UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3188

SUPERFUND &
EMERGENCY
MANAGEMENT DIVISION

June 17, 2020

Mr. Bob Wyatt *sent via email only*
NW Natural
220 NW 2nd Avenue
Portland OR 97209

Re: Pre-Design Investigation Work Plan, Navigation Channel Project Area

Dear Mr. Wyatt:

The United States Environmental Protection Agency (EPA) reviewed the Pre-Design Investigation Work Plan (Draft PDI WP), prepared by Anchor QEA, LLC on behalf of the NW Natural and dated May 15, 2020. EPA's comments are attached to this letter. Comments were also received from EPA's partners (Oregon Department of Environmental Quality, the Five Tribes[1] and the Yakama Nation) and were incorporated into the EPA comments. Consistent with Section 6 of the Navigation Channel Project Area Redial Design Statement of Work, the Final PDI WP is due 45 days from the date of this letter.

Please let me know if you have any questions or concerns at (503) 326-5020 or via email at young.hunter@epa.gov.

Sincerely,

Hunter Young

Hunter Young, RPM

cc:
Lance Peterson, CDM Smith via email only
Katie Daugherty, ODEQ

[1] The Five Tribes are the Confederated Tribes of the Grand Ronde Community of Oregon, the Nez Perce Tribe, the Confederated Tribes of Siletz Indians of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

EPA Comments on Pre-Design Investigation Work Plan, Navigation Channel Project Area Dated May 15, 2020

Comments dated June 17, 2020

The following are the United States Environmental Protection Agency's (EPA's) comments on the Pre-Design Investigation Work Plan (PDI WP) for the Navigation Channel Project Area, prepared by Anchor QEA, LLC on behalf of the NW Natural (NWN) and dated May 15, 2020.

General Comments on PDI WP:

1. **Newfields Data:** NWN notes that they prefer not to use the 2014-2015 Newfields data for sediment management area (SMA) refinement and remedial design (RD), for reasons including lack of EPA involvement in planning and oversight and the underlying objective of the Newfields investigation (PAH source assessment and not baseline or design-related investigation), and the data are excluded from the PDI WP. However, 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. NWN may not entirely agree with the source assessment data quality objectives (DQOs) but use of the data should be considered for making decisions in this project area. EPA expects NWN to at least review the data in relation to remedial action levels (RALs) and principal threat waste (PTW) thresholds to determine if there are any impacts to sediment management area (SMA) delineation.

2. **Data Replacement:** The PDI WP proposes collecting co-located surface grab samples with 5 historical samples to address temporal relevancy. A data replacement approach for surface sediment data should be provided for EPA approval as soon as possible. Note that the age of the data is not the only consideration for data replacement and the presence of outliers, heterogeneity of the substrate, natural recovery occurrence, deposition, erosion/scour potential, and sampling density/resolution also need to be considered consistent with the data replacement discussion (RD Principle #3) in Section 1.4 of EPA's *Remedial Design Guidelines and Considerations* (RDGC). The objective of the PDI is primarily to improve spatial resolution of contaminant deposits. Any data replacement should enhance this effort to accurately resolve the spatial bounds of the distribution. Older remedial investigation/feasibility study (RI/FS) data should only be replaced when concentrations have changed substantively over time, subject to the considerations noted above and described in EPA's RDGC, and when spatial resolution is at least maintained or improved. EPA's proposed data replacement approach for the Terminal 4 area is attached as a reference.

3. **Subsurface Sampling:** The limited scope of the proposed subsurface sampling is not adequate to address the data gaps in the existing subsurface data as shown in Figures 3-5 and 3-6. Only five subsurface samples are located within the SMAs provided in the Record of Decision (ROD) and all five are within the same ROD SMA. Since SMA refinement is an objective of the PDI WP and SMA refinement needs to consider both surface and subsurface exceedances of remedial action levels (RALs) and principal threat waste (PTW) thresholds (see RD Principle #1 in RDGC Section 1.4), EPA recommends expanding the scope of the subsurface sampling during the first phase of the PDI. EPA understands that NWN will be addressing depth of contamination data gaps in a subsequent phase of sampling; however, subsurface data also needs to be sufficient to address the SMA refinement objective of the PDI.

4. **Hydrocarbon Study:** The Quality Assurance Project Plan (QAPP) includes tables for a hydrocarbon study. Details of this study should be provided in the preceding sections of the PDI WP.

Specific Comments on PDI WP:

1. **Section 1.2 Purpose, page 3:** Specify the RD data need that the benthic toxicity and near-bottom surface water samples are intended to address. Additionally, text in this section states that: "The data gaps that have been identified in the Sufficiency Assessment are incorporated into the proposed first phase data gaps discussed in this PDI WP." Note that, without having reviewed the sufficiency assessment, EPA cannot verify the accuracy of this approach. EPA reserves the right to provide additional comments based on the review of the sufficiency assessment.

2. **Section 1.2.2 CSM Refinement Objective, page 4:** For completeness, the section should identify the data needs for refining the CSM and describe how the proposed benthic toxicity and near bottom water sampling will address these needs.

3. **Section 1.2.3. Data Gaps Analyses Scoped in the SOW, Flood-rise analysis bullet, page 5:** While additional data may not be needed to conduct the flood rise analysis, it should be noted that a flood rise analysis will still be required consistent with the ROD to demonstrate that there are no flood rise impacts due to the remedy.

4. **Section 2.3 Cleanup Levels, page 8:** The ROD Table 17 cleanup levels are identified as the long-term contaminant targets to be achieved by the remedy to meet RAOs. EPA's May 29, 2019 e-mail informs NW Natural that Section 8.2.5 of the ROD requires post-construction verification that additional contaminants of concern (COCs) listed in Table 16 (i.e., "ROD-identified COCs posing potentially unacceptable risk") are addressed by the remedy. The PDI WP should note that Section 8.2.5 of the ROD states that contaminants posing potentially unacceptable risk (ROD Table 16) will be compared with post-remedial action conditions to confirm that the remedy is protective of risks of lower ecological significance and this should be taken into consideration.

5. **Section 2.4 Technical Evaluations, page 8:** The section indicates that EPA-approved methodologies identified in the Pre-Remedial Basis of Design Technical Evaluations Work Plan (TEWP) that are applicable to the navigation channel and project area-specific conditions will be used for the project area technical evaluations and remedial technology assignment. The PDI WP should identify, specifically, which TEWP methodologies developed for the Gasco project area are applicable to the navigation channel.

6. **Section 3.1.2 Principle Threat Waste, PTW-NAPL bullet, page 10:** The section indicates that the ROD did not identify PTW-NAPL in the project area. The Navigation Channel project area Statement of Work (SOW) identifies PTW-NAPL using the criteria developed and applied to the Gasco Sediments Site project area. The PDI WP should indicate whether ROD core logs have been reviewed using project area criteria, and whether evidence of PTW-NAPL was identified.

7. **Section 3.1.2 Principle Threat Waste, PTW-Highly Toxic bullet, page 10:** The text describes cPAHs and PCBs in the project area with relation to PTW thresholds. Revise this section to include text confirming that PTW thresholds were not exceeded in the project area for any of the other ROD Table 21 contaminants, as shown in tables 3-1 and 3-2 of the PDI WP.

8. **Section 3.2 Post-ROD SMA Refinement, page 12:** The text indicates that NW Natural did not identify PTW-NAPL based on reviewing Pre-RD Group core logs using the project area PTW-NAPL identification criteria. Clarify whether the Pre-RD Group identified evidence of PTW-NAPL in core logs.

9. **Section 3.2 Post-ROD SMA Refinement, page 13:** The PDI WP recommends eliminating two SMAs originally identified at GRAB05 and WR-BC-22 due to declining concentrations at or near these locations with time. Although the project area SMAs are not shown, the section also describes bathymetric changes in the vicinity of the two SMAs, concluding both locations "…experience periods of inconsistent erosion and accretion over time." Before these two SMAs are eliminated from further consideration, NW Natural should assess the potential for sediment erosion and/or accretion to result in the re-deposition and/or burial of the original high concentration material. Adding the SMAs to bathymetric figures and analyzing erosion/deposition on an SMA-specific basis is needed to support this assessment and the information discussed in the section. Additionally, the last sentence of the section states that: "This refinement will include targeted data replacement in some areas due to data recency." A data replacement approach for surface sediment data should be provided for EPA approval as soon as possible. See the general comment on data replacement above.

10. **Section 3.4 Review of Existing Data, page 13:** The first sentence states that: "The nature and extent of contamination for the focused COCs at the project area, based on the existing sediment data (Section 3.2), is summarized in the following subsections." However, the discussion in the following sections appropriately includes discussion of additional contaminants from Table 21 of the ROD. Revise this sentence to avoid confusion with the ROD's definition of focused COCs. EPA recommends using the term "Table 21 COCs" to be inclusive of both the focused COCs and the additional contaminants listed on Table 21.

11. **Section 4.1.2 Navigational Requirements, page 19:** Include overdredge depth in the discussion of maintenance dredging. The text states that: "To allow for this potential future deeper authorized maintenance dredging, -39.9 feet COP (-43 feet CRD) is the threshold navigation dredging elevation used to evaluate the viability of capping in the navigation channel." This does not include the 2-foot overdredge depth. As stated in EPA's RDGC, all designs are to use -45 feet Columbia River Datum (CRD) as the authorized channel depth which includes the overdredge allowance.

12. **Section 4.2.4 Geology and Hydrogeology, page 21:** The section provides an excerpt from the ROD that summarizes the generalized hydrogeologic setting in the Portland Harbor Superfund Site. The section should provide some project area-specific information. At a minimum, revise the text in this section to clarify if there are any known areas of groundwater discharge within the project area. As shown in ROD Figure 6, part of the project area may be impacted by a groundwater plume identified based on Portland Harbor RI data.

13. **Section 4.2.6.2 Surface Sediment Composition, page 24:** Provide citations for the information being discussed which is presumably multiple datasets collected over the years. All other discussions in Section 4.2.6 provide a citation for the information being presented but this subsection does not include any citations.

14. **Section 4.2.6.3 Erosion Potential, page 24:** Revise the discussion to also focus on shear stresses present (or likely to be present) within the project area. This section summarizes the shear stress analysis from the Portland Harbor Feasibility Study (FS) for the entire site and does not focus on shear stresses in the Navigation Channel project area. This section should briefly describe the relevant conclusions from Figure 3.4-18C of the FS as it relates to the Navigation Channel project area, specifically that the project area is mostly red/orange, i.e. subject to erosion.

15. **Section 4.2.6.5 Seismic Events, page 25:** The text states that: "If remediation caps are placed on these flat areas, some cap thinning or lateral cap movement may occur during an earthquake; however, deformed or damaged caps would be identified during scheduled long-term cap monitoring events and repaired. If remediation caps are placed on steeper side slopes (found only in very limited areas along the navigation channel boundary), further RD evaluations would be required to determine whether additional slope stabilization measures (e.g., armoring or toe buttress) would be needed to reduce the risk of slope failure during an earthquake." Revise the text to clearly indicate that all caps will need to be designed for the contingency level earthquake, regardless of the slope of the riverbed in the capping area. These two sentences seem to imply that only sloped areas will be evaluated for seismic design requirements detailed in the RDGC.

16. **Section 4.2.6.6 Wind- and Vessel-Generated Waves, page 25:** The text indicates that further evaluation of wave induced erosion is not anticipated. However, an erosion analysis will still need to be conducted during RD to demonstrate that there are no impacts to the remedy due to wave erosion. Revise the text to indicate this.

17. **Section 4.2.6.7 Vessel Propeller Wash, page 25:** Revise this section to briefly discuss FS Figure 3.4-24 as it relates to the Navigation Channel project area. The figure indicates that approximately half of the project area is subject to propeller wash.

18. **Section 4.3 Risk Exposure Pathways, pages 26-27:** The section describes RAOs and indicates that RAO 2 (human health fish/shellfish consumption) and RAO 5 (ecological benthic direct contact) will be evaluated during design. The PDI WP should describe how the RAO evaluation relates to design (e.g., sediment management area refinement, technology selection).

19. **Section 4.4 Data Gaps for Conceptual Site Model Refinement, page 27:** The PDI WP states that: "At this time, data gaps to refine the project area CSM cannot be fully evaluated." The PDI WP should:
    a. identify the specific gaps in the project area CSM that the PDI WP will address, and
    b. explain how the proposed activities will address any such gaps. Doing so would help the report better achieve its stated second objective.

20. **Section 5 First Phase Pre-Design Investigation Sampling and Analysis, pages 29-31:** According to this section and Section 3 of Appendix B (Field Sampling Plan), the procedures being utilized for surface and subsurface sample collection, processing, and handling are taken from Appendix A of the Gasco Sediments Site Pre-RD Data Gaps Sampling Work Plan (Pre-RD DGWP). The PDI WP procedures should also reflect any modifications made during implementation of the Pre-RD DGWP in response to conditions in the field to meet project

needs as documented in project field change requests, as applicable to the Navigation Channel project area.

21. **Section 5.1 Surface Sediment Investigation, pages 29-30:** Three lines of evidence (LOE) are being used to identify proposed locations of surface sediment samples. The third LOE considers temporal relevance and the results of analyzing surface sediment samples within the project area at different times. This LOE should consider the potential for erosion and/or burial of contaminated surface sediment to alter concentrations, particularly at locations where large concentration changes occurred in relatively short periods of time.

22. **Section 5.2 Subsurface Sediment Investigation, page 31:** Include a figure and/or table showing historical core recoveries for the project area to support the proposed core acceptability criterion of 70%. Based on existing data that shows vertically unbounded TPAH RAL exceedances, the approach to colleting subsurface samples is to initiate 1-foot interval sampling at depths below mudline of either 3-feet (NCPDI-019) or 6-feet (NCPDI-015). The approach does not mention bathymetry and the potential for erosion or deposition to alter the depths of exceedances identified using previous data. To account for the uncertainty in the depth of previous exceedances, EPA recommends collecting 1-foot samples over the entire length of the core, including the intervals above 3-feet and 6-feet for NCPDI-019 and NCPDI-015 respectively. This applies to any subsurface samples collected in the project area.

23. **Section 6 Reporting, page 34**: The text in this section states that the draft *Pre-Design Investigation Evaluation Report* will be provided to EPA within 90 days of receipt of final validated data. Other performing parties at Portland Harbor have 45 days after receipt of validated data to provide the draft PDI evaluation report so EPA recommends that the PDI evaluation report be provided to EPA within 60 days of receipt of final validated data.

24. **Figures 4-1a through 4-1c:** As indicated in the comment to Section 3.2, the boundaries of SMAs in the project area should be added to the figures for reference. The scales should be adjusted sufficiently to allow evaluation of bathymetric changes at SMAs to support sampling decisions.

Editorial Comments on PDI WP:

1. **Section 3.5 Data Gaps Identified for SMA Refinement within the Project Area, page 17:** The text states, "empirical data highlights that data recency can be an important factor in determining the current surface sediment concentrations and needs to be incorporated into the data gaps sampling objectives for this PDI WP." It would be helpful to refer to the subsequent sections discussing data recency concerns and proposed sampling.

2. **Section 4.3 Risk Exposure Pathways, page 27:** The second list of bullets in this section appears to have typographical errors (missing the word "contact" in the first and third bullets and the final bullet should refer to ecological protection rather than human health protection).

3. **Section 4.4.1 Benthic Toxicity, page 28:**
    a. Revise the section reference in the 1st paragraph. The text incorrectly references Section 6.3.

b. Revise the section reference in the 2nd paragraph. The text incorrectly references Section 6.1.

4. **Section 5 First Phase Pre-Design Investigation Sampling and Analysis, page 29:** The last sentence refers to data gaps previously identified in Section 5.3. Confirm if this is the accurate section reference.

5. **Section 5.3 Proposed Bioassay Sample Locations and Reference Surface Sediment Samples, page 32:** The text references, "ROD Table 17 RALs or PTW-highly toxic thresholds," but appears to mean ROD Table 21. Revise as appropriate.

6. **Section 5.3 Proposed Bioassay Sample Locations and Reference Surface Sediment Samples, 3rd bullet, page 33:** The texts states, "between 90 and 90 percent." Revise as appropriate.

7. It would be helpful to include a figure (or refer to an existing one, if available elsewhere) that shows contaminant concentrations. Figure 3-3 shows whether a sample exceeds the RAL but does not show the magnitude of exceedance, or whether the sample is between the cleanup level and RAL.

EPA Comments on Appendix B (FSP) of the Pre-Design Investigation Work Plan, Navigation Channel Project Area, Dated May 15, 2020

Following are EPA's comments on the Anchor QEA Field Sampling Plan (FSP), Appendix B of the PDI WP for the Navigation Channel Project Area, prepared by Anchor QEA, LLC on behalf of NWN and dated May 15, 2020.

General Comments on FSP:

1. **Table 21 Contaminants:** The FSP text indicates that ROD Table 21 focused COCs will be analyzed; however, the QAPP lists the Table 21 additional contaminants (excluding chlorobenzene). To avoid confusion, replace the term focused COCs with Table 21 contaminants. Revise all applicable sections of the FSP and PDI WP accordingly.

Specific Comments on FSP:

1. **Section 2 Project Management and Responsibilities, page 2:** Revise this text to indicate that the Project Manager will be responsible for coordinating EPA approval of deviations via field change request forms. Any deviations from the PDI WP need to be provided for EPA for approval immediately.

2. **Section 3.2.1 Surface Sediment Sampling Plan, page 4:** Collecting co-located samples with older data points addresses data recency concerns; however, the additional considerations discussed in the general comment (general comment #2 on the PDI WP above) regarding data replacement should also be addressed and a detailed data replacement approach for the project area needs to be provided for EPA approval. After collection of these samples the data needs to be evaluated in the context of erosion, deposition, and mixing occurring at the sample locations to evaluate if the historically observed concentrations have been buried or removed from the area. See general comment #2 above on data replacement for details.

3. **Section 3.2.3 Surface Sediment Logging and Processing Procedures, page 7:** The FSP should be prescriptive and clear so that confusion does not arise in the field. The text states that "one archive jar may be collected". Revise the text to state that the archive samples will be collected or provide more explanation of how to determine whether or not to collect the archive samples. The text also says to "place a proportionate volume of sediment from each grab into a single clean stainless-steel bowl and homogenize". Clarify what is meant by proportionate. It may be difficult to judge in the field what the "proportionate" amount is unless clear instructions are given.

4. **Section 3.3.1 Subsurface Sediment Sampling Plan, page 7:** The text states that: "These locations were selected based on areas where existing subsurface data identified vertically unbounded ROD Table 21 RAL or PTW-highly toxic threshold exceedances…" The existing dataset for subsurface sediment in the project area is spatially limited and there is not enough subsurface data to reliably confirm that contamination in other areas is vertically bounded. EPA considers this a data gap in the subsurface sediment data for the project area, and additional subsurface cores may be needed at the other ROD SMAs. Also see the general comment (general comment #3 on the PDI WP above) regarding subsurface sampling.

5. **Section 3.5 Horizontal Positioning and Vertical Control, page 12:** Inclusion of sonar and/or an underwater camera on the vessel to locate structures that may impede sediment sampling should be considered.

6. **Section 4.1 Field Documentation, page 15:** EPA's ability to observe site conditions and oversee sampling may be limited by necessary health and safety precautions associated with the current COVID-19 pandemic. EPA requests that additional documentation be collected and provided to enable regulatory personnel to develop a near-first hand understanding of site conditions and field work.

7. **Section 5 Chemical, Physical, and Toxicity Testing, page 20:** The section includes reference to a geotechnical laboratory but this is the first mention of any geotechnical testing in the PDI WP. Geotechnical testing should be identified in previous sections of the PDI WP and should include objectives for the testing. Also, note that the last sentence of the section refers to riverbank soil samples which appears to be a typographical error because riverbank soil is not relevant to this PDI WP.

8. **Section 5.2 Subsurface Sediment Chemical and Physical Testing, page 21:** The text indicates that geotechnical parameters will be analyzed in a small percentage (not more than 20%) of the subsurface sediment samples. Consistent with the PDI WP general comment on subsurface sampling, if the number of subsurface samples increase, a corresponding increase applies to geotechnical sampling and analysis.

Editorial Comments on FSP:

1. **Section 3.7.1 Sample Identification, page 14:** Example 3 should be revised to say surface water, not sediment.

2. **Section 3.7.2 Field Quality Assurance/Quality Control Sample Identification, page 14:** The text stating in this section seems repetitive e.g. "sediment grab rinse blank (rinse blank)". Also, the example sample number includes the abbreviation FB which is not defined in the preceding bullets. Revise as appropriate.

EPA Comments on Appendix C (QAPP) of Pre-Remedial Design Investigation Work Plan, Navigation Channel Project Area, Dated May 15, 2020

Following are EPA's comments on the Anchor QEA Quality Assurance Project Plan (QAPP), Appendix C of the Pre-Remedial Design Work Plan dated May 15, 2020 prepared by Anchor QEA, LLC on behalf of NW Natural and dated May 15, 2020.

The QAPP was reviewed versus the requirements in EPA Requirements for Quality Assurance Project Plans: EPA QA/R-5, March 2001, Reissued May 2006; and Guidance for Quality Assurance Project Plans: EPA QA/G-5, December 2002.

General Comments on QAPP:

1. **Maintenance of Field and Laboratory Equipment:** Identify field and laboratory equipment needing periodic maintenance, and the schedule for this. This can be included in an attachment but should be discussed in the QAPP with a reference to the attachment.

2. **Sampling Process Design and Sampling Methods:** As part of the QAPP, identify the sampling design rationale and methods. Include details of sample types, sample depths (included for sediment samples only), and back up plans for inaccessible locations. If the information exists within the Work Plan or an attachment, a reference to appropriate sections would be acceptable for the required information.

3. **Data Quality Objectives:** The QAPP is missing a section summarizing the outcomes of the DQO process. With the project objectives, a list of the analytical methods required for each objective should be included in the QAPP to facilitate proper review and aid the field team in use of the QAPP.

4. **Standard Operating Procedures:** Identify and attach laboratory standard operating procedures (SOPs), equipment required, laboratory decontamination procedures, and waste disposal requirements (if any).

5. **Laboratory Data Package:** The QAPP is missing a section on the project's requirements for laboratory data package turnaround times required for each analytical group.

Specific Comments on QAPP:

1. **Section 2.1, Project Organization, page 2:** This section references the Project Organization Chart, Figure C-1 showing the relationships and the lines of communication among all project participants. The project quality assurance (QA) manager position should indicate independence from the unit generating data.

2. **Section 2.3, Project/Task Description and Schedule, page 4:**

    a. The text references Figures A-3 through A-6 of the FSP for sampling locations. Update the text to reference the correct B series Figures in the FSP.

    b. This section is missing the list of tasks and schedule for work implementation, including start and end dates. Where specific dates are uncertain, a timeline for

completion is acceptable. For example, data validation will start upon receipt of laboratory data packages and is expected to be completed in 30 days. Reference to specific sections within the PDI WP would be acceptable for the schedule information but a summary of the project tasks needs to be included in the QAPP.

3. **Section 3.4.5, Completeness, page 12:** This section should also include completeness based on the number of valid data generated versus the actual number of samples planned for collection.

4. **Section 3.4.7 Sensitivity, page 13:** The text in this section indicates that, based on past project experience, EDLs will be below MDLs and the ROD Table 17 cleanup levels for samples without significant matrix interferences. However, cleanup levels are not listed in Tables C-2a, C-2b, and C3. Further, it is not clear why Table C-2b only includes RAO 5 PRGs and not the cleanup levels, and why RAO 2 PRGs are not shown, given the PDI WP indicates RAO 2 is relevant to the project area. The tables should include cleanup levels and/or Section 3.4.7 should indicate why cleanup levels and RAO 2 PRGs are not included.

5. **Section 3.6, Instrument/Equipment Testing, Inspection, and Maintenance, page 18:** Include a list of field equipment and specific frequency and procedures to address the requirements for this section. Address the need for backup equipment should failure occur.

6. **Section 3.7, Instrument Calibration. page 19:** Include a list of field equipment and specific frequency and calibration procedures; reference can be made to the titles of the manufacturer's manuals. Instruments that need end of day checks should be noted.

7. **Section 3.9. Inspection /Acceptance Requirements for Supplies and Consumables, page 21:** Please include the following information in this section: supplier/vendor; procedures for identifying, tracking, storing, and retrieving these supplies; identification of those responsible for maintaining these supplies; and any acceptance criteria for these items, for example, certificates of cleanliness, testing, health, or taxonomic identification. The acceptance criteria should be included.

6. **Section 3.11, Data Management, page 21**: The QAPP is lacking the Data Management procedures described in Section B.10 of R-5 and Section 2.2.10 of the G-5 QAPP Guidance. This can be accomplished by attaching a Data Management Plan to the QAPP which describes the data handling scheme from field to final use and storage; equipment used, and overall process used to process, compile and analyze project data. Note that EPA is developing a site-wide data management plan that should be used when available.

7. **Table C-4 Select Hydrocarbon Study Sediment Analytes, Methods, and Targeted Reporting Limits:** Clarify the purpose of this table. Cleanup levels should be listed for the Select Hydrocarbon Study Sediment analyses if this table remains in the QAPP.

8. **Table C-5 Surface Water Analytes, Methods, and Targeted Reporting Limits.** The green highlighted compounds have action levels below the method detection limit (MDL)/reporting limits (RLs). Include some discussion/footnote on the impact of this on the usability of the data, if any. Describe what actions if any will be taken to meet the sensitivity requirements for these compounds; if no action will be taken describe why. Pentachlorophenol should also be highighted since its MDL of 0.1 micrograpms per liter (µg/L) is above the cleanup level of 0.03 µg/L.

9. **Tables C-2a through C-9**. The analytical group names do not all align across the tables. For example, tributyl tin is listed on Table C-5, Surface Water Analytes, Methods and Targeted Reporting Limits but Table C-9, Guidelines for Water Sample Handling and Storage, shows organotin, and Table C-7 shows the group as organometallics instead. Update the tables with consistent terminology.

EPA Comments on Appendix D (ERHASP) of the Pre-Design Investigation Work Plan, Navigation Channel Project Area, Dated May 15, 2020

Following are EPA's comments on the Emergency Response and Health and Safety Plan (ERHASP), Pre-Design Investigation Work Plan, prepared by Anchor QEA, LLC on behalf of NW Natural.

General Comments on Plan:

1. **Meets Minimum Requirements:** The ERHASP appears to meet the minimum requirements under OSHA's 29 CFR 1910 (specifically 1910.120) and 1926 standards, in addition to those for EPA Emergency Response.

Specific Comments on Plan:

1. **Personal Incident Response Procedures, Page xiii, Item No. 3:** Text should be added that the automated external defibrillator (AED) will be accessible at each work site, confirmation it will be in an unlocked location, and procedures on use will be available. Language that emergency equipment will be checked daily to ensure its readiness for use should also be included; for example, "The AED will be checked for a flashing hour glass/absence of the low battery alarm on a daily basis".

2. **Table 5-1, Project Job Task and Required PPE:** N95 masks are listed in each job task. If these masks are intended for COVID-19 protection it may be prudent to also give the option for cloth face masks/coverings as N95 supplies may be limited. If not, it may be helpful to list out any COVID-19 PPE in this table.

3. **Table 5-2, Project Air Monitoring Requirements, Page 13:**
   a. Under PID monitoring Actions, it is specified that an upgrade to Level C respiratory protection is needed if the action level of 1 ppm is exceeded. The type of respiratory protection and cartridges are not included. Table 5-1 does not specify other than the potential for N95. Will be helpful to align with Table 5-2 and specify type of mask and cartridge in each.
   b. Under dust monitoring Actions, specify what type of respiratory protection is required, and align with PPE table.
   Also, 1.0 mg/m3 is listed as the upgrade action level – per OSHA the silica/dust action level is 50 ug/m3 or 0.05 mg/m3. Please rectify all action levels in the Dust Monitor section if meant to reflect silica/dust protection and OSHA requirements.

4. **Section 8.6, Sanitizing of PPE, page 25:** Include a reference to COVID-19 guidelines or statement that respirators, gloves, and other PPE should not be shared if possible, or fully cleaned and then disinfected between users with EPA-registered cleaners for COVID-19.

5. **Section 10.1 Minimum Requirements – Level D Protection, page 30:** Chemical-resistant work boots are recommended to facilitate decontamination.

6. **Appendix B Job Safety Analysis Documents, All:** It would be helpful to include COVID-19 as a hazard, reference company COVID-19 policy, and state PPE that may be needed – face masks/coverings, gloves, etc.

7. **Field Program COVID-19 Management Plan:**

a. Symptom list on pg. 3 should be expanded to include the latest list from the US Centers for Disease Control and Prevention.
b. Employees should be encouraged to wear face coverings when at the site and performing field work, and required when close proximity can't be avoided, such as when conducting activities on the boat. This message should also be included in the boating Job Safety Analysis and appropriate parts of the ERHASP.

Attachment: Terminal 4 Data Replacement Evaluation – EPA Direction dated February 25, 2020

Terminal 4 Data Replacement Evaluation – EPA Direction dated February 25, 2020

The following is EPA's direction for the data replacement evaluation to be conducted by the Port at Terminal 4 in Portland, Oregon. In EPA's December 6, 2019 PDI Summary Report comment letter to the Port of Portland (Port), EPA requested that the data replacement should be conducted by looking at paired samples in close proximity of each other and stated that additional information will be provided on how to conduct such an evaluation. As discussed during the December 10, 2019 meeting between EPA, Oregon DEQ, and the Port, EPA intended to provide direction on how the data replacement evaluation should be conducted at Terminal 4. The following guidelines can be followed to fulfill EPA's requirements for a data replacement evaluation at Terminal 4.

The objective of the pre-remedial design program is primarily to improve spatial resolution of contaminant deposits. Any data replacement should enhance this effort to accurately resolve the spatial bounds of the distribution. Older remedial investigation/feasibility study (RI/FS) data should only be replaced when concentrations have changed substantively over time and when spatial resolution is at least maintained or improved. The approach to making data replacement decisions is as follows:

1) First, the area should be divided into strata based on geomorphic and anthropogenic site characteristics where a similarity exists (e.g., based on shallow, intermediate, or channel zone; FMD/non FMD; in/off main channel; depositional or non-depositional, etc.).
2) Second, for data replacement decisions, point by point matching is necessary. Thiessen polygons should be developed for the RI/FS data. Pair RI/FS samples with the nearest PDI sample within each Thiessen polygon and compare concentrations for ROD Table 21 focused COCs. Confirm if current concentrations in surface sediments, on a project area basis and within the same geomorphic and anthropogenic regions, are statistically significantly[1,2] , and scientifically meaningfully (i.e. balances the objectives of spatial resolution with temporal change) different from concentrations in samples from the RI/FS period.
    a) If so, replacement of selected older samples with newer samples may be considered by following the approach in # 3.
    b) If not, RI/FS data should be combined with newer data and treated as equally important.
3) Third, using the RI/FS based Thiessen polygons developed in #2 do the following:
    a) Identify those Thiessen polygons that contain no new samples and retain those RI/FS data.
    b) Identify other Thiessen polygons that do contain new samples and replace those RI/FS samples with the nearest new sample.

At the Port's option all surface RI/FS data can potentially be replaced with new design data collected at a sufficient density to accurately delineate deposits adequately to support planned design approaches by following the three steps in the above approach. It should be noted that:

a) Data density could be relatively low, if the Port plans to remediate extensive areas and there is little chance of missing target sediments. Such an approach would be likely to include

[1] Statistical significance can be demonstrated using paired non-parametric tests such as the Wilcoxon signed-rank test. Other statistical tests can also be used in consultation with EPA.
[2] If there is little or no uncertainty in individual values (i.e. no nugget effect) then points can be directly substituted without statistical testing. Specific statistical evaluations should be discussed with EPA and data replacement decisions will be made in consultation with EPA.

remediation of significant areas of non-target sediments to ensure that target sediments are not overlooked.

b) Data density would need to be much greater if the Port wishes to minimize sediment management area (SMA) footprints and volume remediated, while maintaining low probability of leaving target sediments in place after remediation. As stated in Sections 10.1.1.9 and 14.2.7 of the ROD, sampling will include a statistically valid collection of data.

Notes:

- Statistical comparisons used to determine temporal changes in sediment concentrations must pair RI/FS samples with the nearest PDI sample within each RI/FS based Thiessen polygon and compare those data, taking into account the effect of detection limits, with samples that cannot be rank ordered treated as tied observations. For more details see Helsel, 2004[3].
- The 150- by 150-foot sediment sampling grid discussed in EPA's *Remedial Design Guidelines and Considerations* is applicable for SMA delineation and is intended to augment RI/FS data to proceed towards the BODR with anticipation of higher resolution data to be collected for remedial design and data replacement purposes.
- Adequacy of the sampling design density is conditional on the anticipated remedial design. For example, a broad scale dredge and cap remedy would require little additional data. Conversely, a design for strategic remediation of deposits requires a higher spatial resolution to ensure accuracy of SMA delineation. Arguments which lead to the conclusion of no action or dramatically smaller SMAs than those identified in the ROD would require much higher data densities and additional investigations supporting a new site conceptual model.

[3] Helsel, D.R., 2004. Nondetects and Data Analysis: Statistics for Censored Environmental Data, 1st Edition. John Wiley & Sons, Inc. Hoboken, New Jersey.