Appendix J
NW Natural Response to EPA's July 21, 2022, and February 22 and May 22, 2023 Comments on the Draft and Revised Combined DSR-PDIWP

Appendix J-1
NW Natural Response to EPA's July 21, 2022 Comments on the Draft Combined DSR-PDIWP

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ANCHOR QEA

Memorandum

November 30, 2022

To: Hunter Young, U.S. Environmental Protection Agency

From: Ryan Barth, Anchor QEA

cc: Bob Wyatt, NW Natural; Patty Dost, Pearl Legal Group; Lance Peterson, CDM Smith; Jen Mott, Anchor QEA

Re: NW Natural Response to EPA's July 21, 2022 Comments on the *First Phase Pre-Design Investigation Data Summary Report and Second Phase Pre-Design Investigation Work Plan* for the US Moorings Project Area

This memorandum has been prepared by Anchor QEA on behalf of NW Natural and provides responses to the U.S. Environmental Protection Agency's (EPA's) comments dated July 21, 2022, on the *First Phase Pre-Design Investigation Data Summary Report and Second Phase Pre-Design Investigation Work Plan* (Combined DSR-PDIWP) for the US Moorings Project Area (Project Area), dated May 27, 2022.

EPA General Comments on Combined DSR-PDIWP

EPA General Comment 1

SMA Delineation Uncertainty Evaluation: EPA expects that the second phase PDI DSR will evaluate project area sediment management areas (SMAs), inclusive of all EPA-approved data and using the approach presented in the SMA Delineation Uncertainty Memo provided to performing parties on April 15, 2022.

NW Natural Response

Consistent with Section 3.3 of the *Remedial Design Statement of Work, Portland Harbor Superfund Site, U.S. Moorings Project Area (*EPA 2020), NW Natural will complete a full evaluation of SMAs in the Basis of Design Report (BODR). This evaluation will include all EPA-approved data consistent with the data replacement approach already approved by EPA.

EPA General Comment 2

SMA Refinement Objective: Consistent with EPA's Remedial Design Guidelines and Considerations (RDGC) Section 1.4, principles 1 and 2 (EPA 2021), the Combined DSR-PDI WP should more clearly and consistently indicate that subsurface data will be incorporated into SMA delineation. Section 5.1.2 of the Combined DSR-PDI WP does, appropriately, state: "While not explicitly stated in the PDIWP, these first phase subsurface cores can also be used to achieve the buried contamination SMA Refinement Objective in accordance with EPA's Buried Contamination Guidance (EPA 2022)

using the following lines of evidence…"; however, the role of subsurface data in SMA delineation should also be acknowledged at other points in the document, including, but not necessarily limited to, Sections 2.2 and 4.2.

NW Natural Response

Sections 2.2 and 4.2 have been revised as requested to reflect that subsurface data will be included in SMA delineation.

EPA General Comment 3

Habitat Assessment: EPA recommends addressing habitat data collection in the second phase of the PDI, as these data are likely to be needed for development of the remedial design. Compliance with applicable or relevant and appropriate requirements (ARARs), including the Endangered Species Act and Clean Water Act, requires an evaluation of remedial action impacts on habitat, such as with a Habitat Equivalency Analysis (HEA), which enables quantification of pre- and post-remedial action habitat conditions to determine potential mitigation requirements. Guidance on habitat data required for the HEA is provided in RDGC Appendix B, Topic 9 (EPA 2021).

NW Natural Response

An opportunistic habitat assessment was conducted in October of 2020. The assessment was conducted using the same methodologies as the Gasco Sediments Site habitat assessment. Documentation of the completed habitat assessment is provided in Appendix L.

EPA Specific Comments on Combined DSR-PDIWP

EPA Specific Comment 1

Section 1.1 Purpose and Objectives, pages 1 through 2: For consistency with the Statement of Work Section 3.2(b)(6), revise the text to clarify whether reporting of statistical and modeling analyses is applicable.

NW Natural Response

Statistical and modeling analyses are not applicable for this report. The text in Section 1.1 has been revised accordingly.

EPA Specific Comment 2

Section 2.1.1 SMA Refinement, Data Density, and Temporal Relevance Within the Project Area, page 3: The text indicates that surface samples were analyzed for total solids, total organic carbon, and Record of Decision (ROD) Table 21 contaminants. Revise the text to clarify whether surface sediment samples were also analyzed for geotechnical index parameters, as proposed in the First Phase PDI WP (see Field Sampling Plan [FSP] Section 5.1) (Anchor QEA 2020).

NW Natural Response

The text has been revised to reflect that surface sediment samples were analyzed for geotechnical index parameters.

EPA Specific Comment 3

Section 2.2 Subsurface Sediment Sampling, page 4: This section defines depth of contamination (DOC) as the bottom depth of identified ROD Table 21 remedial action level (RAL), principal threat waste (PTW)-highly toxic threshold, or PTW-not reliably contained (NRC) exceedances. For completeness, this section should also identify PTW-non-aqueous phase liquid (NAPL) as a criterion used for defining DOC. EPA acknowledges that PTW-NAPL has not been observed to date in samples collected from the project area.

NW Natural Response

The text has been revised accordingly.

EPA Specific Comment 4

Section 2.3.1 Riverbank Surface Soil, page 7: EPA has the following comments on this section and the text should be revised accordingly:

a. Section 2.3.1 text states that 3-point composite grab samples were collected, while Table 1-1 (Field Change Request #3) states that 2-point composite samples were collected. Revise the text or table as needed for consistency.

b. The data submitted by Anchor QEA to the Portland Harbor Interim Database (PHIDB) contained the sample results for the relevant locations and analytes except for geotechnical index parameters (moisture content, specific gravity, grain size, and Atterberg Limits) for riverbank surface soil grab samples USMPDI-073SS-210330 and USMPDI-077SS-210330. Clarify why these samples were not analyzed for geotechnical index parameters.

NW Natural Response

a. The text has been revised to reflect that two-point composites were collected, as stated in Field Change Request #3.

b. The text has been revised to clarify why samples were not analyzed for geotechnical index parameters.

EPA Specific Comment 5

Section 3.3.1.1 Field Blanks, page 10: No field blanks were collected for surface sediment grabs during the first field event in the fall of 2020 rather than the minimum field blank rate of one field blank per sample type per sample event specified in the First Phase PDI Work Plan (Anchor QEA 2020). Provide an explanatory statement for this discrepancy.

NW Natural Response

No field blanks were collected for surface sediment grabs during the fall 2020 sampling event of the first phase pre-design investigation (PDI) due to an oversight by the field team. Field blanks collected during the subsurface sediment and surface and subsurface riverbank soil sampling, and during the 2021 surface sediment sampling, demonstrated that sample containers provided by the laboratory and used for the first phase PDI were acceptable. The text was not revised to address this comment.

EPA Specific Comment 6

Section 3.3.1.2 Field Duplicates, page 10: Field duplicates were collected at a rate of 4.6% rather than the minimum field duplicate percentage of 5% as specified in the first phase PDI Work Plan (Anchor QEA 2020). Provide an explanatory statement for this discrepancy.

NW Natural Response

Field duplicates were collected at greater than the required frequency for surface sediment, riverbank surface soil samples, and riverbank subsurface soil samples. Field duplicates were collected at the required frequency for subsurface sediment samples that were initially submitted for analyses. However, the overall frequency is slightly below the required frequency because field duplicates could not be submitted for archived subsurface sediment samples that were triggered based on initial subsurface sediment concentration results. The intervals that would be triggered at a later date were unknown at the time of sediment core processing. The text was not revised to address this comment.

EPA Specific Comment 7

Section 3.3.3 Data Validation, page 10: Review of the laboratory data packages against the data validation reports and the data submitted to the PHIDB identified the following deviations that need to be addressed:

a. The data submitted by Anchor QEA to the PHIDB does not include the field original lab result populated with the original laboratory results. Resubmit the first phase PDI data to the PDIDB to include the original laboratory results.

b. The data submitted by Anchor QEA to the PHIDB includes sample data group (SDG) numbers that are being shown in scientific notation. Resubmit the first phase PDI data to the PHIDB with the correct SDG numbers.

c. From the data validation report for SDG L2161038 in Combined DSR-PDIWP Appendix F, Benzo(b)fluoranthene and Indeno(1,2,3-cd)pyrene should have a "J" qualifier for sample USMPDI-056SC-A-05-06-2101107, based on initial calibration criteria. The "J" qualifier is missing from the PHIDB data submittal. Resubmit the first phase PDI data to the PHIDB with this "J" qualifier.

D. From the data validation report for SDG L2161038 in Combined DSR-PDIWP Appendix F, retene should have a "J" qualifier for samples USMPDI-014SC-A-14-15-201109, USMPDI-040SC-A-09-10-201103, USMPDI-044SC-A-16-17-201104, USMPDI-004SC-A-06-07-201111, and USMPDI-004SC-A-05-06-201111 based on continuing calibration criteria. The "J" qualifier is missing from the PHIDB data submittal. Resubmit the first phase PDI data to the PHIDB with this "J" qualifier.

NW Natural Response

a. This comment was addressed in a resubmittal of the data to the PHIDB dated August 25, 2022. See submittal titled, US Moorings Project Area Pre-Remedial Design Investigation (PDI) Data Gaps 2020-2021, including additional Triggered Samples to Determine DOC, version 3. The text was not revised to address this comment.

b. See response to part a.

c. See response to part a.

d. See response to part a.

EPA Specific Comment 8

Section 4 First Phase Chemical and Physical Analytical Test Results, page 15 through 26: EPA has the following comments on this section and the text should be revised accordingly:

a. Confirm that all data management and summing were performed consistent with the Portland Harbor Data Management Plan (DMP) and revise footnote 4 to reference the DMP (EPA 2021).

b. For each contaminant of concern (COC), the percentage of surface sediment, subsurface sediment, and riverbank soil samples that were detected versus not detected should be indicated.

c. For each COC, surface sediment and subsurface sediment concentrations should be compared to cleanup levels (CULs) in addition to RALs and PTW thresholds.

d. The narrative results should include a statement on whether sheen or PTW-NAPL was observed in the first phase sediment samples and any resulting implications.

e. Confirm that total PCB Aroclor and total PCB congener results are being reported accurately for different media. Only surface sediment and riverbank samples were analyzed for PCB congeners; however, the subsurface sediment results in Section 4.2.1 discuss PCB congener results even though the paragraph subheading is for PCB Aroclors. Review and revise Section 4 text as needed to accurately report the type of PCB analysis for surface and subsurface sediment and riverbank results.

NW Natural Response

a. All data management and summing are performed consistent with the Portland Harbor DMP. The footnote has been updated according to the comment.

b. The detection frequency has been added to the summary statistics tables.

c. Surface and subsurface sediment COC concentrations are not compared to their CULs, nor are CUL exceedances for these COCs depicted in this Combined DSR-PDIWP consistent with the Gasco Sediments Site *Revised Final Pre-Remedial Design Data Gaps Data Summary Report* (Anchor QEA 2022) and PDI data summary reports submitted by other parties. A summary of CUL exceedances will be included in the forthcoming BODR following completion of all PDI phases.

d. The text has been revised as requested in the comment.

e. The text in Section 4.2.1 has been revised to reflect that subsurface samples were collected for PCB Aroclor analyses.

EPA Specific Comment 9

Section 4.1 Surface Sediment SMA Refinement, Data Density, and Temporal Relevance Within the Project Area, page 15: The text states that 54 sediment samples were collected whereas the results described in Section 4.1.1 discuss up to 101 detected results. It appears that the reason for this discrepancy is that Section 4.1.1 discusses the results presented in Tables 4-1a and 4-1b, which include surface sediment grabs and top 1-foot intervals of sediment cores. Revise the text to clarify the reason for this discrepancy in total number of surface sediment samples. The text should also explain how the two datasets (grabs and cores) will be used in remedial design (i.e., describe whether one dataset will supersede the other, results will be averaged, or other).

NW Natural Response

EPA is correct that the discrepancy is due to the collection of surface sediment grabs and the 0- to 1-foot interval of sediment cores. The text has been revised according to the comment.

EPA Specific Comment 10

Section 4.4.2 Comparison to Riverbank Soil/Sediment Cleanup Levels, page 25: The text discusses exceedances of CULs in riverbank angled borings. Include a figure(s) showing the locations and depths of the exceedances.

NW Natural Response

Except for one interval (20 to 32.1 feet below ground surface at USMPDI-068), all sampled angled riverbank boring sampling intervals had at least one detected CUL exceedance. No

figure(s) were included, but text was added to Section 4.4.2 describing the locations and depths of CUL exceedances in the riverbank angled borings.

EPA Specific Comment 11

Section 5 Second Phase Pre-Design Investigation Work Plan, pages 27 through 37: EPA has the following comments on this section and text should be revised accordingly:

a. Revise the text to clarify that the SMAs shown on Figures 5-1 through 5-5 are preliminary and to be used for informational purposes only. Note that future EPA approval of the Combined DSR-PDI WP should not be considered an approval of the preliminary SMA refinement.

b. Revise the text to include detailed reporting and scheduling information for the second phase PDI.

NW Natural Response

a. The footnote discussing development of the SMAs shown on Figures 5-1 through 5-5 has been revised accordingly.

b. Section 6 ("Schedule and Reporting") has been added and contains the requested information.

EPA Specific Comment 12

Section 5.1.1 Surface Sediment Sampling and Analysis, page 27: EPA has the following comments on this section and text should be revised accordingly:

a. Contingency step-out samples farther out in the navigation channel should be considered if the six proposed channelward surface samples cannot adequately bound project area SMAs.

b. EPA recommends that NW Natural consider the elevations of subsurface RAL and/or PTW exceedances in sampling locations along the navigation channel boundary to determine whether these subsurface exceedances have the potential to daylight along the navigation channel slope based on anticipated dredge cuts. NW Natural should add or relocate sample locations accordingly.

NW Natural Response

a. The text in Section 5.1.1 has been revised accordingly.

b. NW Natural reviewed elevations of subsurface RAL and/or PTW exceedances in sampling locations along the navigation channel boundary and did not identify any need to add or relocate sample locations.

EPA Specific Comment 13

Section 5.1.2 Buried Contamination Evaluations, page 28: Revise the text in this section to clarify that future buried contamination evaluations will include historical subsurface data. EPA understands that the Combined DSR-PDI WP is focused on the results of the first phase PDI, but, as written, it is unclear if this will be the only dataset evaluated for buried contamination.

NW Natural Response

The text has been revised accordingly.

EPA Specific Comment 14

Section 5.1.2 Buried Contamination Evaluations, LOE 1: Presence of Buried Contamination, page 29: The text states that the evaluation of buried contamination will be further supported by collecting subsurface samples at the seven proposed surface sediment sampling locations indicated in Section 5.1.1. These seven proposed surface sediment sampling stations are located outside of the project area in the navigation channel. It is unclear how these data will be used to support the buried contamination evaluation for the project area. Revise the text to more clearly identify data gaps and provide the supporting rationale for the number and location of samples to fill those data gaps.

NW Natural Response

The text has been revised accordingly.

EPA Specific Comment 15

Section 5.1.2 Buried Contamination Evaluations, LOE 3: Chemical Stability, page 30: Revise Figure 5-3 to show the 30 locations with buried contamination that are discussed in the text, and revise the text to discuss the rationale for proposed seepage meter placement. This information will allow EPA to evaluate the spatial density of the nine seepage meter locations for the intended use of the seepage velocity data for buried contamination evaluations. The figure should also include historical buried contamination locations.

NW Natural Response

Figure 5-3 has been revised to show all historical and first phase PDI locations with buried contamination (i.e., no RAL exceedances or PTW threshold exceedances in surface sediments, but one or more RAL or PTW threshold exceedances in subsurface sediment interval[s] below 1 foot). The seepage meter locations were selected to cover both the ROD-identified shallow and intermediate regions of the Project Area with location density and spacing similar to the EPA-approved Gasco Sediments Site Project Area seepage meter deployments in 2017 and 2018. As discussed in NW Natural's response to EPA Specific Comment 17d, seepage meters were also spaced to adequately cover the following: 1) areas inside of surface sediment exceedance-based SMA footprints, to be used for potential cap modeling evaluation

purposes; and 2) areas outside of surface-based SMA footprints to inform buried contamination evaluations and, if needed, potential future capping evaluations. Preference was given to locations with deeper RAL or PTW threshold exceedances, as these locations are more likely candidates for buried contamination or potential future capping. As a final measure, NW Natural reviewed surface sediment grain size data to confirm the proposed locations cover the general range of grain sizes within the Project Area. The text in Section 5.1.2.3 has been revised accordingly.

EPA Specific Comment 16

Section 5.1.2.1 Subsurface Sediment DOC Sampling and Analysis, page 30: This section proposes advancing seven sediment cores to further delineate DOC. These seven proposed subsurface sediment sampling stations are located outside of the project area in the navigation channel. It is unclear how these data will be used to support evaluation of the DOC within the project area. Revise the text to more clearly identify data gaps and provide the supporting rationale for the number and location of samples to fill those data gaps.

NW Natural Response

The text has been revised accordingly.

EPA Specific Comment 17

Section 5.1.2.3 Seepage Meters, page 32: EPA has the following comments on this section and text should be revised accordingly:

a. For consistency with what is being requested at other project areas, EPA asks that NW Natural provide an evaluation of groundwater levels in representative upland monitoring wells and Willamette River stage data to substantiate the targeted conditions for porewater sampling and seepage meter deployments proposed in the Second Phase PDI WP. EPA recommends including a plot(s) of changes in groundwater elevations and river stage data over a period of at least one year.

b. Surface waves and wakes due to nearby vessels can influence the results of an ultrasonic seepage meter. Revise the text to acknowledge that appropriate precautions will be taken to address this concern or, at the very least, thorough notes and automatic identification system (AIS) ship logs (large commercial vessels all have AIS transmitters that can be tracked online) should be recorded for possibly interfering vessel wakes encountered during seepage meter deployment. Data should also be reviewed for anomalous results, as with any data set.

c. EPA recommends inquiring with the ultrasonic seepage meter contractor to determine the number of meters available for deployment at one time at the project area. If seepage data may not be collected simultaneously at all seepage monitoring locations, data should be recorded from a nearby tide gauge (USGS or otherwise) so potential impacts to seepage measurements

due to changes in tidal amplitude (natural or storm induced) can be evaluated in conjunction with the seepage data.

d. Clarify why only some of the proposed seepage meter locations are associated with ROD SMAs and/or the areas depicted as "Post-ROD SMAs + First Phase PDI Data" on Figure 5-3.

e. Explain why the nine proposed seepage meter locations is sufficient to achieve data quality objectives.

NW Natural Response

a. This information was provided to EPA via email on July 13, 2022, and that communication has been included as Appendix I to the Revised Combined DSR-PDIWP. In an email from EPA on July 25, 2022, the proposed periods of seepage meter deployments were conditionally approved with five additional comments from EPA. NW Natural responded to EPA's July 25, 2022 comments in an email dated September 13, 2022. These communications are also presented in Appendix I.

b. The text has been revised to acknowledge that appropriate precautions will be taken to limit seepage meter exposure to surface waves and wakes due to nearby vessels. Thorough notes will be taken during deployment regarding any potential sources of disturbance, and AIS ship logs will be recorded for possibly interfering vessel wakes encountered during seepage meter deployment.

c. The text has been revised accordingly. Data from the most proximal Gasco property upland source control system gauges will be recorded and used as necessary to support evaluation of the seepage meter data.

d. As stated in footnote 5 in Figure 5-3, the "Post-ROD SMAs + First Phase PDI Data" were developed consistent with ROD-identified methodologies using surface sediments only. As requested in EPA's *Remedial Design Guidelines and Considerations* (RDGC; EPA 2021), dated April 23, 2021, NW Natural will revise the SMA boundaries to include subsurface sediment data, pending the results of buried contamination evaluations described in EPA's *Buried Contamination Guidelines for Portland Harbor Site* (EPA 2022), dated January 18, 2022. The proposed seepage meters shown in Figure 5-3 that are located outside of the surface-based SMAs will be used for buried contamination evaluations. Data collected from these seepage meter locations will also be used for cap modeling evaluations in areas that become part of the final SMAs following buried contamination evaluations. The proposed seepage meters located within the surface-based SMAs (and, therefore, included in the final SMAs) will be used for cap modeling evaluations.

e. See NW Natural's response to EPA Specific Comment 15.

EPA Specific Comment 18

Section 5.2 CSM Refinement Objective, page 33: A visual reconnaissance of the riverbank was performed during the first phase PDI to inform collection surface soil sampling locations and this is noted in FCR #3; however, a summary of the scope and findings of the visual reconnaissance are not provided in the report. Documentation of the riverbank reconnaissance should be provided and discussed in Section 5.2.

NW Natural Response

The text has been revised accordingly.

EPA Specific Comment 19

Section 5.3 Remedial Technology Refinement Objective, page 33: EPA has the following comments on this section and text should be revised accordingly:

a. The first phase subsurface cores did not identify the DOC at 26 (out of 56) locations. EPA recommends that the second phase PDI include additional DOC sampling for contaminant inventory purposes.

b. Clarify whether porewater sampling is anticipated at a future stage or if NW Natural expects to use literature partitioning data for cap design for the US Moorings Project Area. Section 4.3 of the US Moorings Sufficiency Assessment Report (Anchor QEA 2021) documents that arsenic, cadmium, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), chlordanes, and total petroleum hydrocarbons (TPH) in nearshore groundwater exceed the CULs, and other chemicals had elevated detection limits so could not be compared to CULs.

c. The text states that at 26 locations, the sample depth was insufficient to define DOC. Provide the depths reached, core recovery percentages, and RAL and PTW threshold exceedances in a table.

NW Natural Response

a. An evaluation to determine the extent to which contaminant inventory sampling is needed will be completed following the determination of remedial technologies throughout the Project Area. NW Natural proposes that, at a maximum, additional deeper coring would be performed at 10 percent of all unbounded locations. This is consistent with what has been discussed with EPA through the Gasco Sediments Site Project Area remedial design process.

b. The need for porewater sampling at a future stage will be evaluated following receipt of the second phase PDI data and determination of SMAs and remedial technologies within the Project Area.

c. Table 5-1 has been created to provide the requested information.

EPA Specific Comment 20

Section 5.3.1 Dredged Material Handling, Transport, and Disposal Sampling and Analysis, page 34: EPA has the following comments on this section and the text should be revised accordingly:

a. The text states that "sample locations were selected to spatially cover the various regions (shallow, intermediate, and navigation channel/FMD) of the Project Area and to provide representative data throughout the Project Area." It is unclear if the proposed sediment sampling locations and depths represent the full range of analytes and concentrations for COCs that exceed RALs and/or PTW thresholds. To be conservative for waste handling purposes, the planned waste characterization samples should represent the upper range of contaminant concentrations expected for the project area. Revise the text to clarify whether the sample locations selected are representative of areas with high contaminant concentrations and the range of project area COCs based on historical analytical results.

b. The text indicates that samples will be collected from 0 to 5 feet unless, "DOC is only marginally deeper than 5 feet." To ensure consistent sample collection, revise the text to quantify what is meant by "marginally".

NW Natural Response

a. The objective of the proposed locations was to represent the full range of analytes and concentrations for COCs that exceed RALs and/or PTW thresholds. The text has been revised accordingly.

b. The text has been revised accordingly.

EPA Specific Comment 21

Section 5.3.1.1 Dredge Material Haul Barge Dewatering Testing, page 35: EPA has the following comments on this section and the text should be revised accordingly:

a. Dredge elutriate should be analyzed for all ROD Table 17 COCs with surface water CULs. There are available screening values for the currently omitted COCs. For example, Oregon Administrative Rule 340-041-8033 Tables 30 and 31 have water quality criteria for 2,3,7,8-TCDD and tributyltin. Revise the Second Phase PDI WP as needed to include analysis of all ROD Table 17 COCs with surface water CULs.

b. For consistency with other project areas, include a comparison to chronic criteria for informational purposes. While acute criteria are the appropriate screening criteria for water quality impacts from remedial action activities as they are short-term, limited releases, chronic criteria should also be included for comparison purposes.

NW Natural Response

a. The text has been revised to reflect that all ROD Table 17 COCs with surface water CULs and available screening values will be analyzed.

b. The text has been revised accordingly. A comparison to chronic criteria will be included where applicable for informational purposes only. These comparisons will not be used for remedial design or remedial implementation decision making.

EPA Specific Comment 22

Section 5.3.1.2 Dredged Material Stabilization Testing, page 36: Revise the text to clarify whether site water will be added to bulk sediment prior to stabilization testing to simulate post-dredging water contents (i.e., after bulking of sediment with overlying surface water). Include a reference for the proposed testing procedures.

NW Natural Response

The text has been revised to clarify that the dredged material stabilization testing will be performed consistent with the EPA-approved Gasco Sediments Site *Revised Pre-Remedial Design Data Gaps Work Plan* (Anchor QEA 2019).

EPA Specific Comment 23

Section 5.3.1.3 Dredge Material Disposal Suitability Testing, page 36: EPA has the following comments on this section and the text should be revised accordingly:

a. Portland Harbor Feasibility Study Figure 3.4-36 identifies areas just upstream of the US Moorings Project Area that have F002 waste (EPA 2016). To prevent potential delays during remedial action, a subset of the dredge material disposal suitability testing samples should be analyzed for F002 characteristic waste. Revise the Second Phase PDI WP to include those analyses.

b. This text references "numerous sediment investigations at various depths throughout the project area with air quality monitoring." Provide citations for these studies.

NW Natural Response

a. NW Natural collected extensive data throughout the Project Area for volatile organic compounds, which contains the F002 waste constituents, as part of the capping demonstration subsurface sediment sampling program for the first phase PDI. The data were compared to Oregon Department of Environmental Quality risk-based concentrations for the five F002 waste constituents (TCE; cis-DCE; trans-DCE; 1,1-DCE; and vinyl chloride) included in the *Statement of Work – Gasco Sediments Site* (EPA 2009), and no exceedances were identified. No other available information indicates that F002 waste constituents would be present in the Project Area. For example, extensive testing within the immediately upstream Gasco Sediments Project Area has found no F002

constituent exceedances downstream of the Gasco/Siltronic property line. Therefore, NW Natural understands that F002 wastes are not present at US Moorings and do not require further evaluation. F002 characteristic waste analytes have not been added to the Revised Combined DSR-PDIWP.

b. The text has been revised to include citations for these studies.

EPA Specific Comment 24

Table 4-1a Data Summary: Surface Sediment: For Polycyclic Aromatic Hydrocarbons (PAH) analysis, SW8270E was used for certain samples and SW8270ESIM was used for other samples. This should be explained either in the text of the First Phase PDI DSR or in a note following the table.

NW Natural Response

A footnote has been added to the table.

EPA Specific Comment 25

Table 4-1b Statistical Summary: Surface Sediment Site-Wide RAL and PTW-Highly Toxic Threshold: Explain in the First Phase PDI DSR why one sample summarized in Table 4-1b was analyzed for polychlorinated biphenyl (PCB) Aroclors and the rest were analyzed for PCB congeners.

NW Natural Response

This particular sample was mistakenly submitted for PCB Aroclors analyses. NW Natural intended to sample all surface sediment locations for PCB congeners (as was done for all other surface samples during the first phase PDI). Consistent with EPA's RDGC (EPA 2021), these PCB Aroclors data are usable because they achieve data quality objectives, and the reporting limit is less than 9 micrograms per kilogram.

EPA Editorial Comments on Combined DSR-PDIWP

EPA Editorial Comment 1

Section 4.3.2 Comparison to Riverbank Soil/Sediment Cleanup Levels, page 22: Section 4.3.2 refers to Tables 4-6a and 4-6b. This should be corrected to 4-5a and 4-5b.

NW Natural Response

The text has been revised accordingly.

EPA Editorial Comment 2

Section 4.4.1 Comparison to Site-Wide RALs and PTW Thresholds, page 24: Sections 4.4.1 and 4.4.2 refer to Tables 4-4a and 4-4b. This should be corrected to 4-6a and 4-6b.

NW Natural Response

The text has been revised accordingly.

EPA Comments on Appendix G (FSP) of the Combined DSR-PDIWP

EPA Appendix G Specific Comment 1

Section 1 Introduction, pages 1 through 2: EPA has the following comments on this section and the text should be revised accordingly:

a. Revise the bulleted list to include the bathymetry and topography survey discussed in Section 5.1.2 of the Combined DSR-PDIWP and FSP Section 3.4.

b. The text states that five seepage meters will be deployed in summer/fall and four in spring. This should be corrected to state that all nine will be deployed in spring, for consistency with other sections of Appendix G and the Combined DSR-PDIWP.

NW Natural Response

a. The text has been revised accordingly.

b. The text has been revised accordingly.

EPA Appendix G Specific Comment 2

Section 1.1 Purpose and Objectives of the Second Phase Pre-Design Investigation Field Sampling Plan, Remedial Technology Refinement Objective, 3rd bullet, page 2: The text states that, "Dredged material waste handling, transport, and disposal classification evaluations to ***precharacterize*** the sediments that may be dredged, transported, and disposed of off site" ***(emphasis added)***. Revise the text to clarify that the proposed dredged material characterization is preliminary, and dredged material will be further characterized during remedial action. The results of the preliminary dredged material characterization should be used to develop a plan for waste characterization and handling during remedial action.

NW Natural Response

The text has been revised accordingly.

EPA Appendix G Specific Comment 3

Section 3.3.1 Subsurface Sediment Sampling Plan, pages 9 through 10: Revise the text to clarify the depth of cores planned for the waste handling, transport, and disposal sampling locations. The text states that 16-foot and 20-foot cores will be collected, but it is unclear whether 16-foot cores, 20-foot cores, or both will be collected at waste characterization locations.

NW Natural Response

The text in Section 3.3.1 has been revised accordingly.

EPA Appendix G Specific Comment 4

Section 3.3.3 Subsurface Sediment Core Logging and Processing Procedures, last bullet, page 13: Revise the bullet to clarify that analysis will also be performed at the depth intervals associated with the capping evaluation.

NW Natural Response

No capping evaluation analyses are proposed during the second phase PDI. NW Natural assumes this comment was received in error, but if not, please provide clarification.

EPA Appendix G Specific Comment 5

Section 5 Chemical and Physical Testing, page 29: EPA has the following comments on this section and the text should be revised accordingly:

a. The text indicates that "All chemical and physical testing will adhere to SW-846 QA/QC procedures and analysis protocols (EPA 1986)". The first phase FSP stated that "All chemical and physical testing will adhere to SW-846 QA/QC procedures and analysis protocols (EPA 1986, 1992, 1993, 1994, 1995)" (Anchor QEA 2020). Revise the second phase FSP to be consistent with the first phase FSP or provide the rationale for the discrepancy.

b. No geotechnical laboratory is included in the laboratory list, but Section 5.1 lists geotechnical analyses. Ensure that all applicable laboratories are listed and revise the text as needed.

c. The bulleted lists in Sections 5.1 and 5.2.1 indicate that PAHs (including alkylated PAHs) and TPH will be analyzed at select locations only. The text in both sections goes on to say, "As mentioned in this list, supplemental PAH analysis for alkylated PAHs and TPH will be analyzed at all locations." Revise the bulleted lists or text, as needed, for consistency. Also describe the purpose of the alkylated PAH and TPH data collection.

NW Natural Response

a. The text has been revised accordingly.

b. The text has been revised to include a geotechnical testing laboratory.

c. The text has been revised accordingly. These data will be collected to assist in PAH source identification.

EPA Appendix G Specific Comment 6

Section 5.2.1 Depth of Contamination Testing, page 31: The text in the 2nd bullet indicates that analysis will be performed on "a minimum of four 1-foot intervals, starting at the mudline (0- to

1foot interval) and proceeding downward in the core to the 3- to 4-foot interval.". This differs from the approach proposed in the first phase FSP Section 5.4.1 and conflicts with the 8th bullet which indicates a different number of intervals for primary analysis ("five to seven initially analyzed intervals"). Revise the approach to be consistent with the first phase PDI.

NW Natural Response

The 8th bullet has been revised for clarity. NW Natural believes the DOC testing should be conducted as written in the Second Phase FSP because the DOC sampling objectives in the second phase are different from the DOC sampling objectives in the first phase PDI. The first phase PDI was designed to determine DOC throughout the Project Area. Prior to the first phase PDI, DOC was largely unknown or under-characterized. More core intervals were analyzed during the first phase PDI because DOC was largely unknown, and a large number of sample locations needed to be evaluated expeditiously. The results of first phase PDI provide data on the presence and depth of buried contamination in the Project Area, which informs the second phase PDI. Several relatively shallow DOCs (4 feet or shallower, with one exception at USMPDI-056) were identified in the sediment cores immediately shoreward of the Project Area boundary line. The objective of the second phase PDI is to laterally bound the DOCs present at the Project Area boundary. Initially analyzing samples from intervals that are deeper than the DOC in nearby cores will not provide useful remedial design information. One-foot intervals below the initially analyzed intervals will be archived and will be triggered for analysis, following receipt of the initial analyses, if they are needed to determine the DOC at the stepout locations. In addition, sample intervals that are deeper than the initially proposed intervals would be analyzed if they appear to be impacted based on visual and olfactory indications during core processing.

EPA Appendix G Specific Comment 7

Table G3-1 Proposed Second Phase PDI Surface Sediment Sampling Locations: For clarity, revise the table name and "Purpose" column to clarify that these locations also include subsurface sediment samples.

NW Natural Response

The table has been revised accordingly.

EPA Comments on Appendix H (QAPP) of the Combined DSR-PDIWP

EPA Appendix H Specific Comment 1

Section 2.6.2 Analytical and Chemistry Records, page 7: Text in this section states that: "Laboratory data packages will contain information necessary to perform a Stage 4 data validation per EPA guidelines (EPA 2009); however, no Stage 4 validations will be conducted on the data since Stage 4 validations were conducted as part of the first phase PDI." Stage 4 validation should be performed at the same rate for the second phase data as it was done for the first phase. Alternately, this section should include an explanation why the Stage 4 validation of select first phase data means that no Stage 4 validation is needed for the second phase data.

NW Natural Response

The text has been revised to include Stage 4 data validations at the same rate as in the first phase PDI.

EPA Appendix H Specific Comment 2

Table H-2 Second Phase Surface Analytes, Methods, and Targeted Reporting Limits and Table H-3 Second Phase PDI Depth of Contamination Subsurface Sediment Analytes, Methods, and Targeted Reporting Limits, page 3: The CUL provided for total PAHs is listed as 2300 ug/kg on page 2 of Table H-2 and page 3 of Table H-3. The riverbank soil and sediment CUL for total PAHs is 23,000 ug/kg.

NW Natural Response

Table H-3 has been revised accordingly.

EPA References

Anchor QEA. 2020. *Final Pre-Design Investigation Work Plan*. US Moorings Project Area. August 4, 2020.

Anchor QEA. 2021. *Final Sufficiency Assessment*. US Moorings Project Area. January 2021.

EPA. 2016. *Portland Harbor RI/FS Feasibility Study*. June 2016.

EPA. 2017. *Portland Harbor Record of Decision*. US EPA Region 10. Seattle, Washington.

EPA. 2021. *Program Data Management Plan, Portland Harbor Remedial Design Investigation – Portland Harbor Superfund Site*.

NW Natural References

Anchor QEA, 2019. *Revised Pre-Remedial Design Data Gaps Work Plan*. Gasco Sediments Cleanup Action. Prepared for U.S. Environmental Protection Agency, Region 10. Prepared on behalf of NW Natural. September 2019.

Anchor QEA, 2020. *Revised Final Pre-Design Investigation Work Plan*. US Moorings Project Area. September 3, 2020.

Anchor QEA, 2022. *Revised Final Pre-Remedial Design Data Gaps Data Summary Report*. Gasco Sediments Cleanup Action. Prepared on behalf of NW Natural. January 28, 2022.

EPA (U.S. Environmental Protection Agency), 2009. *Statement of Work – Gasco Sediments Site*. U.S. Environmental Protection Agency Region 10. September 9, 2009.

EPA, 2016. *Portland Harbor RI/FS – Feasibility Study*. U.S. Environmental Protection Agency Region 10. June 2016.

EPA, 2020. *Remedial Design Statement of Work, Portland Harbor Superfund Site, US Moorings Project Area*. Portland, Multnomah County, State of Oregon, EPA Region 10. February 2020.

EPA, 2021. *Remedial Design Guidelines and Considerations*. Portland Harbor Superfund Site, Portland, Oregon. April 23, 2021.

EPA, 2022. *Buried Contamination Guidelines for Portland Harbor Site*. January 18, 2022.

Appendix J-2
NW Natural Response to EPA's February 22 and May 22, 2023 Comments on the Revised Combined DSR-PDIWP

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ANCHOR QEA

Memorandum

June 7, 2023

To: Hunter Young, U.S. Environmental Protection Agency

From: Ryan Barth, Anchor QEA

cc: Bob Wyatt, NW Natural; Patty Dost, Pearl Legal Group; Lance Peterson, CDM Smith; Jen Mott, Anchor QEA

Re: NW Natural Response to EPA's February 22 and May 22, 2023 Comments on the *Revised First Phase Pre-Design Investigation Data Summary Report and Second Phase Pre-Design Investigation Work Plan* for the US Moorings Project Area

This memorandum has been prepared by Anchor QEA on behalf of NW Natural and provides responses to the U.S. Environmental Protection Agency's (EPA's) comments dated February 22 and May 22, 2023, on the *Revised First Phase Pre-Design Investigation Data Summary Report and Second Phase Pre-Design Investigation Work Plan* (Combined DSR-PDIWP) for the US Moorings Project Area (Project Area) dated November 30, 2022. For completeness, it also provides NW Natural's November 30, 2022, responses to EPA's comments dated July 21, 2022, on the *First Phase Pre-Design Investigation Data Summary Report and Second Phase Pre-Design Investigation Work Plan*.

EPA General Comments on Combined DSR-PDIWP

EPA General Comment 1 (July 21, 2022)

SMA Delineation Uncertainty Evaluation: EPA expects that the second phase PDI DSR will evaluate project area sediment management areas (SMAs), inclusive of all EPA-approved data and using the approach presented in the SMA Delineation Uncertainty Memo provided to performing parties on April 15, 2022.

NW Natural Response (November 30, 2022)

Consistent with Section 3.3 of the *Remedial Design Statement of Work, Portland Harbor Superfund Site, U.S. Moorings Project Area (*EPA 2020), NW Natural will complete a full evaluation of SMAs in the Basis of Design Report (BODR). This evaluation will include all EPA-approved data consistent with the data replacement approach already approved by EPA.

EPA Response (February 22, 2023)

The SMA uncertainty analysis should be provided as described in the Remedial Design Guidelines and Considerations document[1] in the second phase PDI DSR and the SMA's can be finalized in the BODR.

NW Natural Response (May 10, 2023)

NW Natural will perform the uncertainty analysis in accordance with EPA's *Remedial Design Guidelines and Considerations* (EPA 2021) in the second phase PDI DSR, and the SMAs will be finalized in the BODR.

EPA General Comment 3 (July 21, 2022)

Habitat Assessment: EPA recommends addressing habitat data collection in the second phase of the PDI, as these data are likely to be needed for development of the remedial design. Compliance with applicable or relevant and appropriate requirements (ARARs), including the Endangered Species Act and Clean Water Act, requires an evaluation of remedial action impacts on habitat, such as with a Habitat Equivalency Analysis (HEA), which enables quantification of pre- and post-remedial action habitat conditions to determine potential mitigation requirements. Guidance on habitat data required for the HEA is provided in RDGC Appendix B, Topic 9 (EPA 2021).

NW Natural Response (November 30, 2022)

An opportunistic habitat assessment was conducted in October of 2020. The assessment was conducted using the same methodologies as the Gasco Sediments Site habitat assessment. Documentation of the completed habitat assessment is provided in Appendix L.

EPA Response (February 22, 2023)

NW Natural's response to EPA General Comment 3 indicates an "opportunistic habitat assessment" was conducted "using the same methodologies as the Gasco Sediments Site habitat assessment." EPA assumes this refers to the methodology described in the Gasco Final Pre-Remedial Basis of Design Technical Evaluations Work Plan, Appendix F Mitigation Evaluation Work Plan (MEWP).[2] The Gasco MEWP describes the use of transects along which habitat data were collected. In contrast, the shoreline habitat assessment presented in Appendix L does not describe the use of transects. Habitat data need to be fully representative of existing conditions. Habitat data should be collected along transects at a spacing appropriate to fully describe habitat conditions for input into the Habitat Equivalency

[1] EPA, 2021. *Remedial Design Guidelines and Considerations*. Portland Harbor Superfund Site. April 23, 2021.
[2] Anchor QEA, 2019. Final Pre-Remedial Design Basis of Design Technical Evaluations Work Plan. Gasco Sediments Cleanup Action. Prepared for U.S. Environmental Protection Agency, Region 10. Prepared on behalf of NW Natural. August 29, 2019.

Analysis (HEA), which NW Natural proposes to use. Data should include representative photos at a frequency necessary to capture the habitat conditions along each transect.

EPA recommends that NW Natural submit a Habitat Assessment Work Plan for EPA review and approval to ensure representative habitat data are obtained during a supplemental habitat assessment effort. Alternatively, the habitat assessment presented in Appendix L should be revised to clarify how the data are sufficiently representative of existing habitat conditions. If Appendix L is revised, the following additional comments should be addressed (or alternatively, considered in a future habitat assessment submittal):

1. **Data Processing and Mapping, page 2:** Clarify how contour data were obtained to derive the slope and depths of the habitat types present in the project area.
2. **Data Processing and Mapping, page 2:** This section describes "slope categories" which represent habitat types. However, the slope of the "Riparian" and "Below OLW" habitat types is not characterized or described. Revise this section to clarify that the bullets describe the habitat types and the "slope analysis" was applied only to the Active Channel Margin (ACM) habitat type.
3. **Data Processing and Mapping, page 2:** The "Below OLW" habitat type should be further characterized to shallow water, defined as 0 to 15 feet below ordinary low water (OLW), and deep water, defined as greater than 15 feet below OLW. Add the shallow and deep water area calculations to Table 1.
4. **Table 1 Habitat Area Calculations by Slope, page 2:** Revise the overarching column header of "Area Calculations by Slope in Square Feet" to "Area Calculations in Square Feet" since neither the "Riparian" or the "Below OLW" categories are categorized by slope. In addition, revise the title to omit "by Slope."
5. **Figures 2a and 2b:** Revise the figures to include the entire US Moorings Project Area boundary and indicate where deep water areas occur if present within the project area boundary.

NW Natural Response (May 10, 2023)

To clarify, the *Shoreline Habitat Assessment* memorandum (Appendix L) states, "Consistent with the EPA-approved approach used for the adjacent Gasco Sediments Site Project Area, NW Natural proposes to use a Habitat Equivalency Analysis (HEA)-based approach during remedial design to determine potential mitigation required for the implementation of the sediment remedy." The "Data Collection" section of the memorandum describes the methodologies used for the habitat assessment at the US Moorings Project Area and does not reference field data collection methodologies used for the Gasco Sediments Site habitat assessment. The habitat data collection at the

US Moorings Project Area was conducted by walking the shoreline from downstream to upstream. Data were collected in a continuous manner to fully represent existing conditions. As such, transects were not used. Photographs were also taken along the entire shoreline during the habitat assessment to further document habitat conditions. Photographs have been added as Attachment B, and the text in Appendix L has been revised accordingly.

1. The text in Appendix L has been revised to clarify how contour data were obtained to derive the slope and depths of the habitat types present in the Project Area.
2. The text in Appendix L has been revised accordingly.
3. The text in Appendix L has been revised accordingly. The shallow and deep water area calculations have been added to Table 1 of Appendix L.
4. Table 1 of Appendix L has been revised accordingly.
5. Figures 2a and 2b of Appendix L have been revised accordingly.

EPA Additional Response (May 22, 2023)

The shoreline habitat assessment presented in the revised Appendix L generally characterizes the existing habitat in most of the US Moorings Project Area and provides data adequate for use in the Habitat Equivalency Analysis (HEA)-based approach. During remedial design, opportunities for enhancing habitat within the project area should be considered, as habitat enhancement may be required as compensatory mitigation for unavoidable short and/or long-term impacts to habitat from remedial action. Habitat enhancement opportunities may include removing riprap from the riverbank, replanting the riverbank with native vegetation, removing sheet pile walls to reconnect the river to the floodplain, and regrading the riverbank and shoreline to create shallow in-water habitat. In addition, removal of pilings would enhance habitat for aquatic species including federally listed salmonids. EPA requests the following changes to Appendix L:

1. Table 1 indicates deep water areas are “uncharacterized”. As shown in Attachment A, deep water should be characterized with respect to substrate. Revise the text to indicate this is a data gap to be filled during remedial design.
2. Figure 2a indicates the most downstream portion of the project area was not characterized due to lack of access during the habitat survey. Revise the text to indicate this is a data gap to be filled during remedial design.
3. Figures 2a and 2b: add the locations where photos presented in Attachment B were taken.

NW Natural Additional Response (June 7, 2023)

1. The text has been revised to identify the habitat in deep water with respect to substrate. Further characterization of this area is not required.
2. The text has been revised accordingly.
3. Figures 2a and 2b of Appendix L have been revised accordingly.

EPA Specific Comments on Combined DSR-PDIWP

EPA Specific Comment 5 (July 21, 2022)

Section 3.3.1.1 Field Blanks, page 10: No field blanks were collected for surface sediment grabs during the first field event in the fall of 2020 rather than the minimum field blank rate of one field blank per sample type per sample event specified in the First Phase PDI Work Plan (Anchor QEA 2020). Provide an explanatory statement for this discrepancy.

NW Natural Response (November 30, 2022)

No field blanks were collected for surface sediment grabs during the fall 2020 sampling event of the first phase pre-design investigation (PDI) due to an oversight by the field team. Field blanks collected during the subsurface sediment and surface and subsurface riverbank soil sampling, and during the 2021 surface sediment sampling, demonstrated that sample containers provided by the laboratory and used for the first phase PDI were acceptable. The text was not revised to address this comment.

EPA Response (February 22, 2023)

Revise the text of the Revised Combined DSR-PDIWP PDI Evaluation Report to include a summary of NW Natural's November 30, 2022 response. Regarding the text in Section 3.3.1.1 that states no qualification was necessary for the blanks that were collected and that had detections in them, EPA notes that it would be more accurate to state that field blanks were assessed during data validation and no qualification of the data was required (no change to the text required).

NW Natural Response (May 10, 2023)

The text in Section 3.3.1.1 has been revised to reflect a summary of NW Natural's November 30, 2022 response.

EPA Specific Comment 6 (July 21, 2022)

Section 3.3.1.2 Field Duplicates, page 10: Field duplicates were collected at a rate of 4.6% rather than the minimum field duplicate percentage of 5% as specified in the first phase PDI Work Plan (Anchor QEA 2020). Provide an explanatory statement for this discrepancy.

NW Natural Response (November 30, 2022)

Field duplicates were collected at greater than the required frequency for surface sediment, riverbank surface soil samples, and riverbank subsurface soil samples. Field duplicates were collected at the required frequency for subsurface sediment samples that were initially submitted for analyses. However, the overall frequency is slightly below the required frequency because field duplicates could not be submitted for archived subsurface sediment samples that were triggered based on initial subsurface sediment concentration results. The intervals that would be triggered at a later date were unknown at the time of sediment core processing. The text was not revised to address this comment.

EPA Response (February 22, 2023)

Revise the text of the Revised Combined DSR-PDIWP PDI Evaluation Report to include a summary of NW Natural's November 30, 2022 response.

NW Natural Response (May 10, 2023)

The text in Section 3.3.1.2 has been revised to reflect a summary of NW Natural's November 30, 2022 response.

EPA Specific Comment 7 (July 21, 2022)

Section 3.3.3 Data Validation, page 10: Review of the laboratory data packages against the data validation reports and the data submitted to the PHIDB identified the following deviations that need to be addressed:

a. The data submitted by Anchor QEA to the PHIDB does not include the field original lab result populated with the original laboratory results. Resubmit the first phase PDI data to the PDIDB to include the original laboratory results.

b. The data submitted by Anchor QEA to the PHIDB includes sample data group (SDG) numbers that are being shown in scientific notation. Resubmit the first phase PDI data to the PHIDB with the correct SDG numbers.

c. From the data validation report for SDG L2161038 in Combined DSR-PDIWP Appendix F, Benzo(b)fluoranthene and Indeno(1,2,3-cd)pyrene should have a "J" qualifier for sample USMPDI-056SC-A-05-06-2101107, based on initial calibration criteria. The "J" qualifier is missing from the PHIDB data submittal. Resubmit the first phase PDI data to the PHIDB with this "J" qualifier.

d. From the data validation report for SDG L2161038 in Combined DSR-PDIWP Appendix F, retene should have a "J" qualifier for samples USMPDI-014SC-A-14-15-201109, USMPDI-040SC-A-09-10-201103, USMPDI-044SC-A-16-17-201104, USMPDI-004SC-A-06-07-201111, and USMPDI-004SC-A-05-06-201111 based on continuing calibration criteria. The "J" qualifier is missing from the PHIDB data submittal. Resubmit the first phase PDI data to the PHIDB with this "J" qualifier.

NW Natural Response (November 30, 2022)

a. This comment was addressed in a resubmittal of the data to the PHIDB dated August 25, 2022. See submittal titled, US Moorings Project Area Pre-Remedial Design Investigation (PDI) Data Gaps 2020-2021, including additional Triggered Samples to Determine DOC, version 3. The text was not revised to address this comment.

b. See response to part a.

c. See response to part a.

d. See response to part a.

EPA Response (February 22, 2023)

a. The original lab result field in the US Moorings Portland Harbor Interim Database (PHIDB) resubmittal dated August 25, 2022 contains a numeric value for 55 out of 65,526 line items with the remaining being "null." Clarify whether these 55 result values are for samples where the original lab result differs from the final result, and that for the remaining line items in the database, the final result value is the same as the original lab result value.

b. The US Moorings PHIDB resubmittal dated August 25, 2022 still contains SDG numbers in scientific notation (e.g., 2.10E+07, 2.10E+18, 2.10E+82). Resubmit the data to the PHIDB to correct these SDG numbers, or discuss with the PHIDB coordinator if this issue is not present in the electronic data deliverables being submitted to the PHIDB.

c. Response is acceptable.

d. Response is acceptable.

NW Natural Response (May 10, 2023)

a. These 55 result values are for samples where the original laboratory result differs from the final result. For the remaining line items in the database, the final result value is the same as the original laboratory result value.

b. The previous submittal did not present the SDG number in scientific notation, and an email was sent to the PHIDB Database Manager on April 6, 2023. The following response was received from the PHIDB Database Manager: "The PHIDB SDG codes are consistent with the USM data transmittal dated 8/25/2022. However, when the US Moorings PHIDB data is exported as a *.csv file and opened in Excel, the 9 SDG codes below display as scientific notation. The exported *.csv file can be imported into Excel to avoid this issue. We also confirmed with CDM that the SDG codes are correct in the EPA Scribe database. This is not an issue with PHIDB or Scribe. It

appears that the issue is with Excel or other spreadsheet software that was used to review the USM data."

EPA Specific Comment 9 (July 21, 2022)

Section 4.1 Surface Sediment SMA Refinement, Data Density, and Temporal Relevance Within the Project Area, page 15: The text states that 54 sediment samples were collected whereas the results described in Section 4.1.1 discuss up to 101 detected results. It appears that the reason for this discrepancy is that Section 4.1.1 discusses the results presented in Tables 4-1a and 4-1b, which include surface sediment grabs and top 1-foot intervals of sediment cores. Revise the text to clarify the reason for this discrepancy in total number of surface sediment samples. The text should also explain how the two datasets (grabs and cores) will be used in remedial design (i.e., describe whether one dataset will supersede the other, results will be averaged, or other).

NW Natural Response (November 30, 2022)

EPA is correct that the discrepancy is due to the collection of surface sediment grabs and the 0- to 1-foot interval of sediment cores. The text has been revised according to the comment.

EPA Response (February 22, 2023)

The second paragraph indicates that where surface sediment grabs and sediment cores are within 10 feet of each other, the results will be averaged. EPA does not think it is appropriate to average data collected by two different methods. In these cases, NW Natural should select the higher of the two results. Modify the text accordingly.

NW Natural Response (May 10, 2023)

The text has been revised to state that all surface sediment samples are used, regardless of whether it is a surface grab or a 0- to 1-foot core interval. However, please note that in the Natural Neighbors algorithm, the interpolated surface can only have one value per grid cell. If there are multiple surface sediment samples within a given grid cell, the value of the cell will be the area weighted average of the portion of each sample's Thiessen polygon within the cell. This is consistent with EPA's process used to delineate SMAs in the ROD.

EPA Specific Comment 11 (July 21, 2022)

Section 5 Second Phase Pre-Design Investigation Work Plan, pages 27 through 37: EPA has the following comments on this section and text should be revised accordingly:

a. Revise the text to clarify that the SMAs shown on Figures 5-1 through 5-5 are preliminary and to be used for informational purposes only. Note that future EPA approval of the Combined DSR-PDI WP should not be considered an approval of the preliminary SMA refinement.

b. Revise the text to include detailed reporting and scheduling information for the second phase PDI.

NW Natural Response (November 30, 2022)

a. The footnote discussing development of the SMAs shown on Figures 5-1 through 5-5 has been revised accordingly.

b. Section 6 ("Schedule and Reporting") has been added and contains the requested information.

EPA Response (February 22, 2023)

a. Response is acceptable.

b. As requested in EPA's review of General Comment 1, the SMA uncertainty analysis should be provided in the second phase PDI DSR. Without this information data gaps cannot be fully evaluated.

NW Natural Response (May 10, 2023)

b. The SMA uncertainty analysis will be provided in the second phase PDI DSR. No revisions to the text have been made.

EPA Specific Comment 19 (July 21, 2022)

Section 5.3 Remedial Technology Refinement Objective, page 33: EPA has the following comments on this section and text should be revised accordingly:

a. The first phase subsurface cores did not identify the DOC at 26 (out of 56) locations. EPA recommends that the second phase PDI include additional DOC sampling for contaminant inventory purposes.

b. Clarify whether porewater sampling is anticipated at a future stage or if NW Natural expects to use literature partitioning data for cap design for the US Moorings Project Area. Section 4.3 of the US Moorings Sufficiency Assessment Report (Anchor QEA 2021) documents that arsenic, cadmium, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), chlordanes, and total petroleum hydrocarbons (TPH) in nearshore groundwater exceed the CULs, and other chemicals had elevated detection limits so could not be compared to CULs.

c. The text states that at 26 locations, the sample depth was insufficient to define DOC. Provide the depths reached, core recovery percentages, and RAL and PTW threshold exceedances in a table.

NW Natural Response (November 30, 2022)

a. An evaluation to determine the extent to which contaminant inventory sampling is needed will be completed following the determination of remedial technologies

throughout the Project Area. NW Natural proposes that, at a maximum, additional deeper coring would be performed at 10 percent of all unbounded locations. This is consistent with what has been discussed with EPA through the Gasco Sediments Site Project Area remedial design process.

b. The need for porewater sampling at a future stage will be evaluated following receipt of the second phase PDI data and determination of SMAs and remedial technologies within the Project Area.

c. Table 5-1 has been created to provide the requested information.

EPA Response (February 22, 2023)

a. EPA agrees that the need for delineating depth of contamination (DOC) at the 26 vertically undelineated cores can be assessed after remedial technology selection is completed in the BODR. The proposal for deeper coring at 10 percent of these locations is not accepted and should be re-evaluated after technology selection is complete.

b. Response is acceptable.

c. Response is acceptable.

NW Natural Response (May 10, 2023)

a. NW Natural agrees that the approach for deeper coring will be reevaluated after technology selection is complete. No revisions to the text have been made.

EPA Specific Comment 21 (July 21, 2022)

Section 5.3.1.1 Dredge Material Haul Barge Dewatering Testing, page 35: EPA has the following comments on this section and the text should be revised accordingly:

a. Dredge elutriate should be analyzed for all ROD Table 17 COCs with surface water CULs. There are available screening values for the currently omitted COCs. For example, Oregon Administrative Rule 340-041-8033 Tables 30 and 31 have water quality criteria for 2,3,7,8-TCDD and tributyltin. Revise the Second Phase PDI WP as needed to include analysis of all ROD Table 17 COCs with surface water CULs.

b. For consistency with other project areas, include a comparison to chronic criteria for informational purposes. While acute criteria are the appropriate screening criteria for water quality impacts from remedial action activities as they are short-term, limited releases, chronic criteria should also be included for comparison purposes.

NW Natural Response (November 30, 2022)

a. The text has been revised to reflect that all ROD Table 17 COCs with surface water CULs and available screening values will be analyzed.

b. The text has been revised accordingly. A comparison to chronic criteria will be included where applicable for informational purposes only. These comparisons will not be used for remedial design or remedial implementation decision making.

EPA Response (February 22, 2023)

a. Analyses of the dredge dewatering elutriate samples should include all Table 17 COCs with surface water CULs, not just the ones with available screening criteria. EPA's forthcoming Water Quality Monitoring Plan (WQMP) template will provide applicable screening criteria which may supersede the criteria listed in Section 5.3.1.1.

b. Delete "or remedial implementation" from the following sentence that was added to Section 5.3.1.1 as it is anticipated that EPA's WQMP template will require assessment against chronic criteria: "Therefore, NW Natural will compare results to chronic criteria for informational purposes only (these data will not be used for decision-making during remedial design~~ or remedial implementation~~)."

NW Natural Response (May 10, 2023)

a. NW Natural reviewed the draft WQMP template from EPA dated March 3, 2023, and identified that five COCs (DDD, DDE, DDT, hexachlorobenzene, and cPAHs [BaP equivalent]) have a ROD Table 17 surface water CUL but do not have acute or chronic water quality criteria listed in Table 2 of the draft WQMP template. NW Natural requests clarification from EPA on how the data collected for these five COCs will be used to support remedial design evaluations given no screening levels were provided by EPA.

   As indicated in the draft WQMP template, NW Natural understands that chronic criteria would be used for screening based on a 4-day average of COC concentrations during implementation.

b. The text in Section 5.3.1.1 has been revised accordingly.

EPA Additional Response (May 22, 2023)

Revise the Final Combined DSR-PDIWP Section 5.3.1.1 text (and any other relevant locations in the document) to include analysis of all Record of Decision Table 17 contaminants of concern (COCs) with surface water cleanup levels for the dredge elutriate samples. Appendix H Table H-5 currently does not include MCPP; 2,3,7,8-TCDD TEQ; and tributyltin. EPA is revising the draft Water Quality Monitoring Plan (WQMP) template based on input from the remedial design performing parties and the Technical Coordination Team. Water quality criteria for the COCs identified by NW Natural will be included in the revised WQMP Table 2, as needed.

NW Natural Additional Response (June 7, 2023)

The text in Section 5.3.1.1 and Appendix G has been revised accordingly. Appendix G Tables G4-1 and G5-1 and Appendix H Tables H-5 through H-8 were similarly revised.

EPA Specific Comment 22 (July 21, 2022)

Section 5.3.1.2 Dredged Material Stabilization Testing, page 36: Revise the text to clarify whether site water will be added to bulk sediment prior to stabilization testing to simulate post-dredging water contents (i.e., after bulking of sediment with overlying surface water). Include a reference for the proposed testing procedures.

NW Natural Response (November 30, 2022)

The text has been revised to clarify that the dredged material stabilization testing will be performed consistent with the EPA-approved Gasco Sediments Site *Revised Pre-Remedial Design Data Gaps Work Plan* (Anchor QEA 2019).

EPA Response (February 22, 2023)

EPA suggests that NW Natural coordinate with potential landfills to confirm that the Gasco dredged material stabilization testing process is also acceptable for them.

NW Natural Response (May 10, 2023)

NW Natural will coordinate with potential landfills, if necessary.

EPA Specific Comment 23 (July 21, 2022)

Section 5.3.1.3 Dredge Material Disposal Suitability Testing, page 36: EPA has the following comments on this section and the text should be revised accordingly:

a. Portland Harbor Feasibility Study Figure 3.4-36 identifies areas just upstream of the US Moorings Project Area that have F002 waste (EPA 2016). To prevent potential delays during remedial action, a subset of the dredge material disposal suitability testing samples should be analyzed for F002 characteristic waste. Revise the Second Phase PDI WP to include those analyses.

b. This text references "numerous sediment investigations at various depths throughout the project area with air quality monitoring." Provide citations for these studies.

NW Natural Response (November 30, 2022)

a. NW Natural collected extensive data throughout the Project Area for volatile organic compounds, which contains the F002 waste constituents, as part of the capping demonstration subsurface sediment sampling program for the first phase PDI. The data were compared to Oregon Department of Environmental Quality risk-based concentrations for the five F002 waste constituents (TCE; cis-DCE; trans-DCE; 1,1-DCE;

and vinyl chloride) included in the *Statement of Work – Gasco Sediments Site* (EPA 2009), and no exceedances were identified. No other available information indicates that F002 waste constituents would be present in the Project Area. For example, extensive testing within the immediately upstream Gasco Sediments Project Area has found no F002 constituent exceedances downstream of the Gasco/Siltronic property line. Therefore, NW Natural understands that F002 wastes are not present at US Moorings and do not require further evaluation. F002 characteristic waste analytes have not been added to the Revised Combined DSR-PDIWP.

b. The text has been revised to include citations for these studies.

EPA Response (February 22, 2023)

a. Revise the text of the Revised Combined DSR-PDIWP PDI Evaluation Report to include a summary of NW Natural's November 30, 2022 response.

b. Response is acceptable.

NW Natural Response (May 10, 2023)

a. The text in Section 5.3.1.3 has been revised to include a summary of NW Natural's November 30, 2022 response.

EPA Specific Comment 25 (July 21, 2022)

Table 4-1b Statistical Summary: Surface Sediment Site-Wide RAL and PTW-Highly Toxic Threshold: Explain in the First Phase PDI DSR why one sample summarized in Table 4-1b was analyzed for polychlorinated biphenyl (PCB) Aroclors and the rest were analyzed for PCB congeners.

NW Natural Response (November 30, 2022)

This particular sample was mistakenly submitted for PCB Aroclors analyses. NW Natural intended to sample all surface sediment locations for PCB congeners (as was done for all other surface samples during the first phase PDI). Consistent with EPA's RDGC (EPA 2021), these PCB Aroclors data are usable because they achieve data quality objectives, and the reporting limit is less than 9 micrograms per kilogram.

EPA Response (February 22, 2023)

Revise the text of the Revised Combined DSR-PDIWP PDI Evaluation Report (or alternatively, provide a footnote) to include a summary of NW Natural's November 30, 2022 response.

NW Natural Response (May 10, 2023)

The text in Section 4.1.1 has been revised to reflect a summary of NW Natural's November 30, 2022 response.

EPA Comments on Appendix G (FSP) of the Combined DSR-PDIWP

EPA Appendix G Specific Comment 4 (July 21, 2022)

Section 3.3.3 Subsurface Sediment Core Logging and Processing Procedures, last bullet, page 13: Revise the bullet to clarify that analysis will also be performed at the depth intervals associated with the capping evaluation.

NW Natural Response (November 30, 2022)

No capping evaluation analyses are proposed during the second phase PDI. NW Natural assumes this comment was received in error, but if not, please provide clarification.

EPA Response (February 22, 2023)

EPA's comment was in reference to text in Appendix G, Section 5.2 which states that: "Two different chemical and physical testing programs will be addressed through the collection of subsurface sediment cores (DOC identification and capping evaluations)." Revise the text as appropriate to resolve this inconsistency in subsurface sediment sampling objectives.

NW Natural Response (May 10, 2023)

The text in Section 5.2 has been revised accordingly.

EPA References

Anchor QEA. 2020. *Final Pre-Design Investigation Work Plan*. US Moorings Project Area. August 4, 2020.

Anchor QEA. 2021. *Final Sufficiency Assessment*. US Moorings Project Area. January 2021.

EPA. 2016. *Portland Harbor RI/FS Feasibility Study*. June 2016.

EPA. 2021. *Program Data Management Plan, Portland Harbor Remedial Design Investigation – Portland Harbor Superfund Site*.

NW Natural References

Anchor QEA, 2019. *Revised Pre-Remedial Design Data Gaps Work Plan*. Gasco Sediments Cleanup Action. Prepared for U.S. Environmental Protection Agency, Region 10. Prepared on behalf of NW Natural. September 2019.

EPA (U.S. Environmental Protection Agency), 2009. *Statement of Work – Gasco Sediments Site*. U.S. Environmental Protection Agency Region 10. September 9, 2009.

EPA, 2020. *Remedial Design Statement of Work, Portland Harbor Superfund Site, US Moorings Project Area*. Portland, Multnomah County, State of Oregon, EPA Region 10. February 2020.

EPA, 2021. *Remedial Design Guidelines and Considerations*. Portland Harbor Superfund Site, Portland, Oregon. April 23, 2021.