APPENDIX A

Statement of Work

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T-117 EARLY ACTION AREA
AMENDMENT NO. 1
NON-TIME CRITICAL REMOVAL ACTION
LOWER DUWAMISH WATERWAY SUPERFUND SITE
SEATTLE, WASHINGTON

I. PURPOSE

This Amendment No. 1 to the Statement of Work (SOW) describes revised work for the Non-Time Critical Removal Action (NTCRA) to be implemented at the Terminal 117 Early Action Area (T-117 EAA) of the Lower Duwamish Waterway (LDW) Superfund Site. The T-117 EAA previously included the bank, mudflat, shoreline and sediments adjacent to T-117 ("T-117 Bank and Sediments"), and is now expanded to also include the upland of Terminal 117 ("T-117 Upland"), and nearby street right-of-ways ("Adjacent Streets"). This amendment replaces in its entirety the SOW appended to the NTCRA Administrative Settlement Agreement and Order on Consent (Settlement Agreement) issued on December 22, 2005.

EPA expanded the T-117 EAA in order to include contamination discovered in the upland soils after execution of the 2005 Settlement Agreement, and to integrate cleanup of contamination in the street right-of-ways with cleanup of the rest of the T-117 EAA. This SOW also expands the scope of the NTCRA to include an assessment of the potential for recontamination of the T-117 EAA from the adjoining Basin Oil and South Park Marina ("Marina") properties. The T-117 EAA and potential recontamination properties are shown on Figure 1.

Two Time Critical Removal Actions (TCRAs) have been conducted at the T-117 EAA. A removal of upland soils was conducted by the Port of Seattle (the "Port") in 1999 pursuant to an Administrative Order on Consent (AOC). In 2006, following the discovery of additional soil contamination, and under the terms of a separate Settlement Agreement, the Port carried out an additional TCRA for the removal of T-117 upland soils with the most exposed or highest concentrations of PCBs. Additionally, while the Respondents were performing work related to the T-117 NTCRA under the Settlement Agreement, the City of Seattle (the "City") conducted activities to identify and control upland sources that potentially could recontaminate the sediments after completion of the NTCRA. Samples from street right-of-ways and residential yards near Terminal 117 contained levels of PCBs above the standard for a residential area. The City removed soils and placed an interim cap over residual contaminated areas without EPA oversight. The Adjacent Streets portion of the T-117 EAA includes areas where additional cleanup activities are needed in street right-of-ways. The boundaries delineating the Adjacent Streets portion of the EAA (see Figure 1) have been determined based on the results of over 300 surface and subsurface soil samples obtained from investigations performed by the City of Seattle and the King County Health Department in support of previous voluntary site

characterization studies and subsequent actions. In May 2007, EPA conducted sampling of materials contained within storage containers on the Basin Oil property as part of a Time Critical removal action for that property. Surface soil, liquids in drums, and sludge in drums were sampled and analyzed for PCBs. The total PCB results range from non-detect to less than 1 ppm PCBs, the residential soil cleanup standard for PCBs.

This Amendment sets forth the tasks necessary to revise the Engineering Evaluation/Cost Analysis, July 13, 2005, (EE/CA) for this NTCRA to include new Upland data, all relevant Adjacent Streets data, data collected by EPA in a 2007 removal action at Basin Oil, and the recontamination assessments of the Basin Oil and Marina properties to be performed pursuant to this Settlement Agreement. The revised EE/CA will analyze removal action alternatives for the expanded T-117 EAA in conjunction with previously analyzed alternatives, taking all new information into account.

Following completion of the revised EE/CA, EPA will issue an Amended Action Memorandum for the T-117 EAA NTCRA, which will replace the Action Memorandum issued on July 22, 2005. For this SOW the City and the Port will jointly perform those tasks that address the T-117 Upland and Bank and Sediments, along with the Basin Oil and Marina recontamination assessments. The City will perform tasks that address the Adjacent Streets.

II. WORK TO BE PERFORMED BY RESPONDENTS

Respondents shall complete the following tasks:

1) EE/CA Work Plan . Prepare and submit a draft and final EE/CA Work Plan. An Interim Groundwater Monitoring Plan, Quality Assurance Project Plan (QAPP), and Health and Safety Plan will be prepared and submitted (as appendices to the Work Plan) for data collection activities required to support the EE/CA.

2) Data Gaps Analysis. Assess the sufficiency of the existing data to confirm or refute recontamination pathways to the Adjacent Streets, Upland, Bank or Sediments. The results of the Data Gaps Analysis, and a plan for additional data collection, if determined to be required after completion of the data gaps analysis, will be included in the EE/CA Work Plan to be prepared under Task 1.

3) Work Plan Implementation. Implement collection of data per Work Plan if required.

4) EE/CA. Prepare and submit an EE/CA including a recommended removal action alternative for each subarea of the T-117 EAA. Accordingly, The EE/CA will be submitted in three parts: Part A will address the Bank and Sediments subarea, Part B will address the Upland subarea, and Part C will address the Adjacent Streets subarea. The EE/CA will include a front section that integrates and coordinates these parts. The EE/CA report will also present a T-117 EAA Recontamination Assessment of the adjoining Basin Oil and Marina Properties.

5) Groundwater Monitoring. Implement the approved ground water monitoring plan.

6) Community Involvement. Support and coordinate with EPA on community involvement activities.

A demolition and disposal plan and a marina relocation plan, if applicable for the selected removal action, will be prepared during the removal design.

EE/CA preparation and the Groundwater Monitoring Program shall be completed in accordance with the Amended Project Schedule as shown on Table 1 of this Amended SOW. The Amended SOW Tasks are more fully described below.

Engineering Evaluation/ Cost Analysis (EE/CA)

Respondents shall revise the T-117 Engineering Evaluation Cost Analysis (EE/CA) approved July 13, 2005 to include the T-117 Bank and Sediments, T-117 Upland, and Adjacent Streets. The revised EE/CA will be based upon the available additional characterization conducted by the Port prior to and during implementation of a Time Critical Removal Action (Fall 2006), data collected by the City of Seattle for the Adjacent Streets, relevant data obtained during the Basin Oil removal (May 2007), any additional data collected at or in the vicinity of the South Park Marina and Basin Oil, including all available data collected by Ecology, and other updated information including the results from the initial groundwater monitoring event referenced below.

Task 1. **Engineering Evaluation/ Cost Analysis (EE/CA) Work Plan**

Respondents shall prepare and submit a Draft and Final EE/CA Work Plan that identifies a conceptual site model, available data, known data gaps, objectives of the removal action, and a minimum of three viable NTCRA alternatives for the T-117 EAA. EPA will review and provide comments on the draft work plan. Respondents will incorporate comments and submit the final work plan to EPA for review and approval.

The EE/CA Work Plan shall include a written description for each NTCRA alternative. The work plan shall also include a preliminary review and analysis of published guidance, resource management plans, laws, regulations, and codes applicable to the proposed post-NTCRA conceptual configurations of the EAA. The Work Plan shall also provide a summary of existing data from the T-117 Bank and Sediment, T-117 Upland, and Adjacent Streets including chemical and physical data in soil, sediment, and groundwater and shall identify preliminary data gaps relative to the proposed conceptual designs and assessing the potential for recontamination of the T-117 EAA.

Task 2. Data Gaps Analysis. Existing data, if available from EPA's actions at Basin Oil and Ecology's South Park Marina Reconnaissance, shall also be summarized, as applicable, for evaluation of the potential for recontamination of the T-117 EAA. Data gaps shall be addressed through an analysis of existing data and data needs as compared to the site conceptual model, and through collection of additional samples, if necessary. The data gaps analysis shall

specifically address whether existing site characterization data (for all relevant SMS contaminants, including PCBs, and other contaminants relevant to T-117 EAA as directed by EPA) are adequate to 1) support preparation of an EE/CA and 2) support implementation of the NTCRA (including demonstration that contaminants to remain in place will not pose a risk to human health or the environment nor cause recontamination of sediments at concentrations exceeding SMS). Relevant Sediment Management Standards (SMS) contaminants are those chemicals 1) found on the T-117 upland property and 2) also found in T-117 EAA sediments that exceed the Sediment Quality Standards (SQS) or those contaminants found on the Basin Oil or South Park Marina properties that pose a potential risk of recontamination to the T-117 EAA.

The results of the Data Gaps Analysis and a plan for any additional field investigation necessary to address data gaps will be included in the Draft EE/CA Work Plan to be prepared as part of Task 1. Data collection methods, analyses and reporting procedures for additional field investigation will be included in the QAPP appendix to the EE/CA Work Plan. . Based on the scope of additional work resulting from the Data Gaps Analysis, the project schedule will be adjusted by EPA as necessary to accommodate the field effort. The Work Plan will include a revised schedule for Tasks 3 and 4 to accommodate additional data collection efforts as needed.

Task 3. Work Plan Implementation. Field work will be initiated and performed in accordance with the approved Work Plan. All investigation results will be summarized and reported in the EE/CA.

Task 4. Engineering Evaluation/ Cost Analysis . Respondents shall prepare and submit a Draft, Draft Final and Final EE/CA Report that provides the information listed below. EPA will review and provide comments on the Draft Report. Respondents will incorporate comments and submit the Draft Final Report to EPA. The Draft Final EE/CA will be revised as necessary and released for public comment. Respondents will revise the EE/CA in response to public comments, based on EPA's response, and submit the Final EE/CA to EPA for approval.

The report shall be prepared by and sealed by a professional engineer licensed by the State of Washington. The final report along with analytical data and graphics shall be provided electronically to EPA. The report shall be guided by EPA's *Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA* (EPA 1993) and should provide as a minimum the following items.

- Background Summary
- List of Important Dates/Milestones/Investigations/Removals/Significant Public Events
- Characterization of the T-117 Bank and Sediments, T-117 Upland, and Adjacent Streets, including facility description and background; source, nature and extent of contamination; analytical data; streamlined risk evaluation; and graphics including isoconcentration contour maps for TPH and PCBs. Evaluation of recontamination potential from Basin Oil and South Park Marina to the T-117 EAA

- Conceptual Site Model
- Identification of existing data for all relevant SMS contaminants and other contaminants as directed by EPA, for soil, sediment, and groundwater
- Identification and summary of historical cleanup and source control actions at the T-117 EAA
- Identification of applicable or relevant and appropriate requirements (ARARs)
- Identification of Removal Action Objectives that identify contaminants of concern, exposure route(s), and receptor(s)
- Identification of objectives and selection of alternatives (minimum 3)
- Description of alternatives
- Comparative analysis of alternatives- including effectiveness, implementability and cost
- Preferred removal action alternative including description and rational
- Implementation schedule

Task 5 - Groundwater Monitoring

An Interim Groundwater Monitoring Plan, QAPP, and Health and Safety Plan will be appended to the EE/CA Work Plan for data collection activities required to support the EE/CA. Respondents shall prepare and submit a draft and final Interim Groundwater Monitoring Plan for the T-117 Upland and submit the Interim Groundwater Monitoring Plan to EPA for review and approval. The objectives of the groundwater monitoring are to:

- Determine if groundwater migrating onto the T-117 Upland contains contaminants at levels that have the potential to recontaminate the T-117 Upland.
- Determine if groundwater at the T-117 Upland contains contaminants at levels that have the potential to cause unacceptable human exposures or cause contaminants to migrate into Lower Duwamish Waterway sediments (including any bank or sediment areas created as part of the NTCRA) at levels exceeding the Washington State Sediment Management Standards or Washington State Water Quality Standards.

The Interim Groundwater Monitoring Plan shall include a QAPP that describes the number and type(s) of samples to be collected, the method(s) of collection, and provides a detailed description and map of the sampling locations. The monitoring plan will include a station-by-

station description of the monitoring objectives for each sample point. The location of each groundwater monitoring well will be described in terms of potential upgradient conditions and expected groundwater flow paths. The elevations of screened intervals will also be shown and discussed in terms of meeting the program objectives. Finally, each proposed monitoring well boring will include a description of borehole samples to be obtained and the expected characteristics/volumes of material targeted for sampling, based on site stratigraphy. Statistical trend analysis (graphs and curve-fitting) will be used to identify and examine temporal trends in contaminant concentrations. The Monitoring Plan will identify the statistics that will be used with the data collected and the formulated monitoring decision rules The QAPP will conform to applicable EPA guidance regarding sampling, analytical test methods, quality assurance/quality control, data validation, and chain-of-custody procedures. The Respondents will incorporate all changes to the Draft Interim Groundwater Monitoring Plan required by EPA.

Respondents shall implement the approved Interim Groundwater Monitoring Plan and shall follow the approved QAPP for installation of wells and associated sampling and laboratory analyses during the interim groundwater monitoring.

At a minimum, groundwater shall be collected at the following locations:

- Existing monitoring well MW-3 and a minimum of 2 groundwater monitoring wells installed along the upland (southwest) facility boundary adjacent to Dallas Avenue. Alternatively, wells may be installed in the street right-of-way as approved by EPA

- Existing T-117 shoreline wells and three new groundwater monitoring wells installed adjacent to the shoreline to replace the wells abandoned during the TCRA.

Locations of wells will be set forth in the Monitoring Plan and construction details for the new wells will be set forth in the QAPP. Wells removed or damaged during the 2007 TCRA will be replaced.

Quarterly monitoring will continue for a minimum of one (1) year prior to performance of the removal action, unless otherwise directed by EPA.

For all groundwater monitoring, Respondents shall analyze groundwater samples for PCBs, PAHs (including SVOCs), TPH (oil and gasoline), BTEX, VOCs, total/dissolved phase priority pollutant metals (specifically including arsenic, lead, and mercury), and any other contaminants that may later be identified to be of potential concern. Analytical detection limits shall allow for comparison of results to applicable performance criteria, including the Washington State Sediment Management Standards or Washington State Water Quality Standards at a minimum. Respondents may request that EPA approve a reduction in the analyte list upon demonstration that certain analytes are not of concern at specific monitoring locations or throughout the T-117 EAA. Respondents may also request that EPA approve a reduction in monitoring frequency after completion of one (1) year of groundwater monitoring.

Respondents shall present quarterly monitoring results to EPA in Quarterly Data reports. Draft reports shall be submitted to EPA for review and comment. EPA will review the draft reports. Respondents shall incorporate comments and submit the final reports to EPA. All groundwater analytical data shall be provided electronically to EPA. Groundwater concentrations shall be compared against State Water Quality Standards.

Respondents shall complete a 24-hour tidal study incorporating at least one shoreline well, MW-3 and one new upland well. The study shall be similar to the prior study described in the final T-117 Sediment, Soil, and Water Field Sampling, Cruise and Data Report (Windward et al 2005).

Task 6 - Community Involvement Activities

As requested by EPA, Respondents shall provide information supporting EPA's community involvement programs related to the Work performed pursuant to this Order, and shall participate in public meetings that may be held or sponsored by EPA to discuss activities concerning Work performed pursuant to this Order. Respondents shall coordinate with EPA on any other community involvement activities they undertake related to the Work performed pursuant to this Order.

Upon request by EPA, Respondents shall submit copies of plans, technical memoranda, raw and validated data, and other reports to EPA except those documents that are privileged.

III. CONTENT OF SUPPORTING PLANS

Quality Assurance Project Plan

Respondents shall develop a project-specific Quality Assurance Project Plan (QAPP) for sample analysis and data handling for any samples collected at T-117 EAA. The QAPP shall be based upon the Settlement Agreement, SOW, and EPA guidance. As appropriate, the QAPP will ensure that sample collection and analytical activities are conducted in accordance with the Puget Sound Estuary Program protocols.

The QAPP will define in detail the sampling and data-gathering methods that will be used on the project, and will be submitted in two parts: Part A will address the T-117 Bank and Sediments and Upland, and Part B will address the Adjacent Streets. It will include sampling objectives, a detailed description of sampling activities, sample locations, sample analysis, sampling equipment and procedures, sampling schedule, station positioning, and sample handling (e.g., sample containers and labels, sample preservation).The QAPP will also describe the quality assurance and quality control protocols necessary to achieve required data quality objectives. The QAPP will be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001) and "Guidance on Quality Assurance Project Plans (QA/G-5)" (EPA/240/R-02/009, December 2002). The QAPP will address

sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting, and personnel qualifications. The laboratory performing the work must have and follow an approved Quality Assurance (QA) program, which complies with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01-002, March 2001) or equivalent documentation as determined by EPA. If a laboratory not in the EPA Contract Laboratory Program (CLP) is selected, the QAPP shall be consistent with the requirements of the CLP for laboratories proposed outside the CLP. Respondents will provide assurances that EPA has access to laboratory personnel, equipment and records for sample collection, transportation, and analysis.

All sampling and analyses performed pursuant to this Order shall conform to EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain-of-custody procedures. Respondents shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate EPA guidance.

Upon request by EPA, Respondents shall have such a laboratory analyze samples submitted by EPA for quality-assurance monitoring. Respondents agree that EPA personnel may audit any laboratory that performs analytical work under this Settlement Agreement. Prior to awarding any work to an analytical laboratory, Respondents will inform the laboratory that an audit may be performed, and that the laboratory agrees to coordinate with EPA prior to performing analyses. Respondents shall provide to EPA the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

Upon request by EPA, Respondents shall allow EPA or its authorized representatives to take split and/or duplicate samples. Respondents shall notify EPA not less than 14 days in advance of any sample collection activity, unless shorter notice is agreed to by EPA. EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Respondents to take split or duplicate samples of any samples it takes as part of its oversight of Respondents' implementation of the Work.

All analytical data collected under this Settlement Agreement shall be provided electronically to EPA.

Health and Safety Plan(s)

The Health and Safety Plan(s) ensure protection of the public health and safety during performance of the Work. This plan shall be prepared in accordance with EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992). In addition, the plan shall comply with all currently applicable Occupational Safety and Health Administration ("OSHA") regulations found at 29 C.F.R. Part 1910. Respondents shall incorporate all changes to the plan recommended by EPA and shall implement the plan during the duration of the field activities relevant to this SOW.

IV. SUMMARY OF MAJOR DELIVERABLES/SCHEDULE

The schedule for submission to EPA of deliverables described in the Amended SOW is presented in Table 1 in calendar days.

V. EFFECTIVE DATE

The Effective Date of this SOW Amendment is the day it is executed and thereby issued by EPA. The Effective Date for all obligations stated in the Settlement Agreement to which this SOW Amendment is attached, including Financial Assurance, is hereby changed to the date that this SOW Amendment is issued by EPA.

It is so AGREED.

By: Sheila Eckman Date: 9/28/07

Sheila Eckman
ECL Unit Manager
U.S. EPA, Region X

For Respondent City of Seattle:

By: _____ Date 9/21/2007

The Honorable Greg Nickels
Mayor

For Respondent Port of Seattle:

By: _____ Date 9/26/07

Tay Yoshitani
Chief Executive Officer

TABLE 1 - Project Schedule For SOW Amendment 1 Tasks (calendar days)

Task 1 Work Plans	1.1 Draft EE/CA Work Plan	1.1 Within 90 days after effective date of the Settlement Agreement.
	1.2 Draft Interim Groundwater Monitoring Plan	1.2 Within 90 days after effective date of the Settlement Agreement.
	1.3 Draft QAPP	1.3 Within 90 days after effective date of the Settlement Agreement.
	1.4 Draft Health and Safety Plan	1.4 Within 90 days after effective date of the Settlement Agreement.
	1.5 Final EE/CA Work Plan (incl. Plans listed above)	1.5 Within 30 days after receipt of EPA comments on Draft Work Plans.
Task 2 Data Gaps Analysis	2.1 Data Gaps Analysis (This analysis will be included in EE/CA Work Plan. The schedule will be reassessed after completion of the data gaps analysis. A revised schedule may be submitted for Tasks 3 and 4 as part of the EE/CA Work Plan)	2.1 Within 90 days after effective date of the Settlement Agreement.
Task 3 Work Plan Implementation	3.1 Initiate Field Investigations	3.1 Within 21 days after EPA approval of Final EE/CA Work Plan
	3.2 Complete Field Investigations	3.2 Within 30 days after initiation of field work or per schedule in approved Final Work Plan, which ever is later.
Task 4 Engineering Evaluation/ Cost Analysis	4.1 Draft EE/CA Report	4.1 Within 120 days after EPA approval of Final Work Plan or receipt of Task 3 Data (whichever occurs later)
	4.2 Draft Final EE/CA Report (for 30 day public comment)	4.2 Within 30 days after receipt of EPA comments on Draft EE/CA.
	4.3 Final EE/CA Report	4.3 Within 30 days after receipt of public comments and responsiveness summary from EPA.

Task 5 Interim Groundwater Monitoring	5.1 Groundwater Monitoring First Event Implementation	5.1 Within 30 days after EPA approval of Final Interim Groundwater Monitoring Plan/QAPP.
	5..2 Groundwater Monitoring First Event Draft Data Report	5.2 Within 60 days after monitoring event.
	5..3 Groundwater Monitoring First Event Final Data Report	5.3 Within 14 days after receipt of EPA comments on Draft Data Report.
	5..4 Groundwater Monitoring Subsequent Events	5.4 Quarterly for total of one year
	5..5 Groundwater Monitoring Subsequent Draft Data Reports	5.5 Within 60 days after monitoring event.
	5..6 Groundwater Monitoring Subsequent Final Data Reports	5.6 Within 14 days after receipt of EPA comments on Draft Data Reports.

Figure 1. T-117 Early Action Area and Recontamination Assessment Areas

Orthophoto source: King County 1999

Early action remediation boundary to be determined based on the results of this investigation.

0 85 170 340 Feet

0 15 30 60 Meters

N

Windward environmental LLC

Prepared by CEH 06/11/07, revised 06/14/07 KH, CEH 07/26/07, DJD 08/07/07; Map 2939 W:\Projects\03-08-12 T-117 (Malarkey)\Data\GIS