UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 10

IN THE MATTER OF: Portland Harbor Superfund Site Portland, Multnomah County, Oregon Arkema Inc. and Bayer CropScience Inc. Respondents Proceeding Under Sections 104, 107, and 122 of the Comprehensive, Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9604, 9607 and 9622	CERCLA Docket No. 10-2020-0054 **ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMEDIAL DESIGN AT RIVER MILE 7 WEST PROJECT AREA**

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent (Settlement) is entered into voluntarily by the United States Environmental Protection Agency (EPA) and Arkema Inc. and Bayer CropScience Inc. (Respondents). This Settlement provides for the performance of 100% Remedial Design of the River Mile 7 West Project Area and the payment by Respondents of certain response costs incurred by the EPA, the Oregon Department of Environmental Quality, and the Tribal Governments at or in connection with the Work conducted under this Settlement, related to the selected remedy for the in-river portion of the Portland Harbor Superfund Site (the Site).

2. This Settlement is issued under the authority vested in the President of the United States by Sections 104, 107, and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9604, 9607, and 9622 (CERCLA). This authority was delegated to the EPA Administrator on January 23, 1987 by Executive Order 12580, 52 Fed. Reg. 2923 (Jan. 29, 1987), and further delegated to the EPA Regional Administrators by EPA Delegation Nos. 14-14-C (Administrative Actions Through Consent Orders, Jan. 18, 2017) and 14-14-D (Cost Recovery Non-Judicial Agreements and Administrative Consent Orders, Jan. 18, 2017). This authority has been re-delegated by the Region 10, Regional Administrator (Regional Administrator) to the Region 10, Director, Superfund and Emergency Management Division, and Branch Chiefs thereunder by EPA Delegations R10 14-14-C and 14-14-D (April 15, 2019).

3. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the natural resource trustees for the Portland Harbor Site of negotiations with Respondents regarding the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Settlement consistent with the process agreed to in the 2001 Memorandum of Understanding related to the Site.

4. EPA and Respondents recognize that this Settlement has been negotiated in good faith and that the actions undertaken by Respondents in accordance with this Settlement do not constitute an admission of any liability. Respondents do not admit, and retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement, the validity of the findings of facts, conclusions of law, and determinations in Sections V (Findings of Fact) and VI (Conclusions of Law and Determinations) of this Settlement. Respondents agree to comply with and be bound by the terms of this Settlement and further agree that they will not contest the basis or validity of this Settlement or its terms.

II. PARTIES BOUND

5. This Settlement is binding upon EPA and upon Respondents and Respondents' successors and assigns. Any change in ownership or corporate status of Respondents including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondents' responsibilities under this Settlement.

6. Respondents are jointly and severally liable for carrying out all activities required by this Settlement. In the event of the insolvency or other failure of a Respondent to implement the requirements of this Settlement, the remaining Respondent shall complete all such requirements.

7. Each of the undersigned representatives certifies that she or he is fully authorized to enter into the terms and conditions of this Settlement on behalf of the Respondent for whom that representative signs and to execute and legally bind such Respondent to this Settlement.

8. Respondents shall provide a copy of this Settlement to each contractor hired to perform the Work required by this Settlement and to each person representing any Respondent with respect to the Work, and shall condition all contracts entered into under this Settlement on performance of the Work in conformity with the terms of this Settlement. Respondents or their contractors shall provide written notice of the Settlement to all subcontractors hired to perform any portion of the Work required by this Settlement. Respondents shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with the terms of this Settlement.

III. STATEMENT OF PURPOSE

9. The purpose of this Settlement is to perform 100% Remedial Design (RD) at the River Mile 7 West Project Area. 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 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. Data collected since the ROD as part of the Portland Harbor Pre-Remedial Design Investigation (PDI) and Baseline Sampling Study (AECOM and Geosyntec, 2019) has been approved by EPA and, combined with Site data previously approved by EPA, and data collected for the River Mile 7 West Project Area pursuant to this Settlement, will be used to refine SMAs, select appropriate remedial technologies, and identify any uncontrolled sources of recontamination. This Settlement does not include performance of the RA for the River Mile 7 West Project Area.

IV. DEFINITIONS

10. Unless otherwise expressly provided in this Settlement, terms used in this Settlement that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement or its attached appendices, the following definitions shall apply:

"Affected Property" shall mean all real property within the River Mile 7 West Project Area and any other real property where EPA determines, at any time, that access or land, water, or other resource use restrictions are needed to perform the Work under this Settlement Agreement.

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9601-9675.

"Day" or "day" shall mean a calendar day. In computing any period of time under this Settlement, where the last day would fall on a Saturday, Sunday, or federal or State holiday, the period shall run until the close of business of the next working day.

"Effective Date" shall mean the effective date of this Settlement as provided in Section XXIX.

"Eligible Acre" or "Eligible Acreage" shall mean the acreage of the sediment management areas within the River Mile 7 West Project Area, with the following qualifications:

1. The acreage of the sediment management areas will be calculated based on Figure 30 of the Record of Decision for the Portland Harbor Site, for SMA Alternative F Mod. The Eligible Acres are used solely to provide a rough apportionment of funds to areas identified in the ROD as requiring active remediation and do not reflect, nor will be adjusted to incorporate, subsequent data collected, modifications to the ROD including explanations of significant differences, claims of errors in depictions in Figure 30 of the ROD, or actual acreage that is determined to require active remediation during design or any other process.
2. The work areas identified as the following CERCLA Docket Numbers, are excluded from the definition of Eligible Acres: CERCLA Docket No. 10-2004-0009 (Terminal 4 Removal Action Area); CERCLA Docket No. 10-2009-0255 (Gasco Sediments Site); CERCLA Docket No. 10-2013-0087 (RM11E Project Area); and CERCLA Docket No. 10-2019-0142 (Willamette Cove Project Area).
3. Eligible acreage will be calculated to the nearest 1/10th of an acre of the total Eligible Acres in the Settlement.
4. Each Eligible Acre, or portion thereof, may only be claimed once within the Site.
5. Eligible Acreage is determined at the time this Settlement is executed. If an existing order identified above is amended within the Offer Period to include 100% RD for Eligible Acres, then those Eligible Acres are eligible for funding. Eligible Acreage is determined at the time the amendment of the existing order identified above is executed.

Eligible Acreage, as determined at the time this Settlement is executed, is 32.8 acres. Eligible Acreage within the Arkema SOW is 24.9 acres. Eligible Acreage within the Bayer CropScience SOW is 7.9 acres.

"EPA" shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

"EPA Hazardous Substance Superfund" shall mean the Hazardous Substance Superfund established by the Internal Revenue Code, 26 U.S.C. § 9507.

"EPA Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the EPA incurs from the Effective Date of this Settlement through the Notice of Work Completion pursuant to Section XXVIII (Notice of Work Completion) in reviewing or developing deliverables submitted pursuant to this Settlement, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Settlement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Section IX (Property Requirements) (including, but not limited to, cost of attorney time), ¶ 73 (Work Takeover), ¶ 16 (Emergencies and Releases), ¶ 96 (Access to Financial Assurance), ¶ 17 (Community Involvement (including the costs of any technical assistance grant under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e)), and the costs incurred by EPA in enforcing the terms of this Settlement, including all costs incurred in connection with Dispute Resolution pursuant to Section XV (Dispute Resolution) and all litigation costs. EPA Future Response Costs shall also include all response costs incurred in negotiating this Settlement or in connection with developing the SOW and related documents which Respondent has agreed to pay under this Settlement and charged to accounts 10BX (Arkema) and 10RZ (Bayer) that have accrued pursuant to 42 U.S.C. § 9607(a) during the period from March 27, 2019 to the Effective Date.

"Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year. Rates are available online at https://www.epa.gov/superfund/superfund-interest-rates.

"Interest Earned" shall mean interest earned on amounts in the Portland Harbor Arkema or Bayer CropScience Disbursement Special Accounts, which shall be computed monthly at a rate based on the annual return on investments of the EPA Hazardous Substance Superfund. The applicable rate of interest shall be the rate in effect at the time the interest accrues.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

"Non-Settling Owner" shall mean any person, other than Respondents, that owns or controls any Affected Property. The phrase "Non-Settling Owner's Affected Property" means Affected Property owned or controlled by Non-Settling Owner.

"ODEQ" shall mean the Oregon Department of Environmental Quality and any successor departments or agencies of the State.

"ODEQ Response Costs" shall mean all direct and indirect costs that ODEQ incurs in coordinating and consulting with EPA in conjunction with EPA's planning and implementation of this Settlement. ODEQ Response Costs are only those costs incurred to fulfill the requirements of this Settlement, including review of plans, reports, and assessments prepared pursuant to this Settlement; and scoping, planning, and negotiating this Settlement, but excluding any costs related to natural resource damages assessments, liability or restoration or any costs related to ODEQ oversight or enforcement of upland or upriver investigation or source control by the owners or operators of those upland or upriver sources. ODEQ Responses Costs are only those costs that are not inconsistent with the NCP, 40 C.F.R. Part 300, and are recoverable response costs pursuant to Sections 104 and 107 of CERCLA, 42 U.S.C. §§ 9604 and 9607. ODEQ Response Costs shall not include the costs of oversight or data gathered by ODEQ concerning any other response action or Settlement Agreement associated with the Site. ODEQ Response Costs shall not include any direct or indirect costs incurred in relation to this Settlement prior to March 27, 2019.

"Owner Respondent" shall mean a Respondent who owns or controls some of the Affected Property. The phrase "Owner Respondent's Affected Property" means Affected Property owned or controlled by Owner Respondent.

"Paragraph" or "¶" shall mean a portion of this Settlement identified by an Arabic numeral or an upper or lower case letter.

"Parties" shall mean EPA and Respondents.

"Performance Standards" or "PS" shall mean the cleanup levels and other measures of achievement of the remedial action objectives, as set forth in the ROD.

"Performing Parties" shall mean the Respondents under this Settlement with EPA.

"Portland Harbor Arkema and Bayer CropScience Disbursement Special Accounts" shall mean the special accounts, within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3), and ¶ 41 (Creation of Arkema and Bayer CropScience Disbursement Special Accounts).

"Portland Harbor Remedial Design Special Account" or "RD Special Account" shall mean the special account, within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3), through the Settlement Agreement for Funding Remedial Design, CERCLA Docket no. 10-2019-0094.

"Portland Harbor Special Account" shall mean the special account within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3) through prior settlements related to the Site.

"Portland Harbor Superfund Site" or "Site" for purposes of this Settlement shall mean the in-river portion of the site in Portland, Multnomah County, Oregon listed on the National Priorities List (NPL) on December 1, 2000, 65 Fed. Reg. 75179-01 and for which a final remedy was selected in the January 2017 Record of Decision. As described in the Record of Decision, the Site extends in-river from approximately river mile (RM) 1.9 to 11.8.

"River Mile 7 West Project Area" shall mean for purposes of this Settlement the active cleanup area designated on Figure 31c of the ROD between approximately River Mile 6.5 and River Mile 7.6 on the west side of the Willamette River, and more specifically depicted on the map attached as Appendix B. The River Mile 7 West Project Area includes all riverbanks from top of the bank to river.

"RCRA" shall mean the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992 (also known as the Resource Conservation and Recovery Act).

"Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Site, signed on January 3, 2017, by the Administrator of EPA, and all attachments thereto as the same may be modified or amended from time to time including, but not limited to, pursuant to any subsequent ROD amendment or Explanation of Significant Differences. A copy of the ROD can be found at https://semspub.epa.gov/work/10/100036257.pdf.

"Remedial Action" or "RA" shall mean the remedial action selected in the ROD.

"Remedial Design" or "RD" shall mean those remedial design activities to be undertaken to develop the final plans and specifications for the RA as stated in the SOWs depicted as the River Mile 7 West Project Area on the map attached as Appendix B.

"Respondents" shall mean Arkema Inc. and Bayer CropScience Inc.

"Section" shall mean a portion of this Settlement identified by a Roman numeral.

"Settlement" shall mean this Administrative Settlement Agreement and Order on Consent and all appendices attached hereto (listed in Section XXVI (Integration/Appendices)). In the event of conflict between this Settlement and any appendix, this Settlement shall control.

"Settlement Agreement for Funding Remedial Design" shall mean the settlement agreement entered into by the EPA and the Settling Funding Parties under CERCLA Docket No. 10-2019-0094.

"Settling Funding Parties" shall mean the City of Portland and State of Oregon, by and through its Department of Transportation and its Department of State Lands.

"Statements of Work" or "SOWs" shall refer to the documents describing the activities for which Respondents, between themselves, have agreed to take lead responsibility. As between Respondents, Arkema will be lead for work set forth in

Appendix A1 (the Arkema SOW) and Bayer CropScience will be lead for work set forth in Appendix A2 (the Bayer CropScience SOW). However, Respondents are both responsible for all Work required to be performed under this ASAOC reflected in both SOWs.

"Supervising Contractor" shall mean the principal contractor retained by each Respondent to supervise and direct the implementation of the Work under this Settlement.

"Transfer" shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

"Tribal Governments" shall mean the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe. References to "Tribal Governments" in this Settlement may be a reference to an individual tribe, the tribes collectively, or some combination thereof.

"Tribal Response Costs" shall mean all direct and indirect costs that the Tribal Governments and their employees, agents, contractors, consultants and other authorized representatives incur in coordinating and consulting with EPA in conjunction with EPA's planning and implementation of this Settlement. Tribal Response Costs are only those costs incurred to fulfill the requirements of this Settlement, including review of plans, reports, and assessments prepared pursuant to this Settlement; development of common positions and coordination among the Tribes; briefings to tribal leaders and tribal communities; and scoping and planning, and negotiating this Settlement and budgets; participation in community involvement activities; negotiation and implementation of any response cost funding agreements with the Respondents; and the costs incurred in enforcing the terms of any response cost funding agreements with the Respondents, including all costs incurred in connection with dispute resolution and all litigation costs, but excluding any costs related to natural resource damages assessments, liability or restoration. Tribal Response Costs are only those costs that are not inconsistent with the NCP, 40 C.F.R. Part 300, and are recoverable response costs pursuant to Sections 104 and 107 of CERCLA, 42 U.S.C. §§ 9604 and 9607. Tribal Response Costs shall not include the costs of oversight or data gathered by Tribal Governments concerning any other response action or Settlement associated with the Site. Tribal Response Costs shall not include any direct or indirect costs incurred in relation to this Settlement prior to March 27, 2019.

"United States" shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA and any federal natural resource trustee.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any "hazardous substance" under ORS 465.200 *et seq*.

"Work" shall mean all activities and obligations that Respondents are required to perform within the River Mile 7 West Project Area under this Settlement, except those required by Section XI (Record Retention).

V. FINDINGS OF FACT

11. Based on available information and investigation, EPA makes the following findings, which Respondents neither admit nor deny:

a. Historical industrial, commercial, agricultural, and municipal practices and releases of contaminants dating back to the early 1900s contributed to the observed chemical distribution of sediments within the Site. Historical sources responsible for the existing contamination include, but are not limited to: ship building, repair and dismantling; wood treatment and lumber milling; storage of bulk fuels and manufactured gas plant (MGP) waste; chemical manufacturing and storage; metal recycling, production and fabrication; steel mills, smelters and foundries; electrical production and distribution; municipal combined sewer overflows; and stormwater from industrial, commercial, transportation, residential and agricultural land uses. Operations that continue to exist today include: bulk fuel storage; barge building; ship repair; automobile scrapping; recycling; steel manufacturing; cement manufacturing; operation and repair of electrical transformers; and many smaller industrial operations, as well as other commercial, agricultural, and municipal practices.

b. On December 1, 2000, the Portland Harbor Superfund Site was listed on the National Priorities List due mainly to concerns about contamination in the sediments and the potential risks to human health and the environment from consuming fish. The most widespread contaminants found at the Site include, but are not limited to, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and dioxins/furans.

c. In 2001, EPA entered into a Memorandum of Understanding for the Portland Harbor Site (the MOU) with the Oregon Department of Environmental Quality (ODEQ), National Oceanic and Atmospheric Administration within the Department of Commerce, the United States Fish and Wildlife Service within the Department of the Interior, the Oregon Department of Fish and Wildlife and the Tribal Governments. The MOU, among other things, established the roles and responsibilities between EPA and ODEQ on managing the upland and in-river portions of the Site and set up a framework for technical and legal coordination among EPA and the Natural Resource Trustees; and relative to the Tribal Governments it sought to acknowledge the federal government's consultation requirements concerning the Portland Harbor Superfund Site, and to ensure the Tribal Governments' participation in the response actions at the Portland Harbor Superfund Site.

d. The Tribal Governments have treaty-reserved rights and resources and other rights, interests, or resources in the Site. The National Oceanic and Atmospheric Administration, the United States Department of the Interior, the Oregon Department of Fish & Wildlife, and the Tribal Governments are designated Natural Resource Trustees overseeing the assessment of natural resource damages at the Site. To the extent practicable, EPA intends that the Work under this Settlement will be conducted so as to be coordinated with any natural resource damage assessment and restoration of the Portland Harbor Superfund Site. EPA intends

to provide the Tribal Governments and the federal and state Natural Resource Trustees an opportunity to review and comment on plans, reports, and other deliverables submitted by Respondents to EPA under this Settlement.

e. A remedial investigation and feasibility study (RI/FS) was initiated in 2001 and completed in 2017. As part of the RI/FS, baseline human health and ecological risk assessments were conducted to estimate the current and future effects of contaminants in sediments, surface water, groundwater seeps, and fish tissue on human health and the environment. The risk assessments provided the basis for taking action and identified the contaminants of potential concern (COPCs) and exposure pathways that the remedial action should address.

f. The baseline human health risk assessment (BHHRA) estimated cancer risks and noncancer health hazards from exposures to a set of chemicals in sediments (both beach and in-river), surface water, groundwater seeps, and fish tissue from samples collected at the Site.

g. The baseline ecological risk assessment (BERA) estimated risks to aquatic and aquatic-dependent species exposed to hazardous substances associated with the in-river portion of the Site.

h. The BHHRA and BERA concluded that contamination within the Site poses unacceptable risks to human health and the environment from numerous contaminants of potential concern in surface water, groundwater, sediment, and fish tissue. The selected remedy reduced the COPCs to 64 contaminants of concern (COCs) that contribute the most significant amount of risk to the human and ecological receptors. See ROD, Appendix II, Tables 1–5.

i. A subset of the COCs, called focused COCs which spatially encompass the full list of COCs, was developed in order to simplify analysis and develop and evaluate remedial alternatives for the Site. The focused COCs include PCBs, PAHs, dioxins and furans, and DDx.

j. PCBs are classified as probable human carcinogens. Children exposed to PCBs may develop learning and behavioral problems later in life. PCBs are known to impact the human immune system and skin, especially in child receptors, and may cause cancer in people. Nursing infants can be exposed to PCBs in breast milk. PCBs can also bioaccumulate in fish, shellfish, and mammals. In birds and mammals, PCBs can cause adverse effects such as anemia and injuries to the liver, stomach, and thyroid gland. PCBs also can cause problems with the immune system, behavioral problems, and impaired reproduction.

k. PAHs are human health and ecological COCs. PAHs are suspected human carcinogens with potential to cause lung, skin, and bladder cancers with occupational exposure. Animal studies show that certain PAHs affect the hematopoietic, immune, reproductive and neurologic systems and cause developmental effects. They can cause inhibited reproduction, delayed emergence, sediment avoidance, and mortality. In fish, PAHs cause liver abnormalities and impairment of the immune system.

l. Dioxins and furans are human health and ecological COCs. Toxic effects in humans include reproductive problems, problems in fetal development or early childhood, immune system damage, and cancer. Nursing infants can be exposed to dioxins and furans in breast milk. Dioxins and furans can bioaccumulate in fish, shellfish, and mammals. Animal effects include developmental and reproductive problems, hemorrhaging, and immune system problems.

m. DDx, which represents collectively DDT and its primary breakdown products dichlorodiphenyldichloroethane (DDD) and dichlorodiphenyldichloroethene (DDE), are human health and ecological COCs. DDT is considered a possible human carcinogen. DDT and DDE are stored in the body's fatty tissues. In pregnant women, DDT and DDE can be passed to the fetus. Nursing infants can be exposed to DDx in breast milk. Laboratory animal studies showed effects on the liver and reproduction. These compounds can accumulate in fish, shellfish and mammals and can cause adverse reproductive effects such as eggshell thinning in birds.

n. The ROD requires active remediation (dredging, capping and enhanced natural recovery) at areas exceeding the remedial action levels (RALs) for the focused COCs and contaminated riverbanks adjacent to some of those areas, referred to as Sediment Management Areas (SMAs). The ROD allows approximately 1,774 acres of sediment to recover naturally. The ROD estimated the remedy would take 13 years to construct.

o. In December 2017, EPA entered an Administrative Settlement Agreement and Order on Consent for Pre-Remedial Design Investigation and Baseline Sampling with certain parties to fulfill certain data needs identified in the ROD. In June 2019, the results of the Pre-Remedial Design and Baseline Sampling were presented to EPA. The data from the Pre-Remedial Design and Baseline Sampling, accepted for use by EPA, will be used in the development of the remedial design for the River Mile 7 West Project Area.

p. Respondent, Arkema Inc. (previously known as ATOFINA Chemicals, Inc.), owns land and operated facilities at the Site from which there have been documented releases of certain COCs that are alleged to have discharged or further migrated to the Willamette River.

q. Respondent, Bayer CropScience, Inc. (previously known as Rhone-Poulenc, Inc. and Aventis Crop Science USA, Inc.) owned and operated facilities near the Site from which there have been documented releases of certain COCs that are alleged to have discharged or further migrated to the Willamette River.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

12. Based on the Findings of Fact set forth above and the administrative record, EPA makes the following determinations, which Respondents neither admit nor deny:

a. The Portland Harbor Superfund Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The contamination found at the Site, as identified in the Findings of Fact above, includes "hazardous substance(s)" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

c. Respondents are "persons" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. Respondents are alleged by EPA to be potentially responsible parties under Section 107(a)(1) or (2) of CERCLA, 42 U.S.C. § 9607(a)(1) or (2), and each Respondent has agreed to enter into this Settlement.

e. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

f. The RD required by this Settlement is necessary to protect the public health, welfare, or the environment and, if carried out in compliance with the terms of this Settlement, will be consistent with the NCP, as provided in Section 300.700(c)(3)(ii) of the NCP.

VII. SETTLEMENT AGREEMENT AND ORDER

13. Based upon EPA's Findings of Fact, Conclusions of Law, and Determinations set forth above, and the administrative record, it is hereby Ordered and Agreed that Respondents shall comply with all provisions of this Settlement, including, but not limited to, all appendices to this Settlement and any amendments or modifications to this Settlement.

VIII. PERFORMANCE OF THE WORK

14. **Coordination and Supervision**

a. **Project Coordinators**.

(1) Each Respondent's Project Coordinator must have sufficient technical expertise to coordinate the Work. Respondent's Project Coordinator may not be an attorney representing any Respondent in this matter and may not act as the Supervising Contractor. Respondent's Project Coordinator may assign other representatives, including other contractors, to assist in coordinating the Work.

(2) EPA's designated Project Coordinator is Hunter Young and EPA's designated Alternate Project Coordinator is Davis Zhen. EPA may designate other representatives, which may include its employees, contractors and/or consultants, to oversee the Work. EPA may arrange for ODEQ personnel to act as the authorized Project Coordinator for certain aspects of the RD Work, with EPA remaining as lead agency, subject to Respondent's agreement. EPA's Project Coordinator will have the same authority as a remedial project manager and/or an on-scene coordinator, as described in the NCP. This includes the authority to halt the Work and/or to conduct or direct any necessary response

action when he or she determines that conditions within the River Mile 7 West Project Area constitute an emergency or may present an immediate threat to public health or welfare or the environment due to a release or threatened release of Waste Material.

(3) Each Respondent's Project Coordinator shall communicate regularly with EPA by phone, web meeting, or in person to discuss design issues as necessary, as directed or determined by EPA.

b. **Supervising Contractor.** Each Respondent's proposed Supervising Contractor must have sufficient technical expertise to supervise the Work and a quality assurance system that complies with ASQ/ANSI E4:2014, "Quality management systems for environmental information and technology programs - Requirements with guidance for use" (American Society for Quality, February 2014).

c. **Procedures for Disapproval/Notice to Proceed**

(1) Each Respondent shall designate, and notify EPA, within 10 days after the Effective Date, of the name(s), title(s), contact information, and qualifications of that Respondent's proposed Project Coordinator and Supervising Contractor, whose qualifications shall be subject to EPA's review for verification based on objective assessment criteria (*e.g.*, experience, capacity, technical expertise) and do not have a conflict of interest with respect to the project.

(2) EPA shall issue notices of disapproval and/or authorizations to proceed regarding each Respondent's proposed Project Coordinator and Supervising Contractor, as applicable. If EPA issues a notice of disapproval to either Respondent, that Respondent shall, within 30 days, submit to EPA a list of supplemental proposed Project Coordinators and/or Supervising Contractors, as applicable, including a description of the qualifications of each. EPA shall issue a notice of disapproval or authorization to proceed regarding each supplemental proposed coordinator and/or contractor. Respondents may select any coordinator/contractor covered by an authorization to proceed and shall, within 21 days, notify EPA of Respondents' selection.

(3) Either Respondent may change its Project Coordinator and/or Supervising Contractor, as applicable, by following the procedures of ¶¶ 14.c(1) and 14.c(2).

15. **Performance of Work in Accordance with SOWs.** Although Respondents are responsible for all Work required under this ASAOC, each Respondent shall develop the RD in accordance with its respective SOW and all EPA-approved, conditionally-approved, or modified deliverables as required by the respective SOW. All deliverables required to be submitted for approval under the Settlement or SOW shall be subject to approval by EPA in accordance with ¶ 5.5 (Approval of Deliverables) of each respective SOW.

16. **Emergencies and Releases**. Each Respondent shall comply with the emergency and release response and reporting requirements required in ¶ 3.11 of its respective SOW.

Subject to Section XVIII (Covenants by EPA), nothing in this Settlement, including¶ 3.11 of the SOW, limits any authority of EPA: (a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site, or (b) to direct or order such action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site. If, due to a Respondent's failure to take appropriate response action under ¶ 3.11 of the SOW, EPA takes such action instead, that Respondent shall reimburse EPA under Section XIII (Payment of Response Costs) for all costs of the response action.

17. **Community Involvement**. If requested by EPA, Respondents shall conduct community involvement activities under EPA's oversight as provided for in, and in accordance with, Section 2 (Community Involvement) of each respective SOW. Such activities may include, but are not limited to, designation of a Community Involvement Coordinator. Costs incurred by EPA under this Section constitute Future Response Costs to be reimbursed under Section XIII (Payment for Response Costs).

18. **Modification of SOW or Related Deliverables**

a. If EPA determines that it is necessary to modify the work specified in either or both SOWs and/or in deliverables developed under either or both SOWs in order to carry out the RD, then EPA may notify Respondents of such modification. Any such modification must be in accordance with Section III (Statement of Purpose). If either or both Respondents object to the modification, either or both Respondent may, within 30 days after EPA's notification, seek dispute resolution under Section XV (Dispute Resolution).

b. The SOW or SOWs and/or related work plans shall be modified: (1) in accordance with the modification issued by EPA; or (2) if either or both Respondents invoke dispute resolution, in accordance with the final resolution of the dispute. The modification shall be incorporated into and enforceable under this Settlement, and Respondents shall implement all work required by such modification. Respondents shall incorporate the modification into the deliverable required under the respective SOW or both SOWs, as appropriate.

c. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions as otherwise provided in this Settlement. However, nothing in this Settlement shall be construed as requiring a Respondent under this Settlement to perform any work other than the Work provided under this Settlement or to reimburse any costs that do not constitute EPA Future Response Costs, ODEQ Response Costs or Tribal Response Costs.

19. **Notices and Submissions**

Respondents shall deliver a copy of this fully-executed Settlement to the Settling Funding Parties and their Trustee within 7 days of the Effective Date of this Settlement.

As to Settling Funding Parties:

State of Oregon

Jim McKenna
Natural Resources Policy Analyst
Office of Governor Kate Brown
1600 SW 4th Avenue, Suite 109
Portland, Oregon 97201
jim.j.mckenna@oregon.gov

Lynne Perry
Senior Assistant Attorney General
Natural Resources Section
Oregon Department of Justice
100 SW Market Street
Portland, OR 97201
lynne.perry@doj.state.or.us

City of Portland:

Annie Von Burg
Environmental Policy Manager
Bureau of Environmental Services
888 SW 5th Avenue, Suite 400
Portland, Oregon 97204
Annie.VonBurg@portlandoregon.gov

Nanci Klinger
Sr. Deputy City Attorney
Office of Portland City Attorney
1221 SW 4th Avenue
Portland, OR 97204
Nanci.Klinger@portlandoregon.gov

As to the Trustee:

Daniel J. Silver
Trustee for Portland Harbor Remedial Design Trust
606 Columbia St. NW Suite 212
Olympia, WA 98501
danieljsilver@msn.com

IX. PROPERTY REQUIREMENTS

20. **Agreements Regarding Access and Non-Interference.** Respondents shall, with respect to any Non-Settling Owner's Affected Property, use best efforts to secure from such

Non-Settling Owner an agreement, enforceable by Respondents and the EPA, providing that such Non-Settling Owner, and Owner Respondent shall, with respect to the Affected Property: (i) provide EPA, ODEQ, the Respondents, and their representatives, contractors, and subcontractors with access at all reasonable times to such Affected Property to conduct any activity regarding the Settlement, including those activities listed in ¶ 20.a (Access Requirements); and (ii) refrain from using such Affected Property in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material, or that interferes with or adversely affects the implementation or integrity of the Work under this Settlement. Respondents shall provide a copy of such access and use restriction agreement(s) to EPA.

a. **Access Requirements.** The following is a list of activities for which access may be required regarding the Affected Property to implement the Work:

(1) Monitoring the Work;

(2) Verifying any data or information submitted to the United States;

(3) Conducting investigations regarding contamination at or near the River Mile 7 West Project Area;

(4) Obtaining samples;

(5) Assessing the need for, planning, implementing, or monitoring response actions;

(6) Assessing implementation of data management and institutional controls defined in the approved data management work plan and ICIAP as provided in the SOWs;

(7) Implementing the Work pursuant to the conditions set forth in ¶ 73 (Work Takeover);

(8) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Respondents or its agents, consistent with Section X (Access to Information);

(9) Assessing Respondent's compliance with the Settlement;

(10) Determining whether the Affected Property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Settlement; and

(11) Implementing, monitoring, maintaining, reporting on, and enforcing any land, water, or other resource use restrictions regarding the Affected Property.

21. **Best Efforts**. As used in this Section, "best efforts" means the efforts that a reasonable person in the position of Respondents would use so as to achieve the goal in a timely manner, including the cost of employing professional assistance and the payment of reasonable sums of money to secure access, as required by this Section. If Respondents are unable to accomplish what is required through "best efforts" in a timely manner, it shall notify EPA, and include a description of the steps taken to comply with the requirements. If EPA deems it appropriate, it may assist Respondents, or take independent action, in obtaining such access. All costs incurred by the United States in providing such assistance or taking such action, including the cost of attorney time, constitute EPA Future Response Costs to be reimbursed under Section XIII (Payment of Response Costs).

22. If EPA determines in a decision document prepared in accordance with the NCP that institutional controls in the form of state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices are needed, Respondents shall cooperate with EPA's efforts to secure and ensure compliance with such institutional controls.

23. In the event of any Transfer of the Affected Property, unless EPA otherwise consents in writing, Respondents shall continue to comply with its obligations under the Settlement, including their obligation to secure access.

24. **Notice to Successors-in-Title**. Owner Respondent shall, prior to entering into a contract to Transfer its Affected Property, or 60 days prior to Transferring its Affected Property, whichever is earlier: (a) Notify the proposed transferee that EPA has determined that an RD must be performed at the River Mile 7 West Project Area, that potentially responsible parties have entered into an Administrative Settlement Agreement and Order on Consent requiring implementation of such RD, (identifying the name, docket number, and the effective date of this Settlement); and (b) Notify EPA of the name and address of the proposed transferee and provide EPA with a copy of the above notice that it provided to the proposed transferee.

25. Notwithstanding any provision of the Settlement, EPA retains all of its access authorities and rights, as well as all of its rights to require land, water, or other resource use restrictions, including enforcement authorities related thereto under CERCLA, RCRA, and any other applicable statute or regulations.

X. ACCESS TO INFORMATION

26. Respondents shall provide to EPA, upon request, copies of all records, reports, documents and other information (including records, reports, documents and other information in electronic form) (hereinafter referred to as "Records") within its possession or control or that of its contractors or agents relating to activities at the River Mile 7 West Project Area or to the implementation of this Settlement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondents shall also make available to EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

27. **Privileged and Protected Claims**

a. Respondents may assert all or part of a Record requested by EPA is privileged or protected as provided under federal law, in lieu of providing the Record, provided Respondents complies with ¶ 27.b, and except as provided in ¶ 27.c.

b. If Respondents assert such a privilege or protection, it shall provide EPA with the following information regarding such Record: its title; its date; the name, title, affiliation (e.g., company or firm), and address of the author, of each addressee, and of each recipient; a description of the Record's contents; and the privilege or protection asserted. If a claim of privilege or protection applies only to a portion of a Record, Respondents shall provide the Record to EPA in redacted form to mask the privileged or protected portion only. Respondents shall retain all Records that it claims to be privileged or protected until EPA has had a reasonable opportunity to dispute the privilege or protection claim and any such dispute has been resolved in Respondent's favor.

c. Respondents may make no claim of privilege or protection regarding: (1) any data regarding the River Mile 7 West Project Area, including, but not limited to, all such sampling, analytical, monitoring, hydrogeological, scientific, chemical, radiological, or engineering data, or the portion of any other Record that evidences conditions at or around the River Mile 7 West Project Area; or (2) the portion of any Record that Respondents are required to create or generate pursuant to this Settlement.

28. **Business Confidential Claims**. Respondents may assert that all or part of a Record provided to EPA under this Section or Section XI (Record Retention) is business confidential to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Respondents shall segregate and clearly identify all Records or parts thereof submitted under this Settlement for which Respondents asserts business confidentiality claims. Records claimed as confidential business information will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA, or if EPA has notified Respondents that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Respondent.

29. Notwithstanding any provision of this Settlement, EPA retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XI. RECORD RETENTION

30. Until 10 years after completion of the Remedial Action, each Respondent shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to its potential liability under CERCLA with respect to the Site, provided, however, that a Respondent who is potentially liable as an owner or operator of the Site must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect

to the Site. Each Respondent must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above, all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in their possession or control or that come into its possession or control that relate in any manner to the performance of the Work, provided, however, that each Respondent (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

31. At the conclusion of the document retention period, each Respondent shall notify EPA at least 90 days prior to the destruction of any such Records and, upon request by EPA, and except as provided for in ¶ 27 (Privileged and Protected Claims), such Respondent shall deliver any such Records to EPA.

32. Each Respondent certifies that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by EPA and that it has fully complied with any and all EPA requests for information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927, and state law.

XII. COMPLIANCE WITH OTHER LAWS

33. Nothing in this Settlement limits Respondents' obligations to comply with the requirements of all applicable federal and state laws and regulations. Respondents must also comply with all applicable or relevant and appropriate requirements of all federal and state environmental laws as set forth in the ROD and the SOW. The activities conducted pursuant to this Settlement, if approved by EPA, shall be considered consistent with the NCP.

34. **Permits**. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(c)(3) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-site (i.e. within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any portion of the Work that is not on-site requires a federal, state, or local permit or approval, Respondents shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals.

35. Respondents may seek relief under the provisions of Section XVI (Force Majeure) for any delay in performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval referenced in ¶ 34 (Permits) and required for the Work, provided that it has submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals. This Settlement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

XIII. PAYMENT OF RESPONSE COSTS

36. **Payments by Respondents for EPA Future Response Costs**. Respondents shall pay to EPA all EPA Future Response Costs not inconsistent with the NCP.

a. **Periodic Bills**. On a periodic basis, EPA will send each Respondent a bill requiring payment that includes a SCORPIOS Report or similar EPA-prepared cost summary report, which includes direct and indirect costs incurred by EPA, its contractors, subcontractors, and the United States Department of Justice in relation to that Respondent's individual SOW. Respondents shall make all payments within 30 days after Respondents' receipt of each bill requiring payment, except as otherwise provided in ¶ 38 (Contesting EPA Future Response Costs).

b. **Payments.** Payments made pursuant to this Paragraph 36 shall be made by EFT in accordance with EFT instructions provided by EPA, or by submitting a certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party making the payment, the Site name, the EPA Region, the account number 10BX (Arkema) or 10RZ (Bayer), and the EPA docket number for this action. Respondents shall send the check to:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
P.O. Box 979076
St. Louis, MO 63197-9000

Respondents shall use the following address for payments made by overnight mail:

U.S. Environmental Protection Agency
Government Lockbox 979076
1005 Convention Plaza
SL-MO-C2GL
St. Louis, MO 63101-1229

c. **Notice.** At the time of payment, Respondents shall send notice that payment has been made to EPA to the Region 10 Project Coordinator and to the Servicing Finance Office, EPA Finance Center, MS-NWD, Cincinnati, OH 45268.

d. **Deposit of EPA Future Response Costs Payments**. The total amount to be paid by Respondents pursuant to ¶ 36.a (Periodic Bills) shall be deposited by EPA in the Portland Harbor Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund; provided, however, that EPA may deposit an EPA Future Response Costs payment directly into the EPA Hazardous Substance Superfund if, at the time the payment is received, EPA estimates that the Portland Harbor Special Account balance is sufficient to address currently anticipated future response actions to be conducted or financed by EPA at or in connection with the Site. Any decision by EPA to deposit an EPA Future Response Costs payment directly into the EPA Hazardous Substance Superfund for this reason shall not be subject to challenge by Respondents pursuant to the dispute resolution provisions of this Settlement or in any other forum.

37. **Interest**. In the event that any payment for EPA Future Response Costs is not made by the date required, Respondents shall pay Interest on the unpaid balance. The Interest on EPA Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of Respondent's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the EPA by virtue of Respondent's failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XVII (Stipulated Penalties).

38. **Contesting EPA Future Response Costs**. Respondents may initiate the procedures of Section XV (Dispute Resolution) regarding payment of any EPA Future Response Costs billed under ¶ 36 (Payments for EPA Future Response Costs) if it determines that EPA has made a mathematical error or included a cost item that is not within the definition of EPA Future Response Costs, or if it believes EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP. To initiate such dispute, Respondent shall submit a Notice of Dispute in writing to the EPA Project Coordinator within 30 days after receipt of the bill. Any such Notice of Dispute shall specifically identify the contested EPA Future Response Costs and the basis for objection. If Respondent submits a Notice of Dispute, Respondents shall within the 30-day period, also as a requirement for initiating the dispute, (a) pay all uncontested EPA Future Response Costs to EPA in the manner described in ¶ 36, and (b) establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation (FDIC) and remit to that escrow account funds equivalent to the amount of the contested EPA Future Response Costs. Respondents shall send to the EPA Project Coordinator a copy of the transmittal letter and check paying the uncontested EPA Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. If EPA prevails in the dispute, within 5 days after the resolution of the dispute, Respondents shall pay the sums due (with accrued interest) to EPA in the manner described in ¶ 36. If Respondents prevail concerning any aspect of the contested costs, Respondents shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to EPA in the manner described in ¶ 36. Respondents shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XV (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Respondent's obligation to reimburse EPA for its EPA Future Response Costs.

39. **Payment of ODEQ Response Costs**

a. Each Respondent shall be responsible under this Settlement for reimbursing ODEQ Response Costs incurred pursuant to this Settlement that are not inconsistent with the NCP under the terms of separate agreements to be executed by each Respondent and ODEQ ("ODEQ Agreements"). Subject to the terms of the ODEQ Agreements, ODEQ will submit detailed accountings to each Respondent's Project Coordinator on a monthly basis of all ODEQ Response Costs sought for reimbursement under the ODEQ Agreement. Subject to the terms of the ODEQ Agreements, ODEQ invoices will include a summary of costs billed to date and all underlying documentation including but not limited to: ODEQ personnel time sheets;

travel authorizations and vouchers; ODEQ contractor monthly invoices; and all applicable laboratory invoices.

b. Disputes regarding ODEQ Response Cost bills shall be resolved in accordance with a process agreed to between ODEQ and each Respondent under the ODEQ Agreements, and neither ruled by nor conducted under the dispute resolution provisions of this Settlement.

c. Nothing in this Paragraph shall be construed to limit ODEQ's authority under any source other than this Settlement to seek funding from Respondents or any other party of any costs that ODEQ may incur or may have incurred.

40. **Payment of Tribal Response Costs**

a. Respondents shall be responsible for funding Tribal Response Costs incurred pursuant to this Settlement that are not inconsistent with the NCP under the terms of separate agreements to be executed by each Respondent and the Tribal Governments.

b. Disputes regarding Tribal Response Cost bills shall be resolved in accordance with a process agreed to between the Tribal Governments and Respondents under the separate agreement(s) entered into between Respondents and the Tribal Governments, and neither ruled by nor conducted under the dispute resolution provisions of this Settlement.

c. Nothing in this section shall in any way be construed to limit the rights of the Tribal Governments to seek to recover response costs incurred by the Tribal Governments related to this Settlement and disputed by Respondents, or for natural resource damages as defined by 42 U.S.C. § 9607(a)(4)(C).

XIV. DISBURSEMENT OF SPECIAL ACCOUNT FUNDS

41. **Creation of Arkema and Bayer CropScience Disbursement Special Accounts and Agreement to Disburse Funds to Respondents**. Within 30 days after the Effective Date and the receipt of funds from Settling Funding Parties into the RD Special Account, EPA shall: (a) establish the Arkema Disbursement Special Account and transfer $996,000[1] from the RD Special Account to the Arkema Disbursement Special Account, and (b) establish the Bayer CropScience Disbursement Special Account and transfer $316,000[2] from the RD Special Account to the Bayer CropScience Disbursement Special Account. Such funds will then be available for Phase 1 Disbursement as provided in this Section. Funds for Phase 2 Disbursement will only be eligible for disbursement upon amendment of this Settlement as provided in this Section. Subject to the terms and conditions set forth in this Section, EPA agrees to make the funds in the Arkema and Bayer CropScience Disbursement Special Accounts, including Interest Earned on the funds in the Arkema and Bayer CropScience Disbursement Special Accounts, available for disbursement to Respondents as partial reimbursement for performance of the

[1] This amount is calculated by multiplying $40,000 by the Eligible Acres in the Arkema SOW, as defined in this Settlement.

[2] This amount is calculated by multiplying $40,000 by the Eligible Acres in the Bayer CropScience SOW, as defined in this Settlement.

Work. EPA shall disburse funds from the Arkema and Bayer CropScience Disbursement Special Accounts to Respondents in accordance with the procedures and milestones for phased disbursement set forth in this Section.

42. **Timing, Amount, and Method of Phase 1 Disbursements From the Arkema and Bayer CropScience Disbursement Special Accounts**. Within 30 days after EPA's receipt of a Cost Summary and Certification, as defined by ¶ 44.b, or if EPA has requested additional information under ¶ 44.b or a revised Cost Summary and Certification under ¶ 44.c, within 30 days after receipt of the additional information or revised Cost Summary and Certification, and subject to the conditions set forth in this Section, EPA shall disburse the funds from the Arkema and Bayer CropScience Disbursement Special Accounts at the completion of the following milestone, and in the amount set forth below:

Milestone	Disbursement of Funds
EPA approval of Basis of Design Report submitted pursuant to Arkema SOW	$996,000[3] from the Arkema Disbursement Special Account
EPA approval of Basis of Design Report submitted pursuant to Bayer CropScience SOW	$316,000[4] from the Bayer CropScience Disbursement Special Account

Within 30 days after the Effective Date, Respondents shall provide to EPA the name and address for payment or instructions for electronic funds transfer for the Phase 1 Disbursement. EPA shall disburse the funds for the Phase 1 Disbursement from the Arkema and Bayer CropScience Disbursement Special Accounts to Respondents consistent with the information provided.

43. **Timing, Amount, and Method of Phase 2 Disbursements From the Arkema and Bayer CropScience Disbursement Special Accounts**. Within 30 days after EPA's receipt of a Cost Summary and Certification, as defined by ¶ 44.b, or if EPA has requested additional information under ¶ 44.b or a revised Cost Summary and Certification under ¶ 44.c, within 30 days after receipt of the additional information or revised Cost Summary and Certification, and subject to the conditions set forth in this Section, Respondents shall be eligible to request an amendment of this Settlement, to provide for Phase 2 Disbursement in relation to Work conducted pursuant to the Arkema SOW or Work conducted pursuant to the Bayer CropScience SOW. The amendment will replace the current text of this Paragraph 43 with the text in Appendix C. EPA will agree to such an amendment if: (1) EPA has issued the Notice of Work Completion in relation to Work conducted pursuant to the Arkema SOW or the Bayer CropScience SOW, and (2) EPA has sufficient funding in the respective Arkema and Bayer CropScience Disbursement Special Accounts to provide for the calculated amount of the Phase 2 Disbursement.[5] EPA will transfer funds from the RD Special Account and/or request such

[3] This amount is calculated by multiplying $40,000 by the Eligible Acres in the Arkema SOW, as defined in this Settlement.
[4] This amount is calculated by multiplying $40,000 by the Eligible Acres in the Bayer CropScience SOW, as defined in this Settlement.
[5] This amount is calculated by multiplying $40,000 by the Eligible Acres as defined in this Settlement.

funding pursuant to the Settlement Agreement for Funding Remedial Design. Any amendment under this paragraph will be for the sole purpose of memorializing and facilitating the Phase 2 Disbursement.

EPA's obligation to provide for Phase 2 Disbursement under an amendment to this Settlement Agreement shall be limited to funds available in the respective Arkema and Bayer CropScience Disbursement Special Accounts at the time the amendment is finalized. Nothing in this agreement shall be interpreted to require EPA to obligate funds in excess of amounts available in violation of the Antideficiency Act, 31 U.S.C. § 1341, or construed as implying that Congress will, at a later date, appropriate any funds sufficient to meet any deficiency.

Reimbursement for Disbursement Phase 2 will only be provided for claims made on or before December 31, 2027.

Within 30 days after the Effective Date, Respondents shall provide to EPA the name and address for payment or instructions for electronic funds transfer for the Phase 2 Disbursement. EPA shall disburse the funds for the Phase 2 Disbursement from the Arkema and Bayer CropScience Disbursement Special Accounts to Respondents consistent with the information provided.

44. **Requests for Disbursement of Special Account Funds**

a. Within 30 days after issuance of EPA's written confirmation that a milestone of the Work, as defined in ¶¶ 42 and 43 (Timing, Amount, and Method of Disbursing Funds for Phases 1 and 2), has been satisfactorily completed, each Respondent shall submit to EPA a Cost Summary and Certification, as defined in ¶ 44.b, covering the Work performed up to the date of completion of that milestone. Respondents shall not include in any submission costs included in a previous Cost Summary and Certification following completion of an earlier milestone of the Work if those costs have been previously sought or reimbursed pursuant to ¶¶ 42 and 43.

b. Each Cost Summary and Certification shall include a complete and accurate written cost summary and certification of the necessary costs incurred and paid by Respondents for the Work covered by the particular submission, excluding costs not eligible for disbursement under ¶ 45 (Costs Excluded from Disbursement). Each Cost Summary and Certification shall contain the following statement signed by the Chief Financial Officer, President, Vice President, or Senior Remediation Manager of a Respondent, or Independent Certified Public Accountant:

> To the best of my knowledge, after thorough investigation and review of Respondents' documentation of costs incurred and paid for Work performed pursuant to this Settlement [**insert, as appropriate**: "up to the date of completion of milestone 1," "between the date of completion of milestone 1 and the date of completion of milestone 2,"] I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.

The Chief Financial Officer, President, Vice President, or Senior Remediation Manager of a Respondent or Independent Certified Public Accountant shall also provide EPA a list of the documents that he or she reviewed in support of the Cost Summary and Certification. Upon

request by EPA, Respondents shall submit to EPA any additional information that EPA deems necessary for its review and approval of a Cost Summary and Certification.

c. If EPA finds that a Cost Summary and Certification includes a mathematical error, costs excluded under ¶ 45 (Costs Excluded from Disbursement), costs that are inadequately documented, or costs submitted in a prior Cost Summary and Certification, it will notify the Respondent submitting such Cost Summary and Certification and provide that Respondent an opportunity to cure the deficiency by submitting a revised Cost Summary and Certification. If Respondent fails to cure the deficiency within 30 days after being notified of, and given the opportunity to cure, the deficiency, EPA will recalculate that Respondent's costs eligible for disbursement for that submission and disburse the corrected amount to Respondent in accordance with the procedures in ¶ 42 (Timing, Amount, and Method of Disbursing Funds of Phases 1 and 2). Respondents may dispute EPA's recalculation under this Paragraph pursuant to Section XV (Dispute Resolution). In no event shall Respondents be disbursed funds from the Arkema or Bayer CropScience Disbursement Special Accounts in excess of amounts properly documented in a Cost Summary and Certification accepted or modified by EPA.

45. **Costs Excluded from Disbursement**. The following costs are excluded from, and shall not be sought by Respondents for, disbursement from the Arkema and Bayer CropScience Disbursement Special Accounts: (a) response costs paid pursuant to Section XIII (Payments of Response Costs); (b) any other payments made by Respondents to the United States pursuant to this Settlement, including, but not limited to, any Interest or stipulated penalties paid pursuant to Section XIII (Payments for Response Costs) or XVII (Stipulated Penalties); (c) attorneys' fees and related costs; (d) costs of any response activities Respondents perform that are not required under, or approved by EPA pursuant to, this Settlement; (e) costs related to Respondents' litigation, settlement, development of potential contribution claims, or identification of defendants; (f) internal costs of Respondents, including but not limited to, salaries, travel, or in-kind services, except for those costs that represent the work of employees of Respondents directly performing the Work; (g) any costs incurred by Respondents prior to the Effective Date except for approved Work completed pursuant to this Settlement; or (h) any costs incurred by Respondents pursuant to Section XV (Dispute Resolution).

46. **Termination of Disbursements from the Special Accounts**. EPA's obligation to disburse funds from the Arkema or Bayer CropScience Disbursement Special Accounts under this Settlement shall terminate upon EPA's determination that a Respondent: (a) has knowingly submitted a materially false or misleading Cost Summary and Certification; (b) has submitted a materially inaccurate or incomplete Cost Summary and Certification, and has failed to correct the materially inaccurate or incomplete Cost Summary and Certification within 30 days after being notified of, and given the opportunity to cure, the deficiency; or (c) failed to submit a Cost Summary and Certification as required by ¶ 44 (Requests for Disbursement of Special Account Funds) within 30 days (or such longer period as EPA agrees) after being notified that EPA intends to terminate its obligation to make disbursements pursuant to this Section because of Respondents' failure to submit the Cost Summary and Certification as required by ¶ 44. EPA's obligation to disburse funds from the Arkema and Bayer CropScience Disbursement Special Accounts shall also terminate upon EPA's assumption of performance of any portion of the Work pursuant to ¶ 73 (Work Takeover), when such assumption of performance of the Work is not challenged by Respondents or, if challenged, is upheld under Section XV (Dispute

Resolution). Respondents may dispute EPA's termination of special account disbursements under Section XV.

47. **Recapture of Special Account Disbursements**. Upon termination of disbursements from the Arkema or Bayer CropScience Disbursement Special Accounts under Paragraph 46 (Termination of Disbursements from the Special Account), if EPA has previously disbursed funds from the Arkema or Bayer CropScience Disbursement Special Accounts for activities specifically related to the reason for termination, e.g., discovery of a materially false or misleading submission after disbursement of funds based on that submission, EPA shall submit a bill for those amounts already disbursed from the Arkema or Bayer CropScience Disbursement Special Accounts specifically related to the reason for termination, plus Interest on that amount covering the period from the date of disbursement of the funds by EPA to the date of repayment of the funds. Within 30 days after receipt of EPA's bill, Respondent shall reimburse the EPA Hazardous Substance Superfund for the total amount billed. Payment shall be made in accordance with ¶ 36.b (Payments). Upon receipt of payment, EPA may deposit all or any portion thereof in the Arkema or Bayer CropScience Disbursement Special Accounts, the RD Special Account, the Portland Harbor Special Account, or the EPA Hazardous Substance Superfund. The determination of where to deposit or how to use the funds shall not be subject to challenge by Respondents pursuant to the dispute resolution provisions of this Settlement or in any other forum. Respondents may dispute EPA's determination as to recapture of funds pursuant to Section XV (Dispute Resolution).

48. **Balance of Special Account Funds**. After EPA completes all disbursement to Respondents in accordance with this Section, if any funds remain in the Arkema and Bayer CropScience Disbursement Special Accounts, EPA will transfer such funds to the RD Special Account for use by the EPA for RD work at or in connection with the Site. If EPA determines such funds are no longer needed for RD work at or in connection with the Site, EPA may transfer such funds to the RD Special Account, the Portland Harbor Special Account, or to the EPA Hazardous Substance Superfund. Any transfer of funds to the RD Special Account, the Portland Harbor Special Account, or the EPA Hazardous Substance Superfund shall not be subject to challenge by Respondents pursuant to the dispute resolution provisions of this Settlement or in any other forum.

XV. DISPUTE RESOLUTION

49. Unless otherwise expressly provided for in this Settlement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement. The Parties shall attempt to resolve any disagreements concerning this Settlement expeditiously and informally.

50. **Informal Dispute Resolution**. If either Respondent objects to any EPA action taken pursuant to this Settlement, including billings for EPA Future Response Costs, such Respondent shall send EPA a written Notice of Dispute describing the objection(s) within 30 days after such action, unless the objection(s) has/have been resolved informally. EPA and Respondent shall have 30 days from EPA's receipt of Respondent's Notice of Dispute to resolve the dispute through informal negotiations (the Negotiation Period). The Negotiation Period may be extended at the sole discretion of EPA. Any agreement reached by the Parties pursuant to this

Section shall be in writing and shall, upon signature by the Parties, be incorporated into and become an enforceable part of this Settlement.

51. **Formal Dispute Resolution**. If the Parties are unable to reach an agreement within the Negotiation Period, Respondent shall, within 20 days after the end of the Negotiation Period, submit a statement of position to EPA, which may include a request for an in-person or telephonic meeting with the Regional Administrator and a request for CSTAG review. Whether CSTAG review is appropriate, shall be decided by the Regional Administrator. EPA may, within 20 days thereafter, submit a statement of position. Thereafter, the Regional Administrator, EPA Region 10 or his/her designee will issue a written decision on the dispute to Respondents; provided, however, that if Respondent included a request to meet with the Regional Administrator with its statement of position, no written decision may be issued until such meeting has occurred. EPA's decision shall be incorporated into and become an enforceable part of this Settlement. Following resolution of the dispute, as provided by this Section, Respondents shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

52. The invocation of formal dispute resolution procedures under this Section does not extend, postpone, or affect in any way any obligation of Respondents under this Settlement not affected by the disputed issues, except as provided by ¶ 38 (Contesting EPA Future Response Costs), as agreed by EPA.

53. Except as provided in ¶ 62, stipulated penalties with respect to the disputed matter shall continue to accrue, but payment shall be stayed pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Settlement. In the event that Respondents do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XVII (Stipulated Penalties).

XVI. FORCE MAJEURE

54. "Force Majeure" for purposes of this Settlement is defined as any event arising from causes beyond the control of Respondents, of any entity controlled by Respondents, or of Respondents' contractors that delays or prevents the performance of any obligation under this Settlement despite Respondents' best efforts to fulfill the obligation. The requirement that Respondents exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the Work or increased cost of performance.

55. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement for which Respondents intend or may intend to assert a claim of force majeure, Respondents shall notify the EPA Project Coordinator orally or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Superfund and Emergency Management

Division, EPA Region 10, within 24 hours of when Respondents first realizes that the event might cause a delay. Within 10 days thereafter, Respondents shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health or welfare, or the environment. Respondents shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Respondents shall be deemed to know of any circumstance of which Respondents, any entity controlled by Respondents, or Respondents' contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Respondents from asserting any claim of force majeure regarding that event; provided, however, that if EPA, despite the late or incomplete notice, is able to assess to its satisfaction whether the event is a force majeure under ¶ 54 and whether Respondents has exercised its best efforts under ¶ 54, EPA may, in its unreviewable discretion, excuse in writing Respondent's failure to submit timely or complete notices under this Paragraph.

56. If EPA agrees that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this Settlement that are affected by the force majeure will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure, EPA will notify Respondents in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify Respondents in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

57. If Respondents elect to invoke the dispute resolution procedures set forth in Section XV (Dispute Resolution), Respondents shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, Respondents shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Respondents complied with the requirements of ¶¶ 54 and 55. If Respondents carry this burden, the delay at issue shall be deemed not to be a violation by Respondents of the affected obligation of this Settlement identified to EPA.

58. The failure by EPA to timely complete any obligation under the Settlement is not a violation of the Settlement, provided, however, that if such failure prevents Respondents from meeting one or more deadlines under the Settlement, Respondents may seek relief under this Section.

XVII. STIPULATED PENALTIES

59. Each Respondent shall be liable to EPA for stipulated penalties in the amounts set forth in ¶¶ 60.a and 61 for its individual failure to comply with the obligations specified in

¶¶ 60.b(4) and 61 under its SOW, unless excused under Section XVI (Force Majeure). Respondents shall be liable to EPA for stipulated penalties in the amounts set forth in ¶¶ 60.a. and 61 for obligations listed in ¶ 60.b. (1-3) and any other requirement of this Settlement. "Comply" as used in the previous sentence includes compliance by Respondent with all applicable requirements of this Settlement, within the deadlines established under this Settlement. If: (i) an initially submitted or resubmitted deliverable contains a material defect and the conditions are met for modifying the deliverable under ¶ 5.5(a)(2) of each SOW; or (ii) a resubmitted deliverable contains a material defect; then the material defect constitutes a lack of compliance for purposes of this Paragraph.

60. **Stipulated Penalty Amounts: Payments, Financial Assurance, Major Deliverables, and Other Milestones.**

a. The following stipulated penalties shall accrue per violation per day for any noncompliance with any obligation identified in ¶ 60.b:

Penalty Per Violation Per Day	Period of Noncompliance
$ 500	1st through 7th day
$ 1,000	8th through 14th day
$ 2,500	15th through 30th day
$ 5,000	31st day and beyond

b. **Obligations**

(1) Payment of any amount due under Section XIII (Payment of Response Costs).

(2) Establishment and maintenance of financial assurance in accordance with Section XXV (Financial Assurance).

(3) Establishment of an escrow account to hold any disputed EPA Future Response Costs under ¶ 38 (Contesting EPA Future Response Costs).

(4) Submission of timely and quality deliverables for tasks 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b, 5a, 5b, 6a, 6b, 7a, 7b, 8a, 8b, 9, 10, 11, 12, and 13 listed under ¶ 6.2 of the respective SOWs.

61. **Stipulated Penalty Amounts: Other Deliverables.** The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate deliverables required by this Settlement, other than those specified in ¶ 60.b:

Penalty Per Violation Per Day	Period of Noncompliance
$ 250	1st through 7th day
$ 500	8th through 14th day
$ 1,000	15th through 30th day
$ 2,500	31st day and beyond

62. In the event that EPA assumes performance of a portion or all of the Work pursuant to ¶ 73 (Work Takeover), Respondents shall be liable for a stipulated penalty in the amount of $75,000 or 25% of the cost of the Work EPA performs, whichever is less. Stipulated penalties under this Paragraph are in addition to the remedies available to EPA under ¶¶ 73 (Work Takeover) and 96 (Access to Financial Assurance).

63. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. Penalties shall continue to accrue during any dispute resolution period and shall be paid within 15 days after the agreement or the receipt of EPA's decision. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under ¶ 5.5 (Approval of Deliverables) of the SOW, during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Respondents of any deficiency; and (b) with respect to a decision by the Regional Administrator, EPA Region 10 or his/her designee under Section XV (Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that the Regional Administrator or designee issues a final decision regarding such dispute. Nothing in this Settlement shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement.

64. Following EPA's determination that Respondents have failed to comply with a requirement of this Settlement, EPA may give Respondents written notification of the failure and describe the noncompliance. EPA may send Respondents a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondents of a violation.

65. All penalties accruing under this Section shall be due and payable to EPA within 30 days after one or both Respondents' receipt from EPA of a demand for payment of the penalties, unless Dispute Resolution is invoked under Section XV (Dispute Resolution) within the 30-day period. All payments to EPA under this Section shall indicate that the payment is for stipulated penalties and shall be made in accordance with ¶ 36 (Payments by Respondents for EPA Future Response Costs).

66. If stipulated penalties are not paid when due, one or both Respondents shall pay Interest on the unpaid stipulated penalties as follows: (a) if Respondent has timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are due

pursuant to ¶ 63 until the date of payment; and (b) if Respondent fails to timely invoke dispute resolution, Interest shall accrue from the date of demand under ¶ 65 until the date of payment. If Respondent fails to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the penalties and Interest.

67. The payment of penalties and Interest, if any, shall not alter in any way Respondents' obligation to complete performance of the Work required under this Settlement.

68. Nothing in this Settlement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Settlement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(*l*) of CERCLA, 42 U.S.C. § 9622(*l*), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3); provided, however, that EPA shall not seek civil penalties pursuant to Section 122(*l*) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided in this Settlement, except in the case of a willful violation of this Settlement or in the event that EPA assumes performance of a portion or all of the Work pursuant to ¶ 73 (Work Takeover).

69. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement.

XVIII. COVENANTS BY EPA

70. **Covenants for Respondents by EPA.** Except as provided in Section XIX (Reservation of Rights by EPA), EPA covenants not to sue or to take administrative action against Respondents pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work performed and EPA Future Response Costs paid. These covenants shall take effect upon the Effective Date. These covenants are conditioned upon the complete and satisfactory performance by Respondents of their obligations under this Settlement. These covenants extend only to Respondents and do not extend to any other person.

XIX. RESERVATIONS OF RIGHTS BY EPA

71. Except as specifically provided in this Settlement, nothing in this Settlement shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste on, at, or from the Site. Further, except as specifically provided in this Settlement, nothing in this Settlement shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

72. The covenants set forth in Section XVIII (Covenants by EPA) above do not pertain to any matters other than those expressly identified therein. EPA reserves, and this

Settlement is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

a. liability for failure by Respondents to meet a requirement of this Settlement;

b. liability for costs not included within the definition of EPA Future Response Costs;

c. liability for performance of response action other than the Work;

d. criminal liability;

e. liability for violations of federal or state law that occur during or after implementation of the Work;

f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

g. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and

h. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site not paid as EPA Future Response Costs under this Settlement.

73. **SOW Work Takeover**

a. In the event EPA determines that a Respondent: (1) has ceased implementation of any portion of its SOW (2) is seriously or repeatedly deficient or late in its performance of its SOW; or (3) is implementing its SOW in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice (Work Takeover Notice) to that Respondent, with a copy of such notice simultaneously provided to the other Respondent. Any Work Takeover Notices issued by EPA (which writing may be electronic) will specify the grounds upon which such notice was issued and will provide that Respondent a period of 10 days within which to remedy the circumstances giving rise to EPA's issuance of such notice.

b. If, after expiration of the 10-day notice period specified in ¶ 73.a that Respondent has not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, EPA may at any time thereafter direct the other Respondent to assume performance of all or any portion(s) of the relevant SOW as EPA deems necessary. In the event that the other Respondent fails to assume performance of such work within a reasonable time, then the EPA may assume performance of such work (SOW Work Takeover). EPA will notify both Respondent in writing (which writing may be electronic) if EPA determines that implementation of a SOW Work Takeover is warranted under this ¶ 73.b. Funding of SOW Work Takeover costs by EPA is addressed under ¶ 96 (Access to Financial Assurance).

c. Respondents may invoke the procedures set forth in ¶ 51 (Formal Dispute Resolution) to dispute EPA's implementation of a SOW Work Takeover under ¶ 73.b. However, notwithstanding Respondents' invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under ¶ 73.b until the earlier of (1) the date that Respondents remedy, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, or (2) the date that a written decision terminating such Work Takeover is rendered in accordance with ¶ 51 (Formal Dispute Resolution).

d. Notwithstanding any other provision of this Settlement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XX. COVENANTS BY RESPONDENTS

74. **Covenants by Respondents.**

a. Except as provided in ¶ 74.b, Respondents covenant not to sue and agree not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Respondents' EPA Future Response Costs, and this Settlement, including, but not limited to:

(1) any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund through Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

(2) any claim under Sections 107 and 113 of CERCLA, Section 7002(a) of RCRA, 42 U.S.C. § 6972(a), or state law relating to the Work, EPA Future Response Costs, and this Settlement; or

(3) any claim arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the Oregon Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, or at common law.

b. This Settlement shall not have any effect on claims or causes of action that any Respondent has or may have pursuant to Sections 107(a) or 113(f) of CERCLA, 42 U.S.C. §§ 9607(a) or 9613(f), against the United States on behalf of various federal agencies, based upon a claim that the United States is a potentially responsible party pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), relating to the Work or EPA Response Costs paid under Section XIII of this Settlement. However, the United States acknowledges the reservation of Section 107 claims without any concession that, even if such a claim exists, it is cognizable under Section 107.

75. These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to any of the reservations set forth in Section XIX (Reservations of Rights by EPA), other than in ¶ 72.a (liability for failure to meet a requirement of the Settlement), 72.d (criminal liability), or 72.e (violations of federal/state law during or after

implementation of the Work), but only to the extent that Respondent's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

76. Nothing in this Settlement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

77. Respondents reserve, and this Settlement is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of Respondent's deliverables or activities.

78. **Covenants by Performing Parties to Settling Funding Parties**. Subject to EPA's receipt of the funds from Settling Funding Parties as required by the Settlement Agreement for Funding Remedial Design, Performing Parties covenant not to sue and agree not to assert any claims or causes of action in any forum, judicial or otherwise, against the Settling Funding Parties, or their contractors or employees, with respect to the work under this Settlement or the RD Payments provided under the Settlement Agreement for Funding Remedial Design. For purposes of this paragraph "work" shall mean all activities and obligations Performing Parties are required to perform under this Settlement, except those required by Section XI (Record Retention). Performing Parties agree that Settling Funding Parties have the right to enforce this covenant.

XXI. OTHER CLAIMS

79. By issuance of this Settlement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. The United States or EPA shall not be deemed a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement.

80. Except as expressly provided in Section XX (Covenants by Respondents) and Section XVIII (Covenants by EPA), nothing in this Settlement constitutes a satisfaction of or release from any claim or cause of action against Respondents or any person not a party to this Settlement for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages, and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

81. No action or decision by EPA pursuant to this Settlement shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXII. EFFECT OF SETTLEMENT/CONTRIBUTION

82. Nothing in this Settlement shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Settlement, other than the Settling Funding Parties as provided in Paragraph 78 (Covenants by Performing Parties to Settling Funding Parties) of this Settlement. Except as provided in Section XX (Covenants by Respondents), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action that each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Settlement diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

83. The Parties agree that this Settlement constitutes an administrative settlement pursuant to which Respondents have, as of the Effective Date, resolved liability to the United States within the meaning of Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), and are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, or as may be otherwise provided by law, for the "matters addressed" in this Settlement. The "matters addressed" in this Settlement are the Work and EPA Future Response Costs. Notwithstanding the foregoing, Respondents agree that the protections provided by this ¶ 83 do not have any effect on claims or causes of action that they have or may have against one another in relation to the "matters addressed" in this Settlement.

84. The Parties further agree that this Settlement constitutes an administrative settlement pursuant to which each Respondent has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

85. Respondents shall, with respect to any suit or claim brought by it for matters related to this Settlement, notify EPA in writing no later than 60 days prior to the initiation of such suit or claim. Respondents also shall, with respect to any suit or claim brought against it for matters related to this Settlement, notify EPA in writing within 10 days after service of the complaint or claim upon it. In addition, Respondents shall notify EPA within 10 days after service or receipt of any Motion for Summary Judgment and within 10 days after receipt of any order from a court setting a case for trial, for matters related to this Settlement.

86. In any subsequent administrative or judicial proceeding initiated by EPA, or by the United States on behalf of EPA, for injunctive relief, recovery of response costs, or other relief relating to the Site, Respondents shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the

subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenant by EPA set forth in Section XVIII (Covenants by EPA).

XXIII. INDEMNIFICATION

87. The United States does not assume any liability by entering into this Settlement or by virtue of any designation of Respondents as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), and 40 C.F.R. § 300.400(d)(3). Respondents shall indemnify, save, and hold harmless the United States, its officials, agents, employees, contractors, subcontractors, employees, and representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondents, its officers, directors, employees, agents, contractors, or subcontractors, and any persons acting on Respondent's behalf or under its control, in carrying out activities pursuant to this Settlement. Further, Respondents agree to pay the United States all costs it incurs, including, but not limited to attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States based on negligent or other wrongful acts or omissions of Respondents, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Settlement. The United States shall not be held out as a party to any contract entered into, by, or on behalf of Respondents in carrying out activities pursuant to this Settlement. Neither Respondents nor any such contractor shall be considered an agent of the United States.

88. The United States shall give Respondents notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondents prior to settling such claim.

89. Respondents covenant not to sue and agree not to assert any claims or causes of action against the United States for damages or reimbursement or for set-off of any payments made, or to be made, to the United States, arising from or on account of any contract, agreement, or arrangement between Respondents and any person for performance of Work on or relating to the River Mile 7 West Project Area, including, but not limited to, claims on account of construction delays. In addition, Respondents shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of, any contract, agreement, or arrangement between Respondents and any person for performance of Work on or relating to the River Mile 7 West Project Area, including, but not limited to, claims on account of construction delays.

XXIV. INSURANCE

90. No later than 15 days before commencing any on-site Work, each Respondent shall secure, and shall maintain until so notified by EPA, commercial general liability insurance with limits of liability of $1 million per occurrence, and automobile insurance with limits of liability of $1 million per accident, and umbrella liability insurance with limits of liability of $5 million in excess of the required commercial general liability and automobile liability limits, naming EPA as an additional insured with respect to all liability arising out of the activities

performed by or on behalf of such Respondent pursuant to this Settlement. In addition, for the duration of the Settlement, each Respondent shall provide EPA with certificates of such insurance and a copy of each insurance policy. Respondents shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of the Settlement, each Respondent shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondents in furtherance of this Settlement. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in a lesser amount, Respondents need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor. Respondents shall ensure that all submittals to EPA under this Paragraph identify the Site name, City, State and the EPA docket number for this action.

XXV. FINANCIAL ASSURANCE

91. In order to ensure the completion of the Work, Arkema Inc. shall secure financial assurance, initially in the amount of $4,355,000 and Bayer CropScience, Inc. shall secure financial assurance, initially in the amount of $2,457,000 (each an "Estimated Cost of the Work"), for the benefit of EPA. The financial assurance must be one or more of the mechanisms listed below, in a form substantially identical to the relevant sample documents available from EPA or under the "Financial Assurance - Settlements" category on the Cleanup Enforcement Model Language and Sample Documents Database at https://cfpub.epa.gov/compliance/models/, and satisfactory to EPA. Respondent may use multiple mechanisms if they are limited to surety bonds guaranteeing payment, letters of credit, trust funds, and/or insurance policies.

a. A surety bond guaranteeing payment and/or performance of the Work that is issued by a surety company among those listed as acceptable sureties on federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury;

b. An irrevocable letter of credit, payable to or at the direction of EPA, that is issued by an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency;

c. a trust fund established for the benefit of EPA that is administered by a trustee that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency;

d. A policy of insurance that provides EPA with acceptable rights as a beneficiary thereof and that is issued by an insurance carrier that has the authority to issue insurance policies in the applicable jurisdiction(s) and whose insurance operations are regulated and examined by a federal or state agency;

e. A demonstration by a Respondent that it meets the financial test criteria of ¶ 93, accompanied by a standby funding commitment, which obligates the affected Respondent to pay funds to or at the direction of EPA, up to the amount financially assured through the use of this demonstration in the event of a Work Takeover; or

f. A guarantee to fund or perform the Work executed in favor of EPA by a company: (1) that is a direct or indirect parent company of a Respondent or has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with a Respondent; and (2) can demonstrate to EPA's satisfaction that it meets the financial test criteria of ¶ 93.

92. Respondent shall, within 30 days of the Effective Date, obtain EPA's approval of the form of Respondents' financial assurance. Within 30 days of such approval, Respondent shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the EPA-approved form of financial assurance and shall submit such mechanisms and documents to the EPA Region 10, Office of Regional Counsel, 1200 Sixth Avenue, Suite 155, M/S 11-C07, Seattle, WA 98101.

93. Respondents seeking to provide financial assurance by means of a demonstration or guarantee under ¶ 91.e or 91.f, must, within 30 days of the Effective Date:

a. Demonstrate that:

(1) The affected Respondent or guarantor has:

i. Two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and

ii. Net working capital and tangible net worth each at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

iii. Tangible net worth of at least $10 million; and

iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; or

(2) The affected Respondent or guarantor has:

i. A current rating for its senior unsecured debt of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's; and

ii. Tangible net worth at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of

other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

iii. Tangible net worth of at least $10 million; and

iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

b. Submit to EPA for the affected Respondent or guarantor: (1) a copy of an independent certified public accountant's report of the entity's financial statements for the latest completed fiscal year, which must not express an adverse opinion or disclaimer of opinion; and (2) a letter from its chief financial officer and a report from an independent certified public accountant substantially identical to the sample letter and reports available from EPA or under the "Financial Assurance - Settlements" subject list category on the Cleanup Enforcement Model Language and Sample Documents Database at https://cfpub.epa.gov/compliance/models/.

94. Respondents providing financial assurance by means of a demonstration or guarantee under ¶ 91.e or 91.f must also:

a. Annually resubmit the documents described in ¶ 93.b within 90 days after the close of the affected Respondent's or guarantor's fiscal year;

b. Notify EPA within 30 days after the affected Respondent or guarantor determines that it no longer satisfies the relevant financial test criteria and requirements set forth in this Section; and

c. Provide to EPA, within 30 days of EPA's request, reports of the financial condition of the affected Respondent or guarantor in addition to those specified in ¶ 93.b; EPA may make such a request at any time based on a belief that the affected Respondent or guarantor may no longer meet the financial test requirements of this Section.

95. Respondents shall diligently monitor the adequacy of the financial assurance. If Respondents becomes aware of any information indicating that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, Respondents shall notify EPA of such information within 7 days. If EPA determines that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, EPA will notify the Respondents of such determination. Respondent shall, within 30 days after notifying EPA or receiving notice from EPA under this Paragraph, secure and submit to EPA for approval a proposal for a revised or alternative financial assurance mechanism that satisfies the requirements of this Section. EPA may extend this deadline for such time as is reasonably necessary for the Respondents, in the exercise of due diligence, to secure and submit to EPA a proposal for a revised or alternative financial assurance mechanism, not to exceed 60 days. Respondents shall follow the procedures of ¶ 97

(Modification of Amount, Form, or Terms of Financial Assurance) in seeking approval of, and submitting documentation for, the revised or alternative financial assurance mechanism. Respondent's inability to secure financial assurance in accordance with this Section does not excuse performance of any other obligation under this Settlement.

96. **Access to Financial Assurance**

a. If EPA issues a Work Takeover Notice under ¶ 73.b, then, in accordance with any applicable financial assurance mechanism and/or related standby funding commitment, EPA is entitled to: (1) the performance of the Work; and/or (2) require that any funds guaranteed be paid in accordance with ¶ 96.d.

b. If EPA is notified by the issuer of a financial assurance mechanism that it intends to cancel such mechanism, and the Respondents fail to provide an alternative financial assurance mechanism in accordance with this Section at least 30 days prior to the cancellation date, the funds guaranteed under such mechanism must be paid prior to cancellation in accordance with ¶ 96.d.

c. If, upon issuance of a Work Takeover Notice under ¶ 73.b, either: (1) EPA is unable for any reason to promptly secure the resources guaranteed under any applicable financial assurance mechanism and/or related standby funding commitment, whether in cash or in kind, to continue and complete the Work; or (2) the financial assurance is a demonstration or guarantee under ¶ 91.e or 91.f, then EPA is entitled an amount, as determined by EPA, sufficient to cover the cost of the remaining Work to be performed. Respondents shall, within 30 days of such demand, pay the amount demanded as directed by EPA.

d. Any amounts required to be paid under this ¶ 96 shall be, as directed by EPA: (i) paid to EPA in order to facilitate the completion of the Work by EPA or by another person; or (ii) deposited into an interest-bearing account, established at a duly chartered bank or trust company that is insured by the FDIC, in order to facilitate the completion of the Work by another person. If payment is made to EPA, EPA may deposit the payment into the EPA Hazardous Substance Superfund or into the Portland Harbor Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

e. All EPA Work Takeover costs not paid under this ¶ 96 must be reimbursed as EPA Future Response Costs under Section XIII (Payments for Response Costs).

97. **Modification of Amount, Form, or Terms of Financial Assurance**. Respondents may submit, on any anniversary of the Effective Date or at any other time agreed to by the Parties, a request to reduce the amount, or change the form or terms, of the financial assurance mechanism. Any such request must be submitted to EPA in accordance with ¶ 92, and must include an estimate of the cost of the remaining Work, an explanation of the bases for the cost calculation, and a description of the proposed changes, if any, to the form or terms of the financial assurance. EPA will notify Respondents of its decision to approve or disapprove a requested reduction or change pursuant to this Paragraph. Respondents may reduce the amount

of the financial assurance mechanism only in accordance with: (a) EPA's approval; or (b) if there is a dispute, the agreement or written decision resolving such dispute under Section XV (Dispute Resolution). Respondents may change the form or terms of the financial assurance mechanism only in accordance with EPA's approval. Any decision made by EPA on a request submitted under this Paragraph to change the form or terms of a financial assurance mechanism shall not be subject to challenge by Respondents pursuant to the dispute resolution provisions of this Settlement or in any other forum. Within 30 days after receipt of EPA's approval of, or the agreement or decision resolving a dispute relating to, the requested modifications pursuant to this Paragraph, Respondents shall submit to EPA documentation of the reduced, revised, or alternative financial assurance mechanism in accordance with ¶ 92.

98. **Release, Cancellation, or Discontinuation of Financial Assurance**. Respondents may release, cancel, or discontinue any financial assurance provided under this Section only: (a) in accordance with EPA's approval of such release, cancellation, or discontinuation; or (b) if there is a dispute regarding the release, cancellation, or discontinuance of any financial assurance, in accordance with the agreement or final decision resolving such dispute under Section XV (Dispute Resolution), or (c) upon receipt of Notice of Work Completion.

XXVI. INTEGRATION/APPENDICES

99. This Settlement and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement. The parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Settlement. The following appendices are attached to and incorporated into this Settlement:

a. Appendix A1 is the Arkema SOW.

b. Appendix A2 is the Bayer CropScience SOW.

c. Appendix B is a map of the RD River Mile 7 West Project Area

d. Appendix C is Phase 2 Disbursement Amendment language

XXVII. MODIFICATION

100. The EPA Project Coordinator may modify the SOW or related deliverables as provided in Paragraph 18; provided such modification relates to the Remedial Design in the River Mile 7 West Project Area. Any oral modification will be memorialized in writing by EPA promptly, but shall have as its effective date the date of the EPA Project Coordinator's oral direction. Any other requirements of this Settlement may be modified in writing by mutual agreement of the parties.

101. If either Respondent seeks permission to deviate from any approved work plan, schedule, or SOW, Respondent's Project Coordinator shall submit a written request to EPA for approval outlining the proposed modification and its basis. Respondents may not proceed with

the requested deviation until receiving oral or written approval from the EPA Project Coordinator pursuant to ¶ 100.

102. No informal advice, guidance, suggestion, or comment by the EPA Project Coordinator or other EPA representatives regarding any deliverable submitted by Respondents shall relieve Respondents of their obligations to obtain any formal approval required by this Settlement, or to comply with all requirements of this Settlement, unless it is formally modified.

XXVIII. NOTICES OF WORK COMPLETION

103. When EPA determines that all Work has been fully performed in accordance with this Settlement with respect to the Arkema SOW or the Bayer CropScience SOW, with the exception of any continuing obligations as provided in ¶ 105, EPA will provide written notice to Respondents. Respondents may request that EPA make this determination.

104. If EPA determines that any such Work has not been completed in accordance with this Settlement with respect to the Arkema SOW or the Bayer CropScience SOW, EPA will notify Arkema or Bayer CropScience, as applicable, provide a list of the deficiencies, and require that Arkema or Bayer CropScience, as applicable, 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 a Notice of Work Completion with respect to the Arkema SOW or the Bayer CropScience SOW, as applicable.

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

XXIX. EFFECTIVE DATE

106. This Settlement shall be effective upon signature by the Superfund and Emergency Management Division, EPA Region 10.

IT IS SO AGREED AND ORDERED;

U.S. ENVIRONMENTAL PROTECTION AGENCY:

2/21/2020
Dated

Sheila Fleming, Acting Division Director
Superfund and Emergency Management Division
EPA Region 10

Signature Page for Settlement regarding the Portland Harbor Superfund Site

FOR Arkema Inc.:

2-6-2020
Dated

Danny Kite
President
Legacy Site Services LLC, agent for Arkema Inc.
1201 Louisiana Street, Suite 1800, Houston, TX 77002

Signature Page for Settlement regarding the Portland Harbor Superfund Site

FOR Bayer CropScience Inc.:

2/3/2020
Dated

Brian Branca
Treasurer
Bayer CropScience Inc.
800 N. Lindbergh, G5339E
St. Louis, MO 63167

Appendix A1

Arkema Statement of Work

REMEDIAL DESIGN STATEMENT OF WORK

PORTLAND HARBOR SUPERFUND SITE

River Mile 7 West Project Area – Arkema Statement of Work

Portland, Multnomah County, State of Oregon

EPA Region 10

January 2020

TABLE OF CONTENTS

Attachments

I. 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 Statement of Work also includes any future ROD amendments or Explanations of Significant Differences EPA may issue.

This Statement of Work (the Arkema SOW) sets forth the procedures and requirements for implementing the RD Work for that portion of the River Mile 7 West Project Area located between approximately River Mile 6.9 and River Mile 7.6 on the west side of the Willamette River (the Arkema Project Area), and more specifically depicted on the map attached as Figure 2 to this Arkema SOW.[1] The Arkema Project Area includes all riverbanks from top of the bank to the river.[2]

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 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 that warrant flexibility. 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.

1.2 Structure of the SOW

- Section 2 (Community Involvement) sets forth EPA's and Respondent Arkema's responsibilities for community involvement.
- Section 3 (Remedial Design) sets forth the process for developing the RD, which includes the submission of specified primary deliverables.

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[1] If EPA revises the Portland Harbor Model SOW for Remedial Design, the parties agree to consider whether amending the Arkema SOW to include such revisions is appropriate and, if so decided, to amend the Arkema SOW accordingly.

[2] The terms "Arkema Project Area," "Arkema RD," "Arkema SOW," and "Arkema Work" are used solely as a matter of administrative convenience and have no bearing on ultimate issues of liability.

- Section 4 (Reporting) sets forth Respondent Arkema's reporting obligations.
- Section 5 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding Respondent Arkema's 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).

The terms used in this Arkema 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 Arkema SOW, and the term "Section" means a section of the Arkema 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 Arkema 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 Arkema SOW.

II. 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 Arkema RD Work or the Arkema 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, Respondent Arkema shall participate in CI activities, including participation in: (1) the preparation of information regarding the Arkema 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. Respondent Arkema's 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 Respondent Arkema's responsibilities for CI activities. All CI activities conducted by Respondent Arkema at EPA's request are subject to EPA's oversight. Upon EPA's request, Respondent Arkema shall make validated Arkema Project Area-related data and information available to the public. EPA plans to coordinate its community outreach efforts with DEQ.

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

(d) Respondent Arkema's CI Coordinator. If requested by EPA, Respondent Arkema shall, within 30 days, designate and notify EPA of its CI Coordinator. Respondent Arkema may hire a contractor for this purpose. Respondent Arkema's notice must include the name, title, and qualifications of its CI Coordinator. Respondent Arkema's 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 Arkema RD Work or the Arkema Project Area.

III. REMEDIAL DESIGN

3.1 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 Arkema RD Work Plan. Respondent Arkema shall be permitted to collect data it deems necessary to inform the Sufficiency Assessment and to complete the RD. In doing so, Respondent Arkema shall comply with the Section IX (Property Requirements) of the Settlement.

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

(1) An evaluation and summary of available existing data, including baseline data within the Arkema 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 for the Arkema Project Area. 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; and

(v) NAPL delineation, if applicable

(2) An Arkema Project Area Field Sampling Plan, as described in ¶ 5.6(c) (Supporting Deliverables) of this Arkema 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) An Arkema Project Area Quality Assurance Project Plan (QAPP) as described in ¶ 5.6(d) (Supporting Deliverables) of this Arkema SOW;

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

(5) An Arkema Project Area Emergency Response Plan, relevant to the PDI work, as described in ¶ 5.6(b) (Supporting Deliverables) of this Arkema SOW; and

(6) A description of all necessary actions to ensure compliance with ¶ 3.12 (Off-Site Shipments) of this Arkema SOW.

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

(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.

3.2 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. The term "Decision Tree" includes any future amendments that EPA may issue. Respondent Arkema shall submit a BODR for the Arkema Project Area 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:

(a) Provide a sufficiency assessment to evaluate whether potential sources of recontamination have been adequately investigated and controlled or considered such that the remedial action can proceed. The sufficiency assessment will include an upland evaluation of pathways to the river through storm water, groundwater, overwater, and river bank erosion 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(m) (Supporting Deliverable) of this SOW;

(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 Arkema Project Area;

(c) Summarize design criteria applicable to the Arkema 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;

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

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

(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 Arkema Project Area; and

(g) Describe a sequencing plan as well as an overall schedule to complete the design studies, RD and RA for the Arkema Project Area. The sequencing plan and overall RA schedule will be general and conceptual during RD, with more detailed preliminary drafts to be prepared during RA.

3.3 RD Work Plan (RDWP).

Respondent Arkema shall submit a RDWP for the Arkema Project Area for EPA comment and approval. The RDWP must include:

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

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

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

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

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

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

(g) Description of any proposed supplemental PDI;

(h) Description of any proposed treatability study;

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

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

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

3.4 Meetings.

Respondent Arkema shall communicate regularly with EPA by phone, web meeting, or in person to discuss design issues as necessary, as directed or determined by EPA.

3.5 Supplemental PDI.

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

(a) **Supplemental PDI Work Plan**. If EPA or Respondent Arkema requests, Respondent Arkema shall submit a Supplemental PDI Work Plan (SPDIWP) for EPA comment and approval. The SPDIWP must include all elements as described in ¶ 3.1(a).

(b) **Supplemental PDI Evaluation Report**. Following the Supplemental PDIWP, Respondent Arkema shall submit a Supplemental PDI Evaluation Report for EPA comment and approval. This report must include the same elements as described in ¶ 3.1(b).

3.6 Treatability Study.

If determined necessary by EPA, Respondent Arkema shall perform a Treatability Study (TS) to evaluate the effectiveness of a remedial technology (e.g., reactive cap) within the Arkema Project Area.

(a) Respondent Arkema shall submit a TS Work Plan (TSWP) for EPA comment and approval. Respondent Arkema 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, Respondent Arkema shall submit a TS Evaluation Report for EPA comment and approval.

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

3.7 Preliminary (30%) RD.

Respondent Arkema shall submit a Preliminary (30%) RD for the Arkema 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) A design criteria report, as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995);

(b) Preliminary drawings and specifications;

(c) Descriptions of permit requirements, if applicable;

(d) 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);

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

(f) 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; Arkema Project Area Monitoring Plan; Construction Quality Assurance/Quality Control Plan; Transportation and Off-Site Disposal Plan; O&M Plan; and O&M Manual.

(g) Respondent Arkema must demonstrate that any transload facility it intends to use within the Portland Harbor Superfund Site, but outside the Arkema Project Area, is appropriate for handling and transloading contaminated sediments and other materials that might be dredged by Respondent Arkema. If necessary, EPA shall assist Respondent Arkema in obtaining the required design information from the transload facility owner or operator. In the event Respondent Arkema wishes to use a transload facility within the Arkema Project Area for transferring dredged materials from the Arkema Project Area, Respondent Arkema will provide the design specifications for that transload facility, whether prepared by Respondent Arkema or another owner or operator. Such specifications shall include 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 transload facility's 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 for the Arkema upland property, if applicable. If Respondent Arkema intends to use a transload facility outside of the Portland Harbor Superfund Site (see NCP definition of "on-site") for dredged materials from the Arkema Project Area, Respondent Arkema must provide Clean Water Act (CWA) Sections 404 and 401 permit application design information (which may be prepared by another owner or operator) to minimize spillage, offsite tracking, worker exposure and ensure stormwater management. If necessary, EPA shall assist Respondent Arkema in obtaining the required design information from the transload facility owner or operator.

(h) Respondent Arkema shall use best efforts to coordinate with and obtain necessary information from owners of river banks and/or submerged lands that are within the Arkema 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 Arkema Project Area.

3.8 Intermediate (60%) RD.

Respondent Arkema 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.

3.9 Pre-Final (95%) RD.

Respondent Arkema 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 Arkema Project Area features, such as elements, property borders, easements, and Arkema 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 ¶ 5.6(m)(2)(viii) as a final check to ensure remedial construction can commence.

3.10 Final (100%) RD.

Respondent Arkema shall submit the Final (100%) RD 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.

3.11 Emergency Response and Reporting

(a) **Emergency Response and Reporting**. If any event occurs during performance of the Arkema RD Work that causes or threatens to cause a release of Waste Material on, at, or from the Arkema Project Area and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Respondent Arkema 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 ¶ 3.11(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 Arkema SOW.

(b) **Release Reporting**. Upon the occurrence of any event during performance of the Arkema RD Work that Respondent Arkema is 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, Respondent Arkema 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 ¶ 3.11(a) and ¶ 3.11(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 ¶ 3.11(a) and ¶ 3.11(b), Respondent Arkema 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 ¶ 3.11 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

3.12 Off-Site Shipments

(a) Respondent Arkema may ship hazardous substances, pollutants, and contaminants from the Arkema Project Area 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. Respondent Arkema will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondent Arkema obtains 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) Respondent Arkema may ship Waste Material from the Arkema Project Area 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. Respondent Arkema 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. Respondent Arkema shall

provide the notice as soon as practicable after the award of the contract and before the Waste Material is shipped.

(c) Respondent Arkema may ship Investigation Derived Waste (IDW) from the Arkema Project Area 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.

IV. 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 XXVIII of the Settlement, Respondent Arkema 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 list of all results of validated sampling, tests, and all other data received or generated by Respondent Arkema to comply with the Settlement;

(c) A list of all deliverables that Respondent Arkema submitted to EPA;

(d) A list 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 Arkema RD Work, and a description of efforts made to mitigate those delays or anticipated delays;

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

(g) A list 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, Respondent Arkema shall notify EPA of such change at least seven days before performance of the activity.

V. DELIVERABLES

5.1 Applicability.

Respondent Arkema shall submit all deliverables for EPA approval or for EPA comment as specified in the Arkema SOW. In the event EPA designates DEQ personnel as the authorized Project Coordinator for certain aspects of the RD Work, with EPA remaining as the lead agency, Respondent shall submit deliverables to DEQ with copies to EPA. If neither is specified, the deliverable does not require EPA's approval or comment. ¶ 5.2 (In Writing) through 5.4 (Formatting 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 Arkema SOW must be in writing unless otherwise specified.

5.3 General Requirements for Deliverables

(a) Except as otherwise provided in this Arkema SOW, Respondent Arkema shall direct all deliverables required by this Arkema SOW to the EPA Project Coordinator: Hunter Young, Remedial Project Manager, Superfund and Emergency Management Division, U.S. Environmental Protection Agency, Oregon Operations Office, 805 SW Broadway Ste 500, Portland OR 97205-3331, phone 503-326-5020, young.hunter@epa.gov.

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

- Sarah Greenfield, Department of Environmental Quality, Northwest Region Portland Office, 700 NE Multnomah St. Ste 600, Portland, OR 97232-4100, (503) 229-5445, 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, 3141 E. Burnside St., Portland, OR 97214, (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 Arkema RD Schedule and RDWP, as applicable. Respondent Arkema 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 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", Respondent Arkema shall also provide EPA with paper copies of such exhibits.

5.4 Formatting Specifications

(a) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format (Attachment 1 of the Arkema SOW) or as specified by EPA. 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. Respondent Arkema is required to upload data collected to EPA's Scribe environmental data management tool or other tool as prescribed by EPA.

(c) Each file must include an attribute name for each Arkema 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 Respondent Arkema does not, and is not intended to, define the boundaries of the 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 Arkema 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 after EPA notifies Respondent Arkema of such deficiencies and provides Respondent Arkema a reasonable time to cure: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Arkema 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) Respondent Arkema 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 Respondent Arkema 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) Respondent Arkema 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 Respondent Arkema of any liability for stipulated penalties under Section XVII (Stipulated Penalties) of the Settlement.

5.6 Supporting Deliverables.

Respondent Arkema shall submit each of the following supporting deliverables for EPA comment and approval, except as specifically provided. Respondent Arkema shall

develop the deliverables in accordance with all applicable regulations, guidance, and policies (see ¶ 8 (References)). Respondent Arkema shall update each of these supporting deliverables as necessary or appropriate during the Arkema 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 Arkema RD Work. Respondent Arkema 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 Arkema SOW should cover Arkema RD activities. 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 during performance of the RD Work at the Arkema Project Area. 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 ¶ 3.11(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 ¶ 3.11(a) (Emergency Response and Reporting) of the Arkema SOW in the event of an occurrence during the performance of the Arkema RD Work that causes or threatens a release of Waste Material from the Arkema Project Area 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 performed pursuant to the Arkema SOW. 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. Respondent Arkema shall develop the FSP consistent with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988) and the Site's August 8, 2019 *Remedial Design Guidelines and Considerations* document (RD Guidelines). Project area sampling density will be determined during RD Work Plan development and will account for existing sediment data within the Arkema Project Area and that portion of the navigation channel adjoining the Arkema Project Area. Respondent Arkema shall ensure that the sample density is sufficient to facilitate remedial design. The description of data gaps as required in ¶ 3.1(a)(1) will serve as the basis for the sample collection activities in the FSP. The lateral and vertical extent of contamination exceeding the RALs and/or PTW thresholds specified on Table 21 of the ROD (the Contamination) will be delineated to the Arkema Project Area boundaries both upstream and downstream. The lateral and vertical extent of Contamination into the navigation channel is not necessarily bound by the Arkema Project Area boundary on that side, but rather must be delineated to no more than half the distance across the navigation channel.

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

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

(3) To ensure that Respondent Arkema's 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 Respondent Arkema's Labs participate in an EPA-accepted QA/QC program or other QA/QC program acceptable to EPA;

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

(6) For Respondent Arkema 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 Respondent Arkema, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling; and

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

(e) **Draft 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). In coordination with EPA, Respondent Arkema will develop a conceptualized draft Arkema Project Area-specific ICIAP during RD which will, at a minimum, identify the specific and necessary Arkema Project Area ICs that will be implemented during RA; plans to implement, maintain, and enforce the ICs; and the parties responsible for implementing and monitoring each IC necessary at the Arkema Project Area, consistent with Section 14.2.6. (*Institutional Controls*) of the ROD. Implementation of ICs is not within the scope of this Settlement. Upon approval by EPA, Respondent Arkema will provide its draft Arkema 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 Site: (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)**. Respondent Arkema shall submit an Arkema 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. The BA shall identify the presence of threatened, endangered, and proposed or candidate species, or their habitat, within the vicinity of the Arkema 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**. Respondent Arkema shall submit a memorandum that provides sufficient information to demonstrate compliance of the proposed RA at the Arkema 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 regarding, long- and short-term impacts from the RA at the Arkema 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 Arkema Project Area; to obtain information, through short- and long- term monitoring, about the movement of and changes in contamination throughout the Arkema 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 Arkema Project Area monitoring. As appropriate, approved data from Project Area Pre-RD and RD sampling and Site-wide baseline data may be used in the PAMP. 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 Arkema Project Area-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) **Draft 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. Respondent Arkema shall develop a draft CQA/QCP during the RD that provides sufficient information for contractor bidding, with the final to be developed during the RA (CQA/QCP technical requirements will be included in the Technical Specifications as part of the RD). The Draft 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) **Draft Transportation and Off-Site Disposal Plan.** The Transportation and Off-Site Disposal Plan (TODP) describes plans to ensure compliance with ¶ 3.12 (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) **Draft O&M Plan**. The O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. Respondent Arkema shall develop the draft O&M Plan in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017) that provides sufficient information for contractor bidding, with the final to be developed during the RA. 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) **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 at the Arkema Project Area 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.

(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 Arkema 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 Arkema Project Area.

(iii) A summary of available information regarding the source control status of direct discharges, groundwater, river bank, and overwater sources of COCs into the Arkema 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.

(iv) A summary of in-water sources of COCs to the Arkema 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.

(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 Arkema Project Area, if applicable.

(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 Arkema Project Area.

(vii) The results of the Sufficiency Assessment that includes evaluation of the sufficiency of upland and in-water source controls, if applicable, 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 Arkema Project Area. The discussion will also present the limitations of the assessment approaches and any remaining data gaps.

(viii) A sufficiency assessment summary table of upland sources (direct discharges, overwater, river bank) that explicitly identifies the potential sources and pathways at the Arkema 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 Arkema SOW. Completing the sufficiency assessment summary table is a valuable exercise to ensure that there is consensus on the status of potential sources at the Arkema Project Area. The goal of this table is to serve as the basis for EPA's sufficiency determination in informing Respondent Arkema 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 assessed, or implemented and assessed, for effectiveness.

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

(3) 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.

VI. SCHEDULES

6.1 Applicability and Revisions.

The following schedule provides an RD timeline under which all deliverables and tasks required under this Arkema 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**. Respondent Arkema 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 Respondent's CI Coordinator		2.1(d)	Within 30 days after EPA request
1a	Draft PDI Work Plan	FSP, QAPP, HASP, ERP	3.1(a)	90 days after Effective Date of the Settlement[1]
1b	Final PDI Work Plan	Same as above	3.1(a)	60 days after EPA's comments on the Draft PDI Work Plan[1]
2a	Draft PDI Evaluation Report		3.1(b)	As set forth in the approved PDI Work Plan[1]
2b	Final PDI Evaluation Report		3.1(b)	As set forth in the approved PDI Work Plan[1]
3a	Draft BODR		3.2	150 days after EPA approval of the Final PDI Evaluation Report[1]
3b	Final BODR	Same as above	3.2	60 days after EPA's comments on the Draft BODR[1]
4a	Draft RDWP	Updates to FSP, QAPP, HASP, ERP	3.3	120 days after EPA's approval on the Final BODR[1]
4b	Final RDWP	Same as above	3.3	60 days after EPA's comments on the Draft RDWP[1]
5a	Draft Supplemental PDI Work Plan (if needed)		3.5(a)	As set forth in the draft RDWP[1]
5b	Final Supplemental PDI Work Plan (if needed)		3.5(a)	As set forth in the draft RDWP[1]
6a	Draft Supplemental PDI Evaluation Report (if needed)		3.5(b)	As set forth in the approved Final RDWP[1]
6b	Final Supplemental PDI Evaluation Report (if needed)		3.5(b)	As set forth in the approved Final RDWP[1]
7a	Draft Treatability Study Work Plan (if required)		3.6(a)	As set forth in the draft RDWP[1]

	Description of Deliverable	Included Supporting Deliverable	¶ Ref.	Deadline
7b	Final Treatability Study Work Plan (if required)		3.6(a)	As set forth in the draft RDWP RDWP[1]
8a	Draft Treatability Study Evaluation Report (if required)		3.6(b)	As set forth in the approved Final RDWP[1]
8b	Final Treatability Study Evaluation Report (if required)		3.6(b)	As set forth in the approved Final RDWP[1]
9	Preliminary (30%) RD	All supporting deliverables described in ¶ 5.6	3.7	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.
10	Intermediate (60%) RD	Same as above	3.8	As set forth in the approved Final RDWP
11	Pre-final (95%) RD	Same as above	3.9	As set forth in the approved Final RDWP
12	Final (100%) RD	Same as above	3.10	As set forth in the approved Final RDWP
13	Progress Reports		4.1	Quarterly[1]

Notes:
[1] It is the intention of the parties that preparation of these deliverables occur according to an efficient RD schedule. An example showing EPA's expectations for an optimized RD timeline is shown in **Figure 1**.

VII. STATE AND TRIBAL PARTICIPATION

7.1 Copies.

Respondent Arkema 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 Respondent Arkema when EPA provides comments to Respondent Arkema. Respondent Arkema 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 Respondent Arkema, 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 Section XXVIII of the Settlement (Notice of Work Completion).

(c) Any modifications of this Arkema SOW or related deliverables under ¶ 18 and Section XXVII of the Settlement.

VIII. REFERENCES

8.1 The following regulations and guidance documents, among others, shall be considered in implementing the Arkema 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).

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

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

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

(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).

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

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

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

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

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

(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).

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

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

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

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

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

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

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

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

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

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

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

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

(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.

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

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

(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.

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

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

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

(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).

(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).

(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).

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

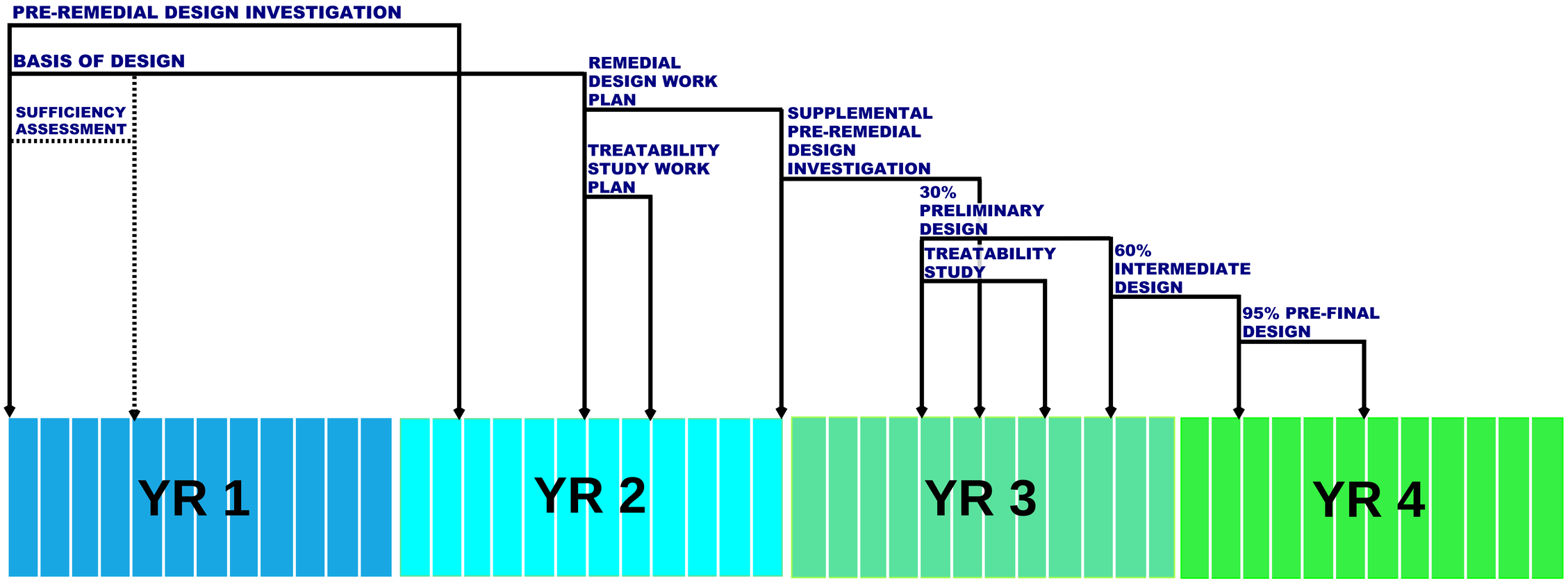
8.2 A more complete list may be found on the following EPA Web pages:

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

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

Figure 1

Optimized Remedial Design Timeline

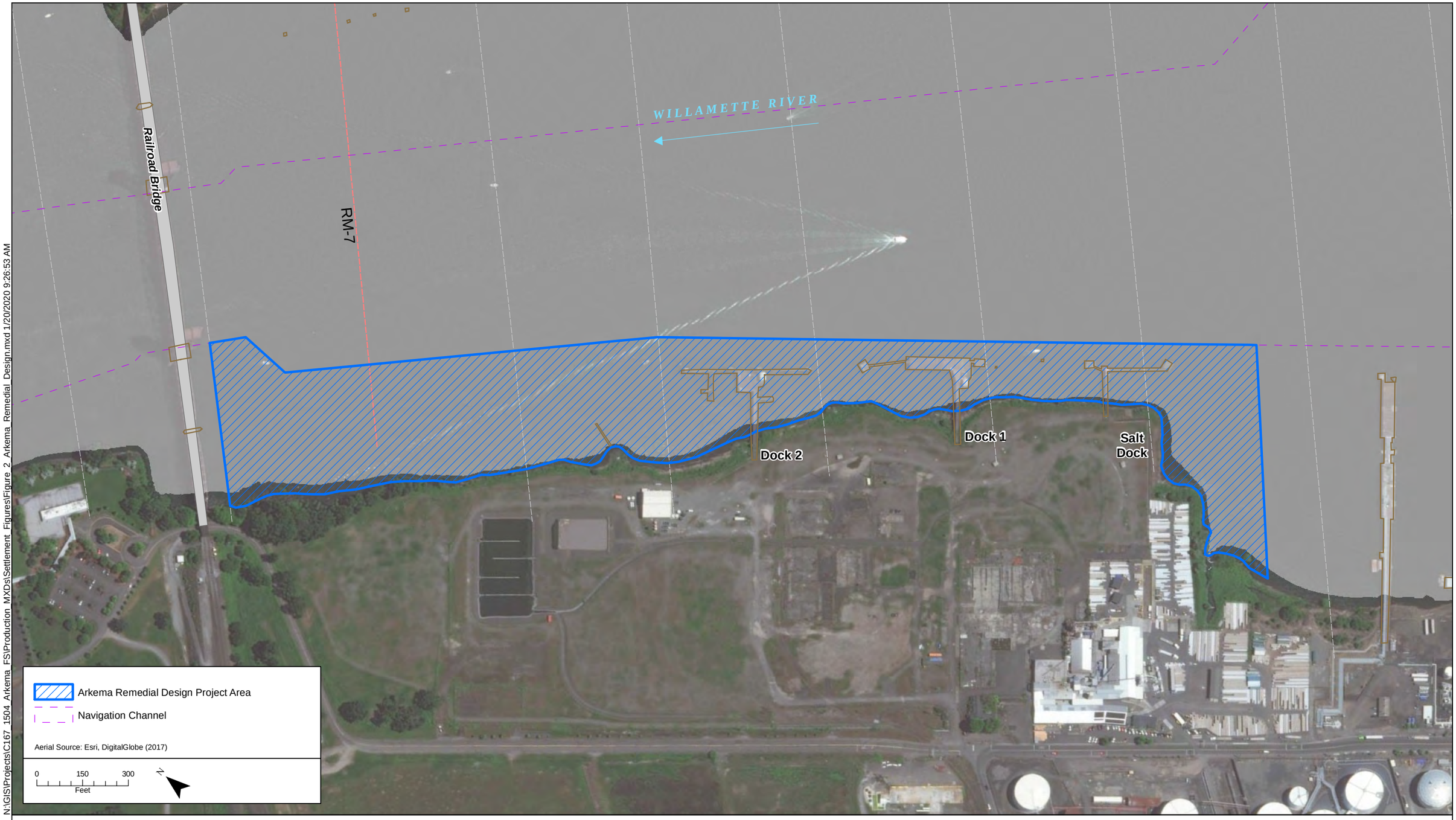


* Current schedule allows 2.5 months for PRPs to create initial draft of RDWP and 30% RD along with 3.5 months for EPA/partner review and comments.
The 3.5 months includes a review/comment cycle of the initial draft document by EPA and TCT, development of the draft final document by PRP, and a final review by EPA. This review process will be shortened for the 60% RD and 95% RD as EPA expects the PRPs to have incorporated EPA comments from the 30% RD.

FIGURE 1. OPTIMIZED REMEDIAL DESIGN TIMELINE

Figure 2

Arkema Project Area



N:\GIS\Projects\C167_1504_Arkema_FS\Production_MXDs\Settlement_Figures\Figure_2_Arkema_Remedial_Design.mxd 1/20/2020 9:26:53 AM

integral consulting inc.

Figure 2.
Arkema Remedial Design Project Area

Attachment 1

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

Program Data Management Plan

Portland Harbor Remedial Design Investigation
Portland Harbor Superfund Site

Prepared by

U.S. Environmental Protection Agency Region 10

August 2018

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TABLE OF CONTENTS

Figures

Appendices

Definitions and Acronyms

ASASOC	Administrative Settlement Agreement and Order on Consent
DMP	data management plan
EDD	electronic data deliverables
EPA	U.S. Environmental Protection Agency
ERT	EPA Emergency Response Team located in Edison, NJ
HUC	hydrologic unit code
ID	identification
ODEQ	Oregon Department of Environmental Quality
PHSS	Portland Harbor Superfund Site
RPM	Remedial Project Manager (EPA Region 10)
Scribe	data management application (created for ERT)
Scribe.NET	web-based portal for archiving Scribe project files and data

1.0 Introduction

To ensure that environmental data collected at the Portland Harbor Superfund Site (PHSS) adhere to specific standards and practices, a programmatic level data management plan (DMP) was developed that provides guidance and data requirements for the various parties involved with the pre-design and design related data collection activities. While this DMP is a standalone document, it is to be used in concert with the Administrative Settlement Agreement and Order on Consent (ASAOC) statement of work, Region 10 data management plan, and the respective quality management plans developed for each performing party sampling effort.

1.1 Site Background

The site is located along the lower reach of the Willamette River in Portland, Oregon, and extends from approximately river mile 1.9 to 11.8. While the site is extensively industrialized, it is within a region characterized by commercial, residential, recreational, and agricultural uses. Land use along the lower Willamette River in the site includes marine terminals, manufacturing, other commercial operations, public facilities, parks, and open spaces. The State of Oregon owns certain submerged and submersible lands underlying navigable and tidally influenced waters. The ownership of submerged and submersible lands is complicated and has changed over time.

This lower reach was once a shallow, meandering portion of the Willamette River but has been redirected and channelized via filling and dredging. A federally maintained navigation channel, extending nearly bank-to-bank in some areas, doubles the natural depth of the river and allows transit of large ships into the active harbor. Much of the river bank contains overwater piers and berths, port terminals and slips, and other engineered features. While a series of dams in the upper Willamette River watershed moderate's fluctuations of flow in the lower portions of the river, flooding still occurs approximately every 20 years, with the last occurring in 1996.

Armoring to stabilize banks covers approximately half of the harbor shoreline, which is integral to the operation of activities that characterize Portland Harbor. Riprap is the most common bank-stabilization measure. However, upland bulkheads and rubble piles are also used to stabilize the banks. Seawalls are used to control periodic flooding as most of the original wetlands bordering the Willamette in the Portland Harbor area have been filled. Some river bank areas and adjacent parcels have been abandoned and allowed to revegetate, and beaches have formed along some modified shorelines due to relatively natural processes.

Development of the river has resulted in major modifications to the ecological function of the lower Willamette River. However, several species of invertebrates, fishes, birds, amphibians, and mammals, including some protected by the Endangered Species Act, use habitats that occur within and along the river. The river is also an important rearing site and pathway for migration of anadromous fishes, such as salmon and lamprey. Various recreational fisheries, including salmon, bass, sturgeon, crayfish, and others, are active within the lower Willamette River.

1.2 Objective and Scope

The objective of this DMP is to ensure that environmental data and supporting information are collected and managed in a manner that preserves, protects, and makes the information available to all stakeholders, performing parties, and other affected groups. This DMP applies to data and

information collected in support of the PHSS by the performing party's activities as related to the remedial design effort and per the individual ASAOC. While it does not cover all information (e.g., photos, field logs) that is managed for specific projects, it is intended to address those types of data deemed critical to decision making for the site. Appendix C provides a conceptual model depicting the comprehensive approach to the management of data derived from previous and future studies at the PHSS. The subsections below identify the general data categories, performing parties collecting environmental data, and major sampling activities.

1.2.1 Data Categories

This plan identifies standard data elements and data management processes for the following data categories:

- Project identification information
- Environmental sampling data
- Locational data

The individual data elements for each of these categories represent the minimal amount of information that is needed for project specific decision making and data sharing among stakeholders and performing parties. These are further identified in the Data Management section.

1.2.2 Major Stakeholder Groups

The major stakeholder groups have been identified as those groups who are actively involved in site-wide planning and environmental data collection and sharing for this site. The major stakeholders include signatories to the 2001 Memorandum of Understanding, performing parties, and community groups:

- Memorandum of understanding members
  - U.S. Environmental Protection Agency (EPA) Region 10
  - Oregon Department of Environmental Quality
  - Confederated Tribes and Bands of the Yakama Nation
  - Confederated Tribes of the Grand Ronde Community of Oregon
  - Confederated Tribes of Siletz Indians
  - Confederated Tribes of the Umatilla Indian Reservation
  - Confederated Tribes of the Warm Springs Reservation of Oregon
  - Nez Perce Tribe
  - National Oceanic and Atmospheric Administration
  - Oregon Department of Fish and Wildlife
  - U.S. Department of the Interior
- Performing Parties (these are typically potentially responsible parties)
- Primary community groups
  - Community Advisory Group
  - Willamette Riverkeeper
  - Portland Harbor Community Advisory Group

1.2.3 Remedial Design Sampling Activities

For the remedial design efforts, a performing party would implement an investigation to supplement existing site-wide data to inform and support remedial design.

The following types of sample collection activities may be completed as specified in each respective EPA-approved sampling plan submitted by performing parties:

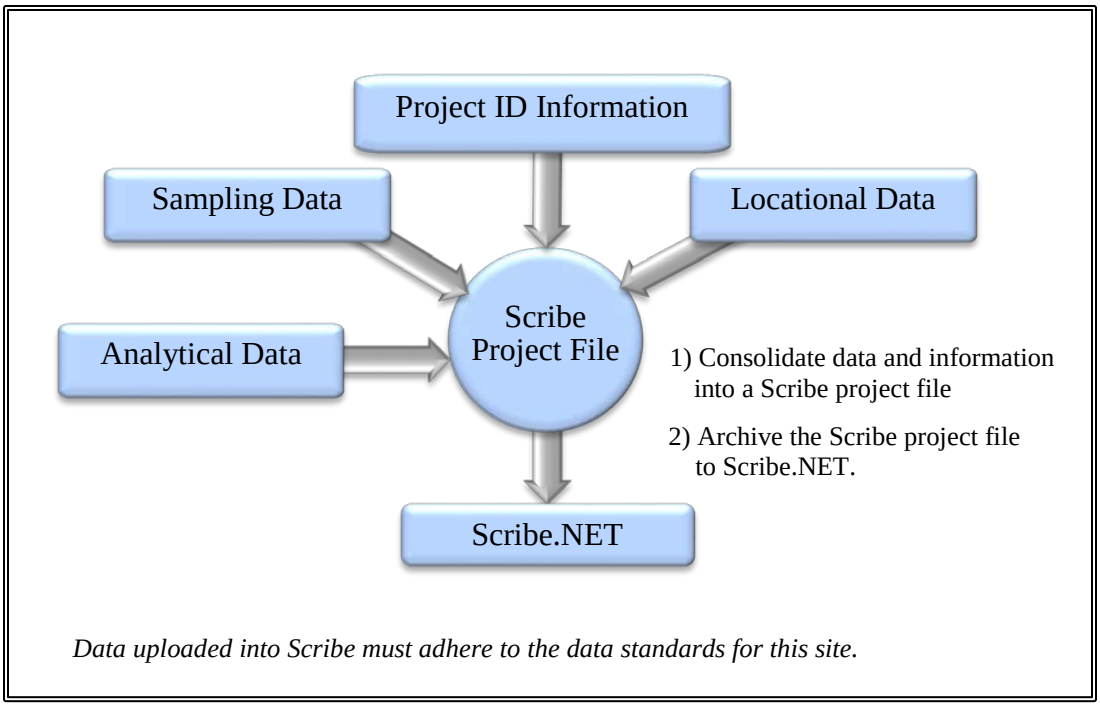
- Surface sediment sampling
- Fish tissue sampling
- Surface water sampling
- Sediment coring
- Soil sampling
- Porewater sampling

2.0 Data Management

Effective data management among the Portland Harbor performing parties relies upon delivery of data to a central repository using a common data management platform. The platform selected for the PHSS is Scribe, and the repository is the Region 10 subscription to Scribe.NET. Although individual performing parties may have diverse data management systems, the Scribe software and Scribe.NET repository is required for consolidation and access to project information, sampling data, and applicable locational data for each sampling activity. For many projects Scribe will already be in use for managing environmental samples. In those cases, the same Scribe project files can be used to document the project information, receive the sampling data, and publish the complete set of information to Scribe.NET. A simplified data flow for the Scribe data management process is illustrated on Figure 1. The Scribe Project ID is required for each data set and is provided by the EPA Scribe.NET Data Coordinator. Sampling Data comprises sample nomenclature identification, temporal data, and details specific to the sampling event. Locational Data comprise the spatial information for each sample.

Independent of the Scribe and Scribe.NET repository, a site-wide repository is being developed by the State of Oregon to capture and provide access to comprehensive Portland Harbor data. Appendix C provides a conceptual model depicting the comprehensive approach to the management of data derived from previous and future studies as a part of the PHSS.

Figure 1. Data Flow and Archiving for Scribe



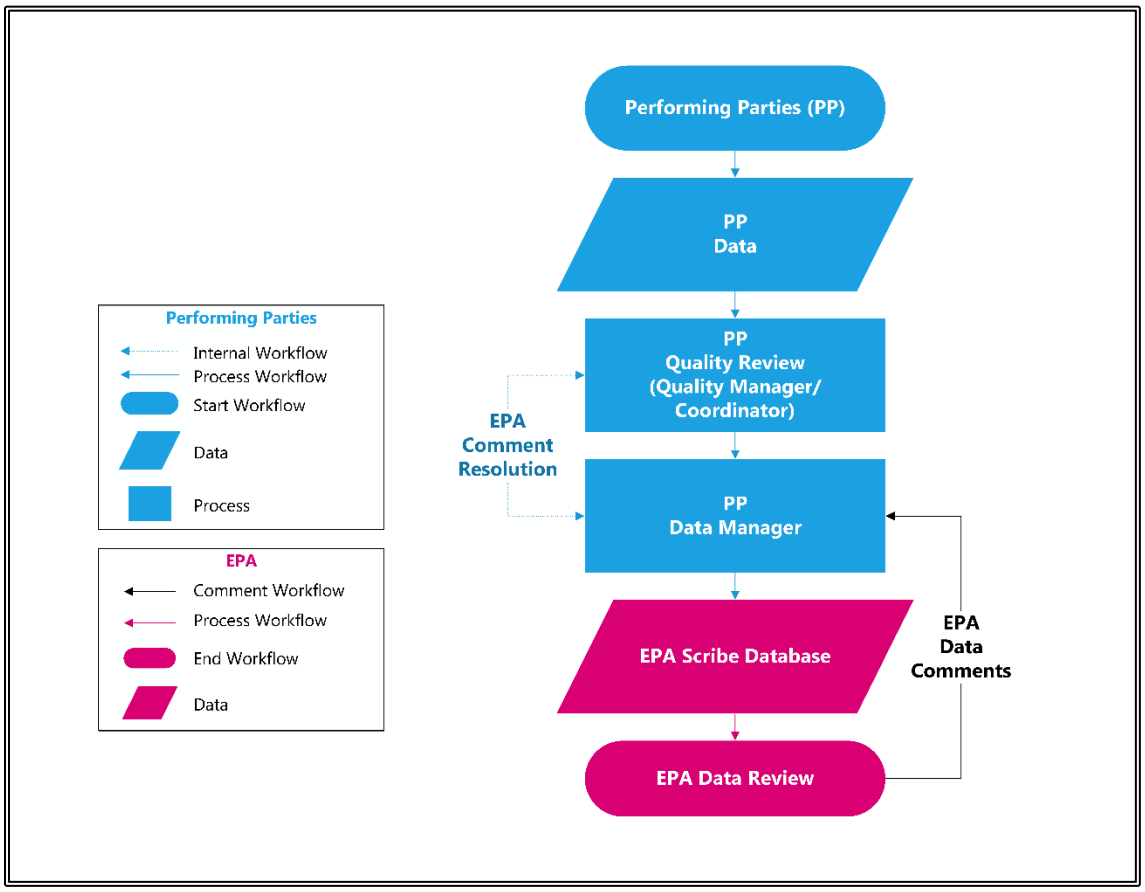
2.1 Data Management Platform

The data management platform selected for the PHSS is Scribe. This software is based on a Microsoft database and is available for download (www.ert.org). In addition to the Scribe software, an EPA Region 10 template, which contains the required data fields, data lists, and validation criteria, needs to be downloaded and installed. For each project, a Scribe project file is created. Here, the project-specific information is entered, which identifies both the performing party or group conducting the sampling and the type of sampling activity performed.

2.2 Roles and Responsibilities

The major roles and responsibilities for data management are identified for the performing parties in addition to the role of the data manager within each organization. The performing parties will be responsible for their own in-house data management but will designate a "data manager" who will fill the role as defined within this DMP. Figure 2 provides an overview of the workflow between EPA Region 10 and the performing parties.

Figure 2. Process Workflow



2.2.1 Performing Parties

EPA Region 10 has the primary responsibility for oversight of all sampling and monitoring activities. EPA has identified the minimal data elements and data delivery requirements that would allow it to achieve its oversight goals and share data among the other stakeholders, performing parties, and community groups. Each of the performing parties is responsible for collecting the necessary data elements covered under their respective sampling activity as approved by EPA, and providing that information to EPA by submitting electronic data deliverables (EDD's) or entering or uploading the information into a Scribe project file, and publishing (archiving) the complete file to Scribe.NET. Coordination with EPA and the Oregon Department of Environmental Quality (ODEQ) is required to ensure data requirements for a sampling event are met. To accomplish this task on a project-specific basis, the performing party will need:

- DMPs to cover their respective sampling activities
- A data manager designated to complete the Scribe project file or EDD's

Details regarding the roles and responsibilities of the data manager are provided in the following section.

2.2.2 Data Manager

Each of the performing parties will need to designate a data manager to create the EDD submittals or create and manage the Scribe project file and upload the file to Scribe.NET. Regardless of the

data management system each performing party utilizes, a Scribe EDD or Scribe project file is required for consolidation and archiving of the project data to a designated national server. The major responsibilities of the data manager are:

- Creation of EDD submittals or the Creation of the Scribe project file
- Coordination with EPA and/or ODEQ regarding all data matters.
- Participation in the Portland Harbor data management coordination calls for ongoing discussion and updates or suggested revisions to this DMP

Designation and training for the data manager can be coordinated with the EPA's Regional Scribe.NET Data Coordinator if direct use of Scribe project files is planned. Web training sessions are also available from the EPA Emergency Response Team (ERT) on a regular basis. To begin, the data manager will need to go to the ERT website (www.ert.org) and download on to their computer:

- Scribe (Version 3.9.4 or current)
- EPA Region 10 Scribe template

Once these have been installed, the EPA Region 10 template will need to be selected during the startup of Scribe after which it will become the default template for future projects. As a security measure, once a Scribe project file has been started, it stays locked to the originating computer until it has been relinquished by the data manager. Data and information can be uploaded into Scribe via an import wizard or hand entered through the user interface. During use, it is a recommended practice to regularly back up the Scribe project file to Scribe.NET to preserve the information in the event the originating computer is lost, stolen, or experiences a system failure.

It is anticipated that there will be no coordination with respect to the EPA regional laboratory program for any of the sampling events conducted by any performing party. Section 2.2.4 describes how contact may be made to discuss specific requirements regarding Scribe EDD submittals and/or Region 10 Scribe template.

2.2.3 EPA Remedial Project Managers

EPA's oversight of the performing parties at the Portland Harbor site resides with EPA's Superfund Remedial Project Managers (RPM). The RPM will work directly with the performing parties on the direction and type of environmental sampling activities conducted. This includes data quality objective development; approval of sampling plans; and acceptance of sampling reports, assessments, and data for entry into the agency's administrative record. Central to this role is the identification of critical data needs on each approved sampling activity at each sediment management area. In addition, the RPM will participate in the Portland Harbor data management calls and coordinate with the performing party's data manager for refinements to the DMP if needed.

2.2.4 EPA Regional Scribe.NET Data Coordinator

The EPA Scribe.NET Data Coordinator (to be determined) is the project's EPA Scribe data management point of contact and reviews all EPA Region 10 Scribe deliverables for adherence to the EPA Region 10 DMP.

As part of the Portland Harbor data management coordination calls, the EPA Scribe.NET Data Coordinator will communicate with all performing parties regarding all data issues related to the management of data, Scribe EDD submittals and/or Scribe templates. The coordinator will also be the central point of contact for all technical information and database requirements related to the publishing of data to Scribe.NET.

2.3 Data Elements

As stated in Section 1.2.1, the plan identifies standard data elements for project identification information, environmental sampling data, and locational data. A complete list of data elements is provided in Appendix A and the valid values in Appendix B. Valid values are also provided as drop-down entry items in the Region 10 Scribe template/Portland Harbor template (when available). The following sections summarize the information in these appendices as they relate to the major data categories.

2.3.1 Project Identification Information

Project identifiers provide the necessary descriptive information (metadata) about the project. This allows data users an efficient way of categorizing and searching archived Scribe project files. A complete list of these data elements is found in Appendix A under the Site and Event Categories. Critical among these is identification of the project, monitoring organization, and type of monitoring activity (see Appendix A; Events – Activity data element). The Activity data type is a Superfund identifier that distinguishes environmental data by its intended programmatic use (i.e., Performance Evaluation, Remedial Action). The EPA Region 10 template contains a list of valid values for the Activity data element. It is important for the data manager to verify with the EPA RPM on the agreed upon Activity type during the project planning.

2.3.2 Environmental Sampling Data

The data elements for environmental sampling data allow for a complete identification of the analytical results such that the data may be subject to interpretation. This includes the identification of the sample matrix, sample collection time, measurement parameter, units of measurement, limits of detection, dates of analysis, analytical method, and so on. A complete list of these data elements and their descriptors are in Appendix A under the Samples and Lab Results categories. For data being uploaded into the Lab Results table of Scribe, the sample numbers must match up against the sample numbers that are already loaded into the Samples table.

2.3.3 Locational Data

The locational data establish the spatial representativeness of the environmental sample and are critical for data analysis. These include latitude, longitude, datum, elevation, and geomethod for sample collection points. Additional spatial identifiers for water monitoring (e.g., hydrologic unit codes [HUCs]) have been added for this site as these were identified as required geospatial identifiers by EPA. Valid values for the HUCs have been incorporated into the Region 10 template. A complete list of the locational data elements is in Appendix A under the Location and Samples categories.

2.4 Data Repository

The repository for archiving and retrieving Scribe project files is Scribe.NET. This repository resides within a national server maintained by ERT and is accessed directly from Scribe. For each project file, a unique ID is assigned at the time the file is first published to Scribe.NET. Access to the archived Scribe project file can be granted to other stakeholders, performing parties, and groups upon submitting a request to ERT; however, the repository files can only be updated from the computer that originated the file (unless the Scribe project file is relinquished by the originator in Scribe). Independent of the Scribe.NET repository, a site-wide repository being developed by the State of Oregon, will capture and provide access to comprehensive Portland Harbor site data.

3.0 Data Verification

If the Scribe project is initiated by a performing party for Portland Harbor, Scribe is configured to undergo a self-inspection of information as part of the data generation or file upload process. The Region 10 template contains auditor rules for verification of Scribe project files as they are uploaded to Scribe.NET Close observance of these rules is the responsibility of the data manager.

4.0 Data Reporting Procedures

Final project information, sampling, and locational data are delivered to EPA in the form of an EDD or Scribe project file that has been fully populated and published to Scribe.NET. Upon completion of Scribe project file and upload to Scribe.NET, the performing party data manager notifies the EPA RPM and the EPA Scribe.NET Data Coordinator and provides the Scribe project ID number (assigned at the time of publishing to Scribe.NET) associated with the project for identification and access by EPA Region 10. The concept for integrating the analytical and locational data of Scribe.NET with the comprehensive data management repository is provided in Appendix C.

5.0 Data Access

Major stakeholder groups have been identified as those groups who are actively involved in site-wide planning and environmental data collection and sharing for the PHSS. The major stakeholders include signatories to the 2001 Memorandum of Understanding, performing parties, and community groups: These stakeholders are provided access to the Portland Harbor subscription of Scribe.NET. Data access is performed through Scribe. For all the Portland Harbor Scribe project files, each stakeholder, performing party, or primary community groups has data access rights and can download the Scribe project file from Scribe. Only the originating performing party data manager can update files that have been published to Scribe.NET. Appendix C provides a conceptual model depicting the comprehensive approach to the site-wide management and sharing of data derived from previous and future studies at the PHSS.

6.0 References

U.S. EPA. *Memorandum: Superfund Site Data Definitions and Recommended Practices*. 29 Nov. 2017.

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Appendix A – Required Data Elements

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Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
CASE_NUMBER	Conditional	Unique ID assigned to groups of samples scheduled for analysis. Required for the Contract Lab Program. Possible values are determined by the CLP Contract.		Numeric / 5	5	Scribe / Lab
SAMPLE_DELIVERY_GROUP	Conditional	A set of samples scheduled under a Case Number (max = 20). Required for the Contract Lab Program.	Possible values are determined by the CLP Contract.	Text / 30	30	Lab
SAMPLE_ID	Conditional	EPA Sample Number. Required if data are reported by the Contract Lab Program.	Possible values are determined by the CLP Contract.	Text	25	Lab
CAS_NUMBER	Required	Chemical Abstracts Service (CAS) Registry Number for the chemical compound or element reported.	Possible values are determined by the CAS Registry.	Text	50	Lab
ANALYTE	Required	Nam of the chemical compound or element that was measured.	Name comprised of any combination of alpha-numeric values which may also contain hyphens and commas.	Text	60	Lab
FINAL_RESULT	Required	The final validated result of the chemical compound or element that was measured.	Numeric value which may be integer or decimal.	Numeric	8	Lab / Data Reviewer
RESULT_UNITS	Required	The units of measurement for the "Final Result" and "Lab Result".	Possible values are determined by the CLP Contract or the lab. Examples: ug/kg, mg/kg, ug/L, mg/L, ug	Text	20	Lab
FINAL_VALIDATION_QUALIFIER	Required	National Functional Guidelines Data Validation Qualifiers.	Possible values assigned by the National Functional Guidelines.	Text	10	EDM / Data Reviewer
DATA_VAL_LABEL	Required	EPA Data Validation Label Code from the “Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use”.	Possible values assigned by the guidance document.	Text	250	EDM / Data Reviewer

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLE_ADJUSTED_CRQL	Required	The Contract Required Quantitation Limit (CRQL) or lab's Reporting Limit that has been adjusted for sample weight, sample volume, dilution, percent solids, etc.	Numeric value which may be integer or decimal.	Numeric	8	Lab
SAMPLE_ADJUSTED_MDL	Required	The Method Detection Limit (MDL) that has been adjusted for sample weight, sample volume, dilution, percent solids, etc.	Numeric value which may be integer or decimal.	Numeric	8	Lab
LAB_RESULT	Required	The analytical result as reported by the testing laboratory.	Numeric value which may be integer or decimal.	Numeric	8	Lab
LAB_QUALIFIERS	Required	Lab Applied Data Qualifier(s). Qualifer codes which describe certain aspects of data utility or quality (e.g., non-detect, estimated value, etc.).	Possible value defined by either the CLP Statement of Work or the lab.	Text	10	Lab
METHOD_CRQL	Required	Un-adjusted CRQL or Reporting Limit	Numeric value which may be integer or decimal.	Numeric	8	Lab
NONMOISTURE_SAMPLE_ADJUSTED_CRQL	NA	Contract Required Quantitation Limit (CRQL) or Reporting Limit that is adjusted for sample weight, volume, dilution, **BUT NOT** percent solids. Created by the data review program used to validate CLP data.	Numeric value which may be integer or decimal.	Numeric	8	EDM
CRQL_UNITS	Required	Sample Adjusted Contract Required Quantitation Limit (CRQL) or Reporting Limit Units of Measurement.	Possible values are determined by the CLP Contract or the lab. Examples: ug/kg, mg/kg, ug/L, mg/L, ug	Text	20	Lab
INSTRUMENT_MDL	Optional	Instrument Detection Limit (MDL) that is not adjusted for sample mass/volume or percent moisture (solids).	Numeric value which may be integer or decimal.	Numeric	8	Lab
NONMOISTURE_SAMPLE_ADJUSTED_MDL	NA	Method Detection Limit (MDL) that is adjusted for sample weight, volume, dilution, **BUT NOT** percent solids. Created by the data review program used to validate CLP data.	Numeric value which may be integer or decimal.	Numeric	8	EDM
MDL_UNITS	Required	MDL Measurement Units	Possible values are determined by the CLP Contract or the lab. Examples: ug/kg, mg/kg, ug/L, mg/L, ug	Text	20	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
PERCENT_SOLIDS	Required	The Percent Solids for soils and sediments. Used to determine the dry weight basis of the chemical analyses.	Reported as a "Percent".	Numeric	8	Lab
PERCENT_MOISTURE	Required	The Percent Moisture content for soils or sediments. Used to determine the dry weight basis of the chemical analyses.	Reported as a "Percent".	Numeric	8	Lab
DILUTION_FACTOR	Required	Dilution Factor applied to the digest or extract. The dilution factor is only applied when the laboratory has diluted the extract or digest due to a high concentration of analyte(s).	Integer values e.g., 1, 2, 3, etc.	Numeric	8	Lab
ANALYSIS_FRACTION	Required	Identifies the type of analysis fraction or method category of the analysis.	Possible values determined by the CLP Contract or reporting Lab.	Text	100	Lab
ANALYSIS_LEVEL	Conditional	The concentration range or level performed by the lab for the analytical methods.	Possible values are determined by the CLP Contract. Examples: trace, low, med	Text	15	Lab
REPORTING_BASIS	Required	Indicates whether the results were adjusted due to the moisture content of the sample.	For Water samples = WET, For Soil and Sediment samples = DRY or WET depending upon whether moisture correction was applied.	Text	10	Lab
SAMPLE_DATE_TIME	Required	The Date & Time of Sample Collection	For all field samples (including Field Blank and Performance Evaluation samples) = MM/DD/YYYY HH:MM:SS	Date/Time	20	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
DATE_SHIPPED	Required	Date of Sample Shipment.	For all field samples (including Field Blank and Performance Evaluation samples) = MM/DD/YYYY For Matrix Spike, Post-Digestion Spike, Duplicates, Matrix Spike Duplicate = Ship Date of associated Parent Sample	Date	20	Scribe
DATE_TIME_RECEIVED	Required	Date & Time of Sample Receipt at Lab.	For all field samples (including Field Blank and Performance Evaluation samples) = MM/DD/YYYY HH:MM:SS For Matrix Spike, Post-Digestion Spike, Duplicate, Matrix Spike Duplicate = Sample Receipt Date and Time of associated Parent Sample	Date/Time	20	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
PREP_DATE_TIME	Required	Date & Time of Sample Digestion/Extraction.	For all laboratory samples = MM/DD/YYYY HH:MM:SS For Matrix Spike, Post-Digestion Spike, Duplicate, Matrix Spike Duplicate = Sample Receipt Date and Time of associated Parent Sample	Date/Time	20	Lab
ANALYSIS_DATE_TIME	Required	The Date & Time of Analysis of the sample digest or extract.	For all laboratory samples = MM/DD/YYYY HH:MM:SS	Date/Time	20	Lab
LAB_SAMPLE_TYPE	Required	Identifies types of samples as either "field" or specific lab QCbut does not identify field QC types. Required by the Contract Lab Program.	Possible values are determined by the CLP Contract or Reporting Lab. Examples: Field_Sample, Method_Blank, Matrix_Spike, Serial_Dilution, etc.	Text	40	Lab
SAMPLE_MATRIX	Required	Identifies the matrix type of soil, water, etc. as reported by the lab. Required by the Contract Lab Program.	Possible values are determined by the CLP Contract or reporting Lab. Examples: Water, Soil, Sediment, Wipe, Filter	Text	20	Lab
RESULT_COMMENT	Conditional	Concatenated result information (can be from FORM I Comment Field)	Comments are recorded in the field. Required if passed from the Scribe XML to the Lab.	Text	250	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
LAB_NAME	Required	Laboratory Name (long name)	Possible values are determined by the CLP Contract or reporting Lab.	Text	50	Lab
LAB_CODE	Conditional	An abbreviated form of the Lab Name.	Possible values are determined by the CLP Contract. The abbreviated lab name is a code used for reporting.	Text	30	Lab
CONTRACT_NUMBER	Conditional	Laboratory Contract Number assigned under the CLP.	Possible values are determined by the CLP Contract or reporting Lab.	Text	30	Lab
METHOD_NUMBER_OR_CLP_SOW	Required	Identifies the analytical method reference number or statement of work.	Valid EPA or other reference methods or CLP SOW editions. Examples: ISM01.3, 6010, 8270, etc.	Text	100	Lab
MA_NUMBER	Conditional	The Modified Analysis (MA) Number is a tracking number used by the CLP for non-standard or altered methods.	Possible values are determined by the CLP Contract or reporting Lab.	Text	30	Lab
TR_COC_NUMBER	Required	The Traffic Report (TR) /Chain of Custody Form Number is a unique tracking number assigned to the COC.	Long segmented number separated by hyphens.	Text	30	Scribe
LAB_SAMPLE_ID	Conditional	Laboratory Sample ID (internal ID#). Labs issue their own sample IDs for internal sample tracking and reporting purposes.	Possible values are determined by the CLP Contract or reporting Lab.	Text	25	Lab
LAB_FILE_ID	Conditional	Laboratory File ID (Internal to the lab only)	Possible values are determined by the CLP Contract or reporting Lab.	Text	25	Lab
INSTRUMENT_ID	Conditional	Unique Instrument Identification Number	Possible values are determined by the CLP Contract or reporting Lab.	Text	25	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLE_ALIQUOT	Required	The mass or volume of sample that removed for extraction or digestion.	Numeric value may be an integer or decimal.	Numeric	8	Lab
SAMPLE_ALIQUOT_UNITS	Required	The units of measurement for the mass or volume of sample that removed for extraction or digestion.	Examples: "g" for grams, "mL" for milliliters.	Text	20	Lab
FINAL_VOLUME	Required	The final volume of the sample Digest or Extract.	Numeric value may be an integer or decimal.	Numeric	8	Lab
FINAL_VOLUME_UNITS	Required	Volume of Sample Digest /Extract Units	For Organic: uL For Inorganic: mL	Text	20	Lab
SOIL_EXTRACT_VOLUME	Conditional	The volume of extract used for a Medium Level VOC soils analysis.	Numeric value may be an integer or decimal.	Numeric	8	Lab
SOIL_EXTRACT_VOLUME_UNITS	Conditional	Soil Extract Volume Units (Medium VOA)	For Organic (VOA): uL	Text	20	Lab
SOIL_ALIQUOT_VOLUME	Conditional	The volume of aliquot removed from the extract used for a Medium Level VOC soils analysis.	Numeric value may be an integer or decimal.	Numeric	8	Lab
SOIL_ALIQUOT_VOLUME_UNITS	Conditional	Soil Aliquot Volume Units (Medium VOA)	For Organic (VOA): uL	Text	20	Lab
PURGE_VOLUME	Conditional	For analysis of Volatile Organic Compounds, the volume of an aqueous sample that is used to "purge" the VOCs.	Numeric value may be an integer or decimal.	Numeric	8	Lab
PURGE_VOLUME_UNITS	Conditional	Purge Volume Units (VOA)	For Organic (VOA only): mL	Text	20	Lab
SPIKE_ADDED	Conditional	Amount Added for Lab Matrix Spike or Spike Duplicate sample or Laboratory Control Sample	Numeric value may be an integer or decimal.	Numeric	8	Lab
CONCENTRATED_EXTRACT_VOLUME	Conditional	Concentrated Extract Volume (SVOA/PEST/PCB)	Numeric value may be an integer or decimal.	Numeric	8	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
CONCENTRATED_EXTRACT_VOLUME_UNITS	Conditional	Concentrated Extract Volume Units (SVOA/PEST/PCB)	For Organic (SVOA, Pesticides, PCBs): uL	Text	20	Lab
INJECTION_VOLUME	Conditional	The volume of extrac injected into the instrument. (SVOA/PEST/PCB)	Numeric value may be an integer or decimal.	Numeric	8	Lab
INJECTION_VOLUME_UNITS	Conditional	Injection Volume Units (SVOA/PEST/PCB)	For Organic (SVOA, Pesticides, PCBs): uL	Text	20	Lab
PREPARATION_METHOD	Required	Type of Extraction for Organics or Digestion for Inorganics. "SONC" for sonication etc. (SVOA/PEST/PCB) of Organics and most relevant method digestion numbers for Inorganic.	Possible values are determined by the CLP Contract or reporting Lab. For Organic: Sonication, Soxhlet, Pressurized_Fluid , Liq_Liq, Liq_Membrane For Inorganic: 200.7, 200.8, 3050B, 3015A, 3051A, 7300, 7470A, 7471B, Midi-distillation, Micro-distillation	Text	100	Lab
GPC_CLEANUP	Conditional	Cleanup Type (SVOA/PEST/PCB)	For Organic (SVOA, Pesticides, PCBs): Y or N	Text	20	Lab
GPC_FACTOR	Conditional	1.0 if no GPC, 2.0 if GPC is performed (SVOA/PEST/PCB)	"1.0 if no GPC, 2.0 if GPC is performed" derived from presence or absence of GPC value in CLEANUP_TYPE field	Numeric	8	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
DECANTED	Conditional	Identifies if the Lab decanted the sample in a Yes or No response. (SVOA/PEST/PCB)	Possible values are determined by the CLP Contract or reporting Lab. For Organic (SVOA, Pesticides, PCBs): Decanted or Not_Decanted	Text	20	Lab
PH	Conditional	The pH Determination of a soil or water sample. Reported in pH Units (SVOA/PEST/PCB, and Inorganic water samples)	Numeric value may be an integer or decimal.	Numeric	8	Lab
COLOR_BEFORE	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
COLOR_AFTER	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
CLARITY_BEFORE	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
CLARITY_AFTER	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
TEXTURE	Optional	Description of sample. Used in CLP Metals analysis of soil/sediments.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
ARTIFACTS	Optional	Description of sample. Used in CLP Metals analysis of soil/sediments.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
COOLER_TEMP	Required	Recorded temperature of the sample cooler upon Receipt at the Lab.	Recorded in Degrees Celcius.	Numeric	8	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLE_FRACTION	Conditional	Identifies the representativeness of a water sample due to any pretreatment (e.g., filtration at 0.45 micron).	"D" for dissolved (filtered at 0.45 micron), "F" for other filtered, "T" for total (unfiltered). If "F" is used then the filter size/type should be entered in the Result_Comment field.	Text	1	Scribe
METHOD_SPECIATION	Conditional	Part of a chemical characteristic (Nitrogen "As" …)	Detemined by the analytical method.	Text	30	Lab
SAMPLE_SUBMATRIX	Required	Scribe Matrix, expanded to include surface water, surface sediment etc. Use a custom list in Scribe	Examples: Air, AirIndoor, Sediment, Sediment Subsurface, Sediment Surface, Soil, Soil Surface, Soil Subsurface, SoilGas, Tissue, Waste, Waste SolidWaste, Waste LiquidWaste, Water, Water SurfaceWater, Water GroundWater, Water Potable, Water SepticEffluent, Water Stormwater	Text	40	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLING_REASON	Required	General program or technical reason for the study. Program reasons are specific and tie the data collection to more prescribed data uses.	Examples: Emergency Response, Site Investigation, Preliminary Assessment, Site Assessment, Remedial Investigation, Remedial Action	Text	30	Scribe
SAMPLE_COLLECTION_METHOD	Required	Sample Collection Method (i.e., Grab, Composite, Discrete Interval)	Examples: Grab, Composite, Discrete Interval	Text	30	Scribe
EPA_REGION	Required	The EPA Regional designation number	Valid Values: 1 - 10	Text	10	Scribe
STATION_LOCATION	Required	Station Location Codes	Determined by the project.	Text	50	Scribe
LOCATION_DESCRIPTION	Required	Further descibes the Station Location.	Determined by the project.	Text	100	Scribe
SCRIBE_SAMPLE_NUMBER	Required	The Scribe / field sample number. This may be Scribe generated or a Regionally assigned number.	Possible value determined by the Scribe Project Manager or the Regional Sample Control Coordinator.	Text	50	Scribe
LOCATION_ZONE	Required	The type of area that is impacted by the sample location.	Examples: Lake, Land, River/Stream, Well	Text	25	Scribe
LATITUDE	Required	The geographic latitude where the sample was collected or field measurement was taken.	12 character decimal degrees. Decimal places should be carried out to a minimum of 6 places in order to ensure minimal accuracy.	Numeric	12	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
LONGITUDE	Required	The geographic longitude where the sample was collected or field measurement was taken.	12 character decimal degrees (preceded by a negative sign for North America, -). Decimal places should be carried out to a minimum of 6 places in order to ensure minimal accuracy.	Numeric	12	Scribe
DATUM	Required	The horizontal coordinate system reference Datum name.	WGS84	Text	50	Scribe
GEOMETHOD	Required	The method used to determine latitude and longitude.	GPS, Survey	Text	30	Scribe
SURFACE_ELEVATION	Conditional	The determined elevation of a geographic point where the sample was collected or field measurement was taken. This is required for groundwater monitoring wells and where surface elevation data is needed for a project.	In feet or meters, need to provide for GW Wells that have been surveyed and not just GPS.	Numeric	8	Scribe
SURFACE_ELEVATION_UNITS	Conditional	The units of measurement for the surface elevation data. This is required when surface elevation measurements are reported.	meters, feet	Text	20	Scribe
SURFACE_ELEVATION_METHOD	Conditional	The method used to determine the surface elevation. This is required when surface elevation measurements are reported.	GPS, Survey	Text	30	Scribe
SURFACE_ELEVATION_DATUM	Conditional	The vertical control datum for the surface elevation measurement. This is required when surface elevation measurements are reported.	NAVD88	Text	50	Scribe
TOP_DEPTH	Conditional	Top depth of Sample Collection (for cores) or depth of sample collection for a monitoring well.	Numeric value may be an integer or decimal.	Numeric	8	Scribe
BOTTOM_DEPTH	Conditional	Depth To bottom of sample collection for a core sample.	Numeric value may be an integer or decimal.	Numeric	8	Scribe
TOP_DEPTH_UNITS	Conditional	Units of Sample Depth	Feet or meters	Text	20	Scribe
BOTTOM_DEPTH_UNITS	Conditional	Units of the Bottom Depth	Feet or meters	Text	20	Scribe
SAMPLER_NAME	Required	Sampler Name	Full name of the sampler.	Text	30	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLING_COMPANY_CONTACT	Required	Sampling Company Contact Name	Full name of the sampling contact. Person usually coordinates sample collection on behalf of the sampling company.	Text	50	Scribe
SAMPLING_COMPANY_NAME	Required	Sampling Company Name	Full name of the sampling company.	Text	50	Scribe
PROJECT_NAME	Required	Site Name / Project Name	Assigned by the Sample Control Coordinator.	Text	50	RSCC/EDM
SITE_PROJECT_CODE	Required	Regional Project Code	Assigned by the Sample Control Coordinator.	Text	50	RSCC/EDM
SITE_EVENT_ID	Required	EventID. Use to group data by sampling/monitoring events (i.e. EOC, Site Assessment) (Primary Key)	A unique ID used by Scribe.	Text	50	Scribe
STATE	Required	State where sample collection occurred. This field is populated in CLPSS during ASR entry	2 Character State Abbreviation	Text	20	RSCC/EDM
CITY	Required	City where sample collection occurred. This field is populated in CLPSS during ASR entry	Full City Name	Text	60	RSCC/EDM
CERCLIS	Required	CERLIS ID	The CERCLIS identification. Used only by the Superfund program.	Text	20	Scribe
SCRIBE_SITE_NUMBER	Required	Scribesite key (Primary Key)	A unique ID used by Scribe.	Text	12	Scribe
SCRIBE_NET_PROJECT_ID	Required	ScribeNetID Project ID	A unique ID used by Scribe.	Long Integer	4	Scribe
SCRIBE_SAMPLES_ID	Required	Scribe Database AutoGenerated Number	A unique ID used by Scribe.	Long Integer	4	Scribe
SAMPLE_TAG	Required	Container ID codes - autogenerated if left blank	A unique ID used by Scribe.	Text	15	Scribe
SCRIBE_COMMENT	Conditional	Comment field from Scribe	Filled in by sampler to denote special sample treatment or conditions. Required if the entry is filled in by Scribe.	Memo	65K+	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
FIELD_SAMPLE_TYPE	Required	Distinguishes field samples from lab QC, field QC and other associated sample types.	Possible values used in the Scribe template. Example: "Field Sample", etc.	Text	30	Scribe
VERSION_CODE	NA	Reserved for use by another Region.				
DATA_PROVIDER	NA	Reserved for use by another Region.				
PARENT_SAMPLE_NAME	NA	Reserved for use by another Region.				
PARENT_SAMPLE_LOCATION	NA	Reserved for use by another Region.				
LAB_REPLICATE_TYPE	NA	Reserved for use by another Region.				
SAMPLE_SOURCE	NA	Reserved for use by another Region.				
ORGANIC_YN	NA	Reserved for use by another Region.				
PRESERVATIVE	NA	Reserved for use by another Region.				
TEST_BATCH_TYPE	NA	Reserved for use by another Region.				
PREP_BATCH_ID	NA	Reserved for use by another Region.				
ANALYSIS_TYPE	NA	Reserved for use by another Region.				
SAMPLE_ANALYSIS_LOCATION	NA	Reserved for use by another Region.				
COLUMN_ID	NA	Reserved for use by another Region.				
RUN_BATCH_ID	NA	Reserved for use by another Region.				
ANALYSIS_BATCH_ID	NA	Reserved for use by another Region.				
ANALYST_NAME	NA	Reserved for use by another Region.				
ANALYTE_TYPE	NA	Reserved for use by another Region.				
REPORTABLE_RESULT	NA	Reserved for use by another Region.				

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
DETECT_FLAG	NA	Reserved for use by another Region.				
TIC_RETENTION_TIME	NA	Reserved for use by another Region.				
TIC_RETENTION_TIME_UNITS	NA	Reserved for use by another Region.				
EXPECTED_VALUE	NA	Reserved for use by another Region.				
QC_ORIGINAL_CONC	NA	Reserved for use by another Region.				
QC_SPIKE_MEASURED	NA	Reserved for use by another Region.				
QC_SPIKE_RECOVERY	Required	Percent Recovery of lab QC types (matrix spikes, surrogates, etc).	Numbers are represented as "%".	Numeric	8	Lab
QC_DUP_ORIGINAL_CONC	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_ADDED	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_MEASURED	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_RECOVERY	NA	Reserved for use by another Region.				
QC_RPD	NA	Reserved for use by another Region.				
QC_SPIKE_LCL	NA	Reserved for use by another Region.				
QC_SPIKE_UCL	NA	Reserved for use by another Region.				
QC_RPD_CL	NA	Reserved for use by another Region.				
QC_SPIKE_STATUS_FLAG	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_STATUS_FLAG	NA	Reserved for use by another Region.				
QC_RPD_STATUS	NA	Reserved for use by another Region.				
SAMPLE_RUN	NA	Reserved for use by another Region.				
PARAMID	NA	Reserved for use by another Region.				

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
PAR_VAL_UNCERT	NA	Reserved for use by another Region.				
RESULT_ERROR_DELTA	NA	Reserved for use by another Region.				
INTERPRETED_QUALIFIERS	NA	Reserved for use by another Region.				
SYS_LOC_CODE	NA	Reserved for use by another Region.				
TASK_CODE	NA	Reserved for use by another Region.				
COLLECTION_QUARTER	NA	Reserved for use by another Region.				
SAMPLE_CLASS	NA	Reserved for use by another Region.				
COMPOSITE_DESC	NA	Reserved for use by another Region.				
LEACH_LOT	NA	Reserved for use by another Region.				
LEACHATE_METHOD	NA	Reserved for use by another Region.				
LEACHATE_DATE	NA	Reserved for use by another Region.				
LEACHATE_TIME	NA	Reserved for use by another Region.				
RESP	NA	Reserved for use by another Region.				
CUSTOM_FIELD_1	NA	Reserved for use by another Region.				
CUSTOM_FIELD_2	NA	Reserved for use by another Region.				
CUSTOM_FIELD_3	NA	Reserved for use by another Region.				
COMMENT	NA	Reserved for use by another Region.				

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Site.CaseNumber	N	In Scribe this is found in the "COC.CaseNumber" and "Site.CaseNumber" fields. In the xml file it is the Site.CaseNumber element. If not uploading this to the Lab Results table then no need to upload, correct?
LabResults.Lab_Batch_No	Y	Generated by the Lab.
SamplesTags.CLP_Samp_No LabResults.Sample_CLP_No	Y	Originates in Scribe in the "SamplesTags.CLP_Sample_No" field but is also uploaded into the "LabResults.Sample_CLP_No" field. Correct?
LabResults.Cas_No	Y	Generated by the Lab.
LabResults.Analyte	Y	Generated by the Lab.
LabResults.Result	Y	Generated by the Lab & verified by Data Reviewer. May be edited in EDM whereas the "Lab_Result" field below cannot be edited during data validation. The Final_Result field needs to be the mandatory reporting field for MEL and other labs.
LabResults.Result_Units	Y	Generated by the Lab.
LabResults.Result_Qualifier	Y	Generated by the EDM or Data Reviewer.
LabResults.QA_Comment	Y	Generated by the EDM or Data Reviewer. The Scribe LabResults Table doesn't have a designated field for the Data Validation Label. Because this is a recently required data element, we should update the table to address it.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Quantitation_Limit	Y	Generated by the Lab.
LabResults.MDL	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. The result that passes validation will be considered the final result.
LabResults.Lab_Result_Qualifier	Y	Generated by the Lab.
LabResults.Reporting_Limit	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
LabResults.Quantitation_Limit_Units LabResults.Reporting_Limit_Units	Y	Generated by the Lab. The Quantitation and Reporting Limit data elements as we're applying them use the same units of measurement so this data element needs to be uploaded into two different fields.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
LabResults.MDL_Units	Y	Generated by the Lab.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Percent_Solids	Y	Generated by the Lab.
LabResults.Percent_Moisture	Y	Generated by the Lab.
LabResults.Dilution_Factor	Y	Generated by the Lab.
LabResults.Analysis	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
LabResults.Basis	Y	Generated by the Lab.
Samples.Sampledate LabResults.Date_Collected	Y	Originates in Scribe in the "Samples.Sampledate" field but is also uploaded into the "LabResults.Date_Collected" field. Correct? Need to make sure this isn't populated when the Samples.Sampledate field is filled in. You know, the whole differential integrity-database thing.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
COC.DateShipped	N	There's no data field for this in the LabResults Table and it already appears in the COC Table.
LabResults.Date_Received	Y	Generated by the Lab. Need to double check the date/time fields in the LabResults Table. The Scribe Table Defn. file shows the length of these fields to be "8" but we need them to be "20".

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Extracted	Y	Generated by the Lab.
LabResults.Analyzed	Y	Generated by the Lab.
LabResults.QC_Type	Y	Generated by the Lab. This data type uses Lab QC long names (e.g., "Laboratory_Control_Sample) and perfectly matches the data definition of the QC_Type data field. The previously identified Sample_Type_Code was only 10 characters long.
Samples.Matrix LabResults.Matrix_ID	Y	Generated by the Lab. CLP has it's definitions but does it also need to match up with the Samples.Matrix Scribe data field? I thought these were populated separately.
LabResults.Comments	Y	Generated by the Lab. For the CLP this was concatenated from the Form I comment field to provide information such as size fraction.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Lab_Name	Y	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
LabResults.Analytical_Method	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
SamplesTags.COC LabResults.Lab_Coc_No	Y	Generated by the Lab.
LabResults.Lab_Samp_No	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.SubSample_Amount	Y	Generated by the Lab.
LabResults.SubSample_Amount_Unit	Y	Generated by the Lab.
LabResults.Final_Volume	Y	Generated by the Lab.
LabResults.Final_Volume_Unit	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
LabResults.Final_Volume	Y	Generated by the Lab.
LabResults.Final_Volume_Unit	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
LabResults.Extraction_Method	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Total_Or_Dissolved	Y	Generated by the Lab.
	N	Generated by the Lab. There's no data field for this in the LabResults Table.
Samples.Matrix	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Site.Site_Action	N	Already in Scribe. No place for it in the LabResults Table.
Samples.SampleCollection	N	Already in Scribe. No place for it in the LabResults Table.
Site.EPARegionNumber	N	Already in Scribe. No place for it in the LabResults Table.
Location.Location	N	Already in Scribe. No place for it in the LabResults Table.
Location.LocationDescription	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_No LabResults.Samp_No	Y	Originates in Scribe in the "Samples.Samp_No" field but is also uploaded into the "LabResults.Sample_CLP_No" field. Correct?
Location.LocationZone	N	Already in Scribe. No place for it in the LabResults Table.
Location.Latitude	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Location.Longitude	N	Already in Scribe. No place for it in the LabResults Table.
Location.Datum	N	Already in Scribe. No place for it in the LabResults Table.
Location.GeoMethod	N	Already in Scribe. No place for it in the LabResults Table.
Location.Surf_Elev	N	Already in Scribe. No place for it in the LabResults Table.
Location.Surf_Units	N	Already in Scribe. No place for it in the LabResults Table.
Location.ElevMethod	N	Already in Scribe. No place for it in the LabResults Table.
Location.ElevDatum	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth_To	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth_Units	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth_Units	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Sampler	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Site.CTRContact	N	Already in Scribe. No place for it in the LabResults Table.
Site.Contractor	N	Already in Scribe. No place for it in the LabResults Table.
Site.Site_Name	N	Already in Scribe. No place for it in the LabResults Table.
COC.ProjectCode	N	Already in Scribe. No place for it in the LabResults Table.
Events.EventID	N	Already in Scribe. No place for it in the LabResults Table.
Site.Area	N	Already in Scribe. No place for it in the LabResults Table.
Site.Area	N	Already in Scribe. No place for it in the LabResults Table.
Site.CERCLIS	N	Already in Scribe. No place for it in the LabResults Table.
Site.Site_No	N	Already in Scribe. No place for it in the LabResults Table.
Site.ScribeNetProjectID	N	Already in Scribe. No place for it in the LabResults Table.
Samples.SamplesID	N	Already in Scribe. No place for it in the LabResults Table.
SamplesTags.Tag	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Remarks	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Samples.SampleType	N	Already in Scribe. No place for it in the LabResults Table.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
LabResults.Percent_Recovery	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
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	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.

Appendix B – Data Element Valid Values

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Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Events	Activity	Remedial Design
Events	Activity	Remedial Design Oversight
Events	QAPP_Approved	Y
Events	QAPP_Approved	N
Events	QAPP_ApprovedBy	US EPA Region 10
Events	QAPP_ApprovedBy	ODEQ
Location	CountryCode	US
Location	CountyCode	051
Location	Datum	NAD83
Location	Datum	UNKWN
Location	Datum	WGS84
Location	ElevDatum	NAVD88
Location	ElevDatum	NGVD29
Location	ElevDatum	OTHER
Location	ElevDatum	UNKWN
Location	ElevMethod	Altimetry
Location	ElevMethod	GPS
Location	ElevMethod	Interpolation
Location	ElevMethod	Other
Location	ElevMethod	Survey
Location	GeoMethod	GPS-Unspecified
Location	GeoMethod	Unknown
Location	GeoMethod	GPS
Location	GeoMethod	Interpolation
Location	GeoMethod	Survey
Location	HorizAccuracyMeasureUnit	Ft
Location	HorizAccuracyMeasureUnit	Meter
Location	HucEightDigitCode	17090012
Location	HucTwelveDigitCode	170900120201
Location	HucTwelveDigitCode	170900120202
Location	HucTwelveDigitCode	170900120301
Location	HucTwelveDigitCode	170900120305
Location	HucTwelveDigitCode	170900120304
Location	HucTwelveDigitCode	170900120302
Location	HucTwelveDigitCode	170900120303
Location	HucTwelveDigitCode	170900120102
Location	HucTwelveDigitCode	170900120104
Location	HucTwelveDigitCode	170900120101
Location	HucTwelveDigitCode	170900120103
Location	<Structuring of location (Site, subsite[by river mile], and SMA) will be determined with the EPA RPM> Developed as a part of the Portland Harbor Scribe Template.	
Location	LocationZone	Borehole
Location	LocationZone	Canal Transport

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Location	LocationZone	Combined Sewer
Location	LocationZone	Estuary
Location	LocationZone	Facility Industrial
Location	LocationZone	Facility Other
Location	LocationZone	Lake
Location	LocationZone	Land
Location	LocationZone	Land Flood Plain
Location	LocationZone	Landfill
Location	LocationZone	Ocean
Location	LocationZone	Other-Ground Water
Location	LocationZone	Other-Seawater
Location	LocationZone	Other-Surface Water
Location	LocationZone	Other-Surface Water
Location	LocationZone	Pond-Stormwater
Location	LocationZone	Reservoir
Location	LocationZone	River/Stream
Location	LocationZone	River/Stream
Location	LocationZone	Seep
Location	LocationZone	Spring
Location	LocationZone	Storm Sewer
Location	LocationZone	Test Pit
Location	LocationZone	Waste Pit
Location	LocationZone	Waste Sewer
Location	LocationZone	Well
Location	LocationZone	Wetland Undifferentiated
Location	State Code	OR
Location	Sub_Basin	Lower Willamette
Samples	Activity	Pre-Design
Samples	Activity	Design
Samples	Matrix	Air
Samples	Matrix	Air Indoor
Samples	Matrix	Asbestos
Samples	Matrix	Biological
Samples	Matrix	Benthic
Samples	Matrix	Drinking Water
Samples	Matrix	Dust
Samples	Matrix	Filtered Water
Samples	Matrix	Ground Water Dissolved
Samples	Matrix	Ground Water Total
Samples	Matrix	Habitat
Samples	Matrix	Lab Sand
Samples	Matrix	Liquid Waste
Samples	Matrix	Porewater Dissolved
Samples	Matrix	Porewater Total
Samples	Matrix	Potable Water
Samples	Matrix	Saline Water Dissolved
Samples	Matrix	Saline Water Total

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	Matrix	Sand
Samples	Matrix	Sediment
Samples	Matrix	Sediment <2mm
Samples	Matrix	Sediment <63um
Samples	Matrix	Sediment 125-250um
Samples	Matrix	Sediment 63-125um
Samples	Matrix	Sediment 63-250um
Samples	Matrix	Sediment Bulk
Samples	Matrix	Sediment Subsurface
Samples	Matrix	Sediment Surface
Samples	Matrix	Septic Effluent
Samples	Matrix	Soil
Samples	Matrix	Soil Gas
Samples	Matrix	Soil Subsurface
Samples	Matrix	Soil Surface
Samples	Matrix	Solid Waste
Samples	Matrix	Stormwater
Samples	Matrix	Surface Water
Samples	Matrix	Surface Water Dissolved
Samples	Matrix	Surface Water Total
Samples	Matrix	Tissue
Samples	Matrix	Waste
Samples	Matrix	Subsurface Soil/Sediment
Samples	Matrix	Surface Soil/Sediment
Samples	Samp_Depth_Units	Ft
Samples	SampleCollection	Activity Trap
Samples	SampleCollection	A-Frame Net
Samples	SampleCollection	Anchor Box Dredge
Samples	SampleCollection	Artificial Substrate
Samples	SampleCollection	Backpack Electroshock
Samples	SampleCollection	Beach Seine Net
Samples	SampleCollection	Beam Trawl
Samples	SampleCollection	Benthic Corer (Other)
Samples	SampleCollection	Benthic Dredge (Other)
Samples	SampleCollection	Benthic Grab (Other)
Samples	SampleCollection	Birge Closing Net
Samples	SampleCollection	Black Light Trap
Samples	SampleCollection	Block Net
Samples	SampleCollection	Boat-Mounted Electroshock
Samples	SampleCollection	Bod Dredge
Samples	SampleCollection	Bongo Net
Samples	SampleCollection	Boomerang Corer
Samples	SampleCollection	Boomerang Grab
Samples	SampleCollection	Box Corer
Samples	SampleCollection	Box Sampler
Samples	SampleCollection	Brail
Samples	SampleCollection	Bucket

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Burrell Epibenthic Sled
Samples	SampleCollection	Campbell Grab
Samples	SampleCollection	Cast Net
Samples	SampleCollection	Center Bag
Samples	SampleCollection	Chain Dredge
Samples	SampleCollection	Clam-Shell Grab
Samples	SampleCollection	Clarke-Bumpus Net
Samples	SampleCollection	Concussion
Samples	SampleCollection	Creel Survey
Samples	SampleCollection	Danish Seine Net
Samples	SampleCollection	Dart Corer (Gravity)
Samples	SampleCollection	D-Frame Net
Samples	SampleCollection	DH-81
Samples	SampleCollection	DH-95
Samples	SampleCollection	Dietz-Lafond Grab
Samples	SampleCollection	Dip Net
Samples	SampleCollection	Draw Down
Samples	SampleCollection	Drift Gill Net
Samples	SampleCollection	Drilled Sampler
Samples	SampleCollection	Drive Sampler (Generic)
Samples	SampleCollection	Drop Net
Samples	SampleCollection	Ekman Grab
Samples	SampleCollection	Electric Seine
Samples	SampleCollection	Electroshock (Other)
Samples	SampleCollection	Emergence Trap
Samples	SampleCollection	English Umbrella Net
Samples	SampleCollection	Erwin Piston Corer
Samples	SampleCollection	Ewing Gravity Corer
Samples	SampleCollection	Experimental Brail
Samples	SampleCollection	Experimental Gill Net
Samples	SampleCollection	Fish Weir
Samples	SampleCollection	Free Fall Grab
Samples	SampleCollection	Fry Trap
Samples	SampleCollection	Funnel Trap
Samples	SampleCollection	Fyke Net
Samples	SampleCollection	Glass Slide
Samples	SampleCollection	Glass Slide Device
Samples	SampleCollection	Gravity Corer (Generic)
Samples	SampleCollection	Hand Corer
Samples	SampleCollection	Herring Trawl
Samples	SampleCollection	Hess Sampler
Samples	SampleCollection	Hester-Dendy
Samples	SampleCollection	Hook And Line
Samples	SampleCollection	Hydraulic Grab
Samples	SampleCollection	Hydroacoustics
Samples	SampleCollection	Hydroplastic (PVC) Corer
Samples	SampleCollection	Insect Trap

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Isaacs-Kidd Trawl
Samples	SampleCollection	Juday Trap
Samples	SampleCollection	Kemmerer Bottle
Samples	SampleCollection	Kick Net
Samples	SampleCollection	Kullenberg Gravity Corer
Samples	SampleCollection	Larval Light Fish Trap
Samples	SampleCollection	Long Line
Samples	SampleCollection	Marmap Neuston Net
Samples	SampleCollection	Minnow Seine Net
Samples	SampleCollection	Miscellaneous (Other)
Samples	SampleCollection	Mochness Net
Samples	SampleCollection	Modified Surber Sampler
Samples	SampleCollection	MTD Net
Samples	SampleCollection	Nansen Bottle
Samples	SampleCollection	Natural Substrate
Samples	SampleCollection	Net Vertical Tow (Other)
Samples	SampleCollection	Net/Horizontal Tow (Other)
Samples	SampleCollection	Net/Non Tow (Other)
Samples	SampleCollection	Niskin Bottle
Samples	SampleCollection	Norpac Net
Samples	SampleCollection	Orange-Peel Grab
Samples	SampleCollection	Original Surber Sampler
Samples	SampleCollection	Other Toxicant
Samples	SampleCollection	Otter Trawl
Samples	SampleCollection	Pair Trawl
Samples	SampleCollection	Pamatmat Multiple Quartz Corer
Samples	SampleCollection	Peterson Grab
Samples	SampleCollection	Petite Ponar Grab
Samples	SampleCollection	Phleger Corer (Gravity)
Samples	SampleCollection	Pipe Dredge
Samples	SampleCollection	Piston Corer (Generic)
Samples	SampleCollection	Plankton Net
Samples	SampleCollection	Plexiglass Slide Device
Samples	SampleCollection	Plexiglass Trap
Samples	SampleCollection	Plummet Net
Samples	SampleCollection	Polar Orga. Chem. Integrative Sampler
Samples	SampleCollection	Ponar Grab
Samples	SampleCollection	Pound Net
Samples	SampleCollection	Pram Electroshock
Samples	SampleCollection	Probe/Sensor
Samples	SampleCollection	Pull Sled
Samples	SampleCollection	Pump/Air Lift
Samples	SampleCollection	Pump/Bailer
Samples	SampleCollection	Pump/Centrifugal
Samples	SampleCollection	Pump/Jet
Samples	SampleCollection	Pump/Non-Submersible
Samples	SampleCollection	Pump/Peristaltic

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Pump/Piston
Samples	SampleCollection	Pump/Rotary
Samples	SampleCollection	Pump/Submersible
Samples	SampleCollection	Pump/Turbine
Samples	SampleCollection	Purse Seine Net
Samples	SampleCollection	Push Net
Samples	SampleCollection	Push Point Sampler
Samples	SampleCollection	Radiello
Samples	SampleCollection	Rectangular Net
Samples	SampleCollection	Remotely Operated Vehicle
Samples	SampleCollection	Rock Basket
Samples	SampleCollection	Roller Frame Trawl
Samples	SampleCollection	Rotenone
Samples	SampleCollection	Roving Drop Net
Samples	SampleCollection	Scoop Fish Grab
Samples	SampleCollection	Sediment Trap
Samples	SampleCollection	Seine Net
Samples	SampleCollection	Semipermeable Membrane Device
Samples	SampleCollection	Set (Passive) Gill Net
Samples	SampleCollection	Shelby Tube
Samples	SampleCollection	Ship Sea Chest
Samples	SampleCollection	Shipek Grab
Samples	SampleCollection	SHOVEL
Samples	SampleCollection	Shrimp Trawl
Samples	SampleCollection	Simple Conical Net
Samples	SampleCollection	Single-Vessel Operated Tow Net
Samples	SampleCollection	Smith-McIntire Grab
Samples	SampleCollection	Sodium Cyanide
Samples	SampleCollection	Spear/Gun
Samples	SampleCollection	Spear/Hand
Samples	SampleCollection	Spear/Hawaiian Sling
Samples	SampleCollection	Split Spoon
Samples	SampleCollection	Square-Mouth Net
Samples	SampleCollection	Stainless Steel Spoon
Samples	SampleCollection	Stationary Drop Net
Samples	SampleCollection	Still Camera
Samples	SampleCollection	Stop Net
Samples	SampleCollection	Storm Water Sampler
Samples	SampleCollection	Stovepipe Sampler
Samples	SampleCollection	Stream-Side Electroshock
Samples	SampleCollection	Suction Dredge
Samples	SampleCollection	Summa
Samples	SampleCollection	Surber Sampler
Samples	SampleCollection	Syringe
Samples	SampleCollection	Terminal Bag
Samples	SampleCollection	Tile Plate
Samples	SampleCollection	Tow Net

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Towed Dredge
Samples	SampleCollection	Trammel Net
Samples	SampleCollection	Trap Net
Samples	SampleCollection	Trap Substrate (Other)
Samples	SampleCollection	Traveling Screen
Samples	SampleCollection	Trot Line
Samples	SampleCollection	T-Sampler
Samples	SampleCollection	Tucker Net
Samples	SampleCollection	Two-Vessel Operated Tow Net
Samples	SampleCollection	Van Dorn Bottle
Samples	SampleCollection	Van Veen Grab
Samples	SampleCollection	Variable Mesh Gill Net
Samples	SampleCollection	Vibrating Corer
Samples	SampleCollection	Video Camera
Samples	SampleCollection	Vinyl Tube
Samples	SampleCollection	Visual Sighting
Samples	SampleCollection	Water Bottle
Samples	SampleCollection	Water Sampler (Other)
Samples	SampleCollection	WBH-96
Samples	SampleCollection	Whirl-pak bag
Samples	SampleCollection	Wisconsin-Style Net
Samples	SampleCollection	Yankee Trawl
Samples	SampleCollection	Young Grab
Samples	Sampler	<Performing Parties> Will be added as they are defined and organized into groups
Samples	SampleType	Depth Integrated Sample
Samples	SampleType	Field Duplicate
Samples	SampleType	Field Msr/Obs
Samples	SampleType	Field Sample
Samples	SampleType	Incremental Sampling Horiz
Samples	SampleType	Incremental Sampling Vert
Samples	SampleType	QC Blank - Bottle/Preservative
Samples	SampleType	QC Blank - Field
Samples	SampleType	QC Blank - Filter
Samples	SampleType	QC Blank - Rinsate/Equipment
Samples	SampleType	QC Blank - Trip
Samples	SampleType	Sample-Composite Without Parents
LabResults	Analysis	<To be determined from performing party site specific sampling plan>
LabResults	Analyte	1,1-Dichloroethane
LabResults	Analyte	1,1-Dichloroethene
LabResults	Analyte	1,1-Dichloroethylene
LabResults	Analyte	1,1,1-Trichloroethane
LabResults	Analyte	1,1,1,-Trichloroethane
LabResults	Analyte	1,1,2-Trichloroethane
LabResults	Analyte	Trichloroethane
LabResults	Analyte	1,1,2,2-Tetrachloroethane

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Tetrachloroethane
LabResults	Analyte	1,2-Dibromoethane
LabResults	Analyte	Dibromoethane
LabResults	Analyte	1,2-Dichloroethane
LabResults	Analyte	Ethylene dichloride
LabResults	Analyte	1,2-Dichloropropane
LabResults	Analyte	Propylene dichloride
LabResults	Analyte	1,2,3-Trichloropropane
LabResults	Analyte	1,2,3,4,7,8-HxCDF
LabResults	Analyte	1,2,3,7,8-PeCDD
LabResults	Analyte	1,2,4-Trichlorobenzene
LabResults	Analyte	1,2-Dichlorobenzene
LabResults	Analyte	1,3-Dichlorobenzene
LabResults	Analyte	1,4-Dichlorobenzene
LabResults	Analyte	2-Butanone
LabResults	Analyte	Methyl Ethyl Ketone
LabResults	Analyte	2-Hexanone
LabResults	Analyte	2-Chloroethylvinyl Ether
LabResults	Analyte	2,4,5-TP (Silvex)
LabResults	Analyte	2,2'-oxybis(1- Chloropropane)
LabResults	Analyte	2,3,4,6-Tetrachlorophenol
LabResults	Analyte	2,3,4,7,8-PeCDF
LabResults	Analyte	2,3,7,8-TCDF
LabResults	Analyte	2,3,7,8-TCDD-Dioxin
LabResults	Analyte	2,3,7,8-TCDD
LabResults	Analyte	2,4,5-Trichlorophenol
LabResults	Analyte	2,4,6-Trichlorophenol
LabResults	Analyte	2,4-Dichlorophenol
LabResults	Analyte	2,4-D
LabResults	Analyte	2,4-Dimethylphenol
LabResults	Analyte	Dinitrophenol
LabResults	Analyte	2,4-Dinitrophenol
LabResults	Analyte	2,4-Dinitrotoluene
LabResults	Analyte	2,6-Dinitrotoluene
LabResults	Analyte	2-Chloronaphthalene
LabResults	Analyte	2-Chlorophenol
LabResults	Analyte	2-Methylnaphthalene
LabResults	Analyte	o-Cresol
LabResults	Analyte	2-Methylphenol
LabResults	Analyte	2-Nitroaniline
LabResults	Analyte	2-Nitrophenol
LabResults	Analyte	3,3'-Dichlorobenzidine
LabResults	Analyte	3,3'- Dichlorobenzidine
LabResults	Analyte	3-Nitroaniline
LabResults	Analyte	Methyl isobutyl ketone
LabResults	Analyte	4-Methyl-2-Pentanone
LabResults	Analyte	4-Bromophenyl- phenylether

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	4-Bromophenyl phenyl ether
LabResults	Analyte	3-Methyl-4-chlorophenol
LabResults	Analyte	4-Chloro-3-methylphenol
LabResults	Analyte	4-Chloro-3- methylphenol
LabResults	Analyte	4-Chloroaniline
LabResults	Analyte	4-Chlorophenyl phenyl ether
LabResults	Analyte	4-Chlorophenyl- phenyl ether
LabResults	Analyte	4-Methylphenol
LabResults	Analyte	p-Cresol
LabResults	Analyte	4-Nitroaniline
LabResults	Analyte	4-Nitrophenol
LabResults	Analyte	Acenaphthene
LabResults	Analyte	Acenaphthylene
LabResults	Analyte	Acrolein
LabResults	Analyte	Acrylonitrile
LabResults	Analyte	Aldrin
LabResults	Analyte	Aluminum
LabResults	Analyte	Aluminim
LabResults	Analyte	Anthracene
LabResults	Analyte	Antimony
LabResults	Analyte	Arsenic
LabResults	Analyte	Benzene
LabResults	Analyte	Benzo(a)anthracene
LabResults	Analyte	Benzo(a)pyrene
LabResults	Analyte	Benzo(b)fluoranthene
LabResults	Analyte	Benzo(ghi)perylene
LabResults	Analyte	Benzo(g,h,i)perylene
LabResults	Analyte	Benzo(k)fluoranthene
LabResults	Analyte	Benzoic Acid
LabResults	Analyte	Benzyl alcohol
LabResults	Analyte	bis(2-Chloroethoxy) methane
LabResults	Analyte	Bis(2-chloroethyl) ether
LabResults	Analyte	bis(2-Chloroethyl)ether
LabResults	Analyte	bis(2-Ethylhexyl) phthalate
LabResults	Analyte	Di(2-ethylhexyl)phthalate
LabResults	Analyte	Bromochloromethane
LabResults	Analyte	Bromodichloromethane
LabResults	Analyte	Dichlorobromomethane
LabResults	Analyte	Tribromomethane
LabResults	Analyte	Bromoform
LabResults	Analyte	Bromomethane
LabResults	Analyte	Methyl Bromide
LabResults	Analyte	Butylbenzylphthalate
LabResults	Analyte	Butyl benzyl phthalate
LabResults	Analyte	Cadmium
LabResults	Analyte	Carbazole
LabResults	Analyte	Carbon Disulfide

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Tetrachloromethane
LabResults	Analyte	Carbon Tetrachloride
LabResults	Analyte	Chlorobenzene, total
LabResults	Analyte	Chlorobenzene
LabResults	Analyte	Chlorobenzene (each)
LabResults	Analyte	Chlorodibromomethane
LabResults	Analyte	Dibromochloromethane
LabResults	Analyte	Chloroethane
LabResults	Analyte	Chloroform
LabResults	Analyte	Methyl Chloride
LabResults	Analyte	Chloromethane
LabResults	Analyte	Chromium
LabResults	Analyte	Chrysene
LabResults	Analyte	cis-1,2-Dichloroethylene
LabResults	Analyte	cis-1,2-Dichloroethene
LabResults	Analyte	cis-1,3-Dichloropropene
LabResults	Analyte	Copper
LabResults	Analyte	Cyanide
LabResults	Analyte	Cyanide, free (total)
LabResults	Analyte	Dibenzo(a,h)anthracene
LabResults	Analyte	Dibenzo(a,h)- anthracene
LabResults	Analyte	Dibenzofuran
LabResults	Analyte	Dibromomethane
LabResults	Analyte	Dichlorodifluoromethane
LabResults	Analyte	DDD
LabResults	Analyte	4,4'-DDD
LabResults	Analyte	p,p'-DDD
LabResults	Analyte	p,p'-DDE
LabResults	Analyte	4,4'-DDE
LabResults	Analyte	EDDE
LabResults	Analyte	DDE
LabResults	Analyte	p,p'-DDT
LabResults	Analyte	Total DDT
LabResults	Analyte	4,4'-DDT
LabResults	Analyte	DDT
LabResults	Analyte	Dieldrin
LabResults	Analyte	Diethylphthalate
LabResults	Analyte	Dimethyl phthalate
LabResults	Analyte	Dimethylphthalate
LabResults	Analyte	Di-n-butyl phthalate
LabResults	Analyte	Di-n-butylphthalate
LabResults	Analyte	n-Butylphthalate
LabResults	Analyte	Di-n-octyl phthalate
LabResults	Analyte	Di-n-octylphthalate
LabResults	Analyte	Endosulfan I
LabResults	Analyte	a-Endosulfan
LabResults	Analyte	b-Endosulfan

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Endosulfan II
LabResults	Analyte	Endosulfan sulfate
LabResults	Analyte	Endrin
LabResults	Analyte	Endrin aldehyde
LabResults	Analyte	Endrin ketone
LabResults	Analyte	Ethyl benzene
LabResults	Analyte	Ethylbenzene
LabResults	Analyte	Fluoranthene
LabResults	Analyte	Fluorene
LabResults	Analyte	Heptachlor
LabResults	Analyte	Heptachlor Epoxide
LabResults	Analyte	Hexachlorobenzene
LabResults	Analyte	Hexachlorobutadiene
LabResults	Analyte	Hexachlorocyclopentadiene
LabResults	Analyte	Hexachloroethane
LabResults	Analyte	Indeno(1,2,3-c,d)pyrene
LabResults	Analyte	Indeno(1,2,3-cd)- pyrene
LabResults	Analyte	Iodomethane
LabResults	Analyte	Isophorone
LabResults	Analyte	Isopropylbenzene
LabResults	Analyte	Manganese
LabResults	Analyte	Mercury
LabResults	Analyte	Mercury, Inorganic
LabResults	Analyte	Methoxychlor
LabResults	Analyte	Methylmercury
LabResults	Analyte	2-Methyl-4,6-Dinitrophenol
LabResults	Analyte	4,6-Dinitro-2- methylphenol
LabResults	Analyte	4,6-Dinitro-2-methylphenol
LabResults	Analyte	Methylene chloride
LabResults	Analyte	Dichloromethane
LabResults	Analyte	Methyl tert-Butyl Ether
LabResults	Analyte	Naphthalene
LabResults	Analyte	Nickel
LabResults	Analyte	Nitrobenzene
LabResults	Analyte	N-Nitroso-di-n propylamine
LabResults	Analyte	N-Nitrosodi-n-propylamine
LabResults	Analyte	N-Nitrosodiphenylamine
LabResults	Analyte	N-Nitroso diphenylamine
LabResults	Analyte	Pentachlorophenol
LabResults	Analyte	Phenanthrene
LabResults	Analyte	Phenol
LabResults	Analyte	Pyrene
LabResults	Analyte	Selenium
LabResults	Analyte	Silver
LabResults	Analyte	Styrene
LabResults	Analyte	Tetrachloroethylene
LabResults	Analyte	Tetrachloroethene

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Toluene
LabResults	Analyte	Toxaphene
LabResults	Analyte	1,2-Trans-Dichloroethylene
LabResults	Analyte	trans-1,2-Dichloroethylene
LabResults	Analyte	trans-1,2-Dichloroethene
LabResults	Analyte	trans-1,3-Dichloropropene
LabResults	Analyte	trans-1,4-Dichloro-2-Butene
LabResults	Analyte	Tributyl tin
LabResults	Analyte	Trichloroethylene
LabResults	Analyte	Trichloroethene
LabResults	Analyte	Trichlorofluoromethane
LabResults	Analyte	Vanadium
LabResults	Analyte	Vinyl Acetate
LabResults	Analyte	Vinyl Chloride
LabResults	Analyte	Xylene
LabResults	Analyte	Xylene, total
LabResults	Analyte	Xylenes (total)
LabResults	Analyte	Zinc
LabResults	Analyte	alpha-BHC
LabResults	Analyte	a-BHC
LabResults	Analyte	beta-BHC
LabResults	Analyte	b-BHC
LabResults	Analyte	g-BHC
LabResults	Analyte	gamma-BHC (Lindane)
LabResults	Analyte	Lindane (g-BHC)
LabResults	Analyte	delta-BHC
LabResults	Analyte	d-BHC
LabResults	Result_Units	<To be determined from performing party site specific sampling plan>
LabResults	Total_or_Dissolved	Total
LabResults	Total_or_Dissolved	Dissolved
LabResults	Total_or_Dissolved	NA
LabResults	Total_or_Dissolved	DI Leach
LabResults	Total_or_Dissolved	MWM (Meteoric Water Mobility Ext)
LabResults	Total_or_Dissolved	SPLP
LabResults	Total_or_Dissolved	Suspended
LabResults	Total_or_Dissolved	TCLP
LabResults	Total_or_Dissolved	Acid Soluble
LabResults	Total_or_Dissolved	Bioavailable
LabResults	Total_or_Dissolved	Comb Available
LabResults	Total_or_Dissolved	Extractable
LabResults	Total_or_Dissolved	Filterable
LabResults	Total_or_Dissolved	Fixed
LabResults	Total_or_Dissolved	Free Available
LabResults	Total_or_Dissolved	Inorganic
LabResults	Total_or_Dissolved	Non-filterable
LabResults	Total_or_Dissolved	Non-settleable

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Total_or_Dissolved	Non-volatile
LabResults	Total_or_Dissolved	Organic
LabResults	Total_or_Dissolved	Pot. Dissolved
LabResults	Total_or_Dissolved	Settleable
LabResults	Total_or_Dissolved	Supernate
LabResults	Total_or_Dissolved	Total Recoverable
LabResults	Total_or_Dissolved	Total Residual
LabResults	Total_or_Dissolved	Vapor
LabResults	Total_or_Dissolved	Volatile
LabResults	Total_or_Dissolved	WAD
LabResults	Analytical_Method	<To be determined from performing party site specific sampling plan>
LabResults	Basis	Wet
LabResults	Basis	Dry
LabResults	Lab_Name	<To be determined from performing party site specific sampling plan>
LabResults	QA_Comment	Final
LabResults	QA_Comment	Accepted
LabResults	QA_Comment	Preliminary
LabResults	QA_Comment	Rejected
LabResults	QA_Comment	Validated
LabResults	Result_Qualifier	J
LabResults	Result_Qualifier	U
LabResults	Result_Qualifier	UJ
LabResults	Result_Qualifier	J-
LabResults	Result_Qualifier	J+
LabResults	Result_Qualifier	R
LabResults	Validated	Yes
LabResults	Validated	No
LabResults	ValidationLevel	S2BVEM
LabResults	ValidationLevel	S3VEM
LabResults	ValidationLevel	S4VEM
LabResults	ValidationLevel	NA
LabResults	ValueType	Actual
LabResults	ValueType	Calculated
LabResults	ValueType	Blank Corrected Calc
LabResults	ValueType	Control Adjusted
LabResults	ValueType	Estimated

Appendix C - Data Management Conceptual Model

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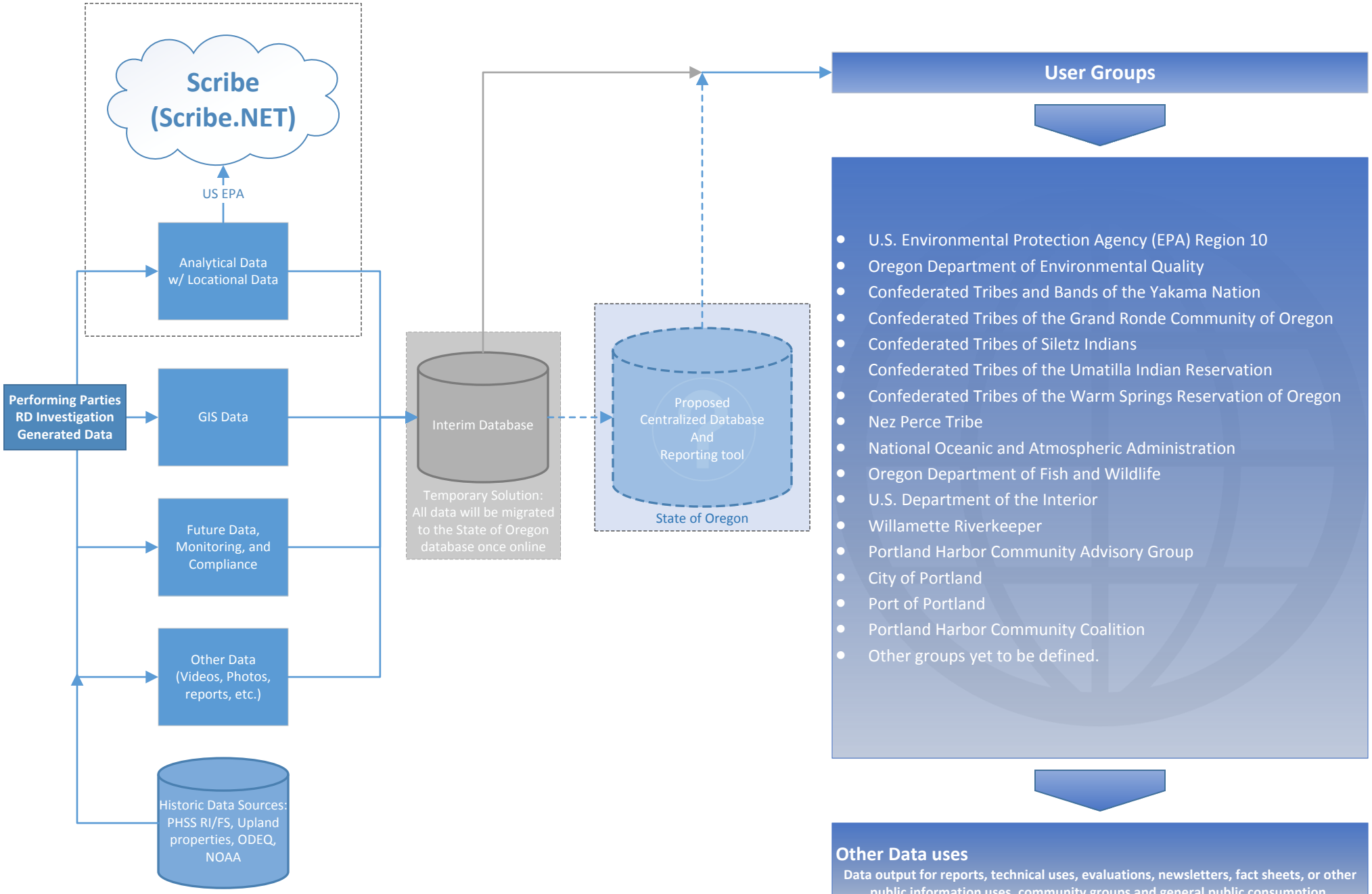
Data Management Conceptual Model



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Attachment 2

Example Sufficiency Assessment Summary Table

[Name] Project Area Sufficiency Assessment Summary
[date]

Site	ECSI#	Pathway(s)	Status	Sufficiency Assessment Contaminants	Milestone Document	Remedial Design/Source Control Task

Appendix A2

Bayer CropScience Inc. Statement of Work

REMEDIAL DESIGN STATEMENT OF WORK

PORTLAND HARBOR SUPERFUND SITE

River Mile 7 West Project Area – Bayer CropScience Inc. Statement of Work

Portland, Multnomah County, State of Oregon

EPA Region 10

January 2020

TABLE OF CONTENTS

Attachments

I. 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 Statement of Work also includes any future ROD amendments or Explanations of Significant Differences EPA may issue.

This Statement of Work (the Bayer CropScience SOW) sets forth the procedures and requirements for implementing the RD Work for that portion of the River Mile 7 West Project Area located between approximately River Mile 6.53 and River Mile 6.9 on the west side of the Willamette River (the Bayer CropScience Project Area), and more specifically depicted on the map attached as Figure 2 to this Bayer CropScience SOW.[1] The Bayer CropScience Project Area includes river banks which are defined in the ROD as "areas from top of bank down to the river that may be contaminated along the shoreline next to contaminated in-river shallow areas" (EPA 2017).[2]

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 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 that warrant flexibility. 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.

1.2 Structure of the SOW

- Section 2 (Community Involvement) sets forth EPA's and Respondent Bayer CropScience's responsibilities for community involvement.

[1] If EPA revises the Portland Harbor Model SOW for Remedial Design, the parties agree to consider whether amending the Bayer CropScience SOW to include such revisions is appropriate and, if so decided, to amend the Bayer CropScience SOW accordingly.

[2] The terms "Bayer CropScience SOW," "Bayer CropScience Project Area," "Bayer CropScience RD" and Bayer CropScience RD Work" are used solely as a matter of administrative convenience and have no bearing on ultimate issues of liability.

- 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 Respondent Bayer CropScience's reporting obligations.
- Section 5 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding Respondent Bayer CropScience's 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).

The terms used in this Bayer CropScience 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 Bayer CropScience SOW, and the term "Section" means a section of the Bayer CropScience 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 Bayer CropScience 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 Bayer CropScience SOW.

II. 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 Bayer CropScience RD Work or the Bayer CropScience 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, Respondent Bayer CropScience shall participate in CI activities, including participation in: (1) the preparation of information regarding the Bayer CropScience 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. Respondent Bayer CropScience's 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 Respondent Bayer CropScience's responsibilities for CI activities. All CI activities conducted by Respondent Bayer CropScience at EPA's request are subject to EPA's oversight. Upon EPA's request, Respondent Bayer CropScience shall make validated Bayer CropScience Project Area-related data and information available to the public. EPA plans to coordinate its community outreach efforts with DEQ.

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

(d) Respondent Bayer CropScience's CI Coordinator. If requested by EPA, Respondent Bayer CropScience shall, within 30 days, designate and notify EPA of its CI Coordinator. Respondent Bayer CropScience may hire a contractor for this purpose. Respondent Bayer CropScience's notice must include the name, title, and qualifications of its CI Coordinator. Respondent Bayer CropScience's 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 Bayer CropScience RD Work or the Bayer CropScience Project Area.

III. REMEDIAL DESIGN

3.1 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 Bayer CropScience RD Work Plan. Respondent Bayer CropScience shall be permitted to collect data it deems necessary to inform the Sufficiency Assessment and to complete the RD. In doing so, Respondent Bayer CropScience shall comply with the Section IX (Property Requirements) of the Settlement.

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

(1) An evaluation and summary of available existing data, including baseline data within the Bayer CropScience 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 for the Bayer CropScience Project Area. 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; and

(v) NAPL delineation, if applicable

(2) A Bayer CropScience Project Area Field Sampling Plan, as described in ¶ 5.6(c) (Supporting Deliverables) of this Bayer CropScience 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 Bayer CropScience Project Area Quality Assurance Project Plan (QAPP) as described in ¶ 5.6(d) (Supporting Deliverables) of this Bayer CropScience SOW;

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

(5) A Bayer CropScience Project Area Emergency Response Plan, relevant to the PDI work, as described in ¶ 5.6(b) (Supporting Deliverables) of this Bayer CropScience SOW; and

(6) A description of all necessary actions to ensure compliance with ¶ 3.12 (Off-Site Shipments) of this Bayer CropScience SOW.

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

(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.

3.2 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. The term "Decision Tree" includes any future amendments that EPA may issue. Respondent Bayer CropScience shall submit a BODR for the Bayer CropScience Project Area 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:

(a) Provide a sufficiency assessment to evaluate whether potential sources of recontamination have been adequately investigated and controlled or considered such that the remedial action can proceed. The sufficiency assessment will include an upland evaluation of pathways to the river through storm water, groundwater, overwater, and river bank erosion 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(m) (Supporting Deliverables) of this SOW;

(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 Bayer CropScience Project Area;

(c) Summarize design criteria applicable to the Bayer CropScience 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;

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

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

(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 Bayer CropScience Project Area; and

(g) Describe a sequencing plan as well as an overall schedule to complete the design studies, RD and RA for the Bayer CropScience Project Area. The sequencing plan and overall RA schedule will be general and conceptual during RD, with more detailed preliminary drafts to be prepared during RA.

3.3 RD Work Plan (RDWP).

Respondent Bayer CropScience shall submit a RDWP for the Bayer CropScience Project Area for EPA comment and approval. The RDWP must include:

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

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

(c) A description of the proposed general approach to contracting, construction, operation, maintenance, and monitoring of the RA if applicable and as necessary to implement the Bayer CropScience RD Work;

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

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

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

(g) Description of any proposed supplemental PDI;

(h) Description of any proposed treatability study;

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

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

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

3.4 Meetings.

Respondent Bayer CropScience shall communicate regularly with EPA by phone, web meeting, or in person to discuss design issues as necessary, as directed or determined by EPA.

3.5 Supplemental PDI.

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

(a) **Supplemental PDI Work Plan**. If EPA or Respondent Bayer CropScience requests, Respondent Bayer CropScience shall submit a Supplemental PDI Work Plan (SPDIWP) for EPA comment and approval. The SPDIWP must include all elements as described in ¶ 3.1(a).

(b) **Supplemental PDI Evaluation Report**. Following the Supplemental PDIWP, Respondent Bayer CropScience shall submit a Supplemental PDI Evaluation Report for EPA comment and approval. This report must include the same elements as described in ¶ 3.1(b).

3.6 Treatability Study.

If determined necessary by EPA, Respondent Bayer CropScience shall perform a Treatability Study (TS) to evaluate the effectiveness of a remedial technology (e.g., reactive cap) within the Bayer CropScience Project Area.

(a) Respondent Bayer CropScience shall submit a TS Work Plan (TSWP) for EPA comment and approval. Respondent Bayer CropScience 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, Respondent Bayer CropScience shall submit a TS Evaluation Report for EPA comment and approval.

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

3.7 Preliminary (30%) RD.

Respondent Bayer CropScience shall submit a Preliminary (30%) RD for the Bayer CropScience 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) A design criteria report, as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995);

(b) Preliminary drawings and specifications;

(c) Descriptions of permit requirements, if applicable;

(d) 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);

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

(f) Updates of all supporting deliverables required to accompany the RDWP and annotated outlines for 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; Bayer CropScience Project Area Monitoring Plan; Construction Quality Assurance/Quality Control Plan; Transportation and Off-Site Disposal Plan; O&M Plan; and O&M Manual.

(g) If applicable and necessary to complete the Bayer CropScience RD Work, Respondent Bayer CropScience must demonstrate that any transload facility it intends to use within the Portland Harbor Superfund Site, but outside the Bayer CropScience Project Area, is appropriate for handling and transloading contaminated sediments and other materials that might be dredged. If necessary, EPA shall assist Respondent Bayer CropScience in obtaining the required design information from the transload facility owner or operator. In the event Respondent Bayer CropScience wishes to use a transload facility within the Bayer CropScience Project Area for transferring dredged materials from the Bayer CropScience Project Area, Respondent Bayer CropScience will provide the design specifications for that transload facility, whether prepared by Respondent Bayer CropScience or another owner or operator. Such specifications shall include 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 transload facility's 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 or operation of the transload facility will not inhibit or prevent implementation of ongoing source control measures and potential remedial measures of the upland property, if applicable. If Respondent Bayer CropScience intends to use a transload facility outside of the Portland Harbor Superfund Site (see NCP definition of "on-site") for dredged materials from the Bayer CropScience Project Area, Respondent Bayer CropScience must provide Clean Water Act (CWA) Sections 404 and 401 permit application design information (which may be

prepared by another owner or operator) to minimize spillage, offsite tracking, worker exposure and ensure stormwater management. If necessary, EPA shall assist Respondent Bayer CropScience in obtaining the required design information from the transload facility owner or operator.

(h) Respondent Bayer CropScience shall use best efforts to coordinate with and obtain necessary information from owners of river banks and/or submerged lands that are within the Bayer CropScience 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 Bayer CropScience Project Area.

3.8 Intermediate (60%) RD.

Respondent Bayer CropScience 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.

3.9 Pre-Final (95%) RD.

Respondent Bayer CropScience 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 Bayer CropScience Project Area features, such as elements, property borders, easements, and Bayer CropScience 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 ¶ 5.6(m)(2)(viii) as a final check to ensure remedial construction can commence.

3.10 Final (100%) RD.

Respondent Bayer CropScience shall submit the Final (100%) RD 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.

3.11 Emergency Response and Reporting

(a) **Emergency Response and Reporting**. If any event occurs during performance of the Bayer CropScience RD Work that causes or threatens to cause a release of Waste Material on, at, or from the Bayer CropScience Project Area and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Respondent Bayer CropScience 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 ¶ 3.11(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 Bayer CropScience SOW.

(b) **Release Reporting**. Upon the occurrence of any event during performance of the Bayer CropScience RD Work that Respondent Bayer CropScience is 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, Respondent Bayer CropScience 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 ¶ 3.11(a) and ¶ 3.11(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 ¶ 3.11(a) and ¶ 3.11(b), Respondent Bayer CropScience 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 ¶ 3.11 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

3.12 Off-Site Shipments

(a) Respondent Bayer CropScience may ship hazardous substances, pollutants, and contaminants from the Bayer CropScience Project Area 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. Respondent Bayer CropScience will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondent Bayer CropScience obtains 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) Respondent Bayer CropScience may ship Waste Material from the Bayer CropScience Project Area 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. Respondent Bayer CropScience 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. Respondent Bayer CropScience shall provide the notice as soon as practicable after the award of the contract and before the Waste Material is shipped.

(c) Respondent Bayer CropScience may ship Investigation Derived Waste (IDW) from the Bayer CropScience Project Area 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.

IV. 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 XXVIII of the Settlement, Respondent Bayer CropScience 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 list of all results of validated sampling, tests, and all other data received or generated by Respondent Bayer CropScience to comply with the Settlement;

(c) A list of all deliverables that Respondent Bayer CropScience submitted to EPA;

(d) A list 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 Bayer CropScience RD Work, and a description of efforts made to mitigate those delays or anticipated delays;

(f) A list of any modifications to the work plans or other schedules that Respondent Bayer CropScience has proposed or that have been approved by EPA; and

(g) A list 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, Respondent Bayer CropScience shall notify EPA of such change at least seven days before performance of the activity.

V. DELIVERABLES

5.1 Applicability.

Respondent Bayer CropScience shall submit all deliverables for EPA approval or for EPA comment as specified in the Bayer CropScience SOW. In the event EPA designates DEQ personnel as the authorized Project Coordinator for certain aspects of the RD Work, with EPA remaining as lead agency, Respondent shall submit deliverables to DEQ with copies to EPA. If neither is specified, the deliverable does not require EPA's approval or comment. ¶ 5.2 (In Writing) through 5.4 (Formatting 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 Bayer CropScience SOW must be in writing unless otherwise specified.

5.3 General Requirements for Deliverables

(a) Except as otherwise provided in this Bayer CropScience SOW, Respondent Bayer CropScience shall direct all deliverables required by this Bayer CropScience

SOW to the EPA Project Coordinator: Hunter Young Remedial Project Manager, Superfund and Emergency Management Division, U.S. Environmental Protection Agency, Oregon Operations Office, 805 SW Broadway Ste 500, Portland OR 97205-3331, phone 503-326-5020, young.hunter@epa.gov.

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

- Sarah Greenfield, Department of Environmental Quality, Northwest Region Portland Office, 700 NE Multnomah St. Ste 600, Portland, OR 97232-4100, (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, 3141 E. Burnside St., Portland, OR 97214, (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 Bayer CropScience RD Schedule and RDWP, as applicable. Respondent Bayer CropScience 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 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", Respondent Bayer CropScience shall also provide EPA with paper copies of such exhibits.

5.4 Formatting Specifications

(a) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format (Attachment 1 of the Bayer CropScience SOW) or as specified by EPA. 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. Respondent Bayer CropScience is required to upload data collected to EPA's Scribe environmental data management tool or other tool as prescribed by EPA.

(c) Each file must include an attribute name for each Bayer CropScience 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 Respondent Bayer CropScience does not, and is not intended to, define the boundaries of the 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 Bayer CropScience 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 after EPA notifies Respondent Bayer CropScience of such deficiencies and provides Respondent Bayer CropScience a reasonable time to cure: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Bayer CropScience 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) Respondent Bayer CropScience 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 Respondent Bayer CropScience 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) Respondent Bayer CropScience 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 Respondent Bayer CropScience of any liability for stipulated penalties under Section XVII (Stipulated Penalties) of the Settlement.

5.6 Supporting Deliverables.

Respondent Bayer CropScience shall submit each of the following supporting deliverables for EPA comment and approval, except as specifically provided. Respondent Bayer CropScience shall develop the deliverables in accordance with all applicable regulations, guidance, and policies (see ¶ 8 (References)). Respondent Bayer CropScience shall update each of these supporting deliverables as necessary or appropriate during the Bayer CropScience 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 Bayer CropScience RD Work. Respondent Bayer CropScience 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 Bayer CropScience SOW should cover Bayer CropScience RD activities. 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 during performance of the RD Work at the Bayer CropScience Project Area. 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 ¶ 3.11(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 ¶ 3.11(a) (Emergency Response and Reporting) of the Bayer CropScience SOW in the event of an occurrence during the performance of the Bayer CropScience RD Work that causes or threatens a release of Waste Material from the Bayer CropScience Project Area 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 performed pursuant to the Bayer CropScience SOW. 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. Respondent Bayer CropScience shall develop the FSP consistent with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988) and the Site's August 8, 2019 *Remedial Design Guidelines and Considerations* document (RD Guidelines). Project area sampling density will be determined during RD Work Plan development and will account for existing sediment data within the Bayer CropScience Project Area and that portion of the navigation channel adjoining the Bayer CropScience Project Area. Respondent Bayer CropScience shall ensure that the sample density is sufficient to facilitate remedial design. The description of data gaps as required in ¶ 3.1(a)(1) will serve as the basis for the sample collection activities in the FSP. The lateral and vertical extent of contamination exceeding the RALs and/or PTW thresholds specified on Table 21 of the ROD (the Contamination) will be delineated to the Bayer CropScience Project Area boundaries both upstream and downstream. The lateral and vertical extent of Contamination into the navigation channel is not necessarily bound by the Bayer CropScience Project Area boundary on that side, but rather must be delineated to no more than half the distance across the navigation channel.

(d) **Quality Assurance Project Plan**. The Quality Assurance Project Plan (QAPP) augments the FSP and addresses sample analysis and data handling regarding the Bayer CropScience RD Work. The QAPP must include a detailed explanation of Respondent Bayer CropScience's quality assurance, quality control, and chain of custody procedures for all investigations, treatability, design, compliance, and monitoring samples. Respondent Bayer CropScience 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 Respondent Bayer CropScience in implementing the Settlement (Respondent Bayer CropScience's Labs);

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

(3) To ensure that Respondent Bayer CropScience's 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 Respondent Bayer CropScience's Labs participate in an EPA-accepted QA/QC program or other QA/QC program acceptable to EPA;

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

(6) For Respondent Bayer CropScience 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 Respondent Bayer CropScience, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling; and

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

(e) **Draft 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). In coordination with EPA, Respondent Bayer CropScience will develop a conceptualized draft Bayer CropScience Project Area-specific ICIAP during RD which will, at a minimum, identify the specific and necessary Bayer CropScience Project Area ICs that will be implemented during RA; plans to implement, maintain, and enforce the ICs; and the parties responsible for implementing and monitoring each IC necessary at the Bayer CropScience Project Area, consistent with Section 14.2.6. (*Institutional Controls*) of the ROD. Implementation of ICs is not within the scope of this Settlement. Upon approval by EPA, Respondent Bayer CropScience will provide its draft Bayer CropScience 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 Bayer CropScience 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)**. Respondent Bayer CropScience shall submit a Bayer CropScience 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. The BA shall identify the presence of threatened,

endangered, and proposed or candidate species, or their habitat, within the vicinity of the Bayer CropScience 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**. Respondent Bayer CropScience shall submit a memorandum that provides sufficient information to demonstrate compliance of the proposed RA at the Bayer CropScience 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 regarding, long- and short-term impacts from the RA at the Bayer CropScience 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 Bayer CropScience Project Area; to obtain information, through short- and long- term monitoring, about the movement of and changes in contamination throughout the Bayer CropScience 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 Bayer CropScience Project Area monitoring. As appropriate, approved data from Project Area Pre-RD and RD sampling and Site-wide baseline data may be used in the PAMP. 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 Bayer CropScience Project Area-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) **Draft Construction Quality Assurance/Quality Control Plan (Draft CQA/QCP)**. The purpose of the Construction Quality Assurance/Quality Control Plan (Draft 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. Respondent Bayer CropScience shall develop a draft CQA/QCP during the RD that provides sufficient information for contractor bidding, with the final to be developed during the RA (CQA/QCP technical requirements will be included in the Technical Specifications as part of the RD). The Draft 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) **Draft Transportation and Off-Site Disposal Plan.** The Transportation and Off-Site Disposal Plan (TODP) describes plans to ensure compliance with ¶ 3.12 (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) **Draft O&M Plan**. The O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. Respondent Bayer CropScience shall develop the Draft O&M Plan in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017) that provides sufficient information for contractor bidding, with the final to be developed during the RA. 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) **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 at the Bayer CropScience Project Area 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.

(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 Bayer CropScience 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 Bayer CropScience Project Area.

(iii) A summary of available information regarding the source control status of direct discharges, groundwater, river bank, and overwater sources of COCs into the Bayer CropScience 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.

(iv) A summary of in-water sources of COCs to the Bayer CropScience 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.

(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 Bayer CropScience Project Area, if applicable.

(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 Bayer CropScience Project Area.

(vii) The results of the Sufficiency Assessment that includes evaluation of the sufficiency of upland and in-water source controls, if applicable, 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 Bayer CropScience Project Area. The discussion will also present the limitations of the assessment approaches and any remaining data gaps.

(viii) A sufficiency assessment summary table of upland sources (direct discharges, overwater, river bank) that explicitly identifies the potential sources and pathways at the Bayer CropScience 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 Bayer CropScience SOW. Completing the sufficiency assessment summary table is a valuable exercise to ensure that there is consensus on the status of potential sources at the Bayer CropScience Project Area. The goal of this table is to serve as the basis for EPA's sufficiency determination in informing Respondent Bayer CropScience 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 assessed, or implemented and assessed, for effectiveness.

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

(3) 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.

VI. SCHEDULES

6.1 Applicability and Revisions.

The following schedule provides an RD timeline under which all deliverables and tasks required under this Bayer CropScience 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**. Respondent Bayer CropScience 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 Respondent's CI Coordinator		2.1(d)	Within 30 days after EPA request
1a	Draft PDI Work Plan	FSP, QAPP, HASP, ERP	3.1(a)	120 days after Effective Date of the Settlement[1]
1b	Final PDI Work Plan	Same as above	3.1(a)	60 days after EPA's comments on the Draft PDI Work Plan[1]

	Description of Deliverable	Included Supporting Deliverable	¶ Ref.	Deadline
2a	Draft PDI Evaluation Report		3.1(b)	As set forth in the approved PDI Work Plan[1]
2b	Final PDI Evaluation Report		3.1(b)	As set forth in the approved PDI Work Plan[1]
3a	Draft BODR		3.3	150 days after EPA approval of the Final PDI Evaluation Report[1]
3b	Final BODR	Same as above	3.2	60 days after EPA's comments on the Draft BODR[1]
4a	Draft RDWP	Updates to FSP, QAPP, HASP, ERP	3.3	120 days after EPA's approval on the Final BODR[1]
4b	Final RDWP	Same as above	3.3	60 days after EPA's comments on the Draft RDWP[1]
5a	Draft Supplemental PDI Work Plan (if needed)		3.5(a)	As set forth in the draft RDWP[1]
5b	Final Supplemental PDI Work Plan (if needed)		3.5(a)	As set forth in the draft RDWP[1]
6a	Draft Supplemental PDI Evaluation Report (if needed)		3.5(b)	As set forth in the approved Final RDWP[1]
6b	Final Supplemental PDI Evaluation Report (if needed)		3.5(b)	As set forth in the approved Final RDWP[1]
7a	Draft Treatability Study Work Plan (if required)		3.6(a)	As set forth in the draft RDWP[1]
7b	Final Treatability Study Work Plan (if required)		3.6(a)	As set forth in the draft RDWP RDWP[1]
8a	Draft Treatability Study Evaluation Report (if required)		3.6(b)	As set forth in the approved Final RDWP[1]
8b	Final Treatability Study Evaluation Report (if required)		3.6(b)	As set forth in the approved Final RDWP[1]
9	Preliminary (30%) RD	All supporting deliverables described in ¶ 5.6	3.7	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

	Description of Deliverable	Included Supporting Deliverable	¶ Ref.	Deadline
				report is completed.
10	Intermediate (60%) RD	Same as above	3.8	As set forth in the approved Final RDWP
11	Pre-final (95%) RD	Same as above	3.9	As set forth in the approved Final RDWP
12	Final (100%) RD	Same as above	3.10	As set forth in the approved Final RDWP
13	Progress Reports		4.1	Quarterly[1]

Notes:
[1] It is the intention of the parties that preparation of these deliverables occur according to an efficient RD schedule. An example showing EPA's expectations for an optimized RD timeline is shown in **Figure 1**.

VII. STATE AND TRIBAL PARTICIPATION

7.1 Copies.

Respondent Bayer CropScience 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 Respondent Bayer CropScience when EPA provides comments to Respondent Bayer CropScience. Respondent Bayer CropScience 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 Respondent Bayer CropScience, 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 Section XXVIII of the Settlement (Notice of Work Completion).

(c) Any modifications of this Bayer CropScience SOW or related deliverables under ¶ 18 and Section XXVII of the Settlement.

VIII. REFERENCES

8.1 The following regulations and guidance documents, among others, shall be considered in implementing the Bayer CropScience 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).

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

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

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

(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).

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

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

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

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

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

(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).

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

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

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

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

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

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

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

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

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

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

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

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

(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.

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

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

(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.

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

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

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

(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).

(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).

(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).

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

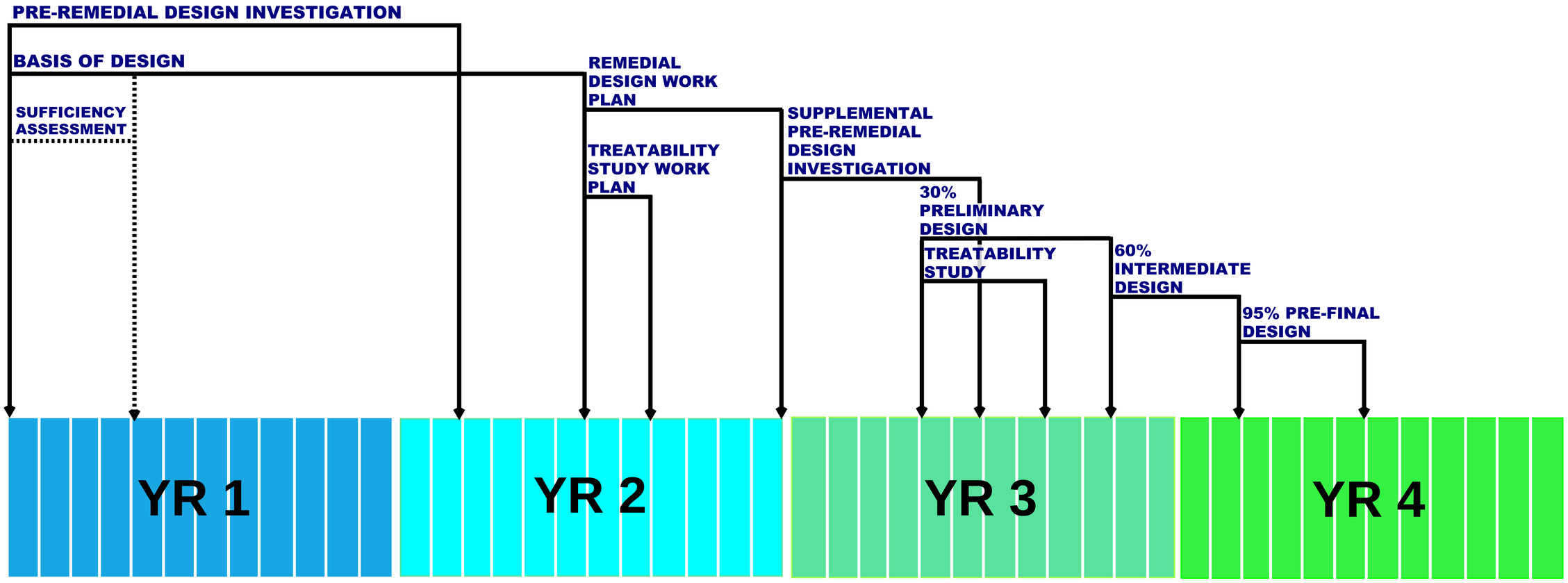
8.2 A more complete list may be found on the following EPA Web pages:

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

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

Figure 1

Optimized Remedial Design Timeline



* Current schedule allows 2.5 months for PRPs to create initial draft of RDWP and 30% RD along with 3.5 months for EPA/partner review and comments.
The 3.5 months includes a review/comment cycle of the initial draft document by EPA and TCT, development of the draft final document by PRP, and a final review by EPA. This review process will be shortened for the 60% RD and 95% RD as EPA expects the PRPs to have incorporated EPA comments from the 30% RD.

FIGURE 1. OPTIMIZED REMEDIAL DESIGN TIMELINE

Figure 2

Bayer CropScience Project Area

LEGEND

- Bayer CropScience Inc. Remedial Design Project Area
- Navigation Channel Sediment Decision Unit

0 200 400

Feet

REFERENCE(S)

SERVICE LAYER CREDITS: © 2020 MICROSOFT CORPORATION © 2019 DIGITALGLOBE ©CNES (2019) DISTRIBUTION AIRBUS DS

CLIENT

BAYER CROPSCIENCE INC.

PROJECT

BAYER CROPSCIENCE INC. REMEDIAL DESIGN
PORTLAND, OREGON

CONSULTANT

GOLDER

YYYY-MM-DD	1/29/2020
DESIGNED	APTM
PREPARED	SHL
REVIEWED	RWB
APPROVED	APTM

TITLE

BAYER CROPSCIENCE INC.
REMEDIAL DESIGN PROJECT AREA

PROJECT NO.	CONTROL	REV.	FIGURE
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Attachment 1

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

Program Data Management Plan

Portland Harbor Remedial Design Investigation
Portland Harbor Superfund Site

Prepared by

U.S. Environmental Protection Agency Region 10

August 2018

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TABLE OF CONTENTS

Figures

Appendices

Definitions and Acronyms

ASASOC	Administrative Settlement Agreement and Order on Consent
DMP	data management plan
EDD	electronic data deliverables
EPA	U.S. Environmental Protection Agency
ERT	EPA Emergency Response Team located in Edison, NJ
HUC	hydrologic unit code
ID	identification
ODEQ	Oregon Department of Environmental Quality
PHSS	Portland Harbor Superfund Site
RPM	Remedial Project Manager (EPA Region 10)
Scribe	data management application (created for ERT)
Scribe.NET	web-based portal for archiving Scribe project files and data

1.0 Introduction

To ensure that environmental data collected at the Portland Harbor Superfund Site (PHSS) adhere to specific standards and practices, a programmatic level data management plan (DMP) was developed that provides guidance and data requirements for the various parties involved with the pre-design and design related data collection activities. While this DMP is a standalone document, it is to be used in concert with the Administrative Settlement Agreement and Order on Consent (ASAOC) statement of work, Region 10 data management plan, and the respective quality management plans developed for each performing party sampling effort.

1.1 Site Background

The site is located along the lower reach of the Willamette River in Portland, Oregon, and extends from approximately river mile 1.9 to 11.8. While the site is extensively industrialized, it is within a region characterized by commercial, residential, recreational, and agricultural uses. Land use along the lower Willamette River in the site includes marine terminals, manufacturing, other commercial operations, public facilities, parks, and open spaces. The State of Oregon owns certain submerged and submersible lands underlying navigable and tidally influenced waters. The ownership of submerged and submersible lands is complicated and has changed over time.

This lower reach was once a shallow, meandering portion of the Willamette River but has been redirected and channelized via filling and dredging. A federally maintained navigation channel, extending nearly bank-to-bank in some areas, doubles the natural depth of the river and allows transit of large ships into the active harbor. Much of the river bank contains overwater piers and berths, port terminals and slips, and other engineered features. While a series of dams in the upper Willamette River watershed moderate's fluctuations of flow in the lower portions of the river, flooding still occurs approximately every 20 years, with the last occurring in 1996.

Armoring to stabilize banks covers approximately half of the harbor shoreline, which is integral to the operation of activities that characterize Portland Harbor. Riprap is the most common bank-stabilization measure. However, upland bulkheads and rubble piles are also used to stabilize the banks. Seawalls are used to control periodic flooding as most of the original wetlands bordering the Willamette in the Portland Harbor area have been filled. Some river bank areas and adjacent parcels have been abandoned and allowed to revegetate, and beaches have formed along some modified shorelines due to relatively natural processes.

Development of the river has resulted in major modifications to the ecological function of the lower Willamette River. However, several species of invertebrates, fishes, birds, amphibians, and mammals, including some protected by the Endangered Species Act, use habitats that occur within and along the river. The river is also an important rearing site and pathway for migration of anadromous fishes, such as salmon and lamprey. Various recreational fisheries, including salmon, bass, sturgeon, crayfish, and others, are active within the lower Willamette River.

1.2 Objective and Scope

The objective of this DMP is to ensure that environmental data and supporting information are collected and managed in a manner that preserves, protects, and makes the information available to all stakeholders, performing parties, and other affected groups. This DMP applies to data and

information collected in support of the PHSS by the performing party's activities as related to the remedial design effort and per the individual ASAOC. While it does not cover all information (e.g., photos, field logs) that is managed for specific projects, it is intended to address those types of data deemed critical to decision making for the site. Appendix C provides a conceptual model depicting the comprehensive approach to the management of data derived from previous and future studies at the PHSS. The subsections below identify the general data categories, performing parties collecting environmental data, and major sampling activities.

1.2.1 Data Categories

This plan identifies standard data elements and data management processes for the following data categories:

- Project identification information
- Environmental sampling data
- Locational data

The individual data elements for each of these categories represent the minimal amount of information that is needed for project specific decision making and data sharing among stakeholders and performing parties. These are further identified in the Data Management section.

1.2.2 Major Stakeholder Groups

The major stakeholder groups have been identified as those groups who are actively involved in site-wide planning and environmental data collection and sharing for this site. The major stakeholders include signatories to the 2001 Memorandum of Understanding, performing parties, and community groups:

- Memorandum of understanding members
  - U.S. Environmental Protection Agency (EPA) Region 10
  - Oregon Department of Environmental Quality
  - Confederated Tribes and Bands of the Yakama Nation
  - Confederated Tribes of the Grand Ronde Community of Oregon
  - Confederated Tribes of Siletz Indians
  - Confederated Tribes of the Umatilla Indian Reservation
  - Confederated Tribes of the Warm Springs Reservation of Oregon
  - Nez Perce Tribe
  - National Oceanic and Atmospheric Administration
  - Oregon Department of Fish and Wildlife
  - U.S. Department of the Interior
- Performing Parties (these are typically potentially responsible parties)
- Primary community groups
  - Community Advisory Group
  - Willamette Riverkeeper
  - Portland Harbor Community Advisory Group

1.2.3 Remedial Design Sampling Activities

For the remedial design efforts, a performing party would implement an investigation to supplement existing site-wide data to inform and support remedial design.

The following types of sample collection activities may be completed as specified in each respective EPA-approved sampling plan submitted by performing parties:

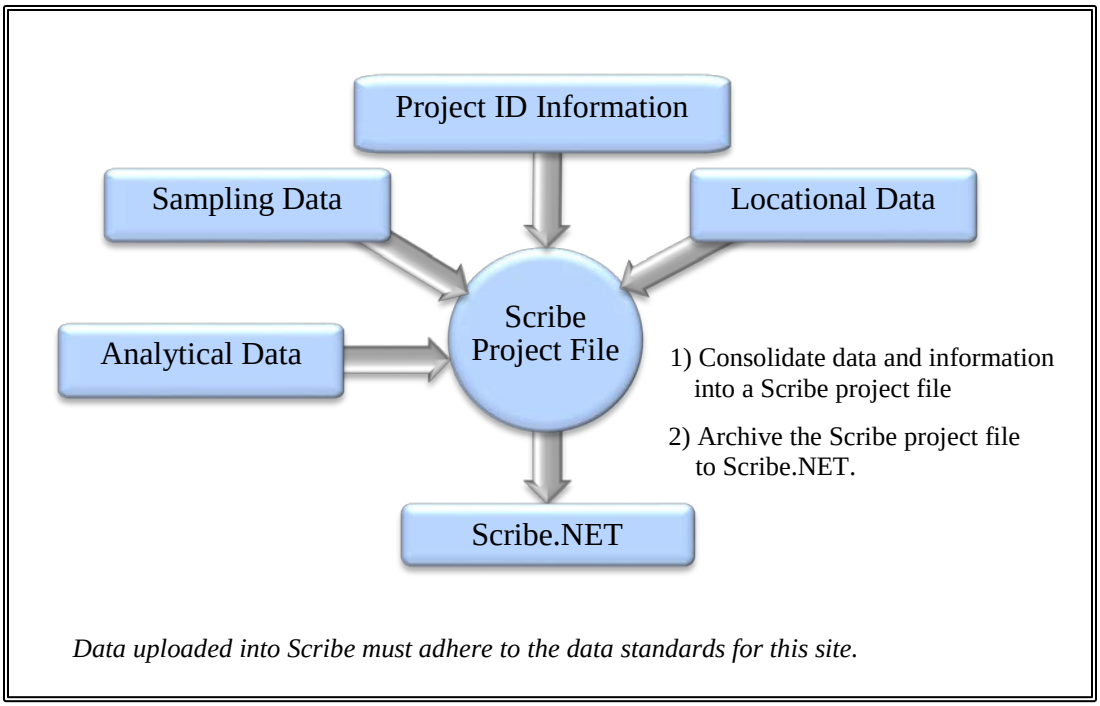
- Surface sediment sampling
- Fish tissue sampling
- Surface water sampling
- Sediment coring
- Soil sampling
- Porewater sampling

2.0 Data Management

Effective data management among the Portland Harbor performing parties relies upon delivery of data to a central repository using a common data management platform. The platform selected for the PHSS is Scribe, and the repository is the Region 10 subscription to Scribe.NET. Although individual performing parties may have diverse data management systems, the Scribe software and Scribe.NET repository is required for consolidation and access to project information, sampling data, and applicable locational data for each sampling activity. For many projects Scribe will already be in use for managing environmental samples. In those cases, the same Scribe project files can be used to document the project information, receive the sampling data, and publish the complete set of information to Scribe.NET. A simplified data flow for the Scribe data management process is illustrated on Figure 1. The Scribe Project ID is required for each data set and is provided by the EPA Scribe.NET Data Coordinator. Sampling Data comprises sample nomenclature identification, temporal data, and details specific to the sampling event. Locational Data comprise the spatial information for each sample.

Independent of the Scribe and Scribe.NET repository, a site-wide repository is being developed by the State of Oregon to capture and provide access to comprehensive Portland Harbor data. Appendix C provides a conceptual model depicting the comprehensive approach to the management of data derived from previous and future studies as a part of the PHSS.

Figure 1. Data Flow and Archiving for Scribe



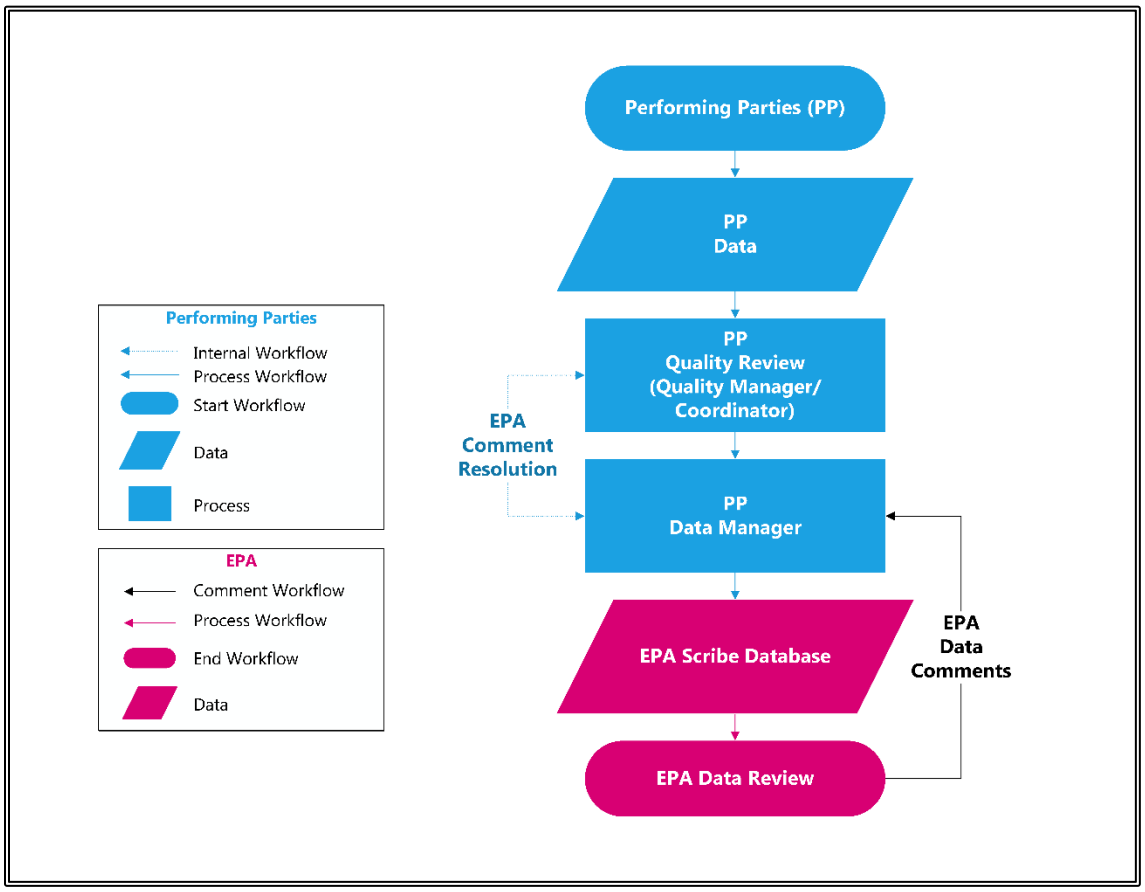
2.1 Data Management Platform

The data management platform selected for the PHSS is Scribe. This software is based on a Microsoft database and is available for download (www.ert.org). In addition to the Scribe software, an EPA Region 10 template, which contains the required data fields, data lists, and validation criteria, needs to be downloaded and installed. For each project, a Scribe project file is created. Here, the project-specific information is entered, which identifies both the performing party or group conducting the sampling and the type of sampling activity performed.

2.2 Roles and Responsibilities

The major roles and responsibilities for data management are identified for the performing parties in addition to the role of the data manager within each organization. The performing parties will be responsible for their own in-house data management but will designate a "data manager" who will fill the role as defined within this DMP. Figure 2 provides an overview of the workflow between EPA Region 10 and the performing parties.

Figure 2. Process Workflow



2.2.1 Performing Parties

EPA Region 10 has the primary responsibility for oversight of all sampling and monitoring activities. EPA has identified the minimal data elements and data delivery requirements that would allow it to achieve its oversight goals and share data among the other stakeholders, performing parties, and community groups. Each of the performing parties is responsible for collecting the necessary data elements covered under their respective sampling activity as approved by EPA, and providing that information to EPA by submitting electronic data deliverables (EDD's) or entering or uploading the information into a Scribe project file, and publishing (archiving) the complete file to Scribe.NET. Coordination with EPA and the Oregon Department of Environmental Quality (ODEQ) is required to ensure data requirements for a sampling event are met. To accomplish this task on a project-specific basis, the performing party will need:

- DMPs to cover their respective sampling activities
- A data manager designated to complete the Scribe project file or EDD's

Details regarding the roles and responsibilities of the data manager are provided in the following section.

2.2.2 Data Manager

Each of the performing parties will need to designate a data manager to create the EDD submittals or create and manage the Scribe project file and upload the file to Scribe.NET. Regardless of the

data management system each performing party utilizes, a Scribe EDD or Scribe project file is required for consolidation and archiving of the project data to a designated national server. The major responsibilities of the data manager are:

- Creation of EDD submittals or the Creation of the Scribe project file
- Coordination with EPA and/or ODEQ regarding all data matters.
- Participation in the Portland Harbor data management coordination calls for ongoing discussion and updates or suggested revisions to this DMP

Designation and training for the data manager can be coordinated with the EPA's Regional Scribe.NET Data Coordinator if direct use of Scribe project files is planned. Web training sessions are also available from the EPA Emergency Response Team (ERT) on a regular basis. To begin, the data manager will need to go to the ERT website (www.ert.org) and download on to their computer:

- Scribe (Version 3.9.4 or current)
- EPA Region 10 Scribe template

Once these have been installed, the EPA Region 10 template will need to be selected during the startup of Scribe after which it will become the default template for future projects. As a security measure, once a Scribe project file has been started, it stays locked to the originating computer until it has been relinquished by the data manager. Data and information can be uploaded into Scribe via an import wizard or hand entered through the user interface. During use, it is a recommended practice to regularly back up the Scribe project file to Scribe.NET to preserve the information in the event the originating computer is lost, stolen, or experiences a system failure.

It is anticipated that there will be no coordination with respect to the EPA regional laboratory program for any of the sampling events conducted by any performing party. Section 2.2.4 describes how contact may be made to discuss specific requirements regarding Scribe EDD submittals and/or Region 10 Scribe template.

2.2.3 EPA Remedial Project Managers

EPA's oversight of the performing parties at the Portland Harbor site resides with EPA's Superfund Remedial Project Managers (RPM). The RPM will work directly with the performing parties on the direction and type of environmental sampling activities conducted. This includes data quality objective development; approval of sampling plans; and acceptance of sampling reports, assessments, and data for entry into the agency's administrative record. Central to this role is the identification of critical data needs on each approved sampling activity at each sediment management area. In addition, the RPM will participate in the Portland Harbor data management calls and coordinate with the performing party's data manager for refinements to the DMP if needed.

2.2.4 EPA Regional Scribe.NET Data Coordinator

The EPA Scribe.NET Data Coordinator (to be determined) is the project's EPA Scribe data management point of contact and reviews all EPA Region 10 Scribe deliverables for adherence to the EPA Region 10 DMP.

As part of the Portland Harbor data management coordination calls, the EPA Scribe.NET Data Coordinator will communicate with all performing parties regarding all data issues related to the management of data, Scribe EDD submittals and/or Scribe templates. The coordinator will also be the central point of contact for all technical information and database requirements related to the publishing of data to Scribe.NET.

2.3 Data Elements

As stated in Section 1.2.1, the plan identifies standard data elements for project identification information, environmental sampling data, and locational data. A complete list of data elements is provided in Appendix A and the valid values in Appendix B. Valid values are also provided as drop-down entry items in the Region 10 Scribe template/Portland Harbor template (when available). The following sections summarize the information in these appendices as they relate to the major data categories.

2.3.1 Project Identification Information

Project identifiers provide the necessary descriptive information (metadata) about the project. This allows data users an efficient way of categorizing and searching archived Scribe project files. A complete list of these data elements is found in Appendix A under the Site and Event Categories. Critical among these is identification of the project, monitoring organization, and type of monitoring activity (see Appendix A; Events – Activity data element). The Activity data type is a Superfund identifier that distinguishes environmental data by its intended programmatic use (i.e., Performance Evaluation, Remedial Action). The EPA Region 10 template contains a list of valid values for the Activity data element. It is important for the data manager to verify with the EPA RPM on the agreed upon Activity type during the project planning.

2.3.2 Environmental Sampling Data

The data elements for environmental sampling data allow for a complete identification of the analytical results such that the data may be subject to interpretation. This includes the identification of the sample matrix, sample collection time, measurement parameter, units of measurement, limits of detection, dates of analysis, analytical method, and so on. A complete list of these data elements and their descriptors are in Appendix A under the Samples and Lab Results categories. For data being uploaded into the Lab Results table of Scribe, the sample numbers must match up against the sample numbers that are already loaded into the Samples table.

2.3.3 Locational Data

The locational data establish the spatial representativeness of the environmental sample and are critical for data analysis. These include latitude, longitude, datum, elevation, and geomethod for sample collection points. Additional spatial identifiers for water monitoring (e.g., hydrologic unit codes [HUCs]) have been added for this site as these were identified as required geospatial identifiers by EPA. Valid values for the HUCs have been incorporated into the Region 10 template. A complete list of the locational data elements is in Appendix A under the Location and Samples categories.

2.4 Data Repository

The repository for archiving and retrieving Scribe project files is Scribe.NET. This repository resides within a national server maintained by ERT and is accessed directly from Scribe. For each project file, a unique ID is assigned at the time the file is first published to Scribe.NET. Access to the archived Scribe project file can be granted to other stakeholders, performing parties, and groups upon submitting a request to ERT; however, the repository files can only be updated from the computer that originated the file (unless the Scribe project file is relinquished by the originator in Scribe). Independent of the Scribe.NET repository, a site-wide repository being developed by the State of Oregon, will capture and provide access to comprehensive Portland Harbor site data.

3.0 Data Verification

If the Scribe project is initiated by a performing party for Portland Harbor, Scribe is configured to undergo a self-inspection of information as part of the data generation or file upload process. The Region 10 template contains auditor rules for verification of Scribe project files as they are uploaded to Scribe.NET Close observance of these rules is the responsibility of the data manager.

4.0 Data Reporting Procedures

Final project information, sampling, and locational data are delivered to EPA in the form of an EDD or Scribe project file that has been fully populated and published to Scribe.NET. Upon completion of Scribe project file and upload to Scribe.NET, the performing party data manager notifies the EPA RPM and the EPA Scribe.NET Data Coordinator and provides the Scribe project ID number (assigned at the time of publishing to Scribe.NET) associated with the project for identification and access by EPA Region 10. The concept for integrating the analytical and locational data of Scribe.NET with the comprehensive data management repository is provided in Appendix C.

5.0 Data Access

Major stakeholder groups have been identified as those groups who are actively involved in site-wide planning and environmental data collection and sharing for the PHSS. The major stakeholders include signatories to the 2001 Memorandum of Understanding, performing parties, and community groups: These stakeholders are provided access to the Portland Harbor subscription of Scribe.NET. Data access is performed through Scribe. For all the Portland Harbor Scribe project files, each stakeholder, performing party, or primary community groups has data access rights and can download the Scribe project file from Scribe. Only the originating performing party data manager can update files that have been published to Scribe.NET. Appendix C provides a conceptual model depicting the comprehensive approach to the site-wide management and sharing of data derived from previous and future studies at the PHSS.

6.0 References

U.S. EPA. *Memorandum: Superfund Site Data Definitions and Recommended Practices*. 29 Nov. 2017.

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Appendix A – Required Data Elements

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Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
CASE_NUMBER	Conditional	Unique ID assigned to groups of samples scheduled for analysis. Required for the Contract Lab Program. Possible values are determined by the CLP Contract.		Numeric / 5	5	Scribe / Lab
SAMPLE_DELIVERY_GROUP	Conditional	A set of samples scheduled under a Case Number (max = 20). Required for the Contract Lab Program.	Possible values are determined by the CLP Contract.	Text / 30	30	Lab
SAMPLE_ID	Conditional	EPA Sample Number. Required if data are reported by the Contract Lab Program.	Possible values are determined by the CLP Contract.	Text	25	Lab
CAS_NUMBER	Required	Chemical Abstracts Service (CAS) Registry Number for the chemical compound or element reported.	Possible values are determined by the CAS Registry.	Text	50	Lab
ANALYTE	Required	Nam of the chemical compound or element that was measured.	Name comprised of any combination of alpha-numeric values which may also contain hyphens and commas.	Text	60	Lab
FINAL_RESULT	Required	The final validated result of the chemical compound or element that was measured.	Numeric value which may be integer or decimal.	Numeric	8	Lab / Data Reviewer
RESULT_UNITS	Required	The units of measurement for the "Final Result" and "Lab Result".	Possible values are determined by the CLP Contract or the lab. Examples: ug/kg, mg/kg, ug/L, mg/L, ug	Text	20	Lab
FINAL_VALIDATION_QUALIFIER	Required	National Functional Guidelines Data Validation Qualifiers.	Possible values assigned by the National Functional Guidelines.	Text	10	EDM / Data Reviewer
DATA_VAL_LABEL	Required	EPA Data Validation Label Code from the “Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use”.	Possible values assigned by the guidance document.	Text	250	EDM / Data Reviewer

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLE_ADJUSTED_CRQL	Required	The Contract Required Quantitation Limit (CRQL) or lab's Reporting Limit that has been adjusted for sample weight, sample volume, dilution, percent solids, etc.	Numeric value which may be integer or decimal.	Numeric	8	Lab
SAMPLE_ADJUSTED_MDL	Required	The Method Detection Limit (MDL) that has been adjusted for sample weight, sample volume, dilution, percent solids, etc.	Numeric value which may be integer or decimal.	Numeric	8	Lab
LAB_RESULT	Required	The analytical result as reported by the testing laboratory.	Numeric value which may be integer or decimal.	Numeric	8	Lab
LAB_QUALIFIERS	Required	Lab Applied Data Qualifier(s). Qualifer codes which describe certain aspects of data utility or quality (e.g., non-detect, estimated value, etc.).	Possible value defined by either the CLP Statement of Work or the lab.	Text	10	Lab
METHOD_CRQL	Required	Un-adjusted CRQL or Reporting Limit	Numeric value which may be integer or decimal.	Numeric	8	Lab
NONMOISTURE_SAMPLE_ADJUSTED_CRQL	NA	Contract Required Quantitation Limit (CRQL) or Reporting Limit that is adjusted for sample weight, volume, dilution, **BUT NOT** percent solids. Created by the data review program used to validate CLP data.	Numeric value which may be integer or decimal.	Numeric	8	EDM
CRQL_UNITS	Required	Sample Adjusted Contract Required Quantitation Limit (CRQL) or Reporting Limit Units of Measurement.	Possible values are determined by the CLP Contract or the lab. Examples: ug/kg, mg/kg, ug/L, mg/L, ug	Text	20	Lab
INSTRUMENT_MDL	Optional	Instrument Detection Limit (MDL) that is not adjusted for sample mass/volume or percent moisture (solids).	Numeric value which may be integer or decimal.	Numeric	8	Lab
NONMOISTURE_SAMPLE_ADJUSTED_MDL	NA	Method Detection Limit (MDL) that is adjusted for sample weight, volume, dilution, **BUT NOT** percent solids. Created by the data review program used to validate CLP data.	Numeric value which may be integer or decimal.	Numeric	8	EDM
MDL_UNITS	Required	MDL Measurement Units	Possible values are determined by the CLP Contract or the lab. Examples: ug/kg, mg/kg, ug/L, mg/L, ug	Text	20	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
PERCENT_SOLIDS	Required	The Percent Solids for soils and sediments. Used to determine the dry weight basis of the chemical analyses.	Reported as a "Percent".	Numeric	8	Lab
PERCENT_MOISTURE	Required	The Percent Moisture content for soils or sediments. Used to determine the dry weight basis of the chemical analyses.	Reported as a "Percent".	Numeric	8	Lab
DILUTION_FACTOR	Required	Dilution Factor applied to the digest or extract. The dilution factor is only applied when the laboratory has diluted the extract or digest due to a high concentration of analyte(s).	Integer values e.g., 1, 2, 3, etc.	Numeric	8	Lab
ANALYSIS_FRACTION	Required	Identifies the type of analysis fraction or method category of the analysis.	Possible values determined by the CLP Contract or reporting Lab.	Text	100	Lab
ANALYSIS_LEVEL	Conditional	The concentration range or level performed by the lab for the analytical methods.	Possible values are determined by the CLP Contract. Examples: trace, low, med	Text	15	Lab
REPORTING_BASIS	Required	Indicates whether the results were adjusted due to the moisture content of the sample.	For Water samples = WET, For Soil and Sediment samples = DRY or WET depending upon whether moisture correction was applied.	Text	10	Lab
SAMPLE_DATE_TIME	Required	The Date & Time of Sample Collection	For all field samples (including Field Blank and Performance Evaluation samples) = MM/DD/YYYY HH:MM:SS	Date/Time	20	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
DATE_SHIPPED	Required	Date of Sample Shipment.	For all field samples (including Field Blank and Performance Evaluation samples) = MM/DD/YYYY For Matrix Spike, Post-Digestion Spike, Duplicates, Matrix Spike Duplicate = Ship Date of associated Parent Sample	Date	20	Scribe
DATE_TIME_RECEIVED	Required	Date & Time of Sample Receipt at Lab.	For all field samples (including Field Blank and Performance Evaluation samples) = MM/DD/YYYY HH:MM:SS For Matrix Spike, Post-Digestion Spike, Duplicate, Matrix Spike Duplicate = Sample Receipt Date and Time of associated Parent Sample	Date/Time	20	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
PREP_DATE_TIME	Required	Date & Time of Sample Digestion/Extraction.	For all laboratory samples = MM/DD/YYYY HH:MM:SS For Matrix Spike, Post-Digestion Spike, Duplicate, Matrix Spike Duplicate = Sample Receipt Date and Time of associated Parent Sample	Date/Time	20	Lab
ANALYSIS_DATE_TIME	Required	The Date & Time of Analysis of the sample digest or extract.	For all laboratory samples = MM/DD/YYYY HH:MM:SS	Date/Time	20	Lab
LAB_SAMPLE_TYPE	Required	Identifies types of samples as either "field" or specific lab QCbut does not identify field QC types. Required by the Contract Lab Program.	Possible values are determined by the CLP Contract or Reporting Lab. Examples: Field_Sample, Method_Blank, Matrix_Spike, Serial_Dilution, etc.	Text	40	Lab
SAMPLE_MATRIX	Required	Identifies the matrix type of soil, water, etc. as reported by the lab. Required by the Contract Lab Program.	Possible values are determined by the CLP Contract or reporting Lab. Examples: Water, Soil, Sediment, Wipe, Filter	Text	20	Lab
RESULT_COMMENT	Conditional	Concatenated result information (can be from FORM I Comment Field)	Comments are recorded in the field. Required if passed from the Scribe XML to the Lab.	Text	250	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
LAB_NAME	Required	Laboratory Name (long name)	Possible values are determined by the CLP Contract or reporting Lab.	Text	50	Lab
LAB_CODE	Conditional	An abbreviated form of the Lab Name.	Possible values are determined by the CLP Contract. The abbreviated lab name is a code used for reporting.	Text	30	Lab
CONTRACT_NUMBER	Conditional	Laboratory Contract Number assigned under the CLP.	Possible values are determined by the CLP Contract or reporting Lab.	Text	30	Lab
METHOD_NUMBER_OR_CLP_SOW	Required	Identifies the analytical method reference number or statement of work.	Valid EPA or other reference methods or CLP SOW editions. Examples: ISM01.3, 6010, 8270, etc.	Text	100	Lab
MA_NUMBER	Conditional	The Modified Analysis (MA) Number is a tracking number used by the CLP for non-standard or altered methods.	Possible values are determined by the CLP Contract or reporting Lab.	Text	30	Lab
TR_COC_NUMBER	Required	The Traffic Report (TR) /Chain of Custody Form Number is a unique tracking number assigned to the COC.	Long segmented number separated by hyphens.	Text	30	Scribe
LAB_SAMPLE_ID	Conditional	Laboratory Sample ID (internal ID#). Labs issue their own sample IDs for internal sample tracking and reporting purposes.	Possible values are determined by the CLP Contract or reporting Lab.	Text	25	Lab
LAB_FILE_ID	Conditional	Laboratory File ID (Internal to the lab only)	Possible values are determined by the CLP Contract or reporting Lab.	Text	25	Lab
INSTRUMENT_ID	Conditional	Unique Instrument Identification Number	Possible values are determined by the CLP Contract or reporting Lab.	Text	25	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLE_ALIQUOT	Required	The mass or volume of sample that removed for extraction or digestion.	Numeric value may be an integer or decimal.	Numeric	8	Lab
SAMPLE_ALIQUOT_UNITS	Required	The units of measurement for the mass or volume of sample that removed for extraction or digestion.	Examples: "g" for grams, "mL" for milliliters.	Text	20	Lab
FINAL_VOLUME	Required	The final volume of the sample Digest or Extract.	Numeric value may be an integer or decimal.	Numeric	8	Lab
FINAL_VOLUME_UNITS	Required	Volume of Sample Digest /Extract Units	For Organic: uL For Inorganic: mL	Text	20	Lab
SOIL_EXTRACT_VOLUME	Conditional	The volume of extract used for a Medium Level VOC soils analysis.	Numeric value may be an integer or decimal.	Numeric	8	Lab
SOIL_EXTRACT_VOLUME_UNITS	Conditional	Soil Extract Volume Units (Medium VOA)	For Organic (VOA): uL	Text	20	Lab
SOIL_ALIQUOT_VOLUME	Conditional	The volume of aliquot removed from the extract used for a Medium Level VOC soils analysis.	Numeric value may be an integer or decimal.	Numeric	8	Lab
SOIL_ALIQUOT_VOLUME_UNITS	Conditional	Soil Aliquot Volume Units (Medium VOA)	For Organic (VOA): uL	Text	20	Lab
PURGE_VOLUME	Conditional	For analysis of Volatile Organic Compounds, the volume of an aqueous sample that is used to "purge" the VOCs.	Numeric value may be an integer or decimal.	Numeric	8	Lab
PURGE_VOLUME_UNITS	Conditional	Purge Volume Units (VOA)	For Organic (VOA only): mL	Text	20	Lab
SPIKE_ADDED	Conditional	Amount Added for Lab Matrix Spike or Spike Duplicate sample or Laboratory Control Sample	Numeric value may be an integer or decimal.	Numeric	8	Lab
CONCENTRATED_EXTRACT_VOLUME	Conditional	Concentrated Extract Volume (SVOA/PEST/PCB)	Numeric value may be an integer or decimal.	Numeric	8	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
CONCENTRATED_EXTRACT_VOLUME_UNITS	Conditional	Concentrated Extract Volume Units (SVOA/PEST/PCB)	For Organic (SVOA, Pesticides, PCBs): uL	Text	20	Lab
INJECTION_VOLUME	Conditional	The volume of extrac injected into the instrument. (SVOA/PEST/PCB)	Numeric value may be an integer or decimal.	Numeric	8	Lab
INJECTION_VOLUME_UNITS	Conditional	Injection Volume Units (SVOA/PEST/PCB)	For Organic (SVOA, Pesticides, PCBs): uL	Text	20	Lab
PREPARATION_METHOD	Required	Type of Extraction for Organics or Digestion for Inorganics. "SONC" for sonication etc. (SVOA/PEST/PCB) of Organics and most relevant method digestion numbers for Inorganic.	Possible values are determined by the CLP Contract or reporting Lab. For Organic: Sonication, Soxhlet, Pressurized_Fluid , Liq_Liq, Liq_Membrane For Inorganic: 200.7, 200.8, 3050B, 3015A, 3051A, 7300, 7470A, 7471B, Midi-distillation, Micro-distillation	Text	100	Lab
GPC_CLEANUP	Conditional	Cleanup Type (SVOA/PEST/PCB)	For Organic (SVOA, Pesticides, PCBs): Y or N	Text	20	Lab
GPC_FACTOR	Conditional	1.0 if no GPC, 2.0 if GPC is performed (SVOA/PEST/PCB)	"1.0 if no GPC, 2.0 if GPC is performed" derived from presence or absence of GPC value in CLEANUP_TYPE field	Numeric	8	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
DECANTED	Conditional	Identifies if the Lab decanted the sample in a Yes or No response. (SVOA/PEST/PCB)	Possible values are determined by the CLP Contract or reporting Lab. For Organic (SVOA, Pesticides, PCBs): Decanted or Not_Decanted	Text	20	Lab
PH	Conditional	The pH Determination of a soil or water sample. Reported in pH Units (SVOA/PEST/PCB, and Inorganic water samples)	Numeric value may be an integer or decimal.	Numeric	8	Lab
COLOR_BEFORE	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
COLOR_AFTER	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
CLARITY_BEFORE	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
CLARITY_AFTER	Optional	Description of sample before & after digestion. Used in CLP Metals analysis of waters.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
TEXTURE	Optional	Description of sample. Used in CLP Metals analysis of soil/sediments.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
ARTIFACTS	Optional	Description of sample. Used in CLP Metals analysis of soil/sediments.	Possible values are determined by the CLP Contract or reporting Lab.	Text		Lab
COOLER_TEMP	Required	Recorded temperature of the sample cooler upon Receipt at the Lab.	Recorded in Degrees Celcius.	Numeric	8	Lab

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLE_FRACTION	Conditional	Identifies the representativeness of a water sample due to any pretreatment (e.g., filtration at 0.45 micron).	"D" for dissolved (filtered at 0.45 micron), "F" for other filtered, "T" for total (unfiltered). If "F" is used then the filter size/type should be entered in the Result_Comment field.	Text	1	Scribe
METHOD_SPECIATION	Conditional	Part of a chemical characteristic (Nitrogen "As" …)	Detemined by the analytical method.	Text	30	Lab
SAMPLE_SUBMATRIX	Required	Scribe Matrix, expanded to include surface water, surface sediment etc. Use a custom list in Scribe	Examples: Air, AirIndoor, Sediment, Sediment Subsurface, Sediment Surface, Soil, Soil Surface, Soil Subsurface, SoilGas, Tissue, Waste, Waste SolidWaste, Waste LiquidWaste, Water, Water SurfaceWater, Water GroundWater, Water Potable, Water SepticEffluent, Water Stormwater	Text	40	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLING_REASON	Required	General program or technical reason for the study. Program reasons are specific and tie the data collection to more prescribed data uses.	Examples: Emergency Response, Site Investigation, Preliminary Assessment, Site Assessment, Remedial Investigation, Remedial Action	Text	30	Scribe
SAMPLE_COLLECTION_METHOD	Required	Sample Collection Method (i.e., Grab, Composite, Discrete Interval)	Examples: Grab, Composite, Discrete Interval	Text	30	Scribe
EPA_REGION	Required	The EPA Regional designation number	Valid Values: 1 - 10	Text	10	Scribe
STATION_LOCATION	Required	Station Location Codes	Determined by the project.	Text	50	Scribe
LOCATION_DESCRIPTION	Required	Further descibes the Station Location.	Determined by the project.	Text	100	Scribe
SCRIBE_SAMPLE_NUMBER	Required	The Scribe / field sample number. This may be Scribe generated or a Regionally assigned number.	Possible value determined by the Scribe Project Manager or the Regional Sample Control Coordinator.	Text	50	Scribe
LOCATION_ZONE	Required	The type of area that is impacted by the sample location.	Examples: Lake, Land, River/Stream, Well	Text	25	Scribe
LATITUDE	Required	The geographic latitude where the sample was collected or field measurement was taken.	12 character decimal degrees. Decimal places should be carried out to a minimum of 6 places in order to ensure minimal accuracy.	Numeric	12	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
LONGITUDE	Required	The geographic longitude where the sample was collected or field measurement was taken.	12 character decimal degrees (preceded by a negative sign for North America, -). Decimal places should be carried out to a minimum of 6 places in order to ensure minimal accuracy.	Numeric	12	Scribe
DATUM	Required	The horizontal coordinate system reference Datum name.	WGS84	Text	50	Scribe
GEOMETHOD	Required	The method used to determine latitude and longitude.	GPS, Survey	Text	30	Scribe
SURFACE_ELEVATION	Conditional	The determined elevation of a geographic point where the sample was collected or field measurement was taken. This is required for groundwater monitoring wells and where surface elevation data is needed for a project.	In feet or meters, need to provide for GW Wells that have been surveyed and not just GPS.	Numeric	8	Scribe
SURFACE_ELEVATION_UNITS	Conditional	The units of measurement for the surface elevation data. This is required when surface elevation measurements are reported.	meters, feet	Text	20	Scribe
SURFACE_ELEVATION_METHOD	Conditional	The method used to determine the surface elevation. This is required when surface elevation measurements are reported.	GPS, Survey	Text	30	Scribe
SURFACE_ELEVATION_DATUM	Conditional	The vertical control datum for the surface elevation measurement. This is required when surface elevation measurements are reported.	NAVD88	Text	50	Scribe
TOP_DEPTH	Conditional	Top depth of Sample Collection (for cores) or depth of sample collection for a monitoring well.	Numeric value may be an integer or decimal.	Numeric	8	Scribe
BOTTOM_DEPTH	Conditional	Depth To bottom of sample collection for a core sample.	Numeric value may be an integer or decimal.	Numeric	8	Scribe
TOP_DEPTH_UNITS	Conditional	Units of Sample Depth	Feet or meters	Text	20	Scribe
BOTTOM_DEPTH_UNITS	Conditional	Units of the Bottom Depth	Feet or meters	Text	20	Scribe
SAMPLER_NAME	Required	Sampler Name	Full name of the sampler.	Text	30	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
SAMPLING_COMPANY_CONTACT	Required	Sampling Company Contact Name	Full name of the sampling contact. Person usually coordinates sample collection on behalf of the sampling company.	Text	50	Scribe
SAMPLING_COMPANY_NAME	Required	Sampling Company Name	Full name of the sampling company.	Text	50	Scribe
PROJECT_NAME	Required	Site Name / Project Name	Assigned by the Sample Control Coordinator.	Text	50	RSCC/EDM
SITE_PROJECT_CODE	Required	Regional Project Code	Assigned by the Sample Control Coordinator.	Text	50	RSCC/EDM
SITE_EVENT_ID	Required	EventID. Use to group data by sampling/monitoring events (i.e. EOC, Site Assessment) (Primary Key)	A unique ID used by Scribe.	Text	50	Scribe
STATE	Required	State where sample collection occurred. This field is populated in CLPSS during ASR entry	2 Character State Abbreviation	Text	20	RSCC/EDM
CITY	Required	City where sample collection occurred. This field is populated in CLPSS during ASR entry	Full City Name	Text	60	RSCC/EDM
CERCLIS	Required	CERLIS ID	The CERCLIS identification. Used only by the Superfund program.	Text	20	Scribe
SCRIBE_SITE_NUMBER	Required	Scribesite key (Primary Key)	A unique ID used by Scribe.	Text	12	Scribe
SCRIBE_NET_PROJECT_ID	Required	ScribeNetID Project ID	A unique ID used by Scribe.	Long Integer	4	Scribe
SCRIBE_SAMPLES_ID	Required	Scribe Database AutoGenerated Number	A unique ID used by Scribe.	Long Integer	4	Scribe
SAMPLE_TAG	Required	Container ID codes - autogenerated if left blank	A unique ID used by Scribe.	Text	15	Scribe
SCRIBE_COMMENT	Conditional	Comment field from Scribe	Filled in by sampler to denote special sample treatment or conditions. Required if the entry is filled in by Scribe.	Memo	65K+	Scribe

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
FIELD_SAMPLE_TYPE	Required	Distinguishes field samples from lab QC, field QC and other associated sample types.	Possible values used in the Scribe template. Example: "Field Sample", etc.	Text	30	Scribe
VERSION_CODE	NA	Reserved for use by another Region.				
DATA_PROVIDER	NA	Reserved for use by another Region.				
PARENT_SAMPLE_NAME	NA	Reserved for use by another Region.				
PARENT_SAMPLE_LOCATION	NA	Reserved for use by another Region.				
LAB_REPLICATE_TYPE	NA	Reserved for use by another Region.				
SAMPLE_SOURCE	NA	Reserved for use by another Region.				
ORGANIC_YN	NA	Reserved for use by another Region.				
PRESERVATIVE	NA	Reserved for use by another Region.				
TEST_BATCH_TYPE	NA	Reserved for use by another Region.				
PREP_BATCH_ID	NA	Reserved for use by another Region.				
ANALYSIS_TYPE	NA	Reserved for use by another Region.				
SAMPLE_ANALYSIS_LOCATION	NA	Reserved for use by another Region.				
COLUMN_ID	NA	Reserved for use by another Region.				
RUN_BATCH_ID	NA	Reserved for use by another Region.				
ANALYSIS_BATCH_ID	NA	Reserved for use by another Region.				
ANALYST_NAME	NA	Reserved for use by another Region.				
ANALYTE_TYPE	NA	Reserved for use by another Region.				
REPORTABLE_RESULT	NA	Reserved for use by another Region.				

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
DETECT_FLAG	NA	Reserved for use by another Region.				
TIC_RETENTION_TIME	NA	Reserved for use by another Region.				
TIC_RETENTION_TIME_UNITS	NA	Reserved for use by another Region.				
EXPECTED_VALUE	NA	Reserved for use by another Region.				
QC_ORIGINAL_CONC	NA	Reserved for use by another Region.				
QC_SPIKE_MEASURED	NA	Reserved for use by another Region.				
QC_SPIKE_RECOVERY	Required	Percent Recovery of lab QC types (matrix spikes, surrogates, etc).	Numbers are represented as "%".	Numeric	8	Lab
QC_DUP_ORIGINAL_CONC	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_ADDED	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_MEASURED	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_RECOVERY	NA	Reserved for use by another Region.				
QC_RPD	NA	Reserved for use by another Region.				
QC_SPIKE_LCL	NA	Reserved for use by another Region.				
QC_SPIKE_UCL	NA	Reserved for use by another Region.				
QC_RPD_CL	NA	Reserved for use by another Region.				
QC_SPIKE_STATUS_FLAG	NA	Reserved for use by another Region.				
QC_DUP_SPIKE_STATUS_FLAG	NA	Reserved for use by another Region.				
QC_RPD_STATUS	NA	Reserved for use by another Region.				
SAMPLE_RUN	NA	Reserved for use by another Region.				
PARAMID	NA	Reserved for use by another Region.				

Data Element Field Names	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Description or Preferred Values		Field Format/Length		Origin
PAR_VAL_UNCERT	NA	Reserved for use by another Region.				
RESULT_ERROR_DELTA	NA	Reserved for use by another Region.				
INTERPRETED_QUALIFIERS	NA	Reserved for use by another Region.				
SYS_LOC_CODE	NA	Reserved for use by another Region.				
TASK_CODE	NA	Reserved for use by another Region.				
COLLECTION_QUARTER	NA	Reserved for use by another Region.				
SAMPLE_CLASS	NA	Reserved for use by another Region.				
COMPOSITE_DESC	NA	Reserved for use by another Region.				
LEACH_LOT	NA	Reserved for use by another Region.				
LEACHATE_METHOD	NA	Reserved for use by another Region.				
LEACHATE_DATE	NA	Reserved for use by another Region.				
LEACHATE_TIME	NA	Reserved for use by another Region.				
RESP	NA	Reserved for use by another Region.				
CUSTOM_FIELD_1	NA	Reserved for use by another Region.				
CUSTOM_FIELD_2	NA	Reserved for use by another Region.				
CUSTOM_FIELD_3	NA	Reserved for use by another Region.				
COMMENT	NA	Reserved for use by another Region.				

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Site.CaseNumber	N	In Scribe this is found in the "COC.CaseNumber" and "Site.CaseNumber" fields. In the xml file it is the Site.CaseNumber element. If not uploading this to the Lab Results table then no need to upload, correct?
LabResults.Lab_Batch_No	Y	Generated by the Lab.
SamplesTags.CLP_Samp_No LabResults.Sample_CLP_No	Y	Originates in Scribe in the "SamplesTags.CLP_Sample_No" field but is also uploaded into the "LabResults.Sample_CLP_No" field. Correct?
LabResults.Cas_No	Y	Generated by the Lab.
LabResults.Analyte	Y	Generated by the Lab.
LabResults.Result	Y	Generated by the Lab & verified by Data Reviewer. May be edited in EDM whereas the "Lab_Result" field below cannot be edited during data validation. The Final_Result field needs to be the mandatory reporting field for MEL and other labs.
LabResults.Result_Units	Y	Generated by the Lab.
LabResults.Result_Qualifier	Y	Generated by the EDM or Data Reviewer.
LabResults.QA_Comment	Y	Generated by the EDM or Data Reviewer. The Scribe LabResults Table doesn't have a designated field for the Data Validation Label. Because this is a recently required data element, we should update the table to address it.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Quantitation_Limit	Y	Generated by the Lab.
LabResults.MDL	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. The result that passes validation will be considered the final result.
LabResults.Lab_Result_Qualifier	Y	Generated by the Lab.
LabResults.Reporting_Limit	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
LabResults.Quantitation_Limit_Units LabResults.Reporting_Limit_Units	Y	Generated by the Lab. The Quantitation and Reporting Limit data elements as we're applying them use the same units of measurement so this data element needs to be uploaded into two different fields.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
LabResults.MDL_Units	Y	Generated by the Lab.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Percent_Solids	Y	Generated by the Lab.
LabResults.Percent_Moisture	Y	Generated by the Lab.
LabResults.Dilution_Factor	Y	Generated by the Lab.
LabResults.Analysis	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
LabResults.Basis	Y	Generated by the Lab.
Samples.Sampledate LabResults.Date_Collected	Y	Originates in Scribe in the "Samples.Sampledate" field but is also uploaded into the "LabResults.Date_Collected" field. Correct? Need to make sure this isn't populated when the Samples.Sampledate field is filled in. You know, the whole differential integrity-database thing.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
COC.DateShipped	N	There's no data field for this in the LabResults Table and it already appears in the COC Table.
LabResults.Date_Received	Y	Generated by the Lab. Need to double check the date/time fields in the LabResults Table. The Scribe Table Defn. file shows the length of these fields to be "8" but we need them to be "20".

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Extracted	Y	Generated by the Lab.
LabResults.Analyzed	Y	Generated by the Lab.
LabResults.QC_Type	Y	Generated by the Lab. This data type uses Lab QC long names (e.g., "Laboratory_Control_Sample) and perfectly matches the data definition of the QC_Type data field. The previously identified Sample_Type_Code was only 10 characters long.
Samples.Matrix LabResults.Matrix_ID	Y	Generated by the Lab. CLP has it's definitions but does it also need to match up with the Samples.Matrix Scribe data field? I thought these were populated separately.
LabResults.Comments	Y	Generated by the Lab. For the CLP this was concatenated from the Form I comment field to provide information such as size fraction.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Lab_Name	Y	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
LabResults.Analytical_Method	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
SamplesTags.COC LabResults.Lab_Coc_No	Y	Generated by the Lab.
LabResults.Lab_Samp_No	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.SubSample_Amount	Y	Generated by the Lab.
LabResults.SubSample_Amount_Unit	Y	Generated by the Lab.
LabResults.Final_Volume	Y	Generated by the Lab.
LabResults.Final_Volume_Unit	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
LabResults.Final_Volume	Y	Generated by the Lab.
LabResults.Final_Volume_Unit	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
LabResults.Extraction_Method	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.
	N	There's no data field for this in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
LabResults.Total_Or_Dissolved	Y	Generated by the Lab.
	N	Generated by the Lab. There's no data field for this in the LabResults Table.
Samples.Matrix	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Site.Site_Action	N	Already in Scribe. No place for it in the LabResults Table.
Samples.SampleCollection	N	Already in Scribe. No place for it in the LabResults Table.
Site.EPARegionNumber	N	Already in Scribe. No place for it in the LabResults Table.
Location.Location	N	Already in Scribe. No place for it in the LabResults Table.
Location.LocationDescription	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_No LabResults.Samp_No	Y	Originates in Scribe in the "Samples.Samp_No" field but is also uploaded into the "LabResults.Sample_CLP_No" field. Correct?
Location.LocationZone	N	Already in Scribe. No place for it in the LabResults Table.
Location.Latitude	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Location.Longitude	N	Already in Scribe. No place for it in the LabResults Table.
Location.Datum	N	Already in Scribe. No place for it in the LabResults Table.
Location.GeoMethod	N	Already in Scribe. No place for it in the LabResults Table.
Location.Surf_Elev	N	Already in Scribe. No place for it in the LabResults Table.
Location.Surf_Units	N	Already in Scribe. No place for it in the LabResults Table.
Location.ElevMethod	N	Already in Scribe. No place for it in the LabResults Table.
Location.ElevDatum	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth_To	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth_Units	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Samp_Depth_Units	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Sampler	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Site.CTRContact	N	Already in Scribe. No place for it in the LabResults Table.
Site.Contractor	N	Already in Scribe. No place for it in the LabResults Table.
Site.Site_Name	N	Already in Scribe. No place for it in the LabResults Table.
COC.ProjectCode	N	Already in Scribe. No place for it in the LabResults Table.
Events.EventID	N	Already in Scribe. No place for it in the LabResults Table.
Site.Area	N	Already in Scribe. No place for it in the LabResults Table.
Site.Area	N	Already in Scribe. No place for it in the LabResults Table.
Site.CERCLIS	N	Already in Scribe. No place for it in the LabResults Table.
Site.Site_No	N	Already in Scribe. No place for it in the LabResults Table.
Site.ScribeNetProjectID	N	Already in Scribe. No place for it in the LabResults Table.
Samples.SamplesID	N	Already in Scribe. No place for it in the LabResults Table.
SamplesTags.Tag	N	Already in Scribe. No place for it in the LabResults Table.
Samples.Remarks	N	Already in Scribe. No place for it in the LabResults Table.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
Samples.SampleType	N	Already in Scribe. No place for it in the LabResults Table.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
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	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
LabResults.Percent_Recovery	Y	Generated by the Lab.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
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	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.

Scribe Table.DataFieldName	Upload into Scribe from EDD?	Comments / Questions
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
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	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.
	N	There's no data field for this in the LabResults Table. Region 10 does not use this field.

Appendix B – Data Element Valid Values

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Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Events	Activity	Remedial Design
Events	Activity	Remedial Design Oversight
Events	QAPP_Approved	Y
Events	QAPP_Approved	N
Events	QAPP_ApprovedBy	US EPA Region 10
Events	QAPP_ApprovedBy	ODEQ
Location	CountryCode	US
Location	CountyCode	051
Location	Datum	NAD83
Location	Datum	UNKWN
Location	Datum	WGS84
Location	ElevDatum	NAVD88
Location	ElevDatum	NGVD29
Location	ElevDatum	OTHER
Location	ElevDatum	UNKWN
Location	ElevMethod	Altimetry
Location	ElevMethod	GPS
Location	ElevMethod	Interpolation
Location	ElevMethod	Other
Location	ElevMethod	Survey
Location	GeoMethod	GPS-Unspecified
Location	GeoMethod	Unknown
Location	GeoMethod	GPS
Location	GeoMethod	Interpolation
Location	GeoMethod	Survey
Location	HorizAccuracyMeasureUnit	Ft
Location	HorizAccuracyMeasureUnit	Meter
Location	HucEightDigitCode	17090012
Location	HucTwelveDigitCode	170900120201
Location	HucTwelveDigitCode	170900120202
Location	HucTwelveDigitCode	170900120301
Location	HucTwelveDigitCode	170900120305
Location	HucTwelveDigitCode	170900120304
Location	HucTwelveDigitCode	170900120302
Location	HucTwelveDigitCode	170900120303
Location	HucTwelveDigitCode	170900120102
Location	HucTwelveDigitCode	170900120104
Location	HucTwelveDigitCode	170900120101
Location	HucTwelveDigitCode	170900120103
Location	<Structuring of location (Site, subsite[by river mile], and SMA) will be determined with the EPA RPM> Developed as a part of the Portland Harbor Scribe Template.	
Location	LocationZone	Borehole
Location	LocationZone	Canal Transport

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Location	LocationZone	Combined Sewer
Location	LocationZone	Estuary
Location	LocationZone	Facility Industrial
Location	LocationZone	Facility Other
Location	LocationZone	Lake
Location	LocationZone	Land
Location	LocationZone	Land Flood Plain
Location	LocationZone	Landfill
Location	LocationZone	Ocean
Location	LocationZone	Other-Ground Water
Location	LocationZone	Other-Seawater
Location	LocationZone	Other-Surface Water
Location	LocationZone	Other-Surface Water
Location	LocationZone	Pond-Stormwater
Location	LocationZone	Reservoir
Location	LocationZone	River/Stream
Location	LocationZone	River/Stream
Location	LocationZone	Seep
Location	LocationZone	Spring
Location	LocationZone	Storm Sewer
Location	LocationZone	Test Pit
Location	LocationZone	Waste Pit
Location	LocationZone	Waste Sewer
Location	LocationZone	Well
Location	LocationZone	Wetland Undifferentiated
Location	State Code	OR
Location	Sub_Basin	Lower Willamette
Samples	Activity	Pre-Design
Samples	Activity	Design
Samples	Matrix	Air
Samples	Matrix	Air Indoor
Samples	Matrix	Asbestos
Samples	Matrix	Biological
Samples	Matrix	Benthic
Samples	Matrix	Drinking Water
Samples	Matrix	Dust
Samples	Matrix	Filtered Water
Samples	Matrix	Ground Water Dissolved
Samples	Matrix	Ground Water Total
Samples	Matrix	Habitat
Samples	Matrix	Lab Sand
Samples	Matrix	Liquid Waste
Samples	Matrix	Porewater Dissolved
Samples	Matrix	Porewater Total
Samples	Matrix	Potable Water
Samples	Matrix	Saline Water Dissolved
Samples	Matrix	Saline Water Total

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	Matrix	Sand
Samples	Matrix	Sediment
Samples	Matrix	Sediment <2mm
Samples	Matrix	Sediment <63um
Samples	Matrix	Sediment 125-250um
Samples	Matrix	Sediment 63-125um
Samples	Matrix	Sediment 63-250um
Samples	Matrix	Sediment Bulk
Samples	Matrix	Sediment Subsurface
Samples	Matrix	Sediment Surface
Samples	Matrix	Septic Effluent
Samples	Matrix	Soil
Samples	Matrix	Soil Gas
Samples	Matrix	Soil Subsurface
Samples	Matrix	Soil Surface
Samples	Matrix	Solid Waste
Samples	Matrix	Stormwater
Samples	Matrix	Surface Water
Samples	Matrix	Surface Water Dissolved
Samples	Matrix	Surface Water Total
Samples	Matrix	Tissue
Samples	Matrix	Waste
Samples	Matrix	Subsurface Soil/Sediment
Samples	Matrix	Surface Soil/Sediment
Samples	Samp_Depth_Units	Ft
Samples	SampleCollection	Activity Trap
Samples	SampleCollection	A-Frame Net
Samples	SampleCollection	Anchor Box Dredge
Samples	SampleCollection	Artificial Substrate
Samples	SampleCollection	Backpack Electroshock
Samples	SampleCollection	Beach Seine Net
Samples	SampleCollection	Beam Trawl
Samples	SampleCollection	Benthic Corer (Other)
Samples	SampleCollection	Benthic Dredge (Other)
Samples	SampleCollection	Benthic Grab (Other)
Samples	SampleCollection	Birge Closing Net
Samples	SampleCollection	Black Light Trap
Samples	SampleCollection	Block Net
Samples	SampleCollection	Boat-Mounted Electroshock
Samples	SampleCollection	Bod Dredge
Samples	SampleCollection	Bongo Net
Samples	SampleCollection	Boomerang Corer
Samples	SampleCollection	Boomerang Grab
Samples	SampleCollection	Box Corer
Samples	SampleCollection	Box Sampler
Samples	SampleCollection	Brail
Samples	SampleCollection	Bucket

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Burrell Epibenthic Sled
Samples	SampleCollection	Campbell Grab
Samples	SampleCollection	Cast Net
Samples	SampleCollection	Center Bag
Samples	SampleCollection	Chain Dredge
Samples	SampleCollection	Clam-Shell Grab
Samples	SampleCollection	Clarke-Bumpus Net
Samples	SampleCollection	Concussion
Samples	SampleCollection	Creel Survey
Samples	SampleCollection	Danish Seine Net
Samples	SampleCollection	Dart Corer (Gravity)
Samples	SampleCollection	D-Frame Net
Samples	SampleCollection	DH-81
Samples	SampleCollection	DH-95
Samples	SampleCollection	Dietz-Lafond Grab
Samples	SampleCollection	Dip Net
Samples	SampleCollection	Draw Down
Samples	SampleCollection	Drift Gill Net
Samples	SampleCollection	Drilled Sampler
Samples	SampleCollection	Drive Sampler (Generic)
Samples	SampleCollection	Drop Net
Samples	SampleCollection	Ekman Grab
Samples	SampleCollection	Electric Seine
Samples	SampleCollection	Electroshock (Other)
Samples	SampleCollection	Emergence Trap
Samples	SampleCollection	English Umbrella Net
Samples	SampleCollection	Erwin Piston Corer
Samples	SampleCollection	Ewing Gravity Corer
Samples	SampleCollection	Experimental Brail
Samples	SampleCollection	Experimental Gill Net
Samples	SampleCollection	Fish Weir
Samples	SampleCollection	Free Fall Grab
Samples	SampleCollection	Fry Trap
Samples	SampleCollection	Funnel Trap
Samples	SampleCollection	Fyke Net
Samples	SampleCollection	Glass Slide
Samples	SampleCollection	Glass Slide Device
Samples	SampleCollection	Gravity Corer (Generic)
Samples	SampleCollection	Hand Corer
Samples	SampleCollection	Herring Trawl
Samples	SampleCollection	Hess Sampler
Samples	SampleCollection	Hester-Dendy
Samples	SampleCollection	Hook And Line
Samples	SampleCollection	Hydraulic Grab
Samples	SampleCollection	Hydroacoustics
Samples	SampleCollection	Hydroplastic (PVC) Corer
Samples	SampleCollection	Insect Trap

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Isaacs-Kidd Trawl
Samples	SampleCollection	Juday Trap
Samples	SampleCollection	Kemmerer Bottle
Samples	SampleCollection	Kick Net
Samples	SampleCollection	Kullenberg Gravity Corer
Samples	SampleCollection	Larval Light Fish Trap
Samples	SampleCollection	Long Line
Samples	SampleCollection	Marmap Neuston Net
Samples	SampleCollection	Minnow Seine Net
Samples	SampleCollection	Miscellaneous (Other)
Samples	SampleCollection	Mochness Net
Samples	SampleCollection	Modified Surber Sampler
Samples	SampleCollection	MTD Net
Samples	SampleCollection	Nansen Bottle
Samples	SampleCollection	Natural Substrate
Samples	SampleCollection	Net Vertical Tow (Other)
Samples	SampleCollection	Net/Horizontal Tow (Other)
Samples	SampleCollection	Net/Non Tow (Other)
Samples	SampleCollection	Niskin Bottle
Samples	SampleCollection	Norpac Net
Samples	SampleCollection	Orange-Peel Grab
Samples	SampleCollection	Original Surber Sampler
Samples	SampleCollection	Other Toxicant
Samples	SampleCollection	Otter Trawl
Samples	SampleCollection	Pair Trawl
Samples	SampleCollection	Pamatmat Multiple Quartz Corer
Samples	SampleCollection	Peterson Grab
Samples	SampleCollection	Petite Ponar Grab
Samples	SampleCollection	Phleger Corer (Gravity)
Samples	SampleCollection	Pipe Dredge
Samples	SampleCollection	Piston Corer (Generic)
Samples	SampleCollection	Plankton Net
Samples	SampleCollection	Plexiglass Slide Device
Samples	SampleCollection	Plexiglass Trap
Samples	SampleCollection	Plummet Net
Samples	SampleCollection	Polar Orga. Chem. Integrative Sampler
Samples	SampleCollection	Ponar Grab
Samples	SampleCollection	Pound Net
Samples	SampleCollection	Pram Electroshock
Samples	SampleCollection	Probe/Sensor
Samples	SampleCollection	Pull Sled
Samples	SampleCollection	Pump/Air Lift
Samples	SampleCollection	Pump/Bailer
Samples	SampleCollection	Pump/Centrifugal
Samples	SampleCollection	Pump/Jet
Samples	SampleCollection	Pump/Non-Submersible
Samples	SampleCollection	Pump/Peristaltic

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Pump/Piston
Samples	SampleCollection	Pump/Rotary
Samples	SampleCollection	Pump/Submersible
Samples	SampleCollection	Pump/Turbine
Samples	SampleCollection	Purse Seine Net
Samples	SampleCollection	Push Net
Samples	SampleCollection	Push Point Sampler
Samples	SampleCollection	Radiello
Samples	SampleCollection	Rectangular Net
Samples	SampleCollection	Remotely Operated Vehicle
Samples	SampleCollection	Rock Basket
Samples	SampleCollection	Roller Frame Trawl
Samples	SampleCollection	Rotenone
Samples	SampleCollection	Roving Drop Net
Samples	SampleCollection	Scoop Fish Grab
Samples	SampleCollection	Sediment Trap
Samples	SampleCollection	Seine Net
Samples	SampleCollection	Semipermeable Membrane Device
Samples	SampleCollection	Set (Passive) Gill Net
Samples	SampleCollection	Shelby Tube
Samples	SampleCollection	Ship Sea Chest
Samples	SampleCollection	Shipek Grab
Samples	SampleCollection	SHOVEL
Samples	SampleCollection	Shrimp Trawl
Samples	SampleCollection	Simple Conical Net
Samples	SampleCollection	Single-Vessel Operated Tow Net
Samples	SampleCollection	Smith-McIntire Grab
Samples	SampleCollection	Sodium Cyanide
Samples	SampleCollection	Spear/Gun
Samples	SampleCollection	Spear/Hand
Samples	SampleCollection	Spear/Hawaiian Sling
Samples	SampleCollection	Split Spoon
Samples	SampleCollection	Square-Mouth Net
Samples	SampleCollection	Stainless Steel Spoon
Samples	SampleCollection	Stationary Drop Net
Samples	SampleCollection	Still Camera
Samples	SampleCollection	Stop Net
Samples	SampleCollection	Storm Water Sampler
Samples	SampleCollection	Stovepipe Sampler
Samples	SampleCollection	Stream-Side Electroshock
Samples	SampleCollection	Suction Dredge
Samples	SampleCollection	Summa
Samples	SampleCollection	Surber Sampler
Samples	SampleCollection	Syringe
Samples	SampleCollection	Terminal Bag
Samples	SampleCollection	Tile Plate
Samples	SampleCollection	Tow Net

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
Samples	SampleCollection	Towed Dredge
Samples	SampleCollection	Trammel Net
Samples	SampleCollection	Trap Net
Samples	SampleCollection	Trap Substrate (Other)
Samples	SampleCollection	Traveling Screen
Samples	SampleCollection	Trot Line
Samples	SampleCollection	T-Sampler
Samples	SampleCollection	Tucker Net
Samples	SampleCollection	Two-Vessel Operated Tow Net
Samples	SampleCollection	Van Dorn Bottle
Samples	SampleCollection	Van Veen Grab
Samples	SampleCollection	Variable Mesh Gill Net
Samples	SampleCollection	Vibrating Corer
Samples	SampleCollection	Video Camera
Samples	SampleCollection	Vinyl Tube
Samples	SampleCollection	Visual Sighting
Samples	SampleCollection	Water Bottle
Samples	SampleCollection	Water Sampler (Other)
Samples	SampleCollection	WBH-96
Samples	SampleCollection	Whirl-pak bag
Samples	SampleCollection	Wisconsin-Style Net
Samples	SampleCollection	Yankee Trawl
Samples	SampleCollection	Young Grab
Samples	Sampler	<Performing Parties> Will be added as they are defined and organized into groups
Samples	SampleType	Depth Integrated Sample
Samples	SampleType	Field Duplicate
Samples	SampleType	Field Msr/Obs
Samples	SampleType	Field Sample
Samples	SampleType	Incremental Sampling Horiz
Samples	SampleType	Incremental Sampling Vert
Samples	SampleType	QC Blank - Bottle/Preservative
Samples	SampleType	QC Blank - Field
Samples	SampleType	QC Blank - Filter
Samples	SampleType	QC Blank - Rinsate/Equipment
Samples	SampleType	QC Blank - Trip
Samples	SampleType	Sample-Composite Without Parents
LabResults	Analysis	<To be determined from performing party site specific sampling plan>
LabResults	Analyte	1,1-Dichloroethane
LabResults	Analyte	1,1-Dichloroethene
LabResults	Analyte	1,1-Dichloroethylene
LabResults	Analyte	1,1,1-Trichloroethane
LabResults	Analyte	1,1,1,-Trichloroethane
LabResults	Analyte	1,1,2-Trichloroethane
LabResults	Analyte	Trichloroethane
LabResults	Analyte	1,1,2,2-Tetrachloroethane

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Tetrachloroethane
LabResults	Analyte	1,2-Dibromoethane
LabResults	Analyte	Dibromoethane
LabResults	Analyte	1,2-Dichloroethane
LabResults	Analyte	Ethylene dichloride
LabResults	Analyte	1,2-Dichloropropane
LabResults	Analyte	Propylene dichloride
LabResults	Analyte	1,2,3-Trichloropropane
LabResults	Analyte	1,2,3,4,7,8-HxCDF
LabResults	Analyte	1,2,3,7,8-PeCDD
LabResults	Analyte	1,2,4-Trichlorobenzene
LabResults	Analyte	1,2-Dichlorobenzene
LabResults	Analyte	1,3-Dichlorobenzene
LabResults	Analyte	1,4-Dichlorobenzene
LabResults	Analyte	2-Butanone
LabResults	Analyte	Methyl Ethyl Ketone
LabResults	Analyte	2-Hexanone
LabResults	Analyte	2-Chloroethylvinyl Ether
LabResults	Analyte	2,4,5-TP (Silvex)
LabResults	Analyte	2,2'-oxybis(1- Chloropropane)
LabResults	Analyte	2,3,4,6-Tetrachlorophenol
LabResults	Analyte	2,3,4,7,8-PeCDF
LabResults	Analyte	2,3,7,8-TCDF
LabResults	Analyte	2,3,7,8-TCDD-Dioxin
LabResults	Analyte	2,3,7,8-TCDD
LabResults	Analyte	2,4,5-Trichlorophenol
LabResults	Analyte	2,4,6-Trichlorophenol
LabResults	Analyte	2,4-Dichlorophenol
LabResults	Analyte	2,4-D
LabResults	Analyte	2,4-Dimethylphenol
LabResults	Analyte	Dinitrophenol
LabResults	Analyte	2,4-Dinitrophenol
LabResults	Analyte	2,4-Dinitrotoluene
LabResults	Analyte	2,6-Dinitrotoluene
LabResults	Analyte	2-Chloronaphthalene
LabResults	Analyte	2-Chlorophenol
LabResults	Analyte	2-Methylnaphthalene
LabResults	Analyte	o-Cresol
LabResults	Analyte	2-Methylphenol
LabResults	Analyte	2-Nitroaniline
LabResults	Analyte	2-Nitrophenol
LabResults	Analyte	3,3'-Dichlorobenzidine
LabResults	Analyte	3,3'- Dichlorobenzidine
LabResults	Analyte	3-Nitroaniline
LabResults	Analyte	Methyl isobutyl ketone
LabResults	Analyte	4-Methyl-2-Pentanone
LabResults	Analyte	4-Bromophenyl- phenylether

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	4-Bromophenyl phenyl ether
LabResults	Analyte	3-Methyl-4-chlorophenol
LabResults	Analyte	4-Chloro-3-methylphenol
LabResults	Analyte	4-Chloro-3- methylphenol
LabResults	Analyte	4-Chloroaniline
LabResults	Analyte	4-Chlorophenyl phenyl ether
LabResults	Analyte	4-Chlorophenyl- phenyl ether
LabResults	Analyte	4-Methylphenol
LabResults	Analyte	p-Cresol
LabResults	Analyte	4-Nitroaniline
LabResults	Analyte	4-Nitrophenol
LabResults	Analyte	Acenaphthene
LabResults	Analyte	Acenaphthylene
LabResults	Analyte	Acrolein
LabResults	Analyte	Acrylonitrile
LabResults	Analyte	Aldrin
LabResults	Analyte	Aluminum
LabResults	Analyte	Aluminim
LabResults	Analyte	Anthracene
LabResults	Analyte	Antimony
LabResults	Analyte	Arsenic
LabResults	Analyte	Benzene
LabResults	Analyte	Benzo(a)anthracene
LabResults	Analyte	Benzo(a)pyrene
LabResults	Analyte	Benzo(b)fluoranthene
LabResults	Analyte	Benzo(ghi)perylene
LabResults	Analyte	Benzo(g,h,i)perylene
LabResults	Analyte	Benzo(k)fluoranthene
LabResults	Analyte	Benzoic Acid
LabResults	Analyte	Benzyl alcohol
LabResults	Analyte	bis(2-Chloroethoxy) methane
LabResults	Analyte	Bis(2-chloroethyl) ether
LabResults	Analyte	bis(2-Chloroethyl)ether
LabResults	Analyte	bis(2-Ethylhexyl) phthalate
LabResults	Analyte	Di(2-ethylhexyl)phthalate
LabResults	Analyte	Bromochloromethane
LabResults	Analyte	Bromodichloromethane
LabResults	Analyte	Dichlorobromomethane
LabResults	Analyte	Tribromomethane
LabResults	Analyte	Bromoform
LabResults	Analyte	Bromomethane
LabResults	Analyte	Methyl Bromide
LabResults	Analyte	Butylbenzylphthalate
LabResults	Analyte	Butyl benzyl phthalate
LabResults	Analyte	Cadmium
LabResults	Analyte	Carbazole
LabResults	Analyte	Carbon Disulfide

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Tetrachloromethane
LabResults	Analyte	Carbon Tetrachloride
LabResults	Analyte	Chlorobenzene, total
LabResults	Analyte	Chlorobenzene
LabResults	Analyte	Chlorobenzene (each)
LabResults	Analyte	Chlorodibromomethane
LabResults	Analyte	Dibromochloromethane
LabResults	Analyte	Chloroethane
LabResults	Analyte	Chloroform
LabResults	Analyte	Methyl Chloride
LabResults	Analyte	Chloromethane
LabResults	Analyte	Chromium
LabResults	Analyte	Chrysene
LabResults	Analyte	cis-1,2-Dichloroethylene
LabResults	Analyte	cis-1,2-Dichloroethene
LabResults	Analyte	cis-1,3-Dichloropropene
LabResults	Analyte	Copper
LabResults	Analyte	Cyanide
LabResults	Analyte	Cyanide, free (total)
LabResults	Analyte	Dibenzo(a,h)anthracene
LabResults	Analyte	Dibenzo(a,h)- anthracene
LabResults	Analyte	Dibenzofuran
LabResults	Analyte	Dibromomethane
LabResults	Analyte	Dichlorodifluoromethane
LabResults	Analyte	DDD
LabResults	Analyte	4,4'-DDD
LabResults	Analyte	p,p'-DDD
LabResults	Analyte	p,p'-DDE
LabResults	Analyte	4,4'-DDE
LabResults	Analyte	EDDE
LabResults	Analyte	DDE
LabResults	Analyte	p,p'-DDT
LabResults	Analyte	Total DDT
LabResults	Analyte	4,4'-DDT
LabResults	Analyte	DDT
LabResults	Analyte	Dieldrin
LabResults	Analyte	Diethylphthalate
LabResults	Analyte	Dimethyl phthalate
LabResults	Analyte	Dimethylphthalate
LabResults	Analyte	Di-n-butyl phthalate
LabResults	Analyte	Di-n-butylphthalate
LabResults	Analyte	n-Butylphthalate
LabResults	Analyte	Di-n-octyl phthalate
LabResults	Analyte	Di-n-octylphthalate
LabResults	Analyte	Endosulfan I
LabResults	Analyte	a-Endosulfan
LabResults	Analyte	b-Endosulfan

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Endosulfan II
LabResults	Analyte	Endosulfan sulfate
LabResults	Analyte	Endrin
LabResults	Analyte	Endrin aldehyde
LabResults	Analyte	Endrin ketone
LabResults	Analyte	Ethyl benzene
LabResults	Analyte	Ethylbenzene
LabResults	Analyte	Fluoranthene
LabResults	Analyte	Fluorene
LabResults	Analyte	Heptachlor
LabResults	Analyte	Heptachlor Epoxide
LabResults	Analyte	Hexachlorobenzene
LabResults	Analyte	Hexachlorobutadiene
LabResults	Analyte	Hexachlorocyclopentadiene
LabResults	Analyte	Hexachloroethane
LabResults	Analyte	Indeno(1,2,3-c,d)pyrene
LabResults	Analyte	Indeno(1,2,3-cd)- pyrene
LabResults	Analyte	Iodomethane
LabResults	Analyte	Isophorone
LabResults	Analyte	Isopropylbenzene
LabResults	Analyte	Manganese
LabResults	Analyte	Mercury
LabResults	Analyte	Mercury, Inorganic
LabResults	Analyte	Methoxychlor
LabResults	Analyte	Methylmercury
LabResults	Analyte	2-Methyl-4,6-Dinitrophenol
LabResults	Analyte	4,6-Dinitro-2- methylphenol
LabResults	Analyte	4,6-Dinitro-2-methylphenol
LabResults	Analyte	Methylene chloride
LabResults	Analyte	Dichloromethane
LabResults	Analyte	Methyl tert-Butyl Ether
LabResults	Analyte	Naphthalene
LabResults	Analyte	Nickel
LabResults	Analyte	Nitrobenzene
LabResults	Analyte	N-Nitroso-di-n propylamine
LabResults	Analyte	N-Nitrosodi-n-propylamine
LabResults	Analyte	N-Nitrosodiphenylamine
LabResults	Analyte	N-Nitroso diphenylamine
LabResults	Analyte	Pentachlorophenol
LabResults	Analyte	Phenanthrene
LabResults	Analyte	Phenol
LabResults	Analyte	Pyrene
LabResults	Analyte	Selenium
LabResults	Analyte	Silver
LabResults	Analyte	Styrene
LabResults	Analyte	Tetrachloroethylene
LabResults	Analyte	Tetrachloroethene

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Analyte	Toluene
LabResults	Analyte	Toxaphene
LabResults	Analyte	1,2-Trans-Dichloroethylene
LabResults	Analyte	trans-1,2-Dichloroethylene
LabResults	Analyte	trans-1,2-Dichloroethene
LabResults	Analyte	trans-1,3-Dichloropropene
LabResults	Analyte	trans-1,4-Dichloro-2-Butene
LabResults	Analyte	Tributyl tin
LabResults	Analyte	Trichloroethylene
LabResults	Analyte	Trichloroethene
LabResults	Analyte	Trichlorofluoromethane
LabResults	Analyte	Vanadium
LabResults	Analyte	Vinyl Acetate
LabResults	Analyte	Vinyl Chloride
LabResults	Analyte	Xylene
LabResults	Analyte	Xylene, total
LabResults	Analyte	Xylenes (total)
LabResults	Analyte	Zinc
LabResults	Analyte	alpha-BHC
LabResults	Analyte	a-BHC
LabResults	Analyte	beta-BHC
LabResults	Analyte	b-BHC
LabResults	Analyte	g-BHC
LabResults	Analyte	gamma-BHC (Lindane)
LabResults	Analyte	Lindane (g-BHC)
LabResults	Analyte	delta-BHC
LabResults	Analyte	d-BHC
LabResults	Result_Units	<To be determined from performing party site specific sampling plan>
LabResults	Total_or_Dissolved	Total
LabResults	Total_or_Dissolved	Dissolved
LabResults	Total_or_Dissolved	NA
LabResults	Total_or_Dissolved	DI Leach
LabResults	Total_or_Dissolved	MWM (Meteoric Water Mobility Ext)
LabResults	Total_or_Dissolved	SPLP
LabResults	Total_or_Dissolved	Suspended
LabResults	Total_or_Dissolved	TCLP
LabResults	Total_or_Dissolved	Acid Soluble
LabResults	Total_or_Dissolved	Bioavailable
LabResults	Total_or_Dissolved	Comb Available
LabResults	Total_or_Dissolved	Extractable
LabResults	Total_or_Dissolved	Filterable
LabResults	Total_or_Dissolved	Fixed
LabResults	Total_or_Dissolved	Free Available
LabResults	Total_or_Dissolved	Inorganic
LabResults	Total_or_Dissolved	Non-filterable
LabResults	Total_or_Dissolved	Non-settleable

Data Element Valid Values

Category (Database Table)	Data Element (Database Field)	Valid Value
LabResults	Total_or_Dissolved	Non-volatile
LabResults	Total_or_Dissolved	Organic
LabResults	Total_or_Dissolved	Pot. Dissolved
LabResults	Total_or_Dissolved	Settleable
LabResults	Total_or_Dissolved	Supernate
LabResults	Total_or_Dissolved	Total Recoverable
LabResults	Total_or_Dissolved	Total Residual
LabResults	Total_or_Dissolved	Vapor
LabResults	Total_or_Dissolved	Volatile
LabResults	Total_or_Dissolved	WAD
LabResults	Analytical_Method	<To be determined from performing party site specific sampling plan>
LabResults	Basis	Wet
LabResults	Basis	Dry
LabResults	Lab_Name	<To be determined from performing party site specific sampling plan>
LabResults	QA_Comment	Final
LabResults	QA_Comment	Accepted
LabResults	QA_Comment	Preliminary
LabResults	QA_Comment	Rejected
LabResults	QA_Comment	Validated
LabResults	Result_Qualifier	J
LabResults	Result_Qualifier	U
LabResults	Result_Qualifier	UJ
LabResults	Result_Qualifier	J-
LabResults	Result_Qualifier	J+
LabResults	Result_Qualifier	R
LabResults	Validated	Yes
LabResults	Validated	No
LabResults	ValidationLevel	S2BVEM
LabResults	ValidationLevel	S3VEM
LabResults	ValidationLevel	S4VEM
LabResults	ValidationLevel	NA
LabResults	ValueType	Actual
LabResults	ValueType	Calculated
LabResults	ValueType	Blank Corrected Calc
LabResults	ValueType	Control Adjusted
LabResults	ValueType	Estimated

Appendix C - Data Management Conceptual Model

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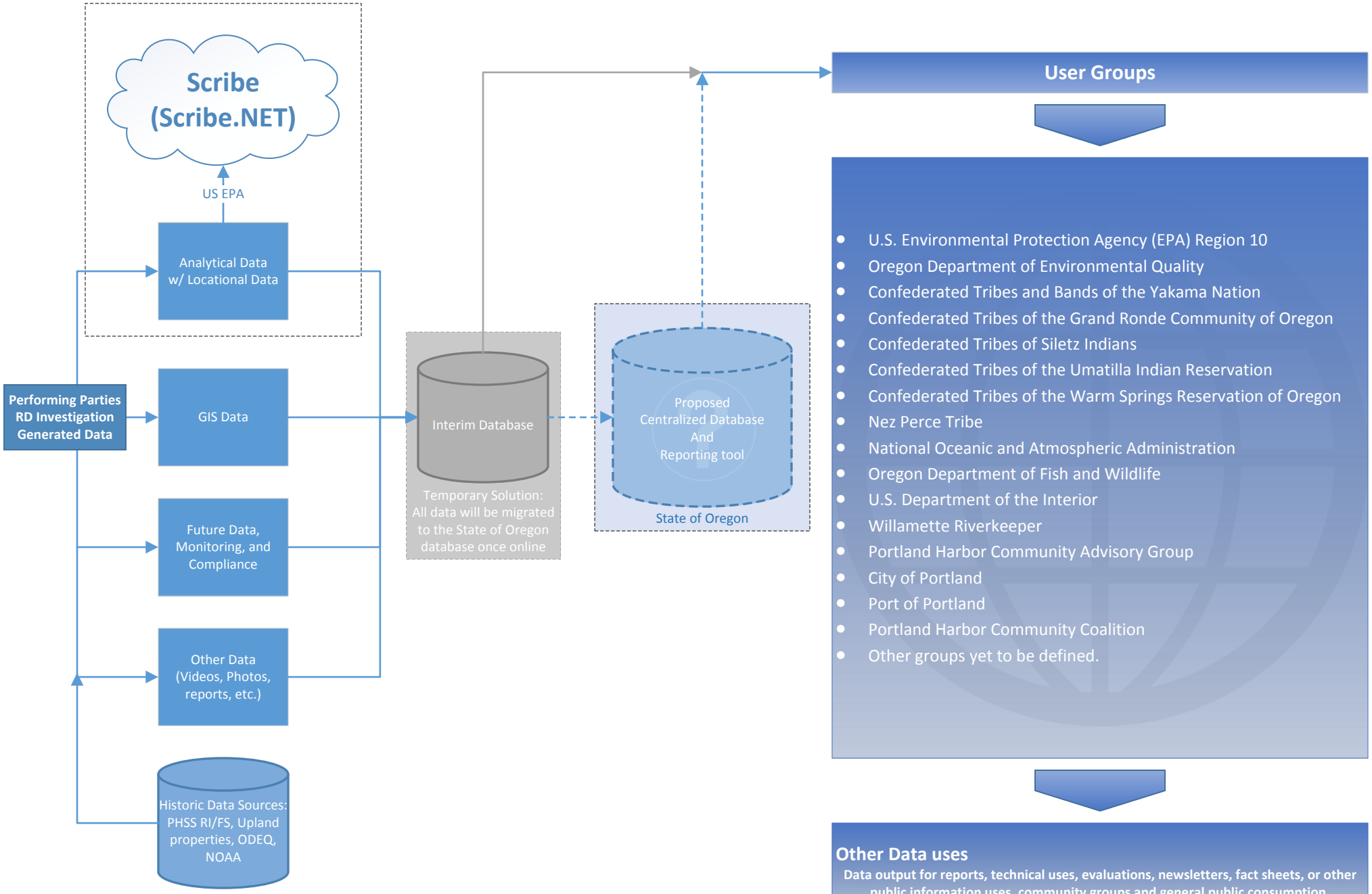
Data Management Conceptual Model



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Attachment 2

Example Sufficiency Assessment Summary Table

[Name] Project Area Sufficiency Assessment Summary
[date]

Site	ECSI#	Pathway(s)	Status	Sufficiency Assessment Contaminants	Milestone Document	Remedial Design/Source Control Task

Appendix B

RM7W Project Area Map

N:\GIS\Projects\C167 1504 Arkema FS\Production MXDs\Settlement Figures\Figure 1_Remedial Design_Areas.mxd 1/20/2020 9:09:27 AM

integral consulting inc.

Figure 1.
Remedial Design Project Areas

Appendix C

Phase 2 Disbursement Amendment Language

Pursuant to Paragraph 43 of this Settlement, following EPA's issuance of the Notice of Work Completion to a Respondent, either Respondent may request that this Settlement be amended. If the conditions outlined in Paragraph 43 are met, EPA will agree to the amendment request, and the following will replace the current text of Paragraph 43:

> 43. Within 30 days after EPA's receipt of a Cost Summary and Certification, as defined by ¶ 44.b, or if EPA has requested additional information under ¶ 44.b or a revised Cost Summary and Certification under ¶ 44.c within 30 days after receipt of the additional information or revised Cost Summary and Certification, and subject to the conditions set forth in this Section, EPA shall disburse the funds from the Arkema or Bayer CropScience Disbursement Special Account at the completion of the following milestone, and in the amount set forth below:
>
> | Milestone | Disbursement of Funds |
> |---|---|
> | EPA issuance of the Notice of Completion with regard to activities required under the Arkema SOW | $996,000[1] from the Arkema Disbursement Special Account, plus any Interest Earned on that amount |
> | EPA issuance of the Notice of Completion with regard to activities required under the Bayer CropScience SOW | $316,000[2] from the Bayer CropScience Disbursement Special Account, plus any Interest Earned on that amount |
>
> EPA shall disburse the funds for the Phase 2 Disbursement from the Arkema or Bayer CropScience Disbursement Special Account to Arkema or Bayer CropScience in the following manner:
>
> > [**Insert name and address for payment or instructions for electronic funds transfer**.]
>
> Reimbursement for Disbursement Phase 2 will only be provided for claims made on or before December 31, 2027.

If the Parties agree to amend the Settlement as provided above, the following language will also be added to the Settlement:

On (insert date) the Parties to this Settlement agreed to amend this Settlement, by replacing the original text of Paragraph XX with the agreed-upon revised text of Paragraph XX provided herein. The amendment shall be effective upon signature by the Superfund and Emergency Management Division, EPA Region 10.

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[1] This amount is calculated by multiplying $40,000 by the Eligible Acres as defined in this Settlement.

[2] This amount is calculated by multiplying $40,000 by the Eligible Acres as defined in this Settlement.