March 6, 2008

Mr. Joe Crossland, Contract Specialist
Washington State Department of Ecology
Toxics Cleanup Program
P.O. Box 47600
Olympia, Washington 98504-4760

Re: Work Plan to Perform a Remedial Investigation and Feasibility Study (RI/FS)
Port Gamble Bay
Port Gamble, Washington
08-4-1100-021

Dear Mr. Crossland:

Hart Crowser is pleased to provide the Washington State Department of Ecology (Ecology) with this Work Plan for the Port Gamble Bay Site (Site) in Port Gamble, Washington. The scope of this Work Plan includes evaluating historical records for the property, preparing a historical summary and data gaps memo, and developing and implementing a work plan to perform a remedial investigation and focused feasibility study (RI/FS) for the site. The objective of this work is to develop a sampling and analysis program that will adequately characterize the nature and extent of contamination associated with the Site and evaluating potential remedial alternatives. Our understanding of this project is based on the Scope of Work for the Port Gamble Site document transmitted to Hart Crowser by Ecology in January 2008.

The proposed scope of work covered under this Work Plan is summarized below along with a description of key staff and project schedule. Information on labor hours, anticipated expenses, and overall cost are presented on the attached cost sheets (Table 1).

Due to funding constraints and the fact that Pope Resources is performing the mill area RI/FS under an Agreed Order, the investigation will be focused on the DNR lease area and associated log transfer area to the north. We understand that the data, findings, and recommendations generated by Pope Resources for the mill area will be reported independently and will not be included in documents produced under this work assignment.

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SITE BACKGROUND AND HISTORY

Port Gamble Bay is among six original bays identified under Ecology's Toxics Cleanup Program's Puget Sound Initiative for focused sediment cleanup and source control. Previous sediment monitoring in the area shows exceedances of the Sediments Management Standards (SMS), Chapter 173-204 WAC. Many areas of suspected contamination are poorly represented. The lower Port Gamble Bay includes possible cleanup sites with likely substantial restoration potential because of the adjacent high ecological values and functions.

Ecology has indicated that the purpose of this effort is to characterize sediment concerns throughout Port Gamble Bay to prioritize cleanup and restoration actions under the Puget Sound Initiative. The completed work will include a Summary of Existing Data and Data Gaps, Sampling and Analysis Plan, sediment sampling and analysis, Sediment Investigation Report, and development of an RI/FS.

PROJECT SCOPE OF WORK

To complete Ecology's requested scope of work described above, we have organized the project into the following tasks as listed in Ecology's January 2008 draft scope of work for Port Gamble Bay:

- Task 1—Scoping Meeting, Work Plan, Budget Preparation, and ongoing Project Management;
- Task 2—Preparation of draft and final Summary of Existing Information and Identification of Data Gaps Technical Memo;
- Task 3—Preparation of draft and final Sampling and Analysis Plan/Quality Assurance Project Plan (SAP), and Health and Safety Plan (HASP);
- Task 4—Conducting sediment sampling and analysis; and
- Task 5—Preparation of a Remedial Investigation and Focused Feasibility Study (RI/FS) report, draft and final with appendices including Cruise Report, Core and Grab Logs, Lab Reports, QA/QC Review of Analytical Results. Data will be submitted in EIM/SEDQUAL format.

These tasks are discussed in greater detail below.

Task 1—Preparation of a Work Plan, Budget Preparation, and Ongoing Project Management

Task 1a – Scoping Meeting with Ecology

Task 1a includes participating in a project kickoff/scoping conference at Ecology headquarters in Lacey that occurred on January 9, 2008, with Russ McMillan and Kevin MacLauglin. Mike Ehlebracht, Roger McGinnis, and Rick Moore participated in the meeting.

Task 1b – Preparation of Proposed Project Budget and Schedule

As part of this task, Hart Crowser will develop the proposed budget and schedule. A draft copy of this Work Plan and budget will be submitted via email to Mr. Joe Crossland, Mr. Russ McMillan, and Mr. Kevin MacLachlan of Ecology for review and comment. We will discuss and incorporate Ecology's comments and submit a final work plan document via e-mail.

Task 1c – Ongoing Project Management and Progress Reporting

As part of Task 1c, we will submit monthly progress reports along with our invoices. The progress reports will contain applicable information as listed in Contract No. C0700035 Section III.F and will be submitted via email to Mr. Joseph Crossland, Mr. Russ McMillan, and Mr. Kevin MacLachlan. Based on the schedule duration discussed with Ecology during the project kickoff conference call and for the purposes of the cost estimate, we assume that 12 progress reports will be submitted under the Scope of Work.

Task 2—Preparation of Summary of Existing Information and Identification of Data Gaps Report

As part of this task, Hart Crowser will conduct a historical background information search to assess former and current Site features and operations, as well as results of previous investigations in the DNR lease area and log transfer area.

This information will be used to identify:

- Implications of current or historical conditions/site use on the preliminary investigation design and SAP approach (including sampling locations);

- Primary areas of log storage, potential wood waste accumulation areas, and other handling activities; and

- Results of previous site investigations.

The following reports that focus on the DNR lease area and log transfer area will be reviewed. Additional reports identified by Ecology as pertinent to the Lease Area investigation will also be reviewed.

- Wood Debris Survey (Parametrix, September 1999);
- Sediment Chemistry Reconnaissance (Phase 1) Investigation (Parametrix, 2000);
- Underwater Video Survey (Parametrix, 2002);
- Sediment Characterization (Phase 2) Report (Parametrix, April 2003); and
- Results of Bioassay Testing (Anchor 2006).

Our environmental specialist will travel to Ecology's Headquarters in Lacey to review records for the Site including Environmental Assessment Program (EAP) and Toxic Cleanup Program (TCP) files. For cost estimating purposes, we assume that Ecology will combine the various program files into a single organized collection that would be available for our review. It is assumed that Ecology has copies or access to videos, aerial photos, CAD and GIS map files, data, and reports prepared by other contractors and will provide copies to Hart Crowser. We also assume that Ecology will provide copies of pertinent documents to us at no charge.

Reports, maps, photographs, and data files will be compiled in an electronic file that can be accessed by the project team. Hart Crowser will maintain a project directory that identifies the organization of documents within the electronic site file. The file directory components will be available to team members and Ecology as needed.

Task 3—Development of SAP and HASP Documents for Port Gamble

A draft Sampling and Analysis Plan (SAP) for performing site investigation activities at the Port Gamble Bay DNR lease and log transfer areas will be developed as part of this task. The following components will be included:

- Sampling and Analysis Plan, including planned activities, procedures for the sediment field investigations, and figures showing proposed field exploration locations;
- Health and Safety Plan (HASP); and
- Quality Assurance/Quality Control (QA/QC Plan).

It is assumed the draft SAP will be submitted via email in Microsoft Word and Adobe PDF formats for Ecology review and that all comments will be made by email and/or electronically in Word. For planning purposes, we have assumed that Ecology will compile and coordinate other agency

comments and no meetings are required with stakeholders or potentially liable parties. It is also assumed that there will be only one iteration of comments and revisions to the document will focus on technical issues and will require only minor modifications. Ecology comments will be incorporated within two weeks of receipt and electronic and three hard copies of the final SAP will be submitted to Ecology.

Task 4—Conduct Sediment Sampling and Analysis

Diver Survey

Diver surveys will be conducted in the DNR lease area and the log transfer area to the north. As part of the review of existing information (Task 2), Hart Crowser will examine previous underwater video surveys to be provided by Ecology to determine areas and set transects for diver surveys. Divers will document their findings using underwater video and communications. While extensive surface sampling would be desirable to assess and delineate the presence and extent of wood waste, a diver survey will cover more area within the project budget constraints. The budget proposal assumes two days of diving plus mobilization time. It is assumed that approximately 1,000 feet of transect can be covered per day.

Data from the diver survey will be evaluated to determine locations for sediment sampling.

Sediment Coring and Sampling

Sediment coring will be performed using either a Vibracore or rotary impact coring device at up to 25 locations to be determined based on review of historical data and information from diver surveys. Sediment cores will be collected to a depth of up to 10 feet. Cores tubes will be lined with lexan tubes so that sediment can be visually examined to determine the presence and depth of wood waste and the presence and qualitative assessment of benthos. Samples from locations designated for chemical analysis of metals and/or conventional parameters only will be collected from the sediment cores.

Sediment surface (0 to 10 cm) sampling at up to seven locations designated for complete analysis of parameters on the Washington State SMS list and/or bioassay toxicity testing will be collected using a power vanVeen-type grab sampler. Up to two reference samples for bioassay toxicity testing will be collected from Carr Inlet or Sequim Bay. Field estimates of grain size will be performed to guide selection of reference sample locations. Reference samples will only be analyzed for grain size and total organic carbon.

Sediment cores and power grab samples will be processed in the field.

For cost estimating purposes, it was assumed that sediment coring and sample collection and processing will require 4 days. The investigation will be focused on the DNR lease area and log transfer area, and no coring is anticipated in the former sawmill and wood chip loading areas.

Chemical Analysis

Up to seven surface sediment samples will be submitted for chemical analysis of constituents on the Washington State SMS list as well as grain size and conventional parameters (total volatile solids [TVS], total organic carbon [TOC], ammonia, and sulfide) indicative of wood waste. Ten additional samples will be analyzed for metals and conventional parameters while up to 35 samples will be analyzed only for conventional parameters.

Chemical analyses will be performed using standard (4-week) turnaround times, though expedited analysis can be performed at higher cost. The cost estimate assumes a laboratory standard data summary package rather than the complete (all raw data) data deliverable. If required, a complete data package can be requested with a 15 percent surcharge. It was also assumed that the laboratory would provide data electronically in Ecology EIM/SEDQUAL format.

Bioassay Analysis

Bioassay testing will be performed on up to ten selected sediment samples. Up to two bioassay reference samples will be collected from Carr Inlet or Sequim Bay and submitted for conventional parameter analysis and bioassay testing. Reference locations will be selected based on the grain size distribution and organic carbon content of sediment samples selected for bioassay testing.

Chronic and acute bioassay testing will be performed using appropriate larval species (as available), juvenile polychaetes, and amphipods. Specific organisms will be selected based on species availability, sediment grain size, and organic carbon content.

Task 5—Prepare Sediment Investigation Report and Submit Data

Remedial Investigation Report

A draft and final Remedial Investigation Report for the Port Gamble Bay DNR Lease Area investigation will be prepared and submitted to Ecology. The report will include the following components:

- Introduction/Purpose;
- Site history;

- Summary of field activities and sample collection;
- Results of sediment chemistry tests;
- Results of sediment bioassay tests;
- Quality Assurance/Quality Control (QA/QC);
- Discussion and interpretation of results with respect to Sediment Management Standards; and
- Conclusions and recommendations.

It is assumed the draft RI report will be submitted via email in Microsoft Word and Adobe PDF formats for Ecology review and that all comments will be made by email and/or electronically in Word. For planning purposes, we have assumed that Ecology will compile and coordinate other agency comments and no meetings are required with stakeholders or potentially liable parties. It is also assumed that there will be only one iteration of comments and revisions to the document will focus on technical issues and will require only minor modifications.

An electronic copy of the draft RI report will be submitted to Ecology by November 1, 2008. Ecology comments will be incorporated within 14 days of receipt, and electronic and five bound hard copies of the final report will be submitted to Ecology. Chemical and bioassay laboratory will be entered into Ecology EIM/SEDQUAL templates and be submitted with the draft RI report.

Feasibility Study Report

A draft and final Focused Feasibility Study report for the Port Gamble Bay DNR Lease Area investigation will be prepared and submitted to Ecology. The reports will include the following components:

- Screening of potentially applicable remedial technologies;
- Analysis of several remedial alternatives including description of alternatives and evaluation with respect to MTCA criteria;
- Preliminary rough cost estimates for remedial alternatives;
- Recommended remedial alternative; and
- Evaluation of potential data gaps and uncertainties that will need to be addressed during remedial design.

It is assumed that the feasibility study will be limited to the following presumptive remedies:

- No action;
- Dredging with upland disposal of sediment;
- Dredging with open water disposal of sediment; and
- Natural recovery and habitat enhancement using thin layer placement.

While unit costs will be estimated, it is assumed that there will be data gaps and uncertainty in the volume, depth, and area estimates that will need to be addressed during the remedial design phase of the project.

It is assumed the draft FS report will be submitted via email in Microsoft Word and Adobe PDF formats for Ecology review and that all comments will be made by email and/or electronically in Word. For planning purposes, we have assumed that Ecology will compile and coordinate other agency comments and no meetings are required with stakeholders or potentially liable parties. It is also assumed that there will be only one iteration of comments and revisions to the document will focus on technical issues and will require only minor modifications.

An electronic copy of the draft FS report will be submitted to Ecology by December 1, 2008. Ecology comments will be incorporated within 14 days of receipt, and electronic and five bound hard copies of the final report will be submitted to Ecology. Depending on the project schedule, the FS report may be submitted to Ecology under single cover as an RI/FS report.

KEY STAFF

Key staff members for this task order are listed below with their professional levels and project functions. The professional level of each individual corresponds directly to the labor categories noted on the budget proposal (Table 1).

- Mike Ehlebracht, LHG, Program Management;
- Rick Moore, Principal Sediment Specialist – Technical oversight and quality assurance;
- Roger McGinnis, Senior Associate Sediment Chemist and Project Manager;
- Garry Horvitz, PE, Principal Engineer – Remediation Engineering Oversight;
- Sonia Fernandez, LG, Senior Project Sediment Specialist and Geologist;
- Mike Hardiman, Ben Upsall, Project and Staff Environmental and Remediation Engineers;
- Anne Conrad, Staff Oceanographer/Chemist;
- Kit Malmfeldt, Staff Database Administrator; and
- Greg Both, Senior Associate Technical Editor.

If staff changes are required during the project, the Ecology Project Manager and Contract Specialist will be notified.

Subcontractors will include:

- Management of Environmental Resources (MER; Nancy Musgrove) for technical support and senior review of bioassay results and habitat restoration alternatives;
- Gravity Environmental for marine sediment sampling and diver support;
- Analytical Resources, Inc. (ARI) for chemical analysis; and
- NewFields NW Laboratory for bioassay testing.

SCHEDULE

The proposed project schedule is presented below. The schedule assumes that Ecology review and comments will be completed within two weeks of document submittal.

- Initial Scoping Meeting – January 9, 2008
- Preliminary Budget submittal – January 23, 2008
- Follow-up Scoping Discussions – January 29, 2008
- Follow-up Budget and Work Plan submittal – February 6, 2008
- Additional discussions with Ecology and Pope Resource's consultant – Week of February 18, 2008
- Budget and Work Plan submittal – March 6, 2008
- Draft Summary of Existing Information and Data Gaps Technical Memo – April 8, 2008
- Final Summary of Existing Information and Data Gaps Technical Memo – 14 days after receipt of Ecology review comments
- Draft Sampling and Analysis Plan – May 6, 2008
- Final Sampling and Analysis Plan - 14 days after receipt of Ecology review comments
- Field Investigation – June 9 – June 20, 2008
- Receipt of laboratory data – July 30, 2008
- Data validation and review completed – August 14, 2008
- Draft Remedial Investigation Report – November 1, 2008
- Final Remedial Investigation Report – 14 days after receipt of Ecology review comments
- Draft Feasibility Report – December 1, 2008
- Final Remedial Investigation Report – 14 days after receipt of Ecology review comments
- Project Completion and Closeout – December 28, 2008

The RI and FS are listed as separate deliverables to allow submittal and review of the draft RI while the FS is being developed. These documents may be submitted under a single cover, as appropriate and depending on the project schedule.

COSTS

Hart Crowser's estimated cost to provide task order support is $200,000 as detailed above and presented in Table 1 - Summary Budget. The additional attached tables provide assumptions and cost detail for each task.

Hart Crowser is looking forward to working on this task order with Ecology. Please feel free to call if you have any questions.

Sincerely,

HART CROWSER, INC.

ROGER MCGINNIS, PHD
Sr. Associate

MICHAEL W. EHLEBRACHT, LHG
Principal

Attachment:
Table 1 – Personnel, Function, and Labor Hours

cc: Russ McMillan, Ecology SWRO TCP
Kevin MacLachlan, Ecology SWRO TCP

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Table 1 - Personnel, Function, and Labor

DATE: February 6, 2008

COST ESTIMATE & ITEMS		UNIT	RATE per unit	TASK 1a Scoping Meeting		TASK 1b Work Plan and Budgeting		TASK 1c Project Management		TASK 2 Draft & Final Existing Info & Data Gaps Memo		Task 3 Sampling & Analysis Plan Preparation		TASK 4 Field Sampling and Sediment Analysis		TASK 5 Draft & Final RI/FS Report						TOTAL UNITS	TOTAL COST
ITEM A				UNITS	EST. COST	UNITS	EST. COST	UNITS	EST. COST	UNITS	EST. COST	UNITS	EST. COST	UNITS	EST. COST	UNITS		UNITS	EST. COST	UNITS	EST. COST		
LABOR COST	PROGRAM MANAGER (MWE)	hr	$192.48	8.0	$1,539.84	4.0	$769.92	12.0	$2,309.76	2.0	$384.96	10.0	$1,924.80	8.0	$1,539.84	8.0	$1,539.84					52.0	$10,008.96
	PRINCIPAL (RM/GH)	hr	$192.48	6.0	$1,154.88	3.0	$577.44			4.0	$769.92	10.0	$1,924.80	16.0	$3,079.68	40.0	$7,699.20					79.0	$15,205.92
	SR. ASSOCIATE (RNM,GB)	hr	$140.64	8.0	$1,125.12	16.0	$2,250.24	32.0	$4,500.48	16.0	$2,250.24	32.0	$4,500.48	40.0	$5,625.60	60.0	$8,438.40					204.0	$28,690.56
	ASSOCIATE	hr	$140.64																				
	SR. PROJECT (SF)	hr	$98.31			10.0	$983.10			24.0	$2,359.44	40.0	$3,932.40	60.0	$5,898.60	60.0	$5,898.60					194.0	$19,072.14
	PROJECT (CA, BU, JS)	hr	$98.31									16.0	$1,572.96	80.0	$7,864.80	60.0	$5,898.60					156.0	$15,336.36
	SR. STAFF (MM, AC, PC, MH, DO)	hr	$86.89							16.0	$1,390.24	16.0	$1,390.24	80.0	$6,951.20	60.0	$5,213.40					172.0	$14,945.08
	STAFF (K. Malmstadt, A. Inglish)	hr	$80.58											10.0	$805.80	40.0	$3,223.20					50.0	$4,029.00
	TECHNICIAN	hr	$64.66																				
	DRAFTER (SN/EL/CC)	hr	$98.31									12.0	$1,179.72			24.0	$2,359.44					36.0	$3,539.16
	PROJECT ASSISTANT/Word Proces	hr	$68.12	2.0	$136.24	2.0	$136.24	32.0	$2,179.84	4.0	$272.48	8.0	$544.96			24.0	$1,634.88					72.0	$4,904.64
TOTAL LABOR				24.0	$3,956.08	35.0	$4,716.94	76.0	$8,990.08	66.0	$7,427.28	144.0	$16,970.36	294.0	$31,765.52	376.0	$41,906					1015.0	$115,731.82
ITEM B																							
OTHER DIRECT COSTS	PHOTOCOPYING		$1.00					100.0	$100.00	300.0	$300.00	300.0	$300.00			400.0	$400.00					1100.0	$1,100.00
	EQUIPMENT RENTAL		$10.00												$300.00								$300.00
	MAILING		$3.00																				
	COMPUTER USE		$10.00			2.0	$20.00	12.0	$120.00	40.0	$400.00	60.0	$600.00			60.0	$600.00					174.0	$1,740.00
	OVERNIGHT CARRIER														$500								$500.00
	EDR REPORT																						
	AERIAL PHOTOS										$700												$700.00
ITEM C																							
SUPPLIES	FIELD SUPPLIES														$1,000.00								$1,000.00
	REPORT SUPPLIES										$100.00		$100.00				$250.00						$450.00
ITEM D																							
SUBCONTRACTS																							
Gravity Environmental (Diver survey)		day	$5,500.00											2.0	$11,000.00							2.0	$11,000.00
Gravity Environmental (Core sampling - 6/day)		day	$4,500.00											4.0	$18,000.00							4.0	$18,000.00
Management of Environmental Resources (N. Musgrove)		hr	$148.00							8.0	$1,184.00	4.0	$592.00	4.0	$592.00	12.0	$1,776.00					28.0	$4,144.00
Analytical Laboratory (SMS, conventionals, & grain size)		ea	$765.00											7.0	$5,355.00							7.0	$5,355.00
Analytical Laboratory (metals & conventionals)		ea	$267.00											10.0	$2,670.00							10.0	$2,670.00
Analytical Laboratory (conventionals only)		ea	$122.00											35.0	$4,270.00							35.0	$4,270.00
Bioassay Laboratory (including reference samples)		ea	$2,500.00											12.0	$30,000.00							12.0	$30,000.00
ITEM E																							
FEE ON SUBCONTRACTS, DIRECT COSTS (2%)											$23.68		$11.84		$1,437.74		$35.52						$1,473.26
ITEM F	TRAVEL EXPENSES				$ 70.00						$ 150.00				$ 1,500.00								$1,720.00
ITEM G (included in Item D, subcontracts)																							
ANALYTICAL EXPENSES	Analytical Lab																						
	Bioassay Lab																						
TOTALS	LABOR - HOURS			24.0		35.0		76.0		66.0		144.0		294.0		376.0						1015.0	
	ITEM A: LABOR COSTS				$3,956.08		$4,716.94		$8,990.08		$7,427.28		$16,970.36		$31,765.52		$41,905.56						$115,731.82
	ITEM B: OTHER DIRECT COSTS						$20.00		$220.00		$1,400.00		$900.00		$800.00		$1,000.00						$4,340.00
	ITEM C: SUPPLIES										$100.00		$100.00		$1,000.00		$250.00						$1,450.00
	ITEM D: SUBCONTRACTS										$1,184.00		$592.00		$71,887.00		$1,776.00						$75,439.00
	ITEM E: FEE SUBS/ETC										$23.68		$11.84		$1,437.74		$35.52						$1,508.78
	ITEM F: TRAVEL EXPENSES				$70.00						$150.00				$1,500.00								$1,720.00
	ITEM G: ANALYTICAL EXPENSES (Included in subcontracts)																						
	TOTAL COSTS				$4,026.08		$4,736.94		$9,210.08		$10,284.96		$18,574.20		$108,390.26		$44,967.08						**$200,190**