Appendix A

Statement of Work

REMEDIAL DESIGN STATEMENT OF WORK

PORTLAND HARBOR SUPERFUND SITE

[Name] Project Area

Portland, Multnomah County, State of Oregon

EPA Region 10

[Month, Year]

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Attachments

1. INTRODUCTION

1.1 Purpose of the Statement of Work. The U.S. Environmental Protection Agency (EPA) signed a Record of Decision for the Portland Harbor Superfund Site (Site) on January 3, 2017 (ROD) that selected Remedial Actions (RA) for the in-river portion of the Site from approximately river miles (RMs) 1.9 to 11.8. The ROD provides information about how Site data will influence Remedial Design (RD), remedial construction, and future maintenance of remediated areas. The ROD states that the actual technologies assigned during RD will be dependent on a number of characteristics and environmental conditions to ensure that the final constructed remedy is appropriate for area-specific conditions, e.g., Sediment Management Areas (SMAs). The ROD also identifies post-ROD / RD sampling activities that will support and refine the Site's Conceptual Site Model (CSM) to implement RD and RA. Any reference to the ROD in this SOW, also includes any future ROD amendments or Explanations of Significance Differences EPA may issue.

This Statement of Work (SOW) sets forth the procedures and requirements for implementing the RD Work at the [Name] Project Area (hereinafter identified as the Project Area), as defined in the Administrative Settlement Agreement and Order on Consent as "the active cleanup area designated on Figure 31[insert alphabet] of the ROD between approximately River Mile [insert mile] and River Mile [insert mile] on the [west/east] side of the Willamette River, and more specifically depicted on the map attached as Appendix B to the Settlement. The Project Area includes all riverbanks from top of the bank to the river."

As specified in Part 1: Declaration for the ROD (EPA, 2017), contaminated river banks will be addressed using the same remedial technologies that will be used for the adjacent contaminated sediment, if it is determined that those river banks should be remediated in conjunction with the sediment action. River bank soils/sediment will be evaluated to determine if there are recontamination concerns and design considerations associated with the river bank areas. Further upland source control assessments, if needed, will be addressed as upland source issues by the Oregon Department of Environmental Quality (DEQ) and individual property owners or as necessary through EPA's authorities.

~~**Purpose of the Statement of Work**. The U.S. Environmental Protection Agency (EPA) signed a Record of Decision for the Portland Harbor Superfund Site (Site) on January 3, 2017 (ROD) that selected Remedial Actions (RA) for the in-river portion of the Site from approximately river miles (RMs) 1.9 to 11.8. The ROD provides information about how Site data will influence Remedial Design (RD), remedial construction, and future maintenance of remediated areas. The ROD states that the actual technologies assigned during RD will be dependent on a number of characteristics and environmental conditions to ensure that the final constructed remedy is appropriate for [Name] Project Area-specific conditions, e.g., Sediment Management Areas (SMAs). The ROD also identifies post-ROD / RD sampling activities that will support and refine the Site's Conceptual Site Model (CSM) to implement RD and RA.~~

~~1.2 This Statement of Work (SOW) sets forth the procedures and requirements for implementing the Pre-Design Investigation (PDI) and RD Work at the [Name] Project Area (hereinafter identified as the Project Area), as defined in the Administrative Settlement Agreement and Order on Consent for the Project Area.~~

~~1.2 For purposes of this SOW, the Project Area is depicted on the map attached as Appendix B to the Administrative Settlement Agreement and Order on Consent (Settlement) and includes the river bank area to the top of the bank. River bank soils/sediment will be evaluated to determine if there are recontamination concerns and design considerations associated with the river bank areas. Further upland source control assessments, if needed, will be addressed as upland source issues by the Oregon Department of Environmental Quality (DEQ) and individual property owners.~~

Structure of the SOW~~.~~

- Section 2 (Community Involvement) sets forth EPA's and Respondents' responsibilities for community involvement.
- Section 3 (Remedial Design) sets forth the process for developing the RD, which includes the submission of specified primary deliverables.
- Section 4 (Reporting) sets forth Respondents' reporting obligations.
- Section 5 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding Respondents' submission of, and EPA's review of, approval of, comment on, and/or modification of, the deliverables.
- Section 6 (Schedules) sets forth the schedule for submitting the primary deliverables, specifies the supporting deliverables that must accompany each primary deliverable, and sets forth the schedule of milestones regarding the completion of the RD.
- Section 7 (State and Tribal Participation) addresses State and Tribal participation.
- Section 8 (References) provides a list of references, including Uniform Resource Locations (URLs).

1.2 The terms used in this SOW that are defined in CERCLA, in regulations promulgated under CERCLA, or in the Settlement, have the meanings assigned to them in CERCLA, in such regulations, or in the Settlement, except that the term "Paragraph" or "¶" means a paragraph of the SOW, and the term "Section" means a section of the SOW, unless otherwise stated.

1.3 **Relationship to other work at the Portland Harbor Superfund Site.** While all approved data, including baseline data will be considered, all final decisions regarding RD at the Project Area, including delineation of SMAs, implementation of any sampling necessary for design, and application of the ROD's technology matrix, will be made under this Settlement and this SOW.

2. COMMUNITY INVOLVEMENT

2.1 Community Involvement (CI) Responsibilities

(a) EPA has the lead responsibility for developing and implementing CI activities at the Site. Previously (during the Remedial Investigation/Feasibility Study (RI/FS) phase), EPA developed a Community Involvement Plan (CIP) for the Site. Pursuant to 40 C.F.R. § 300.435(c), EPA shall review the existing CIP and determine whether it should be revised to describe further public involvement activities specific to the RD Work or the Project Area that are not already addressed or provided for in the existing CIP, including, if applicable, any Technical Assistance Grant (TAG), any use of the Technical Assistance Services for Communities (TASC) contract, and/or any Technical Assistance Plan (TAP).

(b) If requested by EPA, Respondents shall participate in CI activities, including participation in: (1) the preparation of information regarding the RD Work for dissemination to the public, with consideration given to including mass media and/or Internet notification; and (2) public meetings that may be held or sponsored by EPA to explain activities at or relating to the Site. Respondents' support of EPA's CI activities may include providing online access to initial submissions and updates of deliverables to: (1) any Community Advisory Groups, (2) any TAG recipients and their advisors; and (3) other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP Respondents' responsibilities for CI activities. All CI activities conducted by Respondents at EPA's request are subject to EPA's oversight. Upon EPA's request, Respondents shall make Project Area-related data and information available to the public. EPA plans to coordinate its community outreach efforts with DEQ.

(c) Respondents will explore the possibility of participating in EPA's Superfund Job Training Initiative Program (SuperJTI) as it may relate to the RD Work or the Project Area. This program provides job training to communities affected by Superfund sites.

(d) Respondents' CI Coordinator. If requested by EPA, Respondents shall, within 30 days, designate and notify EPA of Respondents' CI Coordinator. Respondents may hire a contractor for this purpose. Respondents' notice must include the name, title, and qualifications of the Respondents' CI Coordinator. Respondents' CI Coordinator is responsible for providing support regarding EPA's CI activities, including coordinating with EPA's CI Coordinator regarding responses to the public's inquiries about the RD Work or the Project Area.

3. REMEDIAL DESIGN

~~3.1 [NOTE: Retain 3.1 Pre-Design Investigation during initial negotiations, then remove if parties agree there is already enough information to go directly to RDWP. The purpose of the PDI is largely to identify data gaps and collect more sampling data to fill in those gaps.]~~

3.1 ~~S~~Sufficiency Assessment.

(a) ~~.~~The Portland Harbor ROD Section 14.2.11 states that implementation of the Selected Remedy may need to be conducted in phases and/or work sequenced based on consideration of a range of factors including source control actions and recontamination potential. To evaluate source control actions and recontamination potential, a Sufficiency Assessment Report shall be submitted to EPA for comment and approval.

The objective of the Sufficiency Assessment is to evaluate upland (direct discharges, groundwater, river bank, overwater) and in-water sources of contaminants to determine whether they have been adequately investigated and sufficiently controlled or considered such that the RA can proceed. The Sufficiency Assessment will consider whether upland (direct discharges, groundwater, river bank, overwater) and in-water sources will adversely impact the short- or long-term effectiveness of the proposed RA. The Sufficiency Assessment should be completed following the schedule deadlines in Section 6.2.

(b) The Sufficiency Assessment shall consider potential impacts from a range of potential sources, including but not limited to:

(1) Upland pathways (direct discharges, groundwater, river bank, and overwater);

(2) In-water sources of recontamination;

(3) Resuspension of sediments from natural and anthropogenic activities;

(4) Factors that may impact sediment cap effectiveness;

(5) Potential future use for near shore land and in-water uses; and

(6) Other future conditions (e.g., climate change impacts) that may impact recontamination potential.

(c) The components of the Sufficiency Assessment Report shall include:

(1) Description of the Project Area setting, the upland and in-water source areas being evaluated and an overview of the remainder of the report.

(2) A CSM that describes the geographically relevant upland (direct discharges, groundwater, river bank, and overwater) and in-water sources

of contamination, contaminants of concern (COCs) and migration pathways into the Project Area.

(3) A summary of available information regarding the source control status of direct discharges, groundwater, river bank, and overwater sources of COCs into the Project Area that may affect achieving any of the remedial action objectives by comparing to ROD Table 17 cleanup levels and Table 21 RALs and PTW thresholds as one line of evidence; identification of any sources, COCs and pathways that have not been effectively addressed and could impact the RA; and identification of data gaps.

(4) A summary of in-water sources of COCs to the Project Area that may affect achieving any of the remedial action objectives. One line of evidence in this evaluation will be comparing to ROD Table 17 cleanup levels and Table 21 RALs and PTW Thresholds including a description of any proposed measures to address in-water sources including the timing and expected effectiveness of these measures.

(5) An assessment of the degree to which the proposed remedy will address upland (direct discharges, overwater, groundwater, and river bank) and in-water sources of COCs to the Project Area.

(6) An assessment of the degree to which changed future conditions (e.g., changes in land and waterway use and climate change) may affect recontamination potential at the Project Area.

(7) The results of the Sufficiency Assessment that includes evaluation of the sufficiency of upland and in-water source controls to reduce the potential for recontaminating the selected remedy following implementation. The assessment will consider the general magnitude of any potential recontamination effects and discuss implications to the selected remedy for the Project Area. The discussion will also present the limitations of the assessment approaches and any remaining data gaps.

(8) A sufficiency assessment summary table of upland sources (direct discharges, overwater, river bank) that explicitly identifies the potential sources and pathways at the Project Area and categorizes the status of each source using the outcome categories: (A) sources are sufficiently controlled; (B) sources are conditionally controlled; and (C) sources are not sufficiently assessed or controlled. An example table is provided in Attachment 2 of the SOW~~Appendix D of the Settlement~~. Completing the sufficiency assessment summary table is a valuable exercise to ensure that there is consensus on the status of potential sources at the Project Area. The goal of this table is to serve as the basis for EPA's sufficiency determination in informing respondents whether cleanup can go forward and, if potential sources remain, how those sources should be integrated

into the in-water design. The sufficiency assessment summary table shall be updated and included in the Pre-Final (95%) RD as a final check to ensure remedial construction can commence.

(9) Description of how data gaps, if any, will be addressed.

(10) Conclusions and Recommendations. The Sufficiency Assessment Report shall present conclusions and recommendations. Recommendations will be expressed as one of three potential outcomes:

(i) Sources are sufficiently controlled: the report recommends the specified area of sediment cleanup proceed based on reasonable confidence that the relevant recontamination potential is as minimal as possible.

(ii) Sources are conditionally controlled: the report recommends the specified area of sediment cleanup proceed so long as certain additional controls or oversight are implemented in a reasonable timeframe or that any area information gaps are considered.

(iii) Sources are not sufficiently assessed or controlled: the report recommends that specified area of sediment cleanup not proceed until additional controls have been implemented and assessed for effectiveness.

(11) References section listing each document cited in the report

(d) The Sufficiency Assessment does not itself satisfy the requirements of the federal Clean Water Act, CERCLA or other authorities. For example, a site or area that has been evaluated for source control sufficiency for the in-water RA may still be required to take additional measures to meet water quality permit or upland cleanup requirements.

Following remedy implementation, post-construction monitoring will be performed to evaluate remedy effectiveness. Post-construction monitoring will be designed to distinguish between recontamination and assessing whether the remedy is functioning as intended to demonstrate long-term performance of the remedy across appropriate temporal and spatial scales.

[NOTE: Retain 3.2~~1~~ Pre-Design Investigation during initial negotiations, then remove if parties agree there is already enough information to go directly to RDWP. The purpose of the PDI is largely to identify data gaps and collect more sampling data to fill in those gaps.]

3.2 **Pre-Design Investigation.** The purpose of the Pre-Design Investigation (PDI) is to identify and address data gaps by conducting field investigations to develop the Basis of Design Report and RD Work Plan.

(a) **PDI Work Plan**. Respondents shall submit a PDI Work Plan (PDIWP) for EPA comment and approval. The PDIWP must include:

PP may use new data

(1) An evaluation and summary of all available existing data, including baseline data within/near the [Name] Project Area, and description of data gaps for: preliminary SMA delineation consistent with EPA's June 6, 2017 *Portland Harbor Superfund Site, Sampling Plan for Pre-Remedial Design, Baseline and Long-Term Monitoring;* CSM refinement consistent with Section 14.2 (*Post-ROD Data Gathering and Other Information Verification*) of the ROD; and application of ROD Figure 28 (*Technology Application Decision Tree*). This includes additional field investigations, that must be completed to support RD and to refine the CSM. Data gap analysis will include:

(i) Surface and subsurface contaminant concentrations;

(ii) Surface water, sediment pore water and groundwater data;

(iii) Bathymetry;

(iv) Flood-rise analysis~~modeling~~; and

(v) NAPL delineation, if applicable

(2) A Project Area Field Sampling Plan, as described in ¶ 5.6(c) (Supporting Deliverables) of this SOW. The plan includes the details of the media to be sampled, contaminants or parameters for which sampling will be conducted, location (areal extent and depths), number of samples, and a project schedule;

(3) A Project Area Quality Assurance Project Plan (QAPP) as described in ¶ 5.6(d) (Supporting Deliverables) of this SOW;

(4) A Project Area Health and Safety Plan (HASP), as described in ¶ 5.6(a) (Supporting Deliverables) of this SOW;

(5) A Project Area Emergency Response Plan as described in ¶ 5.6(b) (Supporting Deliverables) of this SOW; and

(6) A description of all necessary actions to ensure compliance with ¶ 3.132 (Off-Site Shipments) of this SOW.

(b) **PDI Evaluation Report.** Following implementation of the PDI scope in the approved PDIWP, Respondents shall submit a PDI Evaluation Report for EPA comment and approval. This report must include:

PP may use new data

(1) Summary of the investigations performed;

(2) Summary of investigation results;

(3) Summary of validated data (i.e., tables and graphics);

(4) Data validation reports and laboratory data reports;

(5) Narrative interpretation of data and results;

(6) Results of statistical and modeling analyses, if applicable;

(7) Photographs documenting the work conducted; and

(8) Conclusions and recommendations on whether the data are sufficient to complete the BODR.

[NOTE: Retain 3.32 Basis of Design Report during initial negotiations, then remove if parties agree there is already enough information to go directly to RDWP]

PP may use new data

3.3 **Basis of Design Report (BODR).** The purpose of the BODR is to refine the SMA, update the CSM and refine the technology assignments to the SMA consistent with the Decision Tree in Figure 28 of the ROD. Respondents shall submit a BODR for EPA comment and approval. This document will describe the objectives, overall approach, schedule, milestone check in points and specific elements of the BODR. The BODR will:

~~Provide a sufficiency assessment to evaluate whether potential sources of recontamination have been adequately investigated and controlled or considered such that the RA can proceed. The sufficiency assessment will include an upland evaluation of pathways to the river through direct discharges, groundwater, river bank, and overwater to ensure that upland sources have been controlled. The assessment will also evaluate potential in-water sources of recontamination including the resuspension of bedded sediments. The sufficiency assessment is further described in ¶ 5.6(n) (Supporting Deliverables) of this SOW;~~

(a) Summarize the results of the sufficiency assessment and whether potential sources of recontamination have been adequately investigated and controlled or considered such that the RA can proceed.

~~(a)~~(b) Summarize existing site conditions and site factors which affect technology assignments including detailed reasonably anticipated future navigation and land use information and other data, as depicted in the Decision Tree, and refinement of the CSM pertaining to the Project Area;

~~(b)~~(c) Summarize design criteria applicable to the Project Area as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995) and consistent with Section 14.2.9 (*Design Requirements*) and Section 14.2.10 (*Performance Standards*) of the ROD;

~~(c)~~(d) Describe Decision Tree analysis and identify a preferred remedial approach based on consistency with the ROD for the Project Area;

~~(d)~~(e) Identify long-term monitoring and maintenance considerations for the Project Area;

~~(e)~~(f) Identify design studies for RD, if any, such as subsurface and surface sediment sampling that may be needed to address proposed remedial technology means and methods, and gather other information necessary for RD for the Project Area; and

~~(f)~~(g) Describe a sequencing plan as well as an overall schedule to complete the design studies, RD and RA for the Project Area.

3.4 **RD Work Plan (RDWP).** Respondents shall submit a RDWP for EPA comment and approval. The RDWP must include:

(a) Plans for implementing all RD activities identified in this SOW, in the BODR, in the RDWP, or as required by EPA to be conducted to develop the RD for the Project Area;

(b) A description of the overall management strategy for performing the RD, including a proposal for phasing of design and construction, if applicable;

(c) **[Note: Retain this paragraph if BODR section is not included.]** Detailed reasonably anticipated future navigation and land use information and other data to inform the Decision Tree in Figure 28 of the ROD.

PP may use new data

(d) A description of the proposed general approach to contracting, construction, operation, maintenance, and monitoring of the RA as necessary to implement the Work;

(e) A description of the responsibility and authority of all organizations and key personnel involved with the development of the RD;

(f) Descriptions of any areas requiring clarification and/or anticipated problems, if any (e.g., data gaps);

(g) Description of studies and design phases for any on-site transload facility to be used to transload dredged materials from the Project Area or any other area of the Site;

(h) Description of any proposed supplemental PDI;

(i) Description of any proposed treatability study;

(j) Descriptions of any applicable permitting requirements and other regulatory requirements, if any;

(k) Description of plans for obtaining access in connection with the Work, such as access agreements, property acquisition, property leases, and/or easements; and

(l) Updates of all supporting deliverables required to accompany the PDIWP or supplemental PDIWP.

3.5 **Meetings.** Respondents shall meet regularly with EPA to discuss design issues as necessary, as directed or determined by EPA.

[Note: Add "Supplemental" here if BODR section is included] Pre-Design Investigation.]

3.6 **Supplemental PDI.** The purpose of the Supplemental PDI is to address data gaps identified in the RDWP by conducting additional field investigations in the Project Area.

PP may use new data

(a) **Supplemental PDI Work Plan**. If EPA requests, Respondents shall submit a Supplemental PDI Work Plan (SPDIWP) for EPA comment and approval. The SPDIWP must include all elements as described in ¶ 3.21(a).

(b) **Supplemental PDI Evaluation Report**. Following the Supplemental PDIWP, Respondents shall submit a Supplemental PDI Evaluation Report for EPA comment and approval. This report must include the same elements as described in ¶ 3.21(b).

3.7 **Treatability Study.** If necessary, Respondents shall perform a Treatability Study (TS), as necessary, to evaluate the effectiveness of a remedial technology (e.g., reactive cap).

(a) Respondents shall submit a TS Work Plan (TSWP) for EPA comment and approval. Respondents shall prepare the TSWP in accordance with *EPA's Guide for Conducting Treatability Studies under CERCLA, Final* (Oct. 1992), as supplemented for RD by the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995).

(b) Following completion of the TS, Respondents shall submit a TS Evaluation Report for EPA comment and approval.

(c) EPA may require Respondents to supplement the TS Evaluation Report and/or to perform additional treatability studies.

PP may use new data

3.8 Preliminary (30%) RD. Respondents shall submit a Preliminary (30%) RD for the Project Area for EPA's comment. All information and activities to be performed under the Preliminary (30%) RD shall be included and updated, as needed, in subsequent RD submittals (i.e., 60%, 95%, and 100%). The Preliminary RD must include:

(a) **[Note: Add Sufficiency Assessment paragraph here if BODR is not included]**

(b) A design criteria report, as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995);

(c) Preliminary drawings and specifications;

(d) Descriptions of permit requirements, if applicable;

(e) A description of how the RA will be implemented in a manner that minimizes environmental impacts in accordance with EPA's *Principles for Greener Cleanups* (Aug. 2009), and the information described in Appendix M of the Portland Harbor Feasibility Study (June 2016);

(f) A description of monitoring and control measures to protect human health and the environment, such as air monitoring and dust suppression, during the RA;

(g) Updates of all supporting deliverables required to accompany the RDWP and the following additional supporting deliverables described in ¶ 5.6 (Supporting Deliverables): Institutional Controls Implementation and Assurance Plan; Waste Designation Memo; Biological Assessment; Clean Water Act Analysis; Project Area Monitoring Plan; Construction Quality Assurance/Quality Control Plan; Transportation and Off-Site Disposal Plan; O&M Plan; and O&M Manual.

(h) Respondent will include design specifications for any transload facility to be used on-site for transferring dredged materials from the Project Area ~~or site-wide Superfund Site~~, including specifications and information for any transload-specific Applicable or Relevant and Appropriate Requirements that must be complied with to build and operate the transload facility. In addition, the design specifications must address the following: (1) location of transload operations; (2) identification of contaminated groundwater and soil within the foot print of the transload operations; and (3) plans to remove or remediate these contaminated media during construction of the transload facility, or an analysis of how the presence and operation of the transload facility will not inhibit or prevent

implementation of ongoing source control measures and potential remedial measures identified in DEQ's pending upland Record of Decision for the Respondent's upland property. If an off-site transload facility will be used for dredged materials from the Project Area, Respondent must include permit application design information for approval.

(i) Respondent shall coordinate with and obtain necessary information from owners of river banks and/or submerged lands that are within the Project Area. Such information shall include, but not be limited to, the owner's future anticipated river use that should be considered in the decision tree process and design, shipping schedules, and known buried infrastructure. The RD shall document in writing the landowners that were contacted and the information received for all properties in the Project Area.

PP may use new data

3.9 Intermediate (60%) RD. Respondents shall submit the Intermediate (60%) RD for EPA's comment. The Intermediate RD must: (a) be a continuation and expansion of the Preliminary RD; (b) address EPA's comments regarding the Preliminary RD; and (c) include the same elements as are required for the Preliminary (30%) RD.

PP may use new data

3.10 Pre-Final (95%) RD. Respondents shall submit the Pre-final (95%) RD for EPA's comment. The Pre-final RD must be a continuation and expansion of the previous design submittal and must address EPA's comments regarding the Intermediate RD. The Pre-final RD will serve as the approved Final (100%) RD if EPA approves the Pre-final RD without comments. The Pre-final RD must include:

(a) A complete set of construction drawings and specifications that are: (1) certified by a registered professional engineer; (2) suitable for procurement; and (3) follow the Construction Specifications Institute's MasterFormat 2016;

(b) Survey and engineering drawings showing existing Project Area features, such as elements, property borders, easements, and Project Area conditions;

(c) Pre-Final versions of the same elements and deliverables as are required for the Intermediate RD;

(d) A specification for photographic documentation of the RA; and

(e) Updates of all supporting deliverables required to accompany the Preliminary (30%) RD, including an updated sufficiency assessment summary table per ¶ 3.1(c)(8)~~5.6(n)(2)(viii)~~ as a final check to ensure remedial construction can commence.

3.11 Final (100%) RD. Respondents shall submit the Final (100%) RD for ~~for~~ EPA approval. The Final RD must address EPA's comments on the Pre-final RD and must include final versions of all Pre-final deliverables.

3.122 Emergency Response and Reporting

(a) **Emergency Response and Reporting**. If any event occurs during performance of the RD Work that causes or threatens to cause a release of Waste Material on, at, or from the Site and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Respondents shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) immediately notify the authorized EPA officer (as specified in ¶ 3.1~~1~~2(c)) orally; and (3) take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plan, the Emergency Response Plan, and any other deliverable approved by EPA under the SOW.

(b) **Release Reporting**. Upon the occurrence of any event during performance of the RD Work that Respondents are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004, Respondents shall immediately notify the National Response Center (phone 1-800-424-8802) and authorized EPA officer orally.

(c) The "authorized EPA officer" for purposes of immediate oral notifications and consultations under ¶ 3.12~~1~~(a) and ¶ 3.12~~1~~(b) is the EPA Project Coordinator, the EPA Alternate Project Coordinator (if the EPA Project Coordinator is unavailable), or the EPA Emergency Response Unit, Region 10 (if neither EPA Project Coordinator is available).

(d) For any event covered by ¶ 3.12~~1~~(a) and ¶ 3.12~~1~~(b), Respondents shall: (1) within 14 days after the onset of such event, submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 30 days after the conclusion of such event, submit a report to EPA describing all actions taken in response to such event.

(e) The reporting requirements under ¶ 3.12~~1~~ are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

3.133 Off-Site Shipments

(a) Respondents may ship hazardous substances, pollutants, and contaminants from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondents will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondents obtain a prior determination from EPA that

the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b).

(b) Respondents may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, they provide notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Respondents also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Respondents shall provide the notice as soon as practicable after the award of the contract and before the Waste Material is shipped.

(c) Respondents may ship Investigation Derived Waste (IDW) from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, EPA's *Guide to Management of Investigation Derived Waste*, OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the ROD. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped off-site for treatability studies, are not subject to 40 C.F.R. § 300.440.

~~**Notice of Work Completion**~~

~~**When EPA determines, after EPA's review of the Final 100% RD under ¶ 3.10 (Final (100%) RD), that all Work has been fully performed in accordance with this Settlement, with the exception of any continuing obligations as provided in ¶ 3.13(c), EPA will provide written notice to Respondents. If EPA determines that any such Work has not been completed in accordance with this Settlement, EPA will notify Respondents, provide a list of the deficiencies, and require that Respondents modify the RD Work Plan if appropriate to correct such deficiencies.**~~

~~**Respondents shall implement the modified and approved RD Work Plan and shall submit a modified Final 100% Report for EPA approval in accordance with the EPA notice. If approved, EPA will issue the Notice of Work Completion.**~~

~~**Issuance of the Notice of Work Completion does not affect the following continuing obligations: (1) obligations under Sections VIII (Property Requirements), IX (Access to Information), and X (Record Retention); and (3) reimbursement of EPA's Future Response Costs under Section XII (Payment of Response Costs) of the Settlement.**~~

4. REPORTING

4.1 Progress Reports. Commencing with the quarter following the Effective Date of the Settlement and until issuance of Notice of Work Completion pursuant to Section XXVII of the Settlement ~~¶ 3.13~~, Respondents shall submit progress reports to EPA on a quarterly basis, or as otherwise requested by EPA. The reports must cover all activities that took place during the prior reporting period, including:

(a) The actions that have been taken toward achieving compliance with the Settlement;

(b) A summary of all results of validated sampling, tests, and all other data received or generated by Respondents;

(c) A list~~description~~ of all deliverables that Respondents submitted to EPA;

(d) A list~~description~~ of all activities scheduled for the next quarter;

(e) Information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the RD Work, and a description of efforts made to mitigate those delays or anticipated delays;

(f) A list~~description~~ of any modifications to the work plans or other schedules that Respondents have proposed or that have been approved by EPA; and

(g) A list~~description~~ of all activities undertaken in support of the CIP during the reporting period and those to be undertaken in the next quarter.

4.2 Notice of Progress Report Schedule Changes. If the schedule for any activity described in the Progress Reports, including activities required to be described under ¶ 4.1(d), changes, Respondents shall notify EPA of such change at least seven days before performance of the activity.

5. DELIVERABLES

5.1 Applicability. Respondents shall submit all deliverables for EPA approval or for EPA comment as specified in the SOW. If neither is specified, the deliverable does not require EPA's approval or comment. ¶ 5.2 (In Writing) through 5.4 (Formatting~~Technical~~ Specifications) apply to all deliverables. ¶ 5.5 (Approval of Deliverables) applies to any deliverable that is required to be submitted for EPA approval.

5.2 In Writing. All deliverables under this SOW must be in writing unless otherwise specified.

5.3 General Requirements for Deliverables

(a) Except as otherwise provided in this SOW~~Order~~, Respondents shall direct all deliverables required by this SOW~~Order~~ to the EPA Project Coordinator: [Name], Remedial Project Manager, Superfund and Emergency Management Division, U.S. Environmental Protection Agency, 1200 6th Ave., Ste. 155, M/S 12-D12-1, phone (206) 553-[insert number], email [lname.fname]@epa.gov.

(b) All deliverables provided to the State and Tribal representatives in accordance with ¶ 7 (State and Tribal Participation) shall be directed to

- David Lacey and Sarah Greenfield, Department of Environmental Quality, Northwest Region Portland Office, 700 NE Multnomah St. Ste 600, Portland, OR 97232-4100, (503) 229-5354 (David Lacey), david.j.lacey@state.or.us, (503) 229-5445 (Sarah Greenfield), sarah.greenfield@state.or.us
- The Five Tribes (individual tribal contacts may be updated as necessary):
  - c/o Gail French Fricano, IEc, Industrial Economics, Incorporated, 2067 Massachusetts Ave., Cambridge, MA 02140, (617) 354-0074, GFricano@indecon.com
  - c/o Courtney Johnson (for Nez Perce Tribe), Crag Law Center, 917 SW Oak, Suite 417, Portland, OR 97205, (503) 525-2728, courtney@crag.org
- Laura Shira, Yakama Nation Fisheries, Post Office Box 151, Toppenish, WA 98948, (509) 985-3561, shil@yakamafish-nsn.gov.

(c) All deliverables must be submitted by the deadlines in the RD Schedule and RDWP, as applicable. Respondents shall submit all deliverables to EPA in electronic form, e.g. email pdfs and/or maintain file transfer protocol (ftp) sites as requested by EPA. Formatting~~Technical~~ specifications for sampling and monitoring data and spatial data are addressed in ¶ 5.4. All other deliverables shall be submitted to EPA in the electronic form specified by the EPA Project Coordinator. If any deliverable includes maps, drawings, or other exhibits that are larger than 11" by 17"~~8.5" by 11"~~, Respondents shall also provide EPA with paper copies of such exhibits.

5.4 Formatting~~Technical~~ Specifications

(a) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format (Attachment 1 of the SOW~~Appendix CD to the Settlement~~). Other delivery methods may be allowed if electronic direct

submission presents a significant burden or as technology changes. All data must be formatted such that they can be easily uploaded to the Portland Harbor Superfund Site database (e.g., Scribe). Reports shall be submitted in a format approved by EPA, such as in pdf format with all metadata inserted, 508 tagging done to the extent practicable, in one file per deliverable (versus many), and include bookmarks to the extent practicable to enhance readability.

(b) Spatial data, including spatially-referenced data and geospatial data, shall be submitted: (1) in the ESRI File Geodatabase format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum, consistent with the format used for such submissions in the RI/FS for the Portland Harbor Superfund Site or as approved by EPA. If applicable, submissions shall include the collection method(s). Projected coordinates may optionally be included but must be documented (four aspects include projection, zone, datum, and units). Spatial data shall be accompanied by metadata, and such metadata shall be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at https://www.epa.gov/geospatial/epa-metadata-editor. Respondents are required to upload data collected to EPA's Scribe environmental data management tool or other tool as prescribed~~in a manner approved in advance~~ by EPA.

(c) Each file must include an attribute name for each Project Area unit or sub-unit submitted. Consult https://www.epa.gov/geospatial/geospatial-policies-and-standards for any further available guidance on attribute identification and naming.

(d) Spatial data submitted by Respondents does not, and is not intended to, define the boundaries of the Project Area~~Site~~.

5.5 Approval of Deliverables

(a) Initial Submissions

(1) After review of any deliverable that is required to be submitted for EPA approval under the ~~Settlement or the~~ SOW, EPA shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.

(2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and

awaiting a resubmission would cause substantial disruption to the RD Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

(b) **Resubmissions**. Upon receipt of a notice of disapproval under ¶ 5.5(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under ¶ 5.5(a) Respondents shall, within 45 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (1) approve, in whole or in part, the resubmission; (2) approve the resubmission upon specified conditions; (3) modify the resubmission; (4) disapprove, in whole or in part, the resubmission, requiring Respondents to correct the deficiencies; or (5) any combination of the foregoing.

(c) **Implementation**. Upon approval, approval upon conditions, or modification by EPA under ¶ 5.5(a) (Initial Submissions) or ¶ 5.5(b) (Resubmissions), of any deliverable, or any portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and enforceable under the Settlement; and (2) Respondents shall take any action required by such deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable submitted or resubmitted under ¶ 5.5(a) or ¶ 5.5(b) does not relieve Respondents of any liability for stipulated penalties under Section XVI (Stipulated Penalties) of the Settlement.

5.6 Supporting Deliverables. Respondents shall submit each of the following supporting deliverables for EPA comment and approval, except as specifically provided. Respondents shall develop the deliverables in accordance with all applicable regulations, guidance, and policies (see ¶ 8 (References)). Respondents shall update each of these supporting deliverables as necessary or appropriate during the RD Work, and/or as requested by EPA. Supporting deliverables to each deliverable are specified in the schedule of ¶ 6.2.

(a) **Health and Safety Plan**. The Health and Safety Plan (HASP) describes all activities to be performed to protect on site personnel and area residents from physical, chemical, and all other hazards posed by implementing the RD Work. Respondents shall develop the HASP in accordance with EPA's Emergency Responder Health and Safety and Occupational Safety and Health Administration (OSHA) requirements under 29 C.F.R. §§ 1910 and 1926. The HASP required by this RD SOW should cover RD activities and should be, as appropriate, updated to cover activities during the RA and updated to cover activities after RA completion. (Updates may be needed for RA activities and after RA completion.) EPA does not approve the HASP but will review it to ensure that all necessary

elements are included and that the plan provides for the protection of human health and the environment.

(b) **Emergency Response Plan**. The Emergency Response Plan (ERP) must describe procedures to be used in the event of an accident or emergency at the Project Area~~Site~~ (for example, power outages, water impoundment failure, treatment plant failure, slope failure, etc.). The ERP must include:

(1) Name of the person or entity responsible for responding in the event of an emergency incident;

(2) Plan and date(s) for meeting(s) with the local community, including local, State, and federal agencies involved in the cleanup, as well as local emergency squads and hospitals;

(3) Spill Prevention, Control, and Countermeasures (SPCC) Plan (if applicable), consistent with the regulations under 40 C.F.R. Part 112, describing measures to prevent, and contingency plans for, spills and discharges;

(4) Notification activities in accordance with ¶ 3.12~~1~~(b) (Release Reporting) in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004; and

(5) A description of all necessary actions to ensure compliance with ¶ 3.12~~1~~2a (Emergency Response and Reporting) of the SOW in the event of an occurrence during the performance of the RD Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency or may present an immediate threat to public health or welfare or the environment.

(c) **Field Sampling Plan**. The Field Sampling Plan (FSP) addresses all sample collection activities. The FSP must be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. Respondents shall develop the FSP in accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988).

(d) **Quality Assurance Project Plan**. The Quality Assurance Project Plan (QAPP) augments the FSP and addresses sample analysis and data handling regarding the RD Work. The QAPP must include a detailed explanation of Respondents' quality assurance, quality control, and chain of custody procedures for all investigations, treatability, design, compliance, and monitoring samples. Respondents shall develop the QAPP in accordance

with *EPA Requirements for Quality Assurance Project Plans*, QA/R- 5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006); *Guidance for Quality Assurance Project Plans*, QA/G-5, EPA/240/R-02/009 (Dec. 2002); and *Uniform Federal Policy for Quality Assurance Project Plans*, Parts 1-3, EPA/505/B- 04/900A through 900C (Mar. 2005). The QAPP also must include procedures:

(1) To ensure that EPA and its authorized representative have reasonable access to laboratories used by Respondents in implementing the Settlement (Respondents' Labs);

(2) To ensure that Respondents' Labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;

(3) To ensure that Respondents' Labs perform all analyses using EPA-accepted methods (i.e., the methods documented in *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis*, ILM05.4 (Dec. 2006); *USEPA Contract Laboratory Program Statement of Work for Organic Analysis*, SOM01.2 (amended Apr. 2007); and *USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration)*, ISM01.2 (Jan. 2010) or other methods acceptable to EPA;

(4) To ensure that Respondents' Labs participate in an EPA-accepted QA/QC program or other QA/QC program acceptable to EPA;

(5) For Respondents to provide EPA with notice at least 28 days prior to any sample collection activity;

(6) For Respondents to provide split samples and/or duplicate samples to EPA upon request;

(7) For EPA to take any additional samples that it deems necessary;

(8) For EPA to provide to Respondents, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling;

(9) For Respondents to submit to EPA all sampling and tests results and other data in connection with the implementation of the Settlement.

(e) **Institutional Controls Implementation and Assurance Plan.** Institutional controls (ICs) at the Site will be implemented to: (1) protect human health and the environment by limiting exposure to contamination left in place; and (2) protect the long-term integrity of the engineered components of the Selected Remedy. The City of Portland and State of Oregon will develop a site-wide Institutional Control Implementation and Assurance Plan (ICIAP). Respondents will develop

an Institutional Control Implementation and Assurance Plan (ICIAP) for the Project Area-specific ICIAP during RD which will, at a minimum, identify the specific and necessary Site-wide ICs and the Project Area ICs that will be implemented; plans to implement, maintain, and enforce the ICs; and the parties responsible for implementing and monitoring each IC necessary at the Project Area, consistent with Section 14.2.6. (*Institutional Controls*) of the ROD. Upon approval by EPA, Respondents will provide its Project Area ICIAP to the City and State for incorporation into the site-wide ICIAP. The ICIAP shall be developed in accordance with *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, OSWER 9355.0-89, and EPA/540/R-09/001 (Dec. 2012) and *Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites*, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012) or as amended or superseded. The ICIAP must include the following additional requirements:

(1) Locations of recorded real property interests (e.g., easements, liens) and resource interests in the property that may affect ICs (e.g., surface, mineral, and water rights) including accurate mapping and geographic information system (GIS) coordinates of such interests; and

(2) Legal descriptions and survey maps that are prepared according to current American Land Title Association (ALTA) Survey guidelines and certified by a licensed surveyor.

Among others, three types of ICs have been proposed for the Site that may be used at the Project Area: (1) Fish Advisories and Educational Outreach; (2) Waterway Use Restrictions or Regulated Navigation Areas (RNAs); and (3) Land Use/Access Restrictions.

(f) **Waste Designation Memo**. The waste designation memo, if appropriate, will describe the characterization of any RCRA wastes (evaluated as part of the RD) and present the data needs necessary to arrange for the offsite disposal of the wastes at an appropriate facility.

(g) **Biological Assessment (BA)**. The Respondents shall include a Project Area BA or a supplement to EPA's programmatic Site-wide BA for the preferred alternative as needed to help facilitate National Oceanic and Atmospheric Administration (NOAA) consultation on substantive requirements for the project, as well as a Clean Water Act (CWA) memorandum, to include time for EPA Agency reviews and any necessary revision. The BA shall identify the presence of threatened, endangered, and proposed or candidate species, or their habitat, within the vicinity of the Project Area and shall comply with the substantive requirements of the Endangered Species Act. The BA shall characterize baseline conditions of existing habitat; address potential project impacts that the remedy may have on these species, their habitat, and their food stocks; and describe best

management practices and conservation measures designed to avoid or minimize any negative impacts.

(h) **Clean Water Act Analysis**. Respondents shall submit a memorandum that provides sufficient information to demonstrate compliance of the proposed RA at the Project Area with the substantive requirements of Section 404(b)(1) and other applicable sections of the CWA. The memorandum shall supplement the information gathered from the Feasibility Study ~~gathered~~ regarding, long- and short-term impacts from the RA at the Project Area, minimization of adverse effects, compliance with the ROD, and an analysis of the need for any mitigation.

(i) **Project Area Monitoring Plan**. The purpose of the Project Area Monitoring Plan (PAMP) is to obtain baseline information regarding the extent of contamination in affected media at the Project Area; to obtain information, through short- and long-term monitoring, about the movement of and changes in contamination throughout the Project Area, before and during implementation of the RA; to obtain information regarding contamination levels to determine whether Performance Standards (PS) are achieved; and to obtain information to determine whether to perform additional actions, including further Site monitoring. The PAMP must include:

(1) Description of the environmental media to be monitored;

(2) Description of the data collection parameters, including existing and proposed monitoring devices and locations, schedule and frequency of monitoring, analytical parameters to be monitored, and analytical methods employed;

(3) Description of how performance data will be analyzed, interpreted, and reported, and/or other Site-related requirements;

(4) Description of verification sampling procedures;

(5) Description of deliverables that will be generated in connection with monitoring, including sampling schedules, laboratory records, monitoring reports, and monthly and annual reports to EPA and State agencies; and

(6) Description of proposed additional monitoring and data collection actions (such as increases in frequency of monitoring, and/or installation of additional monitoring devices in the affected areas) in the event that results from monitoring devices indicate changed conditions (such as higher than expected concentrations of the contaminants of concern or groundwater contaminant plume movement).

(j) **Construction Quality Assurance/Quality Control Plan (CQA/QCP)**. The purpose of the Construction Quality Assurance/Quality Control Plan (CQA/QCP)

is to describe planned and systemic activities that provide confidence and that verify that the RA construction will and do satisfy all plans, specifications, and related requirements, including quality objectives. ~~The purpose of the Construction Quality Control Plan (CQCP) is to describe the activities to verify that RA construction has satisfied all plans, specifications, and related requirements, including quality objectives.~~ The CQA/QCP must:

(1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQA/QCP;

(2) Describe the PS required to be met to achieve Completion of the RA;

(3) Describe the activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;

(4) Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQA/QCP;

(5) Describe industry standards and technical specifications used in implementing the CQA/QCP;

(6) Describe procedures for tracking construction deficiencies from identification through corrective action;

(7) Describe procedures for documenting all CQA/QCP activities; and

(8) Describe procedures for retention of documents and for final storage of documents.

(k) **Transportation and Off-Site Disposal Plan.** The Transportation and Off-Site Disposal Plan (TODP) describes plans to ensure compliance with ¶ ~~3.12~~3.13 (Off-Site Shipments). The TODP must include:

(1) Proposed routes for off-site shipment of Waste Material;

(2) Identification of communities affected by shipment of Waste Material; and

(3) Description of plans to minimize impacts on affected communities.

(l) **O&M Plan**. The O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. Respondents shall develop the O&M Plan in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017). The O&M Plan must include the following additional requirements:

(1) Description of PS required to be met to implement the ROD;

(2) Description of activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;

(3) **O&M Reporting**. Description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, records of operating costs, reports regarding emergencies, personnel and maintenance records, monitoring reports, and monthly and annual reports to EPA and State agencies;

(4) Description of corrective action in case of systems failure, including: (i) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve PS; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements; and

(5) Description of corrective action to be implemented in the event that PS are not achieved; and a schedule for implementing these corrective actions.

(m) **O&M Manual**. The O&M Manual serves as a guide to the purpose and function of the equipment and systems that make up the remedy. Respondents shall develop the O&M Manual in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017).

~~(d) **Sufficiency Assessment.** The Portland Harbor ROD Section 14.2.11 states that implementation of the Selected Remedy may need to be conducted in phases and/or work sequenced based on consideration of a range of factors including source control actions and recontamination potential. To evaluate source control actions and recontamination potential, a Sufficiency Assessment Report shall be submitted to EPA for comment and approval.~~

~~The objective of the Sufficiency Assessment is to evaluate upland (direct discharges, groundwater, river bank, overwater) and in-water sources of contaminants to determine whether they have been adequately investigated and sufficiently controlled or considered such that the RA can proceed. The Sufficiency Assessment will consider whether potential recontamination from upland (direct discharges, groundwater, river bank, overwater) and in-water sources will adversely impact the short- or long-term effectiveness of the proposed RA.~~

~~(1) The Sufficiency Assessment shall consider potential impacts from a range of potential sources, including but not limited to:~~

~~(i) Upland pathways (direct discharges, groundwater, river bank, and overwater);~~

(ii) In-water sources of recontamination;

(iii) Resuspension of sediments from natural and anthropogenic activities;

(iv) Factors that may impact sediment cap effectiveness;

(v) Potential future use for near-shore land and in-water uses; and

(vi) Other future conditions (e.g., climate change impacts) that may impact recontamination potential.

(2) The components of the Sufficiency Assessment Report shall include:

(i) Description of the Project Area setting, the upland and in-water source areas being evaluated and an overview of the remainder of the report.

(ii) A CSM that describes the geographically relevant upland (direct discharges, groundwater, river bank, and overwater) and in-water sources of contamination, contaminants of concern (COCs) and migration pathways into the Project Area.

(iii) A summary of direct discharges, groundwater, river bank, and overwater source control measures implemented or proposed to address sources of COCs into the Project Area and their expected effectiveness (e.g., Source Control Evaluations, Source Control Measures, Source Control Decisions) at achieving any of the remedial action objectives by comparing to ROD Table 17 cleanup levels and Table 21 Remedial Action Levels and PTW Thresholds or alternative metrics approved by DEQ in a source control performance monitoring plan (e.g., groundwater gradient analysis); identification of any sources, COCs and pathways that have not been effectively addressed and could impact the RA; and identification of data gaps.

(iv) A summary of in-water sources of COCs to the Project Area that may affect achieving any of the remedial action objectives by comparing to ROD Table 17 cleanup levels and Table 21 RALs and PTW Thresholds including a description of any proposed measures to address in-water sources including the timing and expected effectiveness of these measures.

(v) An assessment of the degree to which the proposed remedy will address upland (direct discharges, overwater, groundwater, and river bank) and in-water sources of COCs to the Project Area.

(vi) An assessment of the degree to which changed future conditions (e.g., changes in land and waterway use and climate change) may affect recontamination potential at the Project Area.

(vii) The results of the Sufficiency Assessment that includes interpretation of the data relative to the sufficiency of upland and in-water source controls to reduce the potential for recontaminating the selected remedy following implementation. The assessment will consider the magnitude of the recontamination effects and discuss implications to the selected remedy for the Project Area. The discussion will also present the limitations of the assessment approaches and any remaining data gaps.

(viii) A sufficiency assessment summary table that explicitly identifies the potential sources and pathways at the Project Area and categorizes the status of each source using the outcome categories: (A) sources are sufficiently controlled; (B) sources are conditionally controlled; and (C) sources are not sufficiently assessed or controlled. An example table is provided in Appendix E of the Settlement. Completing the sufficiency assessment summary table is a valuable exercise to ensure that there is consensus on the status of potential sources at the Project Area. The goal of this table is to serve as the basis for EPA's sufficiency determination in informing respondents whether cleanup can go forward and, if potential sources remain, how those sources should be integrated into the in-water design. The sufficiency assessment summary table shall be updated and included in the Pre-Final (95%) RD as a final check to ensure remedial construction can commence.

(ix) Description of how data gaps, if any, will be addressed.

(x) Conclusions and Recommendations. The Sufficiency Assessment Report shall present conclusions and recommendations. Recommendations will be expressed as one of three potential outcomes:

(A) Sources are sufficiently controlled: the report recommends the specified area of sediment cleanup proceed based on reasonable confidence that the relevant recontamination potential is as minimal as possible.

~~(B) Sources are conditionally controlled: the report recommends the specified area of sediment cleanup proceed so long as certain additional controls or oversight are implemented in a reasonable timeframe or that any area information gaps are considered.~~

~~(C) Sources are not sufficiently assessed or controlled: the report recommends that specified area of sediment cleanup not proceed until additional controls have been implemented and assessed for effectiveness.~~

~~(3) ReferencesThe Sufficiency Assessment does not provide exemptions from actions required under the federal Clean Water Act, CERCLA or other authorities. For example, a site or area that has been evaluated for source control sufficiency for the in-water RA may still be required to take additional measures to meet water quality permit or upland cleanup requirements.~~

~~Following remedy implementation, post-construction monitoring will be performed to evaluate remedy effectiveness. Post-construction monitoring will be designed to distinguish between recontamination and assessing whether the remedy is functioning as intended to demonstrate long-term performance of the remedy across appropriate temporal and spatial scales.~~

6. SCHEDULES

6.1 Applicability and Revisions. All deliverables and tasks required under this SOW must be submitted or completed by the deadlines or within the time durations listed in the schedule set forth below. The schedule identifies deliverables that can be developed concurrently for efficiency. EPA's expectations are an optimized RD timeline as presented in **Figure 1**. Respondents may submit proposed revised schedules for EPA approval. Upon EPA's approval, the revised schedules supersede the schedule set forth below, and any previously-approved schedule.

6.2 Schedule

	Description of Deliverable	**Included Supporting Deliverable**	**¶ Ref.**	**Deadline**
	Notification of Respondents' CI Coordinator		2.1(d)	30 days after Effective Date ~~EPA's Signature~~ of the Settlement
1a	Draft Sufficiency Assessment Report		3.1	90 days after Effective Date of the Settlement[1]
1b	Final Sufficiency Assessment Report		3.1	45 days after EPA's comments on the Draft Sufficiency

	Description of Deliverable	Included Supporting Deliverable	¶ Ref.	Deadline
				Assessment Report[1]
2a1a	Draft PDI Work Plan	FSP, QAPP, HASP, ERP	3.21(a)	90 days after Effective DateEPA's Signature of the Settlement[1]
2b1b	Final PDI Work Plan	Same as above	3.21(a)	45 days after EPA's comments on the Draft PDI Work Plan[1]
3a2a	Draft PDI Evaluation Report		3.21(b)	As set forth in the approved PDI Work Plan[1]
3b2b	Final PDI Evaluation Report		3.21(b)	As set forth in the approved PDI Work Plan[1]
43a	Draft BODR	Sufficiency Assessment	3.32	90 days after EPA approval of the Final Sufficiency Assessment Report and the FinalPreliminary PDI Evaluation Report[1]
43b	Final BODR	Same as above	3.32	45 days after EPA's comments on the Draft BODR[1]
54a	Draft RDWP	Updates to FSP, QAPP, HASP, ERP	3.33.4	90 days after EPA's approval on the Final BODR[1]
54b	Final RDWP	Same as above	3.43.3	45 days after EPA's comments on the Draft RDWP[1]
65a	Draft Supplemental PDI Work Plan (if needed)		3.65(a)	As set forth in the draftapproved Final RDWP[1]
65b	Final Supplemental PDI Work Plan (if needed)		3.65(a)	As set forth in the draftapproved Final RDWP[1]
7a	Draft Supplemental PDI Evaluation Report (if needed)		3.65(b)	As set forth in the approved Final RDWP[1]
7b6dB	Final Supplemental PDI Evaluation Report (if needed)		3.65(b)	As set forth in the approved Final RDWP[1]
87a	Draft Treatability Study Work Plan (if required)		3.76(a)	As set forth in the draft approved Final RDWP[1]
87b	Final Treatability Study Work Plan (if required)		3.76(a)	As set forth in the draft RDWPapproved Final RDWP[1]

	Description of Deliverable	Included Supporting Deliverable	¶ Ref.	Deadline
9a~~7c 8a~~	Draft Treatability Study Evaluation Report (if required)		3.~~7~~6(b)	As set forth in the approved Final RDWP[1]
9b~~8 b~~	Final Treatability Study Evaluation Report (if required)		3.~~7~~6(b)	As set forth in the approved Final RDWP[1]
10~~8~~	Preliminary (30%) RD	All supporting deliverables described in ¶ 5.6	3.~~3.7~~ 8	As set forth in the approved Final RDWP[1] Work on the 30% design will begin prior to completion of the Supplemental PDI Investigation Report but will not be completed until after the report is completed.
11~~1 0~~	Intermediate (60%) RD	Same as above	~~3.8~~3 .9	As set forth in the approved Final RDWP
12~~1 1~~	Pre-final (95%) RD	Same as above	3.10 ~~03.9~~	As set forth in the approved Final RDWP
13~~1 2~~	Final (100%) RD	Same as above	~~3.10~~3.11	As set forth in the approved Final RDWP
14~~2~~	Progress Reports		4.1	Quarterly[1]

Notes:
[1] Preparation of these deliverables can occur concurrently for an efficient RD schedule. An example showing EPA's expectations for an optimized RD timeline is shown in **Figure 1**.

7. STATE AND TRIBAL PARTICIPATION

7.1 Copies. Respondents shall, at any time they send a deliverable to EPA, send a copy of such deliverable to DEQ and Tribal Governments identified in the Settlement. EPA shall be responsible for coordinating comments with the State and Tribes to meet the review schedule. Written comments on the deliverables provided to EPA from the State or Tribes shall be provided to the Respondents when EPA provides comments to Respondents. Respondents shall copy other agency Memorandum of Understanding partners (Oregon Department of Fish and Wildlife, NOAA, and U.S. Department of the Interior). EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to Respondents, send a copy of such document to the State and Tribes and the agency partners.

7.2 **Review and Comment.** The State and Tribes will have a reasonable opportunity for review and comment prior to:

(a) Any EPA approval or disapproval under ¶ 5.5 (Approval of Deliverables) of any deliverables that are required to be submitted for EPA approval, and

(b) Any disapproval of, or Notice of Work Completion under~~, ¶ 3.13~~ Section XXVII of the Settlement (Notice of Work Completion).

(c) Any modifications of this SOW or related deliverables under ¶ 1~~8~~7 and ~~¶ 89~~Section XXVI of the Settlement.

8. REFERENCES

8.1 The following regulations and guidance documents, among others, apply to the Work. Any item for which a specific URL is not provided below is available on one of the two EPA Web pages listed in ¶ 8.2:

(a) Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER 9355.3-01, EPA/540/G 89/004 (Oct. 1988).

~~(a)~~(b) A Compendium of Superfund Field Operations Methods, OSWER 9355.0-14, EPA/540/P-87/001a (Aug. 1987).

~~(b)~~(c) CERCLA Compliance with Other Laws Manual, Part I: Interim Final, OSWER 9234.1-01, EPA/540/G-89/006 (Aug. 1988).

~~(c)~~(d) CERCLA Compliance with Other Laws Manual, Part II, OSWER 9234.1-02, EPA/540/G-89/009 (Aug. 1989).

~~(d)~~(e) Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, OSWER 9355.5-01, EPA/540/G-90/001 (Apr. 1990).

~~(e)~~(f) Guidance on Expediting Remedial Design and Remedial Actions, OSWER 9355.5-02, EPA/540/G-90/006 (Aug. 1990).

~~(f)~~(g) Guide to Management of Investigation-Derived Wastes, OSWER 9345.3-03FS (Jan. 1992).

~~(g)~~(h) Permits and Permit "Equivalency" Processes for CERCLA On-Site Response Actions, OSWER 9355.7-03 (Feb. 1992).

~~(h)~~(i) Guidance for Conducting Treatability Studies under CERCLA, OSWER 9380.3-10, EPA/540/R 92/071A (Nov. 1992).

~~(i)~~(j) National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, 40 C.F.R. Part 300 (Oct. 1994).

~~(j)~~(k) Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (Mar. 1995). Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA/540/R-95/059 (June 1995).

~~(k)~~(l) EPA Guidance for Data Quality Assessment, Practical Methods for Data Analysis, QA/G-9, EPA/600/R-96/084 (July 2000).

~~(l)~~(m) Operation and Maintenance in the Superfund Program, OSWER 9200.1-37FS, EPA/540/F-01/004 (May 2001).

~~(m)~~(n) Guidance for Quality Assurance Project Plans, QA/G-5, EPA/240/R-02/009 (Dec. 2002).

~~(n)~~(o) Institutional Controls: Third Party Beneficiary Rights in Proprietary Controls (Apr. 2004).

~~(o)~~(p) Quality Systems for Environmental Data and Technology Programs -- Requirements with Guidance for Use, ANSI/ASQ E4-2004 (2004).

~~(p)~~(q) Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3, EPA/505/B-04/900A though 900C (Mar. 2005).

~~(q)~~(r) Superfund Community Involvement Handbook, EPA/540/K-05/003 (Apr. 2005).

~~(r)~~(s) EPA Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, EPA/240/B-06/001 (Feb. 2006).

~~(s)~~(t) EPA Requirements for Quality Assurance Project Plans, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006).

~~(t)~~(u) EPA Requirements for Quality Management Plans, QA/R-2, EPA/240/B-01/002 (Mar. 2001, reissued May 2006).

~~(u)~~(v) USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4 (Dec. 2006).

~~(v)~~(w) USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2 (amended Apr. 2007).

~~(w)~~(x) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2008), available at https://www.epa.gov/geospatial/geospatial-policies-and-standards and https://www.epa.gov/geospatial/epa-national-geospatial-data-policy.

~~(x)~~(y) Principles for Greener Cleanups (Aug. 2009), available at https://www.epa.gov/greenercleanups/epa-principles-greener-cleanups.

~~(y)~~(z) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).

~~(z)~~(aa) Clean Water Act Section 404(b)(1) Guidelines (40 CFR 230), (July 2010), https://www.epa.gov/cwa-404/section-404b1-guidelines-40-cfr-230.

~~(aa)~~(bb) Recommended Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance," OSWER 9355.7-18 (Sep. 2011).

~~(bb)~~(cc) Construction Specifications Institute's MasterFormat 2016, available from the Construction Specifications Institute, https://www.csiresources.org/practice/standards/masterformat.

~~(cc)~~(dd) Updated Superfund Response and Settlement Approach for Sites Using the Superfund Alternative Approach, OSWER 9200.2-125 (Sep. 2012)

~~(dd)~~(ee) Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012).

~~(ee)~~(ff) Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012).

~~(ff)~~(gg) EPA's Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), http://www.epaosc.org/_HealthSafetyManual/manual-index.htm

(hh) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).

(ii) Guidance for Management of Superfund Remedies in Post Construction, OLEM 9200.3-105 (Feb. 2017).

~~(gg)~~(jj) USEPA Portland Harbor Superfund Site, Sampling Plan for Pre-Remedial Design, Baseline and Long-Term Monitoring (June. 2017).

8.2 ~~8.2~~ A more complete list may be found on the following EPA Web pages:

Laws, Policy, and Guidance https://www.epa.gov/superfund/superfund-policy-guidance-and-laws

Test Methods Collections https://www.epa.gov/measurements/collection-methods

8.3

For any regulation or guidance referenced in the Settlement or SOW, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Respondents receive notification from EPA of the modification, amendment, or replacement.

Figure 1

Optimized Remedial Design Timeline

WORKING DRAFT

Attachment 1~~Appendix C~~

Program Data Management Plan for Portland Harbor Including Electronic Data Deliverable Format

Attachment 2~~Appendix D~~

Example Sufficiency Assessment Summary Table