



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

June 15, 2006

Reply to
Attn of: AWT-121

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Peter Jewitt
Farallon Consulting L.L.C.
320 Third Avenue, N.E., Suite 200
Issaquah, WA 98027

William S. Johnson
Earle M. Jorgensen Company
10650 South Alameda
Lynwood, CA 90262

Re: Jorgensen Forge Facility
Administrative Order on Consent, U.S. EPA Docket No CERCLA 10-2003-0111
Approval of Final Investigation Data Summary Report and
Request for an Engineering Evaluation/Cost Analysis (EE/CA)

Dear Mr. Jewitt and Mr. Johnson:

The U.S. Environmental Protection Agency Region 10 (EPA) has reviewed the document entitled *Final Investigation Data Summary Report* (Data Summary Report) dated February 13, 2006. In accordance with Paragraph 29 of the above-referenced Administrative Order on Consent (AOC), EPA approves the Data Summary Report.

EPA appreciates the efforts of Jorgensen Forge and the Earle M. Jorgensen Company with the investigative studies to date at the Jorgensen Forge facility. Based on the results of analyses of bank and sediment samples conducted as part of the Jorgensen Forge investigative studies, EPA will be requiring cleanup of portions of the Jorgensen Forge bank and adjacent sediment. In order to continue with the agreed-upon approach to the cleanup, EPA requests that Earle M. Jorgensen complete an Engineering Evaluation/Cost Analysis (EE/CA) and associated work under the existing AOC for a future non-time-critical removal action for contaminated bank material and sediment. A proposed amendment to the Statement of Work (SOW) to incorporate this additional work is enclosed with this letter.

Please respond in writing to this request to amend the SOW and conduct the EE/CA within 30-days of receipt of this letter.

If you have any questions, please call me at (206)553-2851 or I can be reached by email at Orlean.Howard@epa.gov.

Sincerely,



Howard Orlean
Project Manager

cc: Ron Altier, Jorgensen Forge Corporation
David Templeton, Anchor Environmental
Brad Helland, Ecology, NWRO
Marla Steinhoff, NOAA
Glen St. Amant, Muckleshoot Tribe

*bcw: Orlean
Group
Tune.*

DRAFT AMENDMENT TO STATEMENT OF WORK

REMOVAL ACTION DUWAMISH WATERWAY BANK AND SEDIMENT JORGENSEN FORGE SITE

I. PURPOSE

The purpose of this Amendment to the Statement of Work (SOW Amendment) is to add additional tasks to the Administrative Order on Consent for investigation of the sediment and bank adjacent to the Jorgensen Forge site (Site).

The Work to be completed under this SOW Amendment shall include preparation and delivery of the following:

1. Engineering Evaluation/Cost Analysis (EE/CA) Work Plan (draft and final);
2. Removal Action Area Characterization Report (draft and final);
3. Engineering Evaluation/Cost Analysis (EE/CA) Report (draft and final);
4. Biological Assessment (BA) and Clean Water Act (CWA) Section 404 Analysis Memorandum;

These activities shall be completed in accordance with the Administrative Order on Consent (AOC), U.S. EPA Docket No. CERCLA-10-2003-0111, to which it is attached, the SOW attached thereto, and this SOW Amendment, including the schedule in Table 1.

II. WORK TO BE PERFORMED BY RESPONDENT

Deliverables specified in this SOW Amendment shall be consistent with "EPA's Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA" (EPA/540/R-93/057, OSWER 9360.0-32).

Respondent shall notify EPA not less than 14 days in advance of any sample collection activity conducted under this SOW Amendment, unless shorter notice is agreed to by EPA.

Respondent shall complete the following tasks:

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

Respondent shall submit an EE/CA Work Plan that will include a summary of existing information, a Project Work Plan, a Sampling and Analysis Plan (SAP) and a Health and Safety Plan (HASP).

The EE/CA Work Plan shall include, at a minimum, the following information:

- Introduction/Purpose;

- Brief description of sediment and bank removal area characteristics, including ecological and physical characteristics;
- Summary of existing information on upstream and upland contamination sources that have the potential to contaminate sediment adjacent to the Site, including a description of environmental investigations, environmental cleanups and planned upland source control measures that will be conducted under agreements with the Washington Department of Ecology as the lead agency;
- Summary of results from sediment sampling adjacent to the Site conducted to date by all parties;
- A description of the analysis to be conducted to determine the likelihood of post Removal Action recontamination of the Jorgensen Forge Removal Action Area by upland or upstream sources of contamination;
- Identification of Removal Action Objectives (RAOs), potential Applicable or Relevant and Appropriate Requirements (ARARs), and other regulatory criteria To Be Considered (TBCs) for the Jorgensen Forge Removal Action Area, in consultation with State of Washington and other partners on the Removal Action;
- A description of the analysis to be conducted to determine disposal facility options for contaminated sediment and bank materials; and
- Other information (including maps and figures) necessary to gain a general understanding of the Jorgensen Forge Removal Action Area. Respondent shall also identify data gaps that will be filled by the collection and analysis of field data. Investigation activities will focus on problem definition and will result in data of adequate quality and technical content to evaluate the following:
 - Nature, extent, and volume of sediment and bank contamination;
 - Potential human health and ecological risks resulting from sediment and bank contamination;
 - Engineering characteristics of the Removal Action Area including sediment consistency, dredgeability, potential slope stability issues related to dredging, and potential sediment consolidation issues associated with capping;
 - Potential water quality effects associated with dredging, piling removal, sheet pile installation, capping, or disposal technologies;
 - Alternative technologies for sediment remediation including capping, dredging, treatment (not including treatability testing, which is reserved and may be

performed later, if needed) and disposal (on-Site and off-Site); and

- Potential impacts to threatened or endangered species, other biological receptors, and the potential habitat benefits and impacts of the removal action and related disposal.

The procedures Respondent plans to implement when conducting all field activities will be detailed in the SAP that will be included in the EE/CA Work Plan. The SAP will ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that data meet data quality objectives. The SAP provides a mechanism for planning field activities and consists of a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP). Details are provided in Section III of this SOW Amendment.

Respondent shall also prepare a HASP that is designed to protect personnel from physical, chemical and other hazards posed by field sampling efforts. Details are set forth in Section III of this SOW Amendment.

Respondent shall continue to work under Ecology supervision on source control efforts related to the Jorgensen Forge Removal Action Area, which may include source identification, source prioritization, documentation and tracking of source control plans and completed source control actions, evaluating and documenting effectiveness of source control measures, and providing input to EPA and Ecology decisions as to the effectiveness of source control in order to implement the Removal Action. The goal is for significant ongoing sources to be controlled to the greatest extent practicable before or during Removal Action implementation such that significant post Removal Action recontamination is not predicted.

2. Removal Action Area Characterization Report

Respondent shall submit a Removal Action Area Characterization Report that includes information from field sampling events, including validated analytical results. The Removal Action Area Characterization Report shall include, at a minimum, the following sections:

- Introduction/Purpose;
- Summary of the field sampling effort that, at a minimum, includes sampling vessel information, field effort dates, a summary of the sample collection effort (e.g., surface sediment, subsurface sediment, and surface water samples), field sample observations (e.g., sediment and descriptions), and a summary of sample and station locations –including station depths (corrected to mean lower low water), station locations (latitudes/longitudes and state plane coordinates), maps and figures;
- Deviations from the FSP;

- Summary of sample handling and shipment; and
- Summary of all data, including a data validation report. Data from this effort shall be provided electronically in a format consistent with other data already provided under previous studies.

Respondent shall submit the data validation report to EPA within 5 days of Respondent's receipt of the data validation report from its contractor or in-house source. Information necessary for EPA to perform an independent review of the validated data shall also be provided.

3. Engineering Evaluation/Cost Analysis (EE/CA) Report

Based on data obtained in the previous sampling efforts and work to be performed under this SOW Amendment, and in consideration of EPA's guidance for removal actions, Respondent will prepare a technical briefing for EPA on the proposed removal alternatives that will be presented by Respondent in the EE/CA.

After the technical briefing, Respondent, in consideration of comments received at the technical briefing, will submit a first draft of the EE/CA.

The first draft EE/CA will be revised in response to EPA comments. A second draft EE/CA shall be submitted to EPA for release for a formal public comment period, following EPA approval or approval with modification, if necessary. If requested by EPA, a final version of the EE/CA shall be submitted to EPA for review and approval in accordance with the schedule set forth in Table 1 of this SOW Amendment.

The EE/CA will contain the following sections:

- Executive Summary;
- Introduction;
- Removal Action Area Characterization;
- The result of the analysis regarding the post Removal Action recontamination potential of the Jorgensen Forge Removal Action Area by upland or upstream sources of contamination, including whether source control actions will be sufficient or if additional actions may be required to control potential sources of significant recontamination;
- Identification of Removal Action Objectives;
- Identification and Analysis of Removal Action Technologies;
- Identification and Analysis of Removal Action Alternatives, including the

identification and analysis of disposal facility options and cost estimates for each alternative.

- Comparative Analysis of Removal Action Alternatives;
- Recommended Removal Action Alternative, including the selection of any needed disposal facility;
- An assessment of the residual risk anticipated after Removal Action implementation;
- Schedule for recommended Removal Action; and
- Preliminary drafts of the Biological Assessment and Clean Water Act analysis memorandum for the recommended Removal Action alternative (see Section 4 below).

A public comment period of at least thirty (30) days is required for the EE/CA and any supporting documentation. Respondent shall assist EPA, as requested, before and during the comment period with its community relations activities concerning the EE/CA. Respondent shall also assist EPA in compiling the Administrative Record before and during the public comment period. If, based on public comments received, EPA determines additional data or analyses are required to complete the EE/CA, Respondent shall collect such data, or perform such analyses, as determined necessary by EPA.

4. Biological Assessment (BA) and Clean Water Act (CWA) Section 404 Analysis Memorandum

In order to identify the presence of threatened, endangered, proposed or candidate species, or their habitat, within the vicinity of the proposed Jorgensen Forge Removal Action Area, Respondent will prepare, for EPA approval, a draft BA to support compliance with the substantive requirements of the Endangered Species Act. The draft BA will characterize baseline conditions of existing habitat; address potential project impacts that the Removal Action may have on these species, their habitat, and their food stocks; and describe best management practices and conservation measures designed to avoid or minimize any negative impacts.

If dredging, capping, or other filling is a component of any of the alternatives, Respondent shall submit a draft memorandum that provides sufficient information to demonstrate compliance with the substantive requirements of Section 404(b) (1) of the CWA. The memorandum shall document the information gathered regarding practicability and cost, long- and short-term impacts from all proposed alternatives, minimization of adverse effects, and an analysis of the need for any mitigation.

5. Community Involvement Activities

If requested by EPA, Respondent shall provide information supporting EPA's community involvement programs related to the Work performed pursuant to this SOW Amendment, and shall participate in public meetings which may be held or sponsored by EPA to explain activities at the Removal Action Area or concerning Work performed pursuant to this SOW Amendment.

III. CONTENT OF SUPPORTING PLANS

1. Sampling and Analysis Plan

Respondent shall develop a project-specific SAP comprising an Field Sampling Plan (FSP) and a project specific QAPP for sample analysis and data handling for samples collected at the Removal Action Area. The SAP shall be based upon the AOC, this SOW Amendment and EPA guidance.

The FSP will define in detail the sampling and data-gathering methods that will be used on the project. 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 SAP will be prepared in accordance with "Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual" (EPA/823/B-01-002, October 2001). The content of the SAP shall include the type of information described in EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA/540/G-89-004).

The QAPP will 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/600/R-98/018, February 1998). 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. Respondent 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 SOW Amendment shall conform to EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain-of-custody procedures. Respondent 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, Respondent shall have the laboratory analyze samples submitted by EPA for quality-assurance monitoring. Respondent agrees that EPA personnel may audit any laboratory that performs analytical work under this SOW Amendment. Prior to awarding any work to an analytical laboratory, Respondent will inform the laboratory that an audit may be performed, and the laboratory must agree to coordinate with EPA prior to performing analyses.

Respondent shall provide to EPA the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

2. Health and Safety Plan(s)

The HASP(s) ensures protection of health and safety during the performance of work under the AOC and this SOW Amendment. The HASP 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 regulations found at 29 C.F.R. Part 1910. Respondent shall incorporate all changes to the plan recommended by EPA and shall implement the plan during the Removal Action.

IV. SUMMARY OF MAJOR DELIVERABLES/SCHEDULE

The schedule for submission to EPA of deliverables described in this SOW Amendment is presented in Table 1.

TABLE 1 – Schedule of Project Deliverables

Engineering Evaluation/Cost Analysis (EE/CA) Work Plan		
	Draft EE/CA Work Plan	Within 60 days after effective date of SOW Amendment
	Final EE/CA Work Plan	Within 30 days after receipt of EPA comments on draft
Removal Action Area Characterization Report		
	Draft Removal Action Area Characterization Report	Within 90 days after EPA approval of the EE/CA Work Plan
	Final Removal Action Area Characterization Report	Within 30 days after receipt of EPA comment on draft Report
Engineering Evaluation/Cost Analysis (EE/CA) Report		
	First Draft EE/CA	Within 60 days after EPA approval of Final Removal Action Area Characterization Report
	Technical Briefing on Proposed Removal Alternatives	Within 30 days after submittal of the First Draft EE/CA
	Second Draft (Public Review) EE/CA	Within 30 days after receipt of EPA comments on First Draft EE/CA
	Final EE/CA	Within 30 days after receipt of EPA comments on Second Draft EE/CA
Biological Assessment and CWA Section 404 Memorandum		
	Draft Biological Assessment and CWA Section 404 Memorandum	Within 90 after EPA issuance of the Removal Action Memorandum
	Revised Draft Biological Assessment and CWA Section 404 Memorandum	Within 30 days after EPA comments on Draft Biological Assessment and CWA Section 404 Memorandum

STATEMENT OF WORK

**INVESTIGATION OF DUWAMISH WATERWAY BANK,
INTERTIDAL SEDIMENT, AND OUTFALLS**

JORGENSEN FORGE PROPERTY



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FIGURE

Figure 1 Site Location Map

Figure 2 Site Map

TABLE

Table 1 Schedule for Submission of Major Deliverables

I. PURPOSE

The purpose of this Statement of Work (SOW) is to outline the general requirements to complete an investigation by Earle M. Jorgensen Company (Respondent) to determine whether the Jorgensen Forge Property located at 8531 East Marginal Way South in Seattle, Washington (the Site) and associated operations thereon are or have been a source of contamination that has been detected in sediment in the Duwamish Waterway adjacent to the Site. The objectives of the investigation is to provide sufficient information to determine if the Site or the current and former operations thereon are, or have been, a source of contamination to the sediment, determine the nature and extent of hazardous substances, if any, that may have been released at or from the Site, and to determine the threat to public health, welfare, or the environment from any such releases or threatened releases of hazardous substances at or from the Site.

This investigation will be conducted in two phases. The first phase of the investigation will include summarization of available information to: identify potential sources of contamination from current or historic operations at the Site or in the Site vicinity; to define potential contaminant pathways to the Duwamish Waterway; and identify data gaps. The results of the first phase of the investigation will be evaluated to determine the specific requirements for sampling and analysis to address the identified data gaps and determine the nature and extent of contamination in sediment.

II. BACKGROUND

The Site is located at 8531 East Marginal Way South adjacent to the east bank of the Duwamish Waterway in Seattle, Washington, and is bordered to the north by the Boeing Plant 2 facility, to the south by the Boeing/Isaacson property and the east by East Marginal Way South. Surface sediment sampling conducted in the Duwamish Waterway as part of the Boeing Plant 2 RCRA Facility Investigation (RFI) detected polychlorinated biphenyls (PCBs) and metals in the sediment adjacent to the northwest corner of the Site (Boeing, 1998).

The Boeing Company (Boeing), in accordance with a Resource Conservation Recovery Act (RCRA) Section 3008(h) Consent Order between United States Environmental Protection Agency (EPA) and Boeing, is undertaking Corrective Action at Boeing Plant 2 facility, located directly north of the Site. EPA and Boeing have conducted, or are conducting, several investigations to determine the nature and extent of contamination in the sediment. EPA will provide the Respondent with the results of continuing investigations of sediment and/or possible sources of contaminants to the sediment.

EPA proposed that the Lower Duwamish Waterway (LDW) be added to the National Priorities List (NPL) of high priority cleanup sites in December 2000. The Site is within the boundaries of the LDW site. Also, in December 2000, Boeing, the Port of Seattle, the City of Seattle, and King County voluntarily entered into an Administrative Order on Consent (AOC) under Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Washington State Model Toxics Control Act (MTCA), Ch. 70.105D RCW. The purpose of the CERCLA/MTCA AOC is to conduct a river-wide remedial

investigation/feasibility study (RI/FS) for the LDW site. In September 2001, the LDW site was added to the NPL.

The CERCLA/MTCA AOC Respondents submitted a Draft Technical Memorandum entitled *Data Analysis and Candidate Site Identification* in July 2002. The Draft Technical Memorandum identified nearshore sediments adjacent to the downstream northwest corner of the Site as a candidate site for early action based on elevated levels of PCBs and metals. Boeing is currently conducting an investigation on the northwest portion of the Site for PCBs in soil, groundwater, and sediment to determine the extent of a release of PCBs from an electric transformer located on the southwest corner of the Boeing Plant 2 facility.

III. STATEMENT OF WORK

The investigation under this Statement of Work will be conducted in two phases. The first phase of the investigation will include a summary of existing data, historical operations, Site configuration, and delineation of other potential sources to identify specific data gaps that may need to be addressed by sampling and analysis. The second phase of the investigation is contingent on the results and findings of the first phase of the investigation.

TASK 1 – COMMUNICATION AND MEETINGS

This task delineates the requirements for the Respondent to manage both phases of the investigation and provide communication with EPA in a timely and consistent manner. This task will include, but not be limited to, the following:

- Preparation of a written project schedule for both phases of the investigation.
- Regularly scheduled meetings and/or conference calls between the Respondent and EPA.
- Preparation of progress reports submitted to EPA by the 10th of every month following the effective date of the AOC. At a minimum, progress reports shall contain the following information regarding the preceding reporting period:
 - A description of the actions which have been taken to comply with the AOC and SOW during the previous reporting period;
 - Summaries of new findings;
 - Summaries of all deviations from the approved Work Plan, Sampling and Analysis Plan (SAP), and Quality Assurance Project Plan (QAPP);
 - Summaries of all difficulties or anticipated difficulties in meeting the schedule or objectives set forth in the SOW and Work Plan;
 - Summaries of all solutions developed and implemented or planned to address any actual or anticipated problems or delays;
 - Changes in key personnel;
 - A description of all work planned for the next reporting period with schedules relating such work to the overall project schedule, including percentage of completion data;

- A list of sampling and testing reports and all other final data reports received by Respondent other than those generated as part of this AOC; and
 - A discussion of deviations and potential future deviations from the approved schedule.
- Distribution of deliverables. When modifying deliverables in accordance with EPA comments, Respondent shall provide a redline version of the revised deliverables and, if requested by EPA, shall also provide a written response to each comment, indicating how and where the comment was addressed.

TASK 2 – FIRST PHASE -SUMMARY OF AVAILABLE INFORMATION

Available information will be compiled, as appropriate and necessary, to identify potential sources of contamination from current or historic operations at the Site, or in the Site vicinity; to define potential contaminant pathways to the Duwamish Waterway; and to identify data gaps. The results of the first phase of the investigation will be presented in the Environmental Sampling Work Plan (Task 3) and will form the basis for any additional investigations.

The information to be reviewed and evaluated, to the extent available, will be the following:

- Location and description of the Site.
- Site and surrounding area history.
- Current and potential future land use(s).
- Compilation and assessment of physical and chemical characterization data for:
 - Groundwater;
 - Soil (upland and on the bank);
 - Stormwater from outfalls;
 - Surface and subsurface sediment quality, grain size distribution, and total organic carbon (TOC).
- Location, description, and elevation of historical and existing storm water discharge outfalls.
- Delineation of outfall drainage areas.
- Bathymetric data, including information on bank elevations and slopes.
- Documentation of bank conditions (video survey).
- Duwamish Waterway current patterns and velocities.
- Deposition/resuspension areas and rates.
- Dredging records and surveys (specifically presenting records/bathymetry maps and post-dredging records/bathymetry maps or surveys, so that temporal changes in sediment accumulation can be assessed).

- Recent and current understanding of planned construction in or on the Duwamish Waterway (such as habitat restoration sites, fills, excavations).
- Structure locations (e.g. piers, docks, outfalls, riprap).
- Available survey coordinates (e.g. sediment, groundwater, and soil sample stations and locations) from past studies or other efforts.
- Summary of aerial photograph review.
- Review of existing source data:
 - Historical review of facility records;
 - Review of Boeing Plant 2 RCRA investigation results;
 - Review of other potential sources within the vicinity of the Site;
 - Interviews with key personnel that have worked at the Site.
- Identification of potential historical and on-going significant sources to the Duwamish Waterway from the Site or facilities within the vicinity of the Site.

The Respondent shall request information from the U.S. Army Corps of Engineers (the “Corps”) and the Port of Seattle (the “Port”), on future land use planning, including dredging and filling plans.

TASK 3 – SECOND PHASE – ENVIRONMENTAL SAMPLING WORK PLAN

The work required to complete the investigation of sources and nature and extent of contamination to sediment adjacent to the Site is not fully known at this time and is phased in accordance with the complex history of the Site and vicinity. The second phase of the investigation will be developed based on the results of the first phase of the investigation and may include environmental sampling of selected media for specific contamination. The location, analysis, and extent of the environmental sampling will be based on the results of the first phase of the investigation.

The Respondent shall submit for EPA review and approval an Environmental Sampling Work Plan after the first phase of the investigation, as defined in Task 2 of this SOW, has been completed. The Environmental Sampling Work Plan shall document the results of the first phase of the investigation, including available information that was reviewed, the identification of any data gaps, and a determination that the Site, is, or is not, a historical and/or current source of contamination to sediment in the Duwamish Waterway. The Environmental Sampling Work Plan will define the location, depth, media, and analytical methods to be conducted to fill the data gaps, if any. Attachments to the Environmental Sampling Work Plan shall include a SAP, QAPP, and a Health and Safety Plan (HASP).

The Environmental Sampling Work Plan shall specify key tasks to be accomplished to complete the investigation of the Site. The Environmental Sampling Work Plan shall clearly describe the overall management strategy for planning, performing, and documenting investigative activities. The responsibility and authority of all organizations and key personnel involved in performing

investigative tasks shall be outlined. The Environmental Sampling Work Plan shall discuss the timing and preparation of all documents described in Section IV of this SOW.

Elements of the Environmental Sampling Work Plan will include, but not be limited to, the following:

- A summary of the information review completed under Task 2.
- A data gap analysis that defines the known or suspected sources of contamination, the potential pathways for contaminant migrations, and areas where sampling and analysis will be necessary to address the data gaps identified at the Site.
- Project Management strategy and schedule, describing the strategy for managing investigative activities and achieving timely submittal of deliverables.
- A project schedule, including a timeline for completion of all investigative subtasks and for submittal to EPA of interim and final deliverables, including but not limited to the deliverables enumerated in Table 1 of this SOW.
- The composition and individual qualifications of a technical team or teams of personnel and/or subcontractors responsible for investigative subtasks.
- Listing of standards, criteria, and regulations applicable to the investigation.
- A Data Management Plan:
 - A unique identification code assigned to all monitoring and sampling stations;
 - Location data and descriptive information recorded and encoded of all monitoring and sampling stations described in standard latitude and longitude coordinates;
 - Analytical results and other observations correlated with the sampling station location and descriptive code using common identification codes assigned to station locations.
- A list and description of individual investigative activities necessary to address data gaps that may include:
 - Site survey;
 - Location, description, and elevation of historical and existing outfalls;
 - Bathymetric data, including information on bank elevations and slopes;
 - Documentation of bank conditions (video survey).
 - Physical Characterization, including:
 - Groundwater chemistry, flow direction and flux, and the effects of groundwater discharge on the Duwamish Waterway;
 - Sources and discharge points for storm and surface water;
 - Erosion and sloughing of banks and soil into the nearshore area;
 - Receiving water chemistry, currents and sediment transport
 - Environmental Media Sampling, including:
 - Surface and subsurface sediment samples;
 - Bank soil material sampling;

- Soil sampling;
- Groundwater sampling.

The Environmental Sampling Work Plan will be submitted to EPA in draft format for review and comment. Upon receipt of mutually agreeable comments, the Final Environmental Sampling Work Plan, with the schedules for performance of activities and submission of deliverables, shall be incorporated into this SOW.

A) Sampling and Analysis Plan

Respondent shall submit to EPA a SAP for review and approval in accordance with the document submittal schedule set forth in Section IV of this SOW. The purpose of the SAP is to provide the specifics of the environmental sampling program and to obtain the necessary information needed to fulfill the data gaps summarized in the Environmental Sampling Work Plan.

The SAP shall describe the sampling objectives, the rationale for the sampling approach (based in part on data gaps identified during the summary of existing data) and plans for data use, and shall provide a detailed description of sampling tasks, consistent with Puget Sound Estuary Program (PSEP) Protocols, or other protocols, as applicable. The SAP shall describe specifications for sample identifiers; operation of major sampling equipment (e.g., vessel operation and positioning); the type, number, and location of samples to be collected; the analyses to be performed; descriptions of sampling gear and methods to be used; documentation of samples; sample containers, collection and handling; and the sampling schedule.

The SAP shall describe the data quality objectives, and identify and describe measures that will be taken during performance of all sampling and analysis tasks to ensure fulfillment of the data quality objectives. Data quality objectives will reflect the criteria or threshold values used for potential future remedial decisions.

B) Quality Assurance Project Plan

Respondent shall submit to EPA a QAPP for investigation sampling and analysis activities for review and approval by EPA in accordance with the document submittal schedule set forth in Section IV of this SOW. The QAPP will be prepared in accordance with the *Guidance for Preparation of Quality Assurance Project Plans*, EPA Region 10, Quality Data Management Program, QA/R-5. Data quality objectives will reflect the criteria or threshold values used for potential future remedial decisions. The QAPP shall be developed in accordance with EPA guidance and the requirements of the EPA Contract Laboratory Program (CLP) and contain the following elements:

- Project Description.
- Project Organization and Responsibilities.
- Quality Assurance Objectives.
- Sampling location and frequency.
- Sample handling, storage, transport and Chain - of - Custody procedures.

- Sample parameters, preparation, and analysis methods, detection limits and volume of sample required for each media;
- Number of quality control samples, spikes and replicates required
- Calibration Procedures, References, and Frequency.
- Analytical Procedures.
- Internal Quality Control Checks.
- Data Reduction, Validation, and Reporting.
- Performance and System Audits.
- Preventative Maintenance.
- Specific Routine Procedures to Assess Data Precision, Accuracy, and Completeness.
- Corrective Action.
- Quality Assurance Reports to Management.

C) Health and Safety Plan

Respondent shall submit to EPA for review a HASP for investigation sampling and analysis activities for review and approval in accordance with the document submittal schedule set forth in Section IV of this SOW. The HASP must be consistent with the requirements of CERCLA, the Occupational Safety and Health Administration (OSHA), and the Washington Safety and Health Administration (WSHA). The HASP shall identify specific monitoring and management responsibilities and activities to ensure the protection of human health and to promote safety for the activities associated with investigation sampling. The HASP shall be modified as necessary for changes or revisions to the SAP and QAPP.

TASK 4 – FINAL INVESTIGATION DATA SUMMARY REPORT

In accordance with the document submittal schedule set forth in Section IV of this SOW, the Respondent shall submit to EPA an Investigation Data Summary Report presenting the results of investigation research, sampling, and analysis activities for EPA review and approval. The Investigation Data Summary Report shall include tabulated chemical, physical, and biological data, a sample identification matrix which relates sample identification numbers to sample locations, maps showing actual sample locations, field logs, laboratory data sheets, and a summary of field activities and methods, including a discussion of any discrepancies with the SAP and the effect of such changes upon data usability. All results shall be compared to appropriate regulatory criteria or screening levels defined in the Environmental Sampling Work Plan that will include Sediment Management Standards (SMS; WAC 173-204), MTCA regulations (MTCA; WAC 173-340), and other appropriate regulatory programs. If requested by EPA, Respondent shall also make available any additional records generated to support data collection, such as chain-of-custody forms. The Investigation Data Summary Report shall include a discussion of data validation conducted in accordance with the EPA-approved QAPP and addenda (if any).

Respondent shall also submit quality assured chemical and biological data in an electronic format consistent with the Washington State Department of Ecology February 2003 *Sediment*

Quality Information System (SEDQUAL), Release 4.4, and any subsequent revisions to that document.

The report may include, as appropriate:

- A summary, including maps and illustrations of historical releases and sources of contamination.
- A summary, including maps and illustrations, of all historical groundwater data.
- A summary of physical properties affecting potential releases and migration of contamination in the Duwamish Waterway adjacent to the Site.
- Quality assurance analytical results of soil and sediment samples.
- A summary, including maps and illustrations, of the nature and extent of potential sources or contamination from the Site to the Duwamish Waterway.

IV. SCHEDULE OF DELIVERABLES AND NOTIFICATIONS

The schedule for notifications to EPA or submission of major deliverables to EPA under this SOW is described below. If the date for submission of any item or notification required by this SOW occurs on a weekend, state or federal holiday, the date for submission of that item or notification is extended to the next business day following the weekend or holiday. Where a deliverable due date is triggered by EPA notification, comments or approval, the starting date for the period shown is the date the Respondent received such notification, comments or approval by certified mail, return receipt requested, unless otherwise noted below. Where triggered by EPA's receipt of a deliverable, the starting date for the period shown is the date EPA receives the deliverable by certified mail, return receipt requested or the date of EPA signature on a hand-delivery form.

Table 1

Schedule for Submission of Major Deliverables

	<i>Deliverable</i>	<i>Due Date^a</i>
1.	Written Progress Reports	Monthly beginning the 10th day of the month after the AOC ^c effective date
2.	Draft Environmental Sampling Work Plan	60 days ^b after the AOC ^c effective date
3.	Investigation Activities	Initiate 30 days ^b after EPA approval of Environmental Sampling Work Plan
4.	Investigation Data Summary Report	To be defined in the Environmental Sampling Work Plan

^a Due dates shown are for initial draft deliverables. Revised deliverables (including one redline version) are due 45 days from receipt of EPA comments. Documents become final upon approval by EPA.

^b Days are calendar days. If due dates fall on a weekend or state or federal holiday, deliverables will be submitted to EPA on the next business day.

^c AOC (Administrative Order on Consent) is effective upon signature by both EPA and Respondent.

1 penalties demanded by EPA, have been performed and EPA has approved the certification.
2 This approval shall not, however, terminate Respondent's obligation to comply with Sections
3 XIV, XXI, and XXII of this Consent Order.

4 79. The certification shall be signed by a responsible official on behalf of Respondent
5 who shall make the following attestation: "I certify that the information contained in or
6 accompanying this certification is true, accurate, and complete." For purposes of this Order
7 a responsible official is an official who is in charge of a principal business function.

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IT IS SO ORDERED:

BY: _____ DATE: _____
Richard Albright, Director
Office of Waste and Chemicals Management
EPA Region 10

CONCURRENCES:

INITIALS	<i>OR</i>	<i>AR</i>	<i>JS</i>	<i>CO</i>	<i>JK</i>
NAME	ORLEAN	FILUTOWSKI	SIKORSKI	ORDINE	KOWALSKI
DATE	7/9/03	7/9/03	7-9-03	7-9-03	7/9/03