



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 Sixth Avenue, Suite 900  
Seattle, Washington 98101-3140

OCT 23 2007

Reply To: ECL-113

VIA OVERNIGHT MAIL

Thomas E. O'Donovan  
Colonel, U.S. Army Corps of Engineers  
District Commander, Portland District  
P.O. Box 2946  
Portland, Oregon 87208-2946

Re: U.S. Government Moorings, U.S. Army Corps of Engineers;  
8010 NW St. Helens Road, Portland, Multnomah County, Oregon;  
Issuance of RCRA Section 3013 Unilateral Administrative Order

Dear Colonel O'Donovan:

By this letter, I am transmitting an order under the authority of Section 3013(a) of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6934(a), to the United States Army Corps of Engineers ("Corps") regarding monitoring, testing, analysis, and reporting related to the U.S. Moorings facility, located at 8010 N.W. St. Helens Road, Portland, Oregon. I appreciate that the Corps has been working with my technical staff on beginning a site investigation; however, as you know, EPA believes the work must proceed under a regulatory vehicle providing explicitly for EPA's oversight and approval of the work.

By the terms of the Order and consistent with the conference provision of Section 6001(b)(2) of RCRA, 42 U.S.C. § 6961(b)(2), the Order will be effective five days from receipt of the Order unless the Army's Assistant Secretary requests an opportunity to confer with Region 10's Regional Administrator within that five-day period. Additionally, no later than five days from receipt of this Order, the Corps must notify EPA in writing if you intend to comply with the Order unless the Corps decides to seek a conference.

In accordance with Section 3013(c), 42 U.S.C § 6934(c), the Corps must submit a proposal for carrying out the required work with thirty (30) days of issuance of the Order. We acknowledge the Corps has developed one or more draft work plans related to a facility investigation at the U.S. Moorings facility. The Corps may designate these draft plans as its proposal and, upon approval by EPA, EPA may determine such plans fulfill the Order's proposal requirement, as well as other work requirements specified in the Order and attached Statement of Work.

We look forward to working cooperatively with you to investigate the U.S. Moorings facility. Any technical questions can be directed to the Project Manager, Mark Ader, at 206-553-1849, or [ader.mark@epa.gov](mailto:ader.mark@epa.gov). Legal questions should be directed to Lori Houck Cora, Assistant Regional Counsel, at 206-553-1115, or [cora.lori@epa.gov](mailto:cora.lori@epa.gov).

Sincerely,



Daniel D. Opalski, Director  
Office of Environmental Cleanup

cc: w/enclosures  
Lori Houck Cora, EPA/ORC  
Mark Ader, EPA/ECL  
David Johnson, USACE OGC  
Christine Budai, USACE  
Michael Korten Hof, ODEQ

In accordance with Section 3013(c), 42 U.S.C. § 6934(c), the Corps must submit a proposal for carrying out the required work within thirty (30) days of issuance of the Order. We acknowledge the Corps has developed one or more draft work plans related to a facility investigation at the U.S. Moorings facility. The Corps may designate these draft plans as its proposal and, upon approval by EPA, EPA may determine such plans fulfill the Order's proposal requirement, as well as other work requirements specified in the Order and attached Statement of Work.

We look forward to work cooperatively to investigate the U.S. Moorings facility. Any technical questions can be directed to the Project Manager, Mark Ader, at 206-553-1849, or [ader.mark@epa.gov](mailto:ader.mark@epa.gov). Legal questions should be directed to Lori Houck Cora, Assistant Regional Counsel, at 206-553-1115, [cora.lori@epa.gov](mailto:cora.lori@epa.gov).

Sincerely,

Daniel D. Opalski, Director  
Office of Environmental Cleanup

cc: w/enclosures  
Lori Houck Cora, EPA/ORC  
Mark Ader, EPA/ECL  
David Johnson, USACE OGC  
Christine Dubai, USACE

HQ ?

CONCURRENCE:

LHC 10/12/07    See attached    CPM 10/14/07    PJ 10/15/07  
Cora                      Ader                      Mackey                      Yamamoto

[Signature] 10/17/07  
Kowalski

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION X  
1200 SIXTH AVENUE, SUITE 900  
SEATTLE, WASHINGTON 98101

IN THE MATTER OF:	)	UNILATERAL ADMINISTRATIVE
	)	ORDER
	)	
United States Army Corps of Engineers	)	
U.S. Moorings Facility	)	U.S. EPA Docket No:
8010 N.W. St. Helens Road,	)	RCRA-10-2008-0019
Portland, Oregon	)	
	)	
RESPONDENT	)	Proceeding under Section 3013(a) of the
	)	Resource Conservation and Recovery Act,
EPA I.D. No. #OR9960010701	)	as amended, 42 U.S.C. § 6934(a)

**RCRA SECTION 3013(a) ORDER REQUIRING MONITORING,  
TESTING, ANALYSIS AND REPORTING**

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**RCRA SECTION 3013(a) ORDER REQUIRING MONITORING,  
TESTING, ANALYSIS AND REPORTING**

**I. JURISDICTION**

1. This Administrative Order ("Order") is issued to the United States Army Corps of Engineers ("Respondent") by the United States Environmental Protection Agency ("EPA") pursuant to the authority vested in the Administrator of the EPA by Section 3013(a) of the Solid Waste Disposal Act, commonly referred to as the Resource Conservation and Recovery Act, as amended (referred to hereinafter as "RCRA" or "the Act"), 42 U.S.C. Section 6934(a). The Complainant is the Director, Office of Environmental Cleanup, Region X. The authority vested in the Administrator was delegated to the Regional Administrators by EPA Delegation No. 8-20 dated May 11, 1994 and was redelegated to the Director of the Office of Environmental Cleanup, Region X by EPA Regional Delegation No. R10 8-20, dated August 4, 2007.

2. The State of Oregon (the "State"), has a federally authorized State hazardous waste program pursuant to Section 3006 of RCRA, 42 U.S.C § 6926, and administers most RCRA requirements *in lieu* of the federal program. Under RCRA, whether or not a State has been authorized to operate a hazardous waste program, EPA retains its authority to issue orders pursuant to Section 3013(a) of the Act. EPA has notified the State that this Order is being issued and is providing a copy to the State.

3. This Order is issued to the United States Army Corps of Engineers, the current operator of the U.S. Moorings Facility located at 8010 N.W. St. Helens Road, Portland, Oregon ("Facility" or "Site"). The Director of the Office of Environmental Cleanup has been presented with information from which a determination has been made that the presence and/or the release of hazardous wastes, as defined by Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), at the US Moorings Facility may present a substantial hazard to human health or the environment, and hereby orders Respondent to conduct monitoring, testing, analysis and reporting to ascertain the nature and extent of such hazard.

**II. PARTIES BOUND**

4. This Order applies to and is binding upon Respondent and its employees, agents, contractors, successors and assigns.

5. No change in ownership of the property covered by this Order, shall in any way alter, diminish, or otherwise affect Respondent's obligations and responsibilities under this Order. Respondent shall be responsible and liable for any failure to carry out all activities required of Respondent by this Order, irrespective of its use of employees, agents, contractors, or consultants to perform any such tasks.

6. Respondent shall provide a copy of this Order to all supervisory personnel, contractors, subcontractors, laboratories, and consultants retained to conduct and/or monitor any portion of the work performed pursuant to this Order and shall do so within seven (7) calendar days of the

effective date of this Order or on the date of such retention, whichever is later. All contracts, agreements or other arrangements with such persons shall require such persons to conduct and/or monitor the work in accordance with the requirements of this Order. Notwithstanding the terms of any such contract, agreement or arrangement, Respondent is responsible for complying with this Order and for ensuring that all such persons perform such work in accordance with this Order.

7. Any documents transferring ownership and/or operation of the Facility from Respondent to a successor-in-interest shall include written notice of this Order. In addition, Respondent shall, no less than thirty (30) days prior to transfer of ownership or operation of the Facility, provide written notice of this Order to its successor-in-interest and written notice of said transfer of ownership and/or operation to EPA.

### III. FINDINGS OF FACT

8. Respondent is a department of the United States and is subject to the requirements of RCRA, including Section 3013 of RCRA, 42 U.S.C. Section 6934, in the same manner as a "person" as defined in Section 1004(15) of RCRA, 42 U.S.C. Section 6903(15), pursuant to Section 6001 of RCRA, 42 U.S.C. Section 6961.

9. Respondent is the owner and operator of United States Moorings Facility, located at 8010 N.W. St. Helens Road, Portland, Oregon (the "Facility" or "Site") within the meaning of Section 3013 of RCRA, 42 U.S.C. Section 6934.

10. Respondent has operated a civil works support facility at this location since 1904. Based on current information, Respondent has generated and/or managed solid waste and/or hazardous waste at the Facility in the following locations:

- (i) Shipyard operations located south of Building 20 and adjacent to and upon the Willamette River.
- (ii) Vehicle maintenance – A garage was constructed in 1937. The vehicle maintenance shop was Building 1, later converted to office and conference space in 1986.
- (iii) Outdoor sandblasting – Sandblasting was conducted at the outdoor storage area at the north portion of the site at least until 1992.
- (iv) Bulk petroleum storage – Two underground storage tanks were located onsite: one was removed in the 1980's and the other was removed in 1994. One above ground storage tank still remains at the site.
- (v) Three warehouses and a machine shop were constructed between 1940 through 1945 and continue to be used and operated as such.
- (vi) Laboratory services – A soils laboratory was constructed in 1938 and 1939.

11. The U.S. Moorings is a registered hazardous waste generator (#OR9960010701) and has generated and stored such wastes on the Facility. According to the RCRA Site Detail report the

Moorings facility has reported generating the following: D001, D002, D003, D007, D008, D009, D010, D011, D016, D018, D019, D028, D035, D039, D040, F003, F005, F027, U226, and U238. These wastes include those generated from epoxy painting and coating activities (e.g., brushes, rags, rollers, waste solvents, waste paint, lead scale or filings); ammonium solution from printer cleaning operations; laboratory analytical wastes; off-specification materials (aerosol cans, paints, lacquers, thinners, unleaded gasoline, corrosive liquids, lead contaminated grease, rust lick coolant, xylene, ethylene, glycolmono butyl ether, surfactant solution, methyl chloroform solution, pesticides, plastic polish, ammonia solution - 29.4%, isopropanol, tetrachloroethylene, sodium metasilicate and other degreasers, antifreeze and other coolants); waste flammable liquids from cleaning process equipment; PCB contaminated hexane, petroleum distillate (Stoddard solvent), petroleum solvents (methylene chloride, naphtha) from flush rinsing operations; hydrochloric acid solution from acid cleaning operations; sodium hydroxide solution from caustic cleaning operations; petroleum distillate from dip rinsing operations; waste batteries and battery acid from battery replacement; florescent lamps (mercury); and petroleum naphtha from tank sludge removal. See, Respondent's April 2007 RCRA Report.

12. In 1914, 1937, and 1940, Respondent placed dredged materials on its property to create additional upland property. The dredged material came from the Willamette River immediately adjacent to Respondent's Site. The Site is located immediately downstream from a former oil gasification plant that operated from 1913 through 1956. The oil gasification facility directly discharged waste effluent into a stream channel that discharged directly into the Willamette River. The former oil gasification facility has been the focus of an early removal action due to the high concentration of contaminated sediments adjacent to the site. Sediments in front of both the former oil gasification plant and the Site contain elevated levels of the following contaminants: polycyclic aromatic hydrocarbons, pesticides, lead, copper, zinc and dioxin (USACOE 2002). The fill material used to construct the Site may contain contaminants discharged from the former oil gasification plant.

13. Respondent performed several limited investigations at the Facility from 1990 through 2002 (USACOE 1989, 1994, and 1996). Metals detected in high concentrations in soils are typical of metals in sandblast grit used on the Facility. The following represent the maximum concentrations detected for several selected analytes based on soil samples collected during these investigations. The soil concentrations are compared to National Oceanographic and Atmospheric Administrative (NOAA) literature values for documented Probable Ecological Effects Concentrations (PEC) used for risk screening purposes at the Portland Harbor Superfund Site and the ongoing remedial investigation on the Willamette River: lead, 1300 mg/kg, (PEC = 128 mg/kg); copper, 11,000 mg/kg, (PEC = 149 mg/kg); zinc, 3,800 mg/kg, (PEC = 459 mg/kg); nickel, 4,800 mg/kg, (PEC = 48.60 mg/kg); chromium, 1,600 mg/kg, (PEC = 111 mg/kg); and arsenic, 190 mg/kg, (PEC = 33 mg/kg). See, "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems, MacDonald, et al., *Arch. Environ. Contam. Toxicol.* 39, 20-31, January, 2000.

14. An environmental removal action for sandblast grit and associated metals along with PAHs was performed in August 1993. This cleanup involved three areas on the west half of the Site. Two distinct areas were used exclusively for sandblasting and the grit was still at the time

a CERCLA Preliminary Assessment was conducted in 1994. A third area had visible oil staining in 1994 as well as. See, USCOE 1994 Preliminary Assessment.

15. Respondent performed sediment sampling on at least three occasions in 1989, 1994 and 1995. Sediment samples collected in front of the facility had maximum concentrations of the following: lead 3332 mg/kg, (PEC = 128 mg/kg); arsenic, 60 mg/kg (PEC = 190 mg/kg); chromium, 130 mg/kg (PEC = 111 mg/kg); copper, 140 mg/kg (PEC = 149 mg/kg); zinc, 638 mg/kg (PEC = 3.0 mg/kg); benzo(a)pyrene, 5500 ug/kg (PEC = 1450 ug/kg); naphthalene, 21000 ug/kg (PEC = 561 ug/kg); anthracene, 5500 ug/kg (PEC = 845 ug/kg); and, indeno(1,2,3-cd)pyrene, 3900 ug/kg (PEC = 100 ug/kg). See, MacDonald, et al.

16. The limited soil and sediment investigations performed by Respondent indicated that soils and sediments are contaminated with arsenic, copper, chromium, lead, zinc, and total PAHs above EPA Region 6 Risk Based Concentrations ("RBC") and/or Oregon Department of Environmental Quality's Joint Source Control Strategy screening level values for those contaminants, which incorporates many of the MacDonald PEC values. A total of 18 PAH compounds was detected in sediments and 14 of them exceeded their respective PEC. For example, the highest concentration of indeno(1,2,3-cd)pyrene was 3900 ug/kg while the PEC is 100 ug/kg, naphthalene was detected at a maximum concentration of 21000 ug/kg while the PEC is 561 ug/kg and pyrene was detected at a maximum concentration of 27000 ug/kg while the PEC is 1050 ug/kg. Additionally, metals found in sandblast grit are detected in sediment adjacent to the Facility at concentrations ranging from one to over 100 times the PEC.

17. In 1997, EPA completed an Expanded Site Inspection of the Willamette River in the Portland Harbor area to determine whether the Portland Harbor site should be added to the National Priorities List. Results from sediment samples analyzed for the investigation indicated that elevated concentrations of PAHs, metals, and pesticides existed in the river which qualified the site for placement on the National Priorities List in December 2000.

18. Many PAHs, such as benzo(a)anthracene, benzo(a)pyrene, and chrysene, are carcinogenic, causing tumors in fish and other animals, and are acutely toxic to some organisms. Noncarcinogenic PAHs, such as fluoranthene, phenanthrene, and pyrene, are also toxic to some organisms. The effects on aquatic organisms of the PAHs found in sediment at the Willamette River are unknown, but concentrations of benzo(a)pyrene as high as those observed in front of the facility can cause precancerous tumors in fish. (Eisler, R., 1987, Polycyclic aromatic hydrocarbon hazards to fish, wildlife, and invertebrates a synoptic review: Laurel, Md., Patuxent Wildlife Research Center, U.S. Fish and Wildlife Service, Biological Report 85 (1.11), 81 p.).

19. Metals and potential PAH contaminated soil and groundwater are a potential concern for total cancer risk for on-site workers and employees who may be exposed to elevated levels of those contaminants in soils and/or groundwater at the Facility.

#### IV. DETERMINATIONS AND CONCLUSIONS OF LAW

20. Respondent's Facility is a "facility or site" within the meaning of Section 3013(a) of

RCRA, 42 U.S.C. § 6934(a).

21. Respondent is a Department of the Executive Branch of the Federal Government and is subject to the requirements of Section 6001 of RCRA, 42 U.S.C. Section 6961.

22. Respondent is a "person" as defined in Section 1004(15) of RCRA, 42 U.S.C. Section 6903(15), and the current "owner" and/or "operator" of the Facility within the meaning of Section 3013(a) of RCRA, 42 U.S.C. Section 6934(a).

23. Section 1004(27) of RCRA, 42 U.S.C. § 6905(27) defines the term "solid waste" to mean "any garbage, refuse . . . and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations . . . ."

24. Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), defines the term "hazardous waste" to mean:

a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may —

(A) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

25. Copper, zinc, chromium, arsenic, benzo(a)pyrene, and benzo(a)anthracene as identified in Section III ("FINDINGS OF FACT"), above, are hazardous wastes within the meaning of 3013 of RCRA, 42 U.S.C. Section 6934.

26. Based on the foregoing Findings of Fact, and pursuant to Section 3013(a) of RCRA, 42 U.S.C. § 6934(a), EPA has hereby determined that the Facility, owned and/or operated by Respondent, is a facility at which hazardous waste is or has been stored, treated, or disposed of.

27. Based on the foregoing Findings of Fact, and pursuant to Section 3013(a) of RCRA, 42 U.S.C. § 6934(a), EPA has hereby determined that there may be a substantial hazard to human health or the environment due to the presence and/or release of hazardous wastes at or from the Facility.

28. EPA has further determined that Respondent, as owner/operator of the Facility, is the party responsible for conducting the actions ordered herein, which are necessary to ascertain the nature and extent of the hazard at the Facility.

## **V. ORDER**

29. Based on the Findings of Fact and Determinations and Conclusions of Law, Respondent is hereby ordered, pursuant to Section 3013(a) of RCRA, 42 U.S.C. § 6934(a), to submit three (3) copies of a written proposal to EPA, within thirty (30) days of the issuance of this Order, for carrying out the monitoring, testing, analysis, and reporting to ascertain the nature and extent of the hazard posed by the hazardous wastes that are present at or that may have been released from the Respondent's Facility. Respondent is hereby ordered to implement such written proposal once approved, or modified and approved, by EPA. EPA hereby orders that Respondent comply with the following monitoring, testing, analysis and reporting provisions, including, but not limited to, requirements set forth in all attachments to this Order and schedules and deadlines in this Order, attached to this Order, or incorporated into the Order upon EPA's approval of any work plan, report, deliverable, or other submission.

30. The attached Statement of Work ("SOW") provides the scope of the monitoring, testing, analysis and reporting required by this Order, subject to Section VI. below. All work undertaken pursuant to this Order shall be developed and performed in accordance with the attached SOW.

31. EPA acknowledges that Respondent may have completed some of the tasks required by this Order and that Respondent may have developed one or more draft work plans required by this Order, namely, Draft Final Management Plan for Remedial Investigation Work Plan, U.S. Government Moorings, Portland, Oregon; Sampling and Analysis Plan, U.S. Government Moorings, and Quality Assurance Project Plan. Respondent may designate these draft plans as its proposal required by Paragraph 29 above, and, upon approval by EPA, EPA may determine such plans fulfill other document requirements under this Order and the SOW.

## **VI. ADDITIONAL WORK**

32. EPA may determine that additional monitoring, testing, analysis, and/or reporting is necessary to ascertain the nature and extent of any hazard to human health or the environment which may be presented by the presence of hazardous wastes at and/or released from the Facility. If EPA determines that such additional work is necessary, EPA will notify Respondent in writing and specify the basis for its determination that additional work is necessary. Within fifteen (15) days after the receipt of such determination, Respondent shall have the opportunity to meet or confer with EPA to discuss the additional work. If required by EPA, Respondent shall submit for EPA approval a workplan for the additional work. EPA will specify the contents of such workplan. Such workplan shall be submitted by Respondent within thirty (30) days of receipt of EPA's determination that additional work is necessary, or according to an alternative schedule established by EPA.

## **VII. MINIMUM QUALIFICATIONS FOR PERSONNEL**

33. All work performed by Respondent pursuant to this Order shall be under the direction and supervision of an individual who has demonstrated expertise in hazardous waste site

investigation. Before any work is performed, but no later than ten (10) calendar days after the effective date of this Order, Respondent shall submit to EPA, in writing, the name, title, and qualifications of the supervisory personnel and of any contractors or subcontractors to be used in carrying out the terms of this Order.

#### **VIII. SUBMISSIONS/EPA REVIEW AND APPROVAL**

34. EPA will review Respondent's written proposals, workplans, interim deliverables, draft and final reports, and any other documents required to be submitted under this Order ("submissions"). EPA may: (a) approve the submission; (b) approve the submission with modifications; (c) disapprove the submission and direct Respondent to re-submit the document after incorporating EPA's comments; or (d) disapprove the submission and assume responsibility for performing all or any part of the work. EPA may also approve, modify, or disapprove of a portion of a submission. As used in this Order, the terms "approval by EPA," "EPA approval," or a similar term means the action described in (a) or (b) of this paragraph.

35. Prior to EPA's written approval (with or without modifications), no written proposal, workplan, report, or other submission shall be construed as approved and final. Oral advice, suggestions, or comments given by EPA representatives will not constitute approval, nor shall any oral approval or oral assurance of approval be considered as binding.

36. Within thirty (30) calendar days of receipt of EPA's disapproval and comments on the submission, or request for modifications, unless a different schedule is approved by EPA, Respondent shall submit to EPA for approval a revised submission, which responds to any comments received and/or corrects any deficiencies identified by EPA, or incorporates any modifications required by EPA. EPA will review the revised submission and will either approve or disapprove of the Submission and notify Respondent. In the event EPA disapproves the revised submission, EPA reserves the right to revise such Submission and seek to recover from Respondent the costs thereof, in accordance with the Section 3013(d) of RCRA, 42 U.S.C. § 6934(d) or any other applicable law. Notwithstanding the notice of disapproval, or approval with modifications, Respondent shall proceed, at the direction of EPA, to take any action required by any approved portion of the submission.

37. Within ten (10) days following EPA approval of a submission or portion thereof, Respondent shall implement such approved document or portion thereof, unless EPA has approved a different schedule for implementation of the document.

38. Any Submission approved or revised by EPA under this Order shall be deemed incorporated into and made an enforceable part of this Order. Any noncompliance with an EPA-approved submission shall constitute noncompliance with this Order.

39. For all Submissions required by this Order, three (3) hard copies shall be hand-delivered or sent via overnight mail, Return Receipt Requested, or other means that yield confirmation of delivery, and one (1) electronic copy shall be sent to the EPA Project Coordinator designated pursuant to Section XIV. ("PROJECT COORDINATORS"), below.

40. In all instances in which this Order requires written submissions to be submitted to EPA, each submission shall be certified by a duly authorized representative of Respondent. A person is a "duly authorized representative" only if: (1) the authorization is made in writing; (2) the authorization specifies either an individual or position having responsibility for overall operation of the Site or activity (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and (3) the written authorization is submitted to the Project Coordinator designated by EPA Section XIV. ("PROJECT COORDINATORS") of this Order.

41. The certification required by Paragraph 40, above, shall be in the following form:

I certify that the information contained in or accompanying this [type of submission] is true, accurate, and complete.

As to [the/those identified portion(s)] of this [type of submission] for which I cannot personally verify [its/their] accuracy, I certify under penalty of law that this [type of submission] and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature : \_\_\_\_\_

Name : \_\_\_\_\_

Title : \_\_\_\_\_

#### **IX. QUALITY ASSURANCE/QUALITY CONTROL**

42. Respondent shall follow EPA guidance for sampling and analysis. Respondent shall develop a Quality Assurance Project Plan ("QAPP") for all sampling and analysis conducted under this Order. Work plans shall contain quality assurance/quality control ("QA/QC") and chain of custody procedures for all sampling, monitoring, and analytical activities. Any deviations from the QA/QC and chain of custody procedures in approved work plans must be approved by EPA prior to implementation; must be documented, including reasons for the deviations; and must be reported in the applicable report.

43. The name, address, telephone number, and contact person of each analytical laboratory Respondent proposes to use must be specified in the applicable work plan.

44. All work plans required under this Order shall include data quality objectives for each data collection activity to ensure that data of known and appropriate quality are obtained and that data are sufficient to support their intended use(s).

45. Respondent shall monitor to ensure that high quality data is obtained by its consultant or contract laboratories. Respondent shall ensure that laboratories used by Respondent for analysis perform such analysis according to the latest approved edition of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846 Third Ed., as amended by Update one, July 1992), or other methods deemed satisfactory to EPA. If methods other than EPA methods are to be used, Respondent shall specify and submit all such protocols for EPA approval in the work plan. EPA may reject any data that does not meet the requirements of the approved work plan or EPA analytical methods and may require resampling and additional analysis.

46. Respondent shall ensure that laboratories it uses for analyses participate in a QA/QC program equivalent to that which is followed by EPA. EPA may conduct a performance and QA/QC audit of each laboratory chosen by Respondent before, during, or after sample analyses. Upon request by EPA, Respondent shall have its laboratory perform analyses of samples provided by EPA to demonstrate laboratory performance. If the audit reveals deficiencies, EPA may require Respondent use a different laboratory.

#### **X. IMMINENT AND SUBSTANTIAL ENDANGERMENT**

47. Notwithstanding any other provision of this Order, an enforcement action may be brought against Respondent, pursuant to Section 7003 of RCRA, 42 U.S.C. § 6973, and/or any other applicable statutory or regulatory authority, should EPA find that the handling, storage, treatment, transportation or disposal of solid waste or hazardous waste at Respondent's Facility may present an imminent and substantial endangerment to human health or the environment.

#### **XI. SAMPLING AND DATA/DOCUMENT AVAILABILITY**

48. Respondent shall submit to EPA the results of all sampling and/or tests or other data generated by, or on behalf of, Respondent in accordance with the requirements of this Order.

49. Respondent shall notify EPA and the State, in writing, at least fourteen (14) calendar days in advance of any field activities, including but not limited to, well drilling, installation of equipment, or sampling. At the request of EPA, Respondent shall provide or allow EPA or its authorized representatives to take split or duplicate samples of all samples collected by Respondent pursuant to this Order. Nothing in this Order shall limit or otherwise affect EPA's authority to collect samples pursuant to applicable law, including, but not limited to, RCRA and the Comprehensive Environmental Restoration Compensation and Liability Act, 42 U.S.C. § 9601, et seq. ("CERCLA").

## **XII. ON-SITE AND OFF-SITE ACCESS**

50. Respondent shall provide access at all reasonable times to the Facility and to all records and documentation relating to conditions at the Facility and the activities conducted pursuant to this Order to EPA and its employees, contractors, agents, consultants, and representatives. These individuals shall be permitted to move freely at the Facility in order to conduct activities which EPA determines necessary.

51. To the extent that property wherein work required by this Order must be undertaken is presently owned or controlled by parties other than Respondent, Respondent shall use its best efforts to obtain site access agreements in a timely manner from the present owners of the property. Best efforts shall include, but not be limited to, agreement to reasonable conditions for access, a referral to the Department of Justice for the issuance of an access order, and/or the payment of reasonable fees. Such access agreements shall be finalized as soon as practicable but no later than forty-five (45) calendar days after the effective date of this Order. Such agreements shall provide reasonable access for Respondent and its employees, agents, consultants, contractors and other authorized and designated representatives to conduct the work, and for EPA and its designated representatives. In the event that any property owner refuses to provide such access or access agreement are not obtained within the time designated above, whichever occurs sooner, Respondent shall notify EPA at that time, in writing, of all efforts to obtain access and the circumstances of the failure to obtain such access. EPA may, in its sole, unreviewable discretion, take steps to provide such access. Respondent shall reimburse EPA for all costs incurred in obtaining access, including, but not limited to, attorneys fees and the amount of any just compensation and costs incurred by EPA.

52. Nothing in this Order limits or otherwise affects EPA's rights of access and entry pursuant to applicable law, including but not limited to, RCRA and CERCLA.

## **XIII. RECORD PRESERVATION**

53. Respondent shall retain, during the pendency of this Order and for a minimum of at least seven (7) years after its termination, all data, records and documents in its possession or in the possession of its divisions, officers, directors, employees, agents, contractors, successors, and assigns which relate in any way to this Order or to hazardous waste management and/or disposal at the Facility. After seven (7) years, Respondent shall make such records available to EPA for inspection or shall provide copies of such records to EPA. Respondent shall notify EPA at least ninety (90) calendar days prior to the proposed destruction of any such records, and shall provide EPA with a reasonable opportunity to inspect, copy and/or take possession of any such records. Respondent shall not destroy any record to which EPA has requested access for inspection and/or copying until EPA has obtained such access or withdrawn its request for such access. Nothing in this Section XIII. shall in any way limit the authority of EPA under Section 3007 of RCRA, 42 U.S.C. Section 6927, or any other access or information-gathering authority. Additionally, Respondent shall provide data, records, and documents retained under this Section at any time before the expiration of the seven (7) year period at the written request of EPA.

#### XIV. PROJECT COORDINATORS

54. EPA hereby designates Mark Ader as the EPA Project Coordinator. EPA understands that Chris Dubai is the Respondent's Project Coordinator. Within ten (10) calendar days of the effective date of this Order, Respondent shall notify EPA, in writing, of the Project Coordinator it has selected, if not Ms. Dubai. Respondent's legal counsel shall not serve as Respondent's Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of the Order. The EPA Project Coordinator will be EPA's primary designated representative at the Facility. To the maximum extent possible, all communications between Respondent and EPA, and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the Project Coordinators.

55. Respondent shall provide at least seven (7) calendar days written notice to EPA prior to its changing Project Coordinator.

56. If EPA determines that conditions or activities at the Facility, whether or not in compliance with this Order, have caused or may cause a release or threatened release of hazardous wastes, hazardous constituents, hazardous substances, pollutants or contaminants which threaten or may pose a threat to the public health or welfare or to the environment, EPA may direct that Respondent stop further implementation of this Order for such period of time as may be needed to abate any such release or threatened release and/or to undertake any action which EPA determines is necessary to abate such release or threatened release.

57. The absence of the EPA Project Coordinator from the Facility shall not be cause for the delay or stoppage of work.

#### XV. NOTIFICATION

58. Unless otherwise specified reports, correspondence, approvals, disapprovals, notices, or other submissions relating to or required under this Order shall be in writing and shall be sent as follows:

Three hard copies and one electronic copy of all documents to be submitted to the EPA shall be sent to:

Mark Ader  
U.S. Environmental Protection Agency  
Region X, Mail Code ECL-115  
1200 Sixth Avenue, Suite 900  
Seattle, Washington 98101  
(206) 553-1849  
[ader.mark@epa.gov](mailto:ader.mark@epa.gov)

One (1) copy of all documents to be submitted to EPA shall also be sent to:

James M. Anderson  
DEQ Northwest Region  
2020 SW Fourth Ave., Ste. 400  
Portland, Oregon 97201  
[Anderson.jim@deq.state.or.us](mailto:Anderson.jim@deq.state.or.us)

Rick Keplar  
Oregon Department of Fish and Wildlife  
2501 SW First Avenue  
Portland, Oregon 97207  
[Rick.j.keplar@state.or.us](mailto:Rick.j.keplar@state.or.us)

Rob Neely  
Coastal Resources Coordination  
c/o EPA Region 10  
1200 Sixth Avenue (MS ECL-117)  
Seattle, Washington 98101  
[Neely.rob@epa.gov](mailto:Neely.rob@epa.gov)

Dr. Nancy Munn  
NOAA Fisheries  
525 NE Oregon Street, Ste. 500  
Portland, Oregon 97232-2737  
[Nancy.munn@noaa.gov](mailto:Nancy.munn@noaa.gov)

Jeremy Buck  
US Fish & Wildlife Service  
2600 SE 98<sup>th</sup> Avenue, Ste. 100  
Portland, Oregon 97266  
[Jeremy\\_buck@rl.fws.gov](mailto:Jeremy_buck@rl.fws.gov)

Preston Sleeper  
Regional Environmental Officer  
Pacific Northwest Region  
500 NE Multnomah St., Ste. 356  
Portland, Oregon 97232  
[reopn@mindspring.com](mailto:reopn@mindspring.com)

Brian Cunninghame  
Confederated Tribes of the Warm Springs Reservation of Oregon  
5520 Skyline Drive  
Hood River, Oregon 97031  
[cunninghame@gorge.net](mailto:cunninghame@gorge.net)

Jeff Baker  
Confederated Tribes of the Grand Ronde Community of Oregon  
47010 SW Hebo Road  
P. O. Box 10  
Grand Ronde, Oregon 97347  
[Jeff.baker@grandronde.org](mailto:Jeff.baker@grandronde.org)

Rose Longoria  
Confederated Tribes and Banks of the Yakama Nation  
[rose@yakama.com](mailto:rose@yakama.com)

Tom Downey  
Confederated Tribes of the Siletz Indians  
201 SE Swan Avenue  
P.O. Box 549  
Siletz, Oregon 97380  
[tom@ctsi.nsn.us](mailto:tom@ctsi.nsn.us)

Audie Huber  
Confederated Tribes of the Umatilla Indian Reservation  
P.O. Box 638  
Pendleton, Oregon 97801  
[audiehuber@ctuir.org](mailto:audiehuber@ctuir.org)

Erin Madden, Esq.  
On behalf of the Nez Perce Tribe  
4803 SE Woodstock, #135  
Portland, Oregon 97206  
[erin.madden@gmail.com](mailto:erin.madden@gmail.com)

Documents to be submitted to Respondent shall be sent to:

Ms. Chris Budai  
U.S. Army Corps of Engineers  
333 SW First Avenue  
Portland, OR 97204-3495  
[Christine.M.Budai@usace.army.mil](mailto:Christine.M.Budai@usace.army.mil)

#### **XVI. INFORMATION SUBMITTED TO EPA**

59. Any information that Respondent is required to provide or maintain pursuant to this Order is not subject the Paperwork Reduction Act of 1995, 44 U.S.C. § 3501 *et seq.*
60. Respondent may assert a business confidentiality claim in the manner described in 40 CFR § 2.203(b) covering all or part of any information submitted to EPA pursuant to this Order.

In accordance with 40 CFR § 2.204(e)(4), any assertion of confidentiality shall be adequately substantiated by Respondent when the assertion is made. Information submitted for which Respondent has asserted a claim of confidentiality as specified above shall be disclosed by EPA only to the extent and manner permitted by 40 CFR Part 2, Subpart B. If no such confidentiality claim accompanies the information when it is submitted to EPA, the information may be made available to the public by EPA without further notice to the Respondent. Respondent cannot assert any confidentiality claim with respect to any physical, sampling, monitoring, or analytical data.

## **XVII. RESERVATION OF RIGHTS**

61. EPA expressly reserves all rights and defenses that it may have, including the right to disapprove of work performed by Respondent pursuant to this Order, to require that Respondent correct and/or modify any work disapproved by EPA, and to request that Respondent perform additional work, and/or conduct the work itself.

62. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, including any which may pertain to Respondent's failure to comply with any of the requirements of this Order. This Order shall not be construed as a covenant not to sue, or as a release, waiver or limitation of any rights, remedies, powers and/or authorities, civil or criminal, which EPA has under RCRA, CERCLA, or any other statutory, regulatory or common law authority.

63. Compliance by Respondent with the terms of this Order shall not relieve Respondent of its obligations to comply with RCRA or any other applicable local, state, and/or federal laws and regulations.

64. The execution of this Order shall not limit or otherwise preclude EPA from taking additional action pursuant to RCRA, CERCLA, or any other authority, should EPA determine that such action is warranted.

65. This Order is not intended to be, nor shall it be construed as, a permit. This Order does not relieve Respondent of any obligation to obtain and comply with any local, state, or federal permit or approval.

66. EPA reserves the right to perform any portion of the work required herein or any additional site characterization, feasibility study, and response/corrective actions it deems necessary to protect public health or welfare or the environment. EPA may exercise its authority under RCRA, CERCLA or any other appropriate authority to undertake or require the performance of response actions at any time. EPA reserves the right to seek reimbursement from Respondent for costs incurred by the United States in connection with any such response actions or for costs of performing any activity or work required by this Order. Notwithstanding compliance with the terms of this Order, Respondent is not released from liability, if any, for the costs of any response actions taken by EPA.

67. EPA reserves whatever rights it may have under CERCLA or any other law, or in equity, to recover from Respondent any costs incurred by EPA in overseeing the implementation of this Order.

### XVIII. OPPORTUNITY TO CONFER

68. Within five (5) calendar days of Respondent's receipt of this Administrative Order, the Army's Assistant Secretary on behalf of Respondent may request an opportunity to confer on this Order with the Regional Administrator for EPA Region X. Such request shall be in writing and identify the issues which the Assistant Secretary wishes the Regional Administrator of Region X to consider. The Regional Administrator will notify the Assistant Secretary of the arrangements and time for the conference.

69. The purpose of the conference shall be to discuss the issues that Respondent would like the Regional Administrator to consider in connection with this Order, the implementation of the actions required by this Order, and whether Respondent intends to comply with the Order. No official stenographic record of the conference will be made. After the conference, the Regional Administrator will determine the status of the effectiveness of this Administrative Order and so notify the Assistant Secretary in writing.

70. In order to request an opportunity to confer with the EPA Administrator, the Assistant Secretary must first confer with the Regional Administrator as set forth in Paragraphs 68 and 69, above. Within ten (10) calendar days of the Assistant Secretary's receipt of the Regional Administrator's determination, if the Secretary of the Army wishes to confer with the EPA Administrator, either through an exchange of letters or through a direct meeting, the Secretary of the Army must file a written request addressed to the EPA Administrator seeking an opportunity to confer with the EPA Administrator. The request should be served on the EPA Administrator with a copy to the Director of EPA's Federal Facilities Enforcement Office and the Regional Counsel for Region X. The letter requesting the conference should specifically identify those issues which Respondent wishes the EPA Administrator to consider.

71. If the Secretary of the Army wishes to confer with the EPA Administrator through a direct meeting, the request for a conference should also specifically identify the issue(s) that the Army proposes to discuss with the EPA Administrator, as well as the person(s) who will represent Respondent. In addition, as part of its request for a conference either through an exchange of letters or a direct meeting, the Secretary of the Army should attach copies of all necessary information regarding the issue(s). Failure to request a conference within the ten (10) calendar day period will be deemed a waiver of the right to confer with the EPA Administrator.

72. If the conference is to be conducted through a direct meeting, representatives of Respondent and EPA other than the Secretary of the Army and the EPA Administrator may request to be present during the conference. This request to attend the conference should likewise be in writing and served on the Director, EPA's Federal Facilities Enforcement Office, and EPA Region X's Regional Counsel and Respondent's counsel. After a determination is

made that a direct conference will occur, the EPA Administrator will notify the Secretary of the Army and Regional Counsel and Respondent's counsel.

73. After the conference, the EPA Administrator will issue a written decision with appropriate instruction regarding the finality of this Administrative Order. This decision shall be made part of the administrative record. The decision and this Administrative Order, as amended by the Administrator's decision, if applicable, shall be effective within five (5) calendar days of receipt of the Administrator's decision.

#### **XIX. POTENTIAL CONSEQUENCES OF FAILURE TO COMPLY**

74. If EPA determines that Respondent is not able to conduct the activities required by this Order in a satisfactory manner, or if actions carried out by Respondent are deemed unsatisfactory, then EPA or its representatives may conduct such monitoring, testing, and analysis deemed reasonable by EPA to ascertain the nature and extent of the hazard at the property and/or Facility of Respondent. Respondent may then be ordered to reimburse EPA or its representatives, for the costs of such activity pursuant to Section 3013(d) of RCRA, 42 U.S.C. § 6934(d).

75. In the event Respondent fails or refuses to comply with a term or provision of this Order, EPA may issue an order assessing a civil penalty for each day of non-compliance and/or requiring compliance pursuant to RCRA Section 3008, 42 U.S.C. § 6928.

76. Violation of this Order, or failure or refusal to comply with this Order including investigation, record keeping, reporting, and schedules of compliance, may subject Respondent to a citizen's suit under RCRA, as provided in RCRA Section 7002, 42 U.S.C. Section 6972.

77. In the event of any action filed under Section 7002(a) of RCRA, alleging any violation of this Order, it shall be presumed that this Order, including those provisions which address investigation, record keeping, reporting, and schedules of compliance, are requirements standards, and conditions, and are thus enforceable under Section 7002(a).

#### **XX. OTHER CLAIMS**

78. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership, or corporation, or other entity for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, solid wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

#### **XXI. OTHER APPLICABLE LAWS**

79. All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations.

Respondent shall obtain or require its authorized representatives to obtain all permits and approvals necessary under such laws and regulations.

## **XXII. NOTICE OF NON-LIABILITY OF EPA**

80. EPA shall not be deemed a party to any contract involving Respondent and relating to activities at the Facility and shall not be liable for any claim or cause of action arising from or on account of any act or omission of Respondent, its employees, contractors, agents or assigns, in carrying out the activities required by this Order.

## **XXIII. SUBSEQUENT MODIFICATION**

81. This Order may only be modified by written amendment signed by the undersigned EPA Region X Director of the Office of Environmental Cleanup. Modifications in any schedule adopted pursuant to this Order may be made in writing by EPA's Project Coordinator.

82. Any reports, plans, specifications, schedules, other submissions and attachments required by this Order are, upon written approval by EPA, incorporated into this Order. Any non-compliance with such EPA-approved reports, plans, specifications, schedules, other submissions and attachments shall be considered a violation of this Order and shall subject Respondent to possible enforcement action pursuant to applicable law.

83. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondent shall be construed as relieving Respondent of its obligation to obtain written approval, if and when required by this Order, and to comply with the requirements of this Order unless formally modified by EPA.

## **XXIV. SEVERABILITY**

84. If any provision or authority of this Order or the application of this Order to any party or circumstance is held by any judicial or administrative authority to be invalid, the application of such provision to other parties or circumstances and the remainder of this Order shall not be affected thereby and shall remain in full force.

## **XXV. TERMINATION AND SATISFACTION**

85. The provisions of this Order shall be deemed satisfied upon Respondent's receipt of written notice from EPA that Respondent has demonstrated, to the satisfaction of EPA, that the terms of this Order, including any additional work determined by EPA to be required pursuant to this Order, have been satisfactorily completed. This notice shall not, however, terminate Respondent's obligation to comply with any continuing obligations hereunder including, but not limited to, Sections XIII. ("RECORD PRESERVATION"), XVII. ("RESERVATION OF RIGHTS"), XX. ("OTHER CLAIMS"), XXI ("OTHER APPLICABLE LAWS"), and XXII. ("NOTICE OF NON-LIABILITY OF EPA").

**XXVI. NOTICE OF INTENT TO COMPLY**

86. Respondent shall notify EPA's Project Coordinator of whether Respondent intends to comply within five (5) days from the effective date this Order as set forth in Section XXVIII. ("EFFECTIVE DATE"), below. Failure of Respondent to provide notification to EPA's Project Coordinator of intent to comply within the time period specified shall be deemed a violation of this Order by Respondent.

**XXVII. EFFECTIVE DATE**

87. This Order shall become effective within six (6) calendar days of receipt of this Order if no conference with the Regional Administrator is requested pursuant to Section XVIII. of this Order. If Respondent requests a conference with the EPA Administrator in the time and manner provided in Section XVIII. above, this Order shall become effective within five (5) calendar days of Respondent's receipt of the Regional Administrator's determination. If a conference with the EPA Administrator is requested in the time and manner provided in Section XVIII, above, the Order shall become effective within five (5) calendar days of Respondent's receipt of the EPA Administrator's decision.

IT IS SO ORDERED:

DATE: 23 October 2007

BY:   
DANIEL OPALSKI  
DIRECTOR, OFFICE OF  
ENVIRONMENTAL CLEANUP  
UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY, REGION X

U.S. Government Moorings  
Portland, OR

ATTACHMENT 1

STATEMENT OF WORK  
FOR THE RCRA 3013 ORDER  
U.S. ARMY CORPS OF ENGINEERS MOORINGS FACILITY

October 2007

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## GLOSSARY

ARAR	Applicable or Relevant and Appropriate Requirement
AST	above-ground storage tank
bgs	below ground surface
BA	Biological Assessment
BHC	alpha-benzene hexachloride
CDF	Confined Disposal Facility
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
COC	contaminant of concern
COI	contaminant of interest
CQA	Construction Quality Assurance
CQAP	Construction Quality Assurance Plan
CSM	Conceptual Site Model
CWA	Clean Water Act
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenylethylene
DDT	dichlorodiphenyltrichloroethane
DEQ	State of Oregon Department of Environmental Quality
DQO	Data Quality Objective
EE/CA	Engineering Evaluation/Cost Analysis
ERL	Effects Range Low
ERM	Effects Range Medium
ESA	Endangered Species Act
FS	Feasibility Study
FSP	Field Sampling Plan
GIS	Geographic information system
HASP	Health and Safety Plan
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
IC	Institutional control
ICIP	Institutional Control Implementation Plan
LPAH	low-molecular-weight polycyclic aromatic hydrocarbon
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NCP	National Contingency Plan
ng/kg	nanograms per kilogram
Order	Administrative Order on Consent,
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PAH	polycyclic aromatic hydrocarbons
PBT	Persistent Bioaccumulative Toxins
PCB	polychlorinated biphenyls
PEC	Probable Effects Concentrations
QA	Quality Assurance

## GLOSSARY (CONT.)

QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAO	Removal Action Objectives
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
RM	river mile
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SOW	Statement of Work
SQO	Sediment Quality Objective
SVOC	semivolatile organic compounds
TBC	To be considered
TBT	tributyltin
TCDD	tetrachlorodibenzo-p-dioxin
TCLP	toxicity characteristics leaching procedure
TEC	Threshold Effects Concentrations
TEL	Threshold Effects Levels
TPH	total petroleum hydrocarbons
TSS	total suspended solids
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compounds

## 1.0 INTRODUCTION

### 1.1. GENERAL

This Statement of Work (SOW) outlines the monitoring, testing, analysis, and reporting (hereinafter referred to as "facility investigation" and/or "Work") to be performed with respect to the U.S. Moorings Site in compliance with the Unilateral Administrative Order, Docket No. 10-2008-0019 issued to the United States Army Corps of Engineers (hereafter referred to as the "Order"). Technical work described in the SOW is intended to complement, add to, and be consistent with the Order and is not intended to change the meaning of any defined term in the Order.

Section 3013 of RCRA, 42 U.S.C. §6934, provides that the United States Environmental Protection Agency ("USEPA") may require the owner or operator of a facility or site, at which hazardous waste is, or has been, stored, treated, or disposed of which may present a substantial hazard to human health or the environment, to conduct such monitoring, testing, analysis, and reporting with respect to the facility or site as USEPA deems reasonable to ascertain the nature and extent of such hazard. Given that the U.S. Moorings Site is within the Portland Harbor Superfund Site, all monitoring, testing, analysis, and reporting conducted at the Site must be consistent with the in-water RI/FS being conducted under the Settlement Agreement and Administrator Order on Consent, Docket No. 10-2001-0240 and, to the maximum extent practicable, to the Joint Source Control Strategy issued by USEPA and the Oregon Department of Environmental Quality to implement upland source control on sources to the Portland Harbor Superfund Site.

- Section 1.0 Introduction.** Provides the general introduction, purpose, and scope of the project.
- Section 2.0 Facility Investigation Objectives.** Provides the facility investigation objectives for the Site.
- Section 3.0 Facility Investigation.** Describes the specific tasks that USACE will perform to implement field investigations, prepare a characterization report, including a baseline risk assessment, and collect sediment data that will be incorporated into the RI/FS being completed by the Lower Willamette Group under a settlement agreement and consent order with EPA.
- Section 4.0 Schedule.** Provides the Milestone schedule for submitting deliverables required under this SOW.
- Section 5.0 Electronic Data Submittal.** Describes the requirements for submittal of data to Oregon Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (USEPA) in electronic format.
- Section 6.0 References.** Provides the references cited to support the SOW.

## **PURPOSE AND SCOPE**

### **1.1.1. Purpose of SOW**

The primary purposes of this SOW are: (1) set forth the requirements for investigation and characterization of the nature and extent of contamination at the Site; (2) report all monitoring, testing, and analysis information deemed necessary by USEPA to ascertain the nature and extent of any hazards; (3) perform a baseline risk assessment; and (4) provide sampling data and other relevant information gathered under this Order that may be useful for the Portland Harbor Superfund Site RI/FS.

The USACE will furnish all necessary personnel, materials, and services needed for, or incidental to, characterizing the nature and extent of contamination at the Site and sources of contaminants to the Willamette River.

### **1.1.2. Scope of Upland Facility Investigation**

Investigation activities shall be completed in accordance this SOW and on the schedule contained in Section 4 below.

The USACE will coordinate monthly meetings and/or teleconferences with USEPA, and to include DEQ, the Tribes, and the Natural Resource Trustees, to discuss the status of work described in this SOW. Monthly meetings may be cancelled or postponed upon agreement between USEPA and the USACE.

The facility investigation to be completed under this SOW shall include preparation, delivery, and implementation of the following:

1. Facility Investigation Work Plan (FIWP) (draft and final);
2. Sampling and Analysis Plan (SAP) (draft and final);
3. Health and Safety Plan (HSP) (draft and final);
4. Risk Assessment Work Plan (RAWP) (draft and final) can be included in FIWP
5. Investigation-derived Waste Plan (draft and final);
6. Characterization Report and other Interim Deliverables (draft and final);
7. Facility Investigation Report (draft and final);

The Work will be consistent with guidance that USEPA uses in conducting RCRA Facility Investigations ("RFI") and Remedial Investigations ("RI") under CERCLA. For example, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. USEPA, Office of Emergency and Remedial Response, October 1988), and Data Quality Objectives (DQOs) planning process (EPA QA/R-5, March 2001). USEPA is aware that all guidance used for RFI and RI purposes may not be applicable to this Site. USEPA's Project Manager for the Site will determine when application of any guidance would be inappropriate. The USACE may raise such guidance issues they consider inappropriate during implementation of the Order.

## PROJECT ORGANIZATION

The SOW will be implemented by USACE Portland District under the administrative oversight of the USEPA in consultation with the Support Agencies, DEQ and Tribal Governments, and Natural Resource Trustee Agencies.

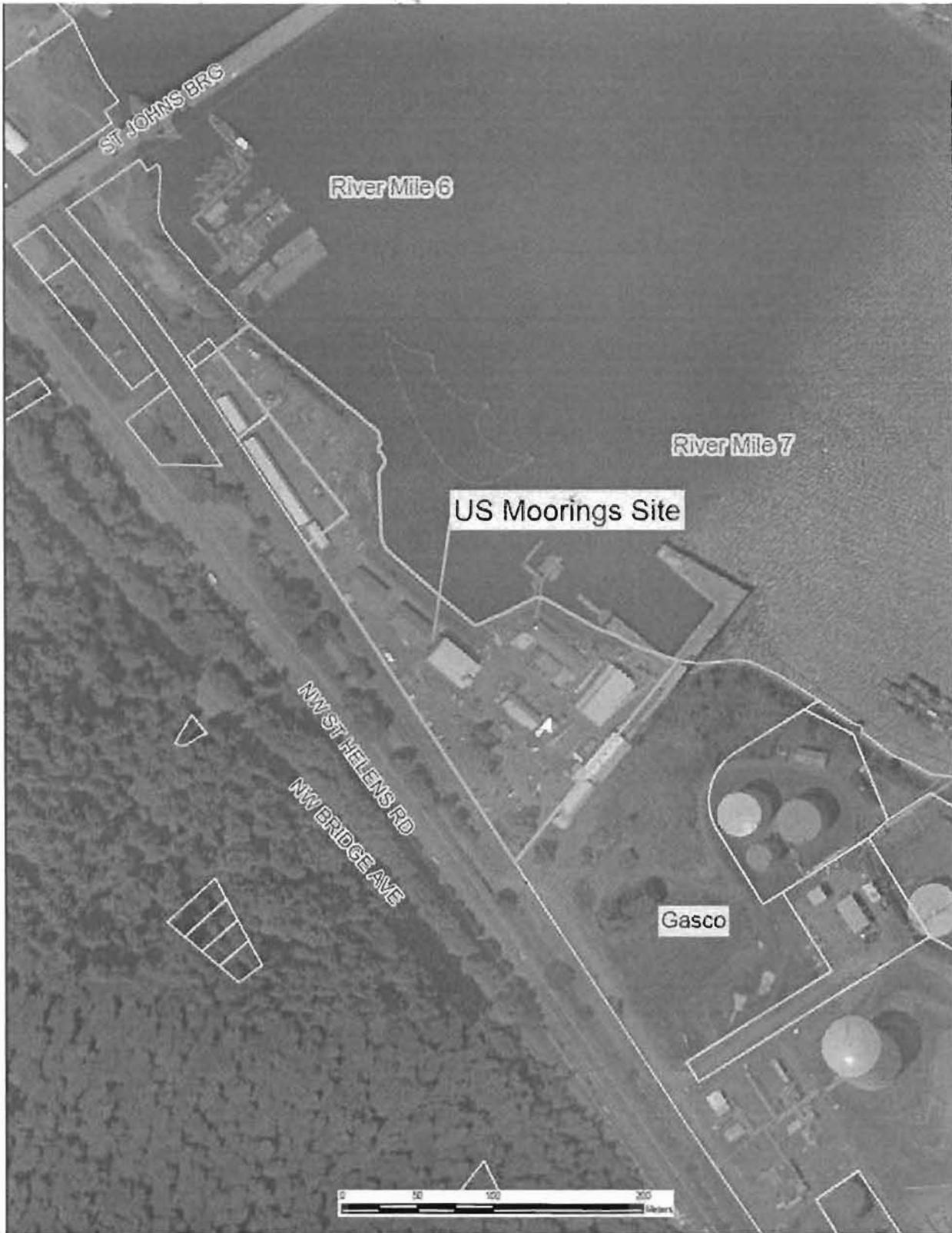


Figure 1.1. Location of U.S. Moorings Site.

## **2.0 FACILITY INVESTIGATION OBJECTIVES**

The primary objectives of the upland investigation for the Site are as follows:

1. Further determine the nature and extent of contaminants at the Site through traditional site characterization methods or utilizing a multi-increment soil sampling approach as directed by the USEPA project manager.
2. Determine the nature and extent of Site contaminants of concern in the sediments of the Willamette River.
3. Estimate the contaminant migration pathways including fluxes and rates through zones of migration.
4. Characterize any non-aqueous phase liquids (NAPL) in the soil or groundwater within the Site.
5. Assess hazards to human health and the environment from upland contamination.
6. Identify federal and state laws that are applicable to the site remediation.
7. Develop a conceptual site model.

## **3.0 FACILITY INVESTIGATION**

### **3.1. WORK TO BE PERFORMED BY USACE**

#### **Task 1 – Scoping**

USACE will initiate the effort by preparing an facility investigation work plan. The project scope must consider 1) constituents of potential concern at the Site, 2) known or suspected sources of soil, groundwater, sediment and surface water (including storm water) contamination for such constituents, including information and data generated from previous investigations, and 3) the reasonably anticipated future use or uses of the Site, including designated beneficial uses of the Willamette River. The objectives of the work required under this Order have been determined preliminarily, based on available information.

USACE will incorporate in the facility investigation Work Plan, and any subsequent work plans or addenda, problem formulations that articulate what technical decisions need to be made and define the information and data required to make those decisions. USACE will prepare sampling and analysis plans to ensure that collection and analytical activities result in data that meet Site-specific data quality objectives (DQOs). USACE will use the DQOs planning process, and other relevant USEPA guidance in conducting the Work, to develop sampling designs for information and data collection activities that support problem formulation and decision-making. USACE will propose in any subsequent facility investigation Work Plan revisions whether additional or different information and data are needed and, if so, the design of each information and data collection effort. USACE may also propose a decision framework that can be applied to the information generated during each data collection effort. This decision framework may aid USEPA in determining whether additional data will be required. USACE will develop a facility investigation Work Plan and risk assessment approach that addresses these goals following USEPA Risk Assessment Guidance Part D, if it is determined that potential response actions or

corrective measures are required. During scoping for the facility investigation Work Plan and for the risk assessment approach, USACE will meet with USEPA to discuss all appropriate project planning decisions and any special concerns associated with the Site. The following activities shall be performed by the USACE as a function of the project planning process:

- Data Compilation/Site Background;
  - Conduct Project Meeting;
  - Conduct Site Visit;
- Data Review and Investigation Planning;
  - Preliminary Conceptual Site Model (CSM);
  - Development of PRGs;
  - Preliminary Field Sampling;
- Development of Facility Investigation Work Plan;
  - Sampling and Analysis Plan;
  - Risk Assessment Work Plan;
  - Site Health and Safety Plan.

#### **Task 1a - Data Compilation/Site Background**

USACE will gather, evaluate, and present the existing Site information and data, conduct a project meeting with USEPA, conduct a Site visit with USEPA, and conduct preliminary field evaluations to assist in planning the scope of the field investigation. The objectives of this activity are as follows:

1. Identify and compile applicable historical information and data that are of acceptable quality for use during the facility investigation process;
2. Identify relevant existing studies regarding the characteristics of environmental media and the condition of receptor populations;
3. Identify useable information and data from current and historical studies for use in developing a conceptual site model (CSM); and
4. Collect and analyze existing information and data and document the need for additional information and data to the extent practicable.

Before drafting the facility Investigation Work Plan, existing Site information and data described above will be compiled and reviewed by USACE, and used to develop a preliminary CSM. Specifically, this will include presently available information and data relating to the types and quantities/ concentrations of hazardous waste and/or solid wastes (including petroleum products) released to the environment at the Site, and past disposal practices and/or releases (including spills and point discharges) that may have impacted the Site. This will include results from any previous sampling events that may have been conducted. Information regarding potential upgradient sources of contamination also will be collected and evaluated.

USACE will develop DQOs for evaluating the collected information. The DQOs will be focused on determining which collected information is appropriate for incorporation into a Site database. After USEPA review of the collected information and approval of the DQOs, USACE will incorporate acceptable data and information into a single relational database. By no later than

the date for submittal of the Site Background Report, USACE will submit a proposal for design of the relational database for USEPA's approval. At a minimum, the database will support geographic information system (GIS) presentation of information and data, and USACE will present information and data relevant to the decision-making process in this format during the course of the Work. Existing information and data will be utilized to help determine data gaps in Site characterization (including determination of background), identify chemicals of potential concern, develop a preliminary CSM, and identify potential hazards to human health and the environment. USACE will also provide electronic and database files directly to USEPA to allow independent review and analysis of information and data.

#### ***Conduct Project Meeting***

USACE and USEPA personnel with management or oversight responsibilities regarding the Work will conduct a meeting to discuss any particular concerns or issues regarding the Site or the facility investigation process.

#### ***Conduct Site Visit***

The USACE will conduct a site visit with USEPA during the project scoping phase to assist in developing a conceptual understanding of sources and areas of contamination, as well as potential exposure pathways and receptors at the site. During the site visit, the USACE should observe the Site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological, and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the site.

#### **Task 1b - Data Review and RI Planning**

USACE will review the information compiled in Task 1a and identify, to the extent practicable and based on application of relevant USEPA guidance, data needed to complete the facility investigation. This analysis will be based on application of relevant USEPA guidance, and the results of any Order tasks completed prior to the data gaps analysis effort. The analysis will identify additional information and data that will be required to determine the nature and extent of contamination, complete the baseline human health and terrestrial ecological risk assessments. The analysis will include the preparation of a preliminary CSM and a comparison of data to PRGs to define COPCs and areas of potential concern. Consistent with RCRA guidance and USEPA CERCLA guidance, PRGs are to be developed and refined as the project progresses and shall be based on the most current version of the Portland Harbor Joint Source Control Strategy, and/or preliminary PRGs developed as a part of the Portland Harbor Superfund Site RI/FS.

#### ***Preliminary Conceptual Site Model***

The preliminary CSM will portray the relationship among chemicals of potential concern, their sources, transport mechanisms (including potential mechanisms and conduits for soil, sediments, surface water, and groundwater transport), receptors, and other parameters that are determined to be relevant during implementation of the Order.

The preliminary CSM for the terrestrial ecological risk assessment (ERA) will include species and their habitats that could be impacted by Site-related contamination based on information generated during the historical review and will show the relationships among species and potential exposure pathways. The preliminary CSM for the human health risk assessment

(HHRA) will include potential exposure pathways. The CSM should be consistent with the ERA and HHRA CSMs for the Portland Harbor Superfund Site.

The conceptual site model will be prepared in graphical form and summarize available information (e.g., likely sources of contamination, flow lines showing likely direction of flow, estimates of pollutant loadings to the Willamette River through upland pathways, etc.) in maps and cross-sections.

#### ***Preliminary Analytical Concentration Goals***

Preliminary analytical concentration goals will be developed as part of the planning process to assist in selecting appropriate analytical methods and setting analytical DQOs for ecological and human health exposure pathways identified in the CSM. Development of these analytical goals will include, but not be limited to, the initial PRGs that are developed for the Portland Harbor Superfund Site, as described above.

#### **Task 1c – Development of Facility Investigation Work Plan**

USACE will submit a draft facility investigation Work Plan for the Site to USEPA, which incorporates information and data obtained during implementation of Tasks 1a and 1b. The Work Plan will be developed in conjunction with a sampling and analysis plan, which will consist of a field sampling plan, a risk assessment plan, a quality assurance project plan, and a Site health and safety plan, although each plan may be delivered under separate cover. Each approved work plan will include a description of the work to be performed, including a brief overview of the methodologies to be utilized, as well as a corresponding schedule for completion. In addition, each approved work plan must include the rationale for performing the required activities.

The draft Work Plan will include a table that shows the relationship between the preliminary PRGs, identified data gaps, and sampling locations proposed by USACE in the work plan. The Work Plan will include a presentation of DQOs associated with each proposed information and data collection effort, and maps/GIS tools depicting the Site's physiography, hydrology, geology, land use, and ecological and natural resource features. The draft Work Plan will include a summary (including graphical and geographic information system depictions as appropriate) of the existing information and data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among environmental media at the Site. The facility investigation Work Plan will incorporate the information and data from Task 1a.

Most importantly, USACE will incorporate into the Work Plan a description of all tasks to be performed, information and resources needed to perform each task, information to be produced during and at the conclusion of each task, a description of the work products that will be submitted to USEPA, and the decision-making processes that will be followed by USACE to interpret results. Specific decision points will be identified in the facility investigation Work Plan.

The facility investigation Work Plan will include a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management). The Work Plan will include a

schedule for monthly reports (including interim deliverables) to USEPA as well as meetings and presentations to USEPA at the conclusion of each major phase that has been identified as a critical decision point during implementation of the Order. In consultation with USEPA, if a determination that a phased approach to information and data generation is appropriate, the Work Plan will include the basis for that determination, and how each subsequent phase of the work will flow from previous phases. The facility investigation Work Plan will also include a description of the general approach for conducting the baseline risk assessments. USACE or USEPA may identify during the investigation process the need for additional or different information and data. USACE is responsible for fulfilling additional information and data and analysis needs that USACE or USEPA identifies, consistent with the Order.

USEPA acknowledges that Respondent may have completed some of the tasks described above and that Respondent may have developed one or more draft work plans required by this Order and SOW, namely, "Draft Final Management Plan for Remedial Investigation Work Plan," "U.S. Government Moorings, Portland, Oregon; Sampling and Analysis Plan," "U.S. Government Moorings, and Quality Assurance Project Plan." Respondent may designate these draft plans as its proposal required by Paragraph 29 of the Order, and, upon approval by USEPA, USEPA may determine such plans fulfill certain document requirements under this Order and SOW.

*Sampling and Analysis Plan* USACE will prepare a sampling and analysis plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols. The SAP provides a mechanism for planning field activities and consists of a field sampling plan (FSP) and a quality assurance project plan (QAPP). These documents may be combined.

The FSP will define in detail the sampling and data-gathering methods that will be used on the project. It will include sampling quality assurance objectives, sample location and frequency, sampling equipment and procedures, and sample handling and laboratory analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used. The laboratory QA/QC will, at a minimum, reflect use of analytical methods to identify contamination consistent with the PRGs identified in Tasks 1b and 1c. In addition, the QAPP will address sampling procedures, sample custody, analytical procedures, data reduction, validation, reporting, personnel qualifications, and, where appropriate, innovative and streamlined data collection techniques.

USACE will demonstrate in the SAP that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP. The laboratory must have and follow an approved QA program. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for USEPA review and approval. USEPA may require that USACE submit information demonstrating that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications. USEPA may choose to audit the laboratory if hasn't previously been approved by USEPA. USACE will provide assurances that USEPA has access to laboratory personnel, equipment, and records for sample collection, transportation, and analysis.

### *Site Health and Safety Plan*

A health and safety plan will be prepared in conformance with USACE's health and safety programs, and in compliance with OSHA and FRA regulations and protocols. Additionally, dive operations will be addressed in all appropriate HASPs, if diving is planned. Dive Plans will also be sent to USEPA for review and comment at least two weeks prior to diving work. It should be noted that USEPA does not "approve" USACE's health and safety plan, but rather USEPA reviews it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

### **Task 2 – Site Characterization**

As part of the facility investigation, the USACE will perform the activities described in this task, including the preparation of a site characterization summary (to include 1 - a field sampling report, 2 - Data evaluation/Data Gaps report of laboratory analysis which identifies chemicals of potential concern and to help determine need for additional sampling) and a facility investigation report. The overall objective of site characterization is to ascertain the nature and extent of any hazard to human health or the environment at the Site. This is accomplished by first determining a site's physiography, geology, and hydrology. Surface and subsurface pathways of migration will be defined. The USACE will identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. Chemical contaminant levels should be screened against the Joint Source Control Strategy and initial PRGs that have been specifically developed as part of the Portland Harbor Superfund Site, and the Region 6 industrial soil PRGs for human health. The results of this screening should be presented in spreadsheets, as well as visually in maps/figures. The USACE will also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the site. Using this information, contaminant fate and transport is then determined and projected.

During this phase of the facility investigation, the work plan, SAP, and health and safety plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. The USACE will notify USEPA at least two weeks in advance of the field work regarding the planned dates for field activities, including, but not limited to, ecological field surveys, field layout of the sampling grid, excavation, installation of wells, initiating sampling, installation, and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. The USACE will demonstrate that the laboratory and type of laboratory analyses that will be utilized during site characterization meets the specific QA/QC requirements and the DQOs of the site investigation as specified in the SAP. In view of the unknown site conditions, activities are often iterative, and to satisfy the objectives of the facility investigation it may be necessary for the USACE to supplement the work specified in the initial work plan. In addition to the deliverables below, the USACE will provide a monthly progress report and participate in meetings at major points during the Work.

**Task 2a – Field Investigation** Field investigation includes gathering of information and data to fill data gaps, and to define Site physical and biological characteristics, sources of contamination,

the nature and extent of contamination at the Site, and both human and ecological risks associated with the Site. USACE will perform these activities in accordance with the work plan and SAP and as described in the Order. At a minimum, the field investigation shall address the following:

***Implement and Document Field Support Activities***

The USACE will initiate field support activities following approval of the work plan and SAP. Field support activities may include obtaining access to the Site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The USACE will notify USEPA at least two weeks prior to initiating field support activities so that USEPA may adequately schedule oversight tasks. The USACE will also notify USEPA, in writing (field sampling report), upon completion of field support activities.

***Investigate and Define Site Physical and Biological Characteristics***

USACE will collect information and data on the physical and biological characteristics of the Site and its surrounding areas, relevant to the presence and migration of hazardous wastes and solid wastes, and the evaluation of hazards and risks to human health and the environment. Data gathering will be focused on those characteristics that impact the decision-making process, including the physiography, geology, and hydrology, and specific physical characteristics identified in the Work Plan. This information will be ascertained through various means that may include a combination of physical measurements, observations, and sampling efforts, and will be utilized to define potential transport pathways and human and ecological receptor populations.

***Develop Preliminary Remediation Goals***

USACE will develop PRGs for Site contaminants of potential concern including screening level values, toxicity values and exposure assumptions. USACE will meet with USEPA technical representatives prior to initiating this task. The objective of these meetings will be to discuss application of USEPA RCRA and CERCLA guidance and other appropriate benchmarks for PRGs. USACE will develop PRGs based on the following objective:

1. Protection of human health assuming direct contact with potentially contaminated environmental media or receptors at or from the Site, including soil, surface water, sediments and ground water, resulting from occupational activities, recreational use, transient use and other activities at the Site in which contact may occur.

***Define Sources of Contamination***

The USACE will locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The USACE shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs. Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

### *Define Human and Ecological Use of Site*

USACE will gather the information and data necessary to define use of the Site so that a Site-specific exposure assessment can be performed. In addition to existing literature, information and data gathering, defining the use of the Site may require observation, surveys and personal interviews. The facility investigation Work Plan will be considered as a starting point for collection of this information. Year-round Site use will be determined. In addition, potential exposures associated with USACE's proposed future uses of the property it owns at the Site will be considered. USACE will identify planned or projected developments and any other reasonably foreseeable future uses that may increase or decrease potential human or ecological exposure to solid or hazardous wastes and contaminants at the Site.

### *Describe the Nature and Extent of Contamination*

USACE will gather the information necessary to describe the nature and extent of contamination as needed to identify and evaluate potential exposures above acceptable risk levels as a final step during the field investigation. USACE will then implement sampling that will generate information and data on contaminant distributions and biological effects. Any study program identified in an approved work plan or SAP will utilize analytical techniques sufficient to detect and quantify the concentration of contaminants and the migration of contaminants through groundwater, surface water, soils and Willamette River sediments at or from the Site. In addition, USACE will collect the information and data necessary to assess contaminant fate and transport. Subsequent sampling events may be required. This process is continued until sufficient information and data are known to characterize the area and extent of contamination to complete the facility investigation. USACE will use the information on the nature and extent, and fate and transport, of contamination in conjunction with screening level and baseline risk assessments to determine the nature and extent of the hazard presented by contamination at or from the Site.

## Task 2b - Data Analysis

### *Evaluate Site Characteristics*

USACE will analyze and evaluate the information and data to describe: (1) Site physical and biological characteristics; (2) contaminant source characteristics in areas impacted by contaminant sources; (3) nature and extent of contamination at or from the Site as needed to identify and evaluate potential exposures above acceptable risk levels, including tabular and visual comparison to PRGs; and (4) contaminant fate and transport to receptors that may be exposed above acceptable risk levels. (These objectives will be documented in an interim deliverable: Data Analysis/Data Gaps Report.) Site physical characteristics, source assessments, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation of contaminant fate and transport will include the extent of horizontal and vertical spread of contamination as well as information from the literature on contaminant mobility and persistence of contaminants. If USACE considers modeling appropriate, such models will be identified to USEPA in a technical memorandum prior to their use. Except as otherwise provided in the Order, all data and programming used in generating any model, including any proprietary programs, will be made available to USEPA together with a sensitivity analysis. USACE will discuss with USEPA, and then collect if necessary, any information and

data needed to fill data gaps identified by USEPA. The information reviewed in this evaluation of Site characteristics will include that necessary to evaluate the need for response actions or corrective measures, develop the baseline risk assessment, and develop and evaluate potential remedial alternatives, as appropriate.

#### ***Assess Human and Ecological Risk***

The baseline human health and terrestrial ecological risk assessments will be conducted following the collection of chemical and biological information and data as determined by USEPA. A Risk Assessment Work Plan shall be submitted for USEPA approval to document how the Risk Assessment will be completed. The RAWP can be separate work plan or included as part of the Facility Investigation Work Plan following USEPA Risk Assessment Guidance Part D.

Upon USEPA approval, USACE will perform baseline risk assessments for human health and ecological impacts to the uplands portion of the site using guidance designated by USEPA. The risk assessment for the inwater portion of the site will be completed as part of the Portland Harbor RI/FS. This guidance may include but not be limited to the following: Risk Assessment Guidance for Superfund: Volume 1 - Human Health Evaluation Manual (Parts A through D); Interim Guidance: Developing Risk Based Clean-up Levels at Resource Conservation and Recovery Act Sites in Region 10, (January, 1998); Ecological Risk Assessment for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final, June 1997; and Guidelines for Ecological Risk Assessment, EPA/630/R95/002-F, 1998. Many of these guidance documents and others may be found at the following web sites:

[www.epa.gov/superfund/programs/risk/humhlth.htm](http://www.epa.gov/superfund/programs/risk/humhlth.htm)

[www.epa.gov/r10earth/offices/oea/risk/r0riskec.htm](http://www.epa.gov/r10earth/offices/oea/risk/r0riskec.htm)

USACE will meet with USEPA to scope the baseline risk assessments. Following the scoping meeting, USACE will prepare a risk assessment scoping memorandum for USEPA review and approval. The risk assessment scoping memorandum will describe the scope of the human health and ecological risk assessments as agreed upon with USEPA during the scoping meeting, describe the key elements of the human health and ecological risk assessments (e.g., exposure pathway and receptor identification) and provide a list of interim deliverables and a schedule for their submittal. It is anticipated that the conceptual site models, exposure assessments, and problem formulation that were completed during facility investigation scoping will be revised to reflect new information and data. Draft baseline human health and ecological risk assessment reports will be submitted to USEPA for review and approval. The final risk assessment reports will be included with the facility investigation report.

#### **Task 2c – Data Management Procedures**

USACE will consistently document the quality and validity of field and laboratory data compiled and generated during the facility investigation.

### ***Document Field Activities***

Information gathered during Site characterization will be documented and adequately recorded by USACE in well-maintained field logs and laboratory reports. The method(s) of documentation must be specified in the facility investigation Work Plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document: sample custody; analytical responsibility; analytical results; adherence to prescribed protocols, nonconformity events and corrections thereof; and/or data deficiencies.

### ***Maintain Sample Management and Tracking***

USACE will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the characterization of the nature and extent of contamination and the development and evaluation of potential remedial alternatives. Analytical results developed under a work plan will not be included in any site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, USACE will establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

### **Task 2d – Site Characterization Deliverables**

USACE will prepare the following site characterization deliverables:

#### ***Preliminary Site Characterization Summary***

After completing field sampling and analyses, USACE will submit a concise site characterization data compilation summary, in both paper and electronic format (Data Evaluation/Data Gaps Report – interim deliverable). This summary will review the investigative activities that have taken place, and describe and display Site information and data documenting the location and characteristics of surface and subsurface features and contamination at or from the Site, including sample locations, chemical loadings and concentration distributions and the results of any biological testing. This evaluation will include, to the extent practicable, chemical loadings and distributions relative to known sources, tabular and visual screening of contaminants of concern against screening level values and PRGs, the location and varying concentrations of contaminants in areas influenced by sources, and the extent of contaminant migration through or from the Site. The data compilation summary will provide USEPA with a preliminary reference for evaluating the risk assessments and the further identification of PRGs. The site characterization summary will include data compilation of the sediment and bioassay undertaken in accordance with this SOW and will help identify additional data requirements for future site characterization.

#### ***Facility Investigation (FI) Report***

USACE will prepare and submit a draft FI Report to USEPA for review and approval. This report will summarize results of field activities to characterize the Site, sources of contamination, nature and extent of contamination, and the fate and transport of contaminants. USACE will refer to relevant RCRA and CERCLA guidance for the report's contents. Following comment by USEPA, USACE will prepare a final FI Report that satisfactorily addresses USEPA's comments. Draft and final FI reports shall be submitted to USEPA in paper as well as electronic format.

**Human Health & Ecological Risk Assessment Report**

Once all interim deliverables have been completed, USACE will submit the baseline risk assessment reports. USEPA guidance will be consulted in preparing the reports. Draft and final risk assessment shall be submitted to USEPA in paper as well as electronic format.

**4.0 SUMMARY OF MAJOR DELIVERABLES/SCHEDULE**

The schedule for submission to USEPA of deliverables described in this section of the SOW is presented in Table 4.1.

<b>TABLE 4.1 – Schedule of Upland FI Project Deliverables</b>		
<b>TASK</b>	<b>DELIVERABLE</b>	<b>DUE DATE</b>
Facility Investigation Proposal and Schedule	Proposed Facility Investigation Proposal Schedule	Within 30 days after the effective date of the ORDER.
Facility Investigation/ Risk Assessment Work Plan	Draft FI Work Plan	Within 90 days after the effective date of the ORDER.
Interim deliverables Table including: Screening level values Toxicity values Exposure Assumptions	Final FI Work Plan	Within 30 days after receipt of EPA comments on draft.
	Draft Risk Assessment Table	Scheduled as part of Facility Investigation/Risk Assessment Work Plan should be submitted at least 30 days prior to finalizing FI/RA work plan
	Final Risk Assessment Table	
Field Sampling Report	Draft FSR Final FSR	45 days of completion of Field Work 10 days after receipt of EPA comments
Preliminary Site Characterization Summary/ Data evaluation/Data Gaps report		Within 90 days after completion of Field Work
Investigation Derived Waste Report	Final IDWR	60 days after validation of all data
FI Report	Draft FI Report	Within 360 days after EPA approval of the FI Work Plan.
	Final FI Report	Within 30 days after receipt of EPA comments on draft.

Reference in Tables 4.1 to EPA comments reflects EPA's consideration of comments, including comments from the Oregon DEQ, the Tribes, and federal and state Natural Resource Trustees.

## 5.0 ELECTRONIC DATA SUBMITTAL

USACE will submit results of field measurements and laboratory analyses of samples to be compiled and used in the Characterization Report in electronic form. This data will also be provided to USEPA in a format usable to USEPA and USEPA's consultants for the purpose of assessing data relationships and data gaps at the site.

USACE will provide results of field measurements, laboratory analyses of samples, and other data relevant to accomplishing the tasks in this SOW, such as CAD files of base maps and other graphic presentations of data, in a usable format to facilitate USEPA review of data submittals. Historic information already stored in an electronic format will be provided to USEPA and/or its contractor(s) upon request. A brief description of newly acquired data will be included in each monthly report. Newly acquired data will be transmitted within one month of its acquisition (or validation, if needed) unless a longer holding time is agreed upon.

All documents required to be submitted by this SOW shall be provided in its original format and in web-posting ready format (PDF), as directed by EPA. The maximum size document that may be electronically mailed (email) to EPA is 25 MBs per email. Packages larger than 25 MBs should be sent on CD to retain file linkages. The USACE shall follow the following procedures for providing web-posting ready format documents unless otherwise directed by EPA:

Bookmark documents longer than 10 pages for easier navigation (e.g., chapters).

Ensure that file/document properties/initial view is for "bookmarks panel and page" if there are bookmarks.

For document composed of multiple files, link together with a starter file that is less than 2 MB, i.e., the document's executive summary. The executive summary should have a bookmarks panel with bookmark links to the other files (as an example, look at the Portland Harbor website, T4 EE/CA). Ensure that all files are saved to the same folder, rather than multiple folders so that the linkage is retained during web posting.

Bookmarks to other files should indicate the name of that file (and size of that file, if over 1 MB).

"Tag" the document for accessibility if this was not done by the source application (advanced/accessibility/tag) for section 508 compliance.

Enter document properties: 1) title, author (should be XXXX for EPA Region 10), 2) subject, and 3) keywords.

"Add links" (advanced/links/create links from URLs in document) to the document so that they can be used to go to the website directly from the document. Links need to start with "http:", etc. to be usable.

## 6.0 REFERENCES

### 6.1 References Cited in Document

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