 Riverbed Elevation Changes, pages 11-13:** Additional discussion should be provided on the erosion and depositional patterns of the Navigation Channel Project Area. Much of this section focuses on other project areas, and the summary table of erosional and depositional areas (Table 3-1) does not include the Navigation Channel Project Area. Based on inspection of Figures 3-5a through 3-5h and Map 3.1-6 provided in Appendix A, it appears that most of the Navigation Channel Project area is neutral or erosional. This pattern of limited sediment accumulation in the project area has a substantial impact on the potential for recontamination via sediment deposition from upstream sources and should be discussed in the SA.
3. **Section 4.1, Upland Sources to Other Project Areas, pages 15-39:**
 - a. The conclusions derived from the information presented in this section should be provided in the SA. The information provided in these sections is a summary of upland pathway status presented in the *Portland Harbor Upland Source Control Summary Report* (DEQ 2016) and no supporting data or updates to source control status since 2016 are provided. The relevance of this information to the Navigation Channel Project Area is not described and there is no description of a complete migration pathway from these upland sources to the Navigation Channel Project Area. Additionally, these upland facilities are not included in the recontamination evaluation summary presented in Table 5-1. If the updated CSM does not identify a complete transport pathway (see General Comments 2 and 3), then this information is not needed and should be removed from the SA (see General Comment 4).
 - b. The evaluation of upland sources should focus on areas with an identified migration pathway to the Navigation Channel Project Area. The Navigation Channel Project Area is unique among the project areas throughout the Portland Harbor Superfund Site because it is not directly adjacent to upland facilities. Therefore, contaminant migration pathways to the Navigation Channel Project Area from upland facilities may not be as direct as project areas along the shoreline. Generally, facilities directly upland from the Navigation Channel Project Area are more likely to have a complete migration pathway based on proximity to the project area, but this should be confirmed based on a site-specific CSM.
 - c. A discussion of the groundwater that discharges to the Navigation Channel Project Area must be added to the SA. Appendix C of the Portland Harbor Remedial Investigation (RI) report identifies contaminated groundwater from the Gasco and

Siltronic upland sites that discharges to the Navigation Channel Project Area (EPA 2016). The status of each of the groundwater contamination plumes and potential impact on achieving the ROD remedial action objectives at the Navigation Channel Project Area should be discussed in the SA. Discuss any sources, COCs, and/or pathways contributing to contamination in the groundwater that have not been effectively addressed and could impact the implementation of the remedial action. If there are data gaps in groundwater characterization they should be identified, and a plan should be established for how these data gaps will be addressed. Groundwater sources should be added to Table 5-1, as appropriate, and assigned a source control status.

4. **Sections 4.1.2, B1 Boundary – Gasco Sediments Project Area and 4.1.3, B1 Boundary – US Moorings Project Area, pages 17-21:** Sufficiency assessment reports are currently under EPA review for the Gasco Sediments Site and US Moorings project areas, which are the two project areas directly adjacent to the Navigation Channel Project Area. Owing to their locations, these two project areas are particularly relevant for evaluating source control and recontamination potential in the Navigation Channel Project Area. The information presented in the SA should be updated, as appropriate, based on the EPA comments on the Gasco Sediments Site and US Moorings sufficiency assessment reports.
5. **Section 4.1.2.1 Gasco Sediments Site Project Area Description, page 17:** Revise the SA to clarify the following:
 - a. The SA indicates that the hydraulic control and containment (HC&C) system “eliminates discharge” of groundwater in the alluvium water-bearing zone (WBZ) to the Willamette River. To clarify, the HC&C system is achieving design and performance objectives for the upper and lower portions of the WBZ by maintaining groundwater elevations below the elevation of the Willamette River along the NW Natural property and northern portion of the adjoining Siltronic property (i.e., maintaining hydraulic gradients from the river towards the uplands). Evaluation of the influence of the HC&C system on groundwater in the deep portion of the Alluvium WBZ is ongoing.
 - b. The WBZ trench system planned for installation in 2020 is being constructed to address groundwater contamination migrating from an uplands source.
6. **Section 4.1.3.2 Summary of Upland Source Control Status, page 19:** The SA should acknowledge that the geology and hydrogeology of the Navigation Channel Project Area are continuous with the adjoining Gasco Sediment Site Project Area and the Gasco Site uplands. Accordingly, there should be a discussion of groundwater contamination associated with the Gasco site and the source control status of groundwater in the fill WBZ and the alluvium WBZ that discharge to the Navigation Channel Project Area.
7. **Section 4.1.16 Harbor-Wide Stormwater Sources, pages 38-39:** The SA report should identify whether stormwater discharges from City of Portland outfalls and Oregon Department of Transportation (ODOT) outfalls are considered a data gap. Section 4.1.16 describes that three City of Portland Basins (16, 19, and 22) are immediately upriver of the Navigation Channel Project Area and were identified by DEQ as having a medium potential to result in unacceptable in-water risk or sediment recontamination. These three outfalls are among the outfalls targeted for the initial focus of long-term monitoring by the city. Similarly, the text describes three ODOT outfalls that discharge to the Willamette River that have not been evaluated for source control.

8. **Section 4.2 Sediment Bedload Migration, pages 39-43:** Bedload transport refers to sediment transported along or very close to the riverbed, whereas suspended load refers to sediments in the water column. Sediment traps are typically designed to capture suspended sediment. The terminology in this section should be revised as appropriate to describe the sediment transport mechanisms that are evaluated.
9. **Section 4.2.1 Sediment Trap Data Evaluation, page 40:** The ROD and EPA's *Revised Working Draft Portland Harbor Superfund Site Sampling Plan for Pre-Remedial Design, Baseline, and Long-Term Monitoring* (EPA 2017b) define the Downtown Reach as RM 11.8 to RM 16.6 and the Upriver Reach as RM 16.6 to RM 28.4. The text, Tables 4-1a and 4-1b, and Figures 4-2a through 4-2g should be revised accordingly.
10. **Section 4.2.1 Sediment Trap Data Evaluation, Recontamination potential bullet, page 41:** Text in the *Recontamination Potential* bullet should be revised based on the inconsistency between the text and Table 4-1a. Table 4-1a shows that none of the sediment trap samples collected in the upriver reach exceeded Navigation Channel RALs for total polychlorinated biphenyls (PCBs).
11. **Section 4.2.2 Depositional Sediment Data Evaluation, pages 42-43:** The text in this section should clearly state that the depositional sediment sampling (i.e., surface sediment sampling being discussed) was not conducted within the navigation channel, and therefore has limited applicability to the Navigation Channel Project Area. As described in Section 3 and shown on Figures 3-2, 3-5c, and 3-5g, the hydrodynamic conditions in the Navigation Channel Project Area and the adjacent Gasco Sediments Site Project Area are very different and the two project areas have different sediment deposition/erosion patterns. The Gasco Sediments Site is adjacent to upland facilities, directly downstream of other nearshore project areas, and the pilot cap did not cover all areas of contaminated sediment. The transport processes that may have resulted in sediment accumulation at the Gasco Sediments Site are distinct from those in the Navigation Channel Project Area. These factors all suggest that the deposited sediment sampled on top of the Gasco Early Action pilot cap is unlikely to be representative of sediment that may accumulate within portions of the Navigation Channel Project Area. For these reasons, EPA does not consider these data to be a primary line of evidence when evaluating sediment recontamination potential at the Navigation Channel Project Area.
12. **Section 4.3 Sediment Erosion and Remediation Dredging Impacts, pages 43-53:** The impact of the exceedances of RALs, PTW thresholds, and CULs summarized in this section should be discussed. Without a complete migration pathway that would result in potential sediment recontamination in the Navigation Channel Project Area, the relevance of these summaries is unclear.
13. **Section 4.4 Recontamination Potential Assessment, page 53:** The assessment presented in this section does not accurately reflect the information presented in the SA. Although Section 4.3 presents frequencies of RAL and PTW exceedances, there is no discussion of whether these exceedances occur in erosive areas. Section 4.1 summarizes source control status at upland facilities throughout the site (as of 2016), but the SA does not describe the migration pathway of those sources to the navigation channel. Revise the text as appropriate.
14. **Section 4.6 Data Gaps Identification, page 54:** An evaluation of data gaps specific to the Navigation Channel Project Area must be provided in the SA. The SA concludes that data gaps for the Navigation Channel Project area will be informed by RD work at other project areas. As the only project area entirely within the navigation channel, the Navigation Channel Project Area is unique, and data likely exist that will not be informed by work at other project areas.

15. **Section 5, Conclusions and Recommendations, page 55-56:** The following statement is out of the scope of the SA and should be removed: “To the extent sediments exceeding CULs migrate into and persist in the Project Area, delay in or failure to meet the CULs does not indicate failure of the Project Area remedy and would not serve as a basis for enhanced monitoring of the Project Area remedy or other potential contingency measures associated with Project Area remedy performance.” The goal of the SA is to evaluate upland and in-water sources of contamination to determine whether they have been adequately investigated and sufficiently controlled or considered such that the remedial action can proceed. As stated in Section 3.1(d) of the ASAOC Statement of Work, post-construction monitoring will be designed to distinguish between recontamination and assessing whether the remedy is functioning as intended to demonstrate long-term performance of the remedy across appropriate temporal and spatial scales.
16. **Table 5-1 Recontamination Evaluation Summary:** The source control status ratings (i.e., A, B, or C) presented in Table 5-1 must be revised based on the comments presented herein. There is insufficient evidence presented in this SA to assign each of the project areas outside of the Navigation Channel Project Area a “C” rating and it is not within the scope of the SA to comment on the status of other project areas if a direct migration pathway has not been established. The presence of contaminated sediment in other portions of the river does not necessarily suggest these areas represent uncontrolled sources with the potential to impact the Navigation Channel Project Area. Refer to General Comment 5 for discussion on the intent of this table and General Comment 6 for a discussion on remedy sequencing.
17. **Figure 3-4, Potential Propeller Wash Areas and Figure Maintenance Dredging:** The potential impacts of propeller wash in the Navigation Channel Project Area should be discussed in the SA. Section 3.1.5 describes the impact of propeller wash on sediment deposition but does not describe the potential impact of contaminated sediment resuspension and scouring caused by propeller wash or the potential impact of propeller wash on the future remedy.
18. **Figure 4-4a through 4-4i and Appendix C Figures C-2a through C-2z:** Additional explanation should be provided for the information and symbols presented in the boxplot figures. Specifically, the following should be clarified:
 - a. The values represented by the white open circles should be defined in the legend.
 - b. The values represented by the boundaries of the blue box should be defined in the legend.
 - c. The values represented by the limits of the “whiskers” on the boxplots should be defined in the legend.
 - d. The reasoning for excluding non-detects in the statistical evaluation should be described. When the detection limit is sufficiently low, non-detections are important information for characterization and should not be excluded from the dataset without appropriate statistical reasoning. Excluding non-detects where detection limits are low would bias the dataset high and could lead to an erroneous conclusion that recontamination potential is higher than it is. However, if detection limits are not sufficiently low (e.g., near or above RALs) then non-detects do not provide meaningful data and it is likely appropriate to exclude these data.

- e. NW Natural should consider replacing Figures 4-4a through 4-4i with Appendix C Figures C-2a through C-2z. The only difference between the Figure 4-4 series and Appendix C-2 series appears to be the inclusion of CULs in the Appendix C figures. Moving these figures to the main report would eliminate repetition and improve the Figure 4-4 series.
19. **Figures 4-5a through 4-6i:** The sampling locations within the Navigation Channel Project Area with sediment concentrations that exceed RALs and PTW thresholds should be shown on these figures. It is not appropriate to exclude concentrations from the Navigation Channel Project Area and state that they will be addressed during RD. Understanding the current distributions and trends in contaminant concentrations within the Navigation Channel Project Area is important for understanding the site and potential recontamination. For example, if COCs from Table 21 of the ROD were detected at concentrations above RALs and/or PTW thresholds during 2018 pre-RD/baseline sediment sampling but not during previous sampling, this would be a line of evidence for an uncontrolled source and potential recontamination.
 20. **Appendix B and C:** The location of the sediment samples for the data presented in Appendix B and C should be clarified in the text and in tables and figures. The CUL for carcinogenic polycyclic aromatic hydrocarbons (cPAH) in nearshore sediments is 774 µg/kg, except for recreational beach sediments, where the CUL is 85 µg/kg. The CUL for navigation channel sediments is 1,076 µg/kg. While the text and tables in the SA correctly reference the navigation channel CUL, the table in Appendix B lists the nearshore sediment CUL, and in Appendix C, Figure C-1n includes the navigation channel CUL. It is not clear whether the sediment data presented in Appendices B and C were collected from the nearshore, navigation channel, or both.

Editorial Comments on SA Report:

1. **Section 1.2 Project Area Setting, page 2:** The relationship between the City of Portland datum (COP) and the Columbia River Datum (CRD) should be provided in Section 1.2. Section 4.5 describes future dredging work in elevations referenced to CRD and bathymetric contour maps (e.g., Figure 3-1) include data that was collected from bathymetric surveys that were not measured in elevations referenced to COP and were presumably converted for the contour maps. Clarification of the relationship between the datums would be informative.
2. **Section 4.1 Upland Sources to Other Project Areas, pages 15-39:** The description of project areas throughout this section should be updated to describe that the project areas extend beyond areas identified for active remediation in ROD Figure 3 1a. Project areas include these active remediation areas (i.e., SMAs) and also include areas surrounding the SMAs (as shown on Figures 3-3, 3-4, 3-5, etc.).
3. **Section 4.2.1 Sediment Trap Data Evaluation, Assessment of CUL exceedances bullet-, page 41, and Figure 4-2a through 4-2g:** The applicable CULs should be added to Figures 4-2a through 4-2g for ease of comparison of the sediment trap data to the CULs. Additionally, EPA recommends that “Upriver Portland Harbor Superfund Site” be changed to upper or upstream to clearly differentiate the portion of the Portland Harbor Superfund Site being discussed from the Upriver Reach.
4. **Table 3-1:** The values for total project area presented in Table 3-1 should be consistent with values presented in the text. For the B1a Project Area, Section 4.1.1.1 indicates the area is 11 acres whereas Table 3-1 shows the project area is 65.4 acres. Discrepancies between Table 3-1 and the text should be identified and corrected.

5. **Tables 4-3a through 4-3h:** The data source(s) used in these surface sediment summary tables should be referenced in the text or as a footnote in the tables.
6. **Figures 4-5a through 4-6i:** The data source(s) used in these surface and subsurface sediment concentration figures should be referenced in the text or as a footnote in the figures.

References

DEQ. 2016. *Portland Harbor Upland Source Control Summary Report*. November 21, 2014 – Updated March 25, 2016.

EPA. 2020. *Remedial Design Guidelines and Considerations, Portland Harbor Superfund Site, Portland, Oregon*. Prepared by EPA Region 10. Revised February 28, 2020.

EPA. 2017a. *Record of Decision, Portland Harbor Superfund Site, Portland, Oregon*. Prepared by EPA Region 10.

EPA. 2017b. *Revised Working Draft Portland Harbor Superfund Site, Sampling Plan for Pre-Remedial Design, Baseline and Long-Term Monitoring*. Revised working draft, June 6, 2017.

EPA. 2016. *Final Remedial Investigation Report, Portland Harbor RI/FS*. Prepared by EPA Region 10.