STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
The Port of Seattle	No. DE 7321

TO: Port of Seattle
Attention: Mr. Tay Yoshitani
P.O. Box 1209
Seattle, Washington 98111

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EXHIBITS

Exhibit A:	Port of Seattle Terminal 91 Facility
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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and the Port of Seattle (Port) under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Order requires the Port to complete the work required by the 1998 Order, with modifications to reflect circumstances that have changed since the 1998 Order. Ecology believes the actions required by this Order are in the public interest.

II. JURISDICTION

This Agreed Order is issued pursuant to the authority of the Model Toxics Control Act (MTCA), RCW 70.105D.050(1). This Order also satisfies the requirements of WAC 173-303-646 through -64630.

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each Party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such Party to comply with the Order. The Port agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter the Port's responsibility under this Order. The Port shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms used in this Order.

1. Site: The Site is referred to as the Port of Seattle, Terminal 91. The Site includes areas where releases of Hazardous Substances originating from the Terminal 91 Facility have come to be located, and is generally located at 2001 West Garfield Street, Seattle, Washington. The Site is defined by the extent of contamination caused by the releases of Hazardous Substances and may include both submerged lands and uplands. The Site, as currently known to exist, is depicted in Exhibit A to this Order. The Site is comprised of three separate and distinct areas: (1) the Tank Farm Affected Area; (2) the Submerged Lands Area; and (3) the Upland Area. The Site constitutes a Facility under RCW 70.105D.020(5).

2. Parties: Refers to the State of Washington, Department of Ecology, and the Port of Seattle.

3. Port: Refers to the Port of Seattle.

4. Discrete Unit means an area affected by the release of Hazardous Substances at Terminal 91, other than releases within the Tank Farm Affected Area.

5. Permit means dangerous waste facility permit WAD000812917, issued to the Port pursuant to 70.105 RCW, and any successor permit.

6. Agreed Order or Order: Refers to this Order and each of the exhibits to the Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to the Order.

7. Tank Farm Lease Parcel consists of approximately 4 acres within Terminal 91 shown in Exhibit A. The Tank Farm Lease Parcel formerly was the site of a tank farm, demolished in 2005, which had for a time operated as a Dangerous Waste facility.

8. Tank Farm Affected Area comprises the Tank Farm Lease Parcel and any areas where Hazardous Substances originating from the Tank Farm Lease Parcel have come to be located. The term "Tank Farm Affected Area" has the same meaning that the term "Site" was given under the 1998 Order. The Tank Farm Affected Area, as believed to be located as of the date of this Order, is depicted generally in Exhibit A.

9. Terminal 91 Facility means the real property owned by the Port of Seattle encompassing approximately 216 acres and located at 2001 West Garfield Street, Seattle, Washington as depicted on Exhibit A.

10. 1998 Order means Agreed Order No. DE 98HW-N108, entered in 1998 by Ecology; the Port of Seattle (the "Port"); Burlington Environmental Inc., then a wholly owned subsidiary of Philip Services Corp. ("Philip"); and Pacific Northern Oil Corporation ("PNO").

11. Hazardous Substances has the meaning provided by RCW 70.105D.020(10).

12. Dangerous Waste means any solid waste designated under the procedures of WAC 173-303-070 through 173-303-100 as dangerous, extremely hazardous, or mixed waste. Dangerous wastes are hazardous substances under RCW 70.105D.020(10).

13. Submerged Lands Area means that part of the Terminal 91 Facility covered by marine waters, generally located on the southern portion of the Terminal 91 Facility and adjacent to Piers 90 and 91, as generally depicted in Exhibit A.

14. Upland Area means that part of the Terminal 91 Facility other than the Submerged Lands Area and the Tank Farm Affected Area, as generally depicted in Exhibit A.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by the Port:

1. The Site is located on the northern side of Elliott Bay generally at 2001 West Garfield Street, Seattle, Washington. The Site is located on Smith Cove and the Smith Cove Waterway on the Elliott Bay waterfront. The Site location is generally depicted in the diagram attached to this Agreed Order as Exhibit A.

2. The Site is listed on the Department of Ecology's Hazardous Sites List as "Seattle Port Terminal 91", under Facility Site ID No. 24768 with a hazard ranking of 1, and as "Seattle Port Terminal 91 Tank Farm", under Facility Site ID No. 2300 with a hazard ranking of 1.

3. The Port is the current owner of the entire Terminal 91 Facility which covers approximately 216 acres, of which the Tank Farm Lease Parcel covers approximately 4 acres.

4. A tank farm was built on the Tank Farm Lease Parcel in or about 1926. The Tank Farm Lease Parcel was operated by various oil companies until December 1941 when the United States Navy took possession of the entire Terminal 91 Facility through condemnation. In about 1972, the Navy declared the Terminal 91 Facility as surplus. The Port began managing the Terminal 91 Facility, and in 1976 the Port acquired the Terminal 91 Facility. The Terminal 91 Facility remains under the Port's management and ownership at the present time. The Port removed all of the tanks and a number of buildings at the Tank Farm Lease Parcel as part of a MTCA independent interim remedial action reported in October 2005.

5. Burlington Environmental Inc. and its predecessors and successors will herein be referred to as "Philip." Philip operated the Tank Farm Lease Parcel from about June 1971, when it began leasing the Tank Farm Lease Parcel from the Port, through September 1995 when its occupancy ended. Philip operated the Tank Farm Lease Parcel as a regulated dangerous waste management facility on or after November 19, 1980, the date which subjects facilities to federal RCRA permitting requirements under 40 CFR 264 and Chapter 173-303 WAC, Washington's Dangerous Waste Regulations.

6. On November 14, 1980, EPA was notified of dangerous waste management activities on the Terminal 91 Lease Parcel when the Part A form of the RCRA permit application was filed. Pursuant to the November 14, 1980, notification, EPA issued identification number WAD000812917 for this facility. EPA received a Part B portion of the RCRA permit application to obtain a final status permit for a dangerous waste treatment, storage and disposal facility on November 8, 1988. There were numerous revisions to the draft Part B application, but the Final Status Facility Permit was issued July 22, 1992 with an effective date of August 22, 1992. The Port was named as a permitee since the Port owns the property. Active dangerous waste operations ceased at the permitted Tank Farm Lease Parcel in September 1995, and Ecology approved the above-ground closure work in 2003.

7. Hazardous Substances have been released into the environment at this Site. Hazardous Substances have reportedly been detected in either soil or groundwater at the Site

including, but not limited to, dichlorodifluoromethane, vinyl chloride, chloroethane, acetone, carbon disulfide, methylene chloride, 1,1-DCA, cis 1,2-DCE, 2-butanone, chloroform, 1,1,1-TCA, carbon tetrachloride, 1,2-DCA, benzene, TCE, 1,2-dichloropropane, 2-chloroethylvinylether, 4-methyl-2-pentanone, toluene, 1,1,2-trichloroethane, PCE, 2-hexanone, chlorobenzene, ethylbenzene, m-xylene, p-xylene, o-xylene, styrene, bromoform, 1,1,2,2-tetrachloroethane, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, naphthalene, total petroleum hydrocarbons ("TPH") as gasoline and diesel, light nonaqueous-phase liquid ("LNAPL") of TPH constituents, polychlorinated biphenyls (PCBs), trichlorofluoromethane, N-nitroso-di-n-propylamine, isophorone, 2,4-dimethylphenol, 4-chloro-3-methyl-phenol, 2-methyl naphthalene, 2-nitroaniline, dimethylphthalate, 2,6-dinitrotoluene, 1,1,2-trichloro-1,2,2 trifluoroethane, bis (2-chloroethoxy)methane, acenaphthene, 2,4-dinitrophenol, dibenzofuran, 4-nitrophenol, fluorene, 4-chlorophenyl phenyl ether, diethylphthalate, N-nitrosodiphenylamine, pentachlorophenol, phenanthrene, anthracene, di-n-butylphthalate, fluoranthene, pyrene, chrysene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate, benzo(k)fluoranthene, benzo(b)fluoranthene, 4-nitroaniline, azobenzene, 4-bromophenyl phenyl ether, benzo(a)pyrene, total chromium, total mercury, total selenium, total lead, dissolved lead, and dissolved zinc.

8. The detection of the above listed Hazardous Substances is documented in reports, including but not limited to the following:

Reports referenced in 1998 Agreed Order:

A. Sweet Edwards/EMCON, December 1987, Property Transfer Assessment, Chemical Processors, Inc., Pier 91 Facility, Seattle, Washington;

B. USEPA\Jacob Engineering Group Inc., April 28 1988, Draft Report, RCRA Facility Assessment, Chemical Processors, Inc., Pier 91, Seattle, Washington;

C. Sweet Edwards/EMCON, May 1988, Phase 1 Hydrogeological Investigation, Chemical Processors, Inc., Pier 91 Facility, Seattle, Washington;

D. Sweet Edwards/EMCON, April 24, 1989, Hydrogeological Investigation, Pier 91 Facility, Seattle, Washington;

E. Burlington Environmental Inc., June 15, 1994, Draft Interim Measures Workplan, Burlington Environmental, Inc., Pier 91 Facility;

F. USEPA/PRC Environmental Management, Inc., November, 4, 1994, Final RCRA Facility Assessment, Port of Seattle/Burlington Environmental Inc. Terminal 91 Facility, Seattle, Washington;

G. Burlington Environmental Inc., February 1995, RCRA Facility Investigation Draft Report, Burlington Environmental Inc., Pier 91 Facility, Seattle, Washington; and

H. Bimonthly Progress Reports submitted under the requirements of the EPA 3008(h) Agreed Order for RFI activities.

Reports since 1998 Agreed Order (*see* Exhibit E for list of reports).

9. In 1998, Ecology entered Agreed Order No. DE 98HW-N108 (the "1998 Order") with the Port, Philip, and PNO (the "PLPs").

10. In December, 2003, the State of Washington resolved certain claims against Philip relating to the cleanup of the Site in a consent decree filed in United States Bankruptcy Court, *In re Philip Services Corporation*, Bankr. S. D. Tex. (No. 03-37718-H2-11).

11. The Port has performed various remedial actions with respect to various releases at the Terminal 91 Facility pursuant to its registration in Ecology's Voluntary Cleanup Program under the application submitted March 10, 1999. Such remedial actions were performed to address corrective action requirements imposed by the Permit, and have generally been reported to Ecology as part of the cleanup of the Upland Area.

VI. ECOLOGY DETERMINATIONS

1. The Port is an "owner or operator" as defined in RCW 70.105D.020(17), of a "facility" as defined in RCW 70.105D.020(5). A Final Status Dangerous Waste Permit was issued July 22, 1992 to Philip as operator and the Port as owner of the property. Under WAC 173-303-64630(3) the Department of Ecology is requiring the owner of a facility to fulfill the corrective action responsibilities through this Agreed Order issued pursuant to the Model Toxics Control Act (MTCA).

2. Based upon all factors known to Ecology, a "release" or "threatened release" of "Hazardous Substance(s)" as defined in RCW 70.105D.020(25) and RCW 70.105D.020(10), respectively, has occurred at the Site.

3. Based upon credible evidence, Ecology issued a PLP status letter to the Port dated July 3, 1996, pursuant to RCW 70.105D.040, -.020(16) and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that the Port is a PLP under RCW 70.105D.040 and notified the Port of this determination by letter dated August 15, 1996.

4. Pursuant to RCW 70.105D.030(1) and -.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of Hazardous Substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

5. The remedial actions undertaken by the Port described in Section V.11 are subsumed under this Order and shall be considered an integral part of the Work to be Performed.

6. Unless otherwise specified, Ecology will use the definitions and requirements for allowable financial assurance mechanisms set forth in the current financial assurance rules covering closure and post-closure in 40 CFR 264.141, 40 CFR 264.142, 40 CFR 264.143, 40 CFR 264.145, 40 CFR 264.151, and WAC 173-303-620 will be the definitions and requirements

for allowable financial assurance for corrective action under this Order. Ecology will apply these definitions and requirements to this corrective action, except that the words "corrective action" shall be substituted for the words "closure" or "post-closure" in the above listed regulations as needed to produce this result.

7. In the absence of final federal regulations governing financial assurance for corrective action, Ecology's Financial Assurance Officer will use the following resources as guidance in implementing the financial assurance provisions of this Order:

a. The Financial Assurance for Corrective Action Proposed Rule, 51 FR 37853 (October 24, 1986);

b. The financial assurance provisions of Corrective Action for Releases from Solid Waste Management Units Advance Notice of Proposed Rulemaking, 61 FR 19432 (May 1, 1996);

c. The Interim Guidance on Financial Responsibility for Facilities Subject to RCRA Corrective Action (U.S. EPA, September 30, 2003); or

d. Any other guidance applicable to financial assurance and corrective action that may be available at the time.

Ecology intends to use the financial assurance provisions of the Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities, 55 FR 30798 (July 27, 1990), as secondary guidance. Unless otherwise specified herein, where the language of this Order conflicts with these rules, proposed rules, notices, and guidance documents, the language of this Order will prevail.

VII. WORK TO BE PERFORMED

Based on the foregoing Facts and Determinations, it is hereby ordered that the Port perform or ensure the performance of the following remedial actions and that these actions be conducted in accordance with Chapter 173-340 WAC (MTCA) unless otherwise specifically provided for herein.

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A. Work to Be Performed in the Tank Farm Affected Area

The Port's obligations in relation to the Tank Farm Affected Area are to complete work on an RI/FS and produce a draft Cleanup Action Plan ("CAP"), as contemplated in the 1998 Order. The specific work to be performed includes the following:

1. The Port shall continue the groundwater monitoring program currently being performed as required under the terms of the 1998 Order as modified by the following:

   a. Letters from Roth Consulting to Ecology dated September 17, 1999, October 1, 2002, and February 25, 2009, and Ecology's approval letters dated October 1, 1999, October 15, 1999 (which included a correction to the October 1, 1999 letter), November 7, 2002, and February 27, 2009;

   b. A letter from Roth Consulting to Ecology dated September 10, 2003 with respect to sampling some additional potential background wells, and approved by Ecology in an e-mail from Galen Tritt to Susan Roth on September 25, 2003;

   c. The Final Ground Water Sampling and Analysis Plan (SAP) for the Site prepared by Philip in June 2003 and approved by Ecology in a letter dated August 22, 2003 (the quality assurance protection plan found in Appendix of this 2003 SAP has been and will continue to be followed by the Port);

   d. A letter from Roth Consulting to Ecology dated December 13, 2004 requesting approval to add three new monitoring wells (CP_GP08 through CP_GP10) and Ecology's approval letter dated December 15, 2004;

   e. A letter from Roth Consulting dated March 4, 2005 with an attached memo from PIONEER Technologies Corporation proposing to discontinue ground water sampling at selected monitoring wells beginning with the March 2005 event, and Ecology's approval letter dated April 26, 2005;

   f. The Final Monitored Natural Attenuation Evaluation Work Plan by PES Environmental dated July 29, 2005 and approved by Ecology in a letter dated October 21, 2005;

g. A letter from Roth Consulting to Ecology re: Request to Move Seven Wells to Semiannual Ground Water Monitoring Program, Terminal 91 Tank Farm Site, Agreed Order No. DE 98HW-N108, May 17, 2007;

h. A letter from Ecology to Roth Consulting re: Request to Move Seven Wells into the Semiannual Groundwater Monitoring Program, Terminal 91 Tank Farm Site Agreed Order No. DE 98HW-N108, May 24, 2007;

i. A letter from Roth Consulting to Ecology re: Proposal for Modification of Ground Water Monitoring Program, Terminal 91 Tank Farm Site, Agreed Order No. DE 98HW-N108, first transmittal December 2, 2008 and final transmittal February 24, 2009; and

j. A letter from Ecology to Roth Consulting re: Proposal for Modification of Ground Water Monitoring Program, Terminal 91 Tank Farm Site, Agreed Order No. DE 98HW-N108, February 27, 2009.

2. Continue to implement the Final Feasibility Study ("FS") Work Plan that was submitted to Ecology on August 26, 2005 and approved by Ecology in a letter dated September 7, 2005, as supplemented by further work approved by Ecology.

3. The Port has submitted to Ecology-NWRO a final draft FS. This draft will be put out for a 45 day public comment period. Ecology may request changes based on public comments it receives.

4. After Ecology review and approval of the final FS report, and if required by Ecology, the Port shall submit a draft cleanup action plan ("DCAP") addressing the Tank Farm Affected Area to Ecology-NWRO within ninety (90) days of receipt of formal notification of such requirement by letter. The notification shall identify the preliminary cleanup alternative chosen by Ecology. The DCAP shall meet the requirements of WAC 173-340-360, -400(1) through (9), -410, as well as WAC 173-303-646.

5. The performance of any work described in any DCAP required by Ecology shall be the subject of an amendment to the Agreed Order or a new Agreed Order or a Consent Decree.

6. The Port shall submit status reports to Ecology-NWRO quarterly, continuing the schedule that was required by the 1998 Order (i.e., on or before January 20, April 20, July 20, and October 20 of each year), and continuing until all of the requirements of this Order are completed to Ecology's satisfaction. The submittal shall be due on the 20th day of the month following the three-month activity period. The Port shall include the following in each status report, with respect to the Tank Farm Affected Area:

a. All work conducted pursuant to this Agreed Order during the last three month period;

b. Occurrence of any problems, how problems were rectified, deviations from the workplans and an explanation of all deviations;

c. Projected work to occur in the upcoming three months;

d. Summaries of significant findings, changes in personnel, summaries of significant contacts with all federal, state, local community, and public interest groups;

e. Any groundwater monitoring program laboratory analyses, not separately reported, (as copies of the original laboratory reporting data sheets, and in tabulated data format) for which quality assurance procedures are completed during the three month period;

f. All field measurements from any such groundwater monitoring events;

g. Tabulations of groundwater data from such events showing specific groundwater monitoring well, sample collection date, and constituent concentration;

h. Groundwater contour maps for the shallow aquifer for such monitoring events; and

i. An LNAPL thickness map for any such monitoring events, using results of Site baildown tests as appropriate to correct for apparent LNAPL thickness observed in wells.

7. The Port shall annually submit an analysis report covering groundwater data from the Tank Farm Affected Area to Ecology NWRO. The annual report for the preceding calendar year will be due to Ecology each year on February 20. The annual groundwater data analysis report shall at a minimum:

a. Present analytical data for groundwater monitoring wells using tables (for all data and summary) and graphs (for representative groundwater monitoring wells and chemical constituents);

b. Construct hydrographs for representative groundwater monitoring well showing date of measurement and groundwater elevation;

c. Graph monthly precipitation data from the Site or from the closest rain gauge monitoring station to the Site; and

d. Evaluate the seasonal effects on the groundwater data, contaminant plume characteristics, impacts of Interim Measures on the LNAPL, constituents that are migrating from the Site, an estimate of the rate of transport, and any revisions to the conceptual model.

8. If data gaps exist, then either Ecology or the Port may propose additional work to fill the data gaps subject to Section VIII.L of this Order. If the parties cannot agree on the need for additional work to fill data gaps, this would trigger the conflict resolution protocol described under Section VIII. J.

9. The Port may conduct remedial actions with respect to unanticipated discoveries encountered within the Tank Farm Affected Area in compliance with the Contamination Contingency Plan (Exhibit B).

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B. Work to Be Performed in the Submerged Lands Area

To the extent that Hazardous Substances are discovered in the Submerged Lands Area, the Parties agree that, based on current understanding, it is not practicable at this time to address any such contamination. Additional information would be required to do so, for example, identifying and addressing sources potentially contributing to such contamination, including sources such as stormwater that originated from other industrial properties in the area surrounding the Terminal 91 Facility. Accordingly, any remedial action that might be necessary in the Submerged Lands Area is deferred for the time being. The necessity for, and the practicability of, remedial action in the Submerged Lands Area will be reevaluated at the time a CAP is issued for the Tank Farm Affected Area.

C. Work to Be Performed In the Uplands Area

1. For Known Discrete Units of Contamination: For releases of Hazardous Substances in the Uplands Area of which the Port is aware as of the effective date of this Order, the Port has the obligations identified below. These Known Discrete Units of contamination are identified and listed in Exhibit C hereto.

a. For Known Discrete Unit A.1 (*see* Exhibit C), Ecology finds that this area does not pose an immediate threat to human health and the environment. Accordingly, remedial action for this area shall be done in conjunction with the Port's redevelopment in this area. If the Port has not initiated redevelopment and remedial actions in this area within ten (10) years of the effective date of this Order, the Port shall conduct the remedial actions regardless of the status of the Port's redevelopment. Such work shall be conducted, reported and evaluated as described in Subsection VII. C.1.b.

b. For Known Discrete Units B-18, B-22, and B.28 through B.37 (*see* Exhibit C), the Port shall:

1) Submit a work plan (or other appropriate documentation needed for completion) to Ecology for addressing the contamination within a time

frame agreed to by Ecology. Any such work plan, once approved in writing by Ecology, becomes an integral and enforceable part of this Order. The scope and detail of any such work plan shall be commensurate with the scope and complexity of the appropriate cleanup action necessary, and should be submitted for review, and when appropriate, approval by Ecology.

2) Within ninety (90) days of completing the approved remedial action, the Port shall submit a written report describing the actions taken.

3) Ecology shall evaluate such remedial actions to determine whether they meet the substantive requirements of Chapter 173-340 WAC and whether Ecology believes that further remedial action is necessary.

2. For Newly Discovered Discrete Units of Contamination in the Uplands Area:

a. Section VIII.L requires formal amendment of this Order in the event of "substantial" changes to the work to be performed, with "minor" changes to be documented without formal amendment. For purposes of releases under this subsection VII.C.2, additional work to address them shall be considered "substantial" if the releases are of a kind that would generally be addressed under an agreed order in their own right. Based on previous investigations and site history at the Terminal 91 Facility, non-exclusive examples of minor releases and/or remedial actions in the Upland include:

1) releases subject to the Contamination Contingency Plan;

2) closure, site assessment, and remediation of releases from USTs used for petroleum storage (subject to language in example 5);

3) releases affecting soil but not groundwater;

4) routine disposal of contaminated soil excavated as part of construction activities;

5) releases affecting groundwater in which the only hazardous substances over cleanup levels are petroleum-related and the extent of the contamination plume does not appear to be extensive;

6) removal of accumulated petroleum product from excavation water in cases where construction excavations extend below the water table;

7) installation and operation of product recovery/product monitoring wells or other structures such as product recovery/product monitoring vaults;

8) application of ORC™ or other commonly used remedial products to ground water to assist in degrading petroleum constituents; and

9) cleaning, decommissioning in place, and/or removal of underground fuel pipelines.

b. For contamination discovered in the context of Port construction activities that is a reportable release under WAC 173-340-300, the Port will follow the Contamination Contingency Work Plan, attached as Exhibit B hereto. The Contamination Contingency Plan is an integral and enforceable part of this Order.

1) Within ninety (90) days of completing a remedial action under the Contamination Contingency Plan, the Port shall submit a written report describing the actions taken.

2) Ecology shall evaluate such remedial actions to determine whether they meet the substantive requirements of Chapter 173-340 WAC and whether Ecology believes that further remedial action is necessary.

3) If a remedial action the Port conducts under the Contamination Contingency Plan is an interim action as defined in WAC 173-340-430, any final cleanup action for the contamination addressed under the interim action shall be conducted under the procedures in either subsection VII.C.1.a or VII.C.1.b. Ecology and the Port shall consult to determine

which subsection's procedures the cleanup action will proceed under, and shall update Exhibit C to include the newly-discovered Discrete Units in accordance with Section VIII.L, through either the informal or formal process. In the event the Port and Ecology disagree, Ecology shall make the final decision, subject to dispute resolution under Section VIII. J.

c. For newly-discovered Discrete Units of contamination the Port finds outside the context of construction, the Port shall address the newly-discovered contamination under the procedures in either subsection VII. C 1. a or VII. C 1. b. Ecology and the Port shall consult to determine which subsection's procedures the cleanup action will proceed under, and shall update Exhibit C to include the newly-discovered Discrete Units in accordance with Section VIII.L, through either the informal or formal process. In the event the Port and Ecology disagree, Ecology shall make the final decision, subject to dispute resolution under Section VIII. J.

d. The Port's obligations to address newly-discovered contamination pursuant to Subsection VII. C 2 are subject to relief if the Port demonstrates that the contamination is the result of a plume for which the Port would not be considered an "owner" pursuant to RCW 70.105D.020(17)(b)(iv) (or similar provision granting relief for the owner of land affected by a migrating plume of Hazardous Substances).

D. General Requirements Applicable to All Work Performed Under This Section

The Port shall follow the reporting guidelines in WAC 173-340-840 for all parts of this Order unless otherwise agreed to by both Ecology and the Port in writing. All data generated pursuant to this Order shall be submitted to Ecology-NWRO, including all outlier and duplicate data. In addition, all sampling data generated pursuant to this Order shall be submitted to Ecology-NWRO as copies of the original reported laboratory data sheets, in tabulated data format and in an electronic format approved by Ecology for all referenced environmental media.

Laboratory detection limits and practical quantitation limits shall be reported for each constituent concentration detected.

E. Deliverables

Once approved in writing by Ecology, all deliverables the Port submits to Ecology under this Order are incorporated by reference and become enforceable parts of this Order, as if fully set forth herein. During the performance of work under an approved deliverable, field modifications to the submittal may be agreed to orally by the Project Coordinators. In such case, the Port shall submit a description of the field modification to Ecology's Project Coordinator in writing within seven (7) days after the oral agreement, and Ecology's Project Coordinator shall provide written confirmation of the agreed modification. Such field modifications would be subject to VIII.L's terms concerning amendments to the Order.

F. Remedy for Insufficient Progress

If, at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required by this section, Ecology may, after providing written notice and a reasonable opportunity to cure, complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Public Notice

RCW 70.105D.030(2)(a) and WAC 173-340-600(11)(c) require that, at a minimum, this Order be subject to concurrent public notice. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that this Order is inadequate or improper in any respect.

B. Remedial Action Costs

The Port shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and

Order preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of this Order. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). The Port shall pay the required amount within ninety (90) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

Pursuant to RCW 70.105D.055, Ecology has authority to recover unreimbursed remedial action costs by filing a lien against real property subject to the remedial actions.

C. Implementation of Remedial Action

If Ecology determines that the Port has failed without good cause to implement the remedial actions, in whole or in part, Ecology may, after notice to the Port, perform any or all remedial actions required by this Order that remain incomplete. If Ecology performs all or portions of such remedial actions because of the Port's failure to comply with its obligations under this Order, the Port shall reimburse Ecology for the costs of doing such work in accordance with Section VIII. B. (Remedial Action Costs), provided that the Port is not obligated under this Section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, the Port shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions. Ecology concurs with remedial actions done in compliance with the Contamination Contingency Plan (Exhibit B).

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D. Designated Project Coordinators

The project coordinator for Ecology is:

Name:	Galen H. Tritt
Address:	Department of Ecology-BFO 1440 10th Street, Suite 102 Bellingham, WA 98225
Phone:	(360) 715-5200
FAX:	(360) 715-5225
E-mail:	gtri461@ecy.wa.gov

The project coordinator for the Port is:

Name:	Susan Roth
Address:	Roth Consulting 6236 27th Avenue N.E. Seattle, WA 98115-7114
Phone:	(206) 617-2176
FAX:	(206) 523-3155
E-mail:	susanjroth@comcast.net

Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and the Port, and all documents, including 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. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Order.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

E. Performance

This Order's terms regarding persons performing "work required by this Order" apply only to persons who expressly undertake responsibility for performing such work, and not to Agents/Contractors/Subcontractors of the Port who may take incidental actions subject to the Order as a result of addressing contamination encountered during construction or utility work.

1. The Port shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all

work undertaken by such agents, contractors, and subcontractors complies with this Order.

2. All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW.

3. All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

4. All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

5. Any documents submitted containing geologic, hydrologic or engineering work shall be under the seal of an appropriately licensed professional as required by Chapter 18.220 RCW or RCW 18.43.130.

The Port shall notify Ecology in writing of the identity of any engineering, geology contractor and subcontractor firms and other firms to be used in carrying out the terms of this Order in advance of their involvement at the Site.

F. Access

Ecology or any Ecology authorized representative shall have the full authority to enter and freely move about all property at the Site that the Port either owns, controls, or has access rights to at all reasonable times, consistent with federal law, for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing the Port's progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and

verifying the data submitted to Ecology by the Port. The Port shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by the Port where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by the Port unless an emergency prevents such notice. All persons who access the Site pursuant to this Section shall comply with any applicable Health and Safety Plan(s), and with any applicable federal law, such as that regulating access for homeland security purposes. Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

G. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, the Port shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with Section VII (Work to be Performed), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, the Port shall allow split or duplicate samples to be taken by Ecology and/or its authorized representative of any samples collected by the Port pursuant to implementation of this Order. The Port shall notify Ecology seven (7) days in advance of collecting samples at the Site pursuant to this Order; provided, however, that Ecology may waive this notification requirement and accept samples where they were collected during construction projects or other circumstances where sampling was prudent or necessary but unplanned; and provided further, sampling conducted pursuant to the approved Contamination Contingency Plan (Exhibit B) shall not require separate reporting as a result of this subsection. Ecology shall, upon request, allow split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order to be taken by the Port or its authorized representative provided it does not interfere with Ecology's sampling. Without limitation on Ecology's rights under

Section VIII. F of this Order, Ecology shall notify the Port prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

H. Public Participation

A Public Participation Plan is required for this Site. The approved Public Participation Plan is attached as Exhibit D.

Ecology shall maintain the responsibility for public participation at the Site. However, the Port shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop appropriate mailing list, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, if they concern implementation of this Order, and before any such major meetings with the interested public and local governments. Likewise, Ecology shall notify the Port prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments, all to the extent they concern implementation of this Order. For all Port press releases, fact sheets, meetings, and other outreach efforts that concern implementation of this Order that do not receive prior Ecology approval, the Port shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions or as a presenter.

4. Except as provided by the approved Public Participation Plan (Exhibit D), when requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

a. On Ecology's website which is freely accessible to the public.

b. Department of Ecology-NWRO
3190 160th Avenue S.E.
Bellevue, WA 98008-5452

c. Seattle Public Library
1000 4th Avenue
Seattle, WA 98104

At a minimum, electronic copies of all public notices, fact sheets, and press releases that concern implementation of the Order; remedial action plans and reports, supplemental remedial planning documents, and all other similar documents relating to performance of remedial actions required by this Order shall be promptly placed in these repositories.

I. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of work performed pursuant to this Order, the Port shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order. Upon request of Ecology, the Port shall make all such records available to Ecology and allow access for review within a reasonable time.

J. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section VIII. B. (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

a. Upon receipt of Ecology's project coordinator's written decision or the itemized billing statement, the Port has fourteen (14) days within which to notify Ecology's project coordinator in writing of its objection to the decision or itemized statement.

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

c. The Port may then request regional management review of the decision. This request shall be submitted in writing to the Hazardous Waste and Toxics Reduction Section Manager, Northwest Region Office, within seven (7) days of receipt of Ecology's project coordinator's written decision.

d. The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of the Port's request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.

2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

K. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension; and

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on the Port to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of the Port including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by the Port;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII. M (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of the Port.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give the Port written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII. L (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner;

b. Other circumstances deemed exceptional or extraordinary by Ecology; or

c. Endangerment as described in Section VIII. M (Endangerment).

L. Amendment of Order

The project coordinators may orally agree to minor changes to the work to be performed without formally amending this Order. In such a case, the Port shall submit a description of the minor changes to Ecology's Project Coordinator in writing within seven (7) days after the oral agreement. Minor changes will then be documented in writing by Ecology within seven (7) days after Ecology receives the Port's written description.

Except as provided in Section VIII. N (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and the Port. The Port shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to this Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII. J (Resolution of Disputes).

M. Endangerment

In the event Ecology determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct the Port to cease such activities for such period of time as it deems necessary to abate the danger. The Port shall immediately comply with such direction.

In the event the Port determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment, the Port may cease such activities. The Port shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction the Port shall provide Ecology with documentation of the basis for the

determination or cessation of such activities. If Ecology disagrees with the Port's cessation of activities, it may direct the Port to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this Section, the Port's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII. K (Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

N. Reservation of Rights

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any of Ecology's rights or authority. Ecology will not, however, bring an action against the Port to recover remedial action costs paid to and received by Ecology under this Order or the 1998 Order. In addition, Ecology will not take additional enforcement actions against the Port regarding remedial actions required by this Order, provided the Port complies with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

O. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in the Tank Farm Affected Area shall be consummated by the Port without provision for

continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to the Port's transfer of any interest in the Tank Farm Affected Area likely to substantially affect the performance of work under this Order, and during the effective period of this Order, the Port shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least fourteen (14) days prior to any such transfer, the Port shall notify Ecology of said transfer. For purposes of this provision, only those property interest transfers that involve planned capital improvements (for example, such as excavation or pile driving) shall be considered likely to substantially affect the performance of work under this Order. Upon transfer of any such interest, the Port shall restrict uses and activities to those consistent with this Order and notify all transferees of the restrictions on the use of the property.

P. Compliance with Applicable Laws

1. All actions carried out by the Port pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090.

2. Pursuant to RCW 70.105D.090(1), the Port is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, the Port shall comply with the substantive requirements of such permits or approvals.

The Port has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or the Port determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or the Port shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, the Port shall promptly consult

with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by the Port and on how the Port must meet those requirements. Ecology shall inform the Port in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. The Port shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the State to administer any federal law, the exemption shall not apply and the Port shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

Q. Financial Assurance

1. Financial assurance for corrective action is required by WAC 173-303-64620. Ecology's Financial Assurance Officer shall determine when the Port's actions and submissions meet the requirements of WAC 173-303-64620.

2. The Port must submit the executed or otherwise finalized financial assurance instruments or documents to Ecology's Financial Assurance Officer. In addition, the Port must also submit copies of financial assurance instruments or documents to Ecology's Project Coordinator.

3. Within sixty (60) days from the effective date of this Order, the Port shall submit to Ecology for review and approval a written cost estimate to cover the following activities at the facility: completion of the final feasibility study, submission of a draft CAP, implementation of the final CAP, and post cleanup monitoring at the Site. If Ecology rejects the Port's cost

estimate as submitted, Ecology shall provide to the Port a revised cost estimate amount that will be the approved cost estimate. Ecology will, if requested by the Port in writing, provide a written explanation of the variance between the Port's proposed cost estimate and Ecology's approved cost estimate. If Ecology does not accept, reject, or revise the Port's cost estimate within sixty (60) days after submittal, the Port's cost estimate will be deemed approved for purposes of this paragraph. Ecology reserves the right to review and revise the Port's cost estimate after the 60-day review period. If Ecology revises the the Port's cost estimate after the 60-day review period, the Port will have thirty (30) days after the revision to provide an updated financial assurance instrument. Within thirty (30) days after Ecology's final approval of the Port's cost estimate amount or the Port's receipt of Ecology's final approval of the Port's cost estimate amount, the Port shall establish and maintain continuous coverage of financial assurance in the amount of the approved cost estimate and submit the applicable financial assurance documentation per paragraph 2, provided, however, that if the Port uses the financial test mechanism, such documentation shall be timely if submitted within one hundred fifty days (150) of the end of the Port's next fiscal year.

4. If the Port is required to submit an additional work plan(s) under this Order, or to conduct activities related to corrective action not previously part of the original cost estimate, the process outlined in paragraph 3 shall be used to submit a revised cost estimate concurrent with the submission of an additional work plan(s).

5. If the Port believes that the estimated cost of work to complete activities under this Order has diminished below the amount covered by existing financial assurance provided under this Order, the Port may submit a written proposal to Ecology to reduce the amount of the financial assurance provided under this Section so that the amount of the financial assurance is equal to the estimated cost of the remaining work to be performed. The written proposal shall

specify, at a minimum, the cost of the remaining work to be performed and the basis upon which such cost was calculated. If Ecology decides to accept such a proposal, Ecology shall notify the Port of its decision in writing. After receiving Ecology's written decision, the Port may reduce the amount of financial assurance only in accordance with and to the extent permitted by such written decision. Within thirty (30) days after receipt of Ecology's written decision, the Port shall submit the applicable financial assurance documentation per paragraph 2. No change to the form or terms of any financial assurance provided under this Section, other than a reduction in amount, is authorized under this paragraph.

6. Within thirty (30) days of written notice of Ecology's selection of a final remedy, the Port shall prepare a detailed written estimate of the cost for the remaining amount of work to be completed under this Order including, but not limited to, the final remedy, and submit the same to both Ecology's Financial Assurance Officer and Project Coordinator for review and approval. The process outlined in paragraph 3 shall apply in the submission process of cost estimates.

7. All cost estimates must be based on the costs to the owner or operator of hiring a third party to complete the work. A third party is neither a parent nor a subsidiary of the Port. On a case-by-case basis, Ecology may also determine that a company which shares a common higher-tier corporate parent or subsidiary might not qualify as a third party. A cost estimate may not incorporate any salvage value that may be realized with the sale of wastes, facility structures or equipment, land, or other assets associated with the facility. The Port may also not incorporate a zero cost for wastes that might have economic value.

8. The Port shall annually adjust all cost estimates for inflation. Adjustments for inflation shall be calculated in accordance with the procedure outlined in 40 CFR 264.142(b).

9. Acceptable financial assurance mechanisms are trust funds, surety bonds, letters of credit, insurance, the financial test, and the corporate guarantee. Ecology may allow other financial assurance mechanisms if they are consistent with the laws of Washington and if the Port demonstrates to the satisfaction of Ecology that those mechanisms provide adequate financial assurance.

10. If the Port is using the financial test or corporate guarantee to meet their financial assurance obligation, the annual inflationary adjustment shall occur within one hundred fifty (150) days after the close of the Port's fiscal year. If the Port is using any mechanism other than the financial test or corporate guarantee, this adjustment shall occur each year within thirty (30) days after the anniversary of the effective date of this Order.

11. If the Port seeks to establish financial assurance by using a surety bond for payment or a letter of credit, the Port shall at the same time establish and thereafter maintain a standby trust fund acceptable to Ecology into which funds from the other financial assurance instrument can be deposited, if the financial assurance provider is directed to do so by Ecology, pursuant to the terms of this Order.

12. The Port shall notify Ecology's Project Coordinator and Financial Assurance Officer by certified mail of the commencement of a voluntary or involuntary bankruptcy proceeding, naming the Port as debtor, within ten (10) days after commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if it is named as debtor as required under the terms of the corporate guarantee.

a. Once the Port has established financial assurance with an acceptable mechanism, as described above, the Port will be deemed to be without the required financial assurance:

1) In the event of bankruptcy of the trustee or issuing institution; or

2) If the authority of the trustee institution to act as trustee has been suspended or revoked; or

3) If the authority of the institution issuing the surety bond, letter or credit, or insurance policy has been suspended or revoked.

b. In the event of bankruptcy of the trustee or a suspension or revocation of the authority of the trustee institution to act as a trustee, the Port must establish a replacement financial assurance mechanism by any means specified in WAC 173-303-620 or other financial instrument as approved by Ecology within sixty (60) days after such an event.

13. Ecology's Financial Assurance Officer is:

Name: Kimberly Goetz
Address: Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
Telephone: (360) 407-6754
FAX: (360) 407-6715
E-mail: kgoe461@ecy.wa.gov

R. Indemnification

The Port agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property to the extent arising from or on account of acts or omissions of the Port, its officers, employees, agents, or contractors in entering into and implementing this Order. However, the Port shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon the Port's receipt of written notification from Ecology that the Port has completed the remedial activity required by this Order, as amended by any modifications, and that the Port has complied with all other provisions of this Order.

X. TERMINATION OF 1998 AGREED ORDER

This Order supersedes the 1998 Order and the 1998 Order is terminated by letter from Ecology dated _____.

XI. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for remedial actions and orders related to the Site.

C. In the event the Port refuses, without sufficient cause, to comply with any term of this Order, the Port will be liable for:

1. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and

2. Civil penalties of up to $25,000 per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

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Effective date of this Order: _____

PORT OF SEATTLE

By _____
Tay Yoshitani
Chief Executive Officer

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

By _____
Julie Sellick
Section Supervisor
Hazardous Waste and Toxics Reduction
Northwest Regional Office

Exhibit A

Port of Seattle Terminal 91 Facility

Base Image - Google Earth, 2002

Note: For areas shown as Tank Farm Affected Area ("TFAA") that are outside the Tank Farm Lease Parcel, the TFAA includes only soil and ground water below the water table. Soil above the water table (and outside the Tank Farm Lease Parcel) is outside the TFAA.

N

0 600 1,200 feet

Scale: 1-inch = 600 feet

The locations of all features are approximate.

Explanation

- Port of Seattle Property Limits
- Tank Farm Lease Parcel
- Tank Farm Affected Area
- Submerged Land

Port of Seattle Terminal 91 Facility and Tank Farm Lease Parcel

Seattle, Washington

Exhibit B

Contamination Contingency Work Plan

Roth Consulting

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1.0 INTRODUCTION

1.1 Purpose and Application

This Work Contamination Contingency Plan ("CCP") has been developed to provide standard procedures to be followed for routine sampling, characterization, and disposal of unanticipated contaminated soil, excavation water, debris, underground storage tanks ("USTs"), underground fuel pipelines, and/or management of other potential source structures that may be discovered during construction activities at the Port of Seattle's ("Port's") Terminal 91 Site ("Site") within or outside of the Tank Farm Affected Area ("TFAA"). This CCP will cover new discoveries made during the following activities:

- Planned construction projects that are part of redevelopment activities at the Site and that often include soil excavation as part of the scope of work. These projects are typically carried out by third-party construction firms under contract to the Port.

- General maintenance and repair activities including Port underground utilities excavations. These typically are performed by Port maintenance personnel, the Port's construction division [i.e., Port Construction Services ("PCS")], the Port's third-party contractors, or utility companies with right-of-way access to Port property (e.g., Puget Sound Energy's gas main).

Due to the nature of contractual issues and scheduling requirements for these construction projects and activities, it may be necessary to make relatively quick decisions regarding handling of contaminated materials that might be encountered but that were not anticipated despite prior review of known environmental conditions. This CCP provides procedures for handling these specific situations with the Washington Department of Ecology's ("Ecology's") advance approval (i.e., by Ecology's approval of this CCP and its incorporation into the Agreed Order for the Site).

1.2 Site Location and Background

The Terminal 91 Facility is the real property owned by the Port of Seattle encompassing approximately 216 acres and located at 2001 West Garfield Street, Seattle, Washington. The Site includes areas where releases of Hazardous Substances originating from the Terminal 91 Facility have come to be located. The Site is defined by the extent of contamination caused by the releases of hazardous substances and may include both submerged lands and uplands. The Site location is shown on Figure 1, and a Site plan is provided as Figure 2.

The Site is comprised of three separate and distinct areas: (1) the TFAA; (2) the Submerged Lands Area; and (3) the Upland Area. The TFAA comprises the Tank Farm Lease Parcel and any areas where hazardous substances originating from the Tank Farm Lease Parcel have come to be located. The Submerged Lands Area means that part of the Terminal 91 Facility covered by marine waters, generally located on the southern portion of the Terminal 91 Facility and adjacent to Piers 90 and 91. The Upland Area means that part of the Terminal 91 Facility other than the Submerged Lands Area and the TFAA.

The Tank Farm Lease Parcel was used historically for fuel storage and dangerous waste treatment and storage. Aboveground closure of the former dangerous waste treatment and storage facility was approved by Ecology in October 2003, and the tank farm was demolished in 2005 as part of an independent interim remedial action. Aboveground and underground piping systems at the Site were used to transfer bunker oil and fuels between the Tank Farm Lease Parcel and ship berths.

The rest of the Terminal 91 Facility outside the Tank Farm Lease Parcel has been used for various industrial uses such as ship berthing and fueling, naval supply depot activities, parking of cars and school buses, cruise ship terminal operations, fish-processing equipment manufacturing, and cold storage. Another historic fuel tank farm also was located to the west of the Tank Farm Lease Parcel.

1.3 CCP Organization

This CCP is organized in the following manner:

- Sections 1 through 5 discuss the CCP's background and applicability, how the work will be implemented, key personnel responsibilities, and reporting requirements.
- Figures 1 and 2 show the location of the Site and relevant areas within the Site.
- Figure 3 is a flowchart showing how new discoveries of unanticipated contamination will be reported to Ecology.
- Table 1 lists the types of samples that generally would be collected under this CCP.
- Table 2 lists Port-approved treatment/disposal facilities that could be used under this CCP.
- Appendix A contains Standard Operating Procedures ("SOPs") that will be performed under this CCP.

2.0 CONSTRUCTION ENVIRONMENTAL OVERSIGHT

2.1 Scope of Environmental Oversight Activities

The Port's Seaport Environmental Program group coordinates and provides oversight of environmental management activities for Port construction projects at Terminal 91. Oversight includes review of construction plans and specifications, review of background information (e.g., historical environmental data), review of contractor work plans, and field oversight during construction--including field sampling, waste characterization, and disposal facility coordination. With respect to Terminal 91, oversight responsibilities also include compliance with the Agreed Order. Environmental oversight is provided by Port environmental management staff and its environmental consultants, and is coordinated with Ecology as described in the following sections.

2.2 Roles and Responsibilities

The specific roles and responsibilities of Port environmental personnel associated with Terminal 91 construction activities are described as follows.

The Port's Site Project Manager provides project input on environmental conditions and remedial options and oversees the Agreed Order work.

The Port has a designated Environmental Management Specialist who is responsible for oversight of environmental management activities as part of the Port's construction projects. The Environmental Management Specialist provides review of construction plans and specifications, background environmental information, and contractor and consultant work plans; and provides oversight of the Field Environmental Consultants. The Environmental Management Specialist assists the Port's Site Project Manager in selection of remedial options.

The Port has designated a consultant to act as Agreed Order Project Coordinator on behalf of the Port of Seattle, and as such the consultant is the primary contact with Ecology's Project Coordinator.

Field Environmental Consultants for the project are environmental scientists, engineers, or technicians that are trained in contaminated soil and water identification, sampling, waste characterization and profiling, and remediation oversight. The Field Environmental Consultants report to the designated Environmental Management Specialist on environmental construction activities. Their responsibilities include collection of soil, water, and media samples; waste characterization profiling; assistance in remedial planning; and observation of contractor activities involving handling of contaminated media.

3.0 ENVIRONMENTAL DISCOVERY AND REMEDIAL PLANNING

3.1 Discovery of Unanticipated Contamination

As described in Sections 2.1 and 2.2, Port environmental management personnel review construction plans prior to implementation, and assess the potential for construction excavation activities to encounter contaminated soil based on factors such as previous sampling and historic activities at the construction project location. However, it is still possible that unanticipated contamination (e.g., contaminated soil, excavation water, or debris) and/or potential source structures such as underground fuel storage or transfer facilities may be found during excavation activities. Potentially contaminated media or potential source structures typically are identified and reported by the contractor, the resident engineer and/or inspector, Port environmental staff, or the Field Environmental Consultant during periodic site visits. When potentially contaminated media or potential source structures are identified, the Port's field representative in charge of supervising the construction project (i.e., the resident engineer, inspector, superintendent, or foreman) typically contacts the Port's Environmental Management Specialist and/or the Field Environmental Consultant to further investigate the report. These primary points of contact are based on the chain-of-command that is established for each project. This section describes the process for environmental management of these potential discoveries.

3.2 Field Screening and Assessment

After receiving a report of potentially contaminated media or potential source structures, the Field Environmental Consultant or Port Environmental Management Specialist will visit the site to perform the initial field screening and assessment. Contaminated areas will be screened using visual observations, olfactory clues, and/or photoionization detector ("PID") measurements. If warranted in the environmental professional's judgment, samples would be collected to determine if contamination exists in a project area, to evaluate the extent of contamination, to design cleanup actions, to document residual concentrations remaining in the project area after completion of interim cleanup actions, to document completion of a

cleanup action, and/or to characterize waste material for reuse or disposal/treatment purposes. For potentially contaminated media, screening and sampling (if appropriate) will be performed as described in SOP-1 (Appendix A). For USTs, sampling also will be performed as described in SOP-6 (Appendix A).

Screening and laboratory analyses to be performed on samples will be selected based on the Ecology-approved Guidance for Waste Designation Procedures at Terminal 91 (November 11, 2008; Appendix B) and Management of the Port of Seattle's T-91 Facility's Tank Farm Site Subsurface Debris (December 18, 2008; Appendix C).

3.3 Remedial Planning and Remedial Actions

After the field screening and initial assessment have been completed, the Field Environmental Consultant will work with the Port Environmental Management Specialist and/or the Port Site Project Manager as appropriate to plan appropriate remedial actions for the contaminated media or source structure. Planning considerations for remedial actions to be conducted during the construction activity will include the type of contamination, potential extent, contact with ground water, and type of construction activity being performed.

Potential remedial actions to be considered for contaminated soil typically include a range of options. For example, the range could vary from appropriate disposal of only the media that was required to be removed from the excavation in order to complete the planned construction activities, to over-excavation of all impacted soil in the vicinity. The remedial option selected for implementation during the construction project would depend upon such factors as the contractor's scheduling and/or contractual requirements, placement of structures during the construction project that would make the location inaccessible for future remedial activities, and/or project budget constraints. Common remedial actions that typically could be included in this selection process are as follows:

- Excavation and disposal of soil at an appropriate facility

- Skimming of floating product from excavation water, or dewatering the excavation, and hauling or discharging the product and/or water to an appropriate facility

- Installation of product collection devices such as product monitoring/recovery wells in open excavations prior to backfilling to facilitate later product monitoring/recovery activities

- Addition of commonly used remediation products such as Oxygen Release Compound ("ORC™") to open excavations to enhance natural attenuation processes.

Remedial action procedures to be followed for this work are provided in SOP-2 through SOP-5 (Appendix A).

For USTs, remedial actions will include decommissioning and site assessment activities in accordance with Ecology's UST regulations and guidance, as described in SOP-6 (Appendix A).

For underground fuel pipelines or other structures, remedial actions will include decommissioning by cleaning as necessary, sampling any pipe coatings for potential asbestos-containing materials (if indicated), removal, and disposal at an appropriate facility. A separate consultant or contractor will be hired by the Port to provide sampling and material-handling services for the asbestos evaluation and material-handling work. Remedial action procedures to be followed for this work are provided in SOP-7 (Appendix A).

3.4 Waste Disposal Characterization and Profiling

Samples of soil, water, or debris will be collected and analyzed as necessary to characterize waste material for reuse or disposal purposes. The types of analyses to be performed will be dependent on the past uses of the area. The number of samples to be collected will be based on the requirements of the receiving disposal/treatment facility. Waste profiles will be prepared by POS environmental management staff or environmental consultants, as authorized by POS. Waste characterization, profiling, and management will be performed

using Ecology-approved Guidance for Waste Designation Procedures at Terminal 91 (November 11, 2008; Appendix B) and Management of the Port of Seattle's T-91 Facility's Tank Farm Site Subsurface Debris (December 18, 2008; Appendix C).

4.0 REMEDIAL ACTION AND CONFIRMATION SAMPLING

4.1 Field Observation of Remedial Action

The Field Environmental Consultant or Port Environmental Management Specialist will observe remedial actions that are performed by the third-party contractor, PCS, or Port maintenance personnel. If the remedial action consists of contaminated soil excavation, the Field Environmental Consultant or Port Environmental Management Specialist will be responsible for screening of contaminated soil that is removed from excavation in order to assist the third-party contractor, PCS, or Port maintenance personnel in determining the total quantity of soil to be removed. The Field Environmental Consultant or Port Environmental Management Specialist also will observe other remedial activities such as removal of free product from excavation water and cleaning and removal of USTs, underground fuel pipelines, or other potential source structures, if discovered.

4.2 Cleanup Action and Soil Profiling

For remedial actions involving soil excavation, the third-party contractor, PCS, or Port maintenance personnel will be responsible for excavation of contaminated material and transport to the recycling, treatment, disposal facility or transfer station. Oversight of the contaminated soil excavation will be provided by the Field Environmental Consultant or Port Environmental Management Specialist, as described in Section 4.1. Soil profiling for the receiving facility typically will be performed by Port environmental management staff or environmental consultants and provided to the contractor and the receiving facility.

4.3 Contaminated Media Transport and Disposal/Treatment

Contaminated media will be transported to appropriate receiving facilities by the third-party contractor, PCS, or Port maintenance personnel. The Port requires that media be sent to

Port-approved facilities, or requires prior Port approval before a facility can be used. Port-approved receiving facilities are listed in Table 2.

4.4 Confirmation Sampling and Analysis

Where the remedial action consists of soil excavation, the Field Environmental Consultant will collect confirmation samples of soil remaining in the bottom and sidewalls of the remedial excavation, as appropriate, in order to confirm that cleanup has been completed and/or to document contaminated soil left in place. Confirmation soil samples will be collected at appropriate intervals depending on the size and configuration of the excavated contaminated soil. Laboratory analytical methods to be performed will be dependent on the source of the release. At a minimum, sample intervals will be selected as shown in Table 1.

4.5 Site Restoration

Site restoration typically will be determined in advance by the nature of the construction project. Typically if soil excavation is performed, the purpose is to install underground structures such as ductbanks and/or other utilities, manholes, vaults, and building footings or to facilitate improvements such as replacement pilings along the piers. Materials placed back in the excavation can include these structures as well as clean fill material excavated from other portions of the site during construction activities, or from other Port properties, or imported clean fill materials such as crushed rock. The nature of these materials will depend on the needs of the construction project and will be determined by the Port resident engineer and contractor.

5.0 REPORTING

5.1 Notification

After the initial discovery and assessment have been made as described in Section 3.2, and the presence of contaminated media (or underground fuel pipelines, a UST, or other similar structures) has been confirmed, the Project Coordinator on behalf of the Port or the Port's Site Project Manager or designee will contact Ecology's Site Project Coordinator by phone or email within 24 hours of the confirmation that contaminated media are present. For this Site, samples of media shall be considered contaminated if the environmental professional concludes that the concentration of chemical constituents exceeds MTCA Method A industrial cleanup levels. Because the scheduling of construction projects can involve work at night and on weekends, or 24-hour 7-day shifts, it will not always be possible for the Port to establish immediate contact with Ecology's Project Coordinator. In those cases, due to the nature of the construction project requirements, it may be necessary to proceed with the Port's selected remedial action. Figure 3 shows the decision tree to be used in the event that Ecology's Site Project Coordinator is not immediately available, and immediate action needs to be taken in order to continue work on the project.

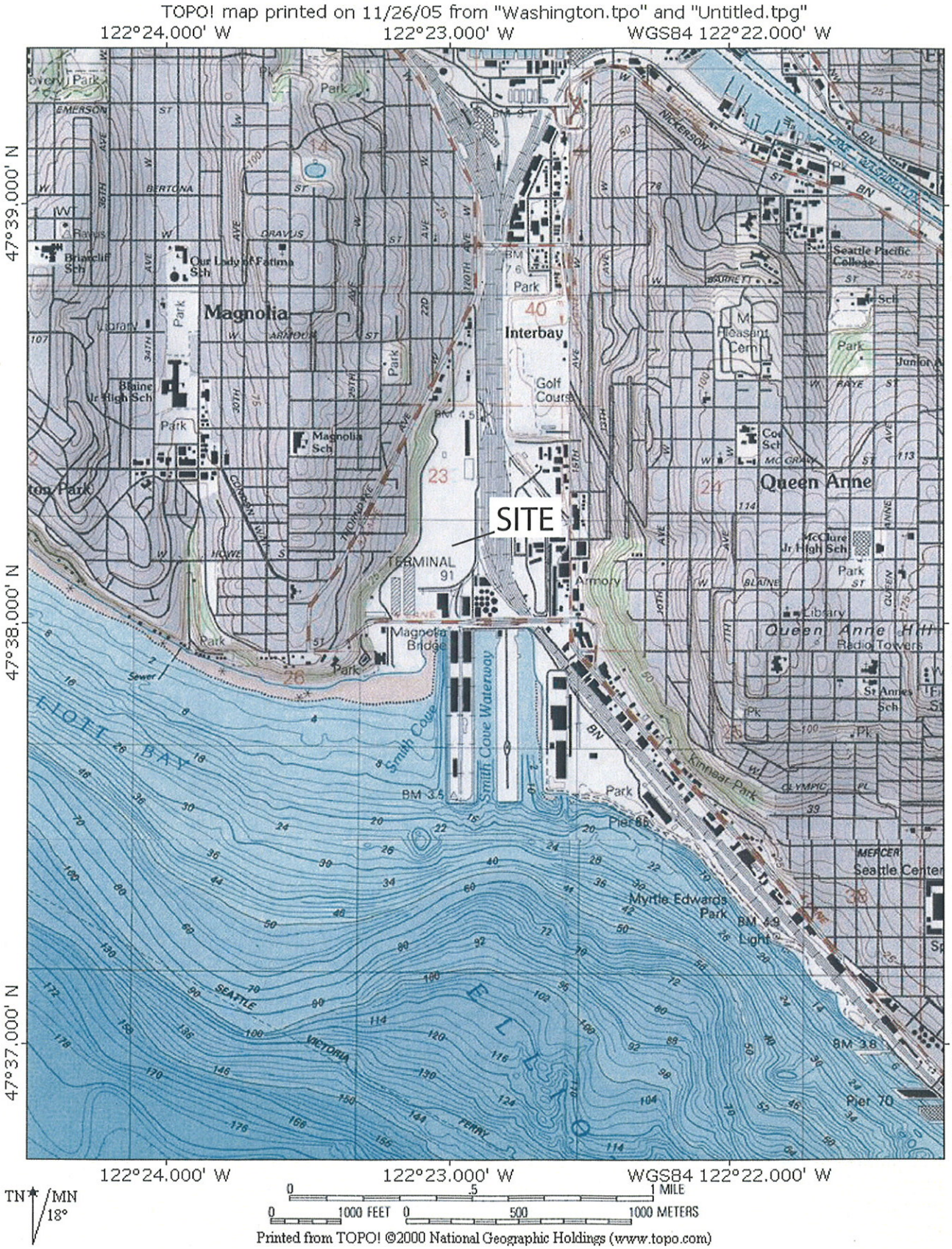
5.2 Status Reports

Field observations, field screening results, sample analytical results, cleanup actions performed, and quantities of media transported for recycling or disposal will be reported to Ecology during the first quarterly status report following the actions.

5.3 Summary Reports

After completion of remedial actions under this work plan, a summary report of the remedial action will be produced. The summary report will include a map of sample locations, a map of the extent of the excavation or other remedial activity, laboratory analytical reports of samples collected, tabulated summaries of laboratory analytical results, materials disposal documentation, and summaries of quantities of materials disposed. The

remedial action report will be delivered to Ecology within 90 days of completion of the construction project that includes the remedial action.



Roth Consulting

Figure 1
Site Location
Terminal 91 Site

Base Image - Google Earth, 2002

Note: For areas shown as Tank Farm Affected Area ("TFAA") that are outside the Tank Farm Lease Parcel, the TFAA includes only soil and ground water below the water table. Soil above the water table (and outside the Tank Farm Lease Parcel) is outside the TFAA.

N

0 600 1,200 feet

Scale: 1-inch = 600 feet

The locations of all features are approximate.

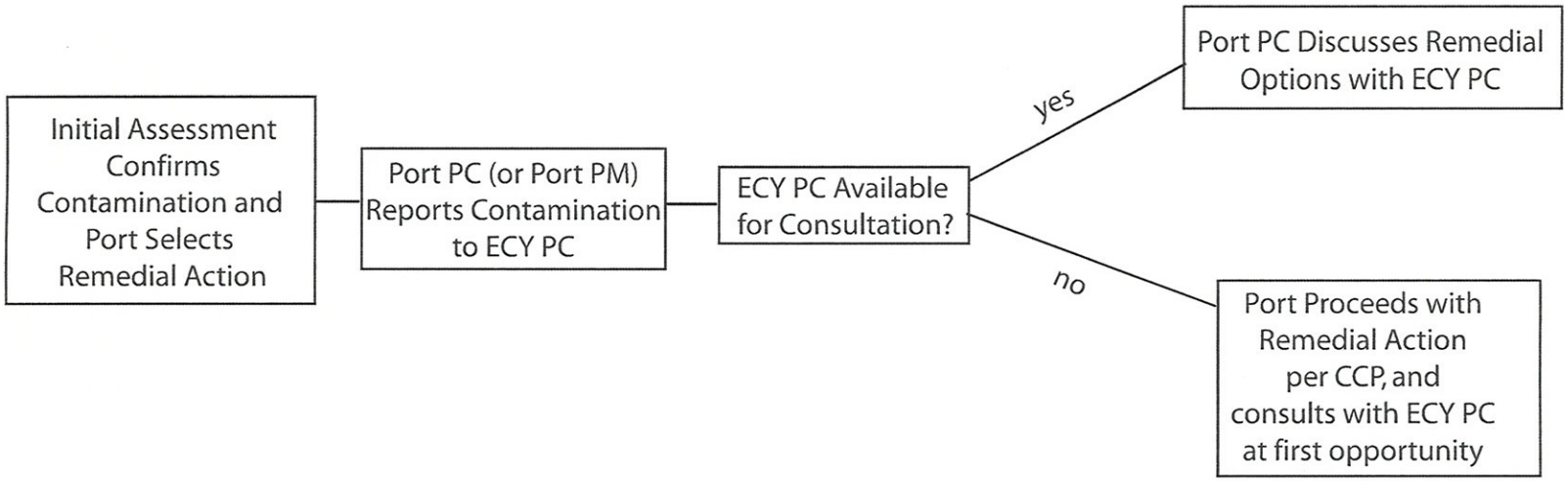
Explanation

- Port of Seattle Property Limits
- Tank Farm Lease Parcel
- Tank Farm Affected Area
- Submerged Land

Figure 2--Site Plan

Port of Seattle Terminal 91 Facility and Tank Farm Lease Parcel

Seattle, Washington



Roth Consulting

Figure 3
Discovery Reporting Flowchart
Terminal 91 Agreed Order

Roth Consulting

Table 1

Summary of Sample Collection Information
Terminal 91 Site Unanticipated Contamination

Location	Sample Purpose	Matrix	Minimum Number of Samples	Sample Method
Excavation	Confirmation	Soil	3[a]	Discrete
Trench	Confirmation	Soil	Every 100 feet	Discrete
Stockpiles In-Situ Soil Containers	Waste Characterization Profiling	Soil Liquids Debris	Per Disposal Facility Requirements	Composite
Quality Assurance	Quality Assurance	Soil	1	Duplicate

Notes:

a. The total number of samples will be selected based on size of the excavation.

Table 2

List of Port-Approved Treatment/Disposal Facilities
Terminal 91 Agreed Order

Rabanco/Allied Waste

Roosevelt Regional Landfill
500 Roosevelt Grade Road
Roosevelt, WA 99356

Waste Management/Chem. Waste Management

Chemical Waste Management of the Northwest
17629 Cedar Springs Lane
Arlington, OR 97812

Columbia Ridge Recycling and Landfill
18177 Cedar Springs Lane
Arlington, OR 97812

LaFarge/Systech

LaFarge/Systech - Seattle
5400 W. Marginal Way S.W.
Seattle, WA 98106

LaFarge/Systech - Fredonia Kansas
1420 South Cement Road
Fredonia, Kansas 66736

Rinker

Rinker - Everett Soil Remediation
6300 Glenwood Ave
Everett, WA 98213-0037

Clean Harbors

Clean Harbors Deer Park, L.P.
2027 Independence Parkway South
La Porte, TX 77571

Clean Harbors Aragonite, LLC
11600 North Aptus Road
Dugway, UT 84022

Clean Harbors Environmental Services, Inc. - Kimball
2247 South Highway 71
Kimball, NE 69145

Clean Harbors El Dorado, LLC
309 American Circle
El Dorado, AR 71730

Emerald Services

Emerald Services - Airport Way
1500 Airport Way South
Seattle, WA 98134

Emerald Services - Tacoma
1825 Alexander Avenue
Tacoma, WA 98421

US Ecology

US Ecology - Grand View Idaho
20400 Lemley Rd.
Grand View, ID 83624

Appendix A

Standard Operating Procedures

STANDARD OPERATING PROCEDURE (SOP) # 1
Field Screening and Initial Assessment Soil Sample Collection

PID Screening

1. Calibrate the photoionization detector ("PID") at least daily in accordance with the manufacturers' written instructions.

2. Hold the PID probe to freshly exposed surfaces of the potentially contaminated soil found within the excavation, excavation stockpile, or backhoe bucket.

3. Alternatively, place soil in a zip-lock plastic bag or sample jar and screen using a headspace analysis.

4. Document the sample location on a figure and results in the field log.

Visual and Olfactory Screening

1. Observe suspected contaminated media in comparison to typical clean media.

2. Document any unusual colors, textures, materials, or odors in the field log.

Sheen-Test Screening (for Soil)

1. Place small quantity of soil in plastic bag or clean jar and add an equivalent amount of potable or distilled water.

2. Document observed sheen or the absence of sheen in the field log.

Soil Sample Collection

1. Soil samples may be collected depending on the results of the field screening. If field screening does not indicate the presence of potential contamination, soil sampling may not be required.

2. Document the soil sample collection, if performed, in field log. Record sample location, sample number, date and time collected, and results of any field screening as described above.

STANDARD OPERATING PROCEDURE (SOP) # 2
Excavation of Unanticipated Contaminated Soil

1. The contractor will excavate contaminated soil under the direction of the Field Environmental Consultant. The contaminated soil will be direct-hauled to the approved disposal/treatment facility or stockpiled, depending on the nature of the contamination and the status of the waste characterization profiling.

2. The Field Environmental Consultant will observe the contractor's activities during excavation of contaminated soil for disposal/treatment. The Field Environmental Consultant will document in the field log the extent of the area containing contaminated soil, the excavation extent, environmental test results, test locations, and the actions taken to comply with the CCP.

STANDARD OPERATING PROCEDURE (SOP) # 3
Recovery of Free Product from Excavation Water

1. If free product collects in a standing body of water at the bottom of an excavation, the Field Environmental Consultant will work with the Port resident engineer and the contractor to develop a site-specific remedial action plan to be approved by the Port. The free product remedial action will involve using sorbent pads or booms to extract the free product and pumping the excavation water and/or product to a holding tank or an oil-water separator.

2. The Field Environmental Consultant will document in the field log the extent of the area containing free product, the excavation extent, test results, and the actions taken to comply with this CCP.

STANDARD OPERATING PROCEDURE (SOP) # 4
Installation of Product Monitoring/Recovery Wells

Product monitoring/recovery wells may be installed in an excavation in order to facilitate future product monitoring and/or recovery efforts in areas where LNAPL is suspected to be present on the water table. These wells would be installed during backfilling of the excavation as part of site restoration activities. Well installation will be performed in accordance with the Minimum Standards for Construction and Maintenance of Wells (WAC 173-160).

STANDARD OPERATING PROCEDURE (SOP) # 5
Application of ORC™ or Other Commonly Used Remedial Products

This procedure could be used to enhance natural attenuation processes in areas where petroleum hydrocarbons have been detected in ground water. In the case of an open excavation, ORC™ or other commonly used remedial products could be applied directly to groundwater in order to assist in degrading petroleum constituents. The procedure to be used is as follows.

1. The Field Environmental Consultant and/or Port Environmental Management Specialist will consult with the applicable vendor to determine an appropriate rate, volume, and method for application of the product based on site-specific conditions. Materials Safety Data Sheets ("MSDSs") for the product will be obtained and kept on file for use in reporting.

2. The Field Environmental Consultant and/or Port Environmental Management Specialist will oversee the contractor or vendor's application of the product at the Site.

3. The Field Environmental Consultant and/or Port Environmental Management Specialist will record the details of timing, location, volumes and methods for application of product applied to the excavation. These data will be kept on file for use in reporting.

STANDARD OPERATING PROCEDURE (SOP) # 6
Removal of Unanticipated Underground Storage Tanks

1. The Port resident engineer or inspector will notify the Field Environmental Consultant if an unanticipated underground storage tank ("UST") is encountered during excavation.

2. The Field Environmental Consultant will coordinate with the Port resident engineer and the contractor to develop a plan for removal of the UST. The plan shall include a) determination of UST contents, b) removal of tank contents for recycling or disposal if applicable b) tank inspection and decommissioning in accordance with state underground storage tank regulations, and c) preparation of a UST decommissioning report. The work will be performed in accordance with the State Underground Storage Tank Regulations (WAC 173-360). A licensed tank decommissioner will be present during the tank decommissioning activities.

3. The Field Environmental Consultant will coordinate with the Port resident engineer to verify that the proper tank closure notifications are made and that the contractor performs the specified UST decommissioning and prepares a UST decommissioning report.

4. The Field Environmental Consultant will perform the UST site assessment and prepare the UST site assessment report. The site assessment will be performed using the Department of Ecology's Guidance for Site Checks and Site Assessments for Underground Storage Tanks (Ecology Publication 90-52). A certified site assessor will be present during the site assessment activities.

5. Follow procedures for soil excavation identified in SOP # 2 if contaminated soil is encountered and remedial action is performed as part of the construction project activities.

STANDARD OPERATING PROCEDURE (SOP) # 7
Removal of Unanticipated Underground Fuel Pipelines or Other Potential Source Structures

1. The Port resident engineer or inspector will notify the Field Environmental Consultant if an unanticipated underground fuel pipelines or other potential source structures are encountered during excavation.

2. The Field Environmental Consultant will coordinate with the Port resident engineer and the contractor to develop a plan for removal of the fuel pipelines or other structures, if required by the construction project. The plan shall include a) determination of fuel pipelines or structure contents, b) removal of contents for recycling or disposal if applicable, c) determination if fuel line coatings contain asbestos and d) identification of an appropriate disposal facility for the pipelines or other structures.

3. The Field Environmental Consultant will document in the field log the removal activities, the excavation extent, test results, and the actions taken to comply with this CCP.

4. Follow procedures for soil excavation identified in SOP # 2 if contaminated soil is encountered and remedial action is performed as part of the construction project activities.

Appendix B

Guidance for Waste Designation Procedures at Terminal 91

GUIDANCE FOR WASTE DESIGNATION PROCEDURES AT TERMINAL 91

1.0 BACKGROUND AND REGULATORY FRAMEWORK

A RCRA dangerous waste treatment and storage facility ("TSD") formerly was operated by former tenants of a 4-acre portion [known as the Tank Farm Lease Parcel] within the Port of Seattle's 216-acre Terminal 91 property. Corrective action at the entire Terminal 91 property is required under a RCRA Part B permit because EPA's definition of "facility" for the purposes of corrective action includes all contiguous property under control of the owner or operator. This document provides a basis and rationale for an approach to characterization of cleanup media as dangerous or non-dangerous waste. It is intended for use in cleanups conducted within all areas subject to the 1998 Agreed Order and the 2009 Agreed Order (in progress).

2.0 RATIONALE FOR DETERMINATION IF WASTE MEDIA IS DANGEROUS OR NON-DANGEROUS

2.1 GENERAL PRINCIPLES

Contaminated media (e.g., soil or ground water) is not dangerous waste unless it exhibits a dangerous waste characteristic, state-only criteria or is contaminated with concentrations of hazardous constituents from listed dangerous waste. Note that a "contained-out" determination may be granted by Ecology for environmental media that contains concentrations of listed wastes that are below health-based levels (typically MTCA Method B cleanup levels). Characteristic and state only wastes are determined by means of generator knowledge and standard testing methods and are based upon the properties of the waste. By contrast, determination that a contaminated media contains constituents from a listed dangerous waste requires knowledge that a listed waste was released to and came into actual contact with the media in question. If a facility owner or operator makes a good faith effort to determine if a material is a listed waste but cannot make such a determination because documentation regarding a source of contamination, contaminant or waste is unavailable or inconclusive, the generator of the waste may assume the source, contaminant, or waste is not listed waste and, therefore, provided the material in question does not exhibit a characteristic of dangerous waste or state only criteria, RCRA requirements do not apply (EPA 1998).

2.1.1 Potential for Characteristic and State Only Criteria Wastes at Terminal 91

As with any cleanup site, contaminated media that constitutes characteristic dangerous waste could potentially be encountered wherever cleanup occurs at the Terminal. Therefore, the Port will apply standard waste classifications considerations to determine whether particular wastes might exhibit dangerous waste characteristics of toxicity, ignitability, etc. and does not exhibit a state only criteria.

2.1.2 Potential for Listed Wastes Mixed with Cleanup Media at Terminal 91

Media may be dangerous based on their contact with listed dangerous wastes. They could be encountered wherever listed wastes were released or where such releases have migrated. Characterization of wastes as mixed with listed dangerous wastes may be difficult at Terminal 91, because there is little information regarding historic releases of listed wastes, and because the chemical constituents now found in the media are consistent with various materials known to have been handled at the Terminal, some of which were listed dangerous wastes but the vast majority of which were not. Because many of the chemical constituents likely to be found in media at Terminal 91 could be attributed to either listed dangerous wastes or other wastes (solid wastes or characteristic dangerous wastes), care should be taken to avoid "false positive" identification of media as having been mixed with listed dangerous wastes. Therefore, the Port would characterize media by accounting for professional judgment and other factors in addition to media's chemical constituents. Because undocumented releases of listed dangerous wastes may have occurred, the use of professional judgment in determining the likelihood that environmental media could be contaminated with listed dangerous wastes is required. Some but not all possible examples: soils contaminated with listed constituents, located below or near areas where listed dangerous wastes were managed or located; groundwater contaminated with listed constituents located below, near and downgradient of areas where listed dangerous wastes were managed or located.

The use of professional judgment and other factors relate to the possibility that the media in question could have been contaminated by exposure to releases of listed dangerous waste, and they include:

- knowledge of listed wastes that were and were not handled at the TSD, as well as knowledge of other fuels and wastes historically handled at the Terminal that have constituents in common with the listed wastes handled at the TSD;
- knowledge of where wastes were released (although no releases of listed wastes are specifically known to have occurred);
- undocumented releases of listed dangerous wastes[1];

[1] Although there are no reported and documented releases of listed wastes from the Tank Farm Lease Parcel, the Port will need to assume the possibility of unreported releases of listed dangerous wastes in evaluating contaminated environmental media near areas where listed wastes were managed or located.

- knowledge of locations where listed wastes were or were not handled; and
- consideration of whether media could have been contaminated by releases of constituents other than listed waste, based on knowledge of historic releases of such materials as, for example, fuel oil or bunker oil. Factors relevant under this category include where such releases occurred and concentrations or patterns of the constituents involved.

2.2 FACTORS AFFECTING WASTE DESIGNATION AT TERMINAL 91

2.2.1 Listed Wastes Known to Have Been Handled and Their Locations

The RI/DE Report identified wastes known to have been handled at the Tank Farm Lease Parcel during its operation as a RCRA DW treatment and storage facility [see attached Tables 2.3 (Wastes historically managed at the TSD) and 2.4 (Wastes managed at the time of closure) from the RI/DE Report (PSC 1999), which was incorporated by reference into the final RI Summary Report (Roth Consulting 2007) for the T91 Tank Farm Site]. The wastes historically handled at the facility fell into six categories, five of which were either solid wastes or characteristic dangerous wastes. One of the six categories included some low-level listed wastes. These listed wastes consist of low levels of F001 – F005 waste. Outside of the Tank Farm Lease Parcel, there are no locations of the Terminal where listed dangerous wastes are known to have been handled. However, it is possible that listed dangerous wastes that may have been released from within the Tank Farm Lease Parcel may have migrated with groundwater to portions of the site "outside" the Tank Farm Lease Parcel. This is based on cleanup documents prepared under the 1998 Agreed Order [for example the T91 Baseline Report (Kennedy/Jenks Consultants 1997)] and under EPA's jurisdiction prior to the 1998 Agreed Order [such as the Remedial Facility Assessment (EPA 1994)].

In the case of contaminated saturated soils and groundwater, the Port will need to evaluate site sample data and use professional judgment in considering the likelihood that nearby soils and downgradient contaminated saturated soils and groundwater are contaminated from an unreported and undocumented release of an upgradient listed dangerous waste. The Port may also use other criteria including but not limited to, concentration of contaminants, and the relatively small or large volumes of listed wastes managed (and locations) compared to volumes and locations of non-listed dangerous wastes (with similar chemical constituents) in specific areas to evaluate the likelihood that environmental media is contaminated with a listed dangerous waste. The Port should document its designation justifications and contact the Ecology NWRO if they have questions.

2.2.2 Listed Waste Releases

Media to be removed from any areas where listed dangerous wastes were released would need to be evaluated for possible classification as dangerous wastes. Based on information provided by the former facility operator, PSC, in the RI/DE Report (PSC 1999), however, there were no known releases of listed or other dangerous wastes at the Tank Farm Lease Parcel.[2] PSC did report releases of large quantities of non-dangerous waste or product at the Tank Farm Lease Parcel, including bunker oil, asphalt, fuel oil, and oily water (PSC 1999). There are no reported releases of listed dangerous wastes at the Terminal outside the Tank Farm Lease Parcel.[3]

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[2] *Id.*
[3] *Id.*

3.0 WASTE CHARACTERIZATION PRINCIPLES FOR TERMINAL 91

3.1 MEDIA REMOVED FROM AREAS OUTSIDE THE TANK FARM AFFECTED AREA

Cleanup media to be generated as wastes in connection with cleanup activities outside the Tank Farm Affected Area ("TFAA") will be classified using professional judgment and site-specific knowledge, including knowledge of contaminants known to have been or potentially released in the area and contaminants detected in analysis of the media. Petroleum and fuel-related materials were released outside of the Tank Farm, but as noted above, no releases of listed wastes are known to have occurred anywhere at Terminal 91, and listed dangerous wastes are not believed to have been managed outside the TFAA[4]. Therefore, as cleanup media are generated as wastes outside the TFAA, the Port will conduct routine sampling as necessary for waste screening and disposal purposes. Unless such analyses and professional judgment indicate the likelihood of dangerous waste characteristics, state-only criteria, or listed waste contamination, media from outside the TFAA will be managed as solid waste. Note: "Tank Farm Affected Area" includes areas where constituents (hazardous substances) from the Tank Farm Lease Parcel have come to be located. It is possible that media could be removed from strata overlying saturated zones affected by such migration. If such media are not believed to have come into contact with the migrated constituents because, for example, they are always above the saturated zone, they would not be considered to be from the TFAA, and would not be subject toany presumptions relating to the TFAA, such as increased potential for contact with listed dangerous wastes[5].

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[4] *Id.*
[5] *Id.*

3.2 MEDIA FROM THE TANK FARM AFFECTED AREA FOUND NOT TO CONTAIN RELEVANT LISTED WASTE

Media removed from the TFAA will be sampled and analyzed to determine whether it contains constituents associated with listed wastes known to have been handled at the TSD. Those appear to have been limited to the listed wastes F001 - F005. Results from these analyses will be used to designate cleanup media wastes according to the following principles:

- Media found not to contain such F001 – F005 constituents will be managed in the same manner as section 3.1, i.e., as solid wastes (unless they exhibit a dangerous waste characteristic).
- Media found to contain only BTEX constituents will be managed as in section 3.1. This is because there is no information indicating releases[6] of listed dangerous wastes containing BTEX constituents in the TFAA. On the other hand, multiple relatively large-volumes of non-dangerous TPH materials were reportedly released.
- Other media found to contain constituents associated with listed wastes known to have been managed at the TSD (other than BTEX constituents) will be evaluated in light of historic waste handling and release information[7] to determine whether there is evidence that it contains a listed dangerous waste.
- Media found to contain such listed constituents, but at levels (below MTCA Method B), may, with Ecology's approval, be managed as solid wastes in accordance with Ecology's written approval and required management of contained-out environmental media.
- Media found to contain constituents as a result of mixture with listed dangerous wastes will be managed as listed dangerous wastes, unless Ecology approves a contained-out determination.

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[6] *Id.*
[7] *Id.*

TABLE 2.3

WASTES HISTORICALLY MANAGED AT THE SITE BY BEI
TERMINAL 91 TANK FARM SITE RI/DE REPORT

WASTE DESCRIPTION	POTENTIAL CONTAMINANTS
Waste Oils[2]	
Crankcase oils, bunker fuels, diesel and tank cleaning residuals, and waste boiler fuel (fuel oil #6)	1. Metals including cadmium, chromium, lead 2. Other constituents silicon, and phenol (less than 1,000 ppm) 3. Sulfur; and 4. Iron scale
Coolant Oils	
Metal machining waste	1. Metals including aluminum, arsenic, chromium (III), iron, and zinc; 2. Exotic metals including magnesium and titanium; and 3. Chlorinated paraffins (non-hazardous waste)
Oily Industrial Wastewaters	
Tank cleaning waste, bilge waters, etc.	1. Low-level oil contamination; 2. Metals including trivalent chromium, hexavalent chromium, lead, and zinc; 3. Waste oil constituents including cadmium, copper, iron, lead, phenols and silicon; 4. Surfactants including soaps, and defoamers (non-hazardous wastes)
Industrial Wastewaters Without Oil	
Automobile manufacturing waste	1. Low levels of hexavalent chromium (VI) 2. Aluminum
Industrial Wastewaters With Solvents	
Rinsewater from cleaning and stripping of airplanes	1. Low levels of F001-F005 Waste 2. Phenol 3. Low-level (approximately 1000-4000 ppm) methylene chloride
Waste Sludges	
Oily sludges from cleaning of sumps	1. Metals including cadmium, chromium, lead 2. Other constituents silicon, and phenol (less than 1,000 ppm) 3. Sulfur 4. Iron scale

[1]Information obtained from BEI files.
[2]Note: All waste oils have the possibility of low-level PCB contamination and levels of BTEX compounds.

TABLE 2.4

WASTE AND PRODUCTS HANDLED BY BEI[1]
AT THE TIME OF ABOVEGROUND CLOSURE
TERMINAL 91 TANK FARM SITE RI/DE REPORT

WASTE DESCRIPTION	WASTE CODES	DW/EHW
Bunker-C and water	WT02	DW
Cleaners-mixed alkaline, glycol <10%, oil, water	WT02	DW
Crankcase oil	WT02	DW
Cutting fluid/tramp oil: chlorinated paraffins, diethylene	WP02	DW
Dewatered oil tank sludge	WT02	DW
Dewatered tank bottom solids potentially containing arsenic, cadmium, chromium, lead, or mercury	D004, D006, D007, D008, D009	DW
Diesel fuel - with benzene	D018, WT02	DW
Emulsified oil-coolant/water/detergent	WT02	DW
Ethylene glycol/water-antifreeze <12% concentration	WT02	DW
Jet/A-fuel and water	WT02	DW
Machine coolant (Trim-sol)	WT02	DW
Mineral oil	WT02	DW
Mineral oil	D001	DW
Mixed oils	WT02	DW
Non-RCRA waste liquid	WT02	DW
Oil tank bottom solids	WT02	DW
Oil, Bunker C	WT02	DW
Oil, water with trace metals	WT02	DW
Oil/kerosene	WT02	DW
Oily absorbent pads/debris/solids	WT02	DW
Oily floc from water treatment	WT02	DW
Oily floc/water: lead & benzene	D008, D018, WT02	DW
Oily sump sludge	WT02	DW
Paint booth rinsings containing chrome	D007, WT02	DW
Petroleum distillate, dye penetrant/water treatability	WT02	DW
Petroleum oil sludge	WT02	DW
Phenolic water	WT02	DW
Phosphate ester-based hydraulic fluid	WT02	DW
Process water	WT02, D018	DW
Sodium hydroxide (alkaline/phenolic)	WT02	DW

[1]Information obtained from BEI files.

Notes:
Waste Codes - As designated by Ecology and/or EPA.
DW/EHW - Dangerous Waste/Extremely Hazardous Waste
NA - Not Applicable

TABLE 2.4 (Continued)

WASTE AND PRODUCTS HANDLED BY BEI[1]
AT THE TIME OF ABOVEGROUND CLOSURE
TERMINAL 91 TANK FARM SITE RI/DE REPORT

Waste Description	Waste Codes	DW/EHW
Toluene/paint	F005	DW
Tramp oil from machine coolant oil	WT02	DW
Used engine oil	WT02	DW
Waste combustible liquid, n.o.s. (diesel)	WT02, D018	DW
Waste oil	WT02	DW
Water & oil from oil-water separators	WT02	DW
Water with lead <500 ppm	D008, WT02	DW
Water with phenol, coolant, metal chips & debris	WT02	DW
Water, methanol, hydrochloric acid, hexane, sediment	WT02	DW
Water, oil with lead	D008, WC02	DW
Water, oil, coolant	WT02	DW
Water, oil, coolant	WP02	DW
Water, oil, coolant (ethylene glycol)	WT02	DW
Water, oil, sludge	WT02	DW
Water, oil, soap	WT02	DW
Water, oil, soap, grease, contaminated	WT02	DW
Water, synthetic hydraulic fluid, oil	WT02	DW
Water/MEK, acetone, perchloroethylene	F001, F002, F003, F005, D035, D039	DW
Water/oil/hydraulic fluid/antifreeze – auto maintenance	WT02	DW
Water/oil/jet fuel	WT02	DW
Water: phenol < 500 ppm; acetone, toluene, 111-Tri	F001, F002, F003, F005	DW
Well drilling debris: barium, cadmium, chromium, lead	D005, D006, D007, D008	DW
Aqueous wastes containing phenol	non-regulated	NA
Boron wastewater	non-regulated	NA
Bunker C fuel oil	non-regulated	NA
Combustible oily water	non-regulated	NA
Concentrated salt brine with water, iron, nickel, hydroxide	non-regulated	NA
Coolant	non-regulated	NA
Coolant slops	non-regulated	NA
Diesel/water	non-regulated	NA

[1]Information obtained from BEI files.

Notes:
Waste Codes - As designated by Ecology and/or EPA.
DW/EHW - Dangerous Waste/Extremely Hazardous Waste
NA - Not Applicable

TABLE 2.4 (Continued)

WASTE AND PRODUCTS HANDLED BY BEI[1]
AT THE TIME OF ABOVEGROUND CLOSURE
TERMINAL 91 TANK FARM SITE RI/DE REPORT

WASTE DESCRIPTION	WASTE CODES	DW/EHW
Flash Point >100°F	non-regulated	NA
Gasoline/water	non-regulated	NA
Heavy metal aqueous waste	non-regulated	NA
Hydraulic oil	non-regulated	NA
Hydraulic oil/fuel oil, waste	non-regulated	NA
Lube Oil	non-regulated	NA
Mixed oil > 85% BSW therm chem treat	non-regulated	NA
Mixed oil BSW 0% to 12%	non-regulated	NA
Motor oil	non-regulated	NA
Oil sludge & water	non-regulated	NA
Oil/water BSW 13% to 30%	non-regulated	NA
Oil/water BSW 31% to 50%	non-regulated	NA
P.S. 400 - heavy fuel oil	non-regulated	NA
Transformer oil, if recyclable	non-regulated	NA
Treatable aqueous wastes	non-regulated	NA
Turbine oil, if recyclable	non-regulated	NA
Water containing asphalt emulsion/petroleum distills.	non-regulated	NA
Water, oil	non-regulated	NA
Water, oil. coolant	non-regulated	NA
Water/fuel	non-regulated	NA
Weak alkaline non-corrosive	non-regulated	NA

[1]Information obtained from BEI files.

Notes:
Waste Codes - As designated by Ecology and/or EPA.
DW/EHW - Dangerous Waste/Extremely Hazardous Waste
NA - Not Applicable

Appendix C

Management of the Port of Seattle's T-91 Facility's Tank Farm Site Subsurface Debris (December 18, 2008)

Management of the Port of Seattle's T-91 Facility's Tank Farm Site Subsurface Debris

December 18, 2008

***Issue submitted via email from the Port on November 10, 2008*:**

T91 Tank Farm Site Subsurface Debris:
"The purpose of this email is to follow up on the subsurface debris issue that we discussed on our meeting on October 29, 2008. The primary purpose of that meeting was to discuss the status of the Port of Seattle's ("POS's") Feasibility Study preparation for the Terminal 91 Tank Farm Site ("Tank Farm Site"). During that meeting, we discussed several possible remedial action alternatives for the Tank Farm Site, some of which would likely involve removal and possible offsite disposal/recycling of concrete and other existing subsurface structures (including metal tank bases). We discussed some possible options for handling the subsurface structures, and agreed that further discussion would be necessary to come to agreement on how the subsurface debris would be handled during the final remedial action. Such a determination will be necessary in order to provide accurate cost estimates for the remedial action alternatives that involve handling of contaminated debris.

As you know, portions of the Tank Farm Lease Parcel ("Lease Parcel") historically were operated by former POS tenants as a dangerous waste treatment and storage facility ("TSD"). The aboveground portions of the TSD were "clean-closed" by Philip Services Corporation prior to and during 1995, and Ecology approved the final aboveground closure in a letter dated October 1, 2003. In that letter, Ecology stated 'the below-ground contamination is deferred to the on-going corrective action at the facility and Ecology is not certifying the Pier-91 facility as "clean-closed" at this time'.

During implementation of remedial action at the Tank Farm Site, it is probable that remaining in-place concrete and steel structures will be encountered. The in-place structures are what remain of the former tank farm after the 2005 demolition of the aboveground portions of the tank farm as part of an interim remedial action. During the 2005 demolition, some of the tank bases were left in place because it was considered possible that the space between the two tank bases (where present) could contain oily sand or pea gravel containing potential dangerous waste. If the final cleanup action selected by Ecology requires that the existing subsurface structures be removed, steel formerly in contact with dangerous waste will be decontaminated and recycled offsite using procedures described in Ecology's closure guidance.

Concrete structures known to remain at the Lease Parcel include the pavement that surrounds (and possibly lies beneath) some or all of the tank bases, and concrete footings at the locations of the former secondary containment walls. As part of typical demolition activities, the concrete will be removed from the ground by breaking it up into manageable pieces. For concrete not in contact with dangerous waste, standard construction methods will be performed.

The upper (aboveground) surfaces of the concrete pavement were clean-closed during past closure activities. The lower surface of these concrete pieces will likely have soil adhered to them. Once the concrete is broken up and removed, there are three general options for how it can be managed:

- *Recycle and reuse offsite. This is the typical method of handling at most construction sites. This option may require some level of decontamination and/or sampling of the lower concrete surfaces prior to offsite reuse.*

- *Recycle and reuse onsite as structural fill. This method may or may not require decontamination and/or sampling at the time of emplacement, but future decontamination and/or sampling might be required for this material if disturbed during future construction activities.*

· *Dispose of offsite as either a solid or hazardous waste. If disposed of as solid waste, this could involve collection of random representative chip samples of the bottom surfaces of the concrete to see if they meet a numerical cleanup standard. If presumed hazardous waste, sampling might not be required.*

The regulatory status of the concrete debris that is in contact with dangerous waste will be critical to how this waste will be managed and what the associated costs are. Please let us know at your earliest convenience when you will be able to meet to discuss these options further."

Susan Roth, LHG
Roth Consulting

The Department of Ecology's response to the Port of Seattle question on the management of contaminated debris at Terminal 91 Tank Farm site *(submitted via email on November 10, 2008).*

Ecology is working with the Port of Seattle (POS) to address issues associated with the management of contaminated debris, and in particular concrete, at the Terminal 91 Tank Farm site. Given the scale of the affected area and volume of contaminated debris involved, Ecology is offering guidance to maximize environmental benefit yet be feasible and attainable in the field. This guidance is based on information Ecology has to date and is offered as a courtesy to help expedite the development of the feasibility study (FS). Ecology may revise this guidance response if new information indicates that such revisions are needed to be in compliance with MTCA, RCRA and other ARARs.

Ecology suggests the POS look to the recently finalized document: '***Guidance for Waste Designation Procedures at Terminal 91***' (***GWDP)*** to provide a framework and consistency for the concrete debris determinations for disposal options.

When assessing contaminated debris, consider the following:

- Identify those portions of the tank farm site that are affected by TPH from areas that may also be potentially affected by listed wastes.
    a. As per the EPA publication ***Management of Remediation Waste Under RCRA (EPA530-F-98-026, October 1998)*** do not classify remediation waste as listed waste unless there is data available to serve as the basis for that listing or if there is reasonable likelihood that listed dangerous waste is the source of the contamination. This may include the presence of PCBs and chlorinated compounds, as well as other wastes not typically associated with TPH.
    b. Criteria to be used to delineate such areas should follow the same guidance decisions established in the final GWDP.

- For debris affected only by TPH-Oil contamination
    a. Debris will not need to be sampled for designation purposes (per WAC 173-303-071).
    b. Standard demolition, removal, and disposal practices may be used

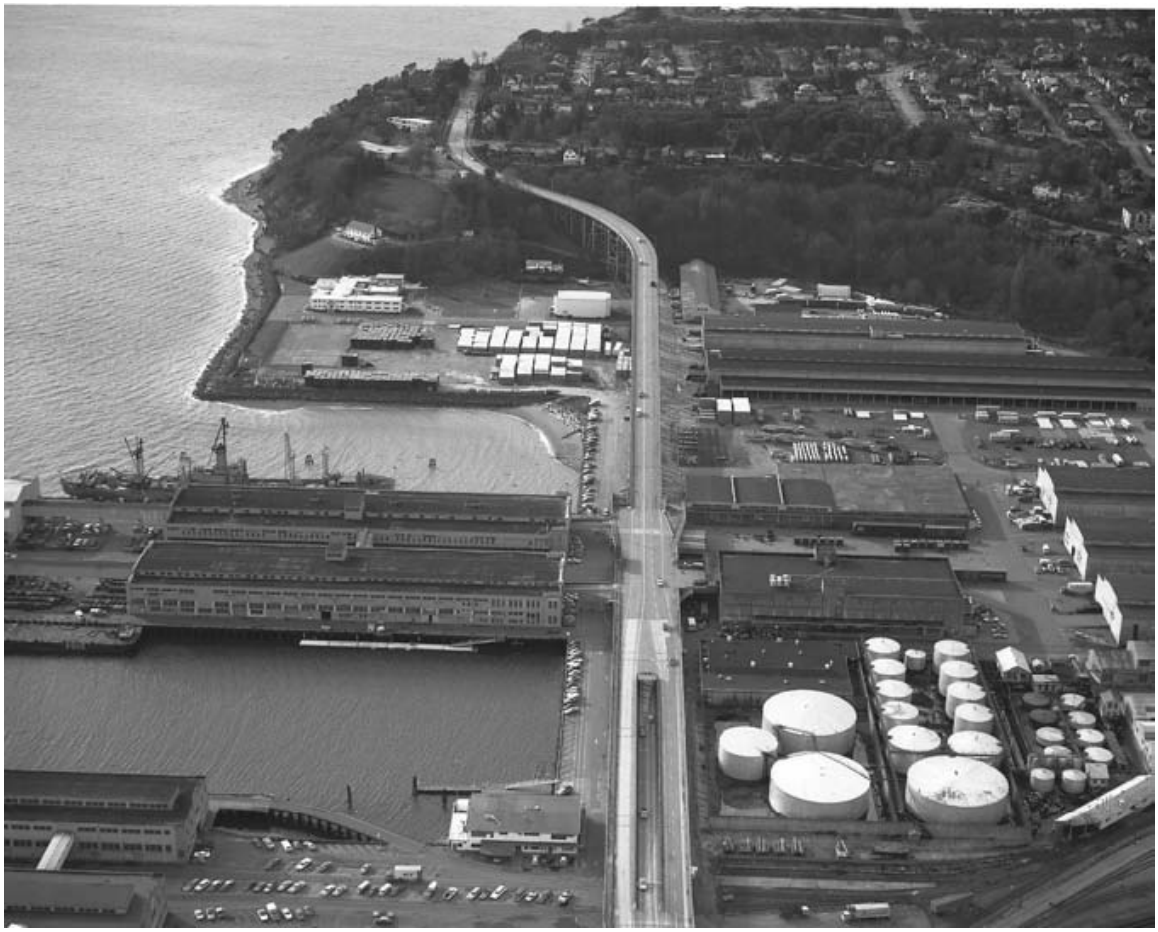
c. Ecology will look favorably upon disposal practices that incorporate reuse and recycling. Such practices will be qualitatively evaluated on an environmental net benefit basis.
d. MTCA encourages permanent solutions to the maximum extent practicable. Ecology will also look favorably upon remedial actions that remove concrete in order to access and remove highly contaminated soils.

- For debris subject to dangerous waste designation requirements, develop a sampling and analysis plan to be reviewed and approved by Ecology.
    a. For debris that does not designate as dangerous waste[1]: Use best professional judgment for disposal.
        i. Consider what contaminants and concentrations are present to guide reuse or re-emplacement scenarios.
        ii. Consider current and potential exposure pathways and endpoints.
        iii. Consider potential future land use.
        iv. Ecology will not allow the placement of contaminated debris back on the land where such action leads to exceedances or potential exceedances of cleanup levels.
    b. If determined to be a dangerous waste, dispose in accordance with Chapter 173-303. In general, the options are:
        i. Send to a dangerous waste landfill and is subject to Land Disposal Restrictions (LDRs);
        ii. Decontaminate the dangerous waste debris per the Debris LDR treatment methods. Depending on the LDR debris treatment method, the post-treated debris may no longer be regulated as a DW;
        iii. Onsite or offsite recycling will need to meet the requirements of WAC 173-303

[1] Through sampling/analysis or generator knowledge

PORT OF SEATTLE TERMINAL 91

Public Participation Plan



Historical photo from 1975, prior to Tank Farm Demolition

SEATTLE, WASHINGTON
February 2010

Prepared by
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

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1.0 Introduction

The Washington State Department of Ecology (Ecology) developed this public participation plan pursuant to the **Model Toxics Control Act (MTCA)**. The purpose of the participation plan is to promote meaningful community involvement before preparing an action plan for the future cleanup at **Port of Seattle Terminal 91 (T91) (the Site)**. The Site is located at the north end of Elliott Bay at 2001 West Garfield Street in Seattle, Washington. The draft remedial investigation and feasibility study have already been completed under a 1998 **Agreed Order** for this Site. The public comment period for this new Agreed Order, includes the public review of the draft Remedial Investigation and Feasibility Study.

This plan outlines the tools and methods that Ecology uses to inform the public about Site activities. It also identifies opportunities for the community to get involved. This plan addresses potential community concerns regarding the cleanup and defines public participation activities that will take place as a part of the cleanup process. It is based on Ecology's MTCA regulations (Washington Administrative Code (WAC) 173-340-600 public participation). Ecology is committed to an open dialogue with the community to ensure that interested parties can receive information as well as provide input during the decision-making process.

Ecology and Port of Seattle negotiated a legal agreement called an Agreed Order (No. 7321) that formally describes their working relationship and outlines the scope of work. The Port will draft a cleanup action plan (DCAP) and continue to clean up the Site.

Steps in the Cleanup Process

The MTCA rules detail each step in the cleanup process to ensure that cleanups are thorough and protect human health and the environment. The chart below defines these steps and how they apply to the project site. Legal documents such as "Agreed Orders" or "**Consent Decrees**" further define some of the steps and associated time frames. The cleanup process is complex. During the process, issues often arise that need more scrutiny or evaluation, and may lead to changes in the scope or timing of the project. At the same time, it is in everyone's interest to complete a cleanup as quickly as possible.

1. Site Discovery and Initial Investigation: Sites may be discovered in a variety of ways including reports from the owner, an employee, or concerned citizens. Following discovery, an initial investigation is conducted to determine whether or not a site warrants further investigation.

→

2. Site Hazard Assessment and Hazard Ranking: An assessment is conducted to confirm the presence of hazardous substances and determine the relative threat the site poses to human health and the environment. Sites then are ranked from 1 (highest) to 5 (lowest).

Port of Seattle Terminal 91 is listed on the state's Hazardous Sites List with a rank of 1; primarily due to the potential to contaminate Puget Sound.

↓

3. Remedial Investigation (RI): A Remedial Investigation is a study to define the nature, extent, and magnitude of contamination at a site. Before a remedial investigation can be conducted, a detailed workplan must be prepared that describes how the investigation work will be done.

←

4. Feasibility Study: The Feasibility Study takes the information from the Remedial Investigation and identifies and analyzes the cleanup alternatives available. As with the Remedial Investigation, a workplan will be prepared which describes how the study will be done.

↓

5. Cleanup Action Plan (CAP): A Cleanup Action Plan is developed using information gathered in the Remedial Investigation and Feasibility Study. The plan specifies cleanup standards and identifies cleanup methods. It will also describe the steps to be taken, including additional environmental monitoring required during and after the cleanup. Finally it will describe the schedule for cleanup activities.

→

6. Cleanup: Implementation of the Cleanup Action Plan includes design, construction, operations, and monitoring.

Timeline of Technical and Public Involvement Activities

Schedule	Technical Activity	Public Participation/ Communications Activity
November 1997	Pier 91 Treatment and Storage Facility Permit Modification and Terminal 91 Tank Farm Site Agreed Order for Remedial Investigation and Feasibility Study	♦ Fact sheet mailed - week of November 5th ♦ Public notice – November 5th ♦ Public comment period - draft PPP, Agreed Order, and permit modification November 5 through December 19, 1997
January 1998	Finalize Pier 91 Treatment and Storage Facility Permit Modification and Terminal 91 Tank Farm Site Agreed Order for RI/FS	♦ Review and evaluate public comments ♦ Prepare responsiveness summary ♦ Prepare final PPP
March-July 2005	Terminal 91 Tank Farm Demolition Independent Interim Remedial Action	♦ Provided written notification to Ecology Site Register, and Seattle and King County Public Health Departments (January 10, 2005) ♦ Provided written notification to Seattle Department of Planning and Development (February 9, 2005) ♦ Provided written notification to potentially liable persons (January 4, 2005) ♦ Posted a sign at the location visible to the general public indicating what cleanup actions were being conducted and identifying a person to contact for more information
February 2010	Complete negotiations for Agreed Order for Terminal 91	♦ Prepare final draft PPP ♦ Published notice in Site Register ♦ Public Notice of Agreed Order

Site History

There have been various owners and companies of the Port of Seattle Terminal 91 (T91) Complex throughout its history. From the late 1800s through 1920, owners of the T91 Complex included various railroads, land development companies, and private individuals. The Great Northern Railroad began to develop the area in the early 1900s by filling in the area between Magnolia Bluff and Queen Anne Hill. Fill material was added to the area through 1920. A tank farm was present at the four-acre Tank Farm Lease Parcel (Lease Parcel) portion of the Terminal, and that tank farm was for a time (beginning in 1980) used as a permitted dangerous waste **treatment and storage facility (TSD)**. Constructed in the 1920s, it operated partially or fully as a fuel storage facility during the late 1920s through the time it was demolished in 2005. Another former tank farm historically was located in the area southwest of the Lease Parcel. Historical documents for Terminal 91 showed this tank farm consisted of nine tanks containing gasoline and oil, and that it was in existence from approximately 1927 to 1942. The U.S. Navy acquired the entire T91 Complex in 1942 through condemnation and operated the tank farm on the Lease Parcel until 1972. During the Navy's possession of the T91 Complex, the Lease Parcel was used primarily as a fuel and lubricating oil transfer station. The Navy began leasing T91 back to **Port of Seattle (the Port)** in 1972 and deeded it to the Port in 1976.

Chemical Processors, Inc. (Chempro), a predecessor of **Burlington Environmental Inc. (BEI)** and **Philip Services Corporation (PSC)**, subleased the Lease Parcel from the Port when the Port leased it back from the Navy. The main activities conducted by Chempro and its successors were waste oil recovery and wastewater treatment. Typical waste streams included oil and coolant emulsions, industrial wastewater, and industrial waste sludge. Bilge and ballast waters were primarily received from ships and transferred to the Lease Parcel via pipeline. Other wastes and wastewater were received via tankers or in drums.

Chempro notified the U.S. **Environmental Protection Agency (EPA)** of its dangerous waste activities at the Lease Parcel on November 14, 1980, and federal permitting requirements became effective November 19, 1980 for its waste management operations. BEI and the Port (as operator and owner, respectively) were issued a Part B **Resource Conservation and Recovery Act (RCRA)** permit effective August 22, 1992 for the continued operation of a permitted dangerous waste management facility at the Lease Parcel. In September 1995, BEI ceased operations at the Lease Parcel and terminated its lease with the Port. BEI subsequently performed aboveground closure activities of all permit-related facility equipment, secondary containment, and treatment units pursuant to an approved closure plan. The closure activities performed under this plan were approved by Ecology in October 2003. A Part B RCRA permit remains in effect for corrective action at the Site.

From about 1974 through 1995, Chempro and its successors also sublet a portion of the Lease Parcel to **Pacific Northern Oil Corporation (PNO)** for storage of non-regulated bunker oil and other fuel products. PNO used aboveground and underground piping systems at the Site to transfer bunker oil and fuels in the Lease Parcel and other areas of the Terminal 91 Complex, which included blending and storage of marine boiler fuel, diesel, and other petroleum products.

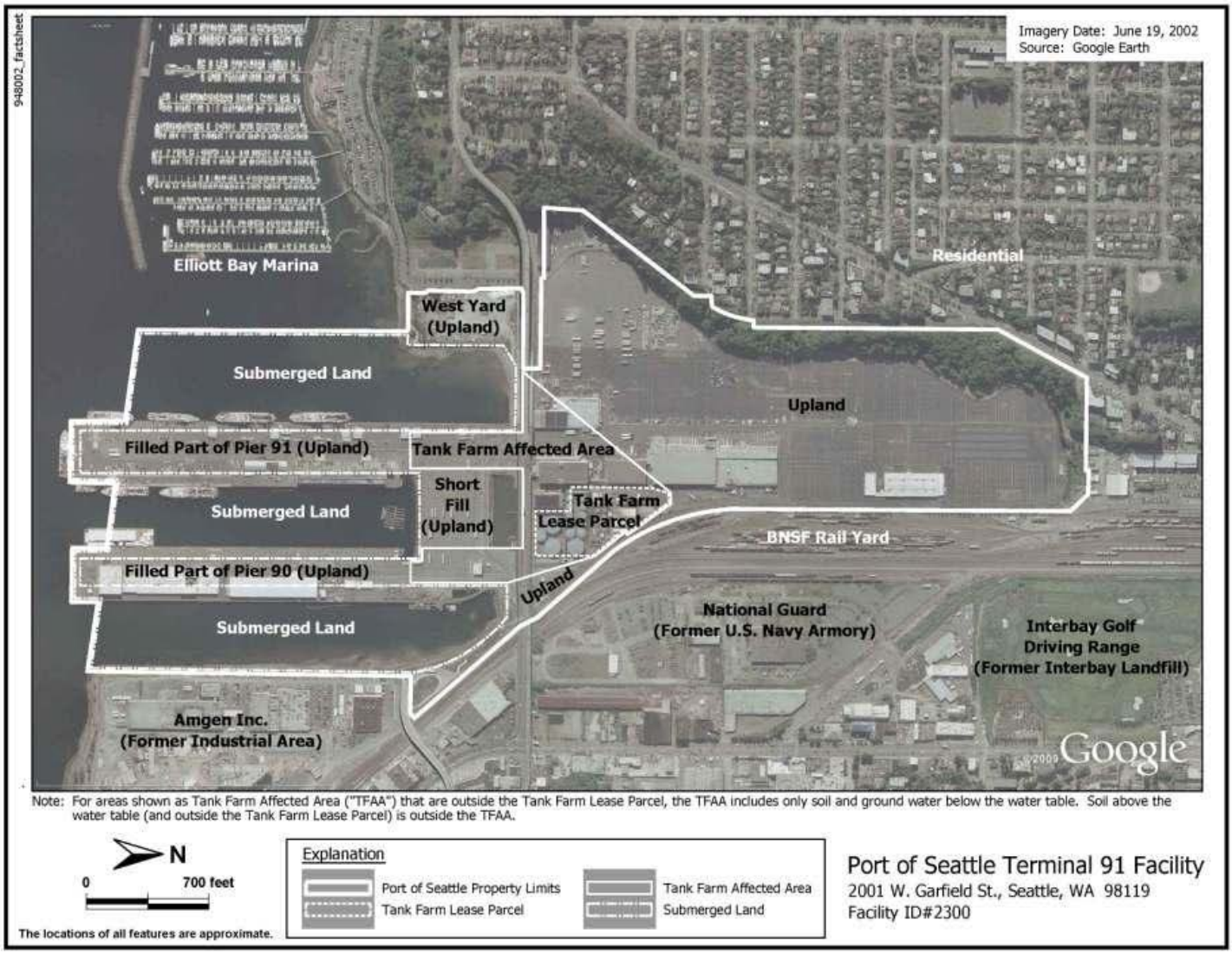
PNO entered a new lease for the entire Lease Parcel to continue operations of the bunker oil, lube oil, and fuels product storage and blending facility after PSC's above closure action. PNO terminated its lease with the Port in 1999 and discontinued its fuel product and blending operations at the Site. Subsequently, the Port entered into an agreement with **Fuel and Marine Marketing (FAMM)**, and that entity conducted bunker oil and fuel product storage, blending and marketing operations at the Site until early 2003, when FAMM terminated its lease of the facility. FAMM also subleased the lube-oil portion of the operation to Rainier Petroleum in order to operate tankage at the tank farm until August 2003. Delta Western was hired to provide terminaling operations during this period, and, after August 2003, monitored the facility in caretaker status.

The tank farm remained idle after 2003. The Port decided to remove the remaining aboveground equipment to reduce risks of hazardous substance releases. In the spring of 2005, the Port initiated product removal and demolition activities, including paving of the Lease Parcel, as part of an independent interim remedial action. That interim action was completed in the summer of 2005.

Historically, chemicals of concern at the Lease Parcel include petroleum products, which are considered hazardous substances under MTCA, as well as volatile organic compounds, semi-volatile organic compounds including polycyclic aromatic hydrocarbons, metals, and polychlorinated biphenyls. These substances were released to soil and groundwater primarily from aboveground storage tanks, fuel distribution piping systems, and other activities associated with historical operations at the Site. These activities included storage of petroleum products and treatment and storage of dangerous waste. Results from soil and groundwater investigations performed over the past twenty years along with results from current annual groundwater monitoring have been submitted to Ecology and EPA.

The findings discussed in the remedial investigation summary report and the other documents that were incorporated by reference were used in preparing a feasibility study; and will provide the basis for selection of potential cleanup actions at the Site.

Port of Seattle Terminal 91 Site Map



2.0 CONTAMINANTS OF CONCERN

The following hazardous substances are chemicals of concern (COCs) for subsurface soil and groundwater at the site.

- Gasoline-range petroleum hydrocarbons.
- Diesel-range petroleum hydrocarbons.
- Heavy-oil-range petroleum hydrocarbons.
- Metals.
- Polychlorinated biphenyls.

- Semi-volatile organic compounds, including polycyclic aromatic hydrocarbons.
- Volatile organic compounds.

3.0 PUBLIC PARTICIPATION ACTIVITIES AND RESPONSIBILITY

The purpose of this Public Participation Plan is to promote public understanding and participation in the cleanup process for this site. This section addresses how Ecology will keep the public informed about site activity and provide opportunity for being involved in the cleanup.

Ecology will continue to use a variety of tools to facilitate public participation in the planning and cleanup of this site. These tools are: formal comment periods and responsiveness summaries, fact sheets, public meeting (if required), information repositories, site register, and web tools including a web-based events calendar. Ecology will consider and implement constructive input provided by the community whenever possible.

Ecology urges the public to become involved in the remedial action process. Information will be provided regularly to allow several opportunities to review materials and submit comments. This plan is intended to be a flexible working document that will be updated as community concerns emerge and/or more information becomes available during the cleanup process. To arrange for a briefing with project staff, ask questions, or provide comments on the plan or other aspects of the cleanup, please contact one of the persons listed below. This public participation plan will be a working document as the project progresses.

For technical questions, please contact:

Galen Tritt, Site Manager Washington State Department of Ecology Bellingham Field Office 1440 10th Street, Suite 102 Bellingham, WA 98225-7028 Phone: (360) 715-5232 E-mail: gtri461@ecy.wa.gov

For Community Involvement questions for Port of Seattle, please contact:

Sally del Fierro
Port of Seattle—Community Relations, Public Affairs
P.O. Box 1209
Seattle, WA 98111
Phone: (206) 787-3837
E-mail: delfierro.s@portseattle.org

Goal of this Public Participation Plan

MTCA states that public participation plans are intended to encourage coordinated and effective public involvement tailored to the public's needs at a particular facility. The goals of this plan are to:

- Identify people and organizations with an interest or potential interest in the Site Remedial Investigation and Feasibility Study process and findings.
- Identify community concerns related to the Feasibility Study and ways to address those concerns.
- Promote public understanding of the proposed Agreed Order, Feasibility Study, and Draft Cleanup Action Plan process and findings.
- Encourage communication and collaboration among Ecology, the Port, and the community.
- Meet public participation requirements under MTCA and the Dangerous Waste Regulations (WAC 173-340-530(6), WAC 173-340-600, and WAC 173-303-840).

Roles and Responsibilities

- Ecology maintains overall responsibility and approval authority for the activities outlined in this plan in accordance with MTCA requirements.
- Ecology conducts public comment periods as required by MTCA. Activities performed during the public comment periods include:
    - Receiving comments.
    - Making decisions.
    - Preparing responsiveness summaries, if necessary.

Public Outreach Activities

- A 45-day public comment period will be scheduled for the proposed Agreed Order and Dangerous Waste Permit renewal.
- A formal public notice for the comment period will include:
    a. A fact sheet distributed to the affected community and surrounding areas.
    b. A notice placed in the *Seattle Times* and the *Queen Anne/Magnolia News*.

c. A notice published in Ecology's Site Register and Public Involvement Calendar.
d. All public documents available on Ecology's website for public review.
e. A public meeting held if ten or more people request a meeting during the public comment period.

Formal Public Comment Period

Comment periods are the primary method Ecology uses to get feedback from the public on proposed cleanup decisions, which Ecology presents as draft documents. Comment periods usually last for a minimum of 30 days and are required during the investigation and cleanup process before final decisions are made.

During a comment period, the public can comment in writing. Oral comments are taken if a public hearing is held. After formal comment periods, Ecology reviews all comments received and may respond in a document called a Responsiveness Summary.

Ecology will consider changes or revisions to draft documents based on input from the public. If significant changes are made, a second comment period may be held. If no significant changes are made, the draft document(s) will be finalized.

Public Meetings and Hearings

Public meetings may be held during the cleanup process. Ecology may also offer public meetings for actions of particular interest to the community. Also, if ten or more people request a public meeting or hearing during the comment period, Ecology will hold a public meeting for the purpose of taking oral comments on draft documents.

Information Repositories

Information repositories are convenient places where the public can go to read and review site information. The information repositories are often at libraries or community sites to which the public has access. During the comment period, the Draft Dangerous Waste Permit, Draft Agreed Order and the Fact sheet will be available for review at each repository listed below. These documents will remain at the repositories for the entire duration of the comment period. The entire site file is available for review at Ecology's Northwest Regional Office by appointment. For special accommodation or translation assistance, please contact Galen Tritt at (360) 715-5232 Persons with hearing loss, call 711 for Washington Relay Service. Persons with speech disability call 877-833-6341.

Seattle Public Library—Central
1000 Fourth Avenue
Seattle, WA 98104
206-386-4636

Seattle Public Library—Magnolia Branch
2801 34th Avenue W.
Seattle, WA 98199
206-386-4225

Port of Seattle—Pier 69
2711 Alaskan Way
Seattle, WA 98121
206-787-3837

Washington State Department of Ecology
3190 160th Ave., S.E.
Bellevue, WA 98008
Call for an appointment: Sally Perkins
(425) 649-7190
(425) 649-4450 FAX
E-mail: sper461@ecy.wa.gov
Hours: Tuesday – Thursday, 8 AM – 12:00 PM and 1:00 – 4:30 PM

Site Register and Public Involvement Calendar

Ecology's Toxics Cleanup Program uses Site Register and web-based Public Involvement Calendar to announce all of its public meetings and comment periods as well as additional site activities. To receive the Site Register in electronic or hard copy format, contact Linda Thompson at 360-407-6069 or by email at ltho461@ecy.wa.gov. The Public Involvement Calendar is available on Ecology's website at http://apps.ecy.wa.gov/pubcalendar/calendar.asp

Mailing List

Ecology compiled and maintains a list of interested parties, organizations, and residents living near the cleanup site. This list will be used to disseminate information by mail (fact sheets, site updates, public notices, etc.). If you wish to be added to the mailing list for this site please contact Galen Tritt at 360-715-5232 or by email at

gtri461@ecy.wa.gov. In the subject line, please indicate Port of Seattle Terminal 91 mailing list.

Website Information

Ecology Website:
http://www.ecy.wa.gov/programs/tcp/sites/portTerm91/portTerm91_hp.html

4.0 Public Participation Grants and Technical Assistance

Additionally, citizen groups living near contaminated sites may apply for public participation grants (during open application periods). These grants help citizens receive technical assistance in understanding the cleanup process and create additional public participation avenues. For more information about the public participation grant, please go to Ecology's website at http://www.ecy.wa.gov/programs/swfa/grants/ppg.html.

NOTE: Ecology currently does not have a citizen technical advisor for providing technical assistance to citizens on issues related to the investigation and cleanup of the Site.

Public Participation Plan Amendments

The Plan was developed by Ecology and complies with the Model Toxics Control Act regulations (Chapter 173-340 WAC). It will be reviewed as cleanup progresses and may be amended if necessary. Requests for amendments may be submitted to Ecology's site manager, Galen Tritt, for review and consideration.

APPENDIX A – GLOSSARY

Agreed Order: An order issued by the Department of Ecology under WAC 173-340-530 with which the potentially liable person receiving the order agrees to comply.

Cleanup: The implementation of a cleanup action, or interim action.

Cleanup Action: Any remedial action, except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with WAC 173-340-350 through 173-340-390.

COCs: Chemicals of Concern are hazardous substances of particular concern at this site.

Comment Period: A time period during which the public can review and comment on various documents and proposed actions. For example, a comment period may be provided to allow community members to review and comment on proposed cleanup action alternatives and proposed plans.

Consent Decree: A legal document approved and issued by a court which formalizes an agreement reached between the state and potentially liable persons (PLPs) on actions needed at a site. A decree is subject to public comment. If a decree is substantially changed, an additional comment period is provided.

Containment: A container, vessel, barrier, or structure, whether natural or constructed, which confines a hazardous substance within a defined boundary and prevents or minimizes its release into the environment.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels.

Dangerous Waste permit: An authorization which allows a person to perform dangerous waste transfer, storage, treatment, or disposal operations, and which typically will include specific conditions for such facility operations. A dangerous waste permit is necessary through corrective action work even after dangerous waste operations stop.

Environment: Any plant, animal, natural resource, surface water (including underlying sediments), ground water, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air within the state of Washington.

Facility: Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly-owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, placed, or otherwise come to be located there.

Interim Action: Any remedial action that partially addresses the cleanup of a site. An action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing pathways for exposure to a hazardous substance at a facility; an action that corrects a problem that may become substantially worse or cost substantially more to address if the action is delayed; an action needed to provide for completion of a site hazard assessment, state remedial investigation/feasibility study, or design of a cleanup action.

Model Toxics Control Act (MTCA): Refers to chapter 70.105D RCW, first approved by voters in the state of Washington in November 1988 general election as Initiative 97 and as since amended by the legislature.

Public Notice: At a minimum, adequate notice mailed to all persons who have made a timely request to Ecology and notice to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the local (city or county) newspaper of largest circulation; and the opportunity for interested persons to comment.

Public Participation Plan: A plan prepared under the authority of WAC 173-340-600 to encourage coordinated and effective public involvement tailored to the public's needs at a particular site.

RCRA: Resource Conservation and Recovery Act was enacted by Congress in 1976. RCRA's primary goals are to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner.

Responsiveness Summary: A compilation of all questions and comments into a document open for public comment and their respective answers/replies by Ecology. The responsiveness summary is mailed, at a minimum, to those who provided comments, and its availability is announced in the Site Register.

Site Register: Publication issued every two weeks of major activities conducted statewide related to the study and cleanup of hazardous waste sites under the Model Toxics Control Act. To receive this publication, please call (360) 407-7200.

Underground Storage Tank (UST): An underground storage tank and connected underground piping as defined in the rules adopted under Chapter 90.76 RCW.

Exhibit E

List of Reports Since 1998 Agreed Order

Exhibit E

Reports Since 1998 Agreed Order

A. Aspect Consulting Reports

- Aspect Consulting. 2003. Memorandum to Terminal 91 Technical Group re Preliminary Results—Limited Tidal Monitoring Study, Piers 90 and 91. July 1, 2003.

- Aspect Consulting. 2004. Bridge Document Report 3, Terminal 91 Tank Farm Site. Prepared for Port of Seattle and Pacific Northern Oil Corp. May 7, 2004.

- Aspect Consulting. 2004. Groundwater Seepage Evaluation Report, Terminal 91 Tank Farm Site. Prepared for Port of Seattle and Pacific Northern Oil Corporation. November 18, 2004.

- Aspect Consulting. 2005. Letter Report re Shallow Aquifer Well Installation and Development—Terminal 91 Tank Farm Site. Prepared for Port of Seattle. February 2, 2005.

B. Philip Services Corporation Reports

- Philip Services Corporation. 1999. Agency Draft Remedial Investigation/ Data Evaluation Report, Terminal 91 Tank Farm Site, Seattle, Washington. Prepared for The Terminal 91 Tank Farm PLP Group. January 6, 1999.

- Philip Services Corporation. 2001. Soil Vapor Technical Memorandum No. 1, Terminal 91 Tank Farm Site, Seattle, Washington. Prepared for Port of Seattle, Philip Services Corporation, and Pacific Northern Oil Corporation. December 2001.

- Philip Services Corporation. 2003. Soil Vapor Technical Memorandum No. 2, Terminal 91 Tank Farm Site, Seattle, Washington. Prepared for Port of Seattle, Philip Services Corporation, and Pacific Northern Oil Corporation. June 2003.

C. PES Environmental, Inc. Reports

- PES Environmental, Inc. 2006. MNA Evaluation Technical Memorandum, Terminal 91 Tank Farm Site, Seattle Washington. Prepared for Port of Seattle. April 24, 2006.

- PES Environmental, Inc. 2006. LNAPL Pilot Test Findings, Terminal 91 Tank Farm Site, Seattle, Washington. Prepared for Port of Seattle. November 1, 2006.

- PES Environmental, Inc. 2006. MNA Evaluation Final Technical Memorandum, Terminal 91 Tank Farm Site, Seattle, Washington. Prepared for Port of Seattle. October 27, 2006.

- PES Environmental, Inc. 2006. Soil-to-Groundwater Pathway Evaluation, Residual Saturation Screening Level Evaluation, Port of Seattle—Terminal 91 Tank Farm Site, Agreed Order No. DE 98HW-N108. Prepared for Port of Seattle. September 5, 2006.

- PES Environmental, Inc. 2007. Technical Memorandum and Work Plan Addendum, Data Gaps Investigation, Port of Seattle—Terminal 91 Tank Farm Site and Upland Areas. Prepared for Port of Seattle. August 15, 2007.

- PES Environmental, Inc. 2008. Technical Memorandum, Phase 2 Data Gaps Investigation, Port of Seattle—Terminal 91 Tank Farm Site and Upland Areas. Prepared for Port of Seattle. June 5, 2008.

- PES Environmental, Inc. 2008. Final Residual Saturation Screening Level Evaluation, Feasibility Study Soil-to-Groundwater Pathway Evaluation, Port of Seattle—Terminal 91 Tank Farm Site, Agreed Order No. DE 98HW-N108. Prepared for Port of Seattle. September 5, 2008.

- PES Environmental, Inc. 2008. Technical Memorandum, Phase 3 Data Gaps Investigation, Port of Seattle—Terminal 91 Tank Farm Site and Upland Areas. Prepared for Port of Seattle. December 31, 2008.

- PES Environmental, Inc. 2009. Draft Feasibility Study Report, Terminal 91 Site, Seattle, Washington. Prepared for Port of Seattle. February 2009.

D. PIONEER Technologies Corporation Reports.

- PIONEER Technologies Corporation. 2004. Soil Vapor Evaluation, Building M-28, Terminal 91 Tank Farm Site, Seattle, Washington. Prepared for Terminal 91 PLP Group. September 2004.

- PIONEER Technologies Corporation. 2005. Memo to Department of Ecology re Evaluation of Groundwater Data from the Terminal 91 Tank Farm Site: Proposal to Discontinue Groundwater Sampling at Selected Wells. Prepared for Port of Seattle. March 4, 2005.

- PIONEER Technologies Corporation. 2007. Terminal 91 Tank Farm Site Background Groundwater Evaluation. Prepared for Port of Seattle. January 2007.

- PIONEER Technologies Corporation. 2008. Terminal 91 Tank Farm Site Feasibility Study Cleanup Levels. Prepared for Port of Seattle. May 2008.

- PIONEER Technologies Corporation. 2008. Terminal 91 Tank Farm Site Feasibility Study Interim Deliverable Comparison of Groundwater Data to Feasibility Study Cleanup Levels. Prepared for Port of Seattle. August 2008.

E. Port of Seattle and Timothy Fitzgerald, L.G. 2002. Tidal Study Report, Terminal 91 Tank Farm Site and Terminal 91 Upland Independent Cleanup. Prepared for Port of Seattle, Philip Services Corporation, and Pacific Northern Oil Corporation. November 8, 2002.

F. Port of Seattle. 2005. Letter Report to Port of Seattle re Shallow Upland Well Installation and Development, Terminal 91 Tank Farm Site (Agreed Order DE 98HW-N108). October 2, 2005.

G. Roth Consulting Reports

- Roth Consulting, Quarterly Status Reports for Terminal 91 Tank Farm Site. From Second Quarter 1998 (report dated July 1998) through First Quarter 2009 (report dated April 2009).
- Roth Consulting, Annual Ground Water Monitoring Reports for Terminal 91 Tank Farm Site (reports dated June 1999 through June 2009).
- Roth Consulting. 2000. Letter to Ecology re Transmittal of Data Validation Report and Data Comparison Memo. August 19, 2000.
- Roth Consulting. 2001. Proposed Final Bridge Document Report 1, Terminal 91 Tank Farm Site. Prepared for Port of Seattle, Philip Services Corporation, and Pacific Northern Oil Corporation. November 21, 2001.
- Roth Consulting. 2002. Piezometer Installation Report, Terminal 91 Tank Farm Site. Prepared for Port of Seattle, Philip Services Corporation, and Pacific Northern Oil Corporation. March 2002.
- Roth Consulting. 2002. Downgradient Well Installation Report, Terminal 91 Upland Independent Cleanup. Prepared for Port of Seattle. September 2002.
- Roth Consulting. 2003. Bridge Document Report 2, Terminal 91 Tank Farm Site, Seattle, Washington. Prepared for Port of Seattle, Philip Services Corporation, and Pacific Northern Oil Corporation. January 2003.
- Roth Consulting. 2005. Independent Interim Remedial Action Report, Terminal 91 Tank Farm Demolition, 2001 West Garfield Street, Seattle, Washington. Prepared for Port of Seattle. October 18, 2005.
- Roth Consulting. 2007. Final Remedial Investigation Summary Report. Prepared for Port of Seattle. August 2007.

H. Sayler Data Solutions. 2000. Data Validation Report, Terminal 91 Groundwater Data, April 1998 through October 1999. Prepared for Terminal 91 PLP Group. August 9, 2000.

I. Sayler Data Solutions. 2000. Memorandum to Roth Consulting re Data Comparison. August 15, 2000.

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