Final

Remedial Investigation/ Feasibility Study Report

Abitibi West Tacoma Mill Steilacoom, WA

Prepared for

Abitibi Consolidated Sales Corporation

April 2007

CH2MHILL

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Acronyms and Abbreviations

AET	apparent effects threshold
ARAR	applicable or appropriate and relevant requirement
ARI	Analytical Resources, Inc.
ASB	aeration stabilization basin
AST	above-ground storage tank
ASTM	American Society for Testing and Materials
BTEX	benzene, toluene, ethylbenzene, and xylenes
bgs	below ground surface
CAP	cleanup action plan
COC	constituent of concern
CUL	cleanup level
CV	comparison value
DO	dissolved oxygen
DRO	diesel range organics
DUP	duplicate
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EPH	extractable petroleum hydrocarbons
ESA	Environmental Site Assessment
FS	Feasibility Study
GRO	gasoline-range organics
GPS	global positioning system
GWQS	groundwater quality standard
HCID	hydrocarbon identification
HI	hazard index
HWA	Hong West Associates
LAET	lowest apparent effects threshold
LNAPL	light nonaqueous-phase liquid
µg/L	microgram per liter
MCL	maximum contaminant level
mg/kg	milligram per kilogram
MDL	method detection limit
MLLW	mean lower low water
MS/MSD	matrix spike/matrix spike duplicate
msl	mean sea level
MTCA	Model Toxics Control Act
NAPL	non-aqueous phase liquid
NPDES	National Pollutant Discharge Elimination System
NWTPH	Northwest Total Petroleum Hydrocarbons
ORC	oxygen release compound
ORP	oxidation-reduction potential
PAH	polynuclear aromatic hydrocarbon

PCB	polychlorinated biphenyl
POC	point of compliance
PSC	Philips Services Corporation
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RAO	remedial action objective
RI	Remedial Investigation
RL	reporting limit
SMCL	secondary maximum contaminant level
SMS	Sediment Management Standards
SPCC	Spill Prevention, Control, and Countermeasures (Plan)
SQS	sediment quality standards
STL	Severn-Trent Laboratories
SU	standard units
SVOC	semivolatile organic compound
TCLP	toxicity characteristic leaching procedure
TEF	toxicity equivalency factor
TEQ	toxicity equivalent
TMP	thermo-mechanical pulping
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TPU	Tacoma Public Utilities
TSCA	Toxic Substances Control Act
USCS	Unified Soil Classification System
UST	underground storage tank
VOC	volatile organic chemical
VPH	volatile petroleum hydrocarbons
WAC	Washington Administrative Code
WRIA	Water Resource Inventory

1.0 Introduction

This Remedial Investigation/Feasibility Study (RI/FS) Report has been prepared to document the completion of the RI/FS at the former West Tacoma pulp and paper mill (the Property) at 4302 Chambers Creek Road in the Town of Steilacoom, Pierce County, Washington. The Property is currently owned by Abitibi Consolidated Sales Corporation (Abitibi). In this report, "Property" refers to the entire mill site (see figure 1-1), whereas "Site" or "Shipping Warehouse Area" refers to the area within the Property specifically targeted by the RI/FS (see figure 4-2).

The RI/FS was conducted in accordance with the Agreed Order (No. DE 3154) between Abitibi and the Washington State Department of Ecology (Ecology) effective November 29, 2006). Prior to issuance of the Agreed Order, Abitibi conducted a voluntary environmental site assessment (ESA), conducted follow-up investigations at portions of the Site where soil and groundwater impacts were suspected, and implemented an interim remedial action in a portion of the Site where petroleum-impacted soil and groundwater were encountered.

The Agreed Order identifies petroleum hydrocarbons and benzene in soil and groundwater, and arsenic in groundwater, as the current constituents of concern (COCs) for the Site. The Agreed Order requires Abitibi to compile existing investigative data and prepare this RI/FS report, perform an interim action to remove hydrocarbon-impacted soil in one area of the Site, and draft a cleanup action plan (CAP) for the Site if necessary based on the RI/FS.

1.1 RI/FS Purpose and Report Objectives

The purpose of a RI/FS is to collect, develop, and evaluate sufficient information regarding the Site to select a cleanup action. Accordingly, the objectives of this RI/FS Report are as follows:

- Document remedial investigation and removal activities;
- Characterize the distribution of COCs at the Site and evaluate potential threats to human health and the environment posed by those substances;
- Present potential cleanup action alternatives to enable a cleanup action to be selected for areas of the Site where potential impacts are identified.

1.2 Property and Site Description

The Property is located at 4302 Chambers Creek Road in the Town of Steilacoom, Pierce County, Washington. The Property is situated near the bank of Chambers Creek, at the northern edge of Steilacoom, as shown in Figure 1-1 (figures and tables follow Section 10). Chambers Creek is an estuary of south Puget Sound, and the portion of the creek adjacent to the Property is tidally influenced. The Property is bounded to the west by residential land, to the east by property owned by Western State Hospital and a golf course, and to the south

by property owned by the Steilacoom School District. The center of Chambers Creek forms the northwestern boundary of the Site.

Local topography and surface water features are shown in Figure 1-2. The Property is characterized by two distinct physiographic areas that are separated by approximately 200 feet of topographic relief: the lower elevation mill process and manufacturing operations area (main process area), and the upland area along the eastern and southwestern Property boundaries where the wastewater treatment plant (Aeration Stabilization Basin, ASB) is located. Surface water drainage across the upland areas is via Garrison Creek, which flows primarily underground from the southeast corner of the Property, toward the Shipping Warehouse, then northwest past the main gate (Gate No. 2) where it discharges into Chambers Creek. Surface drainage from paved areas of the main process area is through the primary clarifier to the NPDES-permitted outfall (Outfall 001).

Based on review of historical aerial photos and information obtained from Abitibi, the mill was constructed on fill used to level the lower portion of the Property adjacent to Chambers Creek. Historical photographs from the 1940s to 1950s indicate that fill was used in the area of the guard shack and between the hog fuel storage and Chambers Creek, including Chambers Creek Road. The area was also reconfigured during a major road construction project in the mid-1980s. The project included dredging the estuary (where prior log storage had been conducted) and re-aligning Chambers Creek Road toward the creek. Material unsuitable for fill was hauled away, new material was imported, and the entire area was re-paved.

Five water supply wells are located on the Property. The source of potable drinking water for the Property is groundwater from Well No. 1 (Source S01, System 07598 J), located near the guard shack near Gate No. 2. Well No. 2 was abandoned and capped in the 1970s. Wells No. 3, No. 4, and No. 5 have been used as sources of process water. Wells No. 3, No. 4 and a portion of the capacity of Well No. 5 have been sold to the Lakewood Water District. The remainder of the capacity of Well No. 5 has been optioned by the Lakewood Water District (application by District to Ecology is in progress). The well depths ranged from 600 to 1,200 feet (CH2M HILL, 2001).

1.2.1 Operational History

The mill was used between 1919 and December 2000 to manufacture newsprint. Abitibi acquired the Property by way of a merger between Abitibi Price Inc., and Stone Consolidated Corporation in May 1997. Other owners had operated the mill since it began operation in 1919. Property ownership during the period of operations is listed in Table 1-1. Newsprint was produced from three sources: (1) thermo-mechanical pulp (TMP), (2) purchased pulp, and (3) pulp produced from deinked recycled paper. According to Abitibi, the mill did not use Bleach Kraft processes. Auxiliary manufacturing operations included unloading and repulping of purchased Kraft pulp, water filtration, wastewater treatment, and steam generation using hog fuel and natural gas-fired boilers. Petroleum products and chemicals were stored in aboveground storage tanks (ASTs) at various locations within the main process area. The layout of main process area is shown in Figure 1-3.

Manufacturing operations were permanently shut down on December 29, 2000. The only activities conducted thereafter were shutdown-related and Property maintenance activities.

All major inventories of chemicals were consumed prior to shutdown, with bulk tanks left in an "empty last contained" state, but not "cleaned." Remaining inventories of minor chemicals were returned to suppliers. Washing out of pulp and process water tanks continued through January 2001. The wastewater treatment plant continued to operate until it was drained and permanently shut down in May 2001.

1.2.2 Investigation and Removal Action History

Abitibi initiated an ESA in 2001 in anticipation of the transfer of the Property. The Site was divided into the following four Areas for evaluation during the Phase I ESA:

- Area A, the main process area;
- Area B, the mill's National Pollutant Discharge Elimination System (NPDES)-permitted wastewater discharge outfall into South Puget Sound (Outfall 001, located to the west of the main process area);
- Area C, the Aeration Stabilization Basin (ASB);
- Area D, area to the east of the main process area where mining process solids had reportedly been potentially deposited in the past.

The four Areas are shown in Figure 1-4.

Sampling conducted as part of the Phase II ESA discovered petroleum-impacted groundwater at two locations within the main process area (Area A) and concentrations of arsenic in groundwater above MTCA Method B cleanup levels throughout the main process area. These findings were documented in the *Final Phase II Environmental Site Assessment, Abitibi West Tacoma Mill Steilacoom, Washington* (CH2M HILL, May 2005).

A supplemental investigation conducted in May 2005 concluded that petroleum-impacted subsurface soil in the vicinity of the Shipping Warehouse was the source of the petroleum-impacted groundwater, and that the presence of arsenic in groundwater above MTCA Method B cleanup levels was related to natural and/or anthropogenic sources of the metal (CH2M HILL, July 2005). Based on these findings, Abitibi decided to remove the petroleum-impacted soil and submitted a Voluntary Cleanup Program application to Ecology in December 2005. In January 2006, Ecology notified Abitibi that an Agreed Order would be the appropriate regulatory mechanism to handle cleanup activities. Although the Order had not yet been prepared and negotiated, Abitibi contracted with CH2M HILL to conduct further delineation of impacted soil and groundwater in February 2006 and to conduct the soil removal as an independent action in April and May 2006.

The chronology of environmental assessment and remedial activities at the Property is presented in Table 1-2. More details concerning these activities are presented in Section 2.0 of this report.

1.3 Report Organization

This report consists of the following sections:

- **Section 1, Introduction.** Describes the general Site conditions and discusses the project background.
- **Section 2. Summary of Investigations and Removal Action.** Provides a summary of the investigations conducted in support of the remedial investigation, describes the removal action, and post-removal well installation and sampling activities, and identifies the data used to assess the nature and extent of COCs in environmental media at the Site (See also Section 4 below).
- **Section 3. Site Characteristics**. Discusses the physical characteristics of the Site including topography, geology, and hydrogeology.
- **Section 4. Nature and Extent of COCs**. Describes the methods and comparison values (CVs) used to identify the COCs and presents the results of the nature and extent evaluations for soil and groundwater at the Site.
- **Section 5. Fate and Transport Processes.** Discusses the chemical and physical factors that may influence the fate and transport of the COCs in environmental media at the Site.
- **Section 6. Conceptual Site Model.** Summarizes the conceptual site model for COCs in environmental media at the Site, including the physical characteristics of the Site, the nature and extent of COCs, COC fate and transport considerations, and the potential threats posed by the COCs to human health and the environment.
- **Section 7. Remedial Action Objectives and Applicable or Relevant and Appropriate Requirements:** Presents the remedial action objectives (RAOs) and applicable or relevant and appropriate requirements (ARARs) for remediation of COCs.
- **Section 8. Remedial Alternatives Development.** Presents a screening of remedial technologies, identifies remedial alternatives, and evaluates them on the basis of the RAOs and applicable regulatory criteria.
- **Section 9. Evaluation of Alternatives.** Describes and evaluates feasible remedial alternatives, and identifies the recommended cleanup action.
- **Section 10. References**. Lists the reference information for documents cited in this report.

Figures and tables appear at the end of the Sections in which they are first cited.

The following appendices appear at the back of the report:

- **Appendix A. Removal Action Documentation**
- **Appendix B. Field Records**
- **Appendix C. Well Sampling Records**
- **Appendix D. Data Processing Procedures**
- **Appendix E. Analytical Data**

2.0 Summary of Investigations and Removal Action

This section describes the investigations conducted in support of the RI/FS, describes the removal action, and identifies the data that were used to conduct the RI/FS.

2.1 Summary of Investigations

This section summarizes the sampling programs and key findings of the investigations conducted as part of the RI/FS.

2.1.1 Phase I Environmental Site Assessment

In 2001, Abitibi initiated an ESA in anticipation of the transfer of the Property. The Phase I ESA was intended to identify areas of potential environmental liability and was conducted in accordance with the American Society of Testing and Materials (ASTM) Standard Practice for Phase I Environmental Assessments (ASTM E1527). The Property was divided into the following four areas for evaluation during the Phase I ESA (See Figure 1-4):

- Area A, the main process area;
- Area B, the mill's National Pollutant Discharge Elimination System (NPDES)-permitted wastewater discharge outfall into South Puget Sound (Outfall 001, located to the west of the main process area);
- Area C, the Aeration Stabilization Basin (ASB);
- Area D, property to the east of the main process area where mining process solids had reportedly been deposited in the past.

The Phase I ESA (CH2M HILL, 2001) identified locations within each Area where Property history, operational practices, and/or observed conditions were indicative of potential hazardous substance releases, and recommended conducting a Phase II ESA to better characterize environmental conditions at these locations and Areas.

2.1.2 Phase II Environmental Site Assessment

The Phase II ESA was conducted in 2005. The purpose of the Phase II ESA was to further assess and characterize locations and Areas of reported or suspected potential releases to sediment, soil, and groundwater identified during the Phase I ESA (CH2M HILL, 2001). Analytical data for soil were compared to Model Toxics Control Act (MTCA) Method A and Method C industrial cleanup levels (CULs). Analytical results for groundwater were compared to MTCA Method A and Method B CULs for unrestricted land use. A full description of the Phase II ESA sampling program, including sampling methods, field records, and data evaluation results is provided in *Final Phase II Environmental Site Assessment, Abitibi West Tacoma Mill Steilacoom, Washington* (CH2M HILL, May 2005).

The following subsections describe the scope of the Phase II ESA conducted in each Area. Table 2-1 provides a summary of the sampling program conducted in each Area and Subarea. Figures 2-1 and 2-2 show the Phase II ESA sample locations.

2.1.2.1 Area A: Main Process Area

Five Subareas in Area A were identified for follow-up sampling during the Phase II ESA, as shown in Figure 2-1 and described here:

- **Subarea A1: Machine, Maintenance, and Process Buildings**. No specific releases were reported from the paper machine building areas and immediate vicinity, except as identified for Subareas A2 and A3, and the former diesel aboveground storage area. Routine processes and the handling and storage of process chemicals could potentially have resulted in small-scale releases of petroleum compounds and process chemicals to soil around the buildings or to the building basement floors, from where chemicals could have leached to the soil and groundwater beneath the buildings. For the Phase II work in Subarea A1, seven groundwater samples were collected from shallow wells installed downgradient from the main process buildings and analyzed for total petroleum hydrocarbons (TPH), semivolatile organic compounds (SVOCs), and metals. One visibly stained area was observed between two rail ties just below the roof overhang of the Shipping Warehouse. A surface soil sample was taken from the stained area and analyzed for TPH.

- **Subarea A2: TPU Substation.** On April 13, 1999, mineral oil containing polychlorinated biphenyls (PCBs) was released from a transformer during a fire in an electrical substation owned by Tacoma Public Utilities (TPU). The substation is located on the Property between the Steam Plant and the Maintenance Shop. Following an emergency response, TPU initiated a cleanup on April 14, 1999. According to TPU's remediation report (TPU, 2000), final remediation and equipment repairs were completed in late May 1999. Impacted soil and cleanup materials generated during the remediation effort were removed, handled and disposed off-site in accordance with applicable PCB storage and disposal regulations. Final wipe test and soil samples were collected and analyzed to verify that the cleanup was complete. TPU reported that the final verification samples were below Toxic Substances Control Act (TSCA) spill cleanup criteria. Subsurface samples, and samples beyond 1 foot out from the excavation area, were not collected at the time of remediation. For the Phase II investigation, two subsurface soil samples were collected and analyzed for PCBs.

- **Subarea A3: Truck Scale Area**. On July 21, 1999, during periodic pump-out operations in an underground sump, a fractured pipe located 3.5 feet below the overlying asphalt surface was discovered near the Wood Chip Transfer Station (Chip Tower). The pipe, approximately 500 feet in length and 3 to 4 inches in diameter, was used to periodically convey accumulated fluids from the Chip Tower to the ASB. During pipe repair activities, hydraulic oil was observed in soil within the excavation, approximately 4.5 feet below ground surface (bgs). Preliminary assessment and site characterization activities indicated that the hydraulic oil was present in the soil at concentrations below the current MTCA standard. Therefore, additional remedial actions were not required or conducted. During the Phase II investigation, two subsurface soil samples were collected and analyzed for TPH-diesel to confirm the previous results.

- **Subarea A4: Railroad Tracks and Loading Area.** There were no reported releases from railcars or locomotives. During the period when the mill was in operation, operators imported clay, sulfur dioxide, and wood chips and exported finished paper via rail lines. Most constituents of the materials transported by rail were either inert or biodegradable and, thus, unlikely to be a source of adverse impact. However, routine railroad maintenance activities involve the use of solvents, fuels, and wood preservatives that could persist in the environment if they were released. Therefore, in the Phase II work, four subsurface soil samples were collected from the rail bed and analyzed for TPH, SVOCs, and metals.

- **Subarea A5: Stock Preparation Area.** The stock preparation area is adjacent to the Maintenance Shop and the #2 Paper Machine Building. Process chemicals were stored and handled behind the stock preparation area at the rear of the machine buildings. These process chemicals included polymers, sulfuric acid, sodium hydroxide, borol, sodium bisulfite, sodium silicate, hydrogen peroxide, waste xylene, degreasing solvents, and surfactants used in the newsprint production process. There were no reported releases of these chemicals. However, some chemicals used in paper and pulp processing can contain SVOCs or metals that could persist in the environment if they were released. For the Phase II investigation, three surface soil samples were collected and analyzed for TPH, SVOCs, and metals.

In addition, follow-up evaluation of asbestos-containing materials (ACM) was conducted at several buildings in the main process area. No additional sampling was conducted in the former diesel aboveground storage area where a release had occurred and an independent cleanup action had taken place in the early 1990s. Results from the 1992 cleanup showed that soil in the vicinity of the former tank met current TPH CULs for soil.

2.1.2.2 Area B: Outfall 001

The process wastewater effluent (including storm water from process areas) was biologically treated in an ASB, which included primary and secondary settling basins. Under NPDES Permit WA00104-0, the mill discharged its final treated effluent to Puget Sound. The total length of the final effluent pipeline that runs between the ASB and the end of the diffuser is approximately one-half mile. The end section of this pipeline, Outfall 001, consists of a 30-inch-diameter concrete pipe that runs from a manhole on the shore near the third-party railroad tracks and extends 400 feet offshore. The diffuser section making up the last 96 feet of the pipeline is located at an average depth of 25 feet below mean lower low water (MLLW). Figure 1-4 shows the pipeline's approximate location at the shoreline. The Site has been discharging only storm water and miscellaneous sources of freshwater through this outfall since its permanent closure.

In September 1995, a marine sediment evaluation was conducted by Rainy River Forest Products as required under the conditions specified in Ecology Order No. DE-92WQI048 related to mill's NPDES Permit. The Order was originally issued to Boise Cascade (the Site's former owner/operator) in March 1992. The sediment study involved chemical and physical analyses and toxicity testing of sediment collected from the vicinity of Outfall 001, from an ambient location north of the outfall, and from a control or reference location in Carr Inlet off Fox Island. The results of the study were compared among the sampling locations and against the Washington State Sediment Management Standards (SMS) in effect at that time

(January 1996). The study concluded that, except for the acute zone boundary north of the diffuser, all chemical concentrations in sediment from the outfall mixing zone were less than or equal to the marine SMS in WAC 173-204-320. The sediments from the north acute zone boundary were subsequently retested for toxicity. The toxicity testing results indicated that the sediment from the outfall mixing zone also met the SMS (CH2M HILL, 1996).

Because the mill was in operation for just 5 years after sampling and no process changes were implemented during that time, and because of the nature of the discharges since December 2000, there is no reason to suspect major changes in sediment concentrations since the 1995 results. However, at the time of the 1995 sample collection, deposits were identified inside the outfall, which were not characterized. For the Phase II investigation, one sample of deposits inside the outfall was composited from three locations within the outfall pipe and analyzed for TPH, semivolatile organic compounds (SVOCs), metals, PCBs, and other parameters including sulfides, total organic carbon (TOC), total solids, and grain size. Two composite samples were collected from sediment below the outfall and frozen. An external inspection of the outfall pipe, including the outfall diffuser and ports, was also conducted.

2.1.2.3 Area C: Aeration Stabilization Basin

The ASB is located south of the main process area (Figure 1-4) in a forested area on a hilltop. The perimeter of the 5.3-acre ASB has an earthen berm, and the bottom and sides were lined with an impermeable membrane during its use. The ASB's maximum volume capacity was approximately 32 million gallons. It was emptied and permanently taken out of service in 2001, resulting in the liner being exposed to the elements thereafter. During the August 2004 site visit, the liner appeared to be absent or physically torn in many areas.

Only limited quantities of biosolids remained in the empty lagoon, and it became evident that many sections of the bottom liner in the inlet end and various areas of the side slopes were damaged, exposing the original construction materials. The bed did not appear to have been disturbed. Prior-year maintenance efforts to patch the sides were generally in place. No attempt has been made to preserve or repair the liner since 2001, and biosolids have been left in place. Excess rainwater running off from the property continued to be discharged to Outfall 001.

During mill operations, effluent from the primary clarifier overflowed into a clearwell. From there it was pumped to the ASB. Defoamer was added into the clearwell to control foam. The effluent in the ASB was biologically treated, and nutrients were added to the ASB to sustain the biomass. Eleven discrete subsurface samples were collected from under the liner (where present) at the bottom of the ASB and analyzed for TPH, SVOCs, metals, and dioxins to characterize the underlying soil for the possible presence of COCs. In addition, one composite biosolids sample was collected from above the liner and analyzed for TPH, SVOCs, and metals. Groundwater was also collected from three seeps downgradient from the ASB and analyzed for TPH, SVOCs, and metals to evaluate whether water percolating from this area might have adversely impacted groundwater quality. ASB sample locations are shown in Figure 2-2.

2.1.2.4 Area D: Potential Mining Process Solids Area

Abitibi indicated that mining process solids were reportedly deposited onsite and might have been used by an independent third party as fill for a small road bed for an early narrow-gauge railway from Olympia to Tacoma, and possibly for an access road from the golf course to the high-voltage power lines in the eastern area of the Property. The solids could have included mining process materials from the smelting and refining of copper-bearing ores. The exact location and extent of the deposit is not known. The area where the fill was likely deposited was later (1992) extensively excavated and re-graded to expand the buildable area of the Property. According to Abitibi, the excavated material was disposed of offsite. To determine whether mining process solids are present in Area D, four surface soil samples were collected and analyzed for copper, lead, and arsenic. Sample locations are shown in Figure 2-1.

2.1.2.5 Summary of Phase II ESA Findings

Completion of the Phase II ESA resulted in the following findings:

- A surface soil sample collected from the railroad spur between the Shipping Warehouse and the hog fuel storage area (Area A, Subarea A1) contained low levels of petroleum hydrocarbons in the heavier extractable petroleum hydrocarbon (EPH) range. The calculated hazard index for this sample was less than 1, indicating no unacceptable risks from petroleum concentrations in this sample. Additional evaluation of these results is provided in Section 4.
- Benzene was detected at a concentration of 180 micrograms per liter (µg/L) in a groundwater sample collected at MP4, downgradient of the hog fuel storage area. Other gasoline-range petroleum hydrocarbons [volatile petroleum hydrocarbons (VPH)] at levels up to 1,700 µg/L were also present in this sample. Heavier EPH compounds were detected in a second temporary well (MP3) located down gradient of the hog fuel storage area. The MTCA Method B CUL for benzene is 0.8 µg/L. The calculated hazard index for VPH compounds exceeded 1, indicating potentially unacceptable risks from petroleum concentrations in the sample. Additional evaluation of these results is provided in Section 4.
- Arsenic was detected in groundwater throughout Areas 1 through 4, with concentrations ranging from 4.4 to 42 µg/L. The MTCA Method B CUL for arsenic is 0.058 µg/L. Additional evaluation of these results is provided in Section 4.

The Phase II ESA concluded that historical releases of petroleum were the likely source of the petroleum compounds found in the soil and groundwater in the vicinity of the hog fuel storage area. The presence of arsenic concentrations above MTCA Method B CULs in groundwater was attributed to naturally occurring or anthropogenic background, such as regional airborne deposition from the Asarco smelter in nearby Ruston.

2.1.3 Supplemental Field Investigation

A supplemental soil and groundwater investigation was carried out in May 2005 to locate possible source areas, assess the extent of groundwater impacts near MP3 and MP4, and assess groundwater conditions adjacent to Chambers Creek. A full description of the

supplemental investigation, including sampling procedures, field records, and data evaluation procedures is provided in *West Tacoma Mill Supplemental Field Investigation May 2005 Groundwater and Soil Sample Results* (CH2M HILL, 2005b). The sampling program is summarized in Table 2-2, and sample locations are shown in Figure 2-3.

The supplemental investigation concluded that petroleum-impacted subsurface soil in the shipping area between the Shipping Warehouse and the Hog Fuel Storage building was the source of the petroleum-impacted groundwater. The extent of petroleum-impacted soil and groundwater appeared to be limited to the Shipping Warehouse Area, and there was no evidence of petroleum-impacted soil or groundwater adjacent to Chambers Creek.

As with the Phase II ESA, the presence of arsenic above MTCA Method B CULs was reported in the four groundwater samples in which it was analyzed. The concentrations were attributed to natural and/or anthropogenic sources and possible mobilization through changes in the groundwater reduction-oxidation state caused by biological activity, which might be associated with the degradation of petroleum hydrocarbons.

2.1.4 In-Place Characterization Sampling

Based on the findings of the Supplemental Field Investigation, Abitibi decided to remove the petroleum-impacted soil. An in-place characterization study was conducted in February 2006 to further determine the extent of petroleum-impacted soil in the planned excavation area, and to characterize the impacted soil for offsite disposal purposes. A full description of the sampling program is provided in *West Tacoma Mill In-Place Characterization Sampling, February 2006 Soil Sample Results* (CH2M HILL, 2006a). The sampling program is summarized in Table 2-3, and sample locations are shown in Figure 2-4.

2.2 Interim Removal Action

In April 2006, Abitibi contracted with CH2M HILL to undertake the removal of soil impacted by petroleum compounds in an area north of the Shipping Warehouse and northwest of the Hog Fuel Storage Area. The removal action was designed to excavate soil containing petroleum-related compounds exceeding MTCA Method A CULs, to mitigate risks from potential human exposure, and to minimize the potential for additional impacts to groundwater. A full description of excavation activities, including sample collection, field records, and photographs is provided in Appendix A.

2.2.1 Soil Removal Activities

The soil removal action was conducted by Philips Services Corporation (PSC). Mobilization to the Site began on April 21, 2006. During mobilization, the perimeter of the planned excavation area was marked, and then the asphalt was saw cut for ease of removal and simplification of Site restoration. Once cut, the asphalt was stripped away with a Kobelco 290LC track hoe. The asphalt was transported offsite in dump trucks. In total, 159 tons of asphalt and concrete were sent offsite for recycling and 3,445 tons of TPH-impacted soil were sent offsite for disposal between 24 April and 18 May 2006.

During the excavation activity, a concrete structure was discovered at about 5 feet bgs. The structure had concrete walls supporting an overlying concrete slab but did not have a bottom floor slab. The structure measured approximately 15 feet wide by 35 feet long and was approximately 6 feet deep. The structure had been filled with sand. The location of the structure is shown in Figure 2-5, and a photograph taken during excavation activities is provided as Figure 2-6. Based on these findings, the project scope and work plan were modified to include handling of these materials. A representative from Ecology was onsite during much of this time and provided verbal approval of the modified approach, as described here.

The overlying slab was removed from the structure, and sandy material was removed to a depth of approximately 10 feet bgs. Areas surrounding the structure were excavated to a total depth of 8 to 10 feet bgs to remove petroleum-impacted material. The side walls were left in place. In areas where the excavation reached below the water table, diatomaceous earth was mixed with wet soils to facilitate excavation. Figure 2-7 shows the total depth of excavation within the Shipping Warehouse Area.

Excavation activities continued until confirmation sampling results indicated that remaining soils along the sidewalls and base of the excavation were below CULs (see Section 2.2.3). Figure 2-7 shows the boundaries of the excavated area.

2.2.2 Waste Management

Wastes generated during the removal action included soil that contained petroleum hydrocarbons; asphalt and concrete debris; metal in the form of rails, buried pipe, conduit, and vaults; wood railroad ties; and groundwater encountered during excavation. The wastes were disposed of as follows:

- **Soil:** Approximately 3,445 tons of petroleum-impacted soil were disposed of at the LRI-304th Street Landfill, 30919 Meridian Street East, Graham, Washington. The concrete slab overlying the subsurface concrete structure was removed in pieces from the excavation, and was not separated out from the surrounding soil. Weigh tickets and bill of lading documents were received and placed in the project files;
- **Asphalt:** A total of 159.43 tons of asphalt were transported to Woodworth & Company, Inc., in Lakeview for recycling;
- **Metal:** Rails and other metal removed from the excavation area were left onsite for recycling at a later date;
- **Railroad Ties:** Wooden railroad ties were trucked offsite to Waste Management Inc., Columbia Ridge, Oregon, a Subtitle D permitted landfill, for disposal;
- **Groundwater:** Groundwater seeped into several areas of the excavation during excavation activities. This water was pumped into a transportable fractionation tank for onsite storage prior to treatment. In total, 18,000 gallons of water were delivered to Philips Services Corporation facility in Kent, Washington, for disposal.

2.2.3 Confirmatory Sampling

Confirmation samples were collected from the sidewalls and bottom of the excavation during the removal action as the excavation reached its maximum anticipated lateral and vertical extent. The locations of the left-in-place confirmation samples are shown in Figure 2-7. Confirmation samples were analyzed for TPH-GRO (gasoline-range organics), BTEX (benzene, toluene, ethylbenzene, and xylenes), and TPH-DRO (diesel-range organics) on 24-hour turnaround, and in some cases for arsenic and PCBs, as shown in Table 2-4. Where TPH-GRO was detected, subsequent analysis for VOCs was performed. Where TPH-DRO was detected at greater than 100 milligrams per kilogram (mg/kg), SVOC analysis was performed with archived sample material.

Sidewall samples were collected at a frequency of approximately one sample per 40 lineal feet of sidewall, for a total of 11 samples. The sidewall samples were composited from sample intervals at 2 to 4 feet bgs. The samples were collected either from the excavator bucket or directly from the sidewalls if the excavation was safe to enter. The soil from the two sample intervals was placed in a clean bowl or tray and homogenized prior to placement in 4-ounce or 8-ounce, laboratory cleaned, glass containers with Teflon®-lined lids. To minimize potential volatilization of VOCs, samples intended for VOC or TPH-GRO analysis were not homogenized before sample containers were filled.

Twenty bottom samples were collected to document the condition of the excavation. Bottom samples were collected from a depth interval of zero to 6 inches below the excavation bottom. The samples were collected from the excavator bucket at the sample location, or directly by sample personnel if the excavation was safe to enter.

2.2.4 Site Restoration

To minimize the time that the excavation remained open, backfilling was conducted as verification samples showed that excavated areas achieved CULs. Because not all analytical results had been received at the time the area around the subsurface concrete structure needed to be filled, the depth of excavation was marked with plastic (perforated, to allow surface water infiltration). The balance of the Site restoration activities were completed on May 17 to 19, 2006. A Komatsu front-end loader was used to spread fill lifts and to control grade. An Ingersoll Rand smooth drum roller/compactor was used to compact the fill lifts. Backfill consisted of 8-inch quarry spalls in wet areas, followed by 2-inch-minus pit run. The surface of the excavation area was covered with 5/8-inch-minus crushed stone top course (CSTC). Each lift was tested by a representative from Hong West Associates (HWA) with a nuclear density gauge. A total of 407 tons of 8-inch quarry spalls, 3,219 tons of 2-inch-minus pit run, and 500 tons of 5/8-inch-minus CSTC was placed and compacted.

Site restoration was completed on June 1, 2006, when the perimeter fence was restored.

2.3 Post-Removal Monitoring Well Installation and Sampling

Following completion of the removal action, the analytical results for the confirmation samples were compared to MTCA Method A and B CULs for unrestricted land use. Petroleum-related compounds were found in excess of the CULs at three bottom-of-excavation sample locations: BDS3 (4 feet bgs), BDS13 (10 feet bgs), and BDS19 (10 feet

bgs). Figure 2-7 shows the locations of all left-in-place confirmation samples. Concentrations of petroleum-related compounds in the remainder of the left-in-place confirmation samples were below the MTCA CULs.

The confirmation sample results were submitted in a memorandum to Ecology on July 19, 2006. Because some COCs were still present in the soil and because petroleum compounds and arsenic had previously been detected in groundwater in the area, Abitibi proposed to install four wells to monitor groundwater conditions in the vicinity of the excavated area. Well locations were selected to maximize the likelihood of monitoring TPH-impacted groundwater, in areas where previous sampling had indicated the presence of TPH-impacted groundwater or where the highest concentrations of TPH in soil were observed. The distribution of TPH impacts in soil and groundwater is discussed in detail in Section 4. Proposed well locations were incorporated into the July memorandum and reviewed and approved by Ecology prior to well installation.

The monitoring wells were installed as proposed on August 18, 2006. The horizontal coordinates and top-of-casing and ground surface elevations for each well were surveyed by means of a digital global position system (DGPS) and trigonometric leveling techniques. Well locations are shown in Figure 2-8, and well completion information is summarized in Table 2-5. Boring logs, well completion records, and well development records for the wells are provided in Appendix B.

The wells were purged and sampled by means of low-flow sampling techniques on August 31 and September 1, 2006. The groundwater sampling program included collection of water level measurements, measurement of water quality parameters [temperature, pH, specific conductivity, turbidity, dissolved oxygen, and oxidation-reduction potential (ORP)], and collection of groundwater samples for arsenic, SVOCs, TPH, and VOCs. Purging information and water quality measurements for the sampling event are provided in Table 2-6, and sampling records for the event are provided in Appendix C.

2.4 Summary of RI/FS Sample Data

The field and analytical data for samples collected during the previously described investigations have been validated and compiled into an electronic database to facilitate data evaluation and presentation. This section provides a summary of data quality assurance/quality control (QA/QC) procedures, describes data compilation and processing, and identifies how the samples were partitioned into groups for data evaluation.

2.4.1 Data Quality Evaluation and Processing

The sampling program for each contributing investigation included collection of samples for use in QA/QC documentation. These samples included the following:

- Field duplicate samples – 1 per 10 samples per environmental medium;
- Matrix spike/Matrix spike duplicate (MS/MSD) samples – 1 per 20 samples per environmental medium and analytical method;
- Trip blanks – 1 per cooler containing samples for VOC, TPH-GRO, or TPH-VPH analysis.

Field duplicate samples are listed in the sampling and analytical matrix tables introduced in the preceding sections.

The overall objectives for data quality as defined in individual investigation plans were met for the project. Most of the analytical results were unqualified, and the qualified results represented QA/QC criteria failures that are typical for projects of this nature. The primary data validation issues were related to the detection of certain compounds in laboratory method blanks and trip blanks. These detections resulted in assignment of validation qualifiers that superseded the laboratory-assigned qualifiers for certain samples.

Prior to data presentation and evaluation, the "raw" validated data obtained during the investigations were processed to produce a "working" data set with which to evaluate the results. Data processing was conducted only to resolve multiple results for a single constituent reported by different analytical methods (e.g., naphthalene reported by both EPA Methods SW8270C and SW8260) to produce a single value for each constituent per sample. Appendix D describes these data processing procedures and includes tables that document changes in analytical data that resulted from processing.

2.4.2 Analytical Data

The available analytical data for the Site are summarized in Table 2-7. This table lists the sample identification numbers, sample dates, media, and other pertinent information for all samples associated with each investigation Area. The analytical data for these samples are provided in Appendix E.

3.0 Property and Site Characteristics

This section describes the physical characteristics and subsurface conditions at the Property. These characteristics and conditions influence the distribution of COCs in soil and groundwater at the Site and also affect decisions about the need for and type of remedial actions that can be implemented at the Site.

3.1 Physiography and Topography

The Property covers about 83 acres. It is characterized by two distinct physiographic areas that are separated by approximately 200 feet of topographic relief: the lower elevation main process area which is located on relatively flat ground adjacent to Chambers Creek, and the upland area along the eastern and southwestern Property boundaries where the ASB is located. Figure 1-2 shows the current Property topography.

The current ground surface in the main process area is at approximately 16 to 25 feet above mean sea level (msl). The current surface is the result of cut-and-fill operations used to level the Property when the land was first developed in the early part of the 20th century. The upper portion of the Property in the vicinity of the ASB is at approximately 240 feet msl. The topography between the main process area and the ASB is steeply sloped and bisected by Garrison Creek.

3.2 Climate

Steilacoom has a marine climate dominated by cool, moist winds that move east to northeast off the Pacific Ocean. This climatic pattern results in typically warm, dry summers and cool, wet winters. The average total annual precipitation is 45 inches, 75 percent of which falls between October and March (http://www.co.pierce.wa.us/pc/abtus/profile/climate.htm). Typical summer high temperatures range in the 70s and low 80s, with average winter temperatures in the 40s.

3.3 Hydrology

The Property is located at the mouth of Chambers Creek in the Chambers-Clover Creek Watershed [Water Resource Inventory Area (WRIA) 12]. The watershed covers 144 square miles and includes approximately 2,020 acres of lakes, extensive wetlands, as well as Chambers Creek and Clover Creek (PCPWU, 1994). Elevations within the WRIA start at sea level and extend up to 600 feet.

Chambers Creek is considered a major estuary of Puget Sound with an average annual discharge of 113 cubic feet per second (Averill et al., 2005). The creek discharges to Puget Sound approximately 2300 feet northwest of the Property. The mouth of the creek is tidally dominated and tidal fluctuations downstream of the dam northeast of the Property are on the order of 15 feet.

The Property is drained to the primary clarifier and then to the outfall line.

3.4 Geology

3.4.1 Regional Geology

The property is adjacent to Puget Sound in an area dominated by glacial deposits. The regional geology is composed of a broad, poorly drained upland drift plain ranging in altitude from sea level to 600 feet. The drift plain was deposited by glaciers and streams and is composed primarily of thick sequences of low-permeability glacial tills, and higher permeability outwash deposits. Volcanic and sedimentary rocks of Tertiary age underlie the entire watershed, but are deeply buried by the unconsolidated glacial and fluvial sediments. The deepest wells in the study area (over 2,000 feet deep) did not encounter bedrock (Walters and Kimmel, 1968).

Unconsolidated deposits in the region can be divided into two major categories based on the environment of deposition and hydrogeologic characteristics. One category consists of sediments deposited as a result of glacial activity. The second category contains nonglacial sediments deposited between periods of glaciation. These materials are also being deposited today in the form of fine-grained bottom sediments in the Puget Sound, floodplain sediments in stream valleys, and organic clays in lakes and bogs. In general, the nonglacial deposits are more finely grained than the glacial deposits, and, as a result, are of lower permeability.

3.4.2 Property and Site Geology

This section describes the physical properties of the soils below the Site based on data from subsurface explorations conducted during the Phase II ESA and subsequent investigations, as well as development information from the Pierce County website (https://www.piercecountywa.org/pc/abtus/ourorg/ccp/2history.htm) and a draft geologic map of the region (Troost et al., 2006). The geologic units that underlie the Site consist of fill, Quaternary alluvium, and glacial deposits, as follows:

- **Fill**: The original land surface adjacent to Chambers Creek was modified in the early 20th century to allow construction of the mill. Several episodes of fill placement are known to have occurred since the initial development of the Property. The fill underlies most of the main process area. The fill is about 5 to 10 feet thick and consists of silty sand and gravel with some concrete and woody debris;
- **Quaternary Alluvium**: A layer of silt, sand, and gravel deposited by Chambers Creek is located beneath the fill in the main process area. The alluvial materials also make up the surface materials in areas where fill was not placed;
- **Glacial Deposits**: Thick sequences of glacial deposits make up the surface materials in the areas of the Property at higher elevation and underlie the alluvium and fill in the main process area. The glacial deposits are composed of sands and gravels.

3.5 Hydrogeology

The Property is located at the western edge of the Chambers-Clover Creek Watershed. The following subsections describe the regional and local hydrogeology.

3.5.1 Regional Hydrogeology

The aquifer system in the Chambers-Clover Creek Watershed consists of alternating layers of higher and lower permeability deposits (outwash alternating with till consisting of nonglacial clay and silt). The uppermost permeable layer was deposited by the Vashon glacier, and is one of the most productive aquifers in the watershed, commonly referred to as the shallow aquifer. However, this aquifer's unconfined position at the top of the stratigraphic column makes it vulnerable to contamination. The depth to groundwater in the watershed ranges from zero to more than 100 feet. Most of the groundwater moves to the west toward Puget Sound. Groundwater within the basin moves relatively rapidly. Velocities are estimated between 0.02 and 63 feet per day, although a velocity of 93 feet per day has been reported. The average flow rate is 4.4 feet per day (Brown and Caldwell, 1985).

The entire area encompassed within the Chambers-Clover Creek Watershed has been designated by the U.S. Environmental Protection Agency (EPA) as part of a Sole Source Aquifer System. This designation is provided to areas in which groundwater has been identified as serving large populations; over 169,000 people within the Chambers-Clover Creek Watershed depend on the Chambers-Clover Creek aquifer as their source of drinking water.

3.5.2 Local Hydrogeology

Two water-bearing zones have been identified at the Property: the fill/alluvium aquifer in the lower part of the Property adjacent to Chambers Creek, and the glacially derived Chambers-Clover Creek aquifer. The fill/alluvium zone sits unconformably on the larger aquifer, and, based on the presence of groundwater seeps at the base of the hill into which the main process area is incised, may be separated from the larger aquifer by zones of lower permeability. Because of regional groundwater discharge to Chambers Creek and Puget Sound, it is unlikely that the mill operations have impacted the Chambers-Clover Creek aquifer. Therefore, the remainder of this section focuses on conditions in the fill/alluvium aquifer in the main process area.

Based on boring logs and water level information for the monitoring wells installed in August 2006, groundwater in the fill/alluvium aquifer occurs at depths of 5 to 8 feet bgs at elevations ranging from 10 to 12 feet msl (see Table 3-1). The current groundwater elevation in the vicinity of the main process area corresponds with the base of fill material that was likely placed in the 1940s or 1950s. Groundwater flow is toward Chambers Creek at a gradient of approximately 0.01 foot/foot (see Figure 3-1). Quantitative hydraulic conductivity measurements have not been conducted for the wells screened in the aquifer. Given the types of materials found in the subsurface (silty sands and gravels) and the low rate of groundwater recharge observed during the excavation activities, an approximate hydraulic conductivity of 1 to 10 feet/day is assumed for the aquifer.

3.6 Land Use

The land comprising the Property is not currently zoned within a Pierce County Community Plan area but currently zoned industrial within the Town of Steilacoom. Long-term use of the Site has been industrial and there are no residences within the Property. The Property is bordered by residential and other land uses.

4.0 Nature and Extent of COCs

This section describes the methods and results of the evaluation of the nature and extent of impacts at the Site. Section 4.1 identifies the comparison values used to evaluate analytical results. Section 4.2 describes approach for identifying COCs and determining their nature and extent. Section 4.3 presents the COC identification findings, and Sections 4.4 and 4.5 present the nature and extent of the COCs in soil and groundwater, respectively.

4.1 Comparison Values

The comparison values (CVs) used to evaluate environmental conditions at the Site are medium-specific, as described in the following subsections.

4.1.1 Soil

The CVs consist predominantly of the MTCA Method B CULs for direct contact[1] and unrestricted land use, with the following exceptions:

- Method A unrestricted land use table values were used for analytes such as TPH-diesel, TPH-gasoline, and lead that do not have Method B values;
- Ecology's Worksheet for Calculating Soil TPH CULs (Ecology, 2001) was used to characterize potential risks and hazard indices for samples where HCID analysis was followed by quantification of hydrocarbon fractions (i.e., NWTPH EPH and VPH analysis) rather than quantification of TPH as a whole;
- Natural background concentrations in the Puget Sound area (Ecology, 1994) were also considered in selecting CVs for metals in soil. If the natural background level was higher than the MTCA value, or if no MTCA value was available, the natural background concentration was used as the soil comparison value.

The CVs used to evaluate soil conditions at the Site are listed by chemical group and analyte in Table 4-1.

4.1.2 Groundwater

The CVs used to evaluate groundwater conditions at the Site are listed by chemical group and analyte in Table 4-2. The CVs consist predominantly of the MTCA Method B CULs for unrestricted land use. In the case of analytes such as TPH and lead that do not have Method B values, the Method A unrestricted land use table values were used.

4.1.3 Sediment

The CVs used to evaluate sediment results consist of the chemical criteria in the Sediment Management Standards (WAC 173 204). These criteria were derived from the 1988 Puget

[1] Soil CULs for protection of groundwater were also considered but were not used because groundwater results were available to evaluate this potential pathway.

Sound lowest apparent effects threshold (LAET) testing conducted in the late 1980s (Barrick et al., 1988). Apparent effects thresholds (AETs) are concentrations of a specific chemical above which adverse biological effects always occur (Ecology, 1996). The sediment quality standards (SQS) that are typically used to evaluate sediment chemistry are based on carbon-normalized LAET values. Therefore, the analytical data for organic compounds in the sediments are carbon-normalized before comparisons are made. However, in the case of samples with very high TOC values (i.e., greater than 5 percent TOC), such as the OU1 samples, carbon-normalization is not appropriate (Ecology, 1993). In such cases, the SMS recommend use of dry weight sample results and dry-weight LAET values to evaluate sediment chemistry. The CVs for sediment are listed in Table 4-3.

4.2 Evaluation Approach

The evaluation process consists of two parts: identification of Site-specific COCs, followed by characterization of the nature and extent for each COC in Site media. The evaluation approaches are described in the following subsections.

4.2.1 COC Identification

For the COC evaluation, the analytical data for all samples were compiled by medium and compared to the CVs identified in Section 4.1. A chemical with one or more exceedances of a CV was retained as a COC.

4.2.2 Nature and Extent of COC Evaluations

The nature and extent of COCs in Site media were determined by comparing sample results to the CVs identified in Section 4.1. The goal of the nature and extent evaluations was to identify potential source areas for COCs, characterize the lateral and vertical distribution of the COCs, and define the lateral and vertical limits of CV exceedances. All relevant data for an area, including field observations, direction of groundwater flow, presence of obstructions, and/or preferential pathways, and other Site-specific conditions were considered when determining the nature and extent of COCs.

4.3 COC Identification

The compiled analytical data for soil, groundwater, and sediment samples collected at the Site are compared to the CVs in Tables 4-4, 4-5, and 4-6. Tables 4-4 and 4-5 consist of summary tables for the entire soil and groundwater datasets, including samples used for pre-excavation characterization in the Shipping Warehouse Area. The summary tables indicate the ranges of detected concentrations, the frequency of detection, and the number of CV exceedances for all detected analytes, as well as the ranges of method detection limits (MDLs) and number of MDL exceedances for samples where analytes were not detected. Highlighted rows in the tables indicate analytes that are considered COCs for that medium because one or more detected sample result exceeds a comparison value. Analytical results for each soil and groundwater sample used in this evaluation are provided in Appendix E. The sediment data set consists of a single sample. Therefore, Table 4-6 presents only the sediment CVs and the analytical data for that sample.

The following analytes were identified as COCs for the Site:

- **Soil:** Arsenic, PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, and indeno[1,2,3-cd]pyrene), TPH- diesel, TPH-motor oil, and TPH-gasoline;
- **Groundwater:** Arsenic, benzene, carbazole, PAHs (1-methylnapthalene, 2-methylnaphthalene, and naphthalene), TPH-diesel, and TPH-gasoline;
- **Sediment:** No COCs were identified in sediments.

The list of COCs identified with reference to the full suite of analytical data and the CVs identified above is similar to the list previously identified for the Site; that is, arsenic and petroleum-related compounds. The impacted media include soil and groundwater. The sediment does not contain concentrations of target analytes above CVs and was not carried forward into the nature and extent evaluation.

4.4 Distribution of COCs in Soil

This section describes the occurrence and distribution of each COC in soil.

4.4.1 Arsenic

Arsenic was detected in 21 of the 53 soil samples collected at the Property. Concentrations of the metal range from 5 to 10 mg/kg, and the results for 7 samples exceeded the comparison value. The concentrations of arsenic in soil at the Property are listed in Table 4-7.

No known sources of arsenic existed at the Property, and arsenic concentrations at the exceedance locations are only slightly above the CV of 7.0 mg/kg, which is a statistically derived Regional background level for the metal. Therefore, arsenic in soil at the Site is believed to be the result of natural or anthropogenic (e.g. regional airborne deposition) processes and no further action is needed to characterize its extent.

4.4.2 TPH

Gasoline-range petroleum hydrocarbons were detected in 30 of the 115 samples analyzed for TPH. TPH-gasoline concentrations in 16 of the samples exceeded the MTCA Method A CUL of 30 mg/kg. All of samples with exceedances were collected in the Shipping Warehouse Area of the main process area and represent pre-excavation conditions, bottom-of-excavation samples, or excavation sidewall samples. The soil at 15 of 16 locations was excavated or, in the case of bottom or sidewall sample, over-excavated, during the course of the interim removal action (see Table 4-8). The remaining TPH-gasoline exceedance (41 mg/kg) is located at BDS03, a bottom-of-excavation (4 feet bgs) sample in the western part of the excavation (Figure 4-1).

Diesel-range petroleum hydrocarbons were detected in 77 of the 115 soil samples analyzed for TPH. TPH-diesel concentrations in four of the samples exceeded the MTCA Method A CUL of 2,000 mg/kg. All of the samples with exceedances were collected in the Shipping Warehouse Area and represent pre-excavation conditions, bottom-of-excavation samples, or excavation sidewall samples. The soil at all of the exceedance locations was excavated or

over-excavated during the interim removal action (see Table 4-8). Subsequent confirmatory samples were collected to show that remaining concentrations are below CULs.

Petroleum hydrocarbons as motor oil were detected in 73 of 84 samples analyzed for TPH. Concentrations in five of the samples exceeded the MTCA Method A CUL of 2,000 mg/kg. All of the samples with exceedances were collected in the Shipping Warehouse Area and represent pre-excavation conditions, bottom-of-excavation samples, or excavation sidewall samples. The soil at all of the exceedance locations was excavated or over-excavated during the interim removal action (see Table 4-8).

The source of the petroleum in the Shipping Warehouse Area has not been identified. Based on observations made during the removal action, the petroleum-impacted soil appeared to be associated with utility corridors and a buried subsurface structure.

The lateral and vertical extents of petroleum impacted soil in the Shipping Warehouse Area were determined before and during the removal action. Most of the impacted soil was excavated and disposed of offsite during the interim removal action. The single confirmation sample exceedance at BDS03 at 41 mg/kg is less than two times the CUL (30 mg/kg), and all other confirmation sample results (i.e., locations that were not over-excavated) are below the CUL. The post-excavation condition of the soil in the Shipping Warehouse Area meets the MTCA compliance criteria (Ecology, 2001). Therefore, no further action needs to be taken to address TPH-impacted soil in this part of the Property.

4.4.3 PAHs

Benzo(a)anthrene and chrysene were the most frequently detected PAHs in soil samples collected at the Site, with 7 of the 51 samples containing detectable concentrations of one or more of these compounds. Four of these seven samples contained PAH concentrations exceeding the MTCA Method B CULs, as shown in Table 4-9. PAHs exceeding MTCA Method B CULs included indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(a)pyrene, as well as benzo(a)anthracene and chrysene.

Two of the exceedances occurred in samples collected beneath the bedding of the railroad tracks (RR1 and RR2) in the main process area. PAH exceedances were not identified in these samples during the Phase II ESA because Method C CULs were used for that evaluation. The magnitudes of exceedance for the samples are low (generally less than twice the CV of 0.14 mg/kg), and other samples collected in the area and along the tracks did not contain concentrations of PAHs above MTCA Method B CULs.

The five other exceedances are located in the Shipping Warehouse Area of the main process area. The soil at one of the exceedance locations (WCS03) was removed during the removal action. The remaining sample with PAH exceedances was a confirmation sample taken at the bottom of the 4 feet bgs excavation at BDS19 (Figure 4-1) was left in place.

The source of the PAH in the railroad area is unknown and most likely is related to railroad operations or historical fill used in the area. The extent of PAH-impacted soil is limited. The magnitudes of exceedance are low (generally less than twice the CUL, as shown in Table 4-9), and other soil and groundwater samples collected in the area did not contain concentrations of PAHs above CULs. Therefore, no further action needs to be taken to address PAH-impacted soil in this portion of the Site.

The source of the PAHs in the Site is unknown, but could be related to historical petroleum releases that might have occurred or accumulated in the area at a time when the area was not paved. As with TPH, most of the PAH-impacted soil was excavated and disposed offsite during the soil removal action. Several PAH constituents in one confirmation sample (BDS19) exceed the MTCA Method B CUL by more than two times, so the post-excavation condition of the soil in the Shipping Warehouse Area does not meet the MTCA compliance criteria. However, because the extent is limited to one sample out of the 42 confirmatory samples analyzed for SVOCs, and because direct contact with the impacted soil (at 6 ft bgs) is unlikely, no further action needs to be taken to address PAH-impacted soil in this portion of the Property.

4.5 Distribution of COCs in Groundwater

This section describes the occurrence and distribution of each COC in groundwater at the Site.

4.5.1 Arsenic

Arsenic was detected in all groundwater and seep samples collected for arsenic analysis at the Property. Concentrations of the metal range from 0.0004 to 0.04 mg/L (Table 4-10). The results for all samples exceed the MTCA Method B CUL for arsenic (0.000058 mg/L), and 15 of 19 samples also exceed the Method A CUL (0.005 mg/L). The highest concentration of arsenic (0.04 mg/L) occurred in a sample collected in the Shipping Warehouse Area where petroleum-impacted soil was removed. Dissolved oxygen concentrations in this area were fairly low (less than 1.3 mg/L in August 2006). Because there is no known source of arsenic at the Site and because the presence of arsenic in groundwater is not linked to identified sources of arsenic in soil, the higher concentrations in groundwater in this area could be the result of arsenic mobilization caused by reducing conditions associated with the biodegradation of petroleum compounds in the Shipping Warehouse Area.

4.5.2 TPH

Gasoline-range petroleum hydrocarbons were detected in five groundwater samples collected in the Shipping Warehouse Area of the main process area. TPH-gasoline concentrations ranged from 0.25 to 1.3 mg/L, and results for two samples exceeded the MTCA Method A CUL of 0.8 mg/L (see Table 4-11 and Figure 4-2). The two exceedance locations are situated within (DP4: 1.3 mg/L) or immediately down gradient of the excavation (MW-1; 0.92 mg/L). In the case of DP4, subsequent post-excavation samples obtained from permanent monitoring wells placed within the excavation (MW-2 and MW-3) did not contain TPH above MTCA Method A CULs. In the case of the downgradient monitoring well (MW-1), the exceedance is bounded by a line of pre-excavation down gradient groundwater sample locations (DP11, DP12, DP14, MP3, DP19, DP17, and DP18) where TPH-gasoline was either not detected or was detected below the MTCA Method A CUL.

Diesel-range petroleum hydrocarbons were detected in two groundwater samples (MP3 and MW1) collected in the Shipping Warehouse Area of the main process area. Concentrations ranged from 0.51 (sum of EPH carbon ranges) to 1 mg/L (see Table 4-11 and Figure 4-2).

The MTCA Method A CUL is 0.5 mg/L. As with TPH-gasoline, the exceedances are situated immediately down gradient of the area where TPH-impacted soil was excavated, and bounded by subsequent or down gradient sample locations where TPH-diesel was not detected (DP11, DP12, DP14, DP19, DP17).

4.5.3 Benzene

Benzene was detected in excess of its CV at three locations in the Shipping Warehouse Area [MP4 and duplicate sample (0.18 mg/L), DP16 (0.015 mg/L), and DP4 (0.056 mg/L)]. As with TPH, the exceedance locations coincide with the excavation area and the source of the VOC appears to be gasoline or similar petroleum hydrocarbons released or trapped in the Shipping Warehouse Area. The down gradient groundwater samples do not contain concentrations of benzene above the MTCA Method B CUL of 0.0008 mg/L.

4.5.4 Carbazole

Carbazole was detected at one location (MP3) during the Phase II ESA. The concentration in the sample (0.0095 mg/L) exceeded the MTCA Method B CUL of 0.004 mg/L. Carbazole is a SVOC associated with coal tar and PAHs, and could be related to petroleum hydrocarbons present in the Shipping Warehouse Area. The compound was not detected in any of the other groundwater samples and in only four soil samples (RR1, RR2, WCS7, and BDS14) at a maximum concentration of 0.86 mg/kg, against a CUL of 50 mg/kg.

4.5.5 PAHs

Naphthalene, 2-methylnaphthalene, and 1-methylnaphthalene were detected at concentrations above their respective MTCA Method B CULs in the groundwater sample collected at MW01 (see Table 4-11 and Figure 4-2). This well is located immediately downgradient of the excavated area and is intended to monitor changes in groundwater conditions following completion of the soil removal action. The downgradient groundwater samples obtained during the Supplemental Field Investigation were not analyzed for PAHs, so there is some uncertainty about the extent of these compounds in groundwater. However, given the absence of TPH in the downgradient groundwater samples, the low magnitudes of exceedance for naphthalene and 2-methylnaphthalene, and the low solubility of PAHs, it is unlikely that concentrations of these PAHs extend much beyond MW01.

4.6 Summary of Nature and Extent Findings

The nature and extent evaluation focused on the COCs identified for the Site. Identification of these COCs was based on all available analytical data and MTCA CULs for unrestricted land use and consist of arsenic and petroleum-related compounds.

No known sources of arsenic existed at the Property, and arsenic concentrations in soil are only slightly above the Regional background level of 7 mg/kg. Arsenic concentrations in groundwater throughout the Property are above the CUL, suggesting a possible background source. There is some indication that reducing conditions caused by petroleum degradation have mobilized arsenic from the soil to groundwater in the vicinity of the petroleum-impacted soil excavation. However, the effects of these processes on overall groundwater quality are expected to be limited.

The area of the Property impacted by TPH and other petroleum-related compounds is limited to the main process area, with most soil and groundwater exceedances occurring in the vicinity of the Shipping Warehouse Area (i.e. the Site) where the interim removal action was conducted. The removal action was successful in removing most of the petroleum-impacted soil, and only two bottom-of-excavation samples contained levels of TPH or PAHs that exceed CULs after completion of the removal action. In addition, the initial round of post-excavation groundwater sampling found that TPH and PAH concentrations immediately beneath the interim removal action excavation were below MTCA CULs. Although TPH and PAH concentrations in the well installed immediately downgradient of the former excavation (MW-01) were above MTCA CULs, the available TPH data for pre-excavation downgradient groundwater samples and the low magnitudes of exceedance for the PAHs indicate that the extent of these compounds in groundwater is limited. Consequently, it is unlikely that Chambers Creek has been or will be adversely impacted by the presence of COCs in the groundwater.

Based on these findings, the remainder of this RI/FS Report focuses on the presence of petroleum-related compounds in groundwater in the vicinity of the Shipping Warehouse Area interim removal action excavation. Concentrations of arsenic in groundwater should be monitored as part of the selected remedy.

5.0 Fate and Transport Processes

As indicated by confirmatory sampling at the Site (see section 4.4), limited residual petroleum impacts remain in soil after excavation and backfill with clean material. These impacts are generally at or below the water table. The initial post-removal action groundwater samples indicated limited residual groundwater impacts, at the downgradient edge of the Shipping Warehouse Area interim removal action excavation area. Groundwater continues to flow through the area, and because limited residual soil exceedances remain in place, some variation in the COC concentrations in groundwater in the area and downgradient from it might occur. This section discusses the chemical and physical factors that could influence the fate and transport of the COCs in environmental media at the Site.

5.1 Chemical Mobility and Persistence

The probable behavior of COCs at the Site is determined by their physical, chemical, and biological interactions with the environment. The mobility and persistence of the COCs in the environment are two key characteristics in determining probable behavior. Mobility is the potential for a chemical to migrate from the Site, and persistence is a measure of how long a chemical will remain in the environment in its current form. Environmental factors that affect the chemical behavior of the COCs include pH, presence and concentration of other chemicals in the media, soil moisture, oxidation-reduction potential, water chemistry, organic matter content, and the presence of microorganisms that degrade the COCs either directly or indirectly.

5.2 Chemical and Biological Processes

Various basic physical, chemical, and biological processes affect the transport of chemicals in the environment. The following are the most important chemical and biological processes:

- **Sorption:** Sorption is the tendency for chemicals to adsorb to and desorb from materials in the media in which they occur. The material most conducive to sorption of organic compounds typically is organic matter, which exists in abundance in the current or former marshes and wetlands at the Site. In addition, inorganic chemicals adsorb onto iron, manganese, and aluminum oxyhydroxide or oxide coatings and organic coatings on sediment grains. Adsorption of inorganic chemicals (particularly metals) can be irreversible because of the process of fixation. Retardation applies to substances in groundwater that can undergo reversible interactions with the solid phase aquifer matrix that tend to reduce the concentration of the COCs in groundwater. Retardation causes chemical fronts to travel more slowly than the rate of the advecting groundwater;
- **Volatilization:** Volatility is the tendency for certain chemicals, particularly VOCs, to transfer from a liquid or adsorbed state to a gas. Most inorganic compounds are not volatile under normal temperature and pressure conditions;
- **Degradation:** Degradation is the transformation of one chemical to another by processes such as hydrolysis, photolysis, and biodegradation. Degradation is commonly expressed

as a half-life that is a composite of the degradation rates by all processes. Biodegradation results from the activity of microorganisms, which transform chemicals under either aerobic (oxidizing) conditions or anaerobic (reducing) conditions;

- **Transformation:** Transformation of inorganic compounds occurs when metals are increased or reduced in valence state by oxidation or reduction, respectively. Transformation can have a significant effect on the mobility and toxicity of a metal. Transformation can be caused by Eh (measured as ORP) and pH changes and microbial or nonmicrobial (abiotic) processes. This process might be affecting arsenic mobility in the Shipping Warehouse Area;
- **Density:** Density effects can be significant if the concentration of a chemical in water exceeds its water solubility and the chemical forms a nonaqueous-phase liquid (NAPL). The density of a compound generally is characterized by its specific gravity, the ratio of the density of the compound in its pure form to that of water. If less dense than water, which includes petroleum compounds such as those found in the Shipping Warehouse Area, the light NAPL (LNAPL) tends to float on top of the water table. No NAPL has been identified at this Site;
- **Bioaccumulation:** Bioaccumulation refers to the extent to which a chemical will partition from water into the lipophilic parts (e.g., fat) of an organism. This process is not expected to significantly affect migration of chemicals at this Site.

5.3 Physical Processes

The following physical processes influence the migration of chemicals dissolved in groundwater:

- **Advection:** The transport of dissolved COCs by the bulk motion of flowing groundwater. This is the primary transport mechanism for dissolved COCs through pore space between soil particles;
- **Dispersion:** The spreading of dissolved COCs in flowing groundwater. Dispersion in unconsolidated sediment results from spatial variations in hydraulic conductivity, fluid mixing, and molecular diffusion;
- **Diffusion:** The process whereby ionic or molecular constituents move under the influence of their kinetic activity in the direction of their concentration gradient;
- **Dilution:** The simple mixing of COCs and non-impacted water thus reducing the concentration of COCs.

Because petroleum compounds include a range of specific chemicals with specific physical properties, it is difficult to predict how they will migrate. In general, the fractions of these mixtures that include low-carbon alkanes tend to be more soluble as well as more volatile, whereas higher-carbon alkanes and aromatic hydrocarbons tend to be less soluble and less volatile and have greater tendency to adsorb to the organic carbon in soil.

Light and moderately heavy compounds included in gasoline and diesel will tend over time to dissolve in water or volatilize, leaving the heavier and less soluble aromatic hydrocarbons adsorbed to soil organic matter. In addition, fluctuations in the water table over time will

tend to smear COCs in the zone above the current water table. This smearing process tends to enhance dissolution of the more soluble components of the mixture, while spreading out the zone over which less soluble compounds are adsorbed to soil and allowing these compounds to be aerated.

5.4 Natural Attenuation Processes

Multiple processes contribute to the process of natural attenuation. These processes include biodegradation as well as sorption, transformation, dilution, dispersion, and volatilization and are described in Section 5.2.

The potentiometric hydraulic gradient at the Site on August 30, 2006, was approximately 1 foot per 70 horizontal feet. Some tidal influence may be present in this area, but because of relatively low permeability soils, it is not expected to be significant. Little difference was observed in water levels between the morning of August 30, when the water levels were collected, and levels in each of the wells throughout that day and the next when they were sampled. However, no formal tidal study has been conducted at the Site. Migration of dissolved compounds away from the Site is likely to occur but may be a relatively slow process.

The physical and chemical processes (e.g., retardation) described in Sections 5.2 and 5.3 limit, to a greater or lesser extent, the degree to which each chemical travels at the advective rate of groundwater flow. Chemicals that have a high tendency to adsorb to organic matter or aquifer materials will travel significantly more slowly than groundwater, if at all. For example, SVOCs generally tend to adsorb to organic matter and have low solubilities. Therefore, SVOCs would be more likely to partition out of the groundwater and sorb to organic matter in the aquifer as the groundwater travels. VOCs detected in groundwater are likely to travel more quickly, although they also have a tendency to sorb to organic matter and would travel more slowly than the overall rate of groundwater flow.

Chemical migration in groundwater also is impacted by volatilization and by biological or abiotic degradation processes. These processes can influence a compound's concentration in groundwater such that the chemicals might not travel very far downgradient, but instead the dissolved compounds would dissipate through degradation or volatilization of the compound.

5.4.1 Natural Attenuation Potential for Observed Chemicals in Groundwater

Natural attenuation is the result of naturally occurring processes that cause a reduction in the mass, concentration, volume, toxicity, or mobility of COCs in soil or groundwater. These processes can include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of COCs (U.S. EPA, 1999).

Biodegradation is the principal destructive process contributing to natural attenuation of petroleum compounds, including BTEX. Biodegradation of petroleum hydrocarbons can occur when an indigenous population of hydrocarbon-degrading microorganisms is present in the subsurface and sufficient concentrations of electron acceptors, nutrients, and electron donors (including petroleum hydrocarbons) are available to these organisms.

Microorganisms obtain energy for cell production and maintenance by facilitating thermodynamically advantageous oxidation/reduction reactions involving the transfer of electrons, from electron donors to available electron acceptors, thereby oxidizing the electron donor and reducing the electron acceptor. Possible electron donors include natural organic carbon and petroleum hydrocarbons. Petroleum hydrocarbons are completely degraded or detoxified if utilized as the primary electron donor for microbial metabolism. Electron acceptors are elements or compounds that occur in relatively oxidizing states, and include but are not limited to oxygen, nitrate, sulfate, ferric iron, nitrogen, and carbon dioxide.

Dissolved oxygen (DO) is utilized first by aerobic microorganisms as the prime electron acceptor. After DO is consumed, anaerobic microorganisms use electron acceptors in the following order of preference: nitrate, ferric iron, sulfate, and carbon dioxide. Depending on the types and concentrations of electron acceptors present (e.g., nitrate, sulfate, carbon dioxide), local pH conditions, and ORP, anaerobic biodegradation can occur via processes of denitrification, ferric-iron reduction, sulfate reduction, or methanogenesis (which uses carbon dioxide as the electron acceptor). Anaerobic destruction of petroleum hydrocarbons is therefore associated with the accumulation of fatty acids, production of methane, solubilization of iron, and reduction of nitrate and sulfate. Environmental conditions and microbial competition ultimately determine which processes will dominate.

5.4.2 Geochemical Indicators

Groundwater data indicate that natural attenuation of hydrocarbons may be proceeding by aerobic respiration, as evidenced by low dissolved oxygen concentrations in groundwater in the Shipping Warehouse Area and the absence of petroleum-related compounds further downgradient (near Chambers Creek).

5.4.2.1 Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used in the biodegradation of petroleum hydrocarbons. During aerobic biodegradation, DO is consumed and concentrations of DO in groundwater decrease.

5.4.2.2 Oxidation/Reduction Potential

ORP provides a measurement of electron density and is related to the oxygen status of the groundwater. As oxygen is removed and a system becomes reduced, there is a corresponding increase in the electron density, resulting in progressively lower oxidation potential and, when anaerobic conditions prevail, an increased negative potential.

ORP values in monitoring wells at the Site range from -82 mV to -98 mV. These values also suggest that reduced oxidative conditions indicative of biodegradation of hydrocarbons are present.

5.4.2.3 pH and Temperature

The pH of groundwater samples ranged from 6.57 standard units (SU) to 6.71 SU during the August 2006 sampling event (four wells). These values are within the range for hydrocarbon-degrading microbes (approximately neutral water).

Temperature affects the types and growth rates of bacteria that can be supported in the subsurface environment, with higher temperatures generally producing higher growth rates. Temperatures in the groundwater system varied from 15.8°C to 20.8°C for the August 2006 sampling event (four wells) and 8.5°C to 12.1°C for the March 2005 sampling event (seven wells), which are moderate temperatures for groundwater, suggesting that bacterial growth rates will be adequately stimulated.

6.0 Conceptual Site Model

A Conceptual Site Model (CSM) qualitatively defines various COC sources, release mechanisms, relative rates of migration, persistence of COC, and COC migration pathways identified for a site, and is used to evaluate the potential exposure of human or ecological receptors to COCs. This section presents the Site's CSM for the impacted soil and groundwater in the Shipping Warehouse Area.

6.1 Source and Release Information

Petroleum compounds were detected in soil and groundwater in 2005 and early 2006. Groundwater impacts are probably the result of petroleum-impacted soil, the source of which has not been definitively identified. It is possible that historical operations (i.e. before the Site was paved) at and around the Shipping Warehouse loading dock area resulted in releases of petroleum compounds to the ground surface. It is also possible that petroleum-impacted fill was used in the area. In either case, the petroleum-impacted soil had probably been in place since before the area was paved in the 1980s until most of it was removed during the interim removal action.

6.2 Physical Characteristics of Impacted Area

The current ground surface in the vicinity of the Shipping Warehouse Area is approximately 17 feet msl and is relatively flat. Before the removal action, the ground surface was paved with asphalt that covered 5 to 10 feet of mixed fill and an unknown thickness of alluvium. Petroleum-impacted soil in the area appeared to be historical fill and was largely removed during the course of the removal action, with the exceptions noted in section 4.4 above. Following completion of the 2006 soil removal action, clean fill material was placed in the excavation and compacted to restore ground surface to its previous level. The Site was not repaved.

Based on boring logs and water level information for the monitoring wells installed in August 2006, groundwater in the Shipping Warehouse Area occurs in the fill/alluvium aquifer at depths of 5 to 8 feet bgs. The current groundwater elevation in the vicinity of the main process area corresponds with the base of fill material that was probably placed between the 1940s and 1960s. Groundwater flow is toward Chambers Creek at a gradient of approximately 0.01 foot/foot. Quantitative hydraulic conductivity measurements have not been conducted for the wells screened in the aquifer (MW1, MW2, MW3, and MW4). Given the types of materials found in the subsurface (silty sands and gravels) and the low rate of groundwater recharge observed during the excavation activities, an approximate hydraulic conductivity of 1 to 10 ft/day is assumed for the aquifer.

6.3 Distribution of COCs in Soil and Groundwater

The COCs for the Site are petroleum-related compounds including TPH-gasoline, TPH-diesel, benzene, carbazole, and PAHs. Arsenic was not retained as COC because its presence is likely to be related to natural or anthropogenic (i.e. regional airborne) sources, as discussed in Section 6 above.

The area of the Property impacted by petroleum-related compounds is limited to the main process area, with soil and groundwater exceedances occurring in the vicinity of the Shipping Warehouse Area where the interim removal action was conducted. The removal action was successful in removing most of the petroleum-impacted soil, and only two bottom-of-excavation samples contained levels of TPH or PAHs slightly above the applicable CULs after the interim action. The post-excavation condition of the soil in the Shipping Warehouse Area meets the MTCA compliance criteria (see Section 4). Therefore, no further action is needed to address the residual petroleum-impacted soil in this area.

The initial round of post-excavation groundwater sampling found that TPH and PAH concentrations immediately beneath the former excavation were below MTCA CULs. However, TPH and PAH concentrations were above MTCA CULs in the well immediately downgradient of the former excavation (MW-01). The extent of petroleum-related compounds in groundwater has not been established by permanent monitoring wells, but is expected to be limited because groundwater samples from temporary wells installed adjacent to Chambers Creek Road and Chambers Bay during the Supplemental Field Investigation did not contain concentrations of TPH. While the samples from temporary wells were not analyzed for PAHs, it is unlikely that PAH-impacted groundwater extends beyond the area impacted by TPH given the very low solubility of PAHs.

6.4 Fate and Transport Considerations

A variety of processes could have operated on petroleum hydrocarbons over the 40 to 60 years since the petroleum compounds are believed to have been released to the environment. Gasoline and diesel consist primarily of constituents that are likely to undergo significant biodegradation or volatilization in soil. Because petroleum compounds in soil have now been largely removed to concentrations below CULs, the remaining constituents present in soil and groundwater are likely to biodegrade and/or volatilize relatively quickly, as evidenced by the absence of benzene, carbazole, PAH, and TPH exceedances in the groundwater samples obtained from wells installed in the interim removal action excavation area.

6.5 Potential Receptors and Pathways for Exposure

The potential receptors and pathways for exposure to petroleum-impacted soil and groundwater in the Shipping Warehouse Area are limited, as shown in Figure 6-1. For the most part, soil at the Site has been cleaned up to levels consistent with unrestricted land use. Limited areas remain with a few exceedances of MTCA direct-contact CULs but are inaccessible to casual exposure because they are buried beneath several feet of excavation backfill; overall, the cleanup action meets MTCA compliance criteria.

Petroleum-impacted groundwater probably is limited to a small part of the fill/alluvium aquifer immediately adjacent to the former excavation. Given the low levels of COCs in this surficial aquifer and the overall hydrogeologic regime (i.e., regional groundwater discharge zone), it is unlikely that the underlying Chambers Creek aquifer, which is a drinking water source, has been or will be impacted by the petroleum-impacted groundwater. For the same reasons, it is also unlikely that surface water or sediment within Chambers Creek have been or will be impacted by the petroleum-impacted soil or groundwater. Nonetheless, potential actions to address the presence of petroleum-related compounds in groundwater at levels above the MTCA A and B CULs are addressed in Sections 7 through 9 which comprise the FS portion of this report.

7.0 Remedial Action Objectives and Applicable or Relevant and Appropriate Requirements

This section presents the remedial action objectives (RAOs) and applicable or relevant and appropriate requirements for remediation of the petroleum-impacted groundwater in the vicinity of the Shipping Warehouse Area.

7.1 Remedial Action Objectives

RAOs are specific goals for protecting human health and the environment that also define a framework for developing cleanup actions. Exceedances of some MTCA CULs were observed in the groundwater in a limited area of the site as described in Section 4. Considering the nature of the impacts and the requirements of MTCA, the following RAOs were identified for the Site:

- Protect human health and the environment;
- Allow for unrestricted future re-use of the Site;
- Comply with applicable or relevant and appropriate requirements (ARARs) as defined in Section 7.2.

These RAOs are used in Section 8.0 to guide the screening of suitable technologies, as well as the development of cleanup action alternatives that meet MTCA requirements and are consistent with Ecology expectations for this FS.

7.2 Applicable or Relevant and Appropriate Requirements

Numerous federal, state, and local laws and their implementing regulations were reviewed to identify potential CULs and other action- and location-specific requirements for the Site. This section defines ARARs and discusses specific laws and regulations that were considered as potential ARARs.

"Applicable" requirements include those cleanup standards, control standards, and other environmental protection requirements, criteria, or limitations promulgated under federal, state, or local law that specifically address a hazardous substance, cleanup action, location, or other circumstance at a cleanup site.

"Relevant and appropriate" requirements include those cleanup standards, control standards, and other environmental requirements, criteria, or limitations promulgated under federal, state, or local law that are not legally applicable to a hazardous substance, cleanup action, location, or other circumstance at a cleanup site. However, these requirements address problems or situations that are similar to those encountered at the Site such that their use might be well suited for the Site. In some circumstances, a requirement

might be relevant but not appropriate for the site-specific situation. In that case, the requirement is not considered an ARAR.

There are three types of ARARs as follows:

- **Chemical-specific ARARs** are laws and regulations that identify health- or risk-based numerical values that, when applied to site-specific conditions, result in the establishment of concentration cleanup limits for specific hazardous substances. These limits establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment;

- **Location-specific ARARs** are requirements driven by the geographical or physical position of the Site, rather than by the nature of the COCs or the actions at the Site. Location-specific ARARs are typically restrictions or requirements placed on the concentration of hazardous substances or the conduct of activities solely because they occur in a specific location. However, they may also address culturally significant or environmentally sensitive areas that might affect the selection or implementation of a cleanup action;

- **Action-specific ARARs** are requirements that define acceptable performance, design, or other similar controls or restrictions imposed on particular kinds of activities. Action-specific ARARs are usually technology- or activity-based requirements.

In general, chemical- and location-specific ARARs provide a basis for determining the objectives and goals of remedial action, whereas the action-specific ARARs provide a basis for determining how the remedial action will be implemented. Table 7-1 provides a summary of the ARARs considered for this FS.

7.3 Remedial Action Cleanup Levels

As indicated in Section 4, concentrations of certain petroleum-related compounds in groundwater exceeded MTCA Method A and B CULs. These CULs, which were used to establish the nature and extent of the COCs, are one aspect of the process for determining the cleanup levels that will be used for remedial action at the Site. The development of remedial action cleanup levels involves several steps that include but are not limited to the following:

- Determine which method to use to determine cleanup;

- Determine the Site's reasonable maximum exposure scenario;

- Develop cleanup levels for hazardous substances in specific media, while taking into account potential cross-media impacts; adjust cleanup levels if multiple hazardous substances exist.

The remedial action cleanup levels presented in this section have been derived using procedures, risk exposure assumptions, and land use scenarios consistent with MTCA and other factors as follows:

- The frequency of petroleum compound detection and concentration;

- Their possible environmental fate;
- Their mobility and potential for exposure.

The remedial action cleanup levels for the Site were developed following procedures presented in WAC 173-340-700 through 760 ("Cleanup Standards") and by reviewing ARARs for the Site. Cleanup actions conducted under MTCA must comply with legally applicable state and federal requirements (WAC 173-340-710(1)). In addition, Ecology might determine that other requirements, criteria, or limitations are relevant and appropriate. The remedial action cleanup levels presented in this section have been derived from procedures, risk exposure assumptions, and land use scenarios consistent with MTCA.

The impacted groundwater occurs in a fill-alluvium unit adjacent to a tidally dominated reach of Chambers Creek. Groundwater beneath the Site discharges to the creek. Shallow groundwater in the vicinity of the Site is not used as a drinking water source. Because groundwater discharges to the creek, protection of surface water is a factor. There is no current or historical evidence that groundwater COCs are being discharged to Chambers Creek. However, surface water criteria should be considered when establishing cleanup goals, to ensure that possible future discharge to the creek does not pose an unacceptable risk to human health or the environment. Because this reach of Chambers Creek is tidally dominated, water in the reach is brackish to saltwater and marine surface water criteria are applicable.

Table 7-2 presents the applicable remedial action cleanup levels for COCs in Site groundwater. Both drinking water and surface marine water criteria are presented. The final remedial action cleanup level is generally the most stringent concentration obtained from the applicable criteria.

7.4 Points of Compliance

MTCA defines the point of compliance (POC) as the point or points where cleanup levels shall be attained. In the case of groundwater, the POC for drinking water-based cleanup levels is groundwater throughout the Site, vertically from the uppermost level of the saturated zone to the lowest depth that could be impacted by petroleum-related compounds from the Site. In addition, because the groundwater discharges into nearby surface water, concentrations of COCs must also meet the marine surface water criteria at the point of discharge.

The existing monitoring well network at the Site is not entirely adequate for POC monitoring because, based on initial sample results, the farthest downgradient monitoring well (MW01) contains COC concentrations in excess of the selected remedial action cleanup levels. An additional well will be installed between MW01 and Chambers Creek to more accurately characterize the extent of the COC impacted groundwater and act as a sentinel well for groundwater migration toward Chambers Creek. Groundwater sample results from the existing mid-field and downgradient wells, along with the new well, will have to meet the selected remedial action cleanup criteria for four consecutive quarterly sampling events in order to demonstrate remedial action completion.

8.0 Remedial Alternatives Development

The goal of remedial alternative development is to evaluate cleanup alternatives that will meet regulatory requirements and support final selection of a cleanup action for the Site. On the basis of the RAOs identified in Section 7.0, the proposed groundwater technologies must be protective of Chambers Creek. This section presents a screening of remedial technologies, identifies remedial alternatives, and evaluates them on the basis of the RAOs and applicable regulatory criteria.

8.1 General Response Actions

General response actions represent a group of actions or a broad category of responses that are designed to meet the RAOs and are the first step in the alternatives evaluation process. The general response actions for the Site address petroleum hydrocarbons in groundwater. Proposed actions might include treatment, volume reduction, reuse, recycling, containment, removal, disposal, or a combination of these technologies. In addition, institutional controls can be considered on a location-specific or sitewide basis to manage or prevent access to areas having chemical constituents at concentrations that exceed cleanup levels. A No Further Action response is provided as a baseline option for consideration and comparison.

The following general response actions were identified to address the cleanup of groundwater COCs at the Site:

- No Further Action;
- In-Situ Treatment;
- Containment;
- Collection and Removal;
- Treatment.

These general response actions are summarized in Table 8-1.

8.2 Screening of Remedial Technologies

Remedial technologies associated with the general response actions for the Site were screened based on guidance from EPA (U.S. EPA, 1999) to determine which remedial action technologies and process options are potentially feasible for impacted groundwater. The screening process was based on three criteria: effectiveness, implementability, and cost. Table 8-2 summarizes the screening results for groundwater.

Based on this screening the following technologies have been retained for alternative development and evaluation:

- No Action;
- Monitored Natural Attenuation;
- Enhanced Bioremediation.

Because the petroleum hydrocarbon source has been removed and residual groundwater impacts are relatively limited, remediation technologies have been prioritized based on cost-effectiveness. Petroleum compounds are typically highly biodegradable. Natural attenuation or accelerated in-situ bioremediation is most likely to be effective at the Site because there is no continuing TPH source to groundwater, and because there is now an enhanced natural source of oxygen to groundwater because surface pavement has been removed.

8.3 Development of Cleanup Action Alternatives

The two retained groundwater technologies were carried forward to a more detailed evaluation consistent with MTCA requirements for identifying and evaluating cleanup actions (WAC 173-340-360).

The two groundwater remedial alternatives that were developed and retained for further evaluation include monitored natural attenuation (Alternative 1) and accelerated in-situ bioremediation (Alternative 2). These two were retained because they most likely meet most or all of the RAOs identified for the Site. Table 8-3 summarizes the major design parameters of each alternative. The design parameters presented in Table 8-3 represent specific measures and/or actions designed to remove and/or clean up petroleum-related compounds in groundwater. These parameters also provide the basis from which cost and time-frame assumptions carried through the evaluation criteria in Section 9.0 were evaluated.

8.3.1 Groundwater Alternative 1: Monitored Natural Attenuation

Under this alternative, one additional monitoring well would be installed in the anticipated downgradient flow direction between MW-1 and Chambers Creek, and the four existing wells and one new well would be sampled quarterly to evaluate and confirm that degradation of petroleum constituents is occurring. The four downgradient wells would be analyzed for TPH, SVOCs, arsenic, and BTEX. The upgradient well would be analyzed for arsenic only. Water quality parameters monitored would include specific conductance, oxidation-reduction potential, pH, temperature, and dissolved oxygen. Monitoring would continue until four consecutive quarterly samples demonstrate concentrations of COCs that are below the remedial action cleanup levels identified for the Site.

8.3.2 Groundwater Alternative 2: Accelerated In-Situ Bioremediation

Under this alternative, in addition to the 4 monitoring wells installed as part of the interim action, one new well would be installed downgradient from MW-01 and monitoring would be conducted as described under Alternative 1. In addition, the oxygen content of groundwater would be enhanced by injecting oxygen release compound (ORC) into the subsurface. ORC is a mixture of compounds that, when mixed with water, releases oxygen. The increase of oxygen levels allows the indigenous petroleum-degrading bacteria to multiply, causing the petroleum concentrations to decrease.

Two injections of ORC would require the installation of approximately eight injection points near MW-1 during each injection event. The injection points would be perpendicular to groundwater flow and located on 20-foot centers.

Groundwater would be monitored before and after each injection event. In addition, the groundwater wells would be sampled once per quarter. During each sampling event, the four downgradient wells would be analyzed for TPH, SVOCs, arsenic, and BTEX. The upgradient well would be analyzed for arsenic only. Water quality parameters monitored would include specific conductance, oxidation-reduction potential, pH, temperature, and dissolved oxygen. Quarterly monitoring would be coordinated with pre- and post-ORC injection monitoring such that during the first year, six sampling events would be conducted (i.e., two pre-injection events, two post-injection events, and two 'routine' quarterly monitoring events).

9.0 Evaluation of Alternatives

This section provides a summary of relevant criteria for evaluation of potential cleanup alternatives. Each of the two alternatives described in Section 8 is formally evaluated and the alternative that best meets the evaluation criteria is identified.

9.1 Evaluation Criteria

In WAC 173-340-360, MTCA establishes criteria for the selection of cleanup actions. Threshold requirements include the following:

- Protectiveness of human health and the environment;
- Compliance with cleanup standards;
- Compliance with ARARs applicable to all remedial alternatives under consideration;
- Provision for compliance monitoring.

Other requirements for cleanup actions include the use of permanent solutions to the maximum extent practicable, provision for a reasonable restoration time frame, the use of MTCA-preferred technologies, and consideration of public concerns raised during public review of the draft cleanup action plan (WAC 173-340-360(3)(c)). In addition, Ecology's *Guidance on Remediation of Petroleum-Contaminated Ground Water by Natural Attenuation* (Publication No. 05-09-091) provides guidance for evaluating the feasibility and performance of remedies that include natural attenuation. Because both of the alternatives under evaluation include some level of natural attenuation, these criteria are also presented. The following subsections describe the criteria and summarize them for use in evaluating the two selected alternatives.

9.1.1 Criteria Regarding Maximum Use of Permanent Solutions

The use of permanent solutions to the maximum extent practicable is determined according to the following seven criteria:

- **Overall protectiveness of human health and the environment:** This criterion addresses the degree to which existing risks are reduced, the time required to reduce risk at the Site and meet cleanup criteria, onsite or offsite risks that might result from implementing the alternative, the degree to which the cleanup action might exceed cleanup standards, and the improvement of overall environmental quality;

- **Long-term effectiveness**: This criterion addresses the degree of certainty that the alternative will be successful, its long-term reliability, the magnitude of residual risk, and the effectiveness of controls required to manage treatment residues or remaining wastes;

- **Short-term effectiveness**: This criterion addresses the protection of human health and the environment during construction and implementation of the alternative, as well as

the degree of risk to human health and the environment prior to attainment of cleanup standards;

- **Permanent reduction in toxicity, mobility, and volume of hazardous substances**: This criterion addresses the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of the waste treatment process, and the characteristics and quantity of treatment residuals generated;
- **Ability to be implemented**: This criterion addresses the technical feasibility of the alternative; the availability of necessary offsite facilities, services, and materials; the administrative and regulatory requirements; scheduling; size; complexity; monitoring requirements; access for construction; operations and monitoring; and integration with existing Site operations and other current or potential remedial actions;
- **Cleanup costs:** This criterion addresses the cost of an alternative in light of the degree of protection it would provide. A cleanup action is not considered practicable if the incremental cost of the action is substantial and disproportionate to the incremental degree of protection it would achieve over a lower preference cleanup action. If two or more cleanup action alternatives have an equivalent technology preference, the lower cost alternative may be selected as the preferred alternative;
- **Degree to which community concerns are addressed**: This criterion addresses community concerns, which are aired during the public review and comment period specified in MTCA.

During evaluation of the cleanup action alternatives, all of the criteria for permanence were considered except the degree to which community concerns would be addressed. Community concerns will be addressed as part of the public participation process that includes public review and comment on the FS report and the cleanup action plan, in accordance with the requirements of WAC 173-340-600(6) and (13).

9.1.2 Criteria Regarding a Reasonable Restoration Time Frame

Factors that are typically considered in establishing a reasonable restoration time frame include the following (WAC 173-340-360):

- Potential risks posed by the Site to human health and the environment;
- Practicability of achieving a shorter restoration time frame;
- Current and potential future uses of the Site, surrounding areas, and associated resources that are or could be impacted by releases from the Site;
- Probable effectiveness and reliability of institutional controls;
- Ability to control and monitor migration of constituents of concern from the Site;
- Toxicity of the COCs at the Site;
- Natural processes that reduce concentrations of constituents of concern and have been documented to occur at the Site or under similar conditions.

Each of these factors for providing a reasonable restoration time frame was used in this FS during evaluation of the cleanup action alternatives.

9.1.3 Criteria Regarding the Use of MTCA-Preferred Technologies

MTCA specifies technology preferences for the cleanup of hazardous waste sites. These technologies are as follows, in order of preference (WAC 173-340-370):

- Reuse or recycling;
- Destruction or detoxification;
- Separation or volume reduction followed by reuse, recycling, destruction, or detoxification of the residual hazardous substance;
- Onsite or offsite disposal at an engineered facility designed to minimize the future release of hazardous substances and in accordance with ARARs;
- Consolidation with isolation or containment and attendant engineering controls;
- Institutional controls and monitoring.

MTCA generally seeks the use of higher preference technologies for site cleanup alternatives. Abitibi has already implemented offsite disposal of TPH-impacted soil that was found at the Site.

9.1.4 Criteria Regarding Monitored Natural Attenuation Evaluation

Ecology's *Guidance on Remediation of Petroleum-Contaminated Ground Water by Natural Attenuation* (Publication No. 05-09-091) provides guidance for evaluating the feasibility and performance of remedies that include natural attenuation. The guidance sets forth five additional factors that should be considered when evaluating the feasibility of natural attenuation alternatives. These factors are described here.

- **What is the status of the groundwater plume at the Site?** Natural attenuation may be appropriate at sites where, prior to relying solely on natural attenuation to achieve cleanup standards, the area of groundwater plume is demonstrated to be stable or shrinking, thereby shortening the restoration time frame and ensuring that the plume will not continue to migrate and potentially affect other media (surface water, sediments, or air) or receptors (human or ecological);
- **Is chemical or biological degradation a substantial mechanism of natural attenuation at the Site?** Natural attenuation may be appropriate at sites where there is evidence that the destructive mechanisms of natural attenuation (i.e., chemical or biological degradation) that reduce the COC's mass are occurring and are substantial contributors to COC reductions observed at the Site. Natural attenuation may not be appropriate at sites where natural attenuation relies primarily on dilution and dispersion to reduce COC concentration;
- **What is the estimated restoration time frame?** Natural attenuation may be appropriate at sites where the estimated restoration time frame is reasonable compared to that of

other more active cleanup action alternatives, as determined by considering the factors set forth in WAC 173-340-360(4);

- **Will the use of natural attenuation be protective of human health and the environment during the estimated restoration time frame?** Natural attenuation may be appropriate at sites where the use of natural attenuation will be protective of human health and the environment during the estimated restoration time frame, as determined by conducting appropriate quantitative or qualitative risk assessments and considering the threats posed to other media (surface water, sediments, or air) and receptors (human or ecological);
- **Has source control been conducted to the maximum extent practicable?** Natural attenuation may be appropriate at sites where, prior to relying solely on natural attenuation to achieve cleanup standards, source control is conducted to the maximum extent practicable, thereby shortening the restoration time frame and helping to ensure that the impacted groundwater will not continue to migrate and potentially impact other media (surface water, sediments, or air) or receptors (human or ecological).

All criteria regarding monitored natural attenuation were considered in the evaluation of Alternative 1, to the extent practicable given available data.

9.1.5 Criteria Used for the Site

Based on the foregoing discussions, the following criteria were used to evaluate cleanup alternatives for the Site:

- Protection of human health and the environment;
- Compliance with cleanup levels and ARARs;
- Provision for compliance monitoring;
- Long-term effectiveness;
- Short-term effectiveness;
- Reasonable restoration time frame;
- Permanent reduction in toxicity, mobility, and volume of hazardous substances;
- Ability to be implemented;
- Status of the groundwater plume at the Site;
- Mechanisms of natural attenuation at the Site;
- Source control efforts;
- Cleanup cost.

Each of the proposed groundwater cleanup alternatives is discussed below using the criteria listed above and taking into consideration the current Site features and the previous implementation of substantial remedial actions.

Where two or more alternatives are equal in benefit, the less costly alternative is given preference (see proposed amendments to MTCA [WAC 173-340-360(2)(c)]). Comparisons of benefits and costs are often qualitative as well as quantitative and may rely on best professional judgment. This FS compares groundwater cleanup alternatives with the benefit already achieved by previous actions. These comparisons are depicted for each alternative under the cleanup cost criteria.

9.2 MTCA Analysis of Groundwater Alternatives

9.2.1 Alternative 1: Monitored Natural Attenuation of TPH

Protection of human health and the environment: Alternative 1 is protective of human health and the environment because it relies on the protectiveness of previous remedial actions and evaluates potential future impacts to Chambers Creek through monitoring.

Compliance with cleanup levels and ARARs: Alternative 1 would likely comply with ARARs given that natural attenuation of the impacted groundwater will continue over time and monitoring will eventually demonstrate compliance.

Provision for compliance monitoring: Compliance monitoring is a key component of Alternative 1.

Long-term effectiveness: Previous removal actions have resulted in effective and long-term benefits to the Site. The long-term effectiveness of these actions will be measured by compliance monitoring that determines the rate of decrease in petroleum hydrocarbon concentrations occurring over time from natural attenuation processes.

Short-term effectiveness: As a result of implementing Alternative 1, no significant short-term changes in petroleum hydrocarbons concentrations or in the potential risk to human health and the environment would occur.

Reasonable restoration time frame: Because the source of TPH impacts to groundwater has now been removed, restoration should occur relatively quickly. As described in Section 5, degradation processes operating on petroleum compounds in groundwater are believed to include biodegradation by aerobic respiration. Site-specific degradation rates are not available but detected compounds are highly biodegradable and degradation rates should be rapid. If residual petroleum impacts in groundwater remain above CULs after two years of monitoring, alternative action should be considered.

Permanent reduction in toxicity, mobility, and volume of hazardous substances: Alternative 1 does not actively reduce the toxicity, mobility, or volume of petroleum hydrocarbons in groundwater beyond what has already been accomplished through previous removal actions. However, natural processes will continue to biodegrade residual petroleum hydrocarbons ultimately resulting in a reduction of toxicity and volume.

Ability to be implemented: Alternative 1 could be readily implemented because of an existing onsite monitoring well network, with the addition of one additional monitoring well.

Status of the groundwater plume at the Site: As described in Section 2, only one round of monitoring well data is available for the period following source removal. However, the impacted soil was believed to have been in place for 40 years or more, and available data indicate that petroleum-impacted groundwater has not reached Chambers Creek. The low concentrations of residual petroleum in groundwater and lack of impacts on the creek indicate that the groundwater plume is stable and likely to be shrinking now that the source has been removed.

Mechanisms of natural attenuation at the Site: Geochemical data collected at the Site include dissolved oxygen and oxidation-reduction potential. Dissolved oxygen is low, and ORP is negative. Both of these suggest that aerobic degradation of petroleum compounds is occurring. Because the asphalt pavement over the Site was removed during the soil removal action, additional dissolved oxygen from surface water infiltration is expected to accelerate natural degradation processes.

Source control efforts: Petroleum-impacted soil was removed from the Site in April and May 2006. As described in Section 4, minimal residual soil impacts remains at the Site.

Cleanup Cost. The cost to implement Alternative 1 is approximately $59,000, based on one year of monitoring. Major cost elements of this alternative are groundwater monitoring and associated maintenance of the monitoring system as well as reporting. Specific costing details for Alternative 1 are presented in Table 9-1.

9.2.2 Alternative 2: In-Situ Accelerated Bioremediation for TPH

Protection of human health and the environment: Alternative 2 is protective of human health and the environment because it will reduce petroleum hydrocarbon levels.

Compliance with cleanup levels and ARARs: Alternative 2 would likely comply with ARARs given that ORC injection will accelerate natural attenuation of the impacted groundwater that is already occurring at the Site. Groundwater monitoring will demonstrate compliance following implementation of the remedial action.

Provision for compliance monitoring: Compliance monitoring is a key component of Alternative 2.

Long-term effectiveness: ORC technology is an accepted and effective cleanup remedy. Alternative 2 would be only marginally more effective for the long term, compared with Alternative 1, in remediating the groundwater, because groundwater already contains dissolved oxygen and the addition of ORC might not significantly impact degradation rates.

This alternative would be effective in reducing the groundwater impacted with petroleum hydrocarbons that could potentially discharge to Chambers Creek. However, risks to the creek would not change significantly because the current risks to human health and aquatic organisms are low, and these risks would not be demonstrably different than if treatment were not implemented.

Short-term effectiveness: Short-term changes in petroleum concentrations might be observed following treatment with ORC; however, given the minimal risk to human health and the environment currently present at the Site, these changes would not significantly differ from those achieved with Alternative 1.

Reasonable restoration time frame: Because the source of TPH impacts to groundwater has now been removed, restoration should occur relatively quickly. As described in Section 5, degradation processes operating on petroleum compounds in groundwater are believed to include biodegradation by aerobic respiration. Site-specific degradation rates are not available but detected compounds are highly biodegradable and degradation rates should be rapid. If residual petroleum impacts in groundwater remain above CULs after two years

of monitoring, alternative action should be considered. The restoration time frame under Alternative 2 may be shorter than under Alternative 1. However, time to cleanup cannot be reliably calculated with available data. The presence of dissolved oxygen in groundwater at concentrations greater than 1 mg/L suggests that adding oxygen through ORC injection may not significantly enhance naturally occurring degradation rates.

Permanent reduction in toxicity, mobility, and volume of hazardous substances: Implementing Alternative 2 would likely decrease the toxicity, mobility, and volume of the petroleum-impacted groundwater by accelerating biodegradation. However, this would be a minimal change because previous remediation actions have removed a significant amount of petroleum mass.

Ability to be implemented: Alternative 2 can be easily implemented using standard drilling techniques. Injection permits would be required from the State of Washington.

Status of the groundwater plume at the Site: As described in Section 2, only one round of monitoring well data is available for the period following source removal. However, the contaminated soil was believed to have been in place for 40 years or more, and available data indicate that petroleum-impacted groundwater has not reached Chambers Creek. The low concentrations of residual groundwater impacts and lack of impacts on the creek indicate that the groundwater plume is stable and likely to be shrinking now that the source has been removed.

Mechanisms of natural attenuation at the Site: Geochemical data collected at the Site include dissolved oxygen and oxidation-reduction potential. Dissolved oxygen is low, but not sufficiently low that the additions of ORC would be likely to increase degradation rates. All DO levels were greater than 1 mg/L. However, ORP values were negative in several cases, which is indicative of reducing conditions reflecting the biological activity which is believed to be occurring at the site. Both of these suggest that aerobic degradation of petroleum compounds is occurring. Because the asphalt pavement over the Site was removed during the soil remedial action, additional dissolved oxygen from surface infiltration is expected to accelerate natural degradation processes.

Source control efforts: Petroleum-impacted soil was removed from the Site in April and May 2006. As described in Section 4, minimal residual soil impacts remains at the Site.

Cleanup Cost. The cost to implement Alternative 2 is approximately $98,500 over a one-year period. Specific costing details are provided in Table 9-2.

9.2.3 Groundwater Comparison Summary

The key summary points in the comparison of the two groundwater alternatives are the following:

- Both alternatives are equally protective of human health and the environment over the long term. Alternative 2 might result in faster cleanup, but it is not clear given current data whether the addition of ORC would result in appreciable acceleration of the biodegradation that is already taking place;

- Both alternatives would reduce concentrations of petroleum-related compounds based on naturally occurring biodegradation or enhanced natural biodegradation processes of residual petroleum impacts;
- The costs associated with Alternative 2 are higher than Alternative 1 because of the additional cost of purchasing and injecting the ORC, and the additional monitoring required to assess ORC injection effectiveness. The benefit of conducting this injection process is uncertain.

Table 9-3 provides a summary of the alternatives evaluated.

9.3 Selected Alternative

Alternative 1 has been selected as the remedial alternative at the Site based on the evaluation of the two alternatives. Alternative 1 is protective of human health and the environment, and previous remedial actions have removed the majority of the mass in the impacted area, so the resulting reduction in risk from additional treatment is not warranted. In addition, the cost of implementing Alternative 2, 25 percent higher than the cost of Alternative 1, is disproportionate to the reduction in risk achieved by implementing the alternative.

10.0 References

Averill, D., D. Myers, and W. Graeber. 2005. *Regional Nearshore and Marine Aspects of Salmon Recovery in Puget Sound*. Compiled and edited by S. Redman, D. Myers, and D. Averill. Puget Sound Action Team. From contributions by the editors and K. Fresh and W. Graeber, NOAA fisheries.

Barrick, R., S. Becker, R. Pastorok, L. Brown, and H. Beller. 1988. Sediment quality values refinement. 1988 update evaluation of Puget Sound AET. U.S. Environmental Protection Agency, Seattle, Washington.

Brown and Caldwell. 1985. Clover/Chambers Creek Geohydrologic Study. Prepared for Tacoma-Pierce County Health Department. Variously paged.

CH2M HILL. 1996. *Sediment Study Report, NPDES Permit Compliance, West Tacoma Mill, Steilacoom, Washington. Order No DE-92WQI048.* Prepared for Stone Consolidated. August 1996.

CH2M HILL. 2005a. *Final Phase II Environmental Site Assessment, Abitibi West Tacoma Mill Steilacoom, Washington*. May 2005.

CH2M HILL. 2005b. *Final Phase II Environmental Site Assessment, Abitibi West Tacoma Mill Steilacoom, Washington*. July 2005.

CH2M HILL, 2005c. *West Tacoma Mill Supplemental Field Investigation, May 2005, Groundwater and Soil Sample Results*.

CH2M HILL, 2006a. *West Tacoma Mill In-Place Characterization Sampling, February 2006, Soil Sample Results*.

Ecology. 1993. *Technical Information Memorandum, Organic Carbon Normalization of Sediment Data.* Prepared by Teresa C. Michelsen and Kathy Bragdon-Cook. Washington State Department of Ecology, Olympia, Washington.

Ecology. 1994. Natural background concentrations in the Puget Sound area. Washington State Department of Ecology, Olympia, Washington.

Ecology. 1996. *Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARC II) Update.* Publication No. 94-145. Washington State Department of Ecology, Olympia, Washington. Updated 1996.

Ecology. 2001. Worksheet for Calculating Soil TPH CULs. Washington State Department of Ecology, Olympia, Washington.

Ecology. 2005. *Guidance on Remediation of Petroleum-Contaminated Ground Water by Natural Attenuation*. Publication No. 05-09-091. Washington State Department of Ecology, Olympia, Washington.

PCPWU. 1994. Chambers-Clover Creek Watershed Management Committee, Preliminary Draft Watershed Characterization. Water Resources Division, Pierce County Public Works and Utilities, Tacoma, Washington.

Troost, K.G., and D.B. Booth, D.B. In review. Geologic map of the Steilacoom 7.5-minute quadrangle, Washington. U.S. Geological Survey Miscellaneous Field Investigation, scale 1:24,000.

U.S. EPA. 1999. *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*. Directive 9200.4-17P, Final Draft. Office of Solid Waste and Emergency Response (OSWER), Washington, D.C.

Walters, K.L., and G.E. Kimmel. 1968. Ground-water occurrence and stratigraphy of unconsolidated deposits, central Pierce County, Washington. Washington Department of Water Resources Water-Supply Bulletin 22. 428 pp., 3 plates.

Tables and Figures

Table 1-1
Site Ownership and Operations History
Abitibi West Tacoma Mill, RI/FS Report, Steilacoom, Washington

Date	Event
1919	West Tacoma Mill begins producing paper pulp from rags and waste paper
1946	Consortium of newspaper publishers purchased the facility and began making newsprint out of whole logs
1969	Mill acquired by Boise Cascade Corporation
1975	Thermomechanical Pulp mill was constructed
1993	Recycling Plant was constructed
1994	Boise Cascade combined newsprint and other assets into a company called Rainy River Forest Products
1995	Rainy River Forest Products merged with Stone-Consolidated Corporation
1997	Stone-Consolidated and Abitibi-Price Sales merged to form Abitibi Consolidated Sales Corporation
1998	Nonintegrated pulp was phased out of production process
2000	Mill was permanently shut down
2001	Waste water treatment plant was permanently shut down
2001	Waste water lagoon was emptied
2001	A relief of monitoring and classification was granted to the Mill

Table 1-2
Site Investigation History
Abitibi West Tacoma Mill, RI/FS Report, Steilacoom, WA

Date	Event
2001	Phase I Environmental Site Assessment (ESA)
February - May 2005	Phase II ESA
May – July 2005	West Tacoma Mill Supplemental Field Investigation
February – March 2006	West Tacoma Mill In-place Characterization Sampling
April – May 2006	Removal of petroleum-affected soil, confirmation sampling, and site restoration
August – September 2006	Installation and initial sampling of four permanent monitoring wells in the vicinity of the former excavation
November 29, 2006	Effective Date of Agreed Order No. DE 3154

Table 2-1
Sampling and Analytical Summary, Phase II ESA
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Sample ID	Location	Medium	SVOCs by EPA 8270C	Metals by EPA 6010/7000	Copper, Lead, Arsenic by EPA 6010/7000	TPH-Diesel by NWTPH-HCID	TPH-HCIDa by NWTPH-HCID	VPH by WA-VPH	EPH by GC-EPH	Dioxins by EPA 8290	Additional Chemistryb	PCBs by EPA 8082
Area A: Main Plant												
Sub-Area A1: Machine, Maintenance, and Process Buildings												
MP1	Temporary well	Water	X	X			X					
MP2	Temporary well	Water	X	X			X		X			
MP3	Temporary well	Water	X	X			X		X			
MP4	Temporary well	Water	X	X			X	X				
MP4 DUP	Temporary well	Water	X	X			X	X				
MP5	Temporary well	Water	X	X			X					
MP6	Temporary well	Water	X	X			X					
MP7	Temporary well	Water	X	X			X					
MP8	Surface	Soil					X		X			
Sub-Area A2: TPU Substation												
US2	Surface	Soil										X
US4	Surface	Soil										X
US2 DUP	Surface	Soil										X
Sub-Area A3: Truck Scale Area												
TS1	Subsurface	Soil				X						
TS2	Subsurface	Soil				X						
Sub-Area A4: Railroad Tracks and Loading Area												
RR-1	Subsurface	Soil	X	X			X					
RR-2	Subsurface	Soil	X	X			X		X			
RR-3	Subsurface	Soil	X	X			X		X			
RR-4	Subsurface	Soil	X	X			X		X			
Sub-Area A5: Stock Preparation Area												
SP1	Surface	Soil	X	X			X		X			
SP2	Surface	Soil	X	X			X	X	X			
SP3	Surface	Soil	X	X			X	X	X			
SP3 DUP	Surface	Soil	X	X			X	X	X			

Table 2-1
Sampling and Analytical Summary, Phase II ESA
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Sample ID	Location	Medium	SVOCs by EPA 8270C	Metals by EPA 6010/7000	Copper, Lead, Arsenic by EPA 6010/7000	TPH-Diesel by NWTPH-HCID	TPH-HCIDa by NWTPH-HCID	VPH by WA-VPH	EPH by GC-EPH	Dioxins by EPA 8290	Additional Chemistryb	PCBs by EPA 8082
Area B: Outfall 001												
OU1	Sediment	Soil	X	X			X				X	X
OU2[c]	Sediment	Soil										
OU3[c]	Sediment	Soil										
OU1 DUP	Sediment	Soil	X	X			X				X	X
Area C: Aeration Stabilization Basin												
LB1	Near-surface	Soil	X	X			X			X		
LB2	Near-surface	Soil	X	X			X			X		
LB3	Near-surface	Soil	X	X			X			X		
LB4	Near-surface	Soil	X	X			X			X		
LB5	Near-surface	Soil	X	X			X			X		
LB6	Near-surface	Soil	X	X			X			X		
LB7	Near-surface	Soil	X	X			X			X		
LB9	Near-surface	Soil	X	X			X			X		
LB10	Near-surface	Soil	X	X			X			X		
LB11	Near-surface	Soil	X	X			X			X		
LB12	Near-surface	Soil	X	X			X			X		
LB12 DUP	Near-surface	Soil	X	X			X			X		
LBCOMP	Near-surface	Soil	X	X			X		X			X
LBSP1	Seep	Water	X	X			X					
LBSP2	Seep	Water	X	X			X					
LBSP3	Seep	Water	X	X			X					
Area D: Potential Mining Process Solids Area												
MP11	Surface	Soil			X							
MP12	Surface	Soil			X							
MP13	Surface	Soil			X							
MP14	Surface	Soil			X							

Table 2-1

Sampling and Analytical Summary, Phase II ESA

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Sample ID	Location	Medium	SVOCs by EPA 8270C	Metals by EPA 6010/7000	Copper, Lead, Arsenic by EPA 6010/7000	TPH-Diesel by NWTPH-HCID	TPH-HCIDa by NWTPH-HCID	VPH by WA-VPH	EPH by GC-EPH	Dioxins by EPA 8290	Additional Chemistryb	PCBs by EPA 8082

[a]Samples identified for TPH-HCID screen were followed by quantification using EPH or VPH based on the screen results.

[b]Additional chemistry includes sulfides, total organic carbon, total solids, total petroleum hydrocarbons, and grain size.

[c]Samples OU2 and OU3 were held frozen for possible future analyses.

EPH = extractable petroleum hydrocarbons

HCID = hydrocarbon identification

PCB = polychlorinated biphenyls

SVOC = semivolatile organic compounds

TPH = total petroleum hydrocarbons

TPU = Tacoma Public Utilities

VPH = volatile petroleum hydrocarbons

Table 2-2
Groundwater and Soil Samples and Analytical Summary, Supplemental Investigation
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Sample ID	Date	NWTPH-Gx	VPH by WAVPH	NWTPH-Dx	TPH-HCID	Arsenic by EPA 1311/200.8 6010B/7471A
Groundwater						
DP1	5/25/2005	x	x			
DP1 (DUP)	5/25/2005		x			x
DP2	5/25/2005	x	x			
DP2 (DUP)	5/25/2005		x			
DP3	5/25/2005	x	x			
DP4	5/25/2005	x	x			
DP5	5/25/2005	x	x			
DP6	5/25/2005		x			
DP7	5/25/2005		x			x
DP8	5/26/2005		x			
DP9	5/26/2005		x			
DP10	5/26/2005		x			x
DP11	5/26/2005		x			x
DP12	5/25/2005	x	x			
DP13	5/26/2005		x			
DP14	5/26/2005		x			
DP15	5/26/2005		x			
DP16	5/26/2005		x			
DP17	5/26/2005		x			
DP18	5/26/2005		x			
DP19	5/26/2005		x			
Soil						
DP13-S	5/26/2005	x		x	x	x
DP16-S	5/26/2005	x		x	x	x

Notes:
NWTPH-Gx and VPH analyses both include analysis for BTEX.
Samples that were analyzed for NWTPH-Gx were followed by VPH analysis where noted.

BTEX = benzene, toluene, ethylbenzene, and xylenes
DUP = field duplicate
NWTPH-Gx = Northwest total petroleum hydrocarbons - gasoline range
TPH = total petroleum hydrocarbons
VPH = volatile petroleum hydrocarbons

Table 2-3
Sampling and Analytical Summary, In-Place Characterization Sampling Program
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

					Analytical Methods							
Sample ID	Sample Date	Matrix	Sample Type	Sample Purpose	8082 PCB	TOC	SW7471/6010 Metals	SW8270 SVOC	SW8260 VOC	TPH[a]	NWVPH	NWEPH
ECS-13-2-3	22-Feb-06	Soil	N	Extent						X		
ECS-13-3-4	22-Feb-06	Soil	N	Extent						X		
ECS-14-2-3	22-Feb-06	Soil	N	Extent						X		
ECS-14-3-4	22-Feb-06	Soil	N	Extent						X		X
ECS-15-2-3	22-Feb-06	Soil	N	Extent						X		
ECS-15-3.5-4.5	22-Feb-06	Soil	N	Extent						X		
ECS-16-2-3	22-Feb-06	Soil	N	Extent						X		
ECS-16-4-5	22-Feb-06	Soil	N	Extent						X		
ECS-12-2-3	23-Feb-06	Soil	N	Extent						X		
ECS-12-3.5-4.5	23-Feb-06	Soil	N	Extent						X		
ECS-19-2-3	23-Feb-06	Soil	N	Extent						X		X
ECS-19-3.5-4.5	23-Feb-06	Soil	N	Extent						X		
ECS-20-2-3	23-Feb-06	Soil	N	Extent						X		
ECS-20-3.5-4.5	23-Feb-06	Soil	N	Extent						X		
WCS-03-1-4.5	23-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
ECS-02-4-5	22-Feb-06	Soil	N	Extent						X		
ECS-17-2-3	22-Feb-06	Soil	N	Extent						X		
ECS-17-3.5-4.5	22-Feb-06	Soil	N	Extent						X		X
ECS-18-1.5-2.5	22-Feb-06	Soil	N	Extent						X	X	
ECS-18-3.5-4.5	22-Feb-06	Soil	N	Extent						X		
ECS-9-3-4	22-Feb-06	Soil	N	Extent						X		
WCS-01-1-4	22-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
WCS-02-1-3	22-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
WCS-9-1-3	22-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
ECS-11-2-3	23-Feb-06	Soil	N	Extent						X	X	
ECS-11-3.5-4.5	23-Feb-06	Soil	N	Extent						X		
ECS-21-1-4.5	23-Feb-06	Soil	N	Extent						X		
ECS-30-2-3	23-Feb-06	Soil	N	Extent						X		
ECS-31-2-3	23-Feb-06	Soil	N	Extent						X		
WCS-04-2-3	23-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
WCS-05-1-4.5	23-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
WCS-10-1-4.5	23-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		

Table 2-3
Sampling and Analytical Summary, In-Place Characterization Sampling Program
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

					Analytical Methods							
Sample ID	**Sample Date**	**Matrix**	**Sample Type**	**Sample Purpose**	**8082 PCB**	**TOC**	**SW7471/6010 Metals**	**SW8270 SVOC**	**SW8260 VOC**	**TPH[a]**	**NWVPH**	**NWEPH**
WCS-6-1-4.5	23-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
WCS-7-1-4.5	23-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		
WCS-8-1-4.5	23-Feb-06	Soil	N	Waste char.	X	X	X	X	X	X		

Notes:

[a] If a specific product was detectable and identifiable using NWTPH-HCID, subsequent analyses were by NWTPH-Gx and/or NWTPH-Dx. If a petroleum product was detected, but identification was not possible via the NWTPH-HCID chromatogram, subsequent analyses were by VPH and/or EPH methodologies.
BTEX = benzene, toluene, ethylbenzene, and xylenes
EPH = extractable petroleum hydrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons; includes Methods NWTPHG, NWTPH-HCID, and NWTPHD
VOC = volatile organic hydrocarbons
VPH = volatile petroleum hydrocarbons

N = normal environmental sample
FD = field duplicate sample

Table 2-4
Field Observations, Confirmatory Sampling Program
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Location ID	Date	Time	Depth	Comp	Grab	PID	Comments
ACSI-SWS-2	5/1/2006	1030	2, 4	X		0.0	
ACSI-SWS-3	4/28/2006	845	2, 4	X		0.6	gravelly silt and fine sand, moist, slight odor
ACSI-SWS-4	4/25/2006	1500	2, 4	X		0.0	slightly moist, no odor
ACSI-SWS-5	4/28/2006	1125	2, 4	X		0.3	gravelly sand, moist, no odor
ACSI-SWS-6	5/1/2006	1015	2, 4	X		0.0	loose, moist
ACSI-SWS-7	5/1/2006	1025	2, 4	X		15.7	Top sandy gravel, no odor, bottom silt, odor
ACSI-SWS-72	5/4/2006	1130	2, 4	X		11.0	Confirmation sample after excavation of 5x5x2 deep area at SWS-7, analyses for TPH-g and BTEX only; top sample no odor, bottom sample odor, GM
ACSI-SWS-8	5/3/2006	1220	2, 4	X		0.9	hard, moist
ACSI-SWS-9	5/3/2006	1415	2, 4	X		52.6	hard, moist
ACSI-SWS-10	5/3/2006	750	2, 4	X		0.0	hard, moist
ACSI-SWS-11	5/3/2006	730	7		X	0.0	
ACSI-SWS-12	5/3/2006	915	2, 4	X		0.7	hard, laminated, slight odor
ACSI-SWS-13	5/4/2006	1110	7.5		X	49.5	Strong odor, silt matrix gravel, dry
ACSI-SWS-14	5/5/2006	1330	4		X	0.0	hard, friable
ACSI-SWS-142	5/5/2006	1335					Field dupe of SWS-14
ACSI-SWS-15	5/5/2006	1315	4		X	0.0	hard, dry w/sand
ACSI-SWS-16	5/11/2006	1300	2,4	X		0.0	sandy, silty, gravel
ACSI-SWS-17	5/12/2006	930	2,4	X		0.0	
ACSI-SWS-18	5/12/2006	1130	2,4	X		0.0	
ACSI-SWS-19	5/12/2006	1500	1,3	X		0.0	
ACSI-SWS-20	5/12/2006	1510	4,5	X		0.0	
ACSI-SWS-21	5/12/2006	1525	2,2.3		X	0.0	
ACSI-SWS-22	5/15/2006	1530	1,2	X		0.0	
ACSI-SWS-222	5/15/2006	1535					Field dupe of SWS-22
ACSI-SWS-23	5/15/2006	1545	1,2	X		0.0	
ACSI-SWS-24	5/16/2006	1045	3,4.5	X		3.0	
ACSI-SWS-25	5/16/2006	1250	1.8		X	0.3	Test Pit 051606-1
ACSI-SWS-26	5/16/2006	1310	4,4.8	X		0.0	Test Pit 051606-1
ACSI-SWS-27	5/16/2006	1445	1.5,2.0	X		0.5	Test Pit 051606-2
ACSI-SWS-28	5/16/2006	1450	4,5	X		0.7	Test Pit 051606-2
ACSI-SWS-29	5/17/2006	1410	4.5		X	0.0	TPH-G only
ACSI-US	4/28/2006	1550	7		X	0.0	sample from beneath slab of concrete structure, south end, no odor
ACSI-VS	4/27/2006	1500	7		X	50.0	sample from beneath slab of concrete structure, north end

Table 2-4
Field Observations, Confirmatory Sampling Program
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Location ID	Date	Time	Depth	Comp	Grab	PID	Comments
ACSI-BDS-1	4/25/2006	1523	4		X	0.0	from SW corner excavation, slightly moist
ACSI-BDS-2	4/25/2006	1555	4		X	0.0	from SE corner excavation, slightly moist
ACSI-BDS-3	4/28/2006	1200	4.5		X		hard, dry
ACSI-BDS-4	4/27/2006	1353	10		X	0.0	silt with organics, mud flat deposits
ACSI-BDS-5	4/28/2006	1310	8,9		X	0.0	silt with organics, mud flat deposits
ACSI-BDS-205	4/28/2006	1315					Field dupe of BDS-5
ACSI-BDS-6	4/28/2006	1300	8,9		X	0.0	silt with organics, mud flat deposits
ACSI-BDS-7	5/1/2006	1125	4		X	0.0	moist
ACSI-BDS-8	5/1/2006	1135	4		X	0.0	stiff, moist
ACSI-BDS-9	5/1/2006	1140	4.5		X	9.0	slightly moist, no odor
ACSI-BDS-10	5/1/2006	1145	4.5		X		slightly moist, no odor
ACSI-BDS-11	5/1/2006	1210	4		X	11.8	firm moist, mild odor
ACSI-BDS-12	5/1/2006	1215	4		X		firm moist, mild odor
ACSI-BDS-13	5/2/2006	1015	10		X	0.0	firm laminated silt, liquifies upon mixing, very high water content
ACSI-BDS-14	5/2/2006	1030	10		X	0.0	firm laminated silt, liquifies upon mixing, very high water content
ACSI-BDS-15	5/3/2006	800	10		X	27.8	loose, wet
ACSI-BDS-16	5/2/2006	1335	10		X	1.4	grvly sand, wet
ACSI-BDS-17	5/5/2006	1430	9		X	0.0	wet, below WT
ACSI-BDS-18	5/11/2006	1230	8		X	0.0	
ACSI-BDS-19	5/12/2006	1230	4		X	0.0	
ACSI-BDS-20	5/12/2006	1450	8		X	0.4	Strong odor
ACSI-BDS-21	5/15/2006	1110	6		X	0.0	
ACSI-BDS-22	5/15/2006	1145	10		X	0.0	
ACSI-BDS-23	5/15/2006	1310	8,9		X	0.0	
ACSI-BDS-24	5/16/2006	1330	8		X	0.3	Test Pit 051606-1
ACSI-BDS-25	5/16/2006	1510	8		X	0.8	
ACSI-ECS-22	4/26/2006	810	2, 4	X		0 - 10	ballast, ag base materials, GM
ACSI-ECS-23	4/26/2006	753	2, 4	X		0 - 10	ballast, ag base materials, GM
ACSI-ECS-24	4/26/2006	833	2, 4	X		0 - 10	ballast, ag base materials, GM
ACSI-HPGL-16	5/8/2006	1430	3		X	112.0	TPH-d, TPH-g/BTEX only, sidewall sample of backfill material from under portion of high pressure gas line trending N/S along east side of excavation, south of SWS-14
ACSI-PVSND-17	5/8/2006	1445	1.5		X	88.3	TPH-d, TPH-g/BTEX only, sidewall sample of sand structural backfill material underlying ag base under asphalt pavement, east of SWS-15, moist, vitreous sheen, strong TPH odor

Table 2-4
Field Observations, Confirmatory Sampling Program
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Location ID	Date	Time	Depth	Comp	Grab	PID	Comments
ACSI-ELBF-18	5/8/2006	1500	2.5		X	113.0	TPH-d, TPH-g/BTEX only, sidewall sample of backfill material from under portion of electrical utility trench trending N/S along east side of excavation, 2 feet south of south end of electrical vault, north of SWS-15, NE of SWS-3, strong odor, wood chunks
ACSI-ELBF-20	5/9/2006	1430					
ACSI-ELBF-21	5/9/2006	1530					
ACSI-PVSND-19	5/8/2006	1510	1.5		X	26.5	TPH-d, TPH-g/BTEX only, sidewall sample of sand structural backfill material underlying ag base under asphalt pavement, 10 ft norht of electrical utility vault, moist, vitreous sheen, strong TPH odor
ACSI-TB	4/25/2006	PM					
ACSI-TB2	4/26/2006	AM					
TB-050106	5/1/2006	1300					Trip blank
TB-050306	5/3/2006	1245					Trip blank
TB-050406	5/4/2006	1200					Trip blank
TB-050506	5/5/2006	1445					Trip blank
TB-050906	5/9/2006	1600					Trip blank
TB-051106	5/11/2006	PM					Trip blank
TB-051206	5/12/2006	AM					Trip blank
TB-051206-2	5/12/2006	PM					Trip blank
TB-0515	5/15/2006	PM					Trip blank
TB-051506-2	5/15/2006	PM					Trip blank
TB-051606	5/16/2006	PM					Trip blank

Table 2-5
Monitoring Well Completion Information
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Well	Ground Elev. (ft NAVD)	Measuring Point Elev. (ft NAVD)	Materials	Screened Interval (ft bgs)	Total Depth (ft bgs)	Surface Completion
MW-1	16.78	16.24	2-in sch. 40 PVC, 0.010 slot screen	7 - 17	17	Flush-mount vault
MW-2	17.23	17.02	2-in sch. 40 PVC, 0.010 slot screen	7 - 17	17	Flush-mount vault
MW-3	17.24	16.87	2-in sch. 40 PVC, 0.010 slot screen	7 - 17	17	Flush-mount vault
MW-4	18.08	17.37	2-in sch. 40 PVC, 0.010 slot screen	7 - 17	17	Flush-mount vault

bgs - below ground surface
ft - feet
NAVD - North American vertical datum (1988)

Table 2-6
Water Quality Parameters and Well Purge Information - August/September 2006
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Well	Purge Volume (gal)	pH	Conductivity (mS/cm)	DO (mg/L)	Temp. (C)	ORP (mV)
MW-1	2.3	6.71	1.332	1.32	15.78	-98
MW-2	2.1	6.67	0.681	1.27	20.83	-82.2
MW-3	2.1	6.64	0.628	1.33	19.31	-93.3
MW-4	3.4	6.57	0.756	1.21	19.64	-98.2

DO - dissolved oxygen
gal - gallons
mS/cm - miliSiemens per centimeter
mg/L - milligrams per liter
C - degrees celcius
Temp - temperature
ORP - oxygen reduction potential

Table 2-7
Samples Used in RI/FS Evaluation
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Investigation	Location	Sample No.	QAQC Type	Sampled	Matrix
Phase II ESA	Railroad Track	RR1	N	3/3/2005	Soil
	Railroad Track	RR2	N	3/3/2005	Soil
	Railroad Track	RR3	N	3/3/2005	Soil
	Railroad Track	RR4	N	3/3/2005	Soil
	Stock Prep Area	SP1	N	3/3/2005	Soil
	Stock Prep Area	SP2	N	3/3/2005	Soil
	Stock Prep Area	SP3	N	3/3/2005	Soil
	Stock Prep Area	SP3DUP	FD	3/3/2005	Soil
	Truck Scales Area	TS1	N	3/3/2005	Soil
	Truck Scales Area	TS2	N	3/3/2005	Soil
	Substation	US2	N	3/2/2005	Soil
	Substation	US2DUP	FD	3/2/2005	Soil
	Substation	US4	N	3/2/2005	Soil
	Main Plant Area Groundwater	MP1	N	3/3/2005	Water
	Main Plant Area Groundwater	MP2	N	3/3/2005	Water
	Shipping Area	MP3	N	3/3/2005	Water
	Shipping Area	MP4	N	3/3/2005	Water
	Shipping Area	MP4DUP	FD	3/3/2005	Water
	Main Plant Area Groundwater	MP5	N	3/2/2005	Water
	Main Plant Area Groundwater	MP6	N	3/2/2005	Water
	Main Plant Area Groundwater	MP7	N	3/2/2005	Water
	Shipping Area	MP8	N	3/1/2005	Soil
	Aeration Stabilization Basin	LB1	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB10	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB11	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB12	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB12DUP	FD	2/28/2005	Soil
	Aeration Stabilization Basin	LB2	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB3	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB4	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB5	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB6	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB7	N	2/28/2005	Soil
	Aeration Stabilization Basin	LB9	N	2/28/2005	Soil
	Aeration Stabilization Basin	LBCOMP	N	3/1/2005	Soil
	Aeration Stabilization Basin	LBCOMP	N	3/3/2005	Soil
	Aeration Stabilization Basin	LBCOMP	N	3/1/2005	Soil
	Aeration Stabilization Basin Seep	LBSP1	N	3/4/2005	Water
	Aeration Stabilization Basin Seep	LBSP2	N	3/4/2005	Water
	Aeration Stabilization Basin Seep	LBSP3	N	3/4/2005	Water
	Potential Mining Process Solids Area	MP11	N	3/1/2005	Soil
	Potential Mining Process Solids Area	MP12	N	3/1/2005	Soil
	Potential Mining Process Solids Area	MP13	N	3/1/2005	Soil
	Potential Mining Process Solids Area	MP14	N	3/1/2005	Soil
Supplemental Field Inv.	Shipping Area	DP1	N	5/25/2005	Water
	Shipping Area	DP11	N	5/25/2005	Water
	Shipping Area	DP12	N	5/25/2005	Water
	Shipping Area	DP13	N	5/25/2005	Water
	Shipping Area	DP13-S	N	5/25/2005	Soil
	Shipping Area	DP14	N	5/25/2005	Water
	Shipping Area	DP2	N	5/25/2005	Water
	Shipping Area	DP3	N	5/25/2005	Water
	Shipping Area	DP4	N	5/25/2005	Water
	Shipping Area	DP5	N	5/25/2005	Water
	Shipping Area	DP6	N	5/25/2005	Water
	Shipping Area	DP7	N	5/25/2005	Water
	Shipping Area	DP-DUP1	FD	5/25/2005	Water
	Shipping Area	DP-DUP2	FD	5/25/2005	Water
	Shipping Area	DP10	N	5/26/2005	Water
	Shipping Area	DP15	N	5/26/2005	Water
	Shipping Area	DP16	N	5/26/2005	Water
	Shipping Area	DP16-S	N	5/26/2005	Soil
	Shipping Area	DP17	N	5/26/2005	Water
	Shipping Area	DP18	N	5/26/2005	Water

Table 2-7
Samples Used in RI/FS Evaluation
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Investigation	Location	Sample No.	QAQC Type	Sampled	Matrix
	Shipping Area	DP19	N	5/26/2005	Water
	Shipping Area	DP8	N	5/26/2005	Water
	Shipping Area	DP9	N	5/26/2005	Water
In-Place Characterization	Shipping Area	ECS-02-4-5	N	2/22/2006	Soil
	Shipping Area	ECS-13-2-3	N	2/22/2006	Soil
	Shipping Area	ECS-13-3-4	N	2/22/2006	Soil
	Shipping Area	ECS-14-2-3	N	2/22/2006	Soil
	Shipping Area	ECS-14-3-4	N	2/22/2006	Soil
	Shipping Area	ECS-15-2-3	N	2/22/2006	Soil
	Shipping Area	ECS-15-3.5-4.5	N	2/22/2006	Soil
	Shipping Area	ECS-16-2-3	N	2/22/2006	Soil
	Shipping Area	ECS-16-4-5	N	2/22/2006	Soil
	Shipping Area	ECS-17-2-3	N	2/22/2006	Soil
	Shipping Area	ECS-17-3.5-4.5	N	2/22/2006	Soil
	Shipping Area	ECS-18-1.5-2.5	N	2/22/2006	Soil
	Shipping Area	ECS-18-3.5-4.5	N	2/22/2006	Soil
	Shipping Area	ECS-9-3-4	N	2/22/2006	Soil
	Shipping Area	WCS-01-1-4	N	2/22/2006	Soil
	Shipping Area	WCS-01-1-4	N	2/22/2006	Soil
	Shipping Area	WCS-02-1-3	N	2/22/2006	Soil
	Shipping Area	WCS-02-1-3	N	2/22/2006	Soil
	Shipping Area	WCS-9-1-3	N	2/22/2006	Soil
	Shipping Area	WCS-9-1-3	N	2/22/2006	Soil
	Shipping Area	ECS-11-2-3	N	2/23/2006	Soil
	Shipping Area	ECS-11-3.5-4.5	N	2/23/2006	Soil
	Shipping Area	ECS-12-2-3	N	2/23/2006	Soil
	Shipping Area	ECS-12-3.5-4.5	N	2/23/2006	Soil
	Shipping Area	ECS-19-2-3	N	2/23/2006	Soil
	Shipping Area	ECS-19-3.5-4.5	N	2/23/2006	Soil
	Shipping Area	ECS-20-2-3	N	2/23/2006	Soil
	Shipping Area	ECS-20-3.5-4.5	N	2/23/2006	Soil
	Shipping Area	ECS-21-1-4.5	N	2/23/2006	Soil
	Shipping Area	ECS-30-2-3	N	2/23/2006	Soil
	Shipping Area	ECS-31-2-3	N	2/23/2006	Soil
	Shipping Area	WCS-03-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-03-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-04-2-3	N	2/23/2006	Soil
	Shipping Area	WCS-04-2-3	N	2/23/2006	Soil
	Shipping Area	WCS-05-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-05-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-10-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-10-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-6-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-6-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-7-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-7-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-8-1-4.5	N	2/23/2006	Soil
	Shipping Area	WCS-8-1-4.5	N	2/23/2006	Soil
Excavation	Shipping Area	BDS-01	N	4/25/2006	Soil
	Shipping Area	BDS-02	N	4/25/2006	Soil
	Shipping Area	SWS-04	N	4/25/2006	Soil
	Shipping Area	ECS-22	N	4/26/2006	Soil
	Shipping Area	ECS-23	N	4/26/2006	Soil
	Shipping Area	ECS-24	N	4/26/2006	Soil
	Shipping Area	BDS-04	N	4/27/2006	Soil
	Shipping Area	VS	N	4/27/2006	Soil
	Shipping Area	BDS-03	N	4/28/2006	Soil
	Shipping Area	BDS-05	N	4/28/2006	Soil
	Shipping Area	BDS-06	N	4/28/2006	Soil
	Shipping Area	BDS-205	FD	4/28/2006	Soil
	Shipping Area	SWS-03	N	4/28/2006	Soil
	Shipping Area	SWS-05	N	4/28/2006	Soil
	Shipping Area	US	N	4/28/2006	Soil
	Shipping Area	BDS-07	N	5/1/2006	Soil

Table 2-7
Samples Used in RI/FS Evaluation
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Investigation	Location	Sample No.	QAQC Type	Sampled	Matrix
	Shipping Area	BDS-08	N	5/1/2006	Soil
	Shipping Area	BDS-09	N	5/1/2006	Soil
	Shipping Area	BDS-10	N	5/1/2006	Soil
	Shipping Area	BDS-11	N	5/1/2006	Soil
	Shipping Area	BDS-12	N	5/1/2006	Soil
	Shipping Area	SWS-02	N	5/1/2006	Soil
	Shipping Area	SWS-06	N	5/1/2006	Soil
	Shipping Area	SWS-07	N	5/1/2006	Soil
	Shipping Area	BDS-13	N	5/2/2006	Soil
	Shipping Area	BDS-14	N	5/2/2006	Soil
	Shipping Area	BDS-16	N	5/2/2006	Soil
	Shipping Area	BDS-15	N	5/3/2006	Soil
	Shipping Area	SWS-08	N	5/3/2006	Soil
	Shipping Area	SWS-09	N	5/3/2006	Soil
	Shipping Area	SWS-10	N	5/3/2006	Soil
	Shipping Area	SWS-11	N	5/3/2006	Soil
	Shipping Area	SWS-12	N	5/3/2006	Soil
	Shipping Area	SWS-072	N	5/4/2006	Soil
	Shipping Area	SWS-13	N	5/4/2006	Soil
	Shipping Area	BDS-17	N	5/5/2006	Soil
	Shipping Area	SWS-14	N	5/5/2006	Soil
	Shipping Area	SWS-142	FD	5/5/2006	Soil
	Shipping Area	SWS-15	N	5/5/2006	Soil
	Shipping Area	ELBF-18	N	5/8/2006	Soil
	Shipping Area	HPGL-16	N	5/8/2006	Soil
	Shipping Area	PVSND-17	N	5/8/2006	Soil
	Shipping Area	PVSND-19	N	5/8/2006	Soil
	Shipping Area	ELBF-20	N	5/9/2006	Soil
	Shipping Area	ELBF-21	N	5/9/2006	Soil
	Shipping Area	ELBF-21	N	5/10/2006	Soil
	Shipping Area	BDS-18	N	5/11/2006	Soil
	Shipping Area	SWS-16	N	5/11/2006	Soil
	Shipping Area	BDS-19	N	5/12/2006	Soil
	Shipping Area	BDS-20	N	5/12/2006	Soil
	Shipping Area	SWS-17	N	5/12/2006	Soil
	Shipping Area	SWS-18	N	5/12/2006	Soil
	Shipping Area	SWS19	N	5/12/2006	Soil
	Shipping Area	SWS-20	N	5/12/2006	Soil
	Shipping Area	SWS-21	N	5/12/2006	Soil
	Shipping Area	BDS-21	N	5/15/2006	Soil
	Shipping Area	BDS-22	N	5/15/2006	Soil
	Shipping Area	BDS-23	N	5/15/2006	Soil
	Shipping Area	SWS-22	N	5/15/2006	Soil
	Shipping Area	SWS-222	FD	5/15/2006	Soil
	Shipping Area	SWS-23	N	5/15/2006	Soil
	Shipping Area	BDS-24	N	5/16/2006	Soil
	Shipping Area	BDS-25	N	5/16/2006	Soil
	Shipping Area	SWS-24	N	5/16/2006	Soil
	Shipping Area	SWS-25	N	5/16/2006	Soil
	Shipping Area	SWS-26	N	5/16/2006	Soil
	Shipping Area	SWS-27	N	5/16/2006	Soil
	Shipping Area	SWS-28	N	5/16/2006	Soil
	Shipping Area	SWS-29	N	5/17/2006	Soil
Post-Excavation Monitoring	Shipping Area (MW02)	GWS-01-02	N	8/31/2006	Water
	Shipping Area (MW03)	GWS-01-03	N	8/31/2006	Water
	Shipping Area (MW02)	GWS-01-100	FD	8/31/2006	Water
	Shipping Area (MW01)	GWS-01-01	N	9/1/2006	Water
	Shipping Area (MW04)	GWS-01-04	N	9/1/2006	Water

Table 3-1
Depth to Groundwater Measurements and Groundwater Elevations - August 30, 2006
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Well	Ground Elev. (ft NAVD)	Measuring Point Elev. (ft NAVD)	Depth to Water (ft)	Groundwater Elevation (ft NAVD)
MW-1	16.78	16.24	5.53	10.71
MW-2	17.23	17.02	5.95	11.07
MW-3	17.24	16.87	5.48	11.39
MW-4	18.08	17.37	4.82	12.55

ft - feet
NAVD - North American vertical datum (1988)

Table 4-1
Comparison Values for Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	Comparison Value	Source
Aroclors	Aroclor 1016	mg/kg	-	
Aroclors	Aroclor 1221	mg/kg	-	
Aroclors	Aroclor 1232	mg/kg	-	
Aroclors	Aroclor 1242	mg/kg	-	
Aroclors	Aroclor 1248	mg/kg	-	
Aroclors	Aroclor 1254	mg/kg	-	
Aroclors	Aroclor 1254	mg/Kg	1.6	MTCA B
Aroclors	Aroclor 1260	mg/kg	-	
Dioxin/Furan	1,2,3,4,6,7,8-HpCDD	mg/kg	-	
Dioxin/Furan	1,2,3,4,6,7,8-HpCDF	mg/kg	-	
Dioxin/Furan	1,2,3,4,7,8,9-HpCDF	mg/kg	-	
Dioxin/Furan	1,2,3,4,7,8-HxCDD	mg/kg	-	
Dioxin/Furan	1,2,3,4,7,8-HxCDF	mg/kg	-	
Dioxin/Furan	1,2,3,6,7,8-HxCDD	mg/kg	-	
Dioxin/Furan	1,2,3,6,7,8-HxCDF	mg/kg	-	
Dioxin/Furan	1,2,3,7,8,9-HxCDD	mg/Kg	1.60E-04	MTCA B
Dioxin/Furan	1,2,3,7,8,9-HxCDF	mg/kg	-	
Dioxin/Furan	1,2,3,7,8-PeCDD	mg/kg	-	
Dioxin/Furan	1,2,3,7,8-PeCDF	mg/kg	-	
Dioxin/Furan	2,3,4,6,7,8-HxCDF	mg/kg	-	
Dioxin/Furan	2,3,4,7,8-PeCDF	mg/kg	-	
Dioxin/Furan	2,3,7,8-TCDD	mg/Kg	6.70E-06	MTCA B
Dioxin/Furan	2,3,7,8-TCDF	mg/kg	-	
Dioxin/Furan	OCDD	mg/kg	-	
Dioxin/Furan	OCDF	mg/kg	-	
Metals	Arsenic	mg/Kg	7.00	Puget Sound Background
Metals	Barium	mg/Kg	16,000	MTCA B
Metals	Cadmium	mg/Kg	40	MTCA B
Metals	Chromium	mg/kg	48	Puget Sound Background
Metals	Copper	mg/Kg	3,000	MTCA B
Metals	Lead	mg/kg	1,000	MTCA A
Metals	Mercury	mg/Kg	24	MTCA B
Metals	Selenium	mg/Kg	400	MTCA B
Metals	Silver	mg/Kg	400	MTCA B
PAH	2-Methylnaphthalene	mg/Kg	320	MTCA B
PAH	Acenaphthene	mg/Kg	4,800	MTCA B
PAH	Anthracene	mg/Kg	24,000	MTCA B
PAH	Benzo(a)anthracene	mg/Kg	0.14	MTCA B
PAH	Benzo(a)pyrene	mg/Kg	0.14	MTCA B
PAH	Benzo(b)fluoranthene	mg/Kg	0.14	MTCA B
PAH	Benzo(k)fluoranthene	mg/Kg	0.14	MTCA B
PAH	Chrysene	mg/Kg	0.14	MTCA B
PAH	Dibenz(a,h)anthracene	mg/Kg	0.14	MTCA B
PAH	Fluoranthene	mg/Kg	3,200	MTCA B
PAH	Fluorene	mg/Kg	3,200	MTCA B
PAH	Indeno(1,2,3-cd)pyrene	mg/Kg	0.14	MTCA B
PAH	Naphthalene	mg/Kg	1,600	MTCA B
PAH	Pentachlorophenol	mg/Kg	8.3	MTCA B
PAH	Pyrene	mg/Kg	2,400	MTCA B

Table 4-1
Comparison Values for Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	Comparison Value	Source
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/Kg	14	MTCA B
SVOC	2,4,5-Trichlorophenol	mg/Kg	8,000	MTCA B
SVOC	2,4,6-Trichlorophenol	mg/Kg	91	MTCA B
SVOC	2,4-Dimethylphenol	mg/Kg	1,600	MTCA B
SVOC	2,4-Dinitrophenol	mg/Kg	160	MTCA B
SVOC	2,4-Dinitrotoluene	mg/Kg	160	MTCA B
SVOC	2,6-Dinitrotoluene	mg/Kg	80	MTCA B
SVOC	2-Chloronaphthalene	mg/Kg	6,400	MTCA B
SVOC	2-Chlorophenol	mg/Kg	400	MTCA B
SVOC	2-Methylphenol	mg/Kg	4,000	MTCA B
SVOC	3,3'-Dichlorobenzidine	mg/Kg	2.2	MTCA B
SVOC	4-Chloroaniline	mg/Kg	320	MTCA B
SVOC	4-Methylphenol	mg/Kg	400	MTCA B
SVOC	Benzoic Acid	mg/Kg	320,000	MTCA B
SVOC	Benzyl Alcohol	mg/Kg	24,000	MTCA B
SVOC	Bis-(2-Chloroethyl) Ether	mg/Kg	0.91	MTCA B
SVOC	bis(2-Ethylhexyl)phthalate	mg/Kg	71	MTCA B
SVOC	Butylbenzylphthalate	mg/Kg	16,000	MTCA B
SVOC	Carbazole	mg/Kg	50	MTCA B
SVOC	Dibenzofuran	mg/Kg	160	MTCA B
SVOC	Diethylphthalate	mg/Kg	64,000	MTCA B
SVOC	Dimethylphthalate	mg/Kg	80,000	MTCA B
SVOC	Di-n-Butylphthalate	mg/Kg	8,000	MTCA B
SVOC	Di-n-Octyl phthalate	mg/Kg	1,600	MTCA B
SVOC	Hexachlorobenzene	mg/Kg	0.63	MTCA B
SVOC	Hexachlorobutadiene	mg/Kg	13	MTCA B
SVOC	Hexachlorocyclopentadiene	mg/Kg	480	MTCA B
SVOC	Hexachloroethane	mg/Kg	71	MTCA B
SVOC	Isophorone	mg/Kg	1,100	MTCA B
SVOC	Nitrobenzene	mg/Kg	40	MTCA B
SVOC	N-Nitrosodiphenylamine	mg/Kg	200	MTCA B
SVOC	Phenol	mg/Kg	48,000	MTCA B
TPH	Diesel Range Hydrocarbons	mg/kg	2,000	MTCA A
TPH	Gasoline Range Hydrocarbons	mg/kg	30	MTCA A
TPH	Motor Oil	mg/kg	2,000	MTCA A
VOC	1,1,1,2-Tetrachloroethane	mg/Kg	38	MTCA B
VOC	1,1,1-Trichloroethane	mg/Kg	72,000	MTCA B
VOC	1,1,2,2-Tetrachloroethane	mg/Kg	5.0	MTCA B
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/Kg	2.40E+06	MTCA B
VOC	1,1,2-Trichloroethane	mg/Kg	18	MTCA B
VOC	1,1-Dichloroethane	mg/Kg	8,000	MTCA B
VOC	1,1-Dichloroethene	mg/Kg	1.7	MTCA B
VOC	1,1-Dichloropropene	mg/kg	-	
VOC	1,2,3-Trichlorobenzene	mg/kg	-	
VOC	1,2,3-Trichloropropane	mg/Kg	0.14	MTCA B
VOC	1,2,4-Trichlorobenzene	mg/kg	-	
VOC	1,2,4-Trichlorobenzene	mg/Kg	800	MTCA B
VOC	1,2,4-Trimethylbenzene	mg/Kg	4,000	MTCA B
VOC	1,2-Dibromo-3-chloropropane	mg/Kg	0.71	MTCA B

Table 4-1
Comparison Values for Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	Comparison Value	Source
VOC	1,2-Dichlorobenzene	mg/Kg	7,200	MTCA B
VOC	1,2-Dichlorobenzene	mg/kg	-	
VOC	1,2-Dichloroethane	mg/Kg	11	MTCA B
VOC	1,2-Dichloropropane	mg/Kg	15	MTCA B
VOC	1,3,5-Trimethylbenzene	mg/Kg	4,000	MTCA B
VOC	1,3-Dichlorobenzene	mg/kg	-	
VOC	1,3-Dichloropropane	mg/kg	-	
VOC	1,4-Dichlorobenzene	mg/kg	-	
VOC	1,4-Dichlorobenzene	mg/Kg	42	MTCA B
VOC	2,2-Dichloropropane	mg/kg	-	
VOC	2-Butanone	mg/Kg	48,000	MTCA B
VOC	2-Chloroethylvinylether	mg/kg	-	
VOC	2-Chlorotoluene	mg/Kg	1,600	MTCA B
VOC	2-Hexanone	mg/kg	-	
VOC	4-Chlorotoluene	mg/kg	-	
VOC	4-Isopropyltoluene	mg/kg	-	
VOC	4-Methyl-2-Pentanone (MIBK)	mg/Kg	6,400	MTCA B
VOC	Acetone	mg/Kg	8,000	MTCA B
VOC	Acrolein	mg/Kg	1,600	MTCA B
VOC	Acrylonitrile	mg/Kg	1.9	MTCA B
VOC/BTEX	Benzene	mg/Kg	18	MTCA B
VOC	Bromobenzene	mg/kg	-	
VOC	Bromochloromethane	mg/kg	-	
VOC	Bromodichloromethane	mg/Kg	16	MTCA B
VOC	Bromoethane	mg/kg	-	
VOC	Bromoform	mg/Kg	130	MTCA B
VOC	Bromomethane	mg/Kg	110	MTCA B
VOC	Carbon Disulfide	mg/Kg	8,000	MTCA B
VOC	Carbon Tetrachloride	mg/Kg	7.7	MTCA B
VOC	Chlorobenzene	mg/Kg	1,600	MTCA B
VOC	Chloroethane	mg/Kg	350	MTCA B
VOC	Chloroform	mg/Kg	160	MTCA B
VOC	Chloromethane	mg/Kg	77	MTCA B
VOC	cis-1,2-Dichloroethene	mg/Kg	800	MTCA B
VOC	cis-1,3-Dichloropropene	mg/kg	-	
VOC	Dibromochloromethane	mg/Kg	12	MTCA B
VOC	Dibromomethane	mg/Kg	800	MTCA B
VOC/BTEX	Ethylbenzene	mg/Kg	8,000	MTCA B
VOC	Ethylene Dibromide	mg/Kg	0.012	MTCA B
VOC	Isopropylbenzene	mg/Kg	8,000	MTCA B
VOC/BTEX	m,p-Xylene	mg/Kg	160,000	MTCA B
VOC	Methyl Iodide	mg/kg	-	
VOC	Methyl tert-Butyl Ether	mg/Kg	560	MTCA B
VOC	Methylene Chloride	mg/Kg	130	MTCA B
VOC	n-Butylbenzene	mg/kg	-	
VOC	n-Propylbenzene	mg/kg	-	
VOC/BTEX	o-Xylene	mg/Kg	160,000	MTCA B
VOC	sec-Butylbenzene	mg/kg	-	
VOC	Styrene	mg/Kg	33	MTCA B

Table 4-1
Comparison Values for Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	Comparison Value	Source
VOC	tert-Butylbenzene	mg/kg	-	
VOC	Tetrachloroethene	mg/Kg	1.9	MTCA B
VOC/BTEX	Toluene	mg/Kg	6,400	MTCA B
VOC	trans-1,2-Dichloroethene	mg/Kg	1,600	MTCA B
VOC	trans-1,3-Dichloropropene	mg/kg	-	
VOC	trans-1,4-Dichloro-2-butene	mg/kg	-	
VOC	Trichloroethene	mg/Kg	2.5	MTCA B
VOC	Trichlorofluoromethane	mg/Kg	24,000	MTCA B
VOC	Vinyl Acetate	mg/Kg	80,000	MTCA B
VOC	Vinyl Chloride	mg/Kg	0.67	MTCA B
VOC/BTEX	Xylenes, Total	mg/Kg	16,000	MTCA B

- no value

Table 4-2
Comparison Values for Groundwater
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	Comparison Value	Source
Metals	Arsenic	mg/L	5.80E-05	MTCA B
Metals	Barium	mg/L	3.2	MTCA B
Metals	Cadmium	mg/L	0.0080	MTCA B
Metals	Chromium	mg/L	0.050	MTCA A
Metals	Lead	mg/L	0.015	MTCA A
Metals	Mercury	mg/L	0.0048	MTCA B
Metals	Selenium	mg/L	0.080	MTCA B
Metals	Silver	mg/L	0.080	MTCA B
PAH	2-Methylnaphthalene	mg/L	0.032	MTCA B
PAH	Acenaphthene	mg/L	0.96	MTCA B
PAH	Acenaphthylene	mg/L	-	
PAH	Anthracene	mg/L	4.8	MTCA B
PAH	Benzo(a)anthracene	mg/L	1.20E-05	MTCA B
PAH	Benzo(a)pyrene	mg/L	1.20E-05	MTCA B
PAH	Benzo(b)fluoranthene	mg/L	1.20E-05	MTCA B
PAH	Benzo(g,h,i)perylene	mg/L	-	
PAH	Benzo(k)fluoranthene	mg/L	1.20E-05	MTCA B
PAH	Chrysene	mg/L	1.20E-05	MTCA B
PAH	Dibenz(a,h)anthracene	mg/L	1.20E-05	MTCA B
PAH	Fluoranthene	mg/L	0.64	MTCA B
PAH	Fluorene	mg/L	0.64	MTCA B
PAH	Indeno(1,2,3-cd)pyrene	mg/L	1.20E-05	MTCA B
PAH	Naphthalene	mg/L	0.16	MTCA B
PAH	Pentachlorophenol	mg/L	7.30E-04	MTCA B
PAH	Phenanthrene	mg/L	-	
PAH	Pyrene	mg/L	0.48	MTCA B
SVOC	1-Methylnaphthalene	mg/L	0.0024	MTCA B
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/L	6.30E-04	MTCA B
SVOC	2,4,5-Trichlorophenol	mg/L	0.80	MTCA B
SVOC	2,4,6-Trichlorophenol	mg/L	0.0040	MTCA B
SVOC	2,4-Dichlorophenol	mg/L	-	
SVOC	2,4-Dimethylphenol	mg/L	0.16	MTCA B
SVOC	2,4-Dinitrophenol	mg/L	0.032	MTCA B
SVOC	2,4-Dinitrotoluene	mg/L	0.032	MTCA B
SVOC	2,6-Dinitrotoluene	mg/L	0.016	MTCA B
SVOC	2-Chloronaphthalene	mg/L	0.64	MTCA B
SVOC	2-Chlorophenol	mg/L	0.040	MTCA B
SVOC	2-Methylphenol	mg/L	0.40	MTCA B
SVOC	2-Nitroaniline	mg/L	-	
SVOC	2-Nitrophenol	mg/L	-	
SVOC	3,3'-Dichlorobenzidine	mg/L	1.90E-04	MTCA B
SVOC	3-Nitroaniline	mg/L	-	
SVOC	4,6-Dinitro-2-Methylphenol	mg/L	-	
SVOC	4-Bromophenyl-phenylether	mg/L	-	
SVOC	4-Chloro-3-methylphenol	mg/L	-	
SVOC	4-Chloroaniline	mg/L	0.032	MTCA B
SVOC	4-Chlorophenyl-phenylether	mg/L	-	
SVOC	4-Methylphenol	mg/L	0.040	MTCA B
SVOC	4-Nitroaniline	mg/L	-	

Table 4-2
Comparison Values for Groundwater
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	Comparison Value	Source
SVOC	4-Nitrophenol	mg/L	-	
SVOC	Benzoic Acid	mg/L	64	MTCA B
SVOC	Benzyl Alcohol	mg/L	2.4	MTCA B
SVOC	bis(2-Chloroethoxy) Methane	mg/L	-	
SVOC	Bis-(2-Chloroethyl) Ether	mg/L	4.00E-05	MTCA B
SVOC	bis(2-Ethylhexyl)phthalate	mg/L	0.0063	MTCA B
SVOC	Butylbenzylphthalate	mg/L	3.2	MTCA B
SVOC	Carbazole	mg/L	0.0044	MTCA B
SVOC	Dibenzofuran	mg/L	0.032	MTCA B
SVOC	Diethylphthalate	mg/L	13	MTCA B
SVOC	Dimethylphthalate	mg/L	16	MTCA B
SVOC	Di-n-Butylphthalate	mg/L	1.6	MTCA B
SVOC	Di-n-Octyl phthalate	mg/L	0.32	MTCA B
SVOC	Hexachlorobenzene	mg/L	5.50E-05	MTCA B
SVOC	Hexachlorobutadiene	mg/L	5.60E-04	MTCA B
SVOC	Hexachlorocyclopentadiene	mg/L	0.048	MTCA B
SVOC	Hexachloroethane	mg/L	0.0031	MTCA B
SVOC	Isophorone	mg/L	0.046	MTCA B
SVOC	Nitrobenzene	mg/L	0.0040	MTCA B
SVOC	N-Nitroso-Di-N-Propylamine	mg/L	-	
SVOC	N-Nitrosodiphenylamine	mg/L	-	
SVOC	Phenol	mg/L	4.8	MTCA B
TPH	Diesel Range Hydrocarbons	mg/L	0.50	MTCA A
TPH	Motor Oil	mg/L	0.50	MTCA A
TPH	Gasoline Range Hydrocarbons	mg/L	0.80	MTCA A
VOC	1,1,1,2-Tetrachloroethane	mg/L	0.0017	MTCA B
VOC	1,1,1-Trichloroethane	mg/L	7.2	MTCA B
VOC	1,1,2,2-Tetrachloroethane	mg/L	2.20E-04	MTCA B
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	240	MTCA B
VOC	1,1,2-Trichloroethane	mg/L	7.70E-04	MTCA B
VOC	1,1-Dichloroethane	mg/L	0.80	MTCA B
VOC	1,1-Dichloroethene	mg/L	7.30E-05	MTCA B
VOC	1,1-Dichloropropene	mg/L	-	
VOC	1,2,3-Trichlorobenzene	mg/L	-	
VOC	1,2,3-Trichloropropane	mg/L	6.30E-06	MTCA B
VOC	1,2,4-Trichlorobenzene	mg/L	0.080	MTCA B
VOC	1,2,4-Trimethylbenzene	mg/L	0.40	MTCA B
VOC	1,2-Dibromo-3-chloropropane	mg/L	3.10E-05	MTCA B
VOC	1,2-Dichlorobenzene	mg/L	0.72	MTCA B
VOC	1,2-Dichloroethane	mg/L	4.80E-04	MTCA B
VOC	1,2-Dichloropropane	mg/L	6.40E-04	MTCA B
VOC	1,3,5-Trimethylbenzene	mg/L	0.40	MTCA B
VOC	1,3-Dichlorobenzene	mg/L	-	
VOC	1,3-Dichloropropane	mg/L	-	
VOC	1,4-Dichlorobenzene	mg/L	0.0018	MTCA B
VOC	2,2-Dichloropropane	mg/L	-	
VOC	2-Butanone	mg/L	4.8	MTCA B
VOC	2-Chloroethylvinylether	mg/L	-	
VOC	2-Chlorotoluene	mg/L	0.16	MTCA B

Table 4-2
Comparison Values for Groundwater
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	Comparison Value	Source
VOC	2-Hexanone	mg/L	-	
VOC	4-Chlorotoluene	mg/L	-	
VOC	4-Isopropyltoluene	mg/L	-	
VOC	4-Methyl-2-Pentanone (MIBK)	mg/L	0.64	MTCA B
VOC	Acetone	mg/L	0.80	MTCA B
VOC	Acrolein	mg/L	0.16	MTCA B
VOC	Acrylonitrile	mg/L	8.10E-05	MTCA B
VOC/BETX	Benzene	mg/L	8.00E-04	MTCA B
VOC	Bromobenzene	mg/L	-	
VOC	Bromochloromethane	mg/L	-	
VOC	Bromodichloromethane	mg/L	7.10E-04	MTCA B
VOC	Bromoethane	mg/L	-	
VOC	Bromoform	mg/L	0.0055	MTCA B
VOC	Bromomethane	mg/L	0.011	MTCA B
VOC	Carbon Disulfide	mg/L	0.80	MTCA B
VOC	Carbon Tetrachloride	mg/L	3.40E-04	MTCA B
VOC	Chlorobenzene	mg/L	0.16	MTCA B
VOC	Chloroethane	mg/L	0.015	MTCA B
VOC	Chloroform	mg/L	0.0072	MTCA B
VOC	Chloromethane	mg/L	0.0034	MTCA B
VOC	cis-1,2-Dichloroethene	mg/L	0.080	MTCA B
VOC	cis-1,3-Dichloropropene	mg/L	-	
VOC	Dibromochloromethane	mg/L	5.20E-04	MTCA B
VOC	Dibromomethane	mg/L	0.080	MTCA B
VOC/BETX	Ethylbenzene	mg/L	0.80	MTCA B
VOC	Ethylene Dibromide	mg/L	5.10E-07	MTCA B
VOC	Isopropylbenzene	mg/L	0.80	MTCA B
VOC/BETX	m,p-Xylene	mg/L	16	MTCA B
VOC	Methyl Iodide	mg/L	-	
VOC	Methyl tert-Butyl Ether	mg/L	0.024	MTCA B
VOC	Methylene Chloride	mg/L	0.0058	MTCA B
VOC	n-Butylbenzene	mg/L	-	
VOC	n-Propylbenzene	mg/L	-	
VOC/BETX	o-Xylene	mg/L	16	MTCA B
VOC	sec-Butylbenzene	mg/L	-	
VOC	Styrene	mg/L	0.0015	MTCA B
VOC	tert-Butylbenzene	mg/L	-	
VOC	Tetrachloroethene	mg/L	8.10E-05	MTCA B
VOC/BETX	Toluene	mg/L	0.64	MTCA B
VOC	trans-1,2-Dichloroethene	mg/L	0.16	MTCA B
VOC	trans-1,3-Dichloropropene	mg/L	-	
VOC	trans-1,4-Dichloro-2-butene	mg/L	-	
VOC	Trichloroethene	mg/L	1.10E-04	MTCA B
VOC	Trichlorofluoromethane	mg/L	2.4	MTCA B
VOC	Vinyl Acetate	mg/L	8.0	MTCA B
VOC	Vinyl Chloride	mg/L	2.90E-05	MTCA B

- no value

Table 4-3
Comparison Values for Sediment
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	LAET
Aroclors	Aroclor 1260	mg/kg	-
Aroclors	Aroclor 1254	mg/kg	-
Aroclors	Aroclor 1221	mg/kg	-
Aroclors	Aroclor 1232	mg/kg	-
Aroclors	Aroclor 1248	mg/kg	-
Aroclors	Aroclor 1016	mg/kg	-
Aroclors	Aroclor 1242	mg/kg	-
Metals	Arsenic	mg/kg	57
Metals	Barium	mg/kg	-
Metals	Cadmium	mg/kg	5.1
Metals	Chromium	mg/kg	260
Metals	Lead	mg/kg	450
Metals	Mercury	mg/kg	0.41
Metals	Selenium	mg/kg	-
Metals	Silver	mg/kg	6.1
Metals	Sulfide	mg/kg	-
PAH	2-Methylnaphthalene	mg/kg	0.67
PAH	Acenaphthene	mg/kg	0.5
PAH	Acenaphthylene	mg/kg	1.3
PAH	Anthracene	mg/kg	0.96
PAH	Benzo(a)anthracene	mg/kg	1.3
PAH	Benzo(a)pyrene	mg/kg	1.6
PAH	Benzo(b)fluoranthene	mg/kg	-
PAH	Benzo(g,h,i)perylene	mg/kg	0.67
PAH	Benzo(k)fluoranthene	mg/kg	-
PAH	Total benzofluoranthenes	mg/kg	230
PAH	Chrysene	mg/kg	1.4
PAH	Dibenz(a,h)anthracene	mg/kg	0.23
PAH	Fluoranthene	mg/kg	1.7
PAH	Fluorene	mg/kg	0.54
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.6
PAH	Naphthalene	mg/kg	2.1
PAH	Pentachlorophenol	mg/kg	0.4
PAH	Phenanthrene	mg/kg	1.5
PAH	Pyrene	mg/kg	2.6
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	-
SVOC	2,4,5-Trichlorophenol	mg/kg	-
SVOC	2,4,6-Trichlorophenol	mg/kg	-
SVOC	2,4-Dichlorophenol	mg/kg	-
SVOC	2,4-Dimethylphenol	mg/kg	-
SVOC	2,4-Dinitrophenol	mg/kg	-
SVOC	2,4-Dinitrotoluene	mg/kg	-
SVOC	2,6-Dinitrotoluene	mg/kg	-
SVOC	2-Chloronaphthalene	mg/kg	-
SVOC	2-Chlorophenol	mg/kg	-
SVOC	2-Methylphenol	mg/kg	-
SVOC	2-Nitroaniline	mg/kg	-
SVOC	2-Nitrophenol	mg/kg	-
SVOC	3,3'-Dichlorobenzidine	mg/kg	-

Table 4-3
Comparison Values for Sediment
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Chemical Group	Analyte	Units	LAET
SVOC	3-Nitroaniline	mg/kg	-
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	-
SVOC	4-Bromophenyl-phenylether	mg/kg	-
SVOC	4-Chloro-3-methylphenol	mg/kg	-
SVOC	4-Chloroaniline	mg/kg	-
SVOC	4-Chlorophenyl-phenylether	mg/kg	-
SVOC	4-Methylphenol	mg/kg	-
SVOC	4-Nitroaniline	mg/kg	-
SVOC	4-Nitrophenol	mg/kg	-
SVOC	Benzoic Acid	mg/kg	-
SVOC	Benzyl Alcohol	mg/kg	-
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	-
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	-
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	-
SVOC	Butylbenzylphthalate	mg/kg	-
SVOC	Carbazole	mg/kg	-
SVOC	Dibenzofuran	mg/kg	-
SVOC	Diethylphthalate	mg/kg	-
SVOC	Dimethylphthalate	mg/kg	-
SVOC	Di-n-Butylphthalate	mg/kg	-
SVOC	Di-n-Octyl phthalate	mg/kg	-
SVOC	Hexachlorobenzene	mg/kg	-
SVOC	Hexachlorobutadiene	mg/kg	-
SVOC	Hexachlorocyclopentadiene	mg/kg	-
SVOC	Hexachloroethane	mg/kg	-
SVOC	Isophorone	mg/kg	-
SVOC	Nitrobenzene	mg/kg	-
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	-
SVOC	N-Nitrosodiphenylamine	mg/kg	-
SVOC	Phenol	mg/kg	-
TPH	Diesel Range Hydrocarbons	mg/kg	-
TPH	Gasoline Range Hydrocarbons	mg/kg	-
TPH	HEM Oil & Grease	mg/kg	-
TPH	Non-Polar Fraction	mg/kg	-
TPH	Oil Range	mg/kg	-
TPH	Polar Oil and Grease	mg/kg	-
VOC	1,4-Dichlorobenzene	mg/kg	-
VOC	1,2,4-Trichlorobenzene	mg/kg	-
VOC	1,3-Dichlorobenzene	mg/kg	-
VOC	1,2-Dichlorobenzene	mg/kg	-

- no value

Table 4-4
Summary of Analytical Results and Comparison to Cleanup Levels - Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

			Summary Statistics							Comparison to Criteria		
Chemical Group	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**CV**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
Aroclors	Aroclor 1016	mg/kg	--	18	0%	0.029	0.076	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	18	0%	0.029	0.076	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	18	0%	0.029	0.076	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	18	0%	0.029	0.076	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	18	0%	0.029	0.076	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	18	0%	0.029	0.076	--	--	1.6	--	--
Aroclors	Aroclor 1260	mg/kg	--	18	0%	0.029	0.076	--	--	--	--	--
Diox/Furan	1,2,3,4,6,7,8-HpCDD	mg/kg	1	12	8%	3.50E-07	1.60E-06	3.80E-06	3.80E-06	--	--	--
Diox/Furan	1,2,3,4,6,7,8-HpCDF	mg/kg	--	12	0%	1.40E-07	8.20E-07	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8,9-HpCDF	mg/kg	--	12	0%	1.30E-07	1.00E-06	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8-HxCDD	mg/kg	--	12	0%	2.20E-07	1.40E-06	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8-HxCDF	mg/kg	--	12	0%	1.50E-07	9.70E-07	--	--	--	--	--
Diox/Furan	1,2,3,6,7,8-HxCDD	mg/kg	--	12	0%	2.00E-07	1.20E-06	--	--	--	--	--
Diox/Furan	1,2,3,6,7,8-HxCDF	mg/kg	--	12	0%	1.40E-07	9.20E-07	--	--	--	--	--
Diox/Furan	1,2,3,7,8,9-HxCDD	mg/kg	--	12	0%	1.90E-07	1.30E-06	--	--	1.60E-04	--	--
Diox/Furan	1,2,3,7,8,9-HxCDF	mg/kg	--	12	0%	1.60E-07	1.10E-06	--	--	--	--	--
Diox/Furan	1,2,3,7,8-PeCDD	mg/kg	--	12	0%	2.80E-07	1.90E-06	--	--	--	--	--
Diox/Furan	1,2,3,7,8-PeCDF	mg/kg	--	12	0%	1.90E-07	1.40E-06	--	--	--	--	--
Diox/Furan	2,3,4,6,7,8-HxCDF	mg/kg	--	12	0%	1.50E-07	1.00E-06	--	--	--	--	--
Diox/Furan	2,3,4,7,8-PeCDF	mg/kg	--	12	0%	1.90E-07	1.30E-06	--	--	--	--	--
Diox/Furan	2,3,7,8-TCDD	mg/kg	--	12	0%	1.40E-07	1.00E-06	--	--	6.70E-06	--	--
Diox/Furan	2,3,7,8-TCDF	mg/kg	--	12	0%	1.30E-07	8.10E-07	--	--	--	--	--
Diox/Furan	OCDD	mg/kg	3	12	25%	1.90E-06	5.10E-06	6.00E-06	2.50E-05	--	--	--
Diox/Furan	OCDF	mg/kg	--	12	0%	3.30E-07	1.70E-06	--	--	--	--	--
Metals	Arsenic	mg/kg	21	53	40%	5.0	6.0	5.0	10	7.00	7	-
Metals	Barium	mg/kg	30	30	100%	--	--	27	67	16,000	--	--
Metals	Cadmium	mg/kg	1	30	3%	0.20	0.20	0.20	0.20	40	--	--
Metals	Chromium	mg/kg	30	30	100%	--	--	16	45	--	--	--
Metals	Copper	mg/kg	4	4	100%	--	--	9.8	15	3,000	--	--
Metals	Lead	mg/kg	23	34	68%	2.0	2.0	2.0	23	1,000	--	--
Metals	Mercury	mg/kg	3	30	10%	0.040	0.050	0.040	0.11	24	--	--
Metals	Selenium	mg/kg	--	30	0%	5.0	6.0	--	--	400	--	--
Metals	Silver	mg/kg	--	30	0%	0.30	0.40	--	--	400	--	--
PAH	2-Methylnaphthalene	mg/kg	17	51	33%	0.058	0.33	0.076	16	320	--	--
PAH	Acenaphthene	mg/kg	7	51	14%	0.058	0.35	0.17	5.0	4,800	--	--
PAH	Acenaphthylene	mg/kg	--	51	0%	0.058	0.35	--	--	--	--	--
PAH	Anthracene	mg/kg	6	51	12%	0.058	0.35	0.086	2.4	24,000	--	--

Table 4-4
Summary of Analytical Results and Comparison to Cleanup Levels - Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

			Summary Statistics							Comparison to Criteria		
Chemical Group	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**CV**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
PAH	Benzo(a)anthracene	mg/kg	7	51	14%	0.058	0.35	0.075	1.1	0.14	4	8
PAH	Benzo(a)pyrene	mg/kg	4	51	8%	0.058	0.35	0.084	0.76	0.14	3	8
PAH	Benzo(b)fluoranthene	mg/kg	5	51	10%	0.058	0.35	0.066	0.94	0.14	3	8
PAH	Benzo(g,h,i)perylene	mg/kg	2	51	4%	0.058	0.35	0.067	0.32	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	4	51	8%	0.058	0.35	0.079	0.47	0.14	3	8
PAH	Chrysene	mg/kg	7	51	14%	0.058	0.35	0.088	1.3	0.14	4	8
PAH	Dibenz(a,h)anthracene	mg/kg	1	51	2%	0.058	0.35	0.11	0.11	0.14	--	9.0
PAH	Fluoranthene	mg/kg	14	51	27%	0.058	0.35	0.064	5.2	3,200	--	--
PAH	Fluorene	mg/kg	5	51	10%	0.058	0.35	0.17	4.5	3,200	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	1	51	2%	0.058	0.35	0.28	0.28	0.14	1	9
PAH	Naphthalene	mg/kg	17	54	31%	0.0026	0.072	0.011	10	1,600	--	--
PAH	Pentachlorophenol	mg/kg	--	51	0%	0.29	1.7	--	--	8.3	--	--
PAH	Phenanthrene	mg/kg	19	51	37%	0.058	0.33	0.067	11	--	--	--
PAH	Pyrene	mg/kg	14	51	27%	0.058	0.35	0.078	5.0	2,400	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	51	0%	0.058	0.35	--	--	14	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	--	51	0%	0.29	1.7	--	--	8,000	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	--	51	0%	0.29	1.7	--	--	91	--	--
SVOC	2,4-Dichlorophenol	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	--	51	0%	0.058	0.35	--	--	1,600	--	--
SVOC	2,4-Dinitrophenol	mg/kg	--	51	0%	0.58	3.5	--	--	160	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	--	51	0%	0.29	1.7	--	--	160	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	--	51	0%	0.29	1.7	--	--	80	--	--
SVOC	2-Chloronaphthalene	mg/kg	--	51	0%	0.058	0.35	--	--	6,400	--	--
SVOC	2-Chlorophenol	mg/kg	--	51	0%	0.058	0.35	--	--	400	--	--
SVOC	2-Methylphenol	mg/kg	--	51	0%	0.058	0.35	--	--	4,000	--	--
SVOC	2-Nitroaniline	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--
SVOC	2-Nitrophenol	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	51	0%	0.29	1.7	--	--	2.2	--	--
SVOC	3-Nitroaniline	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	51	0%	0.58	3.5	--	--	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--	51	0%	0.058	0.35	--	--	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--
SVOC	4-Chloroaniline	mg/kg	--	51	0%	0.29	1.7	--	--	320	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	51	0%	0.058	0.35	--	--	--	--	--
SVOC	4-Methylphenol	mg/kg	1	51	2%	0.058	0.35	0.37	0.37	400	--	--
SVOC	4-Nitroaniline	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--
SVOC	4-Nitrophenol	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--

Table 4-4
Summary of Analytical Results and Comparison to Cleanup Levels - Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

			Summary Statistics							Comparison to Criteria		
Chemical Group	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**CV**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
SVOC	Benzoic Acid	mg/kg	--	51	0%	0.58	3.5	--	--	320,000	--	--
SVOC	Benzyl Alcohol	mg/kg	--	51	0%	0.29	1.7	--	--	24,000	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	51	0%	0.058	0.35	--	--	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	51	0%	0.058	0.35	--	--	0.91	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	1	51	2%	0.058	0.35	0.29	0.29	71	--	--
SVOC	Butylbenzylphthalate	mg/kg	--	51	0%	0.058	0.35	--	--	16,000	--	--
SVOC	Carbazole	mg/kg	4	51	8%	0.058	0.35	0.15	0.86	50	--	--
SVOC	Dibenzofuran	mg/kg	5	51	10%	0.058	0.35	0.10	3.0	160	--	--
SVOC	Diethylphthalate	mg/kg	--	51	0%	0.058	0.35	--	--	64,000	--	--
SVOC	Dimethylphthalate	mg/kg	--	51	0%	0.058	0.35	--	--	80,000	--	--
SVOC	Di-n-Butylphthalate	mg/kg	--	51	0%	0.058	1.1	--	--	8,000	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	--	51	0%	0.058	0.35	--	--	1,600	--	--
SVOC	Hexachlorobenzene	mg/kg	--	51	0%	0.058	0.35	--	--	0.63	--	--
SVOC	Hexachlorobutadiene	mg/kg	--	54	0%	0.0026	0.35	--	--	13	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--	51	0%	0.29	1.7	--	--	480	--	--
SVOC	Hexachloroethane	mg/kg	--	51	0%	0.058	0.35	--	--	71	--	--
SVOC	Isophorone	mg/kg	--	51	0%	0.058	0.35	--	--	1,100	--	--
SVOC	Nitrobenzene	mg/kg	--	51	0%	0.058	0.35	--	--	40	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	51	0%	0.29	1.7	--	--	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--	51	0%	0.058	0.35	--	--	200	--	--
SVOC	Phenol	mg/kg	--	51	0%	0.058	0.35	--	--	48,000	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	77	115	67%	5.2	57	7.0	11,000	2,000	4	--
TPH	Gasoline Range Hydrocarbons	mg/kg	30	115	26%	3.5	110	5.5	1,200	30	16	4
TPH	Hydraulic Fluid	mg/kg	1	2	50%	12	12	220	220	2000	--	--
TPH	Motor Oil	mg/kg	73	84	87%	10	13	11	5,400	2000	5	--
TPH	Oil Range	mg/kg	28	47	60%	100	100	100	550	2000	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	38	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	72,000	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	5.0	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	24	0%	0.0011	0.099	--	--	2.40E+06	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	18	--	--
VOC	1,1-Dichloroethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	8,000	--	--
VOC	1,1-Dichloroethene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	1.7	--	--
VOC	1,1-Dichloropropene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	24	0%	0.0026	0.25	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	24	0%	0.0011	0.099	--	--	0.14	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	54	0%	0.0026	0.35	--	--	800	--	--

Table 4-4
Summary of Analytical Results and Comparison to Cleanup Levels - Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

			Summary Statistics							Comparison to Criteria		
Chemical Group	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**CV**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
VOC	1,2,4-Trimethylbenzene	mg/kg	14	24	58%	5.00E-04	0.049	0.0014	1.6	4,000	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	24	0%	0.0026	0.25	--	--	0.71	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	54	0%	5.00E-04	0.35	--	--	7,200	--	--
VOC	1,2-Dichloroethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	11	--	--
VOC	1,2-Dichloropropane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	15	--	--
VOC	1,3,5-Trimethylbenzene	mg/kg	10	24	42%	5.00E-04	0.049	0.0013	0.86	4,000	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	54	0%	5.00E-04	0.35	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	54	0%	5.00E-04	0.35	--	--	42	--	--
VOC	2,2-Dichloropropane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	2-Butanone	mg/kg	12	24	50%	0.0026	0.25	0.0054	0.084	48,000	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	24	0%	0.0026	0.25	--	--	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	1,600	--	--
VOC	2-Hexanone	mg/kg	--	24	0%	0.0026	0.25	--	--	--	--	--
VOC	4-Chlorotoluene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/kg	10	24	42%	5.00E-04	0.049	0.0011	0.25	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	24	0%	0.0026	0.25	--	--	6,400	--	--
VOC	Acetone	mg/kg	20	24	83%	0.0049	0.25	0.0039	0.29	8,000	--	--
VOC	Acrolein	mg/kg	--	24	0%	0.026	2.5	--	--	1,600	--	--
VOC	Acrylonitrile	mg/kg	--	24	0%	0.0026	0.25	--	--	1.9	--	--
VOC/BTEX	Benzene	mg/kg	9	84	11%	5.00E-04	2.1	9.00E-04	0.96	18	--	--
VOC	Bromobenzene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	Bromochloromethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	Bromodichloromethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	16	--	--
VOC	Bromoethane	mg/kg	--	24	0%	0.0011	0.099	--	--	--	--	--
VOC	Bromoform	mg/kg	--	24	0%	5.00E-04	0.049	--	--	130	--	--
VOC	Bromomethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	110	--	--
VOC	Carbon Disulfide	mg/kg	2	24	8%	5.00E-04	0.049	0.0010	0.0026	8,000	--	--
VOC	Carbon Tetrachloride	mg/kg	--	24	0%	5.00E-04	0.049	--	--	7.7	--	--
VOC	Chlorobenzene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	1,600	--	--
VOC	Chloroethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	350	--	--
VOC	Chloroform	mg/kg	--	24	0%	5.00E-04	0.049	--	--	160	--	--
VOC	Chloromethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	77	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	800	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	Dibromochloromethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	12	--	--
VOC	Dibromomethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	800	--	--

Table 4-4
Summary of Analytical Results and Comparison to Cleanup Levels - Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

			Summary Statistics							Comparison to Criteria		
Chemical Group	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**CV**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
VOC/BTEX	Ethylbenzene	mg/kg	17	84	20%	5.00E-04	2.1	0.0011	3.4	8,000	--	--
VOC	Ethylene Dibromide	mg/kg	--	24	0%	5.00E-04	0.049	--	--	0.012	--	1.0
VOC	Isopropylbenzene	mg/kg	11	24	46%	5.00E-04	0.049	0.0022	0.70	8,000	--	--
VOC/BTEX	m,p-Xylene	mg/kg	17	84	20%	5.00E-04	4.2	0.0034	13	160,000	--	--
VOC	Methyl Iodide	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	Methyl tert-Butyl Ether	mg/kg	1	6	17%	0.058	2.1	0.89	0.89	560	--	--
VOC	Methylene Chloride	mg/kg	1	24	4%	0.0011	0.099	0.0019	0.0019	130	--	--
VOC	n-Butylbenzene	mg/kg	13	24	54%	5.00E-04	0.0014	8.00E-04	2.4	--	--	--
VOC	n-Propylbenzene	mg/kg	12	24	50%	5.00E-04	0.049	9.00E-04	1.3	--	--	--
VOC/BTEX	o-Xylene	mg/kg	16	84	19%	5.00E-04	2.1	9.00E-04	1.4	160,000	--	--
VOC	sec-Butylbenzene	mg/kg	9	24	38%	5.00E-04	0.049	0.0014	0.86	--	--	--
VOC	Styrene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	33	--	--
VOC	tert-Butylbenzene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	Tetrachloroethene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	1.9	--	--
VOC/BTEX	Toluene	mg/kg	5	84	6%	5.00E-04	2.1	0.0030	0.53	6,400	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	1,600	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	24	0%	0.0026	0.25	--	--	--	--	--
VOC	Trichloroethene	mg/kg	--	24	0%	5.00E-04	0.049	--	--	2.5	--	--
VOC	Trichlorofluoromethane	mg/kg	--	24	0%	5.00E-04	0.049	--	--	24,000	--	--
VOC	Vinyl Acetate	mg/kg	--	24	0%	0.0026	0.25	--	--	80,000	--	--
VOC	Vinyl Chloride	mg/kg	--	24	0%	5.00E-04	0.049	--	--	0.67	--	--
VOC/BTEX	Xylenes, Total	mg/kg	7	68	10%	0.070	1.0	0.11	0.39	16,000	--	--

Table 4-5
Summary of Analytical Results and Comparison to Cleanup Levels - Groundwater
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

				Summary Statistics							Comparison to Criteria		
Chemical Group	**CAS**	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**MTCA CUL**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
Metals	7440-38-2	Arsenic, dissolved	mg/L	20	20	100%	--	--	4.00E-04	0.042	5.80E-05	20	--
Metals	7440-39-3	Barium, dissolved	mg/L	11	11	100%	--	--	0.0030	0.055	3.2	--	--
Metals	7440-43-9	Cadmium, dissolved	mg/L	--	11	0%	0.0020	0.0020	--	--	0.0080	--	--
Metals	7440-47-3	Chromium, dissolved	mg/L	--	11	0%	0.0050	0.0050	--	--	0.050	--	--
Metals	7439-92-1	Lead, dissolved	mg/L	8	11	73%	0.0010	0.0010	0.0010	0.015	0.015	--	--
Metals	7439-97-6	Mercury, dissolved	mg/L	--	11	0%	1.00E-04	1.00E-04	--	--	0.0048	--	--
Metals	7782-49-2	Selenium, dissolved	mg/L	--	11	0%	0.050	0.050	--	--	0.080	--	--
Metals	7440-22-4	Silver, dissolved	mg/L	--	11	0%	0.0030	0.0030	--	--	0.080	--	--
PAH	91-57-6	2-Methylnaphthalene	mg/L	4	15	27%	0.0010	0.0010	0.0016	0.046	0.032	1	--
PAH	83-32-9	Acenaphthene	mg/L	2	15	13%	0.0010	0.0010	0.033	0.054	0.96	--	--
PAH	208-96-8	Acenaphthylene	mg/L	--	15	0%	0.0010	0.0010	--	--	NA	--	--
PAH	120-12-7	Anthracene	mg/L	2	15	13%	0.0010	0.0010	0.0019	0.0037	4.8	--	--
PAH	56-55-3	Benzo(a)anthracene	mg/L	--	15	0%	0.0010	0.0010	--	--	1.20E-05	--	15
PAH	50-32-8	Benzo(a)pyrene	mg/L	--	15	0%	0.0010	0.0010	--	--	1.20E-05	--	15
PAH	205-99-2	Benzo(b)fluoranthene	mg/L	--	15	0%	0.0010	0.0010	--	--	1.20E-05	--	15
PAH	191-24-2	Benzo(g,h,i)perylene	mg/L	--	15	0%	0.0010	0.0010	--	--	NA	--	--
PAH	207-08-9	Benzo(k)fluoranthene	mg/L	--	15	0%	0.0010	0.0010	--	--	1.20E-05	--	15
PAH	218-01-9	Chrysene	mg/L	--	15	0%	0.0010	0.0010	--	--	1.20E-05	--	15
PAH	53-70-3	Dibenz(a,h)anthracene	mg/L	--	15	0%	0.0010	0.0010	--	--	1.20E-05	--	15
PAH	206-44-0	Fluoranthene	mg/L	2	15	13%	0.0010	0.0010	0.0030	0.0049	0.64	--	--
PAH	86-73-7	Fluorene	mg/L	2	15	13%	0.0010	0.0010	0.018	0.028	0.64	--	--
PAH	193-39-5	Indeno(1,2,3-cd)pyrene	mg/L	--	15	0%	0.0010	0.0010	--	--	1.20E-05	--	15
PAH	91-20-3	Naphthalene	mg/L	4	15	27%	5.00E-04	0.0010	0.0012	0.25	0.16	1	--
PAH	87-86-5	Pentachlorophenol	mg/L	--	11	0%	0.0050	0.0050	--	--	7.30E-04	--	11
PAH	85-01-8	Phenanthrene	mg/L	2	15	13%	0.0010	0.0010	0.022	0.034	NA	--	--
PAH	129-00-0	Pyrene	mg/L	2	15	13%	0.0010	0.0010	0.0018	0.0027	0.48	--	--
SVOC	90-12-0	1-Methylnaphthalene	mg/L	3	4	75%	0.0010	0.0010	0.0018	0.034	0.0024	1	--
SVOC	108-60-1	2,2'-Oxybis(1-Chloropropane)	mg/L	--	11	0%	0.0010	0.0010	--	--	6.30E-04	--	11
SVOC	95-95-4	2,4,5-Trichlorophenol	mg/L	--	11	0%	0.0050	0.0050	--	--	0.80	--	--
SVOC	88-06-2	2,4,6-Trichlorophenol	mg/L	--	11	0%	0.0050	0.0050	--	--	0.0040	--	11
SVOC	120-83-2	2,4-Dichlorophenol	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	105-67-9	2,4-Dimethylphenol	mg/L	--	11	0%	0.0010	0.0010	--	--	0.16	--	--
SVOC	51-28-5	2,4-Dinitrophenol	mg/L	--	11	0%	0.010	0.010	--	--	0.032	--	--
SVOC	121-14-2	2,4-Dinitrotoluene	mg/L	--	11	0%	0.0050	0.0050	--	--	0.032	--	--
SVOC	606-20-2	2,6-Dinitrotoluene	mg/L	--	11	0%	0.0050	0.0050	--	--	0.016	--	--
SVOC	91-58-7	2-Chloronaphthalene	mg/L	--	11	0%	0.0010	0.0010	--	--	0.64	--	--
SVOC	95-57-8	2-Chlorophenol	mg/L	--	11	0%	0.0010	0.0010	--	--	0.040	--	--

Table 4-5
Summary of Analytical Results and Comparison to Cleanup Levels - Groundwate
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

				Summary Statistics							Comparison to Criteria		
Chemical Group	**CAS**	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**MTCA CUL**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
SVOC	95-48-7	2-Methylphenol	mg/L	--	11	0%	0.0010	0.0010	--	--	0.40	--	--
SVOC	88-74-4	2-Nitroaniline	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	88-75-5	2-Nitrophenol	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	91-94-1	3,3'-Dichlorobenzidine	mg/L	--	11	0%	0.0050	0.0050	--	--	1.90E-04	--	11
SVOC	99-09-2	3-Nitroaniline	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	534-52-1	4,6-Dinitro-2-Methylphenol	mg/L	--	11	0%	0.010	0.010	--	--	NA	--	--
SVOC	101-55-3	4-Bromophenyl-phenylether	mg/L	--	11	0%	0.0010	0.0010	--	--	NA	--	--
SVOC	59-50-7	4-Chloro-3-methylphenol	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	106-47-8	4-Chloroaniline	mg/L	--	11	0%	0.0050	0.0050	--	--	0.032	--	--
SVOC	7005-72-3	4-Chlorophenyl-phenylether	mg/L	--	11	0%	0.0010	0.0010	--	--	NA	--	--
SVOC	106-44-5	4-Methylphenol	mg/L	1	11	9%	0.0010	0.0010	0.0030	0.0030	0.040	--	--
SVOC	100-01-6	4-Nitroaniline	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	100-02-7	4-Nitrophenol	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	65-85-0	Benzoic Acid	mg/L	--	11	0%	0.010	0.010	--	--	64	--	--
SVOC	100-51-6	Benzyl Alcohol	mg/L	--	11	0%	0.0050	0.0050	--	--	2.4	--	--
SVOC	111-91-1	bis(2-Chloroethoxy) Methane	mg/L	--	11	0%	0.0010	0.0010	--	--	NA	--	--
SVOC	111-44-4	Bis-(2-Chloroethyl) Ether	mg/L	--	11	0%	0.0010	0.0010	--	--	4.00E-05	--	11
SVOC	117-81-7	bis(2-Ethylhexyl)phthalate	mg/L	3	11	27%	0.0010	0.0010	0.0015	0.0024	0.0063	--	--
SVOC	85-68-7	Butylbenzylphthalate	mg/L	--	11	0%	0.0010	0.0010	--	--	3.2	--	--
SVOC	86-74-8	Carbazole	mg/L	1	11	9%	0.0010	0.0010	0.0095	0.0095	0.0044	1	--
SVOC	132-64-9	Dibenzofuran	mg/L	2	15	13%	0.0010	0.0010	0.015	0.020	0.032	--	--
SVOC	84-66-2	Diethylphthalate	mg/L	--	11	0%	0.0010	0.0010	--	--	13	--	--
SVOC	131-11-3	Dimethylphthalate	mg/L	--	11	0%	0.0010	0.0010	--	--	16	--	--
SVOC	84-74-2	Di-n-Butylphthalate	mg/L	--	11	0%	0.0010	0.0010	--	--	1.6	--	--
SVOC	117-84-0	Di-n-Octyl phthalate	mg/L	--	11	0%	0.0010	0.0010	--	--	0.32	--	--
SVOC	118-74-1	Hexachlorobenzene	mg/L	--	11	0%	0.0010	0.0010	--	--	5.50E-05	--	11
SVOC	87-68-3	Hexachlorobutadiene	mg/L	--	15	0%	5.00E-04	0.0010	--	--	5.60E-04	--	11
SVOC	77-47-4	Hexachlorocyclopentadiene	mg/L	--	11	0%	0.0050	0.0050	--	--	0.048	--	--
SVOC	67-72-1	Hexachloroethane	mg/L	--	11	0%	0.0010	0.0010	--	--	0.0031	--	--
SVOC	78-59-1	Isophorone	mg/L	--	11	0%	0.0010	0.0010	--	--	0.046	--	--
SVOC	98-95-3	Nitrobenzene	mg/L	--	11	0%	0.0010	0.0010	--	--	0.0040	--	--
SVOC	621-64-7	N-Nitroso-Di-N-Propylamine	mg/L	--	11	0%	0.0050	0.0050	--	--	NA	--	--
SVOC	86-30-6	N-Nitrosodiphenylamine	mg/L	--	11	0%	0.0010	0.0010	--	--	NA	--	--
SVOC	108-95-2	Phenol	mg/L	--	11	0%	0.0010	0.0012	--	--	4.8	--	--
TPH	68334-30-5	Diesel Range Hydrocarbons	mg/L	3	15	20%	0.63	0.63	0.63	1.0	0.50	3	12
TPH	86290-81-5	Gasoline Range Hydrocarbons	mg/L	5	21	24%	0.25	0.25	0.25	1.3	0.80	2	--
TPH	MOTOR_OIL	Motor Oil	mg/L	--	1	0%	0.50	0.50	--	--	0.50	--	--

Table 4-5
Summary of Analytical Results and Comparison to Cleanup Levels - Groundwate
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

				Summary Statistics							Comparison to Criteria		
Chemical Group	**CAS**	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**MTCA CUL**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
TPH	OIL_RANGE	Oil Range	mg/L	--	15	0%	0.63	0.63	--	--	0.50	--	12
VOC	630-20-6	1,1,1,2-Tetrachloroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.0017	--	--
VOC	71-55-6	1,1,1-Trichloroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	7.2	--	--
VOC	79-34-5	1,1,2,2-Tetrachloroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	2.20E-04	--	--
VOC	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	240	--	--
VOC	79-00-5	1,1,2-Trichloroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	7.70E-04	--	--
VOC	75-34-3	1,1-Dichloroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.80	--	--
VOC	75-35-4	1,1-Dichloroethene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	7.30E-05	--	4.0
VOC	563-58-6	1,1-Dichloropropene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	87-61-6	1,2,3-Trichlorobenzene	mg/L	--	4	0%	5.00E-04	5.00E-04	--	--	NA	--	--
VOC	96-18-4	1,2,3-Trichloropropane	mg/L	--	4	0%	5.00E-04	5.00E-04	--	--	6.30E-06	--	4.0
VOC	120-82-1	1,2,4-Trichlorobenzene	mg/L	--	15	0%	5.00E-04	0.0010	--	--	0.080	--	--
VOC	95-63-6	1,2,4-Trimethylbenzene	mg/L	3	4	75%	2.00E-04	2.00E-04	3.00E-04	0.0010	0.40	--	--
VOC	96-12-8	1,2-Dibromo-3-chloropropane	mg/L	--	4	0%	0.0020	0.0020	--	--	3.10E-05	--	4.0
VOC	95-50-1	1,2-Dichlorobenzene	mg/L	--	15	0%	2.00E-04	0.0010	--	--	0.72	--	--
VOC	107-06-2	1,2-Dichloroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	4.80E-04	--	--
VOC	78-87-5	1,2-Dichloropropane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	6.40E-04	--	--
VOC	108-67-8	1,3,5-Trimethylbenzene	mg/L	3	4	75%	2.00E-04	2.00E-04	2.00E-04	3.00E-04	0.40	--	--
VOC	541-73-1	1,3-Dichlorobenzene	mg/L	--	15	0%	2.00E-04	0.0010	--	--	NA	--	--
VOC	142-28-9	1,3-Dichloropropane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	106-46-7	1,4-Dichlorobenzene	mg/L	--	15	0%	2.00E-04	0.0010	--	--	0.0018	--	--
VOC	594-20-7	2,2-Dichloropropane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	78-93-3	2-Butanone	mg/L	--	4	0%	0.0010	0.0010	--	--	4.8	--	--
VOC	110-75-8	2-Chloroethylvinylether	mg/L	--	4	0%	5.00E-04	5.00E-04	--	--	NA	--	--
VOC	95-49-8	2-Chlorotoluene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.16	--	--
VOC	591-78-6	2-Hexanone	mg/L	--	4	0%	0.0010	0.0010	--	--	NA	--	--
VOC	106-43-4	4-Chlorotoluene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	99-87-6	4-Isopropyltoluene	mg/L	2	4	50%	2.00E-04	2.00E-04	2.00E-04	0.0022	NA	--	--
VOC	108-10-1	4-Methyl-2-Pentanone (MIBK)	mg/L	--	4	0%	0.0010	0.0010	--	--	0.64	--	--
VOC	67-64-1	Acetone	mg/L	2	4	50%	0.0010	0.0010	0.0079	0.0093	0.80	--	--
VOC	107-02-8	Acrolein	mg/L	--	4	0%	0.0050	0.0050	--	--	0.16	--	--
VOC	107-13-1	Acrylonitrile	mg/L	--	4	0%	0.0010	0.0010	--	--	8.10E-05	--	4.0
VOC	71-43-2	Benzene	mg/L	7	27	26%	2.00E-04	0.0050	3.00E-04	0.18	8.00E-04	4	19
VOC	108-86-1	Bromobenzene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	74-97-5	Bromochloromethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	75-27-4	Bromodichloromethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	7.10E-04	--	--
VOC	74-96-4	Bromoethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--

Table 4-5
Summary of Analytical Results and Comparison to Cleanup Levels - Groundwate
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

				Summary Statistics							Comparison to Criteria		
Chemical Group	**CAS**	**Compound**	**Units**	**Number of Detects**	**Number of Samples**	**Frequency of Detection**	**Minimum MDL**	**Maximum MDL**	**Minimum Detected Value**	**Maximum Detected Value**	**MTCA CUL**	**Number of Detects > Criteria**	**Number of MDLs > Criteria**
VOC	75-25-2	Bromoform	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.0055	--	--
VOC	74-83-9	Bromomethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.011	--	--
VOC	75-15-0	Carbon Disulfide	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.80	--	--
VOC	56-23-5	Carbon Tetrachloride	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	3.40E-04	--	--
VOC	108-90-7	Chlorobenzene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.16	--	--
VOC	75-00-3	Chloroethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.015	--	--
VOC	67-66-3	Chloroform	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.0072	--	--
VOC	74-87-3	Chloromethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.0034	--	--
VOC	156-59-2	cis-1,2-Dichloroethene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.080	--	--
VOC	10061-01-5	cis-1,3-Dichloropropene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	124-48-1	Dibromochloromethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	5.20E-04	--	--
VOC	74-95-3	Dibromomethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.080	--	--
VOC	100-41-4	Ethylbenzene	mg/L	4	27	15%	2.00E-04	0.0050	9.00E-04	0.011	0.80	--	--
VOC	106-93-4	Ethylene Dibromide	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	5.10E-07	--	4.0
VOC	98-82-8	Isopropylbenzene	mg/L	3	4	75%	2.00E-04	2.00E-04	0.0013	0.0033	0.80	--	--
VOC	108-31-3/1	m,p-Xylene	mg/L	7	27	26%	0.0010	0.010	8.00E-04	0.045	16	--	--
VOC	74-88-4	Methyl Iodide	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	1634-04-4	Methyl tert-Butyl Ether	mg/L	--	23	0%	0.0050	0.0050	--	--	0.024	--	--
VOC	75-09-2	Methylene Chloride	mg/L	--	4	0%	3.00E-04	3.00E-04	--	--	0.0058	--	--
VOC	104-51-8	n-Butylbenzene	mg/L	3	4	75%	2.00E-04	2.00E-04	0.0014	0.0015	NA	--	--
VOC	103-65-1	n-Propylbenzene	mg/L	3	4	75%	2.00E-04	2.00E-04	0.0040	0.011	NA	--	--
VOC	95-47-6	o-Xylene	mg/L	3	27	11%	2.00E-04	0.0050	2.00E-04	0.0015	16	--	--
VOC	135-98-8	sec-Butylbenzene	mg/L	3	4	75%	2.00E-04	2.00E-04	5.00E-04	6.00E-04	NA	--	--
VOC	100-42-5	Styrene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.0015	--	--
VOC	98-06-6	tert-Butylbenzene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	127-18-4	Tetrachloroethene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	8.10E-05	--	4.0
VOC	108-88-3	Toluene	mg/L	6	27	22%	2.00E-04	0.0050	4.00E-04	0.0074	0.64	--	--
VOC	156-60-5	trans-1,2-Dichloroethene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	0.16	--	--
VOC	10061-02-6	trans-1,3-Dichloropropene	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	NA	--	--
VOC	110-57-6	trans-1,4-Dichloro-2-butene	mg/L	--	4	0%	0.0010	0.0010	--	--	NA	--	--
VOC	79-01-6	Trichloroethene	mg/L	--	4	0%	2.00E-04	3.00E-04	--	--	1.10E-04	--	4.0
VOC	75-69-4	Trichlorofluoromethane	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	2.4	--	--
VOC	108-05-4	Vinyl Acetate	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	8.0	--	--
VOC	75-01-4	Vinyl Chloride	mg/L	--	4	0%	2.00E-04	2.00E-04	--	--	2.90E-05	--	4.0

Table 4-6
Analytical Results and Comparison to Cleanup Levels - Sediment
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Sample ID				**OU1**	
Location ID				Outfall	
Sample Date				2/24/2005	
Chemical Group	**Compound**	**Units**	**CV**		
Aroclors	Aroclor 1016	mg/kg	--	0.020	U
Aroclors	Aroclor 1221	mg/kg	--	0.020	U
Aroclors	Aroclor 1232	mg/kg	--	0.020	U
Aroclors	Aroclor 1242	mg/kg	--	0.020	U
Aroclors	Aroclor 1248	mg/kg	--	0.020	U
Aroclors	Aroclor 1254	mg/kg	--	0.020	U
Aroclors	Aroclor 1260	mg/kg	--	0.020	U
Metals	Arsenic	mg/kg	57	20	U
Metals	Barium	mg/kg	--	29	
Metals	Cadmium	mg/kg	5.1	1.2	
Metals	Chromium	mg/kg	260	31	
Metals	Lead	mg/kg	450	38	
Metals	Mercury	mg/kg	0.41	0.19	
Metals	Selenium	mg/kg	--	20	U
Metals	Silver	mg/kg	6.1	1.0	U
Metals	Sulfide	mg/kg	--	1,300	
PAH	2-Methylnaphthalene	mg/kg	0.67	0.020	U
PAH	Acenaphthene	mg/kg	0.50	0.020	U
PAH	Acenaphthylene	mg/kg	1.3	0.020	U
PAH	Anthracene	mg/kg	0.96	0.020	U
PAH	Benzo(a)anthracene	mg/kg	1.3	0.043	
PAH	Benzo(a)pyrene	mg/kg	1.6	0.039	
PAH	Benzo(b)fluoranthene	mg/kg	--	0.036	
PAH	Benzo(g,h,i)perylene	mg/kg	0.67	0.023	
PAH	Benzo(k)fluoranthene	mg/kg	--	0.026	
PAH	Chrysene	mg/kg	1.4	0.057	
PAH	Dibenz(a,h)anthracene	mg/kg	0.23	0.020	U
PAH	Fluoranthene	mg/kg	1.7	0.056	
PAH	Fluorene	mg/kg	0.54	0.020	U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.60	0.024	
PAH	Naphthalene	mg/kg	2.1	0.020	U
SVOC	Pentachlorophenol	mg/kg	0.36	0.10	U
PAH	Phenanthrene	mg/kg	1.5	0.020	U
PAH	Pyrene	mg/kg	2.6	0.058	
PAH	Total LPAH	mg/kg	5.2	0.020	
PAH	Total HPAH	mg/kg	12	0.362	
PAH	Total Benzofluoranthenes	mg/kg	3.2	0.062	
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	0.020	U
SVOC	2,4,5-Trichlorophenol	mg/kg	--	0.10	U
SVOC	2,4,6-Trichlorophenol	mg/kg	--	0.10	U
SVOC	2,4-Dichlorophenol	mg/kg	--	0.10	U
SVOC	2,4-Dimethylphenol	mg/kg	0.029	0.020	U
SVOC	2,4-Dinitrophenol	mg/kg	--	0.20	U
SVOC	2,4-Dinitrotoluene	mg/kg	--	0.10	U
SVOC	2,6-Dinitrotoluene	mg/kg	--	0.10	U
SVOC	2-Chloronaphthalene	mg/kg	--	0.020	U
SVOC	2-Chlorophenol	mg/kg	--	0.020	U
SVOC	2-Methylphenol	mg/kg	0.063	0.020	U
SVOC	2-Nitroaniline	mg/kg	--	0.10	U
SVOC	2-Nitrophenol	mg/kg	--	0.10	U
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	0.10	U
SVOC	3-Nitroaniline	mg/kg	--	0.10	U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	0.20	U
SVOC	4-Bromophenyl-phenylether	mg/kg	--	0.020	U

Table 4-6
Analytical Results and Comparison to Cleanup Levels - Sediment
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Sample ID				**OU1**	
Location ID				Outfall	
Sample Date				2/24/2005	
Chemical Group	**Compound**	**Units**	**CV**		
SVOC	4-Chloro-3-methylphenol	mg/kg	--	0.10	U
SVOC	4-Chloroaniline	mg/kg	--	0.10	U
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	0.020	U
SVOC	4-Methylphenol	mg/kg	0.067	0.020	U
SVOC	4-Nitroaniline	mg/kg	--	0.10	U
SVOC	4-Nitrophenol	mg/kg	--	0.10	U
SVOC	Benzoic Acid	mg/kg	--	0.20	U
SVOC	Benzyl Alcohol	mg/kg	0.057	0.020	U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	0.020	U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	0.020	U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	1.3	0.022	
SVOC	Butylbenzylphthalate	mg/kg	0.063	0.020	U
SVOC	Carbazole	mg/kg	--	0.020	U
SVOC	Dibenzofuran	mg/kg	0.54	0.020	U
SVOC	Diethylphthalate	mg/kg	0.20	0.020	U
SVOC	Dimethylphthalate	mg/kg	0.071	0.020	U
SVOC	Di-n-Butylphthalate	mg/kg	1.4	0.020	U
SVOC	Di-n-Octyl phthalate	mg/kg	6.2	0.020	U
SVOC	Hexachlorobenzene	mg/kg	0.022	0.020	U
SVOC	Hexachlorobutadiene	mg/kg	0.011	0.020	U
SVOC	Hexachlorocyclopentadiene	mg/kg	--	0.10	U
SVOC	Hexachloroethane	mg/kg		0.020	U
SVOC	Isophorone	mg/kg	--	0.020	U
SVOC	Nitrobenzene	mg/kg	--	0.020	U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	0.10	U
SVOC	N-Nitrosodiphenylamine	mg/kg	0.028	0.020	U
SVOC	Phenol	mg/kg	0.42	0.020	U
TPH	Diesel Range Hydrocarbons	mg/kg	--	51	U
TPH	Gasoline Range Hydrocarbons	mg/kg	--	20	U
TPH	HEM Oil & Grease	mg/kg	--	3,750	
TPH	Non-Polar Fraction	mg/kg	--	672	U
TPH	Oil Range	mg/kg	--	100	U
TPH	Polar Oil and Grease	mg/kg	--	739	UJ
VOC	1,2,4-Trichlorobenzene	mg/kg	--	0.020	U
VOC	1,2-Dichlorobenzene	mg/kg	0.035	0.020	U
VOC	1,3-Dichlorobenzene	mg/kg	0.17	0.020	U
VOC	1,4-Dichlorobenzene	mg/kg	0.11	0.020	U

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the sample-specific method detection limit (MDL).
J = The analyte The analyte was positively identified; the quantitation is an estimation.

CONV = conventional data
PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds WA LAET Sediment Standards

Table 4-7
Arsenic Concentrations in Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Investigation	Sample No	QAQC Type	Sample Date	Arsenic (7 mg/kg)		Location
Phase II ESA	LB6	N	02/28/05	5	U	Aeration Stabilization Basin
	LB7	N	02/28/05	5	U	Aeration Stabilization Basin
	LB5	N	02/28/05	5	U	Aeration Stabilization Basin
	LB4	N	02/28/05	5	U	Aeration Stabilization Basin
	LB3	N	02/28/05	6	U	Aeration Stabilization Basin
	LB2	N	02/28/05	5	U	Aeration Stabilization Basin
	LB12DUP	FD	02/28/05	5	U	Aeration Stabilization Basin
	LB12	N	02/28/05	5	U	Aeration Stabilization Basin
	LB11	N	02/28/05	5	U	Aeration Stabilization Basin
	LB10	N	02/28/05	5	U	Aeration Stabilization Basin
	LB1	N	02/28/05	5	U	Aeration Stabilization Basin
	LB9	N	02/28/05	5	U	Aeration Stabilization Basin
	MP14	N	03/01/05	5	U	Potential Mining Process Solids Area
	MP13	N	03/01/05	5	U	Potential Mining Process Solids Area
	MP12	N	03/01/05	5	U	Potential Mining Process Solids Area
	MP11	N	03/01/05	5	U	Potential Mining Process Solids Area
	SP3	N	03/03/05	5	U	Stock Prep Area
	SP2	N	03/03/05	5	U	Stock Prep Area
	SP1	N	03/03/05	**8**		Stock Prep Area
	RR4	N	03/03/05	6	U	Railroad Track
	RR3	N	03/03/05	5	U	Railroad Track
	RR2	N	03/03/05	5	U	Railroad Track
	RR1	N	03/03/05	**9**		Railroad Track
	SP3DUP	FD	03/03/05	5	U	Stock Prep Area
Supplemental Field Inv.	DP13-S	N	05/25/05	5	U	Shipping Area
	DP16-S	N	05/26/05	6	U	Shipping Area
In-place Characterization	ACSI-WCS-02-1-3	N	02/22/06	7		Shipping Area
	ACSI-WCS-01-1-4	N	02/22/06	6		Shipping Area
	ACSI-WCS-9-1-3	N	02/22/06	6		Shipping Area
	ACSI-WCS-7-1-4.5	N	02/23/06	7		Shipping Area
	ACSI-WCS-6-1-4.5	N	02/23/06	6	U	Shipping Area
	ACSI-WCS-10-1-4.5	N	02/23/06	5		Shipping Area
	ACSI-WCS-05-1-4.5	N	02/23/06	6		Shipping Area
	ACSI-WCS-04-2-3	N	02/23/06	6		Shipping Area
	ACSI-WCS-03-1-4.5	N	02/23/06	6		Shipping Area
	ACSI-WCS-8-1-4.5	N	02/23/06	6		Shipping Area
Excavation	ACSI-VS	N	04/27/06	5	U	Shipping Area
	ACSI-BDS-04	N	04/27/06	**10**	**=**	Shipping Area
	ACSI-SWS-03	N	04/28/06	6	U	Shipping Area
	ACSI-BDS-16	N	05/02/06	6	U	Shipping Area
	ACSI-BDS-14	N	05/02/06	**10**	**=**	Shipping Area
	ACSI-BDS-13	N	05/02/06	**9**	**=**	Shipping Area
	ACSI-SWS-12	N	05/03/06	6	U	Shipping Area
	ACSI-SWS-11	N	05/03/06	5	U	Shipping Area
	ACSI-SWS-10	N	05/03/06	5	U	Shipping Area
	ACSI-SWS-09	N	05/03/06	6	=	Shipping Area
	ACSI-SWS-08	N	05/03/06	6	=	Shipping Area
	ACSI-BDS-15	N	05/03/06	6	=	Shipping Area
	ACSI-SWS-13	N	05/04/06	7	=	Shipping Area
	ACSI-SWS-15	N	05/05/06	6	=	Shipping Area
	ACSI-SWS-14	N	05/05/06	**8**	**=**	Shipping Area
	ACSI-BDS-17	N	05/05/06	6	U	Shipping Area
	ACSI-SWS-142	FD	05/05/06	**8**	**=**	Shipping Area

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the sample-specific method detection limit (MDL).
= The analyte was detected.

Concentration exceeds the comparison value

Table 4-8
TPH Concentrations in Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

					COC (comparison value in mg/kg)							
Investigation	**Sample ID**	**Area**	**Sample Date**	**Units**	**TPH-Diesel (2000)**		**TPH-Gasoline (30)**		**TPH-Motor Oil (2000)**		**Measured TPH Concentration[a]**	**Comment**
Phase II ESA	LBCOMP	Aeration Stabilization Basin	3/01/2005	mg/kg	57	<	23	<	**110**	**>**	133	HI < 1, Risk 0
	MP8	Main Plant Area Soil	3/01/2005	mg/kg	50	<	20	<	**100**	**>**	104	HI < 1, Risk 0
	RR1	Railroad Track	3/03/2005	mg/kg	50	<	20	<	100	<		
	RR2	Railroad Track	3/03/2005	mg/kg	**50**	**>**	20	<	**100**	**>**	**454**	HI > 1, risk 2.73E-6
	RR3	Railroad Track	3/03/2005	mg/kg	**50**	**>**	20	<	**100**	**>**	703	HI < 1, Risk 0
	RR4	Railroad Track	3/03/2005	mg/kg	50	<	20	<	**100**	**>**	67	HI < 1, Risk 0
	SP1	Solids Prep Area	3/03/2005	mg/kg	**50**	**>**	20	<	**100**	**>**	469	HI < 1, Risk 0
	SP2	Solids Prep Area	3/03/2005	mg/kg	**50**	**>**	**20**	**>**	**100**	**>**	2073	HI < 1, Risk 0
	SP3	Solids Prep Area	3/03/2005	mg/kg	**50**	**>**	**20**	**>**	**100**	**>**	2256	HI < 1, Risk 0
	SP3DUP	Solids Prep Area	3/03/2005	mg/kg	**50**	**>**	**20**	**>**	**100**	**>**	1965	HI < 1, Risk 0
	TS1	Truck Scales Area	3/03/2005	mg/kg	6.0	U	--		12	U		
	TS2	Truck Scales Area	3/03/2005	mg/kg	39		--		240			
Supplemental Inv.	DP13-S	Shipping Area	5/25/2005	mg/kg	1,900		**340**		**4,000**			Excavated
	DP16-S	Shipping Area	5/26/2005	mg/kg	50	U	**700**		--			Excavated
In-place Characterization	ACSI-ECS-02-4-5	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Excavated
	ACSI-ECS-13-2-3	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-13-3-4	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-14-2-3	Shipping Area	2/22/2006	mg/kg	140		20	U	1,800			Left in place
	ACSI-ECS-14-3-4	Shipping Area	2/22/2006	mg/kg	**140**	**>**	57	U	--		1808	HI < 1, Risk 0, Left in place
	ACSI-ECS-15-2-3	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-15-3.5-4.5	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-16-2-3	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-16-4-5	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-17-2-3	Shipping Area	2/22/2006	mg/kg	21		20	U	140			Excavated
	ACSI-ECS-17-3.5-4.5	Shipping Area	2/22/2006	mg/kg	**50**	**>**	20	<	--		64.6	HI < 1, Risk 0, Excavated
	ACSI-ECS-18-1.5-2.5	Shipping Area	2/22/2006	mg/kg	1,400		**21**	**>**	**2,800**			Excavated
	ACSI-ECS-18-3.5-4.5	Shipping Area	2/22/2006	mg/kg	50	U	20	U	--			Excavated
	ACSI-ECS-9-3-4	Shipping Area	2/22/2006	mg/kg	110		20	U	590			Excavated
	ACSI-WCS-01-1-4	Shipping Area	2/22/2006	mg/kg	550		**540**		1,000			Excavated
	ACSI-WCS-02-1-3	Shipping Area	2/22/2006	mg/kg	1,800		**53**		**2,700**			Excavated
	ACSI-WCS-9-1-3	Shipping Area	2/22/2006	mg/kg	340		110	U	**2,500**			Excavated
	ACSI-ECS-11-2-3	Shipping Area	2/23/2006	mg/kg	**1,300**	**>**	**20**	**>**	**130**	**>**	5.8 U	No detected carbon fractions, Excavated
	ACSI-ECS-11-3.5-4.5	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Excavated
	ACSI-ECS-12-2-3	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-12-3.5-4.5	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Left in place
	ACSI-ECS-19-2-3	Shipping Area	2/23/2006	mg/kg	**50**	**>**	20	U	100	>	438	HI < 1, Risk 0, Left in place
	ACSI-ECS-19-3.5-4.5	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Left in place

Table 4-8
TPH Concentrations in Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

					COC (comparison value in mg/kg)							
Investigation	**Sample ID**	**Area**	**Sample Date**	**Units**	**TPH-Diesel (2000)**		**TPH-Gasoline (30)**		**TPH-Motor Oil (2000)**		**Measured TPH Concentration[a]**	**Comment**
	ACSI-ECS-20-2-3	Shipping Area	2/23/2006	mg/kg	8.5		20	U	41			Left in place
	ACSI-ECS-20-3.5-4.5	Shipping Area	2/23/2006	mg/kg	16		20	U	81			Left in place
	ACSI-ECS-21-1-4.5	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Excavated
	ACSI-ECS-30-2-3	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Duplicate of ACSI-ECS-12-2-3
	ACSI-ECS-31-2-3	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Duplicate of ACSI-ECS-19-2-3
	ACSI-WCS-03-1-4.5	Shipping Area	2/23/2006	mg/kg	210		54	U	310			Left in place
	ACSI-WCS-04-2-3	Shipping Area	2/23/2006	mg/kg	120		20	U	620			Excavated
	ACSI-WCS-05-1-4.5	Shipping Area	2/23/2006	mg/kg	330		110	U	1,100			Excavated
	ACSI-WCS-10-1-4.5	Shipping Area	2/23/2006	mg/kg	28		20	U	200			Excavated
	ACSI-WCS-6-1-4.5	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Excavated
	ACSI-WCS-7-1-4.5	Shipping Area	2/23/2006	mg/kg	50	U	20	U	--			Excavated
	ACSI-WCS-8-1-4.5	Shipping Area	2/23/2006	mg/kg	**50**	**>**	**160**		190			Excavated
Removal Action Characterization & Confirmation Samples	ACS1-BDS-01	Shipping Area	4/25/2006	mg/kg	7.0		5.7	U	24			Left in place
	ACS1-BDS-02	Shipping Area	4/25/2006	mg/kg	5.7	U	5.9	U	11			Excavated
	ACS1-SWS-04	Shipping Area	4/25/2006	mg/kg	9.8		5.3	U	36			Excavated
	ACSI-ECS-22	Shipping Area	4/26/2006	mg/kg	200		5.8	U	370			Excavated
	ACSI-ECS-23	Shipping Area	4/26/2006	mg/kg	24		4.8	U	150			Excavated
	ACSI-ECS-24	Shipping Area	4/26/2006	mg/kg	120		22		210			Excavated
	ACSI-BDS-04	Shipping Area	4/27/2006	mg/kg	26		10	U	64			Left in place
	ACSI-VS	Shipping Area	4/27/2006	mg/kg	270		**1,200**		220			Excavated
	ACSI-BDS-03	Shipping Area	4/28/2006	mg/kg	13		**41**		27			Left in place
	ACSI-BDS-05	Shipping Area	4/28/2006	mg/kg	11		5.2	U	26			Left in place
	ACSI-BDS-06	Shipping Area	4/28/2006	mg/kg	45		7.5	U	100			Left in place
	ACSI-BDS-205	Shipping Area	4/28/2006	mg/kg	11		5.3	U	27			Left in place
	ACSI-SWS-03	Shipping Area	4/28/2006	mg/kg	22		**64**		72			Sidewall, over-excavated
	ACSI-SWS-05	Shipping Area	4/28/2006	mg/kg	5.3	U	4.4	U	16			Left in place
	ACSI-US	Shipping Area	4/28/2006	mg/kg	5.2	U	4.4	U	10	U		Excavated
	ACSI-BDS-07	Shipping Area	5/01/2006	mg/kg	170		18		310			Left in place
	ACSI-BDS-08	Shipping Area	5/01/2006	mg/kg	17		6.6	U	46			Left in place
	ACSI-BDS-09	Shipping Area	5/01/2006	mg/kg	6.5	U	7.5	U	13	U		Left in place
	ACSI-BDS-10	Shipping Area	5/01/2006	mg/kg	6.2	U	6.7	U	13			Left in place
	ACSI-BDS-11	Shipping Area	5/01/2006	mg/kg	86		27		220			Left in place
	ACSI-BDS-12	Shipping Area	5/01/2006	mg/kg	9.3		6.1	U	24			Left in place
	ACSI-SWS-02	Shipping Area	5/01/2006	mg/kg	5.5	U	5.2	U	13			Left in place
	ACSI-SWS-06	Shipping Area	5/01/2006	mg/kg	29		4.6	U	110			Left in place
	ACSI-SWS-07	Shipping Area	5/01/2006	mg/kg	65		**39**		200			Sidewall, over-excavated
	ACSI-BDS-13	Shipping Area	5/02/2006	mg/kg	110		11	U	91			Left in place
	ACSI-BDS-14	Shipping Area	5/02/2006	mg/kg	620		14	U	670			Left in place
	ACSI-BDS-16	Shipping Area	5/02/2006	mg/kg	8.1		7.0	U	12	U		Left in place

Table 4-8
TPH Concentrations in Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

					COC (comparison value in mg/kg)							
Investigation	**Sample ID**	**Area**	**Sample Date**	**Units**	**TPH-Diesel (2000)**		**TPH-Gasoline (30)**		**TPH-Motor Oil (2000)**		**Measured TPH Concentration[a]**	**Comment**
	ACSI-BDS-15	Shipping Area	5/03/2006	mg/kg	15		7.0	U	12	U		Left in place
	ACSI-SWS-08	Shipping Area	5/03/2006	mg/kg	120		10		85			Excavated
	ACSI-SWS-09	Shipping Area	5/03/2006	mg/kg	320		**94**		120			Sidewall, over-excavated
	ACSI-SWS-10	Shipping Area	5/03/2006	mg/kg	5.6	U	5.0	U	14			Excavated
	ACSI-SWS-11	Shipping Area	5/03/2006	mg/kg	5.8	U	5.8	U	12	U		Excavated
	ACSI-SWS-12	Shipping Area	5/03/2006	mg/kg	6.2	U	6.2	U	12	U		Excavated
	ACSI-SWS-072	Shipping Area	5/04/2006	mg/kg	--		15		--			Left in place
	ACSI-SWS-13	Shipping Area	5/04/2006	mg/kg	50		**380**		36			Sidewall, over-excavated
	ACSI-BDS-17	Shipping Area	5/05/2006	mg/kg	14		6.2	U	21			Left in place
	ACSI-SWS-14	Shipping Area	5/05/2006	mg/kg	46		5.2	U	150			Excavated
	ACSI-SWS-142	Shipping Area	5/05/2006	mg/kg	49		5.0	U	110			Excavated
	ACSI-SWS-15	Shipping Area	5/05/2006	mg/kg	19		5.1	U	36			Excavated
	ACSI-ELBF-18	Shipping Area	5/08/2006	mg/kg	**3,600**		**92**		660			Excavated
	ACSI-HPGL-16	Shipping Area	5/08/2006	mg/kg	24		4.9	U	76			Excavated
	ACSI-PVSND-17	Shipping Area	5/08/2006	mg/kg	**5,600**		**410**		350			Excavated
	ACSI-PVSND-19	Shipping Area	5/08/2006	mg/kg	63		11		99			Excavated
	ACSI-ELBF-20	Shipping Area	5/09/2006	mg/kg	**11,000**		**820**		1,400			Excavated
	ACSI-ELBF-21	Shipping Area	5/10/2006	mg/kg	140		13		560			Excavated
	ACSI-BDS-18	Shipping Area	5/11/2006	mg/kg	5.7		4.5	U	11	U		Left in place
	ACSI-SWS-16	Shipping Area	5/11/2006	mg/kg	200		5.5	U	570			Left in place
	ACSI-BDS-19	Shipping Area	5/12/2006	mg/kg	100		24		260			Left in place
	ACSI-BDS-20	Shipping Area	5/12/2006	mg/kg	**11,000**		**520**		**5,400**			Bottom, over-excavated
	ACSI-SWS-17	Shipping Area	5/12/2006	mg/kg	44		4.1	U	260			Left in place
	ACSI-SWS-18	Shipping Area	5/12/2006	mg/kg	65		4.6	U	160			Left in place
	ACSI-SWS19	Shipping Area	5/12/2006	mg/kg	30		5.0	U	100			Left in place
	ACSI-SWS-20	Shipping Area	5/12/2006	mg/kg	1,100		**240**		200			Sidewall, over-excavated
	ACSI-SWS-21	Shipping Area	5/12/2006	mg/kg	12		4.5	U	62			Left in place
	ACSI-BDS-21	Shipping Area	5/15/2006	mg/kg	7.4		3.9	U	24			Excavated
	ACSI-BDS-22	Shipping Area	5/15/2006	mg/kg	6.0	U	4.4	U	12	U		Left in place
	ACSI-BDS-23	Shipping Area	5/15/2006	mg/kg	6.0	U	4.2	U	12	U		Left in place
	ACSI-SWS-22	Shipping Area	5/15/2006	mg/kg	140		3.8	U	740			Left in place
	ACSI-SWS-222	Shipping Area	5/15/2006	mg/kg	84		3.7	U	190			Left in place
	ACSI-SWS-23	Shipping Area	5/15/2006	mg/kg	13		3.5	U	26			Left in place
	ACSI-BDS-24	Shipping Area	5/16/2006	mg/kg	6.2	U	4.9	U	15			Left in place
	ACSI-BDS-25	Shipping Area	5/16/2006	mg/kg	6.1	U	5.1	U	21			Left in place
	ACSI-SWS-24	Shipping Area	5/16/2006	mg/kg	100		5.0	U	130			Left in place
	ACSI-SWS-25	Shipping Area	5/16/2006	mg/kg	5.2	U	4.2	U	11			Left in place
	ACSI-SWS-26	Shipping Area	5/16/2006	mg/kg	26		5.7	U	190			Left in place
	ACSI-SWS-27	Shipping Area	5/16/2006	mg/kg	18		4.4	U	81			Left in place

Table 4-8
TPH Concentrations in Soil
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

					COC (comparison value in mg/kg)							
Investigation	**Sample ID**	**Area**	**Sample Date**	**Units**	**TPH-Diesel (2000)**		**TPH-Gasoline (30)**		**TPH-Motor Oil (2000)**		**Measured TPH Concentration[a]**	**Comment**
	ACSI-SWS-28	Shipping Area	5/16/2006	mg/kg	9.4		5.5	U	40			Left in place
	ACSI-SWS-29	Shipping Area	5/17/2006	mg/kg	--		6.5	U	--			Left in place

[a] Calculated per MTCA TPH Soil Cleanup Level Worksheet.
> HCID analysis result, fuel type is present, see Measured TPH Concentrtation
< HCID analysis result, fuel type is not present at the indicated MDL
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the sample-specific method detection limit (MDL).

Exceeds comparison criteria or risk threshold

Table 4-9

Soil Samples with Exceedances of PAH Comparison Values

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

												Excavated	
Sample ID				**RR1**		**RR2**		**ACSI-BDS-19**		**ACSI-WCS-03-1-4.5**			
Location ID				Railroad Track		Railroad Track							
								Shipping Area		Shipping Area			
Sample Date				3/03/2005		3/03/2005		5/12/2006		2/23/2006			
Chemical Group	**Compound**	**Units**	**CV**										
PAH	Anthracene	mg/kg	24,000	0.52		1.2		0.086		2.4			
PAH	Pyrene	mg/kg	2,400	0.92		1.9		0.60		5.0			
PAH	Benzo(g,h,i)perylene	mg/kg	NA	0.074	U	0.069	U	0.32		0.32	U		
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.14	0.074	U	0.069	U	**0.28**		0.32	U		
PAH	Benzo(b)fluoranthene	mg/kg	0.14	0.091		**0.26**		**0.94**		**0.42**			
PAH	Fluoranthene	mg/kg	3,200	1.5		3.9		0.70		5.2			
PAH	Benzo(k)fluoranthene	mg/kg	0.14	0.074	U	**0.15**		**0.39**		**0.47**			
PAH	Acenaphthylene	mg/kg	NA	0.074	U	0.069	U	0.063	U	0.32	U		
PAH	Chrysene	mg/kg	0.14	**0.24**		**0.58**		**0.44**		**1.3**			
PAH	Benzo(a)pyrene	mg/kg	0.14	0.074	U	**0.18**		**0.76**		**0.37**			
PAH	Dibenz(a,h)anthracene	mg/kg	0.14	0.074	U	0.069	U	0.11		0.32	U		
PAH	Benzo(a)anthracene	mg/kg	0.14	**0.22**		**0.56**		**0.43**		**1.1**			
PAH	Acenaphthene	mg/kg	4,800	0.84		3.9		0.063	U	5.0			
PAH	Phenanthrene	mg/kg	NA	2.8		8.0		0.39		11			
PAH	Fluorene	mg/kg	3,200	0.73		2.2		0.063	U	4.5			
PAH	Pentachlorophenol	mg/kg	8.3	0.37	U	0.35	U	0.32	U	1.6	U		
PAH	Naphthalene	mg/kg	1,600	0.99		**6.2**		0.0044	U	10			
PAH	2-Methylnaphthalene	mg/kg	320	0.66		2.3		0.063	U	6.1			

mg/kg = milligrams per kilograms

MDL = method detection limit

Data Qualifiers

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the sample-specific method detection limit (MDL).

J = The analyte was positively identified; the quantitation is an estimation.

PAH = polynuclear aromatic hyrdrocarbons

= exceeds comparison value

Table 4-10
Arsenic Concentrations in Groundwater
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Investigation	Sample No.	QAQC Type	Sample Date	Arsenic, dissolved (mg/L)	Location
Phase II ESA	MP5	N	02-Mar-05	**0.0062**	Main Plant Area Groundwater
	MP6	N	02-Mar-05	**0.0087**	Main Plant Area Groundwater
	MP7	N	02-Mar-05	**0.0056**	Main Plant Area Groundwater
	MP1	N	03-Mar-05	**0.0044**	Main Plant Area Groundwater
	MP2	N	03-Mar-05	**0.0077**	Main Plant Area Groundwater
	MP3	N	03-Mar-05	**0.0153**	Shipping Area
	MP4	N	03-Mar-05	**0.0399**	Shipping Area
	MP4DUP	FD	03-Mar-05	**0.0416**	Shipping Area
	LBSP1	N	04-Mar-05	**0.0044**	Aeration Stabilization Basin Seep
	LBSP2	N	04-Mar-05	**0.0016**	Aeration Stabilization Basin Seep
	LBSP3	N	04-Mar-05	**0.0004**	Aeration Stabilization Basin Seep
Supplemental Field Inv.	DP11	N	25-May-05	**0.008**	Shipping Area
	DP7	N	25-May-05	**0.0102**	Shipping Area
	DP-DUP1	FD	25-May-05	**0.009**	Shipping Area
	DP10	N	26-May-05	**0.008**	Shipping Area
Post-removal GW Monitoring	ACSI-GWS-01-02	N	31-Aug-06	**0.018**	Shipping Area
	ACSI-GWS-01-03	N	31-Aug-06	**0.0225**	Shipping Area
	ACSI-GWS-01-100	FD	31-Aug-06	**0.0186**	Shipping Area
	ACSI-GWS-01-01	N	01-Sep-06	**0.0087**	Shipping Area
	ACSI-GWS-01-04	N	01-Sep-06	**0.0069**	Shipping Area

Concentration exceeds MTCA Method B CUL (5.8E-05 mg/L)

Table 4-11
TPH and Petroleum Related Compound Exceedances in Groundwater
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

															MW-1	
Sample ID				**MP3**		**MP4**		**MP4DUP**		**DP16**		**DP4**		**DP7**		**ACSI-GWS-01-01**	
Location ID				Main Plant Area Groundwater		Main Plant Area Groundwater		Main Plant Area Groundwater		Main Plant Area		Main Plant Area		Main Plant Area		Main Plant Area	
Sample Date				3/03/2005		3/03/2005		3/03/2005		5/26/2005		5/25/2005		5/25/2005		9/01/2006	
Chemical Group	**Compound**	**Units**	**CV**														
VOC	Benzene	mg/L	8.00E-04	--		**0.18**		**0.18**		**0.015**		**0.056**		0.0050	U	3.00E-04	
PAH	Indeno(1,2,3-cd)pyrene	mg/L	1.20E-05	0.0010	U	0.0010	U	0.0010	U	--		--		--		0.0010	U
PAH	Benzo(b)fluoranthene	mg/L	1.20E-05	0.0010	U	0.0010	U	0.0010	U	--		--		--		0.0010	U
PAH	Benzo(k)fluoranthene	mg/L	1.20E-05	0.0010	U	0.0010	U	0.0010	U	--		--		--		0.0010	U
PAH	Chrysene	mg/L	1.20E-05	0.0010	U	0.0010	U	0.0010	U	--		--		--		0.0010	U
PAH	Benzo(a)pyrene	mg/L	1.20E-05	0.0010	U	0.0010	U	0.0010	U	--		--		--		0.0010	U
PAH	Benzo(a)anthracene	mg/L	1.20E-05	0.0010	U	0.0010	U	0.0010	U	--		--		--		0.0010	U
PAH	Naphthalene	mg/L	0.16	0.13		0.0012		0.0014		--		--		--		**0.25**	
PAH	2-Methylnaphthalene	mg/L	0.032	0.030		0.0016		0.0018		--		--		--		**0.046**	
SVOC	Carbazole	mg/L	0.0044	**0.0095**		0.0010	U	0.0010	U	--		--		--		**0.034**	
TPH	Diesel Range Hydrocarbons	mg/L	0.50	0.63	>	0.63	<	0.63	<	--		--		--		**1.0**	
TPH	Gasoline Range Hydrocarbons	mg/L	0.80	0.25	U	0.25	>	0.25	>	--		**1.3**		--		**0.92**	
TPH	Motor Oil	mg/L	0.50	--		--		--		--		--		--		0.50	U
TPH	Oil Range	mg/L	0.50	0.63	U	0.63	<	0.63	<	--		--		--		0.63	U
TPH	C10-C12 Aliphatics	mg/L	NA	0.040	U	0.072		0.080		0.050	U	0.050	U	0.050	U	--	
TPH	C10-C12 Aromatics	mg/L	NA	0.15		0.11		0.12		0.050	U	0.41		0.050	U	--	
TPH	C12-C13 Aromatics	mg/L	NA	--		0.050	U	0.050	U	0.050	U	0.13		0.050	U	--	
TPH	C12-C16 Aliphatics	mg/L	NA	0.040	U	--		--		--		--		--		--	
TPH	C12-C16 Aromatics	mg/L	NA	0.14		--		--		--		--		--		--	
TPH	C16-C21 Aliphatics	mg/L	NA	0.040	U	--		--		--		--		--		--	
TPH	C16-C21 Aromatics	mg/L	NA	0.10		--		--		--		--		--		--	
TPH	C21-C34 Aliphatics	mg/L	NA	0.076		--		--		--		--		--		--	
TPH	C21-C34 Aromatics	mg/L	NA	0.040		--		--		--		--		--		--	
TPH	C5-C6 Aliphatics	mg/L	NA	--		0.49		0.50		0.050	U	0.16		0.050	U	--	
TPH	C6-C8 Aliphatics	mg/L	NA	--		1.7		1.7		0.075		0.62		0.050	U	--	
TPH	C8-C10 Aliphatics	mg/L	NA	0.040	U	0.057		0.064		0.050	U	0.050	U	0.050	U	--	
TPH	C8-C10 Aromatics	mg/L	NA	0.040	U	0.16		0.16		0.050	U	0.10		0.050	U	--	

Notes:

> HCID analysis result, fuel type is present (result is not quantified, use Total EPH/VPH results to quantify concentration)
< HCID analysis result, fuel type is not present at the indicated MDL
mg/L = milligrams per liter
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the sample-specific method detection limit (MDL).

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
Total EPH = Sum of detected aliphatic and aromatic fractions C-10 through C-34
Total VPH = Sum of detected aliphatic and aromatic fractions C-5 through C-10

Table 4-11
TPH and Petroleum Related Compound Exceedances in Groundwater
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

										MW-1
Sample ID				**MP3**	**MP4**	**MP4DUP**	**DP16**	**DP4**	**DP7**	**ACSI-GWS-01-01**
Location ID				Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date				3/03/2005	3/03/2005	3/03/2005	5/26/2005	5/25/2005	5/25/2005	9/01/2006
Chemical Group	**Compound**	**Units**	**CV**							

VOC = volatile organic hydrocarbons

= exceeds comparison value

Table 7-1
Promulgated Standards and Criteria (ARARs)
Remedial Investigation and Feasibility Study Report
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Environmental Media Standards or Criteria	Source
Groundwater	
Federal MCL	40 CFR 141 and 142
Federal MCL Goals	40 CFR 141 and 142
Washington State SMCL	WAC 246-290
Washington GWQS	WAC 173-200
Washington MTCA Method B Cleanup Levels for Groundwater	WAC 173-340
Surface Water	
Washington MTCA Method B Cleanup Levels for Surface Water	WAC 173-340
Washington Water Quality Standards for Marine Water, Chronic (MWC ST)	WAC 173-201A
Washington Water Quality Standards for Marine Water, Acute (MWA ST)	WAC 173-201A
Federal Water Quality Criteria for Surface Water, Saltwater Chronic (SWC FED)	40 CFR 131
Federal Water Quality Criteria for Surface Water, Saltwater Acute (SWA FED)	40 CFR 131
Federal Water Quality Criteria for the Consumption of Organisms Only (HH FED FISH)	40 CFR 131
Soil and Sediment—Main process area	
Washington MTCA Method A Cleanup Levels for Soil	WAC 173-340

Notes:
GWQS = Groundwater Quality Standard
MCL = Maximum Contaminant Level
SMCL = Secondary Maximum Contaminant Levels

Table 7-2

Cleanup Level Selection for Groundwater

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

Analyte	Unit	Federal MCL	Federal MCLG	MTCA Method A Groundwater	MTCA Method B Groundwater	Washington GWQS	MTCA Method B Surface Water	State Marine Water Chronic	State Marine Water Acute	Clean Water Act - Human Health - Marine	Proposed Final CUL
TPH-GRO	mg/L	--	--	0.8	--	--	--	--	--	--	**0.8**
TPH-DRO	mg/L	--	--	0.5	--	--	--	--	--	--	**0.5**
Benzene	mg/L	0.005	0	0.005	0.0008	0.005	--	--	--	0.051	**0.0008**
Carbazole	mg/L	--	--	--	0.0044	0.005	--	--	--	--	**0.0044**
Napthalene	mg/L	--	--	0.16	0.16	--	4.9	--	--	--	**0.16**
2-Methylnapthalene	mg/L	--	--	0.032	0.032	--	--	--	--	--	**0.032**
1-Methylnapthalene	mg/L	--	--	0.0024	0.0024	--	--	--	--	--	**0.0024**

MCL=Maximum Contaminant Level

MCLG=Maximum Contaminant Level Goal

MTCA=Model Toxics Control Act

GWQS=Groundwater Quality Standards

TABLE 8-1
General Response Actions
Abitibi West Tacoma Mill, RI/FS Report, Steilacoom, Washington

Action	Description
No Further Action	Serves as baseline comparison option.
Institutional Controls and Monitoring	Reduces the potential for direct contact with shallow fill/alluvial groundwater through deed restrictions, signage, and/or fencing. Provides for routine maintenance of these controls and will likely require long-term groundwater monitoring.
Containment	Prevents, retards, or redirects petroleum migration in groundwater. Barrier walls hydraulically isolate or alter groundwater flow.
Collection and Removal	Removes groundwater with cutoff trenches or wells. May require pretreatment prior to discharge.
Treatment	Provides treatment of groundwater by means of conventional engineered treatment systems or natural attenuation processes.
Disposal	Provides for disposal of treated groundwater through discharge, reinjection, or offsite disposal.

TABLE 8-2
Summary of Technology Screening for Groundwater
Abitibi West Tacoma Mill, RI/FS Report, Steilacoom, Washington

Technology	Retained	Effectiveness	Implementability	Cost
No Further Action	No	Does not meet RAOs.	Easily implemented	Low cost
Institutional Controls and Monitoring	No	Does not meet requirement to allow for unrestricted use of the Site.	Easily implemented	Low cost
Groundwater Containment Technologies				
Low-Permeability Barrier Wall	No	Effective in preventing groundwater discharge to the river.	Implementable	High cost
Hydraulic Containment (drains and wells)	No	Difficult to achieve containment due to low-permeability materials at the Site and uncertain depth of confining unit.	Implementable	Moderate cost for installation; high cost for treatment and disposal
Groundwater Collection Technologies				
Groundwater Extraction	No	Difficult to achieve containment due to low-permeability materials at the Site and uncertain depth of confining unit.	Implementable	High cost
Treatment Technologies				
Monitored Natural Attenuation	Yes	Now that source removal has been completed, residual petroleum in groundwater is likely to biodegrade relatively quickly.	Implementable	Low cost
Permeable Reactive Barrier	No	Potentially effective for the removal of dissolved petroleum compounds. Technology is considered developmental.	Implementable	High cost
In-Situ Accelerated Bioremediation	Yes	Effective at promoting natural biodegradation of petroleum-related compounds. May be difficult to achieve effective oxygen release compound (ORC) delivery due to variability in formation density and conductivity.	Implementable	Moderate cost

TABLE 8-3
Summary of Groundwater Remedial Alternative Design Parameters and Criteria
Abitibi West Tacoma Mill, RI/FS Report, Steilacoom, Washington

Alternative	General Description	Major Design Parameters and Costing Criteria	Comments
Alternative 1: Monitored Natural Attenuation	• Installation of one new monitoring well • Preparation of a compliance monitoring plan • Routine groundwater monitoring	• Install one monitoring well • Perform routine groundwater monitoring: quarterly until four consecutive quarters meet cleanup criteria • Analyze groundwater samples for TPH, SVOCs, and arsenic	Long-term stability or decrease of TPH concentrations in the area of groundwater impacts has not been demonstrated because the source was removed and monitoring wells were installed in 2006. Residual petroleum is expected to degrade relatively quickly.
Alternative 2: Accelerated In-Situ bioremediation	• Same 3 base conditions as Alternative 1 • Injection of ORC or equivalent to accelerate biodegradation of petroleum-related compounds	• Same 3 base conditions as Alternative 1 • Inject ORC at approximately eight locations within the vicinity of impacted groundwater	Groundwater contains relatively low dissolved oxygen at 1.2 mg/L. Additional oxygen may or may not increase degradation rates.

Table 9-1
Cost Estimate
Alternative 1: Monitored Natural Attenuation
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

DATE: 10/16/2006

PROJECT NO.: 348300

DESCRIPTION	QTY	UNIT	Material, Equipment, Labor UNIT COST	TOTAL COST	COMMENTS
GW MNA Monitoring Work Plan	1	LS	$7,500	$7,500	
GW Monitoring Well Installation	1	EA	$2,500	$2,500	
GW Monitoring Well Installation Oversight	1	LS	$1,500	$1,500	
GW Monitoring Labor and Equipment	4	EA	$3,000	$12,000	4 events per year
Laboratory Analysis	16	EA	$525	$8,400	4 monitoring wells, 4 events (TPH-GRO, TPH-DRO, SVC
Well maintenance	1	LS	$500	$500	Locks, bolts, caps, cleaning.
Abandon 5 wells at completion of monitoring	1	LS	$2,500	$2,500	$750 mob plus $350/well abandonment
Reporting	1	LS	$10,000	$10,000	
SUBTOTAL				**$44,900**	
Misc. Allowance	**5%**			**$2,200**	
Contingency	**25%**			**$11,800**	
TOTAL PROJECT COST				**$59,000**	

NOTE: The above cost opinion is in 2006 dollars and does not include escalation.
The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final schedule and other variable factors. As a result, the final project costs will vary from those

Alternative 2: Enhanced In-Situ Bioremediation
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, Washington

DATE: 10/16/2006
PROJECT NO.: 348300

DESCRIPTION	QTY	UNIT	Material, Equipment, Labor UNIT COST	TOTAL COST	COMMENTS
Remedial Action Work Plan	1	LS	$12,500	$12,500	
GW Monitoring Well Installation	1	EA	$2,500	$2,500	
GW Monitoring Well Installation Oversight	1	LS	$1,500	$1,500	
Subcontractor-probe injection, 8 holes	2	DAY	$1,675	$3,350	2 Injections of ORC
Subcontractor-2nd person for injections	2	DAY	$450	$900	2 Injections of ORC
Subcontractor fuel surcharge	2	EA	$150	$300	
Oversight during injections	2	EA	$3,000	$6,000	2 Injections
Oxygen Release Compound, chemical mixture	16	EA	$15	$240	16 buckets of ORC-Extended (2 injection events)
WA State notice of intent-injections	16	EA	$65	$1,040	
WA State notice of intent-decommissioning of injection	16	EA	$35	$560	RCW 18.104.040 (4)(e))
Groundwater Monitoring Lab Analysis	24	EA	$525	$12,600	4 monitoring wells, 6 events (TPH-GRO, TPH-DRO, SVO
GW Monitoring Labor and Equipment	6	EA	$3,000	$18,000	6 events
Well maintenance	1	--	$500	$500	Locks, bolts, caps, cleaning.
Abandon 5 wells at completion of monitoring	1	LS	$2,500	$2,500	$750 mob plus $350/well abandonment
Reporting	1	LS	$12,500	$12,500	
SUBTOTAL				**$75,000**	
Misc. Allowance	**5%**			**$3,750**	
Contingency	**25%**			**$19,700**	
TOTAL PROJECT COST				**$98,500**	

NOTE: The above cost opinion is in 2006 dollars and does not include escalation.
The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final schedule and other variable factors. As a result, the final project costs will vary from those presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

TABLE 9-3
Comparison of Proposed Groundwater Alternatives with MTCA Requirements
Abitibi West Tacoma Mill, RI/FS Report, Steilacoom, Washington

Criteria	Alternative 1 Monitored Natural Attenuation	Alternative 2 Accelerated In-Situ Bioremediation
Threshold Criteria		
Protect Human Health and the Environment	Yes	Yes
Comply with Cleanup Levels and ARARs	Yes	Yes
Provide for Compliance Monitoring	Yes	Yes
Other Requirements		
Long-Term Effectiveness	High	High
Short-Term Effectiveness	High	High
Restoration Time Frame	Unknown; est. 2 years	Unknown; est. 1 - 2 years
Permanent Reduction in Toxicity, Mobility, and Volume of Hazardous Substances	High	High
Ability to be Implemented	High	Medium-High
Status of the Groundwater Plume[1]	Likely Stable	
Mechanisms of Natural Attenuation[1]	Aerobic Degradation	
Source Control[1]	Completed	
Cost (Initial Year)	Low ($59,000)	Medium ($98,500)

Notes:

[1]Evaluation criteria for natural attenuation alternatives

Source: USGS 2002

FIGURE 1-1
Location Map
Remedial Investigation/Feasibility Study Report
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\baiboo\Groups\NWRMIS\GIS\Abitibi\MapDocuments\Fig1_1_Basemap.mxd, Date: September 7, 2006

File Path: \\balo\Groups\NW\RMIS\GIS\Abitibi\Map Documents\Figure1_2topoandSW.mxd, Date: March 2, 2007

Sources: Pierce County GIS Data; USGS High Resolution Orthoimage 2002;
Finlayson D.P. (2005) Combined bathymetry and topography of the Puget Lowland,
Washington State. University of Washington, (http://www.ocean.washington.edu/data/pugetsound)

- Storm Drain Catch Basin
- Surface Overflow to Garrison Creek (Freshwater tanks, #3 and #1 wells)
- Direction of Drainage
- Approximate Ordinary High Water Mark
- 10ft Contour

N

0 50 100 Feet

1 inch equals 200 feet

FIGURE 1-2
Site Topography and Surface Water Features

Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

Sources: Pierce County GIS Data, USGS High Resolution Orthoimage 2002.

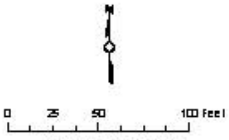


FIGURE 1-3
Mill Layout
Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

Source: USGS 2002

N

0 100 200 Feet

1 inch equals 200 feet

FIGURE 1-4
Sampling Areas
Remedial Investigation/Feasibility Study Report
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\baloo\Groups\NWRMIS\GIS\Abitibi\MapDocuments\Fig1-4_Areas.mxd, Date: January 2, 2007

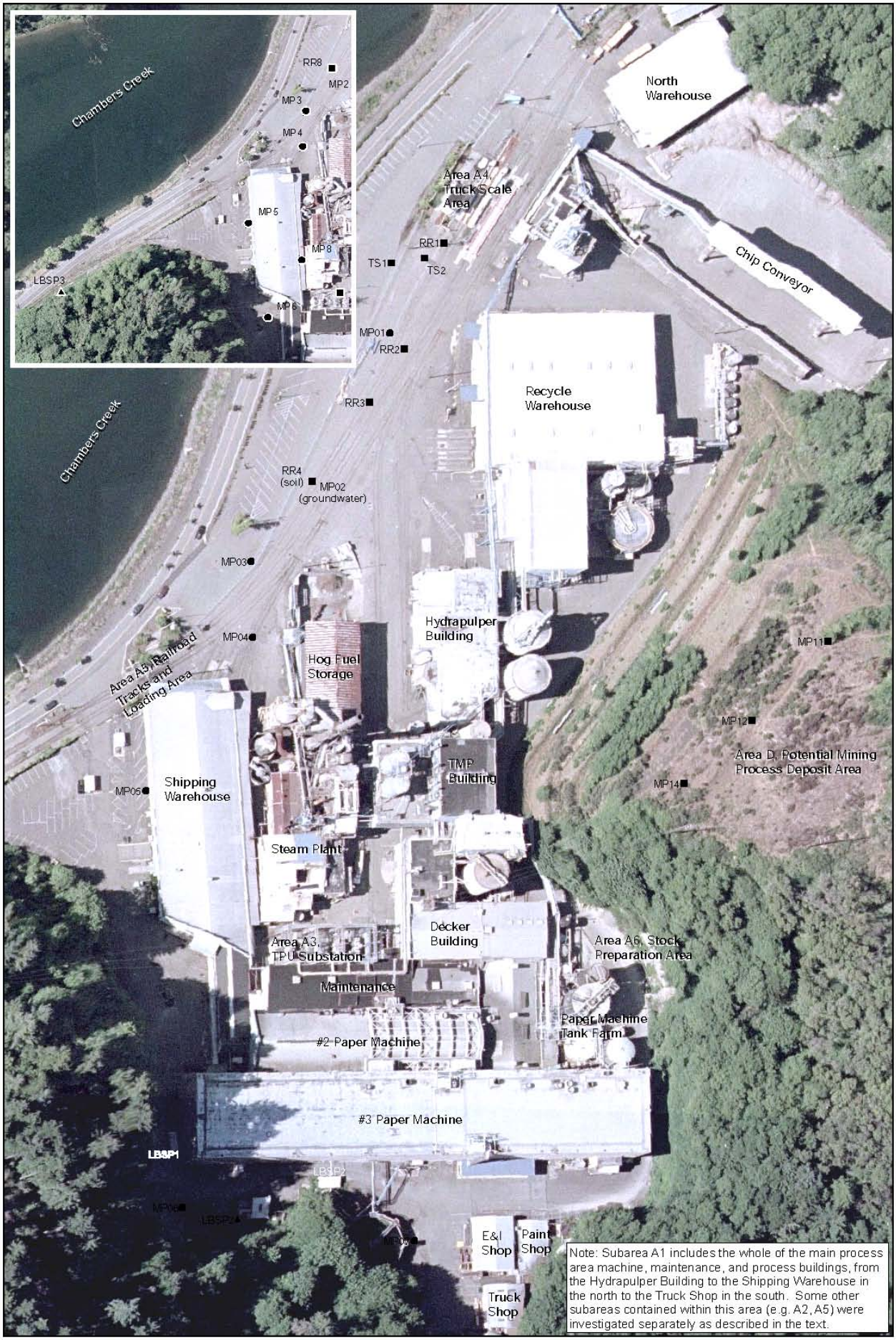


FIGURE 2-1
Phase II ESA Sample Locations, Main Plant Area
Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\balco\Groups\NWRMIS\GIS\Abitibi\MapDocuments\Fig2_1_PhaseII.mxd, Date: April 6, 2007

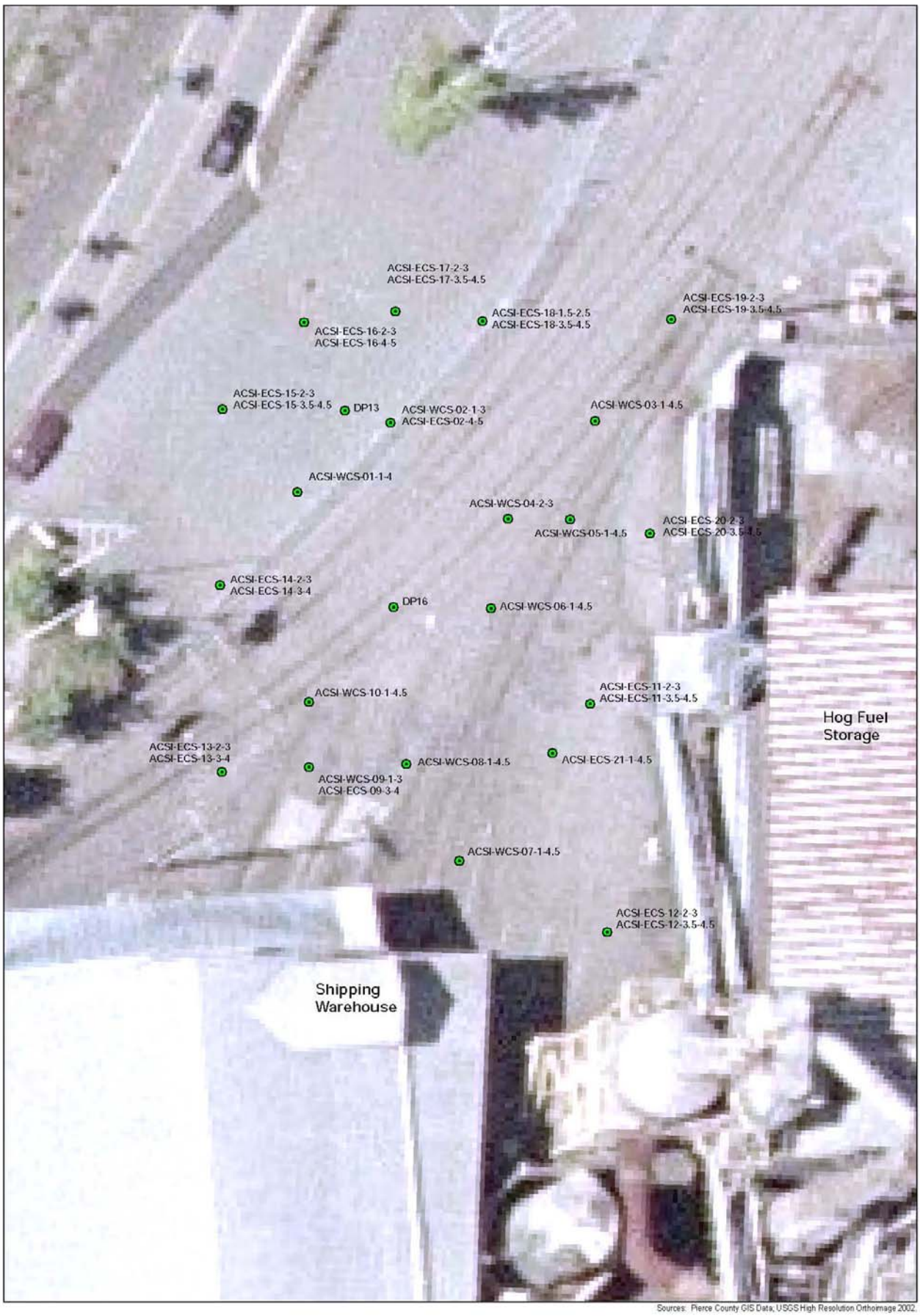
FIGURE 2-2
Phase II ESA Sample Locations,
Area C, Aeration Stabilization Basin
Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: Y:\acad\Groups\NW\RMIS\GIS\Abitibi\MapDocument\Old Figures\lagoon_V2.mxd, Date: October 4, 2006

■ Groundwater sample location (also soil where indicated)

FIGURE 2-3
Supplemental Field Investigation
Sampling Locations
Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\halco\Groups\NWRMIS\GIS\Abitibi\Map Documents\Fig3_2_groundwater.mxd, Date: September 7, 2006



Sources: Pierce County GIS Data; USGS High Resolution Orthoimage 2002.

In-place characterization sampling location

0 5 10 20 Feet

1 inch equals 20 feet

Figure 2-4
In-Place Characterization Sampling Locations
Remedial Investigation/Feasibility Study
West Tacoma Mill
Steilacoom, WA

Sources: Pierce County GIS Data; USGS High Resolution Orthoimage 2002.

Soil Excavation Area

20 ft Grid

Approximate location of subsurface concrete structure

N

0 5 10 20 Feet

1 inch equals 20 feet

Figure 2-5
Soil Excavation Area
Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\baloo\Groups\NWRMIS\GIS\Abitibi\MapDocuments\Fig1_As_Built.mxd, Date: October 4, 2006

Figure 2-6
Subsurface Concrete Structure, May 2006
Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

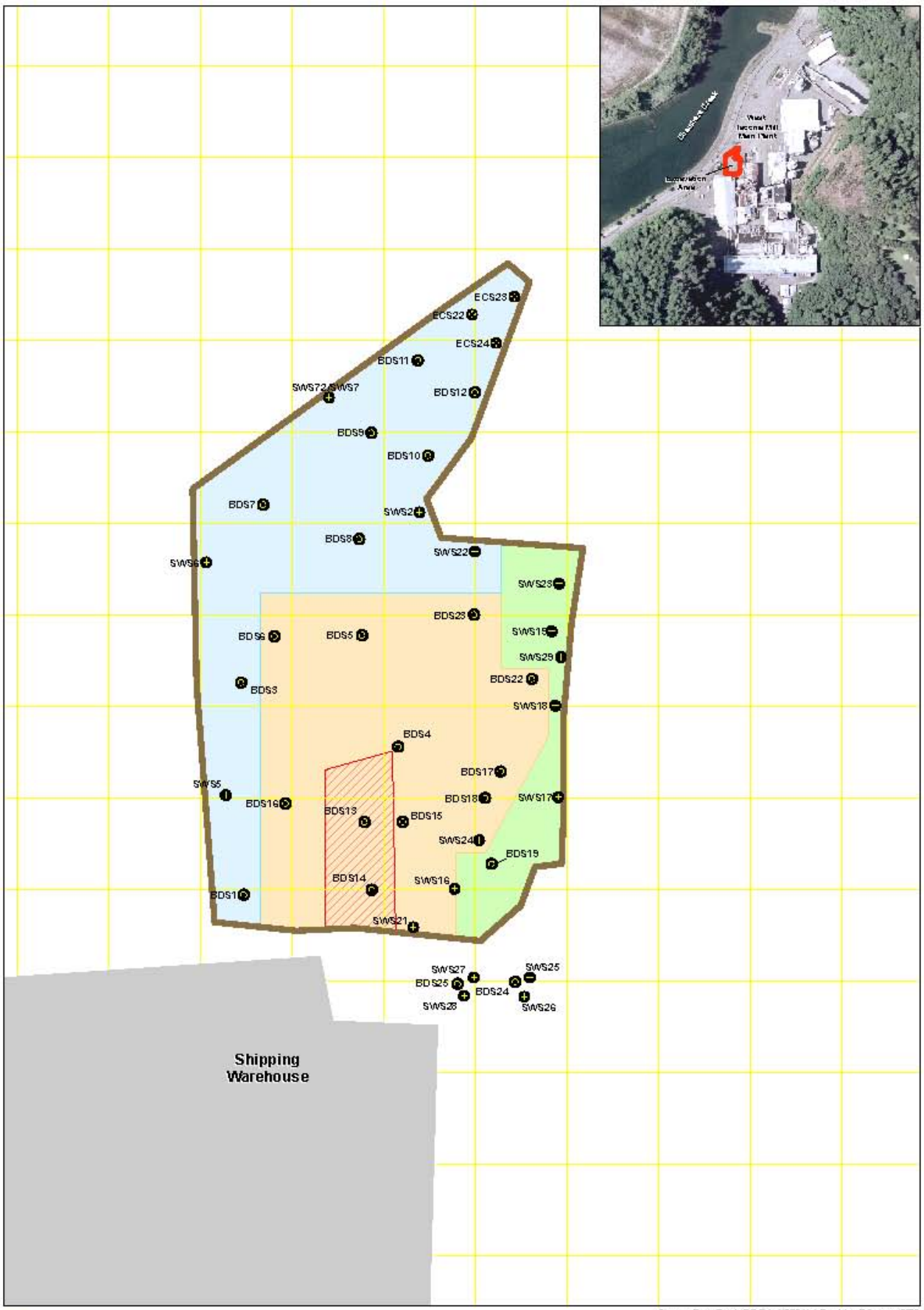


Figure 2-7
Excavation Depth Summary and Left-in-Place Confirmation Sample Locations

Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\basico\Groups\All\WRMIS\GIS\Abitibi\MapDocuments\Fig2_As_Built.mxd, Date: July 11, 2006

FIGURE 2-8
Monitoring Well Locations in Shipping Warehouse Area

Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\tacloc\Groups\MW\RMIS\GIS\Abitibi\Map Documents\Fig3_2_groundwater.mxd, Date: September 7, 2006

FIGURE 3-1
Groundwater Elevation
August 30, 2006

Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\tacloo\Groups\NW\RMIS\GIS\Abitibi\Map Documents\Fig3_3_1\WaterTable.mxd, Date: October 5, 2006

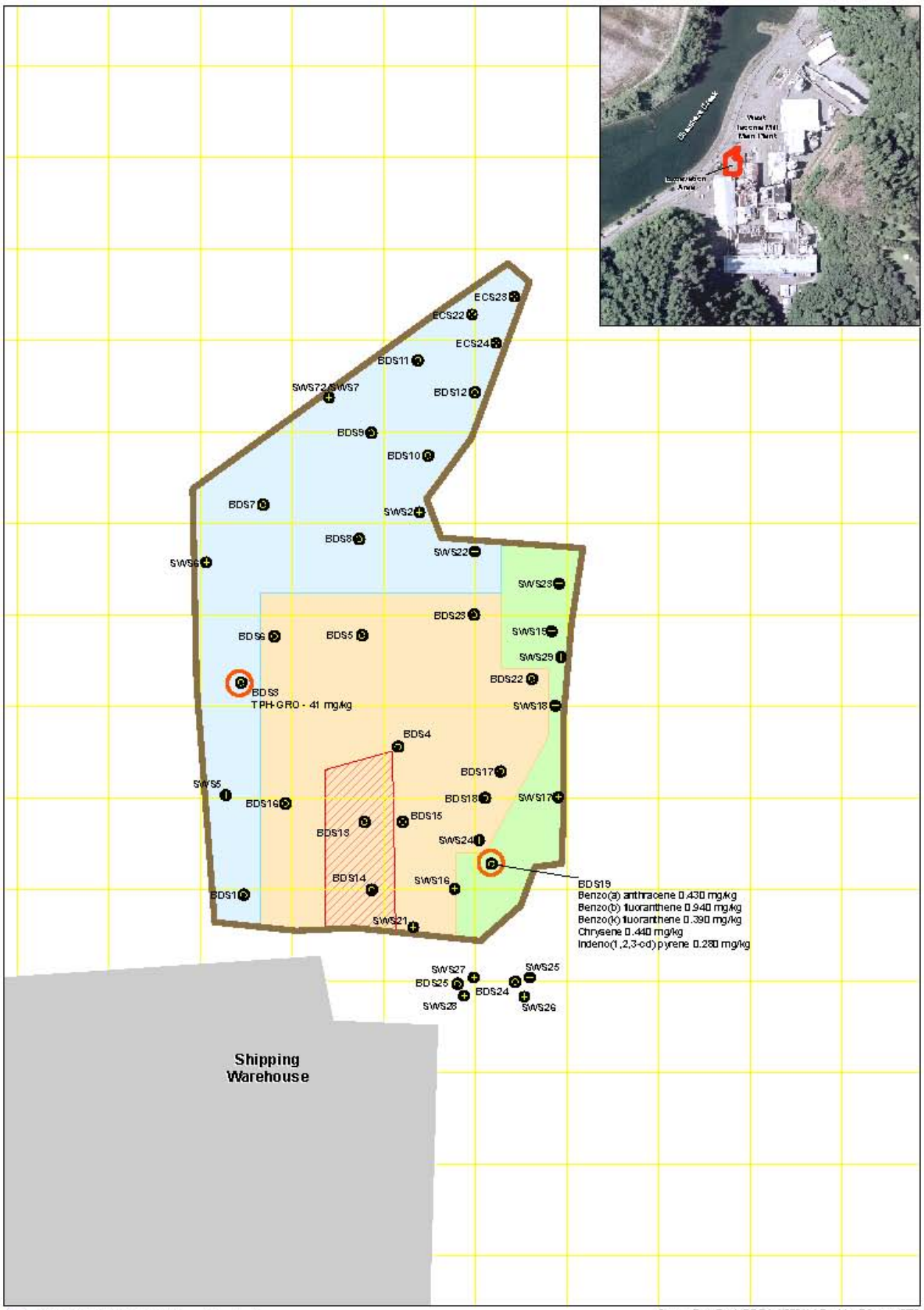


Figure 4-1
Confirmation Sample Locations and Cleanup Level Exceedances in Soil Shipping Warehouse Area
Remedial Investigation/Feasibility Study
Abitibi West Tacoma Mill
Steilacoom, WA

File Path: \\basico\Groups\AWWRMIS\GIS\Abitibi\MapDocuments\Fig2_As_Built.mxd, Date: July 11, 2005

Monitoring Well Location

Supplemental Field Investigation Groundwater Sample

Phase II ESA Groundwater Sample

Soil Excavation Area

Grey text indicates pre-excavation sample result

FIGURE 4-2
Groundwater Sample Locations and Cleanup Level Exceedances Shipping Warehouse Area

Remedial Investigation/Feasibility Study
Abitibi/West Tacoma Mill
Steilacoom, WA

File Path: \\tacloc\Groups\MW\RMIS\GIS\Abitibi\Map Documents\Fig3_2_groundwater.mxd, Date: September 7, 2006

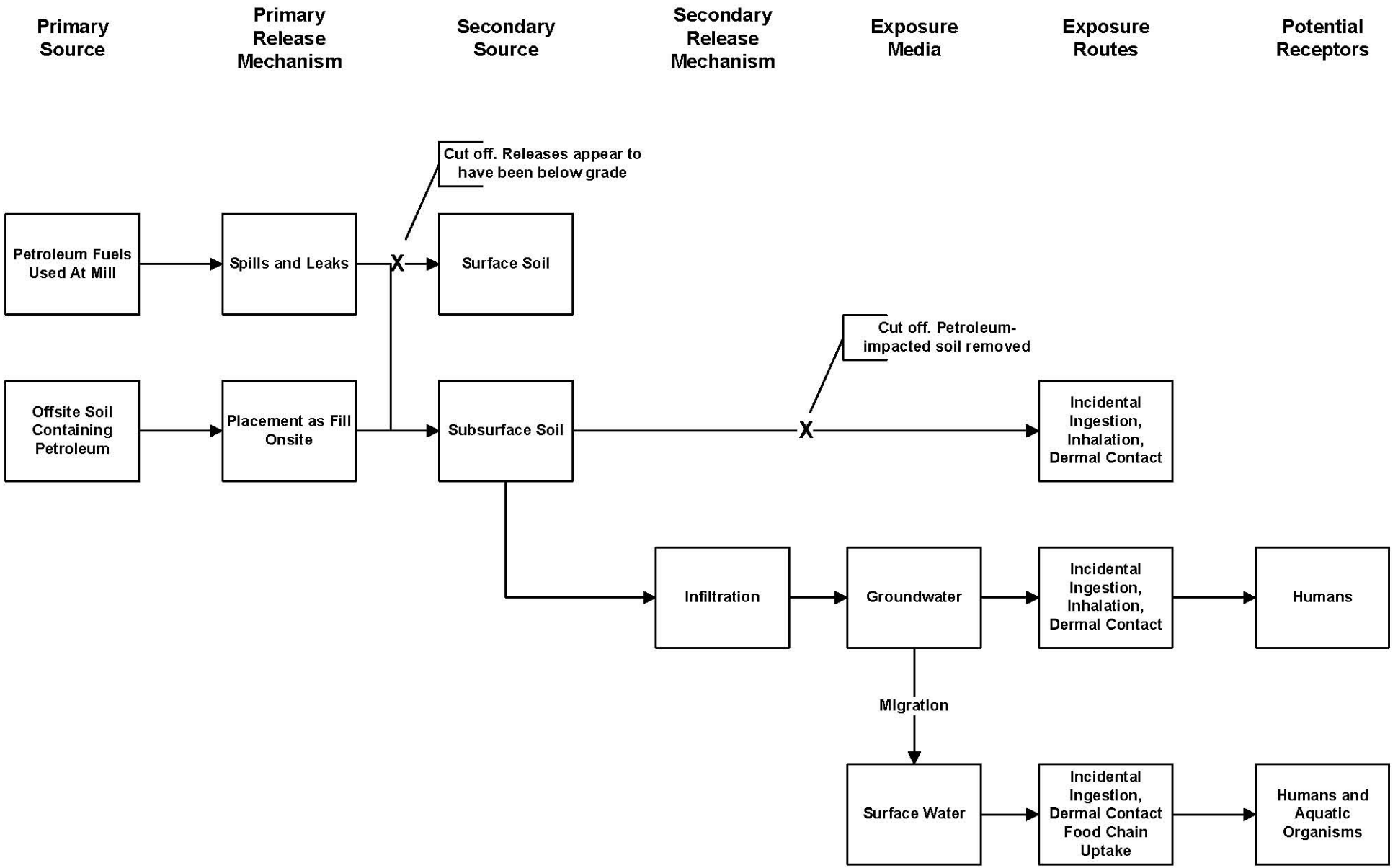


Figure 6-1
Conceptual Site Model
Remedial Investigation/Feasilibty Study Report
Abitibi West Tacoma Mill
Steilacoom, WA

Appendix A. Removal Action Documentation

Abitibi Consolidated

West Tacoma Mill

Construction Closeout Report

Acronyms

Abitibi	Abitibi Consolidated Sales corporation
AHA	activity hazard analysis
bgs	below ground surface
CCI	CH2M HILL Constructors, Inc.
COC	constituent of concern
CQP	Construction Quality Plan
CSTC	crushed stone top course
CUL	cleanup level
DFW	definable features of work
GPS	global positioning system
IRA	Independent Remedial Action
MTCA	Model Toxics Control Act
PCB	polychlorinated biphenyls
PSC	Philips Services Corporation
PSE	Puget Sound Energy
SVOC	semivolatile compound
TCLP	toxicity characteristic leaching procedure
TPCHD	Tacoma-Pierce County Health Department
TPH	total petroleum hydrocarbons
VOC	volatile organic compound

Contents

1.0 Introduction

Abitibi Consolidated Sales Corporation (Abitibi) has entered into an Interim Action (IA) under the Model Toxics Control Act (MTCA) at their inactive West Tacoma Mill site in Steilacoom, Washington. The constituent of concern (COC) is total petroleum hydrocarbon (TPH) in soil.

The purpose of this report is to document the IA activities conducted by CH2M HILL Constructors, Inc. (CCI) for Abitibi. The work involved removal of railroad spurs, subsurface utility locates, excavation and disposal of TPH-affected soil, verification sampling during soil removal, site restoration, and surveying.

Construction work began in February 2006 with the removal of several railroad spurs that traversed the planned excavation site. Following the rail removal, a search for underground utilities was completed. An inoperative high pressure natural gas line located within the excavation area was abandoned by Puget Sound Energy prior to the start of excavation. The abandonment of the high pressure gas line was completed in April 2006. The soil excavation started at the end of April and finished mid May 2006. Site restoration and demobilization activities were completed 01 June 2006.

A Health and Safety Plan and Construction Quality Plan (CQP) were prepared and included in the Construction Work Plan "*Construction Work Plan for Independent Remedial Action, Abitibi West Tacoma Mill, Steilacoom, Washington* (CH2M HILL, February 2006)."

Prior to the start of construction sampling was conducted to estimate the lateral and vertical extent of affected material, as well as to support pre-waste disposal characterization sampling per the land disposal facility.

The remainder of this report presents details of the soil excavation and disposal activities, a summary of verification sampling, surveying, quality control, waste handling, and follow up actions. Supporting appendices are provided as follows:

- Attachment A, Figures
- Attachment B, Verification Sampling Summary Table
- Attachment C, Photographs

2.0 Construction Summary

The following sections describe the construction activities for the soil excavation and disposal portion of the IRA including rail removal, location and abandonment of underground utilities, removal and disposal of TPH-affected soil, and site restoration.

2.1 Rail removal

Initial excavation preparation activities included the removal of rail spurs within the planned excavation area, since the rails would interfere with the utility locate instrumentation.

Construction work began 16 February 2006 with the start of rail removal in the planned excavation area (Figure 1). The rails were removed with the aid of a Kobelco SK 290LC track hoe. The track hoe bucket was fitted with a "thumb" which allowed the operator to both expose the rails from surrounding asphalt and grip the rail to lift (Photo 1). Once lifted, the rail was then cut free and set aside. All rails were placed in a stockpile area selected by the Abitibi onsite representative. An area approximately 120 feet by 160 feet was cleared of rails. Once the rails were removed, the area was leveled and voids in the asphalt were filled with 5/8" minus crushed rock. The leveling and placement of two truck loads of crushed rock was completed to provide a safe walking surface for site personnel and guests. The rail removal operation was completed 17 February 2006. The ties were left in place to be removed during the implementation of the excavation.

At the conclusion of the rail removal work, silt socks were placed in the adjacent storm water catch basins.

2.2 Utility locate and abandonment

With the rails removed, utility locate personnel marked, with color coded paint, pathways of suspected underground utilities on the asphalt and gravel overlying the excavation area. Two utility locate services were used prior to excavation. The public "callbeforeudig.com" organization was notified (800-424-5555) which in turn notified all the public utility providers of record that have right-of-way corridors in the immediate excavation area. Applied Professional Services, a private utility locator, was also contacted and conducted an onsite locate on 21 February 2006 to identify any facility related utilities that may traverse the excavation area. A six inch high pressure natural gas line, belonging to Puget Sound Energy (PSE), was identified as passing through the excavation. Due to a large amount of iron still remaining in the excavation area in the form of rail spikes, a high degree of confidence could not be placed on the utility location marks. Due to the catastrophic consequences of compromising the gas line, the project team decided to positively identify the gas line location by "pot holing". Pot holes were installed using a high powered vacuum truck, a common technique used to expose utilities (Photo 2). Because the dirt is removed by vacuum rather than dug up, any chance of damage to a utility is minimized. As a precaution,

PSE representatives were onsite to observe and advise the "pot holing" operation. The "pot holing" was conducted on 22 February 2006.

Based on the location of the high pressure gas line, it was requested that PSE formally abandon the gas line, as it was not currently in operation. The gas line was cut, capped, and purged on 18 April 2006 by Pilchuck Construction, a Puget Sound Energy subcontractor.

2.3 TPH affected soil removal

The TPH affected soil excavation was conducted by Philips Services Corporation (PSC). Mobilization to the site began on 21 April 2006. During mobilization, the perimeter of the planned excavation area was marked and then the asphalt was saw cut for ease of removal and to simplify site restoration. Once cut, the asphalt was stripped away with a Kobelco 290LC track hoe. The asphalt was transported offsite in truck and pup dump trucks. A total of 159 tons of asphalt and concrete were sent off site for recycling. The first loads of TPH affected soil were transported from the site on 24 April 2006 with the last load leaving on 18 May 2006. A total of 3,445 tons of TPH affected soil was sent offsite for disposal. Approximately 30 tons of Diatomaceous earth was mixed with wet soils to facilitate excavation.

During the excavation activity, a concrete structure of unknown origin or design was discovered at approximately 5-6 feet below ground surface (bgs) (Photo 3). The location of this structure is shown in Figure 2.The structure had concrete walls supporting an overlaying slab. The space beneath the slab and between the walls was filled with sand. The structure did not appear to have a bottom. The sandy material was excavated out down to approximately 10 feet below ground surface (bgs). Areas surrounding this structure were "over excavated" 8-10 feet bgs to remove affected material.

At the completion of the planned excavation perimeter (Figure 1), verification samples indicated that TPH-affected soil remained along the east wall and south east corner of the excavation area. Excavation activities continued to remove affected material until verification sampling results indicated that remaining soil was below project cleanup levels (Figure 2).

As the excavation progressed eastward, an 8 inch ductile iron fire water control line, not previously identified during utility locating events, was unearthed approximately 4 feet bgs (Photo 4). Modifications to the line were completed by the owners' contractor (General Mechanical). The line was tested prior to backfilling and remains in service.

2.4 Site restoration

To minimize the amount of open area, backfilling of the site was conducted as verification samples showed that excavated areas achieved the CUL (Photo 5). The balance of the site restoration activities were completed on 17 through 19 May 2006. A Komatsu front end loader was used to spread and control grade. An Ingersoll Rand smooth drum roller/compactor was used to compact the fill lifts. Backfill consisted of 8"quarry spalls in wet areas, followed by 2 inch minus pit run. The surface of the excavation area was covered

with 5/8 inch minus crushed stone top course (CSTC) . Each lift was tested by a representative from Hong West Associates (HWA), employing a nuclear density gauge.

A total of: 407 tons of 8 inch quarry spalls, 3,219 tons of 2 inch minus pit run, and 500 tons of 5/8 inch minus CSTC was placed and compacted.

Site restoration was completed on 01 June 2006 when the facility perimeter fence was restored (Photos 6A and 6B).

3.0 Surveying, Quality Control, and Health and Safety

3.1 Site Control and Surveying

3.1.1 Site Control

During excavation activities two means of site control were used. For horizontal control, a 20 –foot grid was laid out using the concrete wall of the hog fuel containment structure as the north-south baseline. For the east-west baseline, the north wall of the hog fuel containment structure was used. North-south trending gridlines were designated letters A thru G respectively. The east-west trending lines were labeled numerically every 20 feet starting at "0" and ending at 160. For vertical control, a level, tripod, and survey rod were used to assist with vertical elevation measurements during the excavation.

3.1.2 Surveying

After the excavation was backfilled, the perimeter of the area and test pit boundaries were surveyed using a high-precision global positioning system (GPS), using existing control monuments and new monuments set during this survey. The perimeter of the excavation extent and selected site features were surveyed on 30 May 2006. The location of selected utilities, including the high pressure fire line, was located for future reference. Based on the survey results, an as-built site drawing was produced (Figure 2).

3.2 Quality Control

A project Construction Quality Plan (CQP) was prepared and included in the *Construction Work Plan for Independent Remedial Action, Abitibi West Tacoma Mill, Steilacoom, Washington* (CH2M HILL, February 2006). The CQP identified the Definable Features of Work (DFW) for the Independent Remedial Action. The overall intent of the CQP was to provide verification of the following elements of work.

- Delineate and record the extent of the TPH impacts with regard to achieving the target CUL.
- Monitor grade to ensure that TPH affected soil is removed and documentation prepared for the as-built condition of the site.
- Inspect the procedures used to determine quantities, the survey approach, and the approach to field measurement.
- Ensure that the soil and any demolition debris are transported to the proper land disposal facility and that proper documentation and records are prepared and received from the facilities.

Field records were maintained daily in the field log book and summarized in the daily Contractor Production Reports.

Verification soil sampling was conducted to verify that the remaining soil met the target CULs (Attachment B). A total of 62 verification soil samples were collected (28 from sidewalls, 25 from the bottom of the excavation, and 9 in various test pits).

Compaction testing of each lift with a nuclear density gauge was conducted during backfilling.

At the completion of field activities, all disposal bills of lading were collected and placed in the project file. A copy of the bills of lading was sent to the Abitibi facility for their files.

3.3 Health and Safety

A Health and Safety plan was prepared by CCI and included in the *Construction Work Plan for Independent Remedial Action, Abitibi West Tacoma Mill, Steilacoom, Washington* (CH2M HILL, February 2006). Each of the subcontractors also prepared site-specific Health and Safety Plans in regard to their specific work activities. In addition, CCI and its subcontractors prepared detailed Activity Hazard Analysis (AHA) for their specific work activities. These AHAs, as well as the Pre-Task Safety Plan, formed the basis for the daily tailgate meetings.

The project Health and Safety Program was implemented throughout the conduct of the site work. The work was completed with more than 700 man-hours worked with no lost-time accidents.

4.0 Waste Handling and Disposal

Wastes generated during the independent remedial action included total petroleum hydrocarbons (TPH) affected soil; asphalt and concrete debris; metal in the form of rails, buried pipe, conduit, and vaults; wood railroad ties; and groundwater encountered during excavation. A discussion of each waste stream follows.

4.1 TPH Affected Soil

During the preparatory phase of the project, waste characterization samples were collected and analyzed for constituents specified by Tacoma-Pierce County Health Department (TPCHD), Environmental Health Program/Waste Management. The required TPCHD analytical list included total metals; Toxicity Concentration Leachate Procedure (TCLP) metals, TCLP volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCS); total petroleum hydrocarbons (TPH); polychlorinated biphenyls (PCBs); VOCs and SVOCs, and pH. The analytical data for the samples was submitted to the TPCHD and a letter of authorization was received prior to transport of any waste. Approximately 3,445 tons of petroleum impacted soil was disposed of at LRI-304th Street Landfill, 30919 Meridian Street East, Graham, Washington. Weigh tickets and bills of lading documents were received and placed in the project files. A copy of the weigh tickets and manifests was sent to Abitibi Consolidated-West Tacoma Mill onsite representative.

4.2 Asphalt

The asphalt that overlaid the excavation area was taken to Woodworth & Company, Inc. in Lakeview for recycling. A total of 159.43 tons of asphalt were transported to Woodworth.

4.3 Metal

Rails and other metal removed from the excavation area were left onsite for recycling by the facility at a later date.

4.4 Railroad Ties

Wooden railroad ties were trucked offsite to Waste Management Inc., Columbia Ridge, OR, a Subtitle D permitted landfill, for disposal.

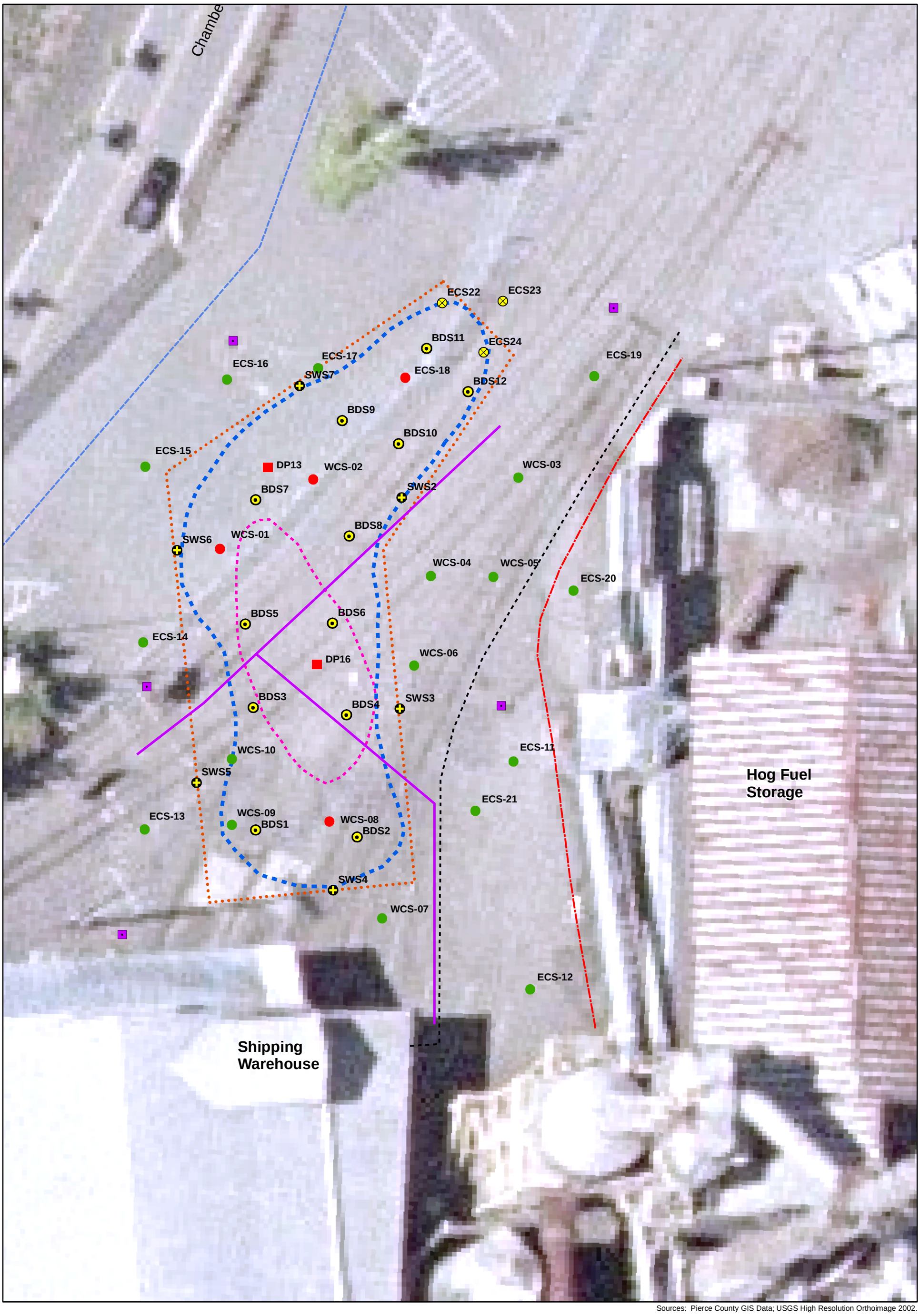
4.5 Groundwater

During excavating activities, groundwater seeped into several areas of the excavation. This water was removed by pumping it into a 22,000 gallon transportable fractionation tank for onsite storage prior to treatment. A total of 18,000 gallons of water was delivered to Philips Services Corporation facility in Kent, WA for processing.

5.0 Follow-up Actions

Ecology has approved the installation of four groundwater monitoring wells to be installed at the site on 18 August 2006. The wells will be developed and scheduled to be sampled by the end of August 2006. An additional two rounds of groundwater sampling will be subsequently conducted. Groundwater sampling results will appear in a separate report

Attachment A - Figures



Sources: Pierce County GIS Data; USGS High Resolution Orthoimage 2002.

Underground Utilities

- Electrical Powerline
- Fire Line
- Steilacoom Force Main
- 6" High Pressure Natural Gas Line "Field Marked"
- Storm Drain Catch Basin

- Estimated Excavation Area
- Impacted Area
- Estimated area of Excavation to 7-8 feet bgs

- Bottom Confirmatory Sample
- Sidewall Confirmatory Sample
- Pre-excavation Sample
- February 2006 Sample (exceeds MTCA Criteria)
- May 2005 Sample (exceeds MTCA Criteria)
- February 2006 Sample (does not exceed MTCA Criteria)

N

0 5 10 20 Feet

1 inch equals 20 feet

Confirmatory Soil Sampling

Interim Remedial Action
Abitibi Consolidated Sales Corporation
West Tacoma Mill
Steilacoom, WA

\\baloo\groups\nwrmis\gis\abitibi\gis\mxd\ConfirmatorySoilSampling.mxd April 19, 2006

ECS23
ECS22
ECS24
MW-1
BDS11
SWS72/SWS7
BDS12
BDS9
BDS10
BDS7
SWS2
BDS8
SWS22
SWS6
MW-3
SWS23
BDS23
SWS19
MW-2
BDS6
BDS5
SWS29
BDS3
BDS22
SWS18
BDS4
BDS17
SWS5
BDS18
SWS17
BDS16
BDS15
BDS13
SWS24
BDS19
BDS14
SWS16
BDS1
SWS21
SWS27
SWS25
BDS25
BDS24
SWS28
SWS26
MW-4

Estimated groundwater flow direction

Shipping Warehouse

Sources: Pierce County GIS Data; USGS High Resolution Orthoimage 2002.

- Bottom Confirmatory Sample
- Sidewall Confirmatory Sample
- Pre-excavation Sample
- Soil Excavation Area
- 20 ft Grid
- Proposed Monitoring Well Locations
- Approximate location of subsurface concrete structure *Structure remained in same place

Excavation Depth
- 4'
- 4' to 6'
- 8' to10'

N

0 5 10 20 Feet

1 inch equals 20 feet

Figure 2
Construction Summary Drawing
Interim Remedial Action, May 2006
Abitibi Consolidated Sales Corporation
West Tacoma Mill
Steilacoom, WA

File Path: \\baloo\Groups\NWRMIS\GIS\Abitibi\MapDocuments\Fig2_As_Built.mxd, Date: July 11, 2006

Attachment B – Verification Sampling Summary Table

Attachment B: Verification Summary Table
Abitibi Consolidated, West Tacoma Mill
Construction Closeout Report

Location ID	Date	Time	Depth	Comp	Grab	PID	North	West	Norm	Dupe	Type	Comments
ACSI-SWS-2	5/1/2006	1030	2, 4	X		0.0	1+02	C+8 W	X		GM/GP	
ACSI-SWS-3	4/28/2006	845	2, 4	X		0.6	0+55	C+12W	X		SP	gravelly silt and fine sand, moist, slight odor
ACSI-SWS-4	4/25/2006	1500	2, 4	X		0.0	0+16	D+7W	X		GW	slightly moist, no odor
ACSI-SWS-5	4/28/2006	1125	2, 4	X		0.3	0+42	E+14 W	X		SW	gravelly sand, moist, no odor
ACSI-SWS-6	5/1/2006	1015	2, 4	X		0.0	0+98	E+18 W	X		GP	loose, moist
ACSI-SWS-7	5/1/2006	1025	2, 4	X		15.7	1+25	D+18 W	X		GW/GM	Top sandy gravel, no odor, bottom silt, odor
ACSI-SWS-72	5/4/2006	1130	2, 4	X		11.0	1+27	D+18 W	X		GW/GM	Confirmation sample after excavation of 5x5x2 deep area at SWS-7, analyses for TPH-g and BTEX only; top sample no odor, bottom sample odor, GM
ACSI-SWS-8	5/3/2006	1220	2, 4	X		0.9	0+60	B+19 W	X		GM	hard, moist
ACSI-SWS-9	5/3/2006	1415	2, 4	X		52.6	0+43	C+6 W	X		GM	hard, moist
ACSI-SWS-10	5/3/2006	750	2, 4	X		0.0	0+18	E+2 W	X		ML/GW	hard, moist
ACSI-SWS-11	5/3/2006	730	7		X	0.0	0+32	E+10 W	X		GW	
ACSI-SWS-12	5/3/2006	915	2, 4	X		0.7	0+89	C+2 W	X		ML	hard, laminated, slight odor
ACSI-SWS-13	5/4/2006	1110	7.5		X	49.5	0+41	C+6 W	X		GW	Strong odor, silt matrix gravel, dry
ACSI-SWS-14	5/5/2006	1330	4		X	0.0	0+33	C+0 W	X		GW	hard, friable
ACSI-SWS-142	5/5/2006	1335								X		Field dupe of SWS-14
ACSI-SWS-15	5/5/2006	1315	4		X	0.0	0+48	B+13 W	X		GM	hard, dry w/sand
ACSI-SWS-16	5/11/2006	1300	2,4	X		0.0	0+20	C+5W	X		GM	sandy, silty, gravel
ACSI-SWS-17	5/12/2006	930	2,4	X		0.0	0+40	B+0W	X		GM	
ACSI-SWS-18	5/12/2006	1130	2,4	X		0.0	0+60	B+2W	X		GP/GM	
ACSI-SWS-19	5/12/2006	1500	1,3	X		0.0	0+77	B+5W	X		GM	
ACSI-SWS-20	5/12/2006	1510	4,5	X		0.0	0+70	B+0W	X		GM	
ACSI-SWS-21	5/12/2006	1525	2,2.3		X	0.0	0+10	C+15W	X		GM	
ACSI-SWS-22	5/15/2006	1530	1,2	X		0.0	0+97	C+0 W	X		SP	
ACSI-SWS-222	5/15/2006	1535								X		Field dupe of SWS-22
ACSI-SWS-23	5/15/2006	1545	1,2	X		0.0	0+88	B+2W	X		SP	
ACSI-SWS-24	5/16/2006	1045	3,4.5	X		3.0	0+31	B+18W	X		GM	
ACSI-SWS-25	5/16/2006	1250	1.8		X	0.3	0+0	B+12	X		SP	Test Pit 051606-1
ACSI-SWS-26	5/16/2006	1310	4,4.8	X		0.0	0+0	B+12	X		SM	Test Pit 051606-1
ACSI-SWS-27	5/16/2006	1445	1.5,2.0	X		0.5	0+0	C+3	X		SP	Test Pit 051606-2
ACSI-SWS-28	5/16/2006	1450	4,5	X		0.7	0+0	C+3	X		SP/ML	Test Pit 051606-2
ACSI-SWS-29	5/17/2006	1410	4.5		X	0.0	0+69	A+18	X		SM	TPH-G only
ACSI-US	4/28/2006	1550	7		X	0.0	0+25	D+10 W	X		SP	sample from beneath slab of concrete structure, south end, no odor
ACSI-VS	4/27/2006	1500	7		X	50.0	0+62	D+15W	X		SP	sample from beneath slab of concrete structure, north end
ACSI-BDS-1	4/25/2006	1523	4		X	0.0	0+25	E+5W	X		SM	from SW corner excavation, slightly moist
ACSI-BDS-2	4/25/2006	1555	4		X	0.0	0+25	C+18W	X		SM	from SE corner excavation, slightly moist
ACSI-BDS-3	4/28/2006	1200	4.5		X		0+65	E+15 W	X		GM	hard, dry
ACSI-BDS-4	4/27/2006	1353	10		X	0.0					ML	silt with organics, mud flat deposits
ACSI-BDS-5	4/28/2006	1310	8,9		X	0.0	0+75	D+7 W	X		ML	silt with organics, mud flat deposits
ACSI-BDS-205	4/28/2006	1315								X		Field dupe of BDS-5
ACSI-BDS-6	4/28/2006	1300	8,9		X	0.0	0+75	E+6 W	X		ML	silt with organics, mud flat deposits

Attachment B: Verification Summary Table
Abitibi Consolidated, West Tacoma Mill
Construction Closeout Report

Location ID	Date	Time	Depth	Comp	Grab	PID	North	West	Norm	Dupe	Type	Comments
ACSI-BDS-7	5/1/2006	1125	4		X	0.0	1+08	D+17 W	X		GM	moist
ACSI-BDS-8	5/1/2006	1135	4		X	0.0	0+94	D+10 W	X		SM	stiff, moist
ACSI-BDS-9	5/1/2006	1140	4.5		X	9.0	1+20	D+10 W	X		ML	slightly moist, no odor
ACSI-BDS-10	5/1/2006	1145	4.5		X		1+15	D+0 W	X		ML	slightly moist, no odor
ACSI-BDS-11	5/1/2006	1210	4		X	11.8	1+28	D+1 W	X		ML	firm moist, mild odor
ACSI-BDS-12	5/1/2006	1215	4		X		1+22	C+0 W	X		ML	firm moist, mild odor
ACSI-BDS-13	5/2/2006	1015	10		X	0.0	0+45	D+10 W	X		ML	firm laminated silt, liquifies upon mixing, very high water content
ACSI-BDS-14	5/2/2006	1030	10		X	0.0	0+20	D+12 W	X		ML	firm laminated silt, liquifies upon mixing, very high water content
ACSI-BDS-15	5/3/2006	800	10		X	27.8	0+30	D+0 W	X		SM/GM	loose, wet
ACSI-BDS-16	5/2/2006	1335	10		X	1.4	0+38	E+2 W	X		SP	grvly sand, wet
ACSI-BDS-17	5/5/2006	1430	9		X	0.0	0+43	B+17 W	X		GW/CL	wet, below WT
ACSI-BDS-18	5/11/2006	1230	8		X	0.0	0+40	B+18 W	X		GM	
ACSI-BDS-19	5/12/2006	1230	4		X	0.0	0+25	B+18 W	X		SP	
ACSI-BDS-20	5/12/2006	1450	8		X	0.4	0+65	B+8 W	X		CL	Strong odor
ACSI-BDS-21	5/15/2006	1110	6		X	0.0	0+80	C+0 W	X		GM	
ACSI-BDS-22	5/15/2006	1145	10		X	0.0	0+65	B+8 W	X		SM	
ACSI-BDS-23	5/15/2006	1310	8,9		X	0.0	0+80	C+0 W	X		GM/SM	
ACSI-BDS-24	5/16/2006	1330	8		X	0.3	0+0	B+12W	X		ML	Test Pit 051606-1
ACSI-BDS-25	5/16/2006	1510	8		X	0.8	0+0	C+3W	X		SM	
ACSI-ECS-22	4/26/2006	810	2, 4	X		0 - 10			X		GP	ballast, ag base materials, GM
ACSI-ECS-23	4/26/2006	753	2, 4	X		0 - 10			X		GP	ballast, ag base materials, GM
ACSI-ECS-24	4/26/2006	833	2, 4	X		0 - 10			X		GP	ballast, ag base materials, GM
ACSI-HPGL-16	5/8/2006	1430	3		X	112.0	0+29	C+12 W	X		GM	TPH-d, TPH-g/BTEX only, sidewall sample of backfill material from under portion of high pressure gas line trending N/S along east side of excavation, south of SWS-14
ACSI-PVSND-17	5/8/2006	1445	1.5		X	88.3	0+48	B+10 W	X		GP/SP	TPH-d, TPH-g/BTEX only, sidewall sample of sand structural backfill material underlying ag base under asphalt pavement, east of SWS-15, moist, vitreous sheen, strong TPH odor
ACSI-ELBF-18	5/8/2006	1500	2.5		X	113.0	0+61	B+15 W	X		GM	TPH-d, TPH-g/BTEX only, sidewall sample of backfill material from under portion of electrical utility trench trending N/S along east side of excavation, 2 feet south of south end of electrical vault, north of SWS-15, NE of SWS-3, strong odor, wood chunks in silty gravel
ACSI-ELBF-20	5/9/2006	1430										
ACSI-ELBF-21	5/9/2006	1530										
ACSI-PVSND-19	5/8/2006	1510	1.5		X	26.5	0+74	B+15 W	X		GP/SP	TPH-d, TPH-g/BTEX only, sidewall sample of sand structural backfill material underlying ag base under asphalt pavement, 10 ft norht of electrical utility vault, moist, vitreous sheen, strong TPH odor
ACSI-TB	4/25/2006	PM										
ACSI-TB2	4/26/2006	AM										
TB-050106	5/1/2006	1300										
TB-050306	5/3/2006	1245										
TB-050406	5/4/2006	1200										
TB-050506	5/5/2006	1445										

Attachment B: Verification Summary Table
Abitibi Consolidated, West Tacoma Mill
Construction Closeout Report

Location ID	Date	Time	Depth	Comp	Grab	PID	North	West	Norm	Dupe	Type	Comments
TB-050906	5/9/2006	1600										
TB-051106	5/11/2006	PM										
TB-051206	5/12/2006	AM										
TB-051206-2	5/12/2006	PM										
TB-0515	5/15/2006	PM										
TB-051506-2	5/15/2006	PM										
TB-051606	5/16/2006	PM										

Attachment C - Photographs

Photo 1. Rail removal.

Photo 2. Pot holing.

Photo 3. Concrete structure of unknown origin, 5-6 feet below ground surface.

Photo 4. Eight Inch ductile iron fire water control line, four feet below ground surface.

Photo 5. Backfilling.

Photo 6A. Site restoration.

Photo 6B. Site Restoration.

Appendix B. Field Records

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: MP-1

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill

LOCATION : **Steilacoom, Washington**

DATE : 3/2/2005

DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION :

START : 1210 END : 1250 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
5	1.5		0.5	12"-9"-8"	Silty sandy gravel (GM). 1/2" minor gravel. Moist	BZ=0.0 ppm
						water at ~8 ft bgs
10	1.5		1.5	10"-7"-5"	fine to medium grained sand (SP) with gravel. Dark gra	BZ=0.0 ppm cuttings=0.0ppm borehold=0.0ppm
15						Well installed from 7'-12' bgs 5' screen from 7' to 12' bgs 0.010 slot. 2" PVC Filter pack = 2 - 50lb bags 2/12 Monterey Sand. (to 5') Seal = Pure Gold medium bentonite chips.
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: MP-2

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 3/2/2005 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 1255 END : 1330 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						BZ= 0.0ppm
5	1.5		0.5			
					Encountered concrete type material	
					unable to core through.	
10						BZ= 0.0ppm
						cuttings=0.0 ppn
					moved off hole. Will do another MP-2. See log for RR-4.	
15						
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: MP-3

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill

LOCATION : **Steilacoom, Washington**

DATE : 3/2/2005

DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION :

START : 1440 END : 1515 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					Wood (Rail road tie)	BZ= 0.0ppm cuttings = 0.0 ppm
					silts and gravel (GM). Dark gray, moist.	cuttings have strong odor
5	1.5			13"-12"-8"		
						BZ = 0.0 ppm, cuttings=0.0. Ppm
10	1.5			3"-3"-3"	dark gray silt (ML). Stiff, moist.	
						Well installed from 10-15'
15	1.5			3"-3"-3"	dark gray silt (ML) some fine sand and trace gravel. Shell fragment. Wet. Soft.	5' screen from 10' to 15' bgs 0.010 slot. 2" PVC Filter pack = 5 - 50lb bags 2/12 Monterey Sand. Sand from 5'-15' in case we want to pull up well screen. Seal = 2 - 50lb bag Pure Gold medium bentonite chips.
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: MP-4

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill

LOCATION : **Steilacoom, Washington**

DATE : 3/2/2005

DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION :

START : 1340 END : 1420 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
5	1.5		1.5	8"-8"-10"	Fine sand with some gravel (SP). 1/4" minor gravel. Dark gray. Moist. Loose.	slight odor from split spoon material.
10	1.5		1.5	3"-6"-4"	Silty sandy gravel (GM). Olive gray. Wet.	odor present. Dark staining on soil. No sheen apparent after sheen test.
15	1.5		1.0	3"-5"-2"	Same as above.	no odor.
20						Well installed from 7-12' bgs 5' screen from 7' to 12' bgs 0.010 slot. 2" PVC Filter pack = 4 3/4 - 50lb bags 2/12 Monterey Sand. Seal = 2 - 50lb bag Pure Gold medium bentonite chips.
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: MP-5

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill

LOCATION : **Steilacoom, Washington**

DATE : 3/2/2005

DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION :

START : 0900 END : 0940 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					gravels with fine sand. Dry. Brown (from cuttings)	BZ= 0.0ppm cuttings = 0.0 ppm
5						
						Driller reports GW at 8' bgs
10	1.5		1.5	12"-15"-17"	Fine to medium sand (SP), some gravel, 1/4" minor.	
					gray, loose.	
					Bottom at 12'	
						Well installed from 7-12'
15						5' screen from 6' to 11' bgs
						(heavy sands-well came up 1 foot while setting).
						0.010 slot. 2" PVC
						Filter pack = 2 - 50lb bags 2/12 Monterey
20						Sand.
						Seal = 1 - 50lb bag Pure Gold medium bentonite chips.
						Stickup=1' above surface.
						Surged well for 5 minutes.
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: MP-6

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill

LOCATION : **Steilacoom, Washington**

DATE : 3/2/2005

DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION :

START : 0950 END : 1030 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						BZ= 0.0ppm cuttings = 0.0 ppm
5	1.5		0.0	7"-7"-7"	Logged from cuttings. Silty gravel (GM) - 3/4" minor gravel. Grayish brown.	
10	1.5		1.5	12"-12"-15"	Silty sand with gravel (SM). Trace clay last 6". Wet, gray. Sand is fine to coarse grained. 1/2" minor gravel.	BZ = 0.0 ppm Well installed from 7-12'
15	1.5		1.0	2"-3"-4"	Medium grained sand (SP). Wet, gray. Hearing sands in augers.	5' screen from 7' to 12' bgs 0.010 slot. 2" PVC Filter pack = 2 - 50lb bags 2/12 Monterey Sand. Seal = 2 - 50lb bag Pure Gold medium bentonite chips. Stickup=1' above surface. Surged well for 5 minutes.
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: MP-7

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill

LOCATION : **Steilacoom, Washington**

DATE : 3/2/2005

DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION :

START : 1050 END : 1130 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
5						B2 = 0.0 ppm cuttings = 0.0 ppm slight odor from cuttings
	1.5		0.5	2"-2"-2"	silt with trace gravel (ML). brown, moist, very soft.	
10						
	1.5		1.0	5"-8"-12"	medium to coarse sand (SW) trace gravel.	
					greenish brown, wet.	B2 = 0.0 ppm cuttings = 0.0 ppm
15	1.5		1.0	12"-15"-17"	medium to coarse sand (SW) trace gravel.	
					Greenish gray, wet, soft.	
20						Setting well at 12' bgs 5' screen from 7' to 12' bgs 0.010 slot. 2" PVC Filter pack = 4-50lb bags 2/12 Monterey Sand Seal = 1 - 50lb bag Pure Gold medium bentonite chips.
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: RR4/MP2

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 3/3/2005 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 0830 END : 0910 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	1.5		1.3	15"-10"-7"	Silty sandy gravel. Brown. Moist.	Collected soil at RR4 at 0840
5					clay and wood in top 6" of sample	
	1.5		1.0	12"-7"-3"	Silty sandy gravel. (GM) Gray, wet.	
						BZ=0.0 ppm
10						
	1.5		0.5	15"-6"-4"	Silty sandy gravel (GM). Gray, wet.	BZ=0.0 ppm
15						
	1.5		0.5	4"-3"-3"	Silty sand (SM) with woody material and trace gravel.	BZ=0.0 ppm
					Gray, wet.	
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: RR1

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 3/3/2005 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 1010 END : 1030 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	1.5		1.0	21"-32"-30"	Silty sandy gravel (GM). Dry. Brown.	RR1 sample collected at 1025
5						
10						
15						
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: RR2

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 3/3/2005 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 0945 END : 1000 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0						
	1.5		1.0	32-50(6)	Sandy gravel (GM). Olive gray. Dry.	RR-2 sampled collected at 10:00
5						BZ=0.0 ppm cutting=0.0 ppm
10						
15						
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: RR3

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 3/3/2005 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 0925 END : 0940 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0						
	1.5		1.0	32-50(6)	Sandy gravel some silt (GM). Dry. Olive gray.	RR-3 sampled at 9:35
5						
10						
15						
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: TS1

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 3/3/2005 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 1040 END : 1100 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
5						BZ=0 ppm
	1.5		1.0	24"-17"-15"	sandy gravel with silt. (GM) Wet. Gray. Appears to be	Cuttings=0 ppm
					fill from previous excavation.	Sample TS2 collected at 1115
	1.5		1.0	6"-6"-5"	Sandy gravel some silt (GM). Wet. Gray.	BZ=0 ppm
10						Collected sample TS1 at 1050.
15						
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: TS2

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill

LOCATION : **Steilacoom, Washington**

DATE : 3/3/2005

DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION :

START : 1105 END : 1130 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
5	1.5		1.5	5"-4"-3"	Silty sandy gravel (GM). Wet. Gray.	BZ=0 ppm Cuttings=0 ppm Collected sample TS2 at 1115.
	1.5		1.5	2"-4"-3"	Same as above.	
10						
15						
20						
25						

CH2MHILL

PROJECT NUMBER : 321091

BORING NUMBER: TS3

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 3/3/2005 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 1105 END : 1130 LOGGER : Rob Healy

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
5	1.5		1.5	5"-4"-3"	silty sandy gravel (GM). Wet. Gray	Water line breached; no sample collected.
	1.5		1.5	2"-4"-3"	Same as above	
10						
15						
20						
25						

CH2MHILL

PROJECT NUMBER : 335493

BORING NUMBER: MW-1

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Abitibi West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 8/18/2006 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem A (8"00)

WATER ELEVATION : START : 920 END : 0950 LOGGER : Glen Vedera

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						3" Asphalt, cobbles beneath
5	5- 6.5	5 - 1	1.5	8"-9"-7"	gravel w/sand and silt, brown and gray, wet,	BG= 0.2
					loose bottom section (5.8 - 14 bgs)	Some petroleum odor up to 10 ppm
						BZ=BG
10	10 - 11.5	5 - 2	1.5	5"-6"-6"	silt w/ gravel, bown moist, firm	
					fine sand layer 11.2 - 11.5, wet	BZ = 0.0 ppm
15	15 - 16.5	5 - 3	1.0	4"-5"-5"	silt w/gravel, some find sand brown, wet	
					Abundant wood fibers	
					TD 17'	
20						Well installed from 7'-17' bgs
						10' screen from 7' to 12' bgs
						0.010 slot. 2" PVC
						Primary Filter pack from 6' to 17' = 2/12 Monterey
						Secondary filter pack from 5' to 6' = 20/40 sand
25						Seal from surface to 5' =bentonite chips

CH2MHILL

PROJECT NUMBER : 335493

BORING NUMBER: MW-2

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Abitibi West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 8/18/2006 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 1045 1145 LOGGER : Glen Vedera

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Gravel Fill
						BG= 0.6
5						Up to 30 ppm under asphalt in
	5- 6.5	5- 1	1.5	26"-15"-8"	Compacted gravel	sandy gravel
					5.5 Asphalt, sandy gravel gray	Water table at 6.18 ft
					Loose to compact (fill?) wet at bottom	
10						
	10-11.5	5 -2	0.6	43	silt w/ gravel	rock stuck in catcher
					moist, firm	
						1055 Marv Coleman on site 10 minutes
15						
	15- 16.5	5- 3	1.5	6"-5"-5"	Silt w/gravel gray and brown w/ black	wire wraps up on hammer/ sampler
					mottling. Wet bottom, half soft	
					TD 17'	
20						
						Well installed from 7'-17' bgs
						10' screen from 7' to 12' bgs
						0.010 slot. 2" PVC
						Primary Filter pack from 6' to 17' = 2/12 Monterey
25						Secondary filter pack from 5' to 6' = 20/40 sand
						Seal from surface to 5' =bentonite chips

CH2MHILL

PROJECT NUMBER : 335493

BORING NUMBER: MW-3

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Abitibi West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 8/18/2006 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 1230 1250 LOGGER : Glen Vedera

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					pit run fill 0-7'	compacted gravel
5	5- 6.5	5- 1	0.0	50	No recovery	rock fill
						water table at 7.57 ft
10	10-11.5	5 -2	0.6	4"-4"-4"	Poor recovery	BG=0.2
						Sample = BG
15	15- 16.5	5- 3		5"-4"-4"	Sandy Gravel, Brown, wet ,soft	Sample = BG = 0.2
					15.3 contact w/silty gravel, gray,	
					w/wet sand layers <0.2	
					TD 17'	
20						Well installed from 7'-17' bgs
						10' screen from 7' to 12' bgs
						0.010 slot. 2" PVC
						Primary Filter pack from 6' to 17' = 2/12 Monterey
						Secondary filter pack from 5' to 6' = 20/40 sand
25						Seal from surface to 5' =bentonite chips

CH2MHILL

PROJECT NUMBER : **335493**

BORING NUMBER: **MW-4**

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Abitibi West Tacoma Mill LOCATION : **Steilacoom, Washington**

DATE : 8/18/2006 DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger

WATER ELEVATION : START : 1335- 1400 1145 LOGGER : Glen Vedera

BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Compacted gravel
5	5- 6.5	5- 1	1.5	3"-4"-4"	Silty Sand w/gravel, SP-SM gray, moist, soft	
10	10-11.5	5 -2	1.5	4"-4"-4"	Silty Sand w/gravel, SP-SM Gray, wet, soft	
15	15- 16.5	5- 3	1.5	6"-5"-5"	15-16 Well graded sand gray,wet, soft 16-16.5 silty gravel w/ sand, GM, gray, wet, soft TD 17'	
20						Well installed from 7'-17' bgs 10' screen from 7' to 12' bgs 0.010 slot. 2" PVC Primary Filter pack from 6' to 17' = 2/12 Monterey Secondary filter pack from 5' to 6' = 20/40 sand
25						Seal from surface to 5' =bentonite chips

Appendix C. Well Sampling Records

17.0
- 5.46
11.5
÷2
5.77
÷3
1.92

WELL INSPECTION, LOW FLOW WELL PURGING, AND FIELD WATER QUALITY MEASUREMENT FORM

Date: 9/1/06
Project Name: Alaska
Site Name: West Tacoma
Sample Location X-Ref ID: (field well ID)
Sample ID: ACSI-GWS-01-01
Well Head Condition: Locked: Y✓ N__
Pooled water at head: Y__ N✓ Inner Casing Clean: Y__ N__
Exterior Seal Good: Y__ N✓ Inner Casing Straight and Clear: Y__ N__

PID Borehole Reading: 0
LNAPL : Y__ N✓ DNAPL: Y__ N✓
Purge Style: Peristaltic / Bladder / Submersible /Other
Mid Screen Depth (Ft Btoc):
Pump Intake (ft btoc)
Sampler(s): GV, CS
QC Sample : Y / N Type :

Time	Purge Rate (ml/min)	Total Purge (gal)	Depth to Water (ft btoc)	Temp. ©	pH	Sp. Cond. (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP eH (mV)	Salinity (%)	Comments
Stabilization Requirements				(± 10%)	(± 0.2)	(± 10%)	(± 10 %)	(± 10%)	(± 10)	(± 10)	
1050			[1] 5.46								
1114	250	0.30		18.89	6.91	0.846		1.60	-58.0		
1119		1.20		19.65	6.68	0.689		1.35	-68.2		
1122		1.40		19.98	6.66	0.682		1.33	-71.4		
1125		1.80	6.64	20.56	6.71	0.680		1.29	-77.7		
1128		2.10		20.83	6.67	0.681		1.27	-82.2		
1130			Sample								
1213			7.22	Final water level							

Final Parameter Readings Listed Below to be recorded in the TEC LTM Data Base (Dup. Info on bottom line)

[1] Water Level Measurements in these boxes must match !

			[1]								

Additional Comments:

18
-5.86
12.14
÷2
6.07
÷3
2.02

WELL INSPECTION, LOW FLOW WELL PURGING, AND FIELD WATER QUALITY MEASUREMENT FORM

Date: 8-31-06
Project Name: Ahtna
Site Name: West Tacoma
Sample Location X-Ref ID: (field well ID)
Sample ID: ACSI-GWS-01-02
Well Head Condition: Locked: Y✓ N__
Pooled water at head: Y__ N✓ Inner Casing Clean: Y__ N__
Exterior Seal Good: Y✓ N__ Inner Casing Straight and Clear: Y__ N__

PID Borehole Reading: 0
LNAPL : Y__ N✓ DNAPL: Y__ N✓
Purge Style: Peristaltic / Bladder / Submersible /Other
Mid Screen Depth (Ft Btoc):
Pump Intake (ft btoc)
Sampler(s) GV, CS
QC Sample : Y / N Type :

Time	Purge Rate (ml/min)	Total Purge (gal)	Depth to Water (ft btoc)	Temp. ©	pH	Sp. Cond. (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP eH (mV)	Salinity (%)	Comments
Stabilization Requirements				(±10%)	(±0.2)	(±10%)	(±10%)	(±10%)	(±10)	(±10)	
1451			[1] 5.86								
1514	350	0.30		19.65	6.66	0.622		1.83	-86		MURKY
1517				19.44	6.65	0.635		1.62	-86.7		
1520				19.32	6.63	0.644		1.55	-87.3		CLEAR
1523			6.35	19.31	6.67	0.643		1.49	-88.5		
1526		1.2		19.37	6.63	0.631		1.42	-89.7		
1529		1.5		19.36	6.62	0.634		1.40	-90.9		
1532		1.9		19.30	6.64	0.632		1.35	-92.5		
1535		2.1	6.5	19.31	6.64	0.628		1.33	-93.3		CLEAR
1540	Sampled		ACSI-GWS-01-02								
1540	ACSI-GWS-01-02-MS/MSD						1546	ACSI-GWS-01-100 FD of ACSI-GWS-01-02			

Final Parameter Readings Listed Below to be recorded in the TEC LTM Data Base (Dup. Info on bottom line)
6.70 Final DTW
[1] Water Level Measurements in these boxes must match !

			[1]								

Additional Comments:

12.88
5.48
12.40/2 = 6.20/3 = 2.06

WELL INSPECTION, LOW FLOW WELL PURGING, AND FIELD WATER QUALITY MEASUREMENT FORM

Date: 8-31-06
Project Name: ABITIBI
Site Name: WEST TACOMA
Sample Location X-Ref ID: (field well ID)
Sample ID: ACSF-MWS-01-03
Well Head Condition: Locked: Y ✓ N
Pooled water at head: Y N ✓ Inner Casing Clean: Y ✓ N
Exterior Seal Good: Y ✓ N Inner Casing Straight and Clear: Y ✓ N

PID Borehole Reading: 0
LNAPL : Y N ✓ DNAPL: Y N ✓
Purge Style: Peristaltic / Bladder / Submersible /Other
Mid Screen Depth (Ft Btoc):
Pump Intake (ft btoc)
Sampler(s) GV, CS
QC Sample : Y / N Type :

Time	Purge Rate (ml/min)	Total Purge (gal)	Depth to Water (ft btoc)	Temp. ©	pH	Sp. Cond. (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP eH (mV)	Salinity (%)	Comments
Stabilization Requirements				(±10%)	(±0.2)	(±10%)	(±10%)	(±10%)	(±10)	(±10)	
1018			[1] 5.48								
1206	250	0.8		19.37	6.59	.770		1.93	-87.6		Water Tea (Colored and Effervescent
1209		1.0		19.33	6.58	.768		1.74	-88.9		
1212		1.25		19.26	6.58	.768		1.69	-90.4		
1215		1.33		19.20	6.58	.766		1.64	-91.6		
PROBE SHUTS DOWN											
1255		2.8		19.80	6.58	.760		1.28	-95.5		
1258		3.0		19.69	6.57	.758		1.25	-96.6		
1301		3.2		19.64	6.57	.758		1.23	-97.2		
1304		3.4		19.64	6.57	.756		1.21	-98.2		
			5.63	(final DTW)							

Final Parameter Readings Listed Below to be recorded in the TEC LTM Data Base (Dup. Info on bottom line)

[1] Water Level Measurements in these boxes must match !

			[1]								

Additional Comments:

18 Total Depth
− 4.74 DTW
13.26
÷ 2
6.63
≈ 3
2.21

WELL INSPECTION, LOW FLOW WELL PURGING, AND FIELD WATER QUALITY MEASUREMENT FORM

Date: 9/1/06
Project Name: Ahtna
Site Name: West Tarvos
Sample Location X-Ref ID: (field well ID)
Sample ID: AGSI-GWS-01-04
Well Head Condition: Locked: Y✓ N__
Pooled water at head: Y__ N✓ Inner Casing Clean: Y__ N__
Exterior Seal Good: Y✓ N__ Inner Casing Straight and Clear: Y__ N__

PID Borehole Reading: 0
LNAPL : Y __ N ✓ DNAPL: Y __ N ✓
Purge Style: Peristaltic / Bladder / Submersible /Other
Mid Screen Depth (Ft Btoc):
Pump Intake (ft btoc)
Sampler(s) GV, CS
QC Sample : Y / N Type :

using Portable Masterflex set by at 2.5

Time	Purge Rate (ml/min)	Total Purge (gal)	Depth to Water (ft btoc)	Temp. ©	pH	Sp. Cond. (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP eH (mV)	Salinity (%)	Comments
Stabilization Requirements				(±10%)	(±0.2)	(±10%)	(±10%)	(±10%)	(±10)	(±10)	
0918			[1]4.74								
0924	Started Pump		6.70								Turbid Brown
0934	300	0.75	6.45	15.61	6.75	1.457		1.88	-83.2		
0937				15.56	6.73	1.420		1.66	-86.5		
0940		1.25	7.57	15.58	6.71	1.382		1.54	-89.2		
0943		1.50		15.62	6.70	1.348		1.45	-91.8		
0946		1.80		15.66	6.71	1.336		1.39	-94.2		
0949		2.10		15.73	6.71	1.329		1.35	-96.2		
0952		2.30		15.78	6.71	1.332		1.32	-98.0		
0955			9.88	Sampled							
1013			8.45	Final DTW							

Final Parameter Readings Listed Below to be recorded in the TEC LTM Data Base (Dup. Info on bottom line)

[1]Water Level Measurements in these boxes must match !

			[1]								

Additional Comments:

Appendix D. Data Processing Procedures

APPENDIX D

This appendix contains the processing information for soil, and groundwater samples collected from Abitibi .
The data have been processed, meaning that multiple methods have been resolved into a single result for each sampling location. The data processing methods are described below.

Contents

Acronyms, Data Qualifiers, and Abbreviations

The following acronyms, data qualifiers, and abbreviations apply to the tables in this appendix.

Data Qualifiers

B	The analyte was found in an associated blank, as well as in the sample.
J	The analyte was positively identified; the quantitation is an estimation.
M	A matrix effect was present.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the sample-specific method detection limit (MDL).

Abbreviations

mg/L	milligrams per liter
mg/kg	milligrams per kilogram
MDL	method detection limit

These rules were followed to create a single set of results for each sample and constituent:

1. All nonqualified valid detections will be used over qualified detections.
2. The lowest quantitation limit will be used when all results are nondetections.
3. If two or more detections are nonqualified. The maximum value will be used.
4. All detected values will be used over nondetects.

TABLE D-1
Resolution of Multiple Method for Soil Data
Remedial Investigation/Feasibility Study

Client ID	Compound	Units	SW8260B		SW8270D		SW8021B Mod		WAVPH	ALEPH	AREPH	NWTPHD	NWTPHG	NWTPHD Si and Acid Cleaner	NWTPH-HCID		Selected Result	Selected Method
ACSI-BDS-03	Benzene	mg/kg	0.0008	U	--		0.011	U	--	--	--	--	--	--	--		0.0008 U	SW8260B
ACSI-BDS-03	Ethylbenzene	mg/kg	0.0054	=	--		0.075	=	--	--	--	--	--	--	--		0.075 =	SW8021BMod
ACSI-BDS-03	m,p-Xylene	mg/kg	0.0022	=	--		0.044	=	--	--	--	--	--	--	--		0.044 =	SW8021BMod
ACSI-BDS-03	o-Xylene	mg/kg	0.0008	U	--		0.022	U	--	--	--	--	--	--	--		0.0008 U	SW8260B
ACSI-BDS-03	Toluene	mg/kg	0.0008	U	--		0.022	U	--	--	--	--	--	--	--		0.0008 U	SW8260B
ACSI-BDS-04	1,2,4-Trichlorobenzene	mg/kg	0.0071	U	0.058	U	--		--	--	--	--	--	--	--		0.0071 U	SW8260B
ACSI-BDS-04	1,2-Dichlorobenzene	mg/kg	0.0014	U	0.058	U	--		--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-04	1,3-Dichlorobenzene	mg/kg	0.0014	U	0.058	U	--		--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-04	1,4-Dichlorobenzene	mg/kg	0.0014	U	0.058	U	--		--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-04	Benzene	mg/kg	0.0014	U	--		0.026	U	--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-04	Ethylbenzene	mg/kg	0.0014	U	--		0.052	U	--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-04	Hexachlorobutadiene	mg/kg	0.0071	U	0.058	U	--		--	--	--	--	--	--	--		0.0071 U	SW8260B
ACSI-BDS-04	m,p-Xylene	mg/kg	0.0014	U	--		0.1	U	--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-04	Naphthalene	mg/kg	0.0071	U	0.058	U	--		--	--	--	--	--	--	--		0.0071 U	SW8260B
ACSI-BDS-04	o-Xylene	mg/kg	0.0014	U	--		0.052	U	--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-04	Toluene	mg/kg	0.0014	U	--		0.052	U	--	--	--	--	--	--	--		0.0014 U	SW8260B
ACSI-BDS-11	1,2,4-Trichlorobenzene	mg/kg	0.005	U	0.064	U	--		--	--	--	--	--	--	--		0.005 U	SW8260B
ACSI-BDS-11	1,2-Dichlorobenzene	mg/kg	0.001	U	0.064	U	--		--	--	--	--	--	--	--		0.001 U	SW8260B
ACSI-BDS-11	1,3-Dichlorobenzene	mg/kg	0.001	U	0.064	U	--		--	--	--	--	--	--	--		0.001 U	SW8260B
ACSI-BDS-11	1,4-Dichlorobenzene	mg/kg	0.001	U	0.064	U	--		--	--	--	--	--	--	--		0.001 U	SW8260B
ACSI-BDS-11	Benzene	mg/kg	0.0012	=	--		0.015	U	--	--	--	--	--	--	--		0.0012 =	SW8260B
ACSI-BDS-11	Ethylbenzene	mg/kg	0.0011	M	--		0.029	U	--	--	--	--	--	--	--		0.0011 M	SW8260B
ACSI-BDS-11	Hexachlorobutadiene	mg/kg	0.005	U	0.064	U	--		--	--	--	--	--	--	--		0.005 U	SW8260B
ACSI-BDS-11	m,p-Xylene	mg/kg	0.0034	=	--		0.058	U	--	--	--	--	--	--	--		0.0034 =	SW8260B
ACSI-BDS-11	Naphthalene	mg/kg	0.011	=	0.064	U	--		--	--	--	--	--	--	--		0.011 =	SW8260B
ACSI-BDS-11	o-Xylene	mg/kg	0.001	U	--		0.029	U	--	--	--	--	--	--	--		0.001 U	SW8260B
ACSI-BDS-11	Toluene	mg/kg	0.001	U	--		0.029	U	--	--	--	--	--	--	--		0.001 U	SW8260B
ACSI-BDS-16	Benzene	mg/kg	0.016	=	--		0.022	=	--	--	--	--	--	--	--		0.022 =	SW8021BMod
ACSI-BDS-16	Ethylbenzene	mg/kg	0.0012	U	--		0.035	U	--	--	--	--	--	--	--		0.0012 U	SW8260B
ACSI-BDS-16	m,p-Xylene	mg/kg	0.015	=	--		0.07	U	--	--	--	--	--	--	--		0.015 =	SW8260B
ACSI-BDS-16	o-Xylene	mg/kg	0.0013	=	--		0.035	U	--	--	--	--	--	--	--		0.0013 =	SW8260B
ACSI-BDS-16	Toluene	mg/kg	0.0012	U	--		0.035	U	--	--	--	--	--	--	--		0.0012 U	SW8260B
ACSI-BDS-19	1,2,4-Trichlorobenzene	mg/kg	0.0044	U	0.063	U	--		--	--	--	--	--	--	--		0.0044 U	SW8260B
ACSI-BDS-19	1,2-Dichlorobenzene	mg/kg	0.0009	U	0.063	U	--		--	--	--	--	--	--	--		0.0009 U	SW8260B
ACSI-BDS-19	1,3-Dichlorobenzene	mg/kg	0.0009	U	0.063	U	--		--	--	--	--	--	--	--		0.0009 U	SW8260B
ACSI-BDS-19	1,4-Dichlorobenzene	mg/kg	0.0009	U	0.063	U	--		--	--	--	--	--	--	--		0.0009 U	SW8260B
ACSI-BDS-19	Benzene	mg/kg	0.0009	=	--		0.013	U	--	--	--	--	--	--	--		0.0009 =	SW8260B
ACSI-BDS-19	Ethylbenzene	mg/kg	0.0013	=	--		0.026	U	--	--	--	--	--	--	--		0.0013 =	SW8260B
ACSI-BDS-19	Hexachlorobutadiene	mg/kg	0.0044	U	0.063	U	--		--	--	--	--	--	--	--		0.0044 U	SW8260B
ACSI-BDS-19	m,p-Xylene	mg/kg	0.0046	=	--		0.053	U	--	--	--	--	--	--	--		0.0046 =	SW8260B
ACSI-BDS-19	Naphthalene	mg/kg	0.0044	U	0.063	U	--		--	--	--	--	--	--	--		0.0044 U	SW8260B
ACSI-BDS-19	o-Xylene	mg/kg	0.0024	=	--		0.026	U	--	--	--	--	--	--	--		0.0024 =	SW8260B
ACSI-BDS-19	Toluene	mg/kg	0.003	=	--		0.026	U	--	--	--	--	--	--	--		0.003 =	SW8260B
ACSI-BDS-20	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	11000	= --	4300	= --		11000 =	NWTPHD
ACSI-BDS-20	Motor Oil	mg/kg	--		--		--		--	--	--	5400	= --	2000	= --		5400 =	NWTPHD
ACSI-ECS-11-2-3	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	1300	--	--	50	>	1300	NWTPHD
ACSI-ECS-14-2-3	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	140	--	--	50	>	140	NWTPHD
ACSI-ECS-17-2-3	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	21	--	--	50	U	21	NWTPHD
ACSI-ECS-18-1.5-2.5	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	1400	--	--	52	>	1400	NWTPHD
ACSI-ECS-20-2-3	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	8.5	--	--	50	U	8.5	NWTPHD
ACSI-ECS-20-3.5-4.5	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	16	--	--	50	U	16	NWTPHD
ACSI-ECS-24	1,2,4-Trichlorobenzene	mg/kg	0.0042	U	0.064	U	--		--	--	--	--	--	--	--		0.0042 U	SW8260B
ACSI-ECS-24	1,2-Dichlorobenzene	mg/kg	0.0008	U	0.064	U	--		--	--	--	--	--	--	--		0.0008 U	SW8260B
ACSI-ECS-24	1,3-Dichlorobenzene	mg/kg	0.0008	U	0.064	U	--		--	--	--	--	--	--	--		0.0008 U	SW8260B

TABLE D-1
Resolution of Multiple Method for Soil Data
Remedial Investigation/Feasibility Study

Client ID	Compound	Units	SW8260B		SW8270D		SW8021B Mod		WAVPH	ALEPH	AREPH	NWTPHD		NWTPHG	NWTPHD Si and Acid Cleaner		NWTPH-HCID		Selected Result	Selected Method
ACSI-ECS-24	1,4-Dichlorobenzene	mg/kg	0.0008	U	0.064	U	--		--	--	--	--		--	--		--		0.0008 U	SW8260B
ACSI-ECS-24	Benzene	mg/kg	0.0008	U	--		0.012	U	--	--	--	--		--	--		--		0.0008 U	SW8260B
ACSI-ECS-24	Ethylbenzene	mg/kg	0.0008	U	--		0.024	U	--	--	--	--		--	--		--		0.0008 U	SW8260B
ACSI-ECS-24	Hexachlorobutadiene	mg/kg	0.0042	U	0.064	U	--		--	--	--	--		--	--		--		0.0042 U	SW8260B
ACSI-ECS-24	m,p-Xylene	mg/kg	0.0008	U	--		0.049	U	--	--	--	--		--	--		--		0.0008 U	SW8260B
ACSI-ECS-24	Naphthalene	mg/kg	0.0042	U	0.064	U	--		--	--	--	--		--	--		--		0.0042 U	SW8260B
ACSI-ECS-24	o-Xylene	mg/kg	0.0008	U	--		0.024	U	--	--	--	--		--	--		--		0.0008 U	SW8260B
ACSI-ECS-24	Toluene	mg/kg	0.0008	U	--		0.024	U	--	--	--	--		--	--		--		0.0008 U	SW8260B
ACSI-ECS-9-3-4	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	110		--	--		50	>	110	NWTPHD
ACSI-ELBF-18	Motor Oil	mg/kg	--		--		--		--	--	--	660	=	--	650	=	--		660 =	NWTPHD
ACSI-ELBF-20	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	10000	=	--	11000	=	--		11000 =	NWTPHD Si and Acid Cleaner
ACSI-ELBF-21	1,2,4-Trichlorobenzene	mg/kg	0.0045	U	0.063	U	--		--	--	--	--		--	--		--		0.0045 U	SW8260B
ACSI-ELBF-21	1,2-Dichlorobenzene	mg/kg	0.0009	U	0.063	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-ELBF-21	1,3-Dichlorobenzene	mg/kg	0.0009	U	0.063	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-ELBF-21	1,4-Dichlorobenzene	mg/kg	0.0009	U	0.063	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-ELBF-21	Benzene	mg/kg	0.0009	U	--		0.012	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-ELBF-21	Ethylbenzene	mg/kg	0.0009	U	--		0.024	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-ELBF-21	Hexachlorobutadiene	mg/kg	0.0045	U	0.063	U	--		--	--	--	--		--	--		--		0.0045 U	SW8260B
ACSI-ELBF-21	m,p-Xylene	mg/kg	0.0009	U	--		0.048	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-ELBF-21	Naphthalene	mg/kg	0.0045	U	0.066	=	--		--	--	--	--		--	--		--		0.066 =	SW8270D
ACSI-ELBF-21	o-Xylene	mg/kg	0.0009	U	--		0.024	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-ELBF-21	Toluene	mg/kg	0.0009	U	--		0.024	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-PVSND-17	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	4900	=	--	5600	=	--		5600 =	NWTPHD Si and Acid Cleaner
ACSI-PVSND-17	Motor Oil	mg/kg	--		--		--		--	--	--	330	=	--	350	=	--		350 =	NWTPHD Si and Acid Cleaner
ACSI-SWS-03	1,2,4-Trichlorobenzene	mg/kg	0.0045	U	0.059	U	--		--	--	--	--		--	--		--		0.0045 U	SW8260B
ACSI-SWS-03	1,2-Dichlorobenzene	mg/kg	0.0009	U	0.059	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-03	1,3-Dichlorobenzene	mg/kg	0.0009	U	0.059	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-03	1,4-Dichlorobenzene	mg/kg	0.0009	U	0.059	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-03	Benzene	mg/kg	0.0011	=	--		0.012	U	--	--	--	--		--	--		--		0.0011 =	SW8260B
ACSI-SWS-03	Ethylbenzene	mg/kg	0.01	=	--		0.034	=	--	--	--	--		--	--		--		0.01 =	SW8260B
ACSI-SWS-03	Hexachlorobutadiene	mg/kg	0.0045	U	0.059	U	--		--	--	--	--		--	--		--		0.0045 U	SW8260B
ACSI-SWS-03	m,p-Xylene	mg/kg	0.046	=	--		0.087	=	--	--	--	--		--	--		--		0.046 =	SW8260B
ACSI-SWS-03	Naphthalene	mg/kg	0.013	=	0.059	U	--		--	--	--	--		--	--		--		0.013 =	SW8260B
ACSI-SWS-03	o-Xylene	mg/kg	0.008	=	--		0.024	=	--	--	--	--		--	--		--		0.024 =	SW8021BMod
ACSI-SWS-03	Toluene	mg/kg	0.0009	U	--		0.024	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-07	1,2,4-Trichlorobenzene	mg/kg	0.0043	U	0.062	U	--		--	--	--	--		--	--		--		0.0043 U	SW8260B
ACSI-SWS-07	1,2-Dichlorobenzene	mg/kg	0.0009	U	0.062	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-07	1,3-Dichlorobenzene	mg/kg	0.0009	U	0.062	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-07	1,4-Dichlorobenzene	mg/kg	0.0009	U	0.062	U	--		--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-07	Benzene	mg/kg	0.0009	U	--		0.013	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-07	Ethylbenzene	mg/kg	0.0013	M	--		0.026	U	--	--	--	--		--	--		--		0.0013 M	SW8260B
ACSI-SWS-07	Hexachlorobutadiene	mg/kg	0.0043	U	0.062	U	--		--	--	--	--		--	--		--		0.0043 U	SW8260B
ACSI-SWS-07	m,p-Xylene	mg/kg	0.0039	=	--		0.053	U	--	--	--	--		--	--		--		0.0039 =	SW8260B
ACSI-SWS-07	Naphthalene	mg/kg	0.24	E	0.2	=	--		--	--	--	--		--	--		--		0.2 =	SW8270D
ACSI-SWS-07	o-Xylene	mg/kg	0.0009	M	--		0.026	U	--	--	--	--		--	--		--		0.0009 M	SW8260B
ACSI-SWS-07	Toluene	mg/kg	0.0009	U	--		0.026	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-072	Benzene	mg/kg	0.0009	U	--		0.014	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-072	Ethylbenzene	mg/kg	0.0009	U	--		0.027	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-072	m,p-Xylene	mg/kg	0.0009	U	--		0.055	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-072	o-Xylene	mg/kg	0.0009	U	--		0.027	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-072	Toluene	mg/kg	0.0009	U	--		0.027	U	--	--	--	--		--	--		--		0.0009 U	SW8260B
ACSI-SWS-08	1,2,4-Trichlorobenzene	mg/kg	0.0039	U	0.066	U	--		--	--	--	--		--	--		--		0.0039 U	SW8260B
ACSI-SWS-08	1,2-Dichlorobenzene	mg/kg	0.0008	U	0.066	U	--		--	--	--	--		--	--		--		0.0008 U	SW8260B
ACSI-SWS-08	1,3-Dichlorobenzene	mg/kg	0.0008	U	0.066	U	--		--	--	--	--		--	--		--		0.0008 U	SW8260B

TABLE D-1
Resolution of Multiple Method for Soil Data
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Client ID	Compound	Units	SW8260B		SW8270D		SW8021B Mod		WAVPH	ALEPH	AREPH	NWTPHD		NWTPHG		NWTPHD Si and Acid Cleaner		NWTPH-HCID		Selected Result		Selected Method
ACSI-SWS-08	1,4-Dichlorobenzene	mg/kg	0.0008	U	0.066	U	--		--	--	--	--		--		--		--		0.0008	U	SW8260B
ACSI-SWS-08	Benzene	mg/kg	0.0008	U	--		0.012	U	--	--	--	--		--		--		--		0.0008	U	SW8260B
ACSI-SWS-08	Ethylbenzene	mg/kg	0.0008	U	--		0.023	U	--	--	--	--		--		--		--		0.0008	U	SW8260B
ACSI-SWS-08	Hexachlorobutadiene	mg/kg	0.0039	U	0.066	U	--		--	--	--	--		--		--		--		0.0039	U	SW8260B
ACSI-SWS-08	m,p-Xylene	mg/kg	0.0008	U	--		0.046	U	--	--	--	--		--		--		--		0.0008	U	SW8260B
ACSI-SWS-08	Naphthalene	mg/kg	0.0039	U	0.066	U	--		--	--	--	--		--		--		--		0.0039	U	SW8260B
ACSI-SWS-08	o-Xylene	mg/kg	0.0008	U	--		0.023	U	--	--	--	--		--		--		--		0.0008	U	SW8260B
ACSI-SWS-08	Toluene	mg/kg	0.0008	U	--		0.023	U	--	--	--	--		--		--		--		0.0008	U	SW8260B
ACSI-SWS-16	1,2,4-Trichlorobenzene	mg/kg	0.0033	U	0.065	U	--		--	--	--	--		--		--		--		0.0033	U	SW8260B
ACSI-SWS-16	1,2-Dichlorobenzene	mg/kg	0.0007	U	0.065	U	--		--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-16	1,3-Dichlorobenzene	mg/kg	0.0007	U	0.065	U	--		--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-16	1,4-Dichlorobenzene	mg/kg	0.0007	U	0.065	U	--		--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-16	Benzene	mg/kg	0.0007	U	--		0.011	U	--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-16	Ethylbenzene	mg/kg	0.0007	U	--		0.023	U	--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-16	Hexachlorobutadiene	mg/kg	0.0033	U	0.065	U	--		--	--	--	--		--		--		--		0.0033	U	SW8260B
ACSI-SWS-16	m,p-Xylene	mg/kg	0.0007	U	--		0.046	U	--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-16	Naphthalene	mg/kg	0.0033	U	0.077	=	--		--	--	--	--		--		--		--		0.077	=	SW8270D
ACSI-SWS-16	o-Xylene	mg/kg	0.0007	U	--		0.023	U	--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-16	Toluene	mg/kg	0.0007	U	--		0.023	U	--	--	--	--		--		--		--		0.0007	U	SW8260B
ACSI-SWS-20	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	1100	=	--		920	=	--		1100	=	NWTPHD
ACSI-SWS-20	Motor Oil	mg/kg	--		--		--		--	--	--	200	=	--		140	=	--		200	=	NWTPHD
ACSI-US	1,2,4-Trichlorobenzene	mg/kg	0.0026	U	0.065	U	--		--	--	--	--		--		--		--		0.0026	U	SW8260B
ACSI-US	1,2-Dichlorobenzene	mg/kg	0.0005	U	0.065	U	--		--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-US	1,3-Dichlorobenzene	mg/kg	0.0005	U	0.065	U	--		--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-US	1,4-Dichlorobenzene	mg/kg	0.0005	U	0.065	U	--		--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-US	Benzene	mg/kg	0.0005	U	--		0.011	U	--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-US	Ethylbenzene	mg/kg	0.0005	U	--		0.022	U	--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-US	Hexachlorobutadiene	mg/kg	0.0026	U	0.065	U	--		--	--	--	--		--		--		--		0.0026	U	SW8260B
ACSI-US	m,p-Xylene	mg/kg	0.0005	U	--		0.044	U	--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-US	Naphthalene	mg/kg	0.0026	U	0.065	U	--		--	--	--	--		--		--		--		0.0026	U	SW8260B
ACSI-US	o-Xylene	mg/kg	0.0005	U	--		0.022	U	--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-US	Toluene	mg/kg	0.0005	U	--		0.022	U	--	--	--	--		--		--		--		0.0005	U	SW8260B
ACSI-VS	1,2,4-Trichlorobenzene	mg/kg	0.25	U	0.061	U	--		--	--	--	--		--		--		--		0.061	U	SW8270D
ACSI-VS	1,2-Dichlorobenzene	mg/kg	0.049	U	0.061	U	--		--	--	--	--		--		--		--		0.049	U	SW8260B
ACSI-VS	1,3-Dichlorobenzene	mg/kg	0.049	U	0.061	U	--		--	--	--	--		--		--		--		0.049	U	SW8260B
ACSI-VS	1,4-Dichlorobenzene	mg/kg	0.049	U	0.061	U	--		--	--	--	--		--		--		--		0.049	U	SW8260B
ACSI-VS	Benzene	mg/kg	0.049	U	--		0.13	U	--	--	--	--		--		--		--		0.049	U	SW8260B
ACSI-VS	Ethylbenzene	mg/kg	0.049	U	--		0.41	=	--	--	--	--		--		--		--		0.41	=	SW8021BMod
ACSI-VS	Hexachlorobutadiene	mg/kg	0.25	U	0.061	U	--		--	--	--	--		--		--		--		0.061	U	SW8270D
ACSI-VS	m,p-Xylene	mg/kg	0.049	U	--		0.5	U	--	--	--	--		--		--		--		0.049	U	SW8260B
ACSI-VS	Naphthalene	mg/kg	0.25	U	0.061	U	--		--	--	--	--		--		--		--		0.061	U	SW8270D
ACSI-VS	o-Xylene	mg/kg	0.049	U	--		0.31	=	--	--	--	--		--		--		--		0.049	U	SW8260B
ACSI-VS	Toluene	mg/kg	0.049	U	--		0.25	U	--	--	--	--		--		--		--		0.049	U	SW8260B
ACSI-WCS-01-1-4	1,2,4-Trichlorobenzene	mg/kg	0.0049	U	0.2	U	--		--	--	--	--		--		--		--		0.0049	U	SW8260B
ACSI-WCS-01-1-4	1,2-Dichlorobenzene	mg/kg	0.001	U	0.2	U	--		--	--	--	--		--		--		--		0.001	U	SW8260B
ACSI-WCS-01-1-4	1,3-Dichlorobenzene	mg/kg	0.001	U	0.2	U	--		--	--	--	--		--		--		--		0.001	U	SW8260B
ACSI-WCS-01-1-4	1,4-Dichlorobenzene	mg/kg	0.001	U	0.2	U	--		--	--	--	--		--		--		--		0.001	U	SW8260B
ACSI-WCS-01-1-4	Diesel Range Hydrocarbons	mg/kg	--		--		--		--	--	--	550		--		--		52	>	550		NWTPHD
ACSI-WCS-01-1-4	Gasoline Range Hydrocarbons	mg/kg	--		--		--		--	--	--	--		540		--		21	>	540		NWTPHG
ACSI-WCS-01-1-4	Hexachlorobutadiene	mg/kg	0.0049	U	0.2	U	--		--	--	--	--		--		--		--		0.0049	U	SW8260B
ACSI-WCS-01-1-4	Naphthalene	mg/kg	0.038		0.2	U	--		--	--	--	--		--		--		--		0.038		SW8260B
ACSI-WCS-02-1-3	1,2,4-Trichlorobenzene	mg/kg	0.0053	U	0.33	U	--		--	--	--	--		--		--		--		0.0053	U	SW8260B
ACSI-WCS-02-1-3	1,2-Dichlorobenzene	mg/kg	0.001	U	0.33	U	--		--	--	--	--		--		--		--		0.001	U	SW8260B
ACSI-WCS-02-1-3	1,3-Dichlorobenzene	mg/kg	0.001	U	0.33	U	--		--	--	--	--		--		--		--		0.001	U	SW8260B

TABLE D-1
Resolution of Multiple Method for Soil Data
Remedial Investigation/Feasibility Study

Client ID	Compound	Units	SW8260B		SW8270D		SW8021B Mod	WAVPH	ALEPH	AREPH	NWTPHD	NWTPHG	NWTPHD Si and Acid Cleaner	NWTPH-HCID		Selected Result	Selected Method
ACSI-WCS-02-1-3	1,4-Dichlorobenzene	mg/kg	0.001	U	0.33	U	--	--	--	--	--	--	--	--		0.001 U	SW8260B
ACSI-WCS-02-1-3	Diesel Range Hydrocarbons	mg/kg	--		--		--	--	--	--	1800	--	--	53	>	1800	NWTPHD
ACSI-WCS-02-1-3	Gasoline Range Hydrocarbons	mg/kg	--		--		--	--	--	--	--	53	--	21	>	53	NWTPHG
ACSI-WCS-02-1-3	Hexachlorobutadiene	mg/kg	0.0053	U	0.33	U	--	--	--	--	--	--	--	--		0.0053 U	SW8260B
ACSI-WCS-02-1-3	Naphthalene	mg/kg	0.0053	U	0.33	U	--	--	--	--	--	--	--	--		0.0053 U	SW8260B
ACSI-WCS-03-1-4.5	1,2,4-Trichlorobenzene	mg/kg	0.0056	U	0.32	U	--	--	--	--	--	--	--	--		0.0056 U	SW8260B
ACSI-WCS-03-1-4.5	1,2-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-03-1-4.5	1,3-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-03-1-4.5	1,4-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-03-1-4.5	Diesel Range Hydrocarbons	mg/kg	--		--		--	--	--	--	210	--	--	140	>	210	NWTPHD
ACSI-WCS-03-1-4.5	Hexachlorobutadiene	mg/kg	0.0056	U	0.32	U	--	--	--	--	--	--	--	--		0.0056 U	SW8260B
ACSI-WCS-03-1-4.5	Naphthalene	mg/kg	0.94		10		--	--	--	--	--	--	--	--		10	SW8270D
ACSI-WCS-04-2-3	1,2,4-Trichlorobenzene	mg/kg	0.0057	U	0.32	U	--	--	--	--	--	--	--	--		0.0057 U	SW8260B
ACSI-WCS-04-2-3	1,2-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-04-2-3	1,3-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-04-2-3	1,4-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-04-2-3	Diesel Range Hydrocarbons	mg/kg	--		--		--	--	--	--	120	--	--	50	>	120	NWTPHD
ACSI-WCS-04-2-3	Hexachlorobutadiene	mg/kg	0.0057	U	0.32	U	--	--	--	--	--	--	--	--		0.0057 U	SW8260B
ACSI-WCS-04-2-3	Naphthalene	mg/kg	0.0057	U	0.32	U	--	--	--	--	--	--	--	--		0.0057 U	SW8260B
ACSI-WCS-05-1-4.5	1,2,4-Trichlorobenzene	mg/kg	0.0054	U	0.32	U	--	--	--	--	--	--	--	--		0.0054 U	SW8260B
ACSI-WCS-05-1-4.5	1,2-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-05-1-4.5	1,3-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-05-1-4.5	1,4-Dichlorobenzene	mg/kg	0.0011	U	0.32	U	--	--	--	--	--	--	--	--		0.0011 U	SW8260B
ACSI-WCS-05-1-4.5	Diesel Range Hydrocarbons	mg/kg	--		--		--	--	--	--	330	--	--	280	>	330	NWTPHD
ACSI-WCS-05-1-4.5	Hexachlorobutadiene	mg/kg	0.0054	U	0.32	U	--	--	--	--	--	--	--	--		0.0054 U	SW8260B
ACSI-WCS-05-1-4.5	Naphthalene	mg/kg	0.0054	U	0.32	U	--	--	--	--	--	--	--	--		0.0054 U	SW8260B
ACSI-WCS-10-1-4.5	1,2,4-Trichlorobenzene	mg/kg	0.046	U	0.065	U	--	--	--	--	--	--	--	--		0.046 U	SW8260B
ACSI-WCS-10-1-4.5	1,2-Dichlorobenzene	mg/kg	0.0091	U	0.065	U	--	--	--	--	--	--	--	--		0.0091 U	SW8260B
ACSI-WCS-10-1-4.5	1,3-Dichlorobenzene	mg/kg	0.0091	U	0.065	U	--	--	--	--	--	--	--	--		0.0091 U	SW8260B
ACSI-WCS-10-1-4.5	1,4-Dichlorobenzene	mg/kg	0.0091	U	0.065	U	--	--	--	--	--	--	--	--		0.0091 U	SW8260B
ACSI-WCS-10-1-4.5	Diesel Range Hydrocarbons	mg/kg	--		--		--	--	--	--	28	--	--	50	U	28	NWTPHD
ACSI-WCS-10-1-4.5	Hexachlorobutadiene	mg/kg	0.046	U	0.065	U	--	--	--	--	--	--	--	--		0.046 U	SW8260B
ACSI-WCS-10-1-4.5	Naphthalene	mg/kg	1.5	E	0.065	U	--	--	--	--	--	--	--	--		1.5 E	SW8260B
ACSI-WCS-6-1-4.5	1,2,4-Trichlorobenzene	mg/kg	0.06	U	0.066	U	--	--	--	--	--	--	--	--		0.066 U	SW8270D
ACSI-WCS-6-1-4.5	1,2-Dichlorobenzene	mg/kg	0.012	U	0.066	U	--	--	--	--	--	--	--	--		0.012 U	SW8260B
ACSI-WCS-6-1-4.5	1,3-Dichlorobenzene	mg/kg	0.012	U	0.066	U	--	--	--	--	--	--	--	--		0.012 U	SW8260B
ACSI-WCS-6-1-4.5	1,4-Dichlorobenzene	mg/kg	0.012	U	0.066	U	--	--	--	--	--	--	--	--		0.012 U	SW8260B
ACSI-WCS-6-1-4.5	Hexachlorobutadiene	mg/kg	0.06	U	0.066	U	--	--	--	--	--	--	--	--		0.066 U	SW8270D
ACSI-WCS-6-1-4.5	Naphthalene	mg/kg	0.52		0.14		--	--	--	--	--	--	--	--		0.14	SW8270D
ACSI-WCS-7-1-4.5	1,2,4-Trichlorobenzene	mg/kg	0.056	U	0.066	U	--	--	--	--	--	--	--	--		0.056 U	SW8260B
ACSI-WCS-7-1-4.5	1,2-Dichlorobenzene	mg/kg	0.011	U	0.066	U	--	--	--	--	--	--	--	--		0.011 U	SW8260B
ACSI-WCS-7-1-4.5	1,3-Dichlorobenzene	mg/kg	0.011	U	0.066	U	--	--	--	--	--	--	--	--		0.011 U	SW8260B
ACSI-WCS-7-1-4.5	1,4-Dichlorobenzene	mg/kg	0.011	U	0.066	U	--	--	--	--	--	--	--	--		0.011 U	SW8260B
ACSI-WCS-7-1-4.5	Hexachlorobutadiene	mg/kg	0.056	U	0.066	U	--	--	--	--	--	--	--	--		0.056 U	SW8260B
ACSI-WCS-7-1-4.5	Naphthalene	mg/kg	0.056	U	0.066	U	--	--	--	--	--	--	--	--		0.056 U	SW8260B
ACSI-WCS-8-1-4.5	1,2,4-Trichlorobenzene	mg/kg	0.057	U	0.066	U	--	--	--	--	--	--	--	--		0.057 U	SW8260B
ACSI-WCS-8-1-4.5	1,2-Dichlorobenzene	mg/kg	0.011	U	0.066	U	--	--	--	--	--	--	--	--		0.011 U	SW8260B
ACSI-WCS-8-1-4.5	1,3-Dichlorobenzene	mg/kg	0.011	U	0.066	U	--	--	--	--	--	--	--	--		0.011 U	SW8260B
ACSI-WCS-8-1-4.5	1,4-Dichlorobenzene	mg/kg	0.011	U	0.066	U	--	--	--	--	--	--	--	--		0.011 U	SW8260B
ACSI-WCS-8-1-4.5	Diesel Range Hydrocarbons	mg/kg	--		--		--	--	--	--	34	--	--	50	>	50 >	NWTPH-HCID
ACSI-WCS-8-1-4.5	Gasoline Range Hydrocarbons	mg/kg	--		--		--	--	--	--	--	160	--	20	U	160	NWTPHG
ACSI-WCS-8-1-4.5	Hexachlorobutadiene	mg/kg	0.057	U	0.066	U	--	--	--	--	--	--	--	--		0.057 U	SW8260B
ACSI-WCS-8-1-4.5	Naphthalene	mg/kg	0.057	U	0.066	U	--	--	--	--	--	--	--	--		0.057 U	SW8260B
ACSI-WCS-9-1-3	1,2,4-Trichlorobenzene	mg/kg	0.005	U	0.33	U	--	--	--	--	--	--	--	--		0.005 U	SW8260B

TABLE D-1

Resolution of Multiple Method for Soil Data

Remedial Investigation/Feasibility Study

Client ID	Compound	Units	SW8260B		SW8270D		SW8021B Mod	WAVPH		ALEPH		AREPH		NWTPHD	NWTPHG	NWTPHD Si and Acid Cleaner	NWTPH-HCID		Selected Result		Selected Method
ACSI-WCS-9-1-3	1,2-Dichlorobenzene	mg/kg	0.001	U	0.33	U	--	--		--		--		--	--	--	--		0.001	U	SW8260B
ACSI-WCS-9-1-3	1,3-Dichlorobenzene	mg/kg	0.001	U	0.33	U	--	--		--		--		--	--	--	--		0.001	U	SW8260B
ACSI-WCS-9-1-3	1,4-Dichlorobenzene	mg/kg	0.001	U	0.33	U	--	--		--		--		--	--	--	--		0.001	U	SW8260B
ACSI-WCS-9-1-3	Diesel Range Hydrocarbons	mg/kg	--		--		--	--		--		--		340	--	--	270	>	340		NWTPHD
ACSI-WCS-9-1-3	Hexachlorobutadiene	mg/kg	0.005	U	0.33	U	--	--		--		--		--	--	--	--		0.005	U	SW8260B
ACSI-WCS-9-1-3	Naphthalene	mg/kg	0.005	U	0.33	U	--	--		--		--		--	--	--	--		0.005	U	SW8260B
DP13-S	Diesel Range Hydrocarbons	mg/kg	--		--		--	--		--		--		--	--	1900	250		1900		NWTPHD Si and Acid Cleaner
DP13-S	Gasoline Range Hydrocarbons	mg/kg	--		--		--	--		--		--		--	340	--	100		340		NWTPHG
DP16-S	Gasoline Range Hydrocarbons	mg/kg	--		--		--	--		--		--		--	700	--	20		700		NWTPHG
SP2	C10-C12 Aliphatics	mg/kg	--		--		--	120		210	J	--		--	--	--	--		120		WAVPH
SP2	C10-C12 Aromatics	mg/kg	--		--		--	270		--		49	J	--	--	--	--		270		WAVPH
SP2	C8-C10 Aliphatics	mg/kg	--		--		--	21	U	49	J	--		--	--	--	--		49	J	ALEPH
SP2	C8-C10 Aromatics	mg/kg	--		--		--	100		--		18	J	--	--	--	--		100		WAVPH
SP3	C10-C12 Aliphatics	mg/kg	--		--		--	31		110	J	--		--	--	--	--		31		WAVPH
SP3	C10-C12 Aromatics	mg/kg	--		--		--	69		--		24	J	--	--	--	--		69		WAVPH
SP3	C8-C10 Aliphatics	mg/kg	--		--		--	19	U	23	J	--		--	--	--	--		23	J	ALEPH
SP3	C8-C10 Aromatics	mg/kg	--		--		--	19	U	--		4.2	J	--	--	--	--		4.2	J	AREPH
SP3DUP	C10-C12 Aliphatics	mg/kg	--		--		--	37		110	J	--		--	--	--	--		37		WAVPH
SP3DUP	C10-C12 Aromatics	mg/kg	--		--		--	92		--		22	J	--	--	--	--		92		WAVPH
SP3DUP	C8-C10 Aliphatics	mg/kg	--		--		--	21	U	24	J	--		--	--	--	--		24	J	ALEPH
SP3DUP	C8-C10 Aromatics	mg/kg	--		--		--	21	U	--		4.2	UJ	--	--	--	--		4.2	UJ	AREPH

TABLE D-2

Resolution of Multiple Method for Groundwater Data

Remedial Investigation/Feasibility Study

Client ID	Compound	Units	SW8260B		SW8270D		SW8021B Mod		WAVPH		NWTPHD	NWTPHG	NWTPH-HCID	Selected Result		Selected Method
ACSI-GWS-01-01	Diesel Range Hydrocarbons	mg/L	--		--		--		--		1	--	0.63	1		NWTPHD
ACSI-GWS-01-01	Gasoline Range Hydrocarbons	mg/L	--		--		--		--		--	0.92	0.25	0.92		NWTPHG
ACSI-GWS-01-01	Naphthalene	ug/L	250		150		--		--		--	--	--	250		SW8260B
ACSI-GWS-01-02	Naphthalene	ug/L	0.5	U	1	U	--		--		--	--	--	0.5	U	SW8260B
ACSI-GWS-01-03	Naphthalene	ug/L	0.5	U	1	U	--		--		--	--	--	0.5	U	SW8260B
ACSI-GWS-01-100	Naphthalene	ug/L	0.5	U	1	U	--		--		--	--	--	0.5	U	SW8260B
DP1	Benzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP1	Ethylbenzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP1	m,p-Xylene	ug/L	--		--		1.1		10	U	--	--	--	1.1		SW8021BMod
DP1	o-Xylene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP1	Toluene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP12	Benzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP12	Ethylbenzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP12	m,p-Xylene	ug/L	--		--		1	U	10	U	--	--	--	1	U	SW8021BMod
DP12	o-Xylene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP12	Toluene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP2	Benzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP2	Ethylbenzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP2	m,p-Xylene	ug/L	--		--		1	U	10	U	--	--	--	1	U	SW8021BMod
DP2	o-Xylene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP2	Toluene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP3	Benzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP3	Ethylbenzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP3	m,p-Xylene	ug/L	--		--		1	U	10	U	--	--	--	1	U	SW8021BMod
DP3	o-Xylene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP3	Toluene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP4	Benzene	ug/L	--		--		56		44		--	--	--	56		SW8021BMod
DP4	Ethylbenzene	ug/L	--		--		1.3		5	U	--	--	--	1.3		SW8021BMod
DP4	m,p-Xylene	ug/L	--		--		6.7		10	U	--	--	--	6.7		SW8021BMod
DP4	o-Xylene	ug/L	--		--		1.5		5	U	--	--	--	1.5		SW8021BMod
DP4	Toluene	ug/L	--		--		2.4		5	U	--	--	--	2.4		SW8021BMod
DP5	Benzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP5	Ethylbenzene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP5	m,p-Xylene	ug/L	--		--		1	U	10	U	--	--	--	1	U	SW8021BMod
DP5	o-Xylene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod
DP5	Toluene	ug/L	--		--		1	U	5	U	--	--	--	1	U	SW8021BMod

Appendix E. Analytical Data

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**LB1**	**LB10**	**LB11**	**LB12**	**LB12DUP**	**LB2**
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
VOC	Ethylbenzene	mg/kg	--	--	--	--	--	--
VOC	m,p-Xylene	mg/kg	--	--	--	--	--	--
VOC	Toluene	mg/kg	--	--	--	--	--	--
VOC	Methyl tert-Butyl Ether	mg/kg	--	--	--	--	--	--
VOC	Benzene	mg/kg	--	--	--	--	--	--
VOC	o-Xylene	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--
Diox/Furan	2,3,7,8-TCDD	mg/kg	1.00E-06 U	6.90E-07 U	1.90E-07 U	1.90E-07 U	1.40E-07 U	8.80E-07 U
Diox/Furan	1,2,3,7,8,9-HxCDD	mg/kg	1.20E-06 U	7.20E-07 U	2.90E-07 U	2.50E-07 U	1.90E-07 U	1.30E-06 U
Diox/Furan	Total PeCDF	mg/kg	1.40E-06 U	9.10E-07 U	2.50E-07 U	2.60E-07 U	2.50E-07 U	1.30E-06 U
Diox/Furan	OCDD	mg/kg	9.30E-06 J	2.10E-06 U	6.00E-06 J	2.20E-06 U	2.30E-06 U	5.10E-06 U
Diox/Furan	Total HxCDD	mg/kg	1.30E-06 U	7.80E-07 U	5.50E-07 U	2.50E-07 U	2.30E-07 U	1.40E-06 U
Diox/Furan	1,2,3,4,6,7,8-HpCDD	mg/kg	1.60E-06 U	1.00E-06 U	1.00E-06 U	4.60E-07 U	5.00E-07 U	1.20E-06 U
Diox/Furan	Total PeCDD	mg/kg	1.90E-06 U	1.30E-06 U	3.60E-07 U	2.80E-07 U	4.00E-07 U	1.70E-06 U
Diox/Furan	Total HpCDD	mg/kg	1.60E-06 U	1.00E-06 U	1.00E-06 U	4.60E-07 U	5.00E-07 U	1.20E-06 U
Diox/Furan	Total HpCDF	mg/kg	1.00E-06 U	6.40E-07 U	4.10E-07 U	3.70E-07 U	1.70E-07 U	8.60E-07 U
Diox/Furan	OCDF	mg/kg	1.70E-06 U	8.30E-07 U	3.40E-07 U	3.30E-07 U	3.30E-07 U	1.40E-06 U
Diox/Furan	1,2,3,4,7,8-HxCDD	mg/kg	1.30E-06 U	7.80E-07 U	3.00E-07 U	2.20E-07 U	2.20E-07 U	1.40E-06 U
Diox/Furan	1,2,3,7,8-PeCDD	mg/kg	1.90E-06 U	1.30E-06 U	3.60E-07 U	2.80E-07 U	4.00E-07 U	1.70E-06 U
Diox/Furan	Total TCDD	mg/kg	1.00E-06 U	7.20E-07 U	5.10E-07 U	6.10E-07	6.70E-07	8.60E-07
Diox/Furan	2,3,7,8-TCDF	mg/kg	8.10E-07 U	6.30E-07 U	4.50E-07 U	1.30E-07 U	3.30E-07 U	7.10E-07 U
Diox/Furan	1,2,3,4,7,8,9-HpCDF	mg/kg	1.00E-06 U	6.40E-07 U	2.80E-07 U	1.70E-07 U	1.30E-07 U	8.60E-07 U
Diox/Furan	Total HxCDF	mg/kg	1.10E-06 U	9.40E-07 U	4.40E-07 U	3.50E-07 U	1.60E-07 U	1.10E-06 U
Diox/Furan	Total TCDF	mg/kg	8.10E-07 U	6.30E-07 U	4.50E-07 U	1.30E-07 U	3.30E-07 U	7.10E-07 U
Diox/Furan	2,3,4,7,8-PeCDF	mg/kg	1.30E-06 U	8.80E-07 U	2.40E-07 U	2.40E-07 U	1.90E-07 U	1.20E-06 U
Diox/Furan	1,2,3,7,8-PeCDF	mg/kg	1.40E-06 U	9.10E-07 U	2.50E-07 U	2.60E-07 U	1.90E-07 U	1.30E-06 U
Diox/Furan	1,2,3,6,7,8-HxCDF	mg/kg	9.20E-07 U	5.90E-07 U	3.40E-07 U	2.50E-07 U	1.40E-07 U	9.00E-07 U
Diox/Furan	1,2,3,6,7,8-HxCDD	mg/kg	1.20E-06 U	6.90E-07 U	5.50E-07 U	2.50E-07 U	2.00E-07 U	1.20E-06 U
Diox/Furan	2,3,4,6,7,8-HxCDF	mg/kg	1.00E-06 U	6.50E-07 U	3.80E-07 U	3.50E-07 U	1.50E-07 U	9.90E-07 U
Diox/Furan	1,2,3,4,6,7,8-HpCDF	mg/kg	8.20E-07 U	5.20E-07 U	4.10E-07 U	3.70E-07 U	1.70E-07 U	7.10E-07 U
Diox/Furan	1,2,3,4,7,8-HxCDF	mg/kg	9.70E-07 U	6.20E-07 U	2.40E-07 U	2.20E-07 U	1.50E-07 U	9.60E-07 U
Diox/Furan	1,2,3,7,8,9-HxCDF	mg/kg	1.10E-06 U	7.40E-07 U	4.40E-07 U	3.30E-07 U	1.60E-07 U	1.10E-06 U
Metals	Lead	mg/kg	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**LB1**	**LB10**	**LB11**	**LB12**	**LB12DUP**	**LB2**
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
Metals	Mercury	mg/kg	0.040 U	0.050 U	0.040 U	0.050 U	0.050 U	0.040 U
Metals	Silver	mg/kg	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Metals	Arsenic	mg/kg	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Metals	Barium	mg/kg	42	33	29	27	38	43
Metals	Cadmium	mg/kg	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Metals	Chromium	mg/kg	26	18	20	18	23	21
Metals	Copper	mg/kg	--	--	--	--	--	--
Metals	Selenium	mg/kg	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
PAH	Anthracene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Pyrene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Benzo(g,h,i)perylene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Benzo(b)fluoranthene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Fluoranthene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Benzo(k)fluoranthene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Acenaphthylene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Chrysene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Benzo(a)pyrene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Dibenz(a,h)anthracene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Benzo(a)anthracene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Acenaphthene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Phenanthrene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Fluorene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	Pentachlorophenol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
PAH	Naphthalene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
PAH	2-Methylnaphthalene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	4-Nitroaniline	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	4-Nitrophenol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	Benzyl Alcohol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	4-Bromophenyl-phenylether	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	2,4-Dimethylphenol	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	4-Methylphenol	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	4-Chloroaniline	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Phenol	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Di-n-Octyl phthalate	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			LB1	LB10	LB11	LB12	LB12DUP	LB2
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
SVOC	Hexachlorobenzene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	2,4-Dichlorophenol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	2,4-Dinitrotoluene	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	Dimethylphthalate	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Dibenzofuran	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	2,4-Dinitrophenol	mg/kg	0.65 U	0.63 U	0.64 U	0.65 U	0.63 U	0.64 U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	0.65 U	0.63 U	0.64 U	0.65 U	0.63 U	0.64 U
SVOC	4-Chloro-3-methylphenol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	2,6-Dinitrotoluene	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	Benzoic Acid	mg/kg	0.65 U	0.63 U	0.64 U	0.65 U	0.63 U	0.64 U
SVOC	Hexachloroethane	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	4-Chlorophenyl-phenylether	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Hexachlorocyclopentadiene	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	Isophorone	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Diethylphthalate	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Di-n-Butylphthalate	mg/kg	0.065 U	0.063 U	0.14 U	0.065 U	1.1 U	0.12 U
SVOC	Butylbenzylphthalate	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	N-Nitrosodiphenylamine	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Carbazole	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	Hexachlorobutadiene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	2,4,6-Trichlorophenol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	2-Nitroaniline	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	2-Nitrophenol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	2-Chloronaphthalene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	3,3'-Dichlorobenzidine	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	2-Methylphenol	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	2-Chlorophenol	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	2,4,5-Trichlorophenol	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
SVOC	Nitrobenzene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
SVOC	3-Nitroaniline	mg/kg	0.32 U	0.31 U	0.32 U	0.32 U	0.32 U	0.32 U
TPH	Diesel Range Hydrocarbons	mg/kg	--	--	--	--	--	--
TPH	Gasoline Range Hydrocarbons	mg/kg	--	--	--	--	--	--
TPH	Hydraulic Fluid	mg/kg	--	--	--	--	--	--
TPH	Motor Oil	mg/kg	--	--	--	--	--	--
TPH	Oil Range	mg/kg	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C12-C13 Aromatics	mg/kg	--	--	--	--	--	--

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**LB1**	**LB10**	**LB11**	**LB12**	**LB12DUP**	**LB2**
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C5-C6 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C6-C8 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
VOC	1,2,4-Trichlorobenzene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
VOC	1,3-Dichlorobenzene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U
VOC	1,2-Dichlorobenzene	mg/kg	0.065 U	0.063 U	0.064 U	0.065 U	0.063 U	0.064 U

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

> HCID analysis result, fuel type is present (result is not use carbon fraction results to assess hazard)
< HCID analysis result, fuel type is not present at the in
U = The analyte was analyzed for, but not detected. The
numerical value is at or below the sample-specific meth limit (MDL).
J = The analyte was positively identified; the quantitatioation.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**LB3**	**LB4**	**LB5**	**LB6**	**LB7**	**LB9**
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
VOC	Ethylbenzene	mg/kg	--	--	--	--	--	--
VOC	m,p-Xylene	mg/kg	--	--	--	--	--	--
VOC	Toluene	mg/kg	--	--	--	--	--	--
VOC	Methyl tert-Butyl Ether	mg/kg	--	--	--	--	--	--
VOC	Benzene	mg/kg	--	--	--	--	--	--
VOC	o-Xylene	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--
Diox/Furan	2,3,7,8-TCDD	mg/kg	1.80E-07 U	8.20E-07 U	1.80E-07 U	1.90E-07 U	5.40E-07 U	2.20E-07 U
Diox/Furan	1,2,3,7,8,9-HxCDD	mg/kg	2.50E-07 U	1.00E-06 U	2.60E-07 U	2.40E-07 U	6.90E-07 U	2.70E-07 U
Diox/Furan	Total PeCDF	mg/kg	2.80E-07 U	1.10E-06 U	2.50E-07 U	3.40E-07 U	7.60E-07 U	2.60E-07 U
Diox/Furan	OCDD	mg/kg	4.80E-06 U	3.70E-06 U	1.90E-06 U	2.00E-06 U	2.40E-06 U	2.50E-05
Diox/Furan	Total HxCDD	mg/kg	2.70E-07 U	1.10E-06 U	2.90E-07 U	2.50E-07 U	7.50E-07 U	1.20E-06 U
Diox/Furan	1,2,3,4,6,7,8-HpCDD	mg/kg	3.50E-07 U	1.20E-06 U	3.90E-07 U	3.50E-07 U	8.90E-07 U	3.80E-06 J
Diox/Furan	Total PeCDD	mg/kg	3.50E-07 U	1.50E-06 U	4.60E-07 U	1.00E-06 U	1.10E-06 U	3.70E-07 U
Diox/Furan	Total HpCDD	mg/kg	5.80E-07 U	1.20E-06 U	4.50E-07 U	4.00E-07 U	8.90E-07 U	1.10E-05
Diox/Furan	Total HpCDF	mg/kg	2.20E-07 U	9.00E-07 U	1.90E-07 U	2.10E-07 U	6.10E-07 U	5.00E-07 U
Diox/Furan	OCDF	mg/kg	3.30E-07 U	1.40E-06 U	3.30E-07 U	3.40E-07 U	8.60E-07 U	7.80E-07 U
Diox/Furan	1,2,3,4,7,8-HxCDD	mg/kg	2.70E-07 U	1.10E-06 U	2.90E-07 U	2.50E-07 U	7.50E-07 U	2.40E-07 U
Diox/Furan	1,2,3,7,8-PeCDD	mg/kg	3.50E-07 U	1.50E-06 U	3.20E-07 U	3.40E-07 U	1.10E-06 U	3.70E-07 U
Diox/Furan	Total TCDD	mg/kg	5.00E-07 U	8.20E-07 U	4.40E-07 U	6.70E-07	7.50E-07	8.10E-07
Diox/Furan	2,3,7,8-TCDF	mg/kg	1.50E-07 U	6.30E-07 U	1.40E-07 U	1.50E-07 U	4.30E-07 U	3.20E-07 U
Diox/Furan	1,2,3,4,7,8,9-HpCDF	mg/kg	2.20E-07 U	9.00E-07 U	1.90E-07 U	2.10E-07 U	6.10E-07 U	2.20E-07 U
Diox/Furan	Total HxCDF	mg/kg	2.30E-07 U	9.80E-07 U	2.30E-07 U	2.10E-07 U	6.40E-07 U	2.50E-07 U
Diox/Furan	Total TCDF	mg/kg	1.50E-07 U	6.30E-07 U	1.40E-07 U	1.50E-07 U	4.30E-07 U	3.20E-07 U
Diox/Furan	2,3,4,7,8-PeCDF	mg/kg	2.20E-07 U	1.10E-06 U	2.30E-07 U	2.20E-07 U	7.40E-07 U	2.60E-07 U
Diox/Furan	1,2,3,7,8-PeCDF	mg/kg	2.30E-07 U	1.10E-06 U	2.40E-07 U	2.40E-07 U	7.60E-07 U	2.60E-07 U
Diox/Furan	1,2,3,6,7,8-HxCDF	mg/kg	1.90E-07 U	7.90E-07 U	1.90E-07 U	1.70E-07 U	5.10E-07 U	2.00E-07 U
Diox/Furan	1,2,3,6,7,8-HxCDD	mg/kg	2.50E-07 U	9.70E-07 U	2.60E-07 U	2.20E-07 U	6.70E-07 U	3.70E-07 U
Diox/Furan	2,3,4,6,7,8-HxCDF	mg/kg	2.10E-07 U	8.70E-07 U	2.00E-07 U	1.80E-07 U	5.60E-07 U	2.40E-07 U
Diox/Furan	1,2,3,4,6,7,8-HpCDF	mg/kg	1.80E-07 U	7.30E-07 U	1.40E-07 U	1.80E-07 U	5.00E-07 U	5.00E-07 U
Diox/Furan	1,2,3,4,7,8-HxCDF	mg/kg	2.00E-07 U	8.30E-07 U	2.00E-07 U	1.80E-07 U	5.40E-07 U	2.50E-07 U
Diox/Furan	1,2,3,7,8,9-HxCDF	mg/kg	2.30E-07 U	9.80E-07 U	2.30E-07 U	2.10E-07 U	6.40E-07 U	2.50E-07 U
Metals	Lead	mg/kg	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			LB3	LB4	LB5	LB6	LB7	LB9
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
Metals	Mercury	mg/kg	0.050 U	0.040 U	0.050 U	0.040 U	0.050 U	0.040 U
Metals	Silver	mg/kg	0.40 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Metals	Arsenic	mg/kg	6.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Metals	Barium	mg/kg	33	42	50	42	40	39
Metals	Cadmium	mg/kg	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Metals	Chromium	mg/kg	19	28	22	24	21	24
Metals	Copper	mg/kg	--	--	--	--	--	--
Metals	Selenium	mg/kg	6.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
PAH	Anthracene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Pyrene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Benzo(g,h,i)perylene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Benzo(b)fluoranthene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Fluoranthene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Benzo(k)fluoranthene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Acenaphthylene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Chrysene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Benzo(a)pyrene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Dibenz(a,h)anthracene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Benzo(a)anthracene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Acenaphthene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Phenanthrene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Fluorene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	Pentachlorophenol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
PAH	Naphthalene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
PAH	2-Methylnaphthalene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	4-Nitroaniline	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	4-Nitrophenol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	Benzyl Alcohol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	4-Bromophenyl-phenylether	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	2,4-Dimethylphenol	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	4-Methylphenol	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	4-Chloroaniline	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Phenol	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Di-n-Octyl phthalate	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			LB3	LB4	LB5	LB6	LB7	LB9
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
SVOC	Hexachlorobenzene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	2,4-Dichlorophenol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	2,4-Dinitrotoluene	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	Dimethylphthalate	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Dibenzofuran	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	2,4-Dinitrophenol	mg/kg	0.65 U	0.66 U	0.64 U	0.63 U	0.65 U	0.66 U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	0.65 U	0.66 U	0.64 U	0.63 U	0.65 U	0.66 U
SVOC	4-Chloro-3-methylphenol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	2,6-Dinitrotoluene	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	Benzoic Acid	mg/kg	0.65 U	0.66 U	0.64 U	0.63 U	0.65 U	0.66 U
SVOC	Hexachloroethane	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	4-Chlorophenyl-phenylether	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Hexachlorocyclopentadiene	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	Isophorone	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Diethylphthalate	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Di-n-Butylphthalate	mg/kg	0.065 U	0.11 U	0.064 U	0.12 U	0.086 U	0.16 U
SVOC	Butylbenzylphthalate	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	N-Nitrosodiphenylamine	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Carbazole	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	Hexachlorobutadiene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	2,4,6-Trichlorophenol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	2-Nitroaniline	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	2-Nitrophenol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	2-Chloronaphthalene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	3,3'-Dichlorobenzidine	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	2-Methylphenol	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	2-Chlorophenol	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	2,4,5-Trichlorophenol	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
SVOC	Nitrobenzene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
SVOC	3-Nitroaniline	mg/kg	0.33 U	0.33 U	0.32 U	0.31 U	0.33 U	0.33 U
TPH	Diesel Range Hydrocarbons	mg/kg	--	--	--	--	--	--
TPH	Gasoline Range Hydrocarbons	mg/kg	--	--	--	--	--	--
TPH	Hydraulic Fluid	mg/kg	--	--	--	--	--	--
TPH	Motor Oil	mg/kg	--	--	--	--	--	--
TPH	Oil Range	mg/kg	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C12-C13 Aromatics	mg/kg	--	--	--	--	--	--

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**LB3**	**LB4**	**LB5**	**LB6**	**LB7**	**LB9**
Location ID			Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin	Aeration Stabilization Basin
Sample Date			2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005
Chemical Group	**Compound**	**Units**						
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--
TPH	C5-C6 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C6-C8 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
VOC	1,2,4-Trichlorobenzene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
VOC	1,3-Dichlorobenzene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U
VOC	1,2-Dichlorobenzene	mg/kg	0.065 U	0.066 U	0.064 U	0.063 U	0.065 U	0.066 U

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

> HCID analysis result, fuel type is present (result is not
< HCID analysis result, fuel type is not present at the inc
U = The analyte was analyzed for, but not detected. The
numerical value is at or below the sample-specific meth
J = The analyte was positively identified; the quantitatio

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**LBCOMP**	**MP11**	**MP12**	**MP13**	**MP14**	**MP8**	**RR1**	**RR2**
Location ID			Aeration Stabilization Basin	Potential Mining Process	Potential Mining Process	Potential Mining Process	Potential Mining Process	Main Plant Area Soil	Railroad Track	Railroad Track
Sample Date			3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/03/2005	3/03/2005
Chemical Group	**Compound**	**Units**								
VOC	Ethylbenzene	mg/kg	--	--	--	--	--	--	--	--
VOC	m,p-Xylene	mg/kg	--	--	--	--	--	--	--	--
VOC	Toluene	mg/kg	--	--	--	--	--	--	--	--
VOC	Methyl tert-Butyl Ether	mg/kg	--	--	--	--	--	--	--	--
VOC	Benzene	mg/kg	--	--	--	--	--	--	--	--
VOC	o-Xylene	mg/kg	--	--	--	--	--	--	--	--
Aroclors	Aroclor 1260	mg/kg	0.076 U	--	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	0.076 U	--	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	0.076 U	--	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	0.076 U	--	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	0.076 U	--	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	0.076 U	--	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	0.076 U	--	--	--	--	--	--	--
Diox/Furan	2,3,7,8-TCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8,9-HxCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total PeCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	OCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total HxCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,6,7,8-HpCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total PeCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total HpCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total HpCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	OCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8-HxCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8-PeCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total TCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	2,3,7,8-TCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8,9-HpCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total HxCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	Total TCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	2,3,4,7,8-PeCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8-PeCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,6,7,8-HxCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,6,7,8-HxCDD	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	2,3,4,6,7,8-HxCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,6,7,8-HpCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8-HxCDF	mg/kg	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8,9-HxCDF	mg/kg	--	--	--	--	--	--	--	--
Metals	Lead	mg/kg	--	2.0 U	2.0	5.0	2.0	--	10	3.0

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			LBCOMP	MP11	MP12	MP13	MP14	MP8	RR1	RR2
Location ID			Aeration Stabilization Basin	Potential Mining Process	Potential Mining Process	Potential Mining Process	Potential Mining Process	Main Plant Area Soil	Railroad Track	Railroad Track
Sample Date			3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/03/2005	3/03/2005
Chemical Group	**Compound**	**Units**								
Metals	Mercury	mg/kg	--	--	--	--	--	--	0.040 U	0.050 U
Metals	Silver	mg/kg	--	--	--	--	--	--	0.30 U	0.30 U
Metals	Arsenic	mg/kg	--	5.0 U	5.0 U	5.0 U	5.0 U	--	**9.0**	5.0 U
Metals	Barium	mg/kg	--	--	--	--	--	--	53	40
Metals	Cadmium	mg/kg	--	--	--	--	--	--	0.20 U	0.20 U
Metals	Chromium	mg/kg	--	--	--	--	--	--	16	21
Metals	Copper	mg/kg		9.8	12	15	12	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	6.0 U	5.0 U
PAH	Anthracene	mg/kg	--	--	--	--	--	--	0.52	1.2
PAH	Pyrene	mg/kg	--	--	--	--	--	--	0.92	1.9
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	--	0.091	**0.26**
PAH	Fluoranthene	mg/kg	--	--	--	--	--	--	1.5	3.9
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	--	--	0.074 U	**0.15**
PAH	Acenaphthylene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
PAH	Chrysene	mg/kg	--	--	--	--	--	--	**0.24**	**0.58**
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	--	--	0.074 U	**0.18**
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	--	--	**0.22**	**0.56**
PAH	Acenaphthene	mg/kg	--	--	--	--	--	--	0.84	3.9
PAH	Phenanthrene	mg/kg	--	--	--	--	--	--	2.8	8.0
PAH	Fluorene	mg/kg	--	--	--	--	--	--	0.73	2.2
PAH	Pentachlorophenol	mg/kg	--	--	--	--	--	--	0.37 U	0.35 U
PAH	Naphthalene	mg/kg	--	--	--	--	--	--	0.99	**6.2**
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	--	--	0.66	2.3
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	--	--	0.37 U	0.35 U
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	--	--	0.37 U	0.35 U
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	--	--	0.37 U	0.35 U
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	4-Methylphenol	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	--	--	0.37 U	0.35 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	Phenol	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			LBCOMP		MP11		MP12		MP13		MP14		MP8		RR1		RR2	
Location ID			Aeration Stabilization Basin		Potential Mining Process		Potential Mining Process		Potential Mining Process		Potential Mining Process		Main Plant Area Soil		Railroad Track		Railroad Track	
Sample Date			3/01/2005		3/01/2005		3/01/2005		3/01/2005		3/01/2005		3/01/2005		3/03/2005		3/03/2005	
Chemical Group	**Compound**	**Units**																
SVOC	Hexachlorobenzene	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	2,4-Dichlorophenol	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	2,4-Dinitrotoluene	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	Dimethylphthalate	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	Dibenzofuran	mg/kg	--		--		--		--		--		--		0.42		2.0	
SVOC	2,4-Dinitrophenol	mg/kg	--		--		--		--		--		--		0.74	U	0.69	U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--		--		--		--		--		--		0.74	U	0.69	U
SVOC	4-Chloro-3-methylphenol	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	2,6-Dinitrotoluene	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	Benzoic Acid	mg/kg	--		--		--		--		--		--		0.74	U	0.69	U
SVOC	Hexachloroethane	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	4-Chlorophenyl-phenylether	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	Hexachlorocyclopentadiene	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	Isophorone	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	Diethylphthalate	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	Di-n-Butylphthalate	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	Butylbenzylphthalate	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	N-Nitrosodiphenylamine	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	Carbazole	mg/kg	--		--		--		--		--		--		0.16		0.38	
SVOC	Hexachlorobutadiene	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	2,4,6-Trichlorophenol	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	2-Nitroaniline	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	2-Nitrophenol	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	2-Chloronaphthalene	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	3,3'-Dichlorobenzidine	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	2-Methylphenol	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	2-Chlorophenol	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	2,4,5-Trichlorophenol	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
SVOC	Nitrobenzene	mg/kg	--		--		--		--		--		--		0.074	U	0.069	U
SVOC	3-Nitroaniline	mg/kg	--		--		--		--		--		--		0.37	U	0.35	U
TPH	Diesel Range Hydrocarbons	mg/kg	57	<	--		--		--		--		50	<	50	<	50	>
TPH	Gasoline Range Hydrocarbons	mg/kg	23	<	--		--		--		--		20	<	20	<	20	<
TPH	Hydraulic Fluid	mg/kg	--		--		--		--		--		--		--		--	
TPH	Motor Oil	mg/kg	--		--		--		--		--		--		--		--	
TPH	Oil Range	mg/kg	110	>	--		--		--		--		100	>	100	<	100	>
TPH	C10-C12 Aliphatics	mg/kg	4.6	U	--		--		--		--		2.1	U	--		2.1	U
TPH	C10-C12 Aromatics	mg/kg	4.6	U	--		--		--		--		2.1	U	--		10	>
TPH	C12-C13 Aromatics	mg/kg	--		--		--		--		--		--		--		--	

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			LBCOMP	MP11	MP12	MP13	MP14	MP8	RR1	RR2
Location ID			Aeration Stabilization Basin	Potential Mining Process	Potential Mining Process	Potential Mining Process	Potential Mining Process	Main Plant Area Soil	Railroad Track	Railroad Track
Sample Date			3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/01/2005	3/03/2005	3/03/2005
Chemical Group	**Compound**	**Units**								
TPH	C12-C16 Aliphatics	mg/kg	4.6 U	--	--	--	--	2.1 U	--	6.6
TPH	C12-C16 Aromatics	mg/kg	4.6 U	--	--	--	--	2.1 U	--	23
TPH	C16-C21 Aliphatics	mg/kg	12	--	--	--	--	5.9	--	13
TPH	C16-C21 Aromatics	mg/kg	6.2	--	--	--	--	2.1 U	--	70
TPH	C21-C34 Aliphatics	mg/kg	77	--	--	--	--	81	--	180
TPH	C21-C34 Aromatics	mg/kg	38	--	--	--	--	17	--	150
TPH	C5-C6 Aliphatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C6-C8 Aliphatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	4.6 U	--	--	--	--	2.1 U	--	2.1 U
TPH	C8-C10 Aromatics	mg/kg	4.6 U	--	--	--	--	2.1 U	--	2.1 U
VOC	1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--	0.074 U	0.069 U

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

> HCID analysis result, fuel type is present (result is not
< HCID analysis result, fuel type is not present at the inc
U = The analyte was analyzed for, but not detected. The
numerical value is at or below the sample-specific meth
J = The analyte was positively identified; the quantitatio

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**RR3**	**RR4**	**SP1**	**SP2**	**SP3**	**SP3DUP**	**TS1**	**TS2**	**US2**	**US2DUP**
Location ID			Railroad Track	Railroad Track	Solids Prep Area	Solids Prep Area	Solids Prep Area	Solids Prep Area	Truck Scales Area	Truck Scales Area	Substation	Substation
Sample Date			3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/02/2005	3/02/2005
Chemical Group	**Compound**	**Units**										
VOC	Ethylbenzene	mg/kg	--	--	--	2.1 U	1.9 U	2.1 U	--	--	--	--
VOC	m,p-Xylene	mg/kg	--	--	--	4.2 U	3.8 U	4.2 U	--	--	--	--
VOC	Toluene	mg/kg	--	--	--	2.1 U	1.9 U	2.1 U	--	--	--	--
VOC	Methyl tert-Butyl Ether	mg/kg	--	--	--	2.1 U	1.9 U	2.1 U	--	--	--	--
VOC	Benzene	mg/kg	--	--	--	2.1 U	1.9 U	2.1 U	--	--	--	--
VOC	o-Xylene	mg/kg	--	--	--	2.1 U	1.9 U	2.1 U	--	--	--	--
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--	--	--	0.036 U	0.035
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--	--	--	0.036 U	0.035
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--	--	--	0.036 U	0.035
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--	--	--	0.036 U	0.035
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--	--	--	0.036 U	0.035
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--	--	--	0.036 U	0.035
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--	--	--	0.036 U	0.035
Diox/Furan	2,3,7,8-TCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8,9-HxCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total PeCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	OCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total HxCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,6,7,8-HpCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total PeCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total HpCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total HpCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	OCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8-HxCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8-PeCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total TCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	2,3,7,8-TCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8,9-HpCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total HxCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	Total TCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	2,3,4,7,8-PeCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8-PeCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,6,7,8-HxCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,6,7,8-HxCDD	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	2,3,4,6,7,8-HxCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,6,7,8-HpCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,4,7,8-HxCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Diox/Furan	1,2,3,7,8,9-HxCDF	mg/kg	--	--	--	--	--	--	--	--	--	--
Metals	Lead	mg/kg	6.0	15	13	5.0	5.0	5.0	--	--	--	--

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			RR3	RR4	SP1	SP2	SP3	SP3DUP	TS1	TS2	US2	US2DUP
Location ID			Railroad Track	Railroad Track	Solids Prep Area	Solids Prep Area	Solids Prep Area	Solids Prep Area	Truck Scales Area	Truck Scales Area	Substation	Substation
Sample Date			3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/02/2005	3/02/2005
Chemical Group	**Compound**	**Units**										
Metals	Mercury	mg/kg	0.040 U	0.040	0.050 U	0.050 U	0.050 U	0.050 U	--	--	--	--
Metals	Silver	mg/kg	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	--	--	--	--
Metals	Arsenic	mg/kg	5.0 U	6.0 U	**8.0**	5.0 U	5.0 U	5.0 U	--	--	--	--
Metals	Barium	mg/kg	44	66	67	56	61	67	--	--	--	--
Metals	Cadmium	mg/kg	0.20 U	0.20 U	0.20	0.20 U	0.20 U	0.20 U	--	--	--	--
Metals	Chromium	mg/kg	20	29	45	25	26	26	--	--	--	--
Metals	Copper	mg/kg	--	--	--	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	5.0 U	6.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	--	--	--
PAH	Anthracene	mg/kg	0.071 U	0.096	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Pyrene	mg/kg	0.071 U	0.21	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Fluoranthene	mg/kg	0.088	0.41	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Acenaphthylene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Chrysene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Benzo(a)pyrene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Benzo(a)anthracene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Acenaphthene	mg/kg	0.071 U	0.17	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Phenanthrene	mg/kg	0.071 U	0.59	0.072 U	0.50	0.44	0.47	--	--	--	--
PAH	Fluorene	mg/kg	0.071 U	0.17	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
PAH	Pentachlorophenol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
PAH	Naphthalene	mg/kg	0.071 U	0.20	0.072 U	**8.0**	2.4	2.8	--	--	--	--
PAH	2-Methylnaphthalene	mg/kg	0.071 U	0.13	0.072 U	16	8.3	9.6	--	--	--	--
SVOC	4-Nitroaniline	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	4-Nitrophenol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	Benzyl Alcohol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	4-Methylphenol	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	4-Chloroaniline	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Phenol	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	0.071 U	0.072 U	0.29	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			RR3	RR4	SP1	SP2	SP3	SP3DUP	TS1	TS2	US2	US2DUP
Location ID			Railroad Track	Railroad Track	Solids Prep Area	Solids Prep Area	Solids Prep Area	Solids Prep Area	Truck Scales Area	Truck Scales Area	Substation	Substation
Sample Date			3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/02/2005	3/02/2005
Chemical Group	**Compound**	**Units**										
SVOC	Hexachlorobenzene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	Dimethylphthalate	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Dibenzofuran	mg/kg	0.071 U	0.10	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	0.71 U	0.72 U	0.72 U	3.5 U	3.5 U	3.5 U	--	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	0.71 U	0.72 U	0.72 U	3.5 U	3.5 U	3.5 U	--	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	Benzoic Acid	mg/kg	0.71 U	0.72 U	0.72 U	3.5 U	3.5 U	3.5 U	--	--	--	--
SVOC	Hexachloroethane	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	Isophorone	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Diethylphthalate	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Carbazole	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	Hexachlorobutadiene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	2-Nitroaniline	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	2-Nitrophenol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	2-Chloronaphthalene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	2-Methylphenol	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	2-Chlorophenol	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
SVOC	Nitrobenzene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
SVOC	3-Nitroaniline	mg/kg	0.35 U	0.36 U	0.36 U	1.7 U	1.7 U	1.7 U	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	50 >	50 <	50 >	50 >	50 >	50 >	6.0 U	39	--	--
TPH	Gasoline Range Hydrocarbons	mg/kg	20 <	20 <	20 <	20 >	20 >	20 >	--	--	--	--
TPH	Hydraulic Fluid	mg/kg	--	--	--	--	--	--	12 U	220	--	--
TPH	Motor Oil	mg/kg	--	--	--	--	--	--	12 U	240	--	--
TPH	Oil Range	mg/kg	100 >	100 >	100 >	100 >	100 >	100 >	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	4.1	2.2 U	2.2 U	120	31	37	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	2.1 U	2.2 U	2.2 U	270	69	92	--	--	--	--
TPH	C12-C13 Aromatics	mg/kg	--	--	--	140	44	56	--	--	--	--

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			RR3	RR4	SP1	SP2	SP3	SP3DUP	TS1	TS2	US2	US2DUP
Location ID			Railroad Track	Railroad Track	Solids Prep Area	Solids Prep Area	Solids Prep Area	Solids Prep Area	Truck Scales Area	Truck Scales Area	Substation	Substation
Sample Date			3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/03/2005	3/02/2005	3/02/2005
Chemical Group	**Compound**	**Units**										
TPH	C12-C16 Aliphatics	mg/kg	13	2.2 U	3.4	190 J	120 J	110 J	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	4.8	2.2 U	2.2 U	93 J	49 J	42 J	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	21	4.3	21	76 J	110 J	100 J	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	28	6.4	15	95 J	160 J	130 J	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	210	26	180	330 J	490 J	480 J	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	420	30	250	750 J	1,200 J	950 J	--	--	--	--
TPH	C5-C6 Aliphatics	mg/kg	--	--	--	21 U	19 U	21 U	--	--	--	--
TPH	C6-C8 Aliphatics	mg/kg	--	--	--	21 U	19 U	21 U	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	2.1 U	2.2 U	2.2 U	49 J	23 J	24 J	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	2.1 U	2.2 U	2.2 U	100	4.2 J	4.2 UJ	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	0.071 U	0.072 U	0.072 U	0.35 U	0.35 U	0.35 U	--	--	--	--

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

> HCID analysis result, fuel type is present (result is not
< HCID analysis result, fuel type is not present at the inc
U = The analyte was analyzed for, but not detected. The
numerical value is at or below the sample-specific meth
J = The analyte was positively identified; the quantitatio

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**US4**	
Location ID			Substation	
Sample Date			3/02/2005	
Chemical Group	**Compound**	**Units**		
VOC	Ethylbenzene	mg/kg	--	
VOC	m,p-Xylene	mg/kg	--	
VOC	Toluene	mg/kg	--	
VOC	Methyl tert-Butyl Ether	mg/kg	--	
VOC	Benzene	mg/kg	--	
VOC	o-Xylene	mg/kg	--	
Aroclors	Aroclor 1260	mg/kg U	0.036	U
Aroclors	Aroclor 1254	mg/kg U	0.036	U
Aroclors	Aroclor 1221	mg/kg U	0.036	U
Aroclors	Aroclor 1232	mg/kg U	0.036	U
Aroclors	Aroclor 1248	mg/kg U	0.036	U
Aroclors	Aroclor 1016	mg/kg U	0.036	U
Aroclors	Aroclor 1242	mg/kg U	0.036	U
Diox/Furan	2,3,7,8-TCDD	mg/kg	--	
Diox/Furan	1,2,3,7,8,9-HxCDD	mg/kg	--	
Diox/Furan	Total PeCDF	mg/kg	--	
Diox/Furan	OCDD	mg/kg	--	
Diox/Furan	Total HxCDD	mg/kg	--	
Diox/Furan	1,2,3,4,6,7,8-HpCDD	mg/kg	--	
Diox/Furan	Total PeCDD	mg/kg	--	
Diox/Furan	Total HpCDD	mg/kg	--	
Diox/Furan	Total HpCDF	mg/kg	--	
Diox/Furan	OCDF	mg/kg	--	
Diox/Furan	1,2,3,4,7,8-HxCDD	mg/kg	--	
Diox/Furan	1,2,3,7,8-PeCDD	mg/kg	--	
Diox/Furan	Total TCDD	mg/kg	--	
Diox/Furan	2,3,7,8-TCDF	mg/kg	--	
Diox/Furan	1,2,3,4,7,8,9-HpCDF	mg/kg	--	
Diox/Furan	Total HxCDF	mg/kg	--	
Diox/Furan	Total TCDF	mg/kg	--	
Diox/Furan	2,3,4,7,8-PeCDF	mg/kg	--	
Diox/Furan	1,2,3,7,8-PeCDF	mg/kg	--	
Diox/Furan	1,2,3,6,7,8-HxCDF	mg/kg	--	
Diox/Furan	1,2,3,6,7,8-HxCDD	mg/kg	--	
Diox/Furan	2,3,4,6,7,8-HxCDF	mg/kg	--	
Diox/Furan	1,2,3,4,6,7,8-HpCDF	mg/kg	--	
Diox/Furan	1,2,3,4,7,8-HxCDF	mg/kg	--	
Diox/Furan	1,2,3,7,8,9-HxCDF	mg/kg	--	
Metals	Lead	mg/kg	--	

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**US4**
Location ID			Substation
Sample Date			3/02/2005
Chemical Group	**Compound**	**Units**	
Metals	Mercury	mg/kg	--
Metals	Silver	mg/kg	--
Metals	Arsenic	mg/kg	--
Metals	Barium	mg/kg	--
Metals	Cadmium	mg/kg	--
Metals	Chromium	mg/kg	--
Metals	Copper	mg/kg	--
Metals	Selenium	mg/kg	--
PAH	Anthracene	mg/kg	--
PAH	Pyrene	mg/kg	--
PAH	Benzo(g,h,i)perylene	mg/kg	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--
PAH	Benzo(b)fluoranthene	mg/kg	--
PAH	Fluoranthene	mg/kg	--
PAH	Benzo(k)fluoranthene	mg/kg	--
PAH	Acenaphthylene	mg/kg	--
PAH	Chrysene	mg/kg	--
PAH	Benzo(a)pyrene	mg/kg	--
PAH	Dibenz(a,h)anthracene	mg/kg	--
PAH	Benzo(a)anthracene	mg/kg	--
PAH	Acenaphthene	mg/kg	--
PAH	Phenanthrene	mg/kg	--
PAH	Fluorene	mg/kg	--
PAH	Pentachlorophenol	mg/kg	--
PAH	Naphthalene	mg/kg	--
PAH	2-Methylnaphthalene	mg/kg	--
SVOC	4-Nitroaniline	mg/kg	--
SVOC	4-Nitrophenol	mg/kg	--
SVOC	Benzyl Alcohol	mg/kg	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--
SVOC	2,4-Dimethylphenol	mg/kg	--
SVOC	4-Methylphenol	mg/kg	--
SVOC	4-Chloroaniline	mg/kg	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--
SVOC	Phenol	mg/kg	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--
SVOC	Di-n-Octyl phthalate	mg/kg	--

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**US4**
Location ID			Substation
Sample Date			3/02/2005
Chemical Group	**Compound**	**Units**	
SVOC	Hexachlorobenzene	mg/kg	--
SVOC	2,4-Dichlorophenol	mg/kg	--
SVOC	2,4-Dinitrotoluene	mg/kg	--
SVOC	Dimethylphthalate	mg/kg	--
SVOC	Dibenzofuran	mg/kg	--
SVOC	2,4-Dinitrophenol	mg/kg	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--
SVOC	2,6-Dinitrotoluene	mg/kg	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--
SVOC	Benzoic Acid	mg/kg	--
SVOC	Hexachloroethane	mg/kg	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--
SVOC	Isophorone	mg/kg	--
SVOC	Diethylphthalate	mg/kg	--
SVOC	Di-n-Butylphthalate	mg/kg	--
SVOC	Butylbenzylphthalate	mg/kg	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--
SVOC	Carbazole	mg/kg	--
SVOC	Hexachlorobutadiene	mg/kg	--
SVOC	2,4,6-Trichlorophenol	mg/kg	--
SVOC	2-Nitroaniline	mg/kg	--
SVOC	2-Nitrophenol	mg/kg	--
SVOC	2-Chloronaphthalene	mg/kg	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--
SVOC	2-Methylphenol	mg/kg	--
SVOC	2-Chlorophenol	mg/kg	--
SVOC	2,4,5-Trichlorophenol	mg/kg	--
SVOC	Nitrobenzene	mg/kg	--
SVOC	3-Nitroaniline	mg/kg	--
TPH	Diesel Range Hydrocarbons	mg/kg	--
TPH	Gasoline Range Hydrocarbons	mg/kg	--
TPH	Hydraulic Fluid	mg/kg	--
TPH	Motor Oil	mg/kg	--
TPH	Oil Range	mg/kg	--
TPH	C10-C12 Aliphatics	mg/kg	--
TPH	C10-C12 Aromatics	mg/kg	--
TPH	C12-C13 Aromatics	mg/kg	--

TABLE E-1

Phase II ESA Soil Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, W

Sample ID			**US4**
Location ID			Substation
Sample Date			3/02/2005
Chemical Group	**Compound**	**Units**	
TPH	C12-C16 Aliphatics	mg/kg	--
TPH	C12-C16 Aromatics	mg/kg	--
TPH	C16-C21 Aliphatics	mg/kg	--
TPH	C16-C21 Aromatics	mg/kg	--
TPH	C21-C34 Aliphatics	mg/kg	--
TPH	C21-C34 Aromatics	mg/kg	--
TPH	C5-C6 Aliphatics	mg/kg	--
TPH	C6-C8 Aliphatics	mg/kg	--
TPH	C8-C10 Aliphatics	mg/kg	--
TPH	C8-C10 Aromatics	mg/kg	--
VOC	1,4-Dichlorobenzene	mg/kg	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--
VOC	1,3-Dichlorobenzene	mg/kg	--
VOC	1,2-Dichlorobenzene	mg/kg	--

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

> HCID analysis result, fuel type is present (result is not
< HCID analysis result, fuel type is not present at the inc
U = The analyte was analyzed for, but not detected. The
numerical value is at or below the sample-specific meth
J = The analyte was positively identified; the quantitatio

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								excavated
Sample ID			**ACSI-ECS-02-4-5**	**ACSI-ECS-11-2-3**	**ACSI-ECS-11-3.5-4.5**	**ACSI-ECS-17-2-3**	**ACSI-ECS-17-3.5-4.5**	**ACSI-ECS-18-1.5-2.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	Ethylbenzene	mg/kg	--	0.029 U	--	--	--	0.030
VOC	m,p-Xylene	mg/kg	--	0.058 U	--	--	--	0.060
VOC	Toluene	mg/kg	--	0.029 U	--	--	--	0.030
VOC	Methyl tert-Butyl Ether	mg/kg	--	0.058 U	--	--	--	0.060
VOC	Benzene	mg/kg	--	0.029 U	--	--	--	0.030
VOC	o-Xylene	mg/kg	--	0.029 U	--	--	--	0.037
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	--	--	--	--	--
PAH	Pyrene	mg/kg	--	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Acenaphthylene	mg/kg	--	--	--	--	--	--
PAH	Chrysene	mg/kg	--	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	--	--
PAH	Acenaphthene	mg/kg	--	--	--	--	--	--
PAH	Phenanthrene	mg/kg	--	--	--	--	--	--
PAH	Fluorene	mg/kg	--	--	--	--	--	--
PAH	Pentachlorophenol	mg/kg	--	--	--	--	--	--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								excavated
Sample ID			**ACSI-ECS-02-4-5**	**ACSI-ECS-11-2-3**	**ACSI-ECS-11-3.5-4.5**	**ACSI-ECS-17-2-3**	**ACSI-ECS-17-3.5-4.5**	**ACSI-ECS-18-1.5-2.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
PAH	Naphthalene	mg/kg	--	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	--	--
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	--	--
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	--	--
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	--	--
SVOC	Phenol	mg/kg	--	--	--	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	--
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Dibenzofuran	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	--	--
SVOC	Benzoic Acid	mg/kg	--	--	--	--	--	--
SVOC	Hexachloroethane	mg/kg	--	--	--	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	--
SVOC	Isophorone	mg/kg	--	--	--	--	--	--
SVOC	Diethylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	--
SVOC	Carbazole	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

													excavated
Sample ID			**ACSI-ECS-02-4-5**		**ACSI-ECS-11-2-3**		**ACSI-ECS-11-3.5-4.5**		**ACSI-ECS-17-2-3**		**ACSI-ECS-17-3.5-4.5**		**ACSI-ECS-18-1.5-2.5**
Location ID			Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area
Sample Date			2/22/2006		2/23/2006		2/23/2006		2/22/2006		2/22/2006		2/22/2006
Chemical Group	**Compound**	**Units**											
SVOC	2-Nitroaniline	mg/kg	--		--		--		--		--		--
SVOC	2-Nitrophenol	mg/kg	--		--		--		--		--		--
SVOC	2-Chloronaphthalene	mg/kg	--		--		--		--		--		--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--		--		--		--		--		--
SVOC	2-Methylphenol	mg/kg	--		--		--		--		--		--
SVOC	2-Chlorophenol	mg/kg	--		--		--		--		--		--
SVOC	2,4,5-Trichlorophenol	mg/kg	--		--		--		--		--		--
SVOC	Nitrobenzene	mg/kg	--		--		--		--		--		--
SVOC	3-Nitroaniline	mg/kg	--		--		--		--		--		--
TPH	Diesel Range Hydrocarbons	mg/kg	50	U	1,300	>	50	U	21		50	>	1,400
TPH	Gasoline Range Hydrocarbons	mg/kg	20	U	20	>	20	U	20	U	20	<	21
TPH	Motor Oil	mg/kg	--		130	>	--		140		--		**2,800**
TPH	Oil Range	mg/kg	100	U	100	>	100	U	100	>	100	>	100
TPH	C10-C12 Aliphatics	mg/kg	--		5.8	U	--		--		2.3	U	6.0
TPH	C10-C12 Aromatics	mg/kg	--		5.8	U	--		--		2.3	U	6.0
TPH	C12-C13 Aromatics	mg/kg	--		5.8	U	--		--		--		6.0
TPH	C12-C16 Aliphatics	mg/kg	--		--		--		--		2.3	U	--
TPH	C12-C16 Aromatics	mg/kg	--		--		--		--		2.3	U	--
TPH	C16-C21 Aliphatics	mg/kg	--		--		--		--		2.3	U	--
TPH	C16-C21 Aromatics	mg/kg	--		--		--		--		46		--
TPH	C21-C34 Aliphatics	mg/kg	--		--		--		--		9.9		--
TPH	C21-C34 Aromatics	mg/kg	--		--		--		--		8.7		--
TPH	Total EPH	mg/kg			5.8	U					64.6		6.0
TPH	C5-C6 Aliphatics	mg/kg	--		5.8	U	--		--		--		6.0
TPH	C6-C8 Aliphatics	mg/kg	--		5.8	U	--		--		--		6.0
TPH	C8-C10 Aliphatics	mg/kg	--		5.8	U	--		--		2.3	U	6.0
TPH	C8-C10 Aromatics	mg/kg	--		5.8	U	--		--		2.3	U	6.0
TPH	Total VPH	mg/kg			5.8	U					2.3	U	6.0
VOC	Styrene	mg/kg	--		--		--		--		--		--
VOC	cis-1,3-Dichloropropene	mg/kg	--		--		--		--		--		--
VOC	trans-1,3-Dichloropropene	mg/kg	--		--		--		--		--		--
VOC	n-Propylbenzene	mg/kg	--		--		--		--		--		--
VOC	n-Butylbenzene	mg/kg	--		--		--		--		--		--
VOC	4-Chlorotoluene	mg/kg	--		--		--		--		--		--
VOC	1,4-Dichlorobenzene	mg/kg	--		--		--		--		--		--
VOC	Ethylene Dibromide	mg/kg	--		--		--		--		--		--
VOC	Acrolein	mg/kg	--		--		--		--		--		--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

							excavated	
Sample ID			**ACSI-ECS-02-4-5**	**ACSI-ECS-11-2-3**	**ACSI-ECS-11-3.5-4.5**	**ACSI-ECS-17-2-3**	**ACSI-ECS-17-3.5-4.5**	**ACSI-ECS-18-1.5-2.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	--	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	--	--
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	--	--
VOC	Bromobenzene	mg/kg	--	--	--	--	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Dibromochloromethane	mg/kg	--	--	--	--	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	--	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	--	--
VOC	2-Hexanone	mg/kg	--	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--
VOC	Acetone	mg/kg	--	--	--	--	--	--
VOC	Chloroform	mg/kg	--	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	--
VOC	Bromomethane	mg/kg	--	--	--	--	--	--
VOC	Chloromethane	mg/kg	--	--	--	--	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	--	--	--
VOC	Dibromomethane	mg/kg	--	--	--	--	--	--
VOC	Bromoethane	mg/kg	--	--	--	--	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	--	--	--
VOC	Chloroethane	mg/kg	--	--	--	--	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	--	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	--	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	--	--	--
VOC	Bromoform	mg/kg	--	--	--	--	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	--	--	--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								excavated
Sample ID			**ACSI-ECS-02-4-5**	**ACSI-ECS-11-2-3**	**ACSI-ECS-11-3.5-4.5**	**ACSI-ECS-17-2-3**	**ACSI-ECS-17-3.5-4.5**	**ACSI-ECS-18-1.5-2.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	--	--
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	2-Butanone	mg/kg	--	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	--
VOC	Trichloroethene	mg/kg	--	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	--	--

Notes:

> HCID analysis result, fuel type is present (result is not quan arbon fraction results to assess hazard)
< HCID analysis result, fuel type is not present at the indicate
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The asso
numerical value is at or below the sample-specific method det (MDL).
M = A matrix effect was present.
B = The analyte was found in an associated blank, as well as ple.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

										waste char sample	
Sample ID				**ACSI-ECS-18-3.5-4.5**	**ACSI-ECS-21-1-4.5**	**ACSI-ECS-30-2-3**	**ACSI-ECS-31-2-3**	**ACSI-ECS-9-3-4**	**ACSI-WCS-01-1-4**		
Location ID				Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area		
Sample Date				2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006		
Chemical Group	**Compound**	**Units**									
VOC	Ethylbenzene	mg/kg	U	--	--	--	--	--	0.014		
VOC	m,p-Xylene	mg/kg	U	--	--	--	--	--	0.15		
VOC	Toluene	mg/kg	U	--	--	--	--	--	0.017		
VOC	Methyl tert-Butyl Ether	mg/kg	U	--	--	--	--	--	--		
VOC	Benzene	mg/kg	U	--	--	--	--	--	0.0010	U	
VOC	o-Xylene	mg/kg		--	--	--	--	--	0.092		
Aroclors	Aroclor 1260	mg/kg		--	--	--	--	--	0.032	U	
Aroclors	Aroclor 1254	mg/kg		--	--	--	--	--	0.032	U	
Aroclors	Aroclor 1221	mg/kg		--	--	--	--	--	0.032	U	
Aroclors	Aroclor 1232	mg/kg		--	--	--	--	--	0.032	U	
Aroclors	Aroclor 1248	mg/kg		--	--	--	--	--	0.032	U	
Aroclors	Aroclor 1016	mg/kg		--	--	--	--	--	0.032	U	
Aroclors	Aroclor 1242	mg/kg		--	--	--	--	--	0.032	U	
Metals	Lead	mg/kg		--	--	--	--	--	7.0		
Metals	Mercury	mg/kg		--	--	--	--	--	0.050	U	
Metals	Silver	mg/kg		--	--	--	--	--	0.30	U	
Metals	Arsenic	mg/kg		--	--	--	--	--	6.0		
Metals	Barium	mg/kg		--	--	--	--	--	59		
Metals	Cadmium	mg/kg		--	--	--	--	--	0.20	U	
Metals	Chromium	mg/kg		--	--	--	--	--	24		
Metals	Selenium	mg/kg		--	--	--	--	--	5.0	U	
PAH	Anthracene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Pyrene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Benzo(g,h,i)perylene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Indeno(1,2,3-cd)pyrene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Benzo(b)fluoranthene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Fluoranthene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Benzo(k)fluoranthene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Acenaphthylene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Chrysene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Benzo(a)pyrene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Dibenz(a,h)anthracene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Benzo(a)anthracene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Acenaphthene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Phenanthrene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Fluorene	mg/kg		--	--	--	--	--	0.20	U	
PAH	Pentachlorophenol	mg/kg		--	--	--	--	--	0.98	U	

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								waste char sample	
Sample ID			**ACSI-ECS-18-3.5-4.5**	**ACSI-ECS-21-1-4.5**	**ACSI-ECS-30-2-3**	**ACSI-ECS-31-2-3**	**ACSI-ECS-9-3-4**	**ACSI-WCS-01-1-4**	
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006	
Chemical Group	**Compound**	**Units**							
PAH	Naphthalene	mg/kg	--	--	--	--	--	0.038	
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	--	0.47	
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	--	0.98	U
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	--	0.98	U
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	--	0.98	U
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	--	0.20	U
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	--	0.20	U
SVOC	4-Methylphenol	mg/kg	--	--	--	--	--	0.20	U
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	--	0.98	U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	--	0.20	U
SVOC	Phenol	mg/kg	--	--	--	--	--	0.20	U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	--	0.20	U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	--	0.20	U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	--	0.20	U
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	--	0.20	U
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	--	0.20	U
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	--	0.98	U
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	0.98	U
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	--	0.20	U
SVOC	Dibenzofuran	mg/kg	--	--	--	--	--	0.20	U
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	--	2.0	U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	--	2.0	U
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	--	0.98	U
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	0.98	U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	--	0.98	U
SVOC	Benzoic Acid	mg/kg	--	--	--	--	--	2.0	U
SVOC	Hexachloroethane	mg/kg	--	--	--	--	--	0.20	U
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	--	0.20	U
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	0.98	U
SVOC	Isophorone	mg/kg	--	--	--	--	--	0.20	U
SVOC	Diethylphthalate	mg/kg	--	--	--	--	--	0.20	U
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	--	0.20	U
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	--	0.20	U
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	0.20	U
SVOC	Carbazole	mg/kg	--	--	--	--	--	0.20	U
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	--	0.0049	U
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	0.98	U

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

												waste char sample	
Sample ID			**ACSI-ECS-18-3.5-4.5**		**ACSI-ECS-21-1-4.5**		**ACSI-ECS-30-2-3**		**ACSI-ECS-31-2-3**		**ACSI-ECS-9-3-4**	**ACSI-WCS-01-1-4**	
Location ID			Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area	Shipping Area	
Sample Date			2/22/2006		2/23/2006		2/23/2006		2/23/2006		2/22/2006	2/22/2006	
Chemical Group	**Compound**	**Units**											
SVOC	2-Nitroaniline	mg/kg		--		--		--		--		0.98	U
SVOC	2-Nitrophenol	mg/kg		--		--		--		--		0.98	U
SVOC	2-Chloronaphthalene	mg/kg		--		--		--		--		0.20	U
SVOC	3,3'-Dichlorobenzidine	mg/kg		--		--		--		--		0.98	U
SVOC	2-Methylphenol	mg/kg		--		--		--		--		0.20	U
SVOC	2-Chlorophenol	mg/kg		--		--		--		--		0.20	U
SVOC	2,4,5-Trichlorophenol	mg/kg		--		--		--		--		0.98	U
SVOC	Nitrobenzene	mg/kg		--		--		--		--		0.20	U
SVOC	3-Nitroaniline	mg/kg		--		--		--		--		0.98	U
TPH	Diesel Range Hydrocarbons	mg/kg		50	U	50	U	50	U	50	U	110	550	
TPH	Gasoline Range Hydrocarbons	mg/kg	>	20	U	20	U	20	U	20	U	20 U	**540**	
TPH	Motor Oil	mg/kg		--		--		--		--		590	1,000	
TPH	Oil Range	mg/kg	>	100	U	100	U	100	U	100	U	100 >	100	>
TPH	C10-C12 Aliphatics	mg/kg	U	--		--		--		--		--	--	
TPH	C10-C12 Aromatics	mg/kg	U	--		--		--		--		--	--	
TPH	C12-C13 Aromatics	mg/kg	U	--		--		--		--		--	--	
TPH	C12-C16 Aliphatics	mg/kg		--		--		--		--		--	--	
TPH	C12-C16 Aromatics	mg/kg		--		--		--		--		--	--	
TPH	C16-C21 Aliphatics	mg/kg		--		--		--		--		--	--	
TPH	C16-C21 Aromatics	mg/kg		--		--		--		--		--	--	
TPH	C21-C34 Aliphatics	mg/kg		--		--		--		--		--	--	
TPH	C21-C34 Aromatics	mg/kg		--		--		--		--		--	--	
TPH	Total EPH	mg/kg	U											
TPH	C5-C6 Aliphatics	mg/kg	U	--		--		--		--		--	--	
TPH	C6-C8 Aliphatics	mg/kg	U	--		--		--		--		--	--	
TPH	C8-C10 Aliphatics	mg/kg	U	--		--		--		--		--	--	
TPH	C8-C10 Aromatics	mg/kg	U	--		--		--		--		--	--	
TPH	Total VPH	mg/kg	U											
VOC	Styrene	mg/kg		--		--		--		--		0.0010	U	
VOC	cis-1,3-Dichloropropene	mg/kg		--		--		--		--		0.0010	U	
VOC	trans-1,3-Dichloropropene	mg/kg		--		--		--		--		0.0010	U	
VOC	n-Propylbenzene	mg/kg		--		--		--		--		0.0050		
VOC	n-Butylbenzene	mg/kg		--		--		--		--		0.0071		
VOC	4-Chlorotoluene	mg/kg		--		--		--		--		0.0010	U	
VOC	1,4-Dichlorobenzene	mg/kg		--		--		--		--		0.0010	U	
VOC	Ethylene Dibromide	mg/kg		--		--		--		--		0.0010	U	
VOC	Acrolein	mg/kg		--		--		--		--		0.049	U	

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								waste char sample
Sample ID			**ACSI-ECS-18-3.5-4.5**	**ACSI-ECS-21-1-4.5**	**ACSI-ECS-30-2-3**	**ACSI-ECS-31-2-3**	**ACSI-ECS-9-3-4**	**ACSI-WCS-01-1-4**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Acrylonitrile	mg/kg	--	--	--	--	--	0.0049 U
VOC	Vinyl Acetate	mg/kg	--	--	--	--	--	0.0049 U
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	--	0.0049 U
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	--	0.068
VOC	Bromobenzene	mg/kg	--	--	--	--	--	0.0010 U
VOC	Chlorobenzene	mg/kg	--	--	--	--	--	0.0010 U
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	--	0.0049 U
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	--	0.0049 U
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	0.0049 U
VOC	Dibromochloromethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Tetrachloroethene	mg/kg	--	--	--	--	--	0.0010 U
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	--	0.0032
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	--	0.0010 U
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	0.0010 U
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	0.0010 U
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	--	0.0010 U
VOC	2-Hexanone	mg/kg	--	--	--	--	--	0.0049 U
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Acetone	mg/kg	--	--	--	--	--	0.0049 U
VOC	Chloroform	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Bromomethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Chloromethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Methyl Iodide	mg/kg	--	--	--	--	--	0.0010 U
VOC	Dibromomethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Bromoethane	mg/kg	--	--	--	--	--	0.0020 U
VOC	Bromochloromethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Chloroethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Vinyl Chloride	mg/kg	--	--	--	--	--	0.0010 U
VOC	Methylene Chloride	mg/kg	--	--	--	--	--	0.0020 U
VOC	Carbon Disulfide	mg/kg	--	--	--	--	--	0.0010 U
VOC	Bromoform	mg/kg	--	--	--	--	--	0.0010 U
VOC	Bromodichloromethane	mg/kg	--	--	--	--	--	0.0010 U

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								waste char sample
Sample ID			**ACSI-ECS-18-3.5-4.5**	**ACSI-ECS-21-1-4.5**	**ACSI-ECS-30-2-3**	**ACSI-ECS-31-2-3**	**ACSI-ECS-9-3-4**	**ACSI-WCS-01-1-4**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	--	0.0010 U
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	--	0.0020 U
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	--	0.0010 U
VOC	2-Butanone	mg/kg	--	--	--	--	--	0.0056
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	Trichloroethene	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	0.0049 U
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	0.0010 U
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	0.14
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	0.0049 U
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	0.0020 U
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	--	0.0010 U
VOC	Isopropylbenzene	mg/kg	--	--	--	--	--	0.0062
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	--	0.0065

Notes:

> HCID analysis result, fuel type is present (result is not quant
< HCID analysis result, fuel type is not present at the indicate
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

U = The analyte was analyzed for, but not detected. The asso
numerical value is at or below the sample-specific method det
M = A matrix effect was present.
B = The analyte was found in an associated blank, as well as

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			waste char sample		waste char sample		waste char sample		waste char sample		waste char sample		waste char sample	
Sample ID			**ACSI-WCS-02-1-3**		**ACSI-WCS-04-2-3**		**ACSI-WCS-05-1-4.5**		**ACSI-WCS-10-1-4.5**		**ACSI-WCS-6-1-4.5**		**ACSI-WCS-7-1-4.5**	
Location ID			Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area	
Sample Date			2/22/2006		2/23/2006		2/23/2006		2/23/2006		2/23/2006		2/23/2006	
Chemical Group	**Compound**	**Units**												
VOC	Ethylbenzene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.75		0.34		0.011	
VOC	m,p-Xylene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.048		0.99		0.19	
VOC	Toluene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011	
VOC	Methyl tert-Butyl Ether	mg/kg	--		--		--		--		--		--	
VOC	Benzene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011	
VOC	o-Xylene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.014	M	0.12		0.013	
Aroclors	Aroclor 1260	mg/kg	0.032	U	0.033	U	0.032	U	0.033	U	0.033	U	0.033	
Aroclors	Aroclor 1254	mg/kg	0.032	U	0.033	U	0.032	U	0.033	U	0.033	U	0.033	
Aroclors	Aroclor 1221	mg/kg	0.032	U	0.033	U	0.032	U	0.033	U	0.033	U	0.033	
Aroclors	Aroclor 1232	mg/kg	0.032	U	0.033	U	0.032	U	0.033	U	0.033	U	0.033	
Aroclors	Aroclor 1248	mg/kg	0.032	U	0.033	U	0.032	U	0.033	U	0.033	U	0.033	
Aroclors	Aroclor 1016	mg/kg	0.032	U	0.033	U	0.032	U	0.033	U	0.033	U	0.033	
Aroclors	Aroclor 1242	mg/kg	0.032	U	0.033	U	0.032	U	0.033	U	0.033	U	0.033	
Metals	Lead	mg/kg	13		15		23		5.0		6.0		16	
Metals	Mercury	mg/kg	0.050	U	0.050	U	0.040	U	0.050	U	0.050	U	0.11	
Metals	Silver	mg/kg	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.40	
Metals	Arsenic	mg/kg	7.0		6.0		6.0		5.0		6.0	U	7.0	
Metals	Barium	mg/kg	55		56		63		57		51		49	
Metals	Cadmium	mg/kg	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	
Metals	Chromium	mg/kg	25		19		21		19		20		19	
Metals	Selenium	mg/kg	5.0	U	5.0	U	6.0	U	5.0	U	6.0	U	6.0	
PAH	Anthracene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Pyrene	mg/kg	0.33	U	0.32	U	1.1		0.065	U	0.066	U	0.066	
PAH	Benzo(g,h,i)perylene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Benzo(b)fluoranthene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Fluoranthene	mg/kg	0.33	U	0.32	U	1.0		0.065	U	0.066	U	0.066	
PAH	Benzo(k)fluoranthene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Acenaphthylene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Chrysene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Benzo(a)pyrene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Dibenz(a,h)anthracene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Benzo(a)anthracene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Acenaphthene	mg/kg	0.33	U	0.57		0.35		0.065	U	0.066	U	0.066	
PAH	Phenanthrene	mg/kg	0.33	U	0.32	U	0.57		0.065	U	0.066	U	0.066	
PAH	Fluorene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066	
PAH	Pentachlorophenol	mg/kg	1.6	U	1.6	U	1.6	U	0.33	U	0.33	U	0.33	

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			waste char sample	waste char sample	waste char sample	waste char sample	waste char sample	waste char sample
Sample ID			**ACSI-WCS-02-1-3**	**ACSI-WCS-04-2-3**	**ACSI-WCS-05-1-4.5**	**ACSI-WCS-10-1-4.5**	**ACSI-WCS-6-1-4.5**	**ACSI-WCS-7-1-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
PAH	Naphthalene	mg/kg	0.0053 U	0.0057 U	0.0054 U	1.5 E	0.14	0.056
PAH	2-Methylnaphthalene	mg/kg	0.34	0.32 U	0.32 U	0.065 U	0.25	0.066
SVOC	4-Nitroaniline	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	4-Nitrophenol	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	Benzyl Alcohol	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	4-Bromophenyl-phenylether	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	2,4-Dimethylphenol	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	4-Methylphenol	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	4-Chloroaniline	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Phenol	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Di-n-Octyl phthalate	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Hexachlorobenzene	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	2,4-Dichlorophenol	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	2,4-Dinitrotoluene	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	Dimethylphthalate	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Dibenzofuran	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	2,4-Dinitrophenol	mg/kg	3.3 U	3.2 U	3.2 U	0.65 U	0.66 U	0.66
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	3.3 U	3.2 U	3.2 U	0.65 U	0.66 U	0.66
SVOC	4-Chloro-3-methylphenol	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	2,6-Dinitrotoluene	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	Benzoic Acid	mg/kg	3.3 U	3.2 U	3.2 U	0.65 U	0.66 U	0.66
SVOC	Hexachloroethane	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	4-Chlorophenyl-phenylether	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Hexachlorocyclopentadiene	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33
SVOC	Isophorone	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Diethylphthalate	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Di-n-Butylphthalate	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Butylbenzylphthalate	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	N-Nitrosodiphenylamine	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Carbazole	mg/kg	0.33 U	0.32 U	0.32 U	0.065 U	0.066 U	0.066
SVOC	Hexachlorobutadiene	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.066 U	0.056
SVOC	2,4,6-Trichlorophenol	mg/kg	1.6 U	1.6 U	1.6 U	0.33 U	0.33 U	0.33

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			waste char sample		waste char sample		waste char sample		waste char sample		waste char sample		waste char sample
Sample ID			**ACSI-WCS-02-1-3**		**ACSI-WCS-04-2-3**		**ACSI-WCS-05-1-4.5**		**ACSI-WCS-10-1-4.5**		**ACSI-WCS-6-1-4.5**		**ACSI-WCS-7-1-4.5**
Location ID			Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area
Sample Date			2/22/2006		2/23/2006		2/23/2006		2/23/2006		2/23/2006		2/23/2006
Chemical Group	**Compound**	**Units**											
SVOC	2-Nitroaniline	mg/kg	1.6	U	1.6	U	1.6	U	0.33	U	0.33	U	0.33
SVOC	2-Nitrophenol	mg/kg	1.6	U	1.6	U	1.6	U	0.33	U	0.33	U	0.33
SVOC	2-Chloronaphthalene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066
SVOC	3,3'-Dichlorobenzidine	mg/kg	1.6	U	1.6	U	1.6	U	0.33	U	0.33	U	0.33
SVOC	2-Methylphenol	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066
SVOC	2-Chlorophenol	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066
SVOC	2,4,5-Trichlorophenol	mg/kg	1.6	U	1.6	U	1.6	U	0.33	U	0.33	U	0.33
SVOC	Nitrobenzene	mg/kg	0.33	U	0.32	U	0.32	U	0.065	U	0.066	U	0.066
SVOC	3-Nitroaniline	mg/kg	1.6	U	1.6	U	1.6	U	0.33	U	0.33	U	0.33
TPH	Diesel Range Hydrocarbons	mg/kg	1,800		120		330		28		50	U	50
TPH	Gasoline Range Hydrocarbons	mg/kg	**53**		20	U	110	U	20	U	20	U	20
TPH	Motor Oil	mg/kg	**2,700**		620		1,100		200		--		--
TPH	Oil Range	mg/kg	100	>	100	>	550	>	100	>	100	U	100
TPH	C10-C12 Aliphatics	mg/kg	--		--		--		--		--		--
TPH	C10-C12 Aromatics	mg/kg	--		--		--		--		--		--
TPH	C12-C13 Aromatics	mg/kg	--		--		--		--		--		--
TPH	C12-C16 Aliphatics	mg/kg	--		--		--		--		--		--
TPH	C12-C16 Aromatics	mg/kg	--		--		--		--		--		--
TPH	C16-C21 Aliphatics	mg/kg	--		--		--		--		--		--
TPH	C16-C21 Aromatics	mg/kg	--		--		--		--		--		--
TPH	C21-C34 Aliphatics	mg/kg	--		--		--		--		--		--
TPH	C21-C34 Aromatics	mg/kg	--		--		--		--		--		--
TPH	Total EPH	mg/kg											
TPH	C5-C6 Aliphatics	mg/kg	--		--		--		--		--		--
TPH	C6-C8 Aliphatics	mg/kg	--		--		--		--		--		--
TPH	C8-C10 Aliphatics	mg/kg	--		--		--		--		--		--
TPH	C8-C10 Aromatics	mg/kg	--		--		--		--		--		--
TPH	Total VPH	mg/kg											
VOC	Styrene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011
VOC	cis-1,3-Dichloropropene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011
VOC	trans-1,3-Dichloropropene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011
VOC	n-Propylbenzene	mg/kg	0.0010	U	0.0011	U	0.0011	U	1.3	M	0.31		0.094
VOC	n-Butylbenzene	mg/kg	0.0010	U	0.0011	U	0.0011	U	2.4	E	0.23		0.048
VOC	4-Chlorotoluene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011
VOC	1,4-Dichlorobenzene	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011
VOC	Ethylene Dibromide	mg/kg	0.0010	U	0.0011	U	0.0011	U	0.0091	U	0.012	U	0.011
VOC	Acrolein	mg/kg	0.053	U	0.057	U	0.054	U	0.46	U	0.60	U	0.56

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			waste char sample	waste char sample	waste char sample	waste char sample	waste char sample	waste char sample
Sample ID			**ACSI-WCS-02-1-3**	**ACSI-WCS-04-2-3**	**ACSI-WCS-05-1-4.5**	**ACSI-WCS-10-1-4.5**	**ACSI-WCS-6-1-4.5**	**ACSI-WCS-7-1-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
VOC	1,2-Dichloroethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Acrylonitrile	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	Vinyl Acetate	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	1,3,5-Trimethylbenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.86	0.56	0.050
VOC	Bromobenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Chlorobenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	trans-1,4-Dichloro-2-butene	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	2-Chloroethylvinylether	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	1,2,4-Trichlorobenzene	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.066 U	0.056
VOC	Dibromochloromethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Tetrachloroethene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	sec-Butylbenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.86	0.012 U	0.011
VOC	1,3-Dichloropropane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	cis-1,2-Dichloroethene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	trans-1,2-Dichloroethene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,3-Dichlorobenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Carbon Tetrachloride	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,1-Dichloropropene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	2-Hexanone	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	2,2-Dichloropropane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,1,1,2-Tetrachloroethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Acetone	mg/kg	0.014	0.096	0.051	0.067	0.16	0.14
VOC	Chloroform	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,1,1-Trichloroethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Bromomethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Chloromethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Methyl Iodide	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Dibromomethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Bromoethane	mg/kg	0.0021 U	0.0023 U	0.0022 U	0.018 U	0.024 U	0.022
VOC	Bromochloromethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Chloroethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Vinyl Chloride	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Methylene Chloride	mg/kg	0.0021 U	0.0023 U	0.0022 U	0.018 U	0.024 U	0.022
VOC	Carbon Disulfide	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Bromoform	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Bromodichloromethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			waste char sample	waste char sample	waste char sample	waste char sample	waste char sample	waste char sample
Sample ID			**ACSI-WCS-02-1-3**	**ACSI-WCS-04-2-3**	**ACSI-WCS-05-1-4.5**	**ACSI-WCS-10-1-4.5**	**ACSI-WCS-6-1-4.5**	**ACSI-WCS-7-1-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
VOC	1,1-Dichloroethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,1-Dichloroethene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Trichlorofluoromethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	0.0021 U	0.0023 U	0.0022 U	0.018 U	0.024 U	0.022
VOC	1,2-Dichloropropane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	2-Butanone	mg/kg	0.0058	0.028	0.0097	0.046 U	0.084	0.077
VOC	1,1,2-Trichloroethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Trichloroethene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,1,2,2-Tetrachloroethane	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,2,3-Trichlorobenzene	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	2-Chlorotoluene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,2-Dichlorobenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	1,2,4-Trimethylbenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	1.6	0.62
VOC	1,2-Dibromo-3-chloropropane	mg/kg	0.0053 U	0.0057 U	0.0054 U	0.046 U	0.060 U	0.056
VOC	1,2,3-Trichloropropane	mg/kg	0.0021 U	0.0023 U	0.0022 U	0.018 U	0.024 U	0.022
VOC	tert-Butylbenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0091 U	0.012 U	0.011
VOC	Isopropylbenzene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.70	0.057	0.028
VOC	4-Isopropyltoluene	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.25	0.039	0.033

Notes:

> HCID analysis result, fuel type is present (result is not quant
< HCID analysis result, fuel type is not present at the indicate
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

U = The analyte was analyzed for, but not detected. The asso
numerical value is at or below the sample-specific method det
M = A matrix effect was present.
B = The analyte was found in an associated blank, as well as

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

				waste char sample		waste char sample			
Sample ID				**ACSI-WCS-8-1-4.5**		**ACSI-WCS-9-1-3**		**DP13-S**	**DP16-S**
Location ID				Shipping Area		Shipping Area		Shipping Area	Shipping Area
Sample Date				2/23/2006		2/22/2006		5/25/2005	5/26/2005
Chemical Group	**Compound**	**Units**							
VOC	Ethylbenzene	mg/kg	U	0.011	U	0.0010	U	--	3.4
VOC	m,p-Xylene	mg/kg		0.011	U	0.0010	U	--	13
VOC	Toluene	mg/kg	U	0.011	U	0.0010	U	--	0.53
VOC	Methyl tert-Butyl Ether	mg/kg		--		--		--	0.89
VOC	Benzene	mg/kg	U	0.011	U	0.0010	U	--	0.96
VOC	o-Xylene	mg/kg		0.011	U	0.0010	U	--	1.4
Aroclors	Aroclor 1260	mg/kg	U	0.032	U	0.033	U	--	--
Aroclors	Aroclor 1254	mg/kg	U	0.032	U	0.033	U	--	--
Aroclors	Aroclor 1221	mg/kg	U	0.032	U	0.033	U	--	--
Aroclors	Aroclor 1232	mg/kg	U	0.032	U	0.033	U	--	--
Aroclors	Aroclor 1248	mg/kg	U	0.032	U	0.033	U	--	--
Aroclors	Aroclor 1016	mg/kg	U	0.032	U	0.033	U	--	--
Aroclors	Aroclor 1242	mg/kg	U	0.032	U	0.033	U	--	--
Metals	Lead	mg/kg		5.0		11		--	--
Metals	Mercury	mg/kg		0.040	U	0.050	U	--	--
Metals	Silver	mg/kg	U	0.30	U	0.30	U	--	--
Metals	Arsenic	mg/kg		6.0		6.0		5.0 U	6.0 U
Metals	Barium	mg/kg		44		52		--	--
Metals	Cadmium	mg/kg	U	0.20	U	0.20	U	--	--
Metals	Chromium	mg/kg		18		17		--	--
Metals	Selenium	mg/kg	U	5.0	U	5.0	U	--	--
PAH	Anthracene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Pyrene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Benzo(b)fluoranthene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Fluoranthene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Benzo(k)fluoranthene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Acenaphthylene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Chrysene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Benzo(a)pyrene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Benzo(a)anthracene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Acenaphthene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Phenanthrene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Fluorene	mg/kg	U	0.066	U	0.33	U	--	--
PAH	Pentachlorophenol	mg/kg	U	0.33	U	1.7	U	--	--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

				waste char sample		waste char sample			
Sample ID				**ACSI-WCS-8-1-4.5**		**ACSI-WCS-9-1-3**		**DP13-S**	**DP16-S**
Location ID				Shipping Area		Shipping Area		Shipping Area	Shipping Area
Sample Date				2/23/2006		2/22/2006		5/25/2005	5/26/2005
Chemical Group	**Compound**	**Units**							
PAH	Naphthalene	mg/kg	U	0.057	U	0.0050	U	--	--
PAH	2-Methylnaphthalene	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	4-Nitroaniline	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	4-Nitrophenol	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	Benzyl Alcohol	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	2,4-Dimethylphenol	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	4-Methylphenol	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	4-Chloroaniline	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Phenol	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Hexachlorobenzene	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	2,4-Dichlorophenol	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	Dimethylphthalate	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Dibenzofuran	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	2,4-Dinitrophenol	mg/kg	U	0.66	U	3.3	U	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	U	0.66	U	3.3	U	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	Benzoic Acid	mg/kg	U	0.66	U	3.3	U	--	--
SVOC	Hexachloroethane	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	U	0.33	U	1.7	U	--	--
SVOC	Isophorone	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Diethylphthalate	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Di-n-Butylphthalate	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Butylbenzylphthalate	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Carbazole	mg/kg	U	0.066	U	0.33	U	--	--
SVOC	Hexachlorobutadiene	mg/kg	U	0.057	U	0.0050	U	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	U	0.33	U	1.7	U	--	--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

				waste char sample			waste char sample					
Sample ID				**ACSI-WCS-8-1-4.5**			**ACSI-WCS-9-1-3**			**DP13-S**		**DP16-S**
Location ID				Shipping Area			Shipping Area			Shipping Area		Shipping Area
Sample Date				2/23/2006			2/22/2006			5/25/2005		5/26/2005
Chemical Group	**Compound**	**Units**										
SVOC	2-Nitroaniline	mg/kg	U	0.33	U		1.7	U		--		--
SVOC	2-Nitrophenol	mg/kg	U	0.33	U		1.7	U		--		--
SVOC	2-Chloronaphthalene	mg/kg	U	0.066	U		0.33	U		--		--
SVOC	3,3'-Dichlorobenzidine	mg/kg	U	0.33	U		1.7	U		--		--
SVOC	2-Methylphenol	mg/kg	U	0.066	U		0.33	U		--		--
SVOC	2-Chlorophenol	mg/kg	U	0.066	U		0.33	U		--		--
SVOC	2,4,5-Trichlorophenol	mg/kg	U	0.33	U		1.7	U		--		--
SVOC	Nitrobenzene	mg/kg	U	0.066	U		0.33	U		--		--
SVOC	3-Nitroaniline	mg/kg	U	0.33	U		1.7	U		--		--
TPH	Diesel Range Hydrocarbons	mg/kg	U	50	>		340			1,900		50 U
TPH	Gasoline Range Hydrocarbons	mg/kg	U	**160**			110	U		**340**		**700**
TPH	Motor Oil	mg/kg		190			**2,500**			**4,000**		--
TPH	Oil Range	mg/kg	U	100	>		530	>		510		100 U
TPH	C10-C12 Aliphatics	mg/kg		--			--			--		--
TPH	C10-C12 Aromatics	mg/kg		--			--			--		--
TPH	C12-C13 Aromatics	mg/kg		--			--			--		--
TPH	C12-C16 Aliphatics	mg/kg		--			--			--		--
TPH	C12-C16 Aromatics	mg/kg		--			--			--		--
TPH	C16-C21 Aliphatics	mg/kg		--			--			--		--
TPH	C16-C21 Aromatics	mg/kg		--			--			--		--
TPH	C21-C34 Aliphatics	mg/kg		--			--			--		--
TPH	C21-C34 Aromatics	mg/kg		--			--			--		--
TPH	Total EPH	mg/kg										
TPH	C5-C6 Aliphatics	mg/kg		--			--			--		--
TPH	C6-C8 Aliphatics	mg/kg		--			--			--		--
TPH	C8-C10 Aliphatics	mg/kg		--			--			--		--
TPH	C8-C10 Aromatics	mg/kg		--			--			--		--
TPH	Total VPH	mg/kg										
VOC	Styrene	mg/kg	U	0.011	U		0.0010	U		--		--
VOC	cis-1,3-Dichloropropene	mg/kg	U	0.011	U		0.0010	U		--		--
VOC	trans-1,3-Dichloropropene	mg/kg	U	0.011	U		0.0010	U		--		--
VOC	n-Propylbenzene	mg/kg		0.011	U		0.0010	U		--		--
VOC	n-Butylbenzene	mg/kg		0.11			0.0010	U		--		--
VOC	4-Chlorotoluene	mg/kg	U	0.011	U		0.0010	U		--		--
VOC	1,4-Dichlorobenzene	mg/kg	U	0.011	U		0.0010	U		--		--
VOC	Ethylene Dibromide	mg/kg	U	0.011	U		0.0010	U		--		--
VOC	Acrolein	mg/kg	U	0.57	U		0.050	U		--		--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

				waste char sample		waste char sample			
Sample ID				**ACSI-WCS-8-1-4.5**		**ACSI-WCS-9-1-3**		**DP13-S**	**DP16-S**
Location ID				Shipping Area		Shipping Area		Shipping Area	Shipping Area
Sample Date				2/23/2006		2/22/2006		5/25/2005	5/26/2005
Chemical Group	**Compound**	**Units**							
VOC	1,2-Dichloroethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Acrylonitrile	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	Vinyl Acetate	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	1,3,5-Trimethylbenzene	mg/kg		0.011	U	0.0010	U	--	--
VOC	Bromobenzene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Chlorobenzene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	2-Chloroethylvinylether	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	Dibromochloromethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Tetrachloroethene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	sec-Butylbenzene	mg/kg	U	0.026		0.0010	U	--	--
VOC	1,3-Dichloropropane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,3-Dichlorobenzene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Carbon Tetrachloride	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,1-Dichloropropene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	2-Hexanone	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	2,2-Dichloropropane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Acetone	mg/kg		0.057	U	0.0050	U	--	--
VOC	Chloroform	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,1,1-Trichloroethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Bromomethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Chloromethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Methyl Iodide	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Dibromomethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Bromoethane	mg/kg	U	0.023	U	0.0020	U	--	--
VOC	Bromochloromethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Chloroethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Vinyl Chloride	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Methylene Chloride	mg/kg	U	0.023	U	0.0020	U	--	--
VOC	Carbon Disulfide	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Bromoform	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Bromodichloromethane	mg/kg	U	0.011	U	0.0010	U	--	--

TABLE E-2

Pre-excavation Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

				waste char sample		waste char sample			
Sample ID				**ACSI-WCS-8-1-4.5**		**ACSI-WCS-9-1-3**		**DP13-S**	**DP16-S**
Location ID				Shipping Area		Shipping Area		Shipping Area	Shipping Area
Sample Date				2/23/2006		2/22/2006		5/25/2005	5/26/2005
Chemical Group	**Compound**	**Units**							
VOC	1,1-Dichloroethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,1-Dichloroethene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Trichlorofluoromethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	U	0.023	U	0.0020	U	--	--
VOC	1,2-Dichloropropane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	2-Butanone	mg/kg	B	0.057	U	0.0050	U	--	--
VOC	1,1,2-Trichloroethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Trichloroethene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	2-Chlorotoluene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,2-Dichlorobenzene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg		0.020	M	0.0014		--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	U	0.057	U	0.0050	U	--	--
VOC	1,2,3-Trichloropropane	mg/kg	U	0.023	U	0.0020	U	--	--
VOC	tert-Butylbenzene	mg/kg	U	0.011	U	0.0010	U	--	--
VOC	Isopropylbenzene	mg/kg		0.011	U	0.0010	U	--	--
VOC	4-Isopropyltoluene	mg/kg		0.070		0.0010	U	--	--

Notes:

> HCID analysis result, fuel type is present (result is not quant
< HCID analysis result, fuel type is not present at the indicate
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers

U = The analyte was analyzed for, but not detected. The asso
numerical value is at or below the sample-specific method det
M = A matrix effect was present.
B = The analyte was found in an associated blank, as well as

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-3

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ELBF-18**		**ACSI-ELBF-20**		**ACSI-ELBF-21**		**ACSI-HPGL-16**		**ACSI-PVSND-17**		**ACSI-PVSND-19**	
Location ID			Shipping Area Sidewall - Elec. Utility Trench		Shipping Area Sidewall - Elec. Utility Trench		Shipping Area Sidewall - Elec. Utility Trench		Shipping Area Backfill under high pressure gas line		Shipping Area Backfill under Pavement		Shipping Area Backfill under Pavement	
Sample Date			5/08/2006		5/09/2006		5/10/2006		5/08/2006		5/08/2006		5/08/2006	
Chemical Group	**Compound**	**Units**												
VOC	Ethylbenzene	mg/kg	0.034		0.44		9.00E-04	U	0.024	U	0.32		0.027	U
VOC	m,p-Xylene	mg/kg	0.060	U	0.063	U	9.00E-04	U	0.049	U	0.053	U	0.054	U
VOC	Toluene	mg/kg	0.030	U	0.031	U	9.00E-04	U	0.024	U	0.026	U	0.027	U
VOC	Xylenes, Total	mg/kg	0.12	U	0.37		0.096	U	0.097	U	0.19		0.11	U
VOC	Benzene	mg/kg	0.015	U	0.016	U	9.00E-04	U	0.012	U	0.013	U	0.014	U
VOC	o-Xylene	mg/kg	0.030	U	0.32		9.00E-04	U	0.024	U	0.19		0.027	U
Aroclors	Aroclor 1260	mg/kg	--		--		--		--		--		--	
Aroclors	Aroclor 1254	mg/kg	--		--		--		--		--		--	
Aroclors	Aroclor 1221	mg/kg	--		--		--		--		--		--	
Aroclors	Aroclor 1232	mg/kg	--		--		--		--		--		--	
Aroclors	Aroclor 1248	mg/kg	--		--		--		--		--		--	
Aroclors	Aroclor 1016	mg/kg	--		--		--		--		--		--	
Aroclors	Aroclor 1242	mg/kg	--		--		--		--		--		--	
Metals	Arsenic	mg/kg	--		--		--		--		--		--	
PAH	Anthracene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Pyrene	mg/kg	--		--		0.091		--		--		--	
PAH	Benzo(g,h,i)perylene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Benzo(b)fluoranthene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Fluoranthene	mg/kg	--		--		0.064		--		--		--	
PAH	Benzo(k)fluoranthene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Acenaphthylene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Chrysene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Benzo(a)pyrene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Dibenz(a,h)anthracene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Benzo(a)anthracene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Acenaphthene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Phenanthrene	mg/kg	--		--		0.078		--		--		--	
PAH	Fluorene	mg/kg	--		--		0.063	U	--		--		--	
PAH	Pentachlorophenol	mg/kg	--		--		0.32	U	--		--		--	
PAH	Naphthalene	mg/kg	--		--		0.066		--		--		--	
PAH	2-Methylnaphthalene	mg/kg	--		--		0.084		--		--		--	

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ELBF-18**	**ACSI-ELBF-20**	**ACSI-ELBF-21**		**ACSI-HPGL-16**	**ACSI-PVSND-17**	**ACSI-PVSND-19**
Location ID			Shipping Area Sidewall - Elec. Utility Trench	Shipping Area Sidewall - Elec. Utility Trench	Shipping Area Sidewall - Elec. Utility Trench		Shipping Area Backfill under high pressure gas line	Shipping Area Backfill under Pavement	Shipping Area Backfill under Pavement
Sample Date			5/08/2006	5/09/2006	5/10/2006		5/08/2006	5/08/2006	5/08/2006
Chemical Group	**Compound**	**Units**							
SVOC	4-Nitroaniline	mg/kg	--	--	0.32	U	--	--	--
SVOC	4-Nitrophenol	mg/kg	--	--	0.32	U	--	--	--
SVOC	Benzyl Alcohol	mg/kg	--	--	0.32	U	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	0.063	U	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	--	--	0.063	U	--	--	--
SVOC	4-Methylphenol	mg/kg	--	--	0.063	U	--	--	--
SVOC	4-Chloroaniline	mg/kg	--	--	0.32	U	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	0.063	U	--	--	--
SVOC	Phenol	mg/kg	--	--	0.063	U	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	0.063	U	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	0.063	U	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	0.063	U	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	0.063	U	--	--	--
SVOC	Hexachlorobenzene	mg/kg	--	--	0.063	U	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	--	--	0.32	U	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	0.32	U	--	--	--
SVOC	Dimethylphthalate	mg/kg	--	--	0.063	U	--	--	--
SVOC	Dibenzofuran	mg/kg	--	--	0.063	U	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	--	--	0.63	U	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	0.63	U	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	0.32	U	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	0.32	U	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	0.32	U	--	--	--
SVOC	Benzoic Acid	mg/kg	--	--	0.63	U	--	--	--
SVOC	Hexachloroethane	mg/kg	--	--	0.063	U	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	0.063	U	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	0.32	U	--	--	--
SVOC	Isophorone	mg/kg	--	--	0.063	U	--	--	--
SVOC	Diethylphthalate	mg/kg	--	--	0.063	U	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	--	--	0.063	U	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	--	--	0.063	U	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	0.063	U	--	--	--

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ELBF-18**	**ACSI-ELBF-20**	**ACSI-ELBF-21**		**ACSI-HPGL-16**		**ACSI-PVSND-17**		**ACSI-PVSND-19**
Location ID			Shipping Area	Shipping Area	Shipping Area		Shipping Area		Shipping Area		Shipping Area
			Sidewall - Elec. Utility Trench	Sidewall - Elec. Utility Trench	Sidewall - Elec. Utility Trench		Backfill under high pressure gas line		Backfill under Pavement		Backfill under Pavement
Sample Date			5/08/2006	5/09/2006	5/10/2006		5/08/2006		5/08/2006		5/08/2006
Chemical Group	**Compound**	**Units**									
SVOC	Carbazole	mg/kg	--	--	0.063	U	--		--		--
SVOC	Hexachlorobutadiene	mg/kg	--	--	0.0045	U	--		--		--
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	0.32	U	--		--		--
SVOC	2-Nitroaniline	mg/kg	--	--	0.32	U	--		--		--
SVOC	2-Nitrophenol	mg/kg	--	--	0.32	U	--		--		--
SVOC	2-Chloronaphthalene	mg/kg	--	--	0.063	U	--		--		--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	--	0.32	U	--		--		--
SVOC	2-Methylphenol	mg/kg	--	--	0.063	U	--		--		--
SVOC	2-Chlorophenol	mg/kg	--	--	0.063	U	--		--		--
SVOC	2,4,5-Trichlorophenol	mg/kg	--	--	0.32	U	--		--		--
SVOC	Nitrobenzene	mg/kg	--	--	0.063	U	--		--		--
SVOC	3-Nitroaniline	mg/kg	--	--	0.32	U	--		--		--
TPH	Diesel Range Hydrocarbons	mg/kg	**3,600**	**11,000**	140		24		**5,600**		63
TPH	Gasoline Range Hydrocarbons	mg/kg	**92**	**820**	13		4.9	U	**410**		11
TPH	Motor Oil	mg/kg	660	1,400	560		76		350		99
VOC	Styrene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	n-Propylbenzene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	n-Butylbenzene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	4-Chlorotoluene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	1,4-Dichlorobenzene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	Ethylene Dibromide	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	Acrolein	mg/kg	--	--	0.045	U	--		--		--
VOC	1,2-Dichloroethane	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	Acrylonitrile	mg/kg	--	--	0.0045	U	--		--		--
VOC	Vinyl Acetate	mg/kg	--	--	0.0045	U	--		--		--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	0.0045	U	--		--		--
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	Bromobenzene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	Chlorobenzene	mg/kg	--	--	9.00E-04	U	--		--		--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	0.0045	U	--		--		--

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ELBF-18**	**ACSI-ELBF-20**	**ACSI-ELBF-21**		**ACSI-HPGL-16**	**ACSI-PVSND-17**	**ACSI-PVSND-19**
Location ID			Shipping Area Sidewall - Elec. Utility Trench	Shipping Area Sidewall - Elec. Utility Trench	Shipping Area Sidewall - Elec. Utility Trench		Shipping Area Backfill under high pressure gas line	Shipping Area Backfill under Pavement	Shipping Area Backfill under Pavement
Sample Date			5/08/2006	5/09/2006	5/10/2006		5/08/2006	5/08/2006	5/08/2006
Chemical Group	**Compound**	**Units**							
VOC	2-Chloroethylvinylether	mg/kg	--	--	0.0045	U	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	0.0045	U	--	--	--
VOC	Dibromochloromethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Tetrachloroethene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Carbon Tetrachloride	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	2-Hexanone	mg/kg	--	--	0.0045	U	--	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Acetone	mg/kg	--	--	0.087		--	--	--
VOC	Chloroform	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Bromomethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Chloromethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Methyl Iodide	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Dibromomethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Bromoethane	mg/kg	--	--	0.0018	U	--	--	--
VOC	Bromochloromethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Chloroethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Vinyl Chloride	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Methylene Chloride	mg/kg	--	--	0.0018	U	--	--	--
VOC	Carbon Disulfide	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Bromoform	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Bromodichloromethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	9.00E-04	U	--	--	--

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ELBF-18**	**ACSI-ELBF-20**	**ACSI-ELBF-21**		**ACSI-HPGL-16**	**ACSI-PVSND-17**	**ACSI-PVSND-19**
Location ID			Shipping Area Sidewall - Elec. Utility Trench	Shipping Area Sidewall - Elec. Utility Trench	Shipping Area Sidewall - Elec. Utility Trench		Shipping Area Backfill under high pressure gas line	Shipping Area Backfill under Pavement	Shipping Area Backfill under Pavement
Sample Date			5/08/2006	5/09/2006	5/10/2006		5/08/2006	5/08/2006	5/08/2006
Chemical Group	**Compound**	**Units**							
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	0.0018	U	--	--	--
VOC	1,2-Dichloropropane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	2-Butanone	mg/kg	--	--	0.020		--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Trichloroethene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	0.0045	U	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	0.0045	U	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	0.0018	U	--	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	Isopropylbenzene	mg/kg	--	--	9.00E-04	U	--	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	9.00E-04	U	--	--	--

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The as numerical value is at or below the sample-specific method ɾt (MDL).

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-US**		**ACSI-VS**	
Location ID			Shipping Area		Shipping Area	
			Under buried concrete slab		Under buried concrete slab	
Sample Date			4/28/2006		4/27/2006	
Chemical Group	**Compound**	**Units**				
VOC	Ethylbenzene	mg/kg	5.00E-04	U	0.41	
VOC	m,p-Xylene	mg/kg	5.00E-04	U	0.049	U
VOC	Toluene	mg/kg	5.00E-04	U	0.049	U
VOC	Xylenes, Total	mg/kg	0.089	U	1.0	U
VOC	Benzene	mg/kg	5.00E-04	U	0.049	U
VOC	o-Xylene	mg/kg	5.00E-04	U	0.049	U
Aroclors	Aroclor 1260	mg/kg	0.032	U	0.030	U
Aroclors	Aroclor 1254	mg/kg	0.032	U	0.030	U
Aroclors	Aroclor 1221	mg/kg	0.032	U	0.030	U
Aroclors	Aroclor 1232	mg/kg	0.032	U	0.030	U
Aroclors	Aroclor 1248	mg/kg	0.032	U	0.030	U
Aroclors	Aroclor 1016	mg/kg	0.032	U	0.030	U
Aroclors	Aroclor 1242	mg/kg	0.032	U	0.030	U
Metals	Arsenic	mg/kg	--		5.0	U
PAH	Anthracene	mg/kg	0.065	U	0.061	U
PAH	Pyrene	mg/kg	0.065	U	0.061	U
PAH	Benzo(g,h,i)perylene	mg/kg	0.065	U	0.061	U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.065	U	0.061	U
PAH	Benzo(b)fluoranthene	mg/kg	0.065	U	0.061	U
PAH	Fluoranthene	mg/kg	0.065	U	0.061	U
PAH	Benzo(k)fluoranthene	mg/kg	0.065	U	0.061	U
PAH	Acenaphthylene	mg/kg	0.065	U	0.061	U
PAH	Chrysene	mg/kg	0.065	U	0.061	U
PAH	Benzo(a)pyrene	mg/kg	0.065	U	0.061	U
PAH	Dibenz(a,h)anthracene	mg/kg	0.065	U	0.061	U
PAH	Benzo(a)anthracene	mg/kg	0.065	U	0.061	U
PAH	Acenaphthene	mg/kg	0.065	U	0.061	U
PAH	Phenanthrene	mg/kg	0.065	U	0.088	
PAH	Fluorene	mg/kg	0.065	U	0.061	U
PAH	Pentachlorophenol	mg/kg	0.33	U	0.30	U
PAH	Naphthalene	mg/kg	0.0026	U	0.061	U
PAH	2-Methylnaphthalene	mg/kg	0.065	U	0.68	

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-US**		**ACSI-VS**	
Location ID			Shipping Area Under buried concrete slab		Shipping Area Under buried concrete slab	
Sample Date			4/28/2006		4/27/2006	
Chemical Group	**Compound**	**Units**				
SVOC	4-Nitroaniline	mg/kg	0.33	U	0.30	U
SVOC	4-Nitrophenol	mg/kg	0.33	U	0.30	U
SVOC	Benzyl Alcohol	mg/kg	0.33	U	0.30	U
SVOC	4-Bromophenyl-phenylether	mg/kg	0.065	U	0.061	U
SVOC	2,4-Dimethylphenol	mg/kg	0.065	U	0.061	U
SVOC	4-Methylphenol	mg/kg	0.065	U	0.061	U
SVOC	4-Chloroaniline	mg/kg	0.33	U	0.30	U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	0.065	U	0.061	U
SVOC	Phenol	mg/kg	0.065	U	0.061	U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	0.065	U	0.061	U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	0.065	U	0.061	U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	0.065	U	0.061	U
SVOC	Di-n-Octyl phthalate	mg/kg	0.065	U	0.061	U
SVOC	Hexachlorobenzene	mg/kg	0.065	U	0.061	U
SVOC	2,4-Dichlorophenol	mg/kg	0.33	U	0.30	U
SVOC	2,4-Dinitrotoluene	mg/kg	0.33	U	0.30	U
SVOC	Dimethylphthalate	mg/kg	0.065	U	0.061	U
SVOC	Dibenzofuran	mg/kg	0.065	U	0.061	U
SVOC	2,4-Dinitrophenol	mg/kg	0.65	U	0.61	U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	0.65	U	0.61	U
SVOC	4-Chloro-3-methylphenol	mg/kg	0.33	U	0.30	U
SVOC	2,6-Dinitrotoluene	mg/kg	0.33	U	0.30	U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	0.33	U	0.30	U
SVOC	Benzoic Acid	mg/kg	0.65	U	0.61	U
SVOC	Hexachloroethane	mg/kg	0.065	U	0.061	U
SVOC	4-Chlorophenyl-phenylether	mg/kg	0.065	U	0.061	U
SVOC	Hexachlorocyclopentadiene	mg/kg	0.33	U	0.30	U
SVOC	Isophorone	mg/kg	0.065	U	0.061	U
SVOC	Diethylphthalate	mg/kg	0.065	U	0.061	U
SVOC	Di-n-Butylphthalate	mg/kg	0.065	U	0.061	U
SVOC	Butylbenzylphthalate	mg/kg	0.065	U	0.061	U
SVOC	N-Nitrosodiphenylamine	mg/kg	0.065	U	0.061	U

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-US**		**ACSI-VS**	
Location ID			Shipping Area Under buried concrete slab		Shipping Area Under buried concrete slab	
Sample Date			4/28/2006		4/27/2006	
Chemical Group	**Compound**	**Units**				
SVOC	Carbazole	mg/kg	0.065	U	0.061	U
SVOC	Hexachlorobutadiene	mg/kg	0.0026	U	0.061	U
SVOC	2,4,6-Trichlorophenol	mg/kg	0.33	U	0.30	U
SVOC	2-Nitroaniline	mg/kg	0.33	U	0.30	U
SVOC	2-Nitrophenol	mg/kg	0.33	U	0.30	U
SVOC	2-Chloronaphthalene	mg/kg	0.065	U	0.061	U
SVOC	3,3'-Dichlorobenzidine	mg/kg	0.33	U	0.30	U
SVOC	2-Methylphenol	mg/kg	0.065	U	0.061	U
SVOC	2-Chlorophenol	mg/kg	0.065	U	0.061	U
SVOC	2,4,5-Trichlorophenol	mg/kg	0.33	U	0.30	U
SVOC	Nitrobenzene	mg/kg	0.065	U	0.061	U
SVOC	3-Nitroaniline	mg/kg	0.33	U	0.30	U
TPH	Diesel Range Hydrocarbons	mg/kg	5.2	U	270	
TPH	Gasoline Range Hydrocarbons	mg/kg	4.4	U	**1,200**	
TPH	Motor Oil	mg/kg	10	U	220	
VOC	Styrene	mg/kg	5.00E-04	U	0.049	U
VOC	cis-1,3-Dichloropropene	mg/kg	5.00E-04	U	0.049	U
VOC	trans-1,3-Dichloropropene	mg/kg	5.00E-04	U	0.049	U
VOC	n-Propylbenzene	mg/kg	5.00E-04	U	0.049	U
VOC	n-Butylbenzene	mg/kg	5.00E-04	U	0.70	
VOC	4-Chlorotoluene	mg/kg	5.00E-04	U	0.049	U
VOC	1,4-Dichlorobenzene	mg/kg	5.00E-04	U	0.049	U
VOC	Ethylene Dibromide	mg/kg	5.00E-04	U	0.049	U
VOC	Acrolein	mg/kg	0.026	U	2.5	U
VOC	1,2-Dichloroethane	mg/kg	5.00E-04	U	0.049	U
VOC	Acrylonitrile	mg/kg	0.0026	U	0.25	U
VOC	Vinyl Acetate	mg/kg	0.0026	U	0.25	U
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	0.0026	U	0.25	U
VOC	1,3,5-Trimethylbenzene	mg/kg	5.00E-04	U	0.049	U
VOC	Bromobenzene	mg/kg	5.00E-04	U	0.049	U
VOC	Chlorobenzene	mg/kg	5.00E-04	U	0.049	U
VOC	trans-1,4-Dichloro-2-butene	mg/kg	0.0026	U	0.25	U

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-US**		**ACSI-VS**	
Location ID			Shipping Area		Shipping Area	
			Under buried concrete slab		Under buried concrete slab	
Sample Date			4/28/2006		4/27/2006	
Chemical Group	**Compound**	**Units**				
VOC	2-Chloroethylvinylether	mg/kg	0.0026	U	0.25	U
VOC	1,2,4-Trichlorobenzene	mg/kg	0.0026	U	0.061	U
VOC	Dibromochloromethane	mg/kg	5.00E-04	U	0.049	U
VOC	Tetrachloroethene	mg/kg	5.00E-04	U	0.049	U
VOC	sec-Butylbenzene	mg/kg	5.00E-04	U	0.049	U
VOC	1,3-Dichloropropane	mg/kg	5.00E-04	U	0.049	U
VOC	cis-1,2-Dichloroethene	mg/kg	5.00E-04	U	0.049	U
VOC	trans-1,2-Dichloroethene	mg/kg	5.00E-04	U	0.049	U
VOC	1,3-Dichlorobenzene	mg/kg	5.00E-04	U	0.049	U
VOC	Carbon Tetrachloride	mg/kg	5.00E-04	U	0.049	U
VOC	1,1-Dichloropropene	mg/kg	5.00E-04	U	0.049	U
VOC	2-Hexanone	mg/kg	0.0026	U	0.25	U
VOC	2,2-Dichloropropane	mg/kg	5.00E-04	U	0.049	U
VOC	1,1,1,2-Tetrachloroethane	mg/kg	5.00E-04	U	0.049	U
VOC	Acetone	mg/kg	0.0039		0.25	U
VOC	Chloroform	mg/kg	5.00E-04	U	0.049	U
VOC	1,1,1-Trichloroethane	mg/kg	5.00E-04	U	0.049	U
VOC	Bromomethane	mg/kg	5.00E-04	U	0.049	U
VOC	Chloromethane	mg/kg	5.00E-04	U	0.049	U
VOC	Methyl Iodide	mg/kg	5.00E-04	U	0.049	U
VOC	Dibromomethane	mg/kg	5.00E-04	U	0.049	U
VOC	Bromoethane	mg/kg	0.0011	U	0.099	U
VOC	Bromochloromethane	mg/kg	5.00E-04	U	0.049	U
VOC	Chloroethane	mg/kg	5.00E-04	U	0.049	U
VOC	Vinyl Chloride	mg/kg	5.00E-04	U	0.049	U
VOC	Methylene Chloride	mg/kg	0.0011	U	0.099	U
VOC	Carbon Disulfide	mg/kg	5.00E-04	U	0.049	U
VOC	Bromoform	mg/kg	5.00E-04	U	0.049	U
VOC	Bromodichloromethane	mg/kg	5.00E-04	U	0.049	U
VOC	1,1-Dichloroethane	mg/kg	5.00E-04	U	0.049	U
VOC	1,1-Dichloroethene	mg/kg	5.00E-04	U	0.049	U
VOC	Trichlorofluoromethane	mg/kg	5.00E-04	U	0.049	U

Table E-3
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-US**		**ACSI-VS**	
Location ID			Shipping Area		Shipping Area	
			Under buried concrete slab		Under buried concrete slab	
Sample Date			4/28/2006		4/27/2006	
Chemical Group	**Compound**	**Units**				
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	0.0011	U	0.099	U
VOC	1,2-Dichloropropane	mg/kg	5.00E-04	U	0.049	U
VOC	2-Butanone	mg/kg	0.0026	U	0.25	U
VOC	1,1,2-Trichloroethane	mg/kg	5.00E-04	U	0.049	U
VOC	Trichloroethene	mg/kg	5.00E-04	U	0.049	U
VOC	1,1,2,2-Tetrachloroethane	mg/kg	5.00E-04	U	0.049	U
VOC	1,2,3-Trichlorobenzene	mg/kg	0.0026	U	0.25	U
VOC	2-Chlorotoluene	mg/kg	5.00E-04	U	0.049	U
VOC	1,2-Dichlorobenzene	mg/kg	5.00E-04	U	0.049	U
VOC	1,2,4-Trimethylbenzene	mg/kg	5.00E-04	U	0.049	U
VOC	1,2-Dibromo-3-chloropropane	mg/kg	0.0026	U	0.25	U
VOC	1,2,3-Trichloropropane	mg/kg	0.0011	U	0.099	U
VOC	tert-Butylbenzene	mg/kg	5.00E-04	U	0.049	U
VOC	Isopropylbenzene	mg/kg	5.00E-04	U	0.049	U
VOC	4-Isopropyltoluene	mg/kg	5.00E-04	U	0.049	U

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The as
numerical value is at or below the sample-specific method d

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACS1-BDS-01**	**ACS1-BDS-02**	**ACS1-SWS-04**	**ACSI-BDS-03**	**ACSI-BDS-04**	**ACSI-BDS-05**	**ACSI-BDS-06**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/25/2006	4/25/2006	4/25/2006	4/28/2006	4/27/2006	4/28/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
VOC	Ethylbenzene	mg/kg	0.028 U	0.029 U	0.026 U	0.075	0.0014 U	0.026 U	0.038 U
VOC	m,p-Xylene	mg/kg	0.057 U	0.059 U	0.053 U	0.044	0.0014 U	0.052 U	0.075 U
VOC	Toluene	mg/kg	0.028 U	0.029 U	0.026 U	8.00E-04 U	0.0014 U	0.026 U	0.038 U
VOC	Xylenes, Total	mg/kg	0.11 U	0.12 U	0.11 U	0.088 U	0.21 U	0.10 U	0.15 U
VOC	Benzene	mg/kg	0.014 U	0.015 U	0.013 U	8.00E-04 U	0.0014 U	0.013 U	0.019 U
VOC	o-Xylene	mg/kg	0.028 U	0.029 U	0.026 U	8.00E-04 U	0.0014 U	0.026 U	0.038 U
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	0.029 U	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	**10**	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Pyrene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Fluoranthene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Acenaphthylene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Chrysene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Acenaphthene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Phenanthrene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Fluorene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
PAH	Pentachlorophenol	mg/kg	--	--	--	--	0.29 U	--	0.33 U

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACS1-BDS-01**	**ACS1-BDS-02**	**ACS1-SWS-04**	**ACSI-BDS-03**	**ACSI-BDS-04**	**ACSI-BDS-05**	**ACSI-BDS-06**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/25/2006	4/25/2006	4/25/2006	4/28/2006	4/27/2006	4/28/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
PAH	Naphthalene	mg/kg	--	--	--	0.048	0.0071 U	--	0.065 U
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	4-Methylphenol	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Phenol	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Dibenzofuran	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	0.58 U	--	0.65 U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	0.58 U	--	0.65 U
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	Benzoic Acid	mg/kg	--	--	--	--	0.58 U	--	0.65 U
SVOC	Hexachloroethane	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	Isophorone	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Diethylphthalate	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Carbazole	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	0.0041 U	0.0071 U	--	0.065 U
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	0.29 U	--	0.33 U

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACS1-BDS-01**	**ACS1-BDS-02**	**ACS1-SWS-04**	**ACSI-BDS-03**	**ACSI-BDS-04**	**ACSI-BDS-05**	**ACSI-BDS-06**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/25/2006	4/25/2006	4/25/2006	4/28/2006	4/27/2006	4/28/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
SVOC	2-Nitroaniline	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	2-Nitrophenol	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	2-Chloronaphthalene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	2-Methylphenol	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	2-Chlorophenol	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	2,4,5-Trichlorophenol	mg/kg	--	--	--	--	0.29 U	--	0.33 U
SVOC	Nitrobenzene	mg/kg	--	--	--	--	0.058 U	--	0.065 U
SVOC	3-Nitroaniline	mg/kg	--	--	--	--	0.29 U	--	0.33 U
TPH	Diesel Range Hydrocarbons	mg/kg	7.0	5.7 U	9.8	13	26	11	45
TPH	Gasoline Range Hydrocarbons	mg/kg	5.7 U	5.9 U	5.3 U	**41**	10 U	5.2 U	7.5 U
TPH	Motor Oil	mg/kg	24	11 U	36	27	64	26	100
TPH	Oil Range	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg							
VOC	Styrene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	n-Propylbenzene	mg/kg	--	--	--	0.019	0.0014 U	--	--
VOC	n-Butylbenzene	mg/kg	--	--	--	0.044 M	0.0014 U	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	0.065 U
VOC	Ethylene Dibromide	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Acrolein	mg/kg	--	--	--	0.041 U	0.071 U	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			ACS1-BDS-01	ACS1-BDS-02	ACS1-SWS-04	ACSI-BDS-03	ACSI-BDS-04	ACSI-BDS-05	ACSI-BDS-06
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/25/2006	4/25/2006	4/25/2006	4/28/2006	4/27/2006	4/28/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	0.041	0.0014 U	--	--
VOC	Bromobenzene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	0.0041 U	0.0071 U	--	0.065 U
VOC	Dibromochloromethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	0.0023	0.0014 U	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	0.065 U
VOC	Carbon Tetrachloride	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	2-Hexanone	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Acetone	mg/kg	--	--	--	0.019	0.059	--	--
VOC	Chloroform	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Bromomethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Chloromethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Dibromomethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Bromoethane	mg/kg	--	--	--	0.0016 U	0.0028 U	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Chloroethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	0.0016 U	0.0028 U	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Bromoform	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	0.0016 U	0.0028 U	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACS1-BDS-01**	**ACS1-BDS-02**	**ACS1-SWS-04**	**ACSI-BDS-03**	**ACSI-BDS-04**	**ACSI-BDS-05**	**ACSI-BDS-06**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/25/2006	4/25/2006	4/25/2006	4/28/2006	4/27/2006	4/28/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
VOC	1,2-Dichloropropane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	2-Butanone	mg/kg	--	--	--	0.0041 U	0.0086	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Trichloroethene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	0.065 U
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	0.036	0.0014 U	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	0.0041 U	0.0071 U	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	0.0016 U	0.0028 U	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	8.00E-04 U	0.0014 U	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	0.0027	0.0014 U	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	0.0040	0.0014 U	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua carbon fraction results to assess hazard)
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method dit (MDL).
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-07**	**ACSI-BDS-08**	**ACSI-BDS-09**	**ACSI-BDS-10**	**ACSI-BDS-11**	**ACSI-BDS-12**	**ACSI-BDS-13**	**ACSI-BDS-14**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/02/2006	5/02/2006
Chemical Group	**Compound**	**Units**								
VOC	Ethylbenzene	mg/kg	0.028	0.033 U	0.037 U	0.034 U	0.0011 M	0.030 U	0.057 U	0.072
VOC	m,p-Xylene	mg/kg	0.10	0.15	0.075 U	0.067 U	0.0034	0.061 U	0.21	0.14
VOC	Toluene	mg/kg	0.026 U	0.033 U	0.037 U	0.034 U	0.0010 U	0.030 U	0.057 U	0.072
VOC	Xylenes, Total	mg/kg	0.12	0.16	0.15 U	0.13 U	0.12 U	0.12 U	0.24	0.29
VOC	Benzene	mg/kg	0.028	0.017 U	0.019 U	0.017 U	0.0012	0.015 U	0.12	0.036
VOC	o-Xylene	mg/kg	0.026 U	0.033 U	0.037 U	0.034 U	0.0010 U	0.030 U	0.057 U	0.072
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	--	--	**9.0**	**10**
Metals	Barium	mg/kg	--	--	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Pyrene	mg/kg	--	--	--	--	0.088	--	0.065 U	0.064
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Fluoranthene	mg/kg	--	--	--	--	0.065	--	0.065 U	0.064
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Acenaphthylene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Chrysene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Acenaphthene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Phenanthrene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Fluorene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
PAH	Pentachlorophenol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-07**	**ACSI-BDS-08**	**ACSI-BDS-09**	**ACSI-BDS-10**	**ACSI-BDS-11**	**ACSI-BDS-12**	**ACSI-BDS-13**	**ACSI-BDS-14**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/02/2006	5/02/2006
Chemical Group	**Compound**	**Units**								
PAH	Naphthalene	mg/kg	--	--	--	--	0.011	--	0.065 U	0.064
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	0.079	--	0.065 U	0.064
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	4-Methylphenol	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.37
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Phenol	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Dibenzofuran	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	0.64 U	--	0.65 U	0.64
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	0.64 U	--	0.65 U	0.64
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	Benzoic Acid	mg/kg	--	--	--	--	0.64 U	--	0.65 U	0.64
SVOC	Hexachloroethane	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	Isophorone	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Diethylphthalate	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Carbazole	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	0.0050 U	--	0.065 U	0.064
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-07**	**ACSI-BDS-08**	**ACSI-BDS-09**	**ACSI-BDS-10**	**ACSI-BDS-11**	**ACSI-BDS-12**	**ACSI-BDS-13**	**ACSI-BDS-14**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/02/2006	5/02/2006
Chemical Group	**Compound**	**Units**								
SVOC	2-Nitroaniline	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	2-Nitrophenol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	2-Chloronaphthalene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	2-Methylphenol	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	2-Chlorophenol	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	2,4,5-Trichlorophenol	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
SVOC	Nitrobenzene	mg/kg	--	--	--	--	0.064 U	--	0.065 U	0.064
SVOC	3-Nitroaniline	mg/kg	--	--	--	--	0.32 U	--	0.32 U	0.32
TPH	Diesel Range Hydrocarbons	mg/kg	170	17	6.5 U	6.2 U	86	9.3	110	620
TPH	Gasoline Range Hydrocarbons	mg/kg	18	6.6 U	7.5 U	6.7 U	27	6.1 U	11 U	14
TPH	Motor Oil	mg/kg	310	46	13 U	13	220	24	91	670
TPH	Oil Range	mg/kg	--	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg								
VOC	Styrene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	n-Propylbenzene	mg/kg	--	--	--	--	0.018	--	--	--
VOC	n-Butylbenzene	mg/kg	--	--	--	--	0.017	--	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	--	--	--	0.0010 U	--	0.065 U	0.064
VOC	Ethylene Dibromide	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Acrolein	mg/kg	--	--	--	--	0.050 U	--	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	--	0.0050 U	--	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	--	0.0050 U	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	0.0050 U	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			ACSI-BDS-07	ACSI-BDS-08	ACSI-BDS-09	ACSI-BDS-10	ACSI-BDS-11	ACSI-BDS-12	ACSI-BDS-13	ACSI-BDS-14
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/02/2006	5/02/2006
Chemical Group	**Compound**	**Units**								
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	0.0013 M	--	--	--
VOC	Bromobenzene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	0.0050 U	--	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	0.0050 U	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	0.0050 U	--	0.065 U	0.064
VOC	Dibromochloromethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	0.0031	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	0.0010 U	--	0.065 U	0.064
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	2-Hexanone	mg/kg	--	--	--	--	0.0050 U	--	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Acetone	mg/kg	--	--	--	--	0.055	--	--	--
VOC	Chloroform	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Bromomethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Chloromethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Dibromomethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Bromoethane	mg/kg	--	--	--	--	0.0020 U	--	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Chloroethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	--	0.0020 U	--	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Bromoform	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	0.0020 U	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-07**	**ACSI-BDS-08**	**ACSI-BDS-09**	**ACSI-BDS-10**	**ACSI-BDS-11**	**ACSI-BDS-12**	**ACSI-BDS-13**	**ACSI-BDS-14**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/01/2006	5/02/2006	5/02/2006
Chemical Group	**Compound**	**Units**								
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	2-Butanone	mg/kg	--	--	--	--	0.012	--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Trichloroethene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	0.0050 U	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	0.0010 U	--	0.065 U	0.064
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	0.0037 M	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	0.0050 U	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	0.0020 U	--	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	0.0010 U	--	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	--	0.0051	--	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	0.0010 U	--	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

														excavated		Field dup BDS-5	
Sample ID				**ACSI-BDS-15**		**ACSI-BDS-16**		**ACSI-BDS-17**		**ACSI-BDS-18**		**ACSI-BDS-19**		**ACSI-BDS-20**		**ACSI-BDS-205**	
Location ID				Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area	
Sample Date				5/03/2006		5/02/2006		5/05/2006		5/11/2006		5/12/2006		5/12/2006		4/28/2006	
Chemical Group	**Compound**	**Units**															
VOC	Ethylbenzene	mg/kg	U	0.035	U	0.0012	U	0.031	U	0.023	U	0.0013		0.51		0.026	U
VOC	m,p-Xylene	mg/kg	U	0.070	U	0.015		0.062	U	0.045	U	0.0046		0.091		0.053	U
VOC	Toluene	mg/kg	U	0.035	U	0.0012	U	0.031	U	0.023	U	0.0030		0.023	U	0.026	U
VOC	Xylenes, Total	mg/kg	U	0.14	U	0.14	U	0.12	U	0.090	U	0.10	U	0.39		0.10	U
VOC	Benzene	mg/kg	U	0.017	U	0.022		0.015	U	0.011	U	9.00E-04		0.011	U	0.013	U
VOC	o-Xylene	mg/kg	U	0.035	U	0.0013		0.031	U	0.023	U	0.0024		0.30		0.026	U
Aroclors	Aroclor 1260	mg/kg		--		--		--		--		--		--		--	
Aroclors	Aroclor 1254	mg/kg		--		--		--		--		--		--		--	
Aroclors	Aroclor 1221	mg/kg		--		--		--		--		--		--		--	
Aroclors	Aroclor 1232	mg/kg		--		--		--		--		--		--		--	
Aroclors	Aroclor 1248	mg/kg		--		--		--		--		--		--		--	
Aroclors	Aroclor 1016	mg/kg		--		--		--		--		--		--		--	
Aroclors	Aroclor 1242	mg/kg		--		--		--		--		--		--		--	
Metals	Lead	mg/kg		--		--		--		--		--		--		--	
Metals	Mercury	mg/kg		--		--		--		--		--		--		--	
Metals	Silver	mg/kg		--		--		--		--		--		--		--	
Metals	Arsenic	mg/kg		6.0		6.0	U	6.0	U	--		--		--		--	
Metals	Barium	mg/kg		--		--		--		--		--		--		--	
Metals	Cadmium	mg/kg		--		--		--		--		--		--		--	
Metals	Chromium	mg/kg		--		--		--		--		--		--		--	
Metals	Selenium	mg/kg		--		--		--		--		--		--		--	
PAH	Anthracene	mg/kg	U	--		--		--		--		0.086		--		--	
PAH	Pyrene	mg/kg	U	--		--		--		--		0.60		--		--	
PAH	Benzo(g,h,i)perylene	mg/kg	U	--		--		--		--		0.32		--		--	
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	U	--		--		--		--		**0.28**		--		--	
PAH	Benzo(b)fluoranthene	mg/kg	U	--		--		--		--		**0.94**		--		--	
PAH	Fluoranthene	mg/kg	U	--		--		--		--		0.70		--		--	
PAH	Benzo(k)fluoranthene	mg/kg	U	--		--		--		--		**0.39**		--		--	
PAH	Acenaphthylene	mg/kg	U	--		--		--		--		0.063	U	--		--	
PAH	Chrysene	mg/kg	U	--		--		--		--		**0.44**		--		--	
PAH	Benzo(a)pyrene	mg/kg	U	--		--		--		--		**0.76**		--		--	
PAH	Dibenz(a,h)anthracene	mg/kg	U	--		--		--		--		0.11		--		--	
PAH	Benzo(a)anthracene	mg/kg	U	--		--		--		--		**0.43**		--		--	
PAH	Acenaphthene	mg/kg	U	--		--		--		--		0.063	U	--		--	
PAH	Phenanthrene	mg/kg	U	--		--		--		--		0.39		--		--	
PAH	Fluorene	mg/kg	U	--		--		--		--		0.063	U	--		--	
PAH	Pentachlorophenol	mg/kg	U	--		--		--		--		0.32	U	--		--	

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

											excavated	Field dup BDS-5
Sample ID				**ACSI-BDS-15**	**ACSI-BDS-16**		**ACSI-BDS-17**	**ACSI-BDS-18**	**ACSI-BDS-19**		**ACSI-BDS-20**	**ACSI-BDS-205**
Location ID				Shipping Area	Shipping Area		Shipping Area	Shipping Area	Shipping Area		Shipping Area	Shipping Area
Sample Date				5/03/2006	5/02/2006		5/05/2006	5/11/2006	5/12/2006		5/12/2006	4/28/2006
Chemical Group	**Compound**	**Units**										
PAH	Naphthalene	mg/kg	U	--	0.0058	U	--	--	0.0044	U	--	--
PAH	2-Methylnaphthalene	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	4-Nitroaniline	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	4-Nitrophenol	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	Benzyl Alcohol	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	2,4-Dimethylphenol	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	4-Methylphenol	mg/kg		--	--		--	--	0.063	U	--	--
SVOC	4-Chloroaniline	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Phenol	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Hexachlorobenzene	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	2,4-Dichlorophenol	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	Dimethylphthalate	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Dibenzofuran	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	2,4-Dinitrophenol	mg/kg	U	--	--		--	--	0.63	U	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	U	--	--		--	--	0.63	U	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	Benzoic Acid	mg/kg	U	--	--		--	--	0.63	U	--	--
SVOC	Hexachloroethane	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	U	--	--		--	--	0.32	U	--	--
SVOC	Isophorone	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Diethylphthalate	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Di-n-Butylphthalate	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Butylbenzylphthalate	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Carbazole	mg/kg	U	--	--		--	--	0.063	U	--	--
SVOC	Hexachlorobutadiene	mg/kg	U	--	0.0058	U	--	--	0.0044	U	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	U	--	--		--	--	0.32	U	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

										excavated	Field dup BDS-5
Sample ID			**ACSI-BDS-15**	**ACSI-BDS-16**	**ACSI-BDS-17**	**ACSI-BDS-18**	**ACSI-BDS-19**	**ACSI-BDS-20**	**ACSI-BDS-205**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/03/2006	5/02/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
SVOC	2-Nitroaniline	mg/kg U	--	--	--	--	0.32 U	--	--
SVOC	2-Nitrophenol	mg/kg U	--	--	--	--	0.32 U	--	--
SVOC	2-Chloronaphthalene	mg/kg U	--	--	--	--	0.063 U	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg U	--	--	--	--	0.32 U	--	--
SVOC	2-Methylphenol	mg/kg U	--	--	--	--	0.063 U	--	--
SVOC	2-Chlorophenol	mg/kg U	--	--	--	--	0.063 U	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg U	--	--	--	--	0.32 U	--	--
SVOC	Nitrobenzene	mg/kg U	--	--	--	--	0.063 U	--	--
SVOC	3-Nitroaniline	mg/kg U	--	--	--	--	0.32 U	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	15	8.1	14	5.7 U	100	**11,000**	11
TPH	Gasoline Range Hydrocarbons	mg/kg U	7.0 U	7.0 U	6.2 U	4.5 U	24	**520**	5.3 U
TPH	Motor Oil	mg/kg	12 U	12 U	21	11 U	260	**5,400**	27
TPH	Oil Range	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg							
VOC	Styrene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	n-Propylbenzene	mg/kg	--	0.0092	--	--	9.00E-04	--	--
VOC	n-Butylbenzene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	4-Chlorotoluene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,4-Dichlorobenzene	mg/kg U	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Ethylene Dibromide	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Acrolein	mg/kg	--	0.058 U	--	--	0.044 U	--	--
VOC	1,2-Dichloroethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Acrylonitrile	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--
VOC	Vinyl Acetate	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

									excavated	Field dup BDS-5
Sample ID			**ACSI-BDS-15**	**ACSI-BDS-16**	**ACSI-BDS-17**	**ACSI-BDS-18**	**ACSI-BDS-19**	**ACSI-BDS-20**	**ACSI-BDS-205**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/03/2006	5/02/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	--	0.0018	--	--	0.0020	--	--
VOC	Bromobenzene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Chlorobenzene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg U	--	0.0058 U	--	--	0.0044 U	--	--
VOC	Dibromochloromethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Tetrachloroethene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	sec-Butylbenzene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,3-Dichloropropane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,3-Dichlorobenzene	mg/kg U	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Carbon Tetrachloride	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,1-Dichloropropene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	2-Hexanone	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--
VOC	2,2-Dichloropropane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Acetone	mg/kg	--	0.026	--	--	0.074	--	--
VOC	Chloroform	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Bromomethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Chloromethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Methyl Iodide	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Dibromomethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Bromoethane	mg/kg	--	0.0023 U	--	--	0.0018 U	--	--
VOC	Bromochloromethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Chloroethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Vinyl Chloride	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Methylene Chloride	mg/kg	--	0.0023 U	--	--	0.0018 U	--	--
VOC	Carbon Disulfide	mg/kg	--	0.0012 U	--	--	0.0010	--	--
VOC	Bromoform	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Bromodichloromethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,1-Dichloroethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,1-Dichloroethene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Trichlorofluoromethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	0.0023 U	--	--	0.0018 U	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

									excavated	Field dup BDS-5
Sample ID			**ACSI-BDS-15**	**ACSI-BDS-16**	**ACSI-BDS-17**	**ACSI-BDS-18**	**ACSI-BDS-19**	**ACSI-BDS-20**	**ACSI-BDS-205**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/03/2006	5/02/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006	4/28/2006
Chemical Group	**Compound**	**Units**							
VOC	1,2-Dichloropropane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	2-Butanone	mg/kg	--	0.0058 U	--	--	0.017	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Trichloroethene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--
VOC	2-Chlorotoluene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,2-Dichlorobenzene	mg/kg U	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--	0.0041	--	--	0.0071	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	0.0058 U	--	--	0.0044 U	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	0.0023 U	--	--	0.0018 U	--	--
VOC	tert-Butylbenzene	mg/kg	--	0.0012 U	--	--	9.00E-04 U	--	--
VOC	Isopropylbenzene	mg/kg	--	0.0052	--	--	9.00E-04 U	--	--
VOC	4-Isopropyltoluene	mg/kg	--	0.0014	--	--	0.0011	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-21**	**ACSI-BDS-22**	**ACSI-BDS-23**	**ACSI-BDS-24**	**ACSI-BDS-25**	**ACSI-ECS-12-2-3**	**ACSI-ECS-12-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**							
VOC	Ethylbenzene	mg/kg	0.020 U	0.022 U	0.021 U	0.024 U	0.025 U	--	--
VOC	m,p-Xylene	mg/kg	0.039 U	0.044 U	0.042 U	0.049 U	0.051 U	--	--
VOC	Toluene	mg/kg	0.020 U	0.022 U	0.021 U	0.024 U	0.025 U	--	--
VOC	Xylenes, Total	mg/kg	0.078 U	0.088 U	0.083 U	0.098 U	0.10 U	--	--
VOC	Benzene	mg/kg	0.0098 U	0.011 U	0.010 U	0.012 U	0.013 U	--	--
VOC	o-Xylene	mg/kg	0.020 U	0.022 U	0.021 U	0.024 U	0.025 U	--	--
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	--	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	--	--	--	--	--	--
PAH	Pyrene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	--	--
PAH	Fluoranthene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	--	--	--
PAH	Acenaphthylene	mg/kg	--	--	--	--	--	--	--
PAH	Chrysene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	--	--	--
PAH	Acenaphthene	mg/kg	--	--	--	--	--	--	--
PAH	Phenanthrene	mg/kg	--	--	--	--	--	--	--
PAH	Fluorene	mg/kg	--	--	--	--	--	--	--
PAH	Pentachlorophenol	mg/kg	--	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-21**	**ACSI-BDS-22**	**ACSI-BDS-23**	**ACSI-BDS-24**	**ACSI-BDS-25**	**ACSI-ECS-12-2-3**	**ACSI-ECS-12-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**							
PAH	Naphthalene	mg/kg	--	--	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	--	--	--
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	--	--	--
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	--	--	--
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	--	--	--
SVOC	Phenol	mg/kg	--	--	--	--	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Dibenzofuran	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	--	--	--
SVOC	Benzoic Acid	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachloroethane	mg/kg	--	--	--	--	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	--	--
SVOC	Isophorone	mg/kg	--	--	--	--	--	--	--
SVOC	Diethylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	--	--
SVOC	Carbazole	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	--	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-21**	**ACSI-BDS-22**	**ACSI-BDS-23**	**ACSI-BDS-24**	**ACSI-BDS-25**	**ACSI-ECS-12-2-3**	**ACSI-ECS-12-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**							
SVOC	2-Nitroaniline	mg/kg	--	--	--	--	--	--	--
SVOC	2-Nitrophenol	mg/kg	--	--	--	--	--	--	--
SVOC	2-Chloronaphthalene	mg/kg	--	--	--	--	--	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	--	--	--
SVOC	2-Methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	2-Chlorophenol	mg/kg	--	--	--	--	--	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	--	--	--	--	--	--	--
SVOC	Nitrobenzene	mg/kg	--	--	--	--	--	--	--
SVOC	3-Nitroaniline	mg/kg	--	--	--	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	7.4	6.0 U	6.0 U	6.2 U	6.1 U	50 U	50 U
TPH	Gasoline Range Hydrocarbons	mg/kg	3.9 U	4.4 U	4.2 U	4.9 U	5.1 U	20 U	20 U
TPH	Motor Oil	mg/kg	24	12 U	12 U	15	21	--	--
TPH	Oil Range	mg/kg	--	--	--	--	--	100 U	100 U
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg							
VOC	Styrene	mg/kg	--	--	--	--	--	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--	--
VOC	n-Propylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	n-Butylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Ethylene Dibromide	mg/kg	--	--	--	--	--	--	--
VOC	Acrolein	mg/kg	--	--	--	--	--	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	--	--	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-21**	**ACSI-BDS-22**	**ACSI-BDS-23**	**ACSI-BDS-24**	**ACSI-BDS-25**	**ACSI-ECS-12-2-3**	**ACSI-ECS-12-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	Bromobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Dibromochloromethane	mg/kg	--	--	--	--	--	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	--	--	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	--	--	--
VOC	2-Hexanone	mg/kg	--	--	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Acetone	mg/kg	--	--	--	--	--	--	--
VOC	Chloroform	mg/kg	--	--	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Bromomethane	mg/kg	--	--	--	--	--	--	--
VOC	Chloromethane	mg/kg	--	--	--	--	--	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	--	--	--	--
VOC	Dibromomethane	mg/kg	--	--	--	--	--	--	--
VOC	Bromoethane	mg/kg	--	--	--	--	--	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	--	--	--	--
VOC	Chloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	--	--	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	--	--	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	--	--	--	--
VOC	Bromoform	mg/kg	--	--	--	--	--	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	--	--	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-BDS-21**	**ACSI-BDS-22**	**ACSI-BDS-23**	**ACSI-BDS-24**	**ACSI-BDS-25**	**ACSI-ECS-12-2-3**	**ACSI-ECS-12-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**							
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	2-Butanone	mg/kg	--	--	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Trichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	--	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-13-2-3**	**ACSI-ECS-13-3-4**	**ACSI-ECS-14-2-3**	**ACSI-ECS-14-3-4**	**ACSI-ECS-15-2-3**	**ACSI-ECS-15-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	Ethylbenzene	mg/kg	--	--	--	--	--	--
VOC	m,p-Xylene	mg/kg	--	--	--	--	--	--
VOC	Toluene	mg/kg	--	--	--	--	--	--
VOC	Xylenes, Total	mg/kg	--	--	--	--	--	--
VOC	Benzene	mg/kg	--	--	--	--	--	--
VOC	o-Xylene	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	--	--	--	--	--
PAH	Pyrene	mg/kg	--	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Acenaphthylene	mg/kg	--	--	--	--	--	--
PAH	Chrysene	mg/kg	--	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	--	--
PAH	Acenaphthene	mg/kg	--	--	--	--	--	--
PAH	Phenanthrene	mg/kg	--	--	--	--	--	--
PAH	Fluorene	mg/kg	--	--	--	--	--	--
PAH	Pentachlorophenol	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-13-2-3**	**ACSI-ECS-13-3-4**	**ACSI-ECS-14-2-3**	**ACSI-ECS-14-3-4**	**ACSI-ECS-15-2-3**	**ACSI-ECS-15-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
PAH	Naphthalene	mg/kg	--	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	--	--
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	--	--
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	--	--
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	--	--
SVOC	Phenol	mg/kg	--	--	--	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	--
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Dibenzofuran	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	--	--
SVOC	Benzoic Acid	mg/kg	--	--	--	--	--	--
SVOC	Hexachloroethane	mg/kg	--	--	--	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	--
SVOC	Isophorone	mg/kg	--	--	--	--	--	--
SVOC	Diethylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	--
SVOC	Carbazole	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-13-2-3**	**ACSI-ECS-13-3-4**	**ACSI-ECS-14-2-3**	**ACSI-ECS-14-3-4**	**ACSI-ECS-15-2-3**	**ACSI-ECS-15-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
SVOC	2-Nitroaniline	mg/kg	--	--	--	--	--	--
SVOC	2-Nitrophenol	mg/kg	--	--	--	--	--	--
SVOC	2-Chloronaphthalene	mg/kg	--	--	--	--	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	--	--
SVOC	2-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	2-Chlorophenol	mg/kg	--	--	--	--	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	--	--	--	--	--	--
SVOC	Nitrobenzene	mg/kg	--	--	--	--	--	--
SVOC	3-Nitroaniline	mg/kg	--	--	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	50 U	50 U	140	140 >	50 U	50 U
TPH	Gasoline Range Hydrocarbons	mg/kg	20 U	20 U	20 U	57 <	20 U	20 U
TPH	Motor Oil	mg/kg	--	--	1,800	--	--	--
TPH	Oil Range	mg/kg	100 U	100 U	100 >	290 >	100 U	100 U
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	32	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	6.8	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	150	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	64	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	160	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	230	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	580	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	580	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	2.6	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	2.3 U	--	--
TPH	Total EPH	mg/kg				1802.8		
VOC	Styrene	mg/kg	--	--	--	--	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--
VOC	n-Propylbenzene	mg/kg	--	--	--	--	--	--
VOC	n-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Ethylene Dibromide	mg/kg	--	--	--	--	--	--
VOC	Acrolein	mg/kg	--	--	--	--	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	--	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-13-2-3**	**ACSI-ECS-13-3-4**	**ACSI-ECS-14-2-3**	**ACSI-ECS-14-3-4**	**ACSI-ECS-15-2-3**	**ACSI-ECS-15-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	--	--
VOC	Bromobenzene	mg/kg	--	--	--	--	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Dibromochloromethane	mg/kg	--	--	--	--	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	--	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	--	--
VOC	2-Hexanone	mg/kg	--	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--
VOC	Acetone	mg/kg	--	--	--	--	--	--
VOC	Chloroform	mg/kg	--	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	--
VOC	Bromomethane	mg/kg	--	--	--	--	--	--
VOC	Chloromethane	mg/kg	--	--	--	--	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	--	--	--
VOC	Dibromomethane	mg/kg	--	--	--	--	--	--
VOC	Bromoethane	mg/kg	--	--	--	--	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	--	--	--
VOC	Chloroethane	mg/kg	--	--	--	--	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	--	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	--	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	--	--	--
VOC	Bromoform	mg/kg	--	--	--	--	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-13-2-3**	**ACSI-ECS-13-3-4**	**ACSI-ECS-14-2-3**	**ACSI-ECS-14-3-4**	**ACSI-ECS-15-2-3**	**ACSI-ECS-15-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Chemical Group	**Compound**	**Units**						
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	2-Butanone	mg/kg	--	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	--
VOC	Trichloroethene	mg/kg	--	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-16-2-3**	**ACSI-ECS-16-4-5**	**ACSI-ECS-19-2-3**	**ACSI-ECS-19-3.5-4.5**	**ACSI-ECS-20-2-3**	**ACSI-ECS-20-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
VOC	Ethylbenzene	mg/kg	--	--	--	--	--	--
VOC	m,p-Xylene	mg/kg	--	--	--	--	--	--
VOC	Toluene	mg/kg	--	--	--	--	--	--
VOC	Xylenes, Total	mg/kg	--	--	--	--	--	--
VOC	Benzene	mg/kg	--	--	--	--	--	--
VOC	o-Xylene	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	--	--	--	--	--
PAH	Pyrene	mg/kg	--	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	--	--
PAH	Acenaphthylene	mg/kg	--	--	--	--	--	--
PAH	Chrysene	mg/kg	--	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	--	--
PAH	Acenaphthene	mg/kg	--	--	--	--	--	--
PAH	Phenanthrene	mg/kg	--	--	--	--	--	--
PAH	Fluorene	mg/kg	--	--	--	--	--	--
PAH	Pentachlorophenol	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-16-2-3**	**ACSI-ECS-16-4-5**	**ACSI-ECS-19-2-3**	**ACSI-ECS-19-3.5-4.5**	**ACSI-ECS-20-2-3**	**ACSI-ECS-20-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
PAH	Naphthalene	mg/kg	--	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	--	--
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	--	--
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	--	--
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	--	--
SVOC	Phenol	mg/kg	--	--	--	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	--
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Dibenzofuran	mg/kg	--	--	--	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	--	--
SVOC	Benzoic Acid	mg/kg	--	--	--	--	--	--
SVOC	Hexachloroethane	mg/kg	--	--	--	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	--
SVOC	Isophorone	mg/kg	--	--	--	--	--	--
SVOC	Diethylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	--
SVOC	Carbazole	mg/kg	--	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-16-2-3**	**ACSI-ECS-16-4-5**	**ACSI-ECS-19-2-3**	**ACSI-ECS-19-3.5-4.5**	**ACSI-ECS-20-2-3**	**ACSI-ECS-20-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
SVOC	2-Nitroaniline	mg/kg	--	--	--	--	--	--
SVOC	2-Nitrophenol	mg/kg	--	--	--	--	--	--
SVOC	2-Chloronaphthalene	mg/kg	--	--	--	--	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	--	--
SVOC	2-Methylphenol	mg/kg	--	--	--	--	--	--
SVOC	2-Chlorophenol	mg/kg	--	--	--	--	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	--	--	--	--	--	--
SVOC	Nitrobenzene	mg/kg	--	--	--	--	--	--
SVOC	3-Nitroaniline	mg/kg	--	--	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	50 U	50 U	50 >	50 U	8.5	16
TPH	Gasoline Range Hydrocarbons	mg/kg	20 U	20 U	20 <	20 U	20 U	20 U
TPH	Motor Oil	mg/kg	--	--	--	--	41	81
TPH	Oil Range	mg/kg	100 U	100 U	100 >	100 U	100 >	100 >
TPH	C10-C12 Aliphatics	mg/kg	--	--	2.2 U	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	2.2 U	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	13	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	3.1	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	36	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	25	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	280	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	81	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	2.2 U	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	2.2 U	--	--	--
TPH	Total EPH	mg/kg			438.1			
VOC	Styrene	mg/kg	--	--	--	--	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--
VOC	n-Propylbenzene	mg/kg	--	--	--	--	--	--
VOC	n-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Ethylene Dibromide	mg/kg	--	--	--	--	--	--
VOC	Acrolein	mg/kg	--	--	--	--	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	--	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-16-2-3**	**ACSI-ECS-16-4-5**	**ACSI-ECS-19-2-3**	**ACSI-ECS-19-3.5-4.5**	**ACSI-ECS-20-2-3**	**ACSI-ECS-20-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	--	--
VOC	Bromobenzene	mg/kg	--	--	--	--	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Dibromochloromethane	mg/kg	--	--	--	--	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	--	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	--	--
VOC	2-Hexanone	mg/kg	--	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--
VOC	Acetone	mg/kg	--	--	--	--	--	--
VOC	Chloroform	mg/kg	--	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	--
VOC	Bromomethane	mg/kg	--	--	--	--	--	--
VOC	Chloromethane	mg/kg	--	--	--	--	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	--	--	--
VOC	Dibromomethane	mg/kg	--	--	--	--	--	--
VOC	Bromoethane	mg/kg	--	--	--	--	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	--	--	--
VOC	Chloroethane	mg/kg	--	--	--	--	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	--	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	--	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	--	--	--
VOC	Bromoform	mg/kg	--	--	--	--	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-ECS-16-2-3**	**ACSI-ECS-16-4-5**	**ACSI-ECS-19-2-3**	**ACSI-ECS-19-3.5-4.5**	**ACSI-ECS-20-2-3**	**ACSI-ECS-20-3.5-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			2/22/2006	2/22/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	--	--
VOC	2-Butanone	mg/kg	--	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	--
VOC	Trichloroethene	mg/kg	--	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

							excavated		
Sample ID			**ACSI-ECS-22**	**ACSI-ECS-23**	**ACSI-ECS-24**	**ACSI-SWS-02**	**ACSI-SWS-03**	**ACSI-SWS-05**	**ACSI-SWS-06**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/26/2006	4/26/2006	4/26/2006	5/01/2006	4/28/2006	4/28/2006	5/01/2006
Chemical Group	**Compound**	**Units**							
VOC	Ethylbenzene	mg/kg	0.029 U	0.024 U	8.00E-04 U	0.026 U	0.010	0.022 U	0.023 U
VOC	m,p-Xylene	mg/kg	0.068	0.048 U	8.00E-04 U	0.052 U	0.046	0.044 U	0.046 U
VOC	Toluene	mg/kg	0.029 U	0.024 U	8.00E-04 U	0.026 U	9.00E-04 U	0.022 U	0.023 U
VOC	Xylenes, Total	mg/kg	0.12 U	0.095 U	0.098 U	0.10 U	0.11	0.089 U	0.092 U
VOC	Benzene	mg/kg	0.015 U	0.012 U	8.00E-04 U	0.013 U	0.0011	0.011 U	0.012 U
VOC	o-Xylene	mg/kg	0.029 U	0.024 U	8.00E-04 U	0.026 U	0.024	0.022 U	0.023 U
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	0.029 U	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	0.029 U	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	6.0 U	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	--
PAH	Anthracene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Pyrene	mg/kg	0.066 U	--	0.48	--	0.098	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Benzo(b)fluoranthene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Fluoranthene	mg/kg	0.066 U	--	0.44	--	0.14	--	--
PAH	Benzo(k)fluoranthene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Acenaphthylene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Chrysene	mg/kg	0.066 U	--	0.099	--	0.059 U	--	--
PAH	Benzo(a)pyrene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Benzo(a)anthracene	mg/kg	0.066 U	--	0.098	--	0.059 U	--	--
PAH	Acenaphthene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Phenanthrene	mg/kg	0.086	--	0.091	--	0.13	--	--
PAH	Fluorene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
PAH	Pentachlorophenol	mg/kg	0.33 U	--	0.32 U	--	0.29 U	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

												excavated		
Sample ID			**ACSI-ECS-22**		**ACSI-ECS-23**	**ACSI-ECS-24**		**ACSI-SWS-02**	**ACSI-SWS-03**		**ACSI-SWS-05**	**ACSI-SWS-06**
Location ID			Shipping Area		Shipping Area	Shipping Area		Shipping Area	Shipping Area		Shipping Area	Shipping Area
Sample Date			4/26/2006		4/26/2006	4/26/2006		5/01/2006	4/28/2006		4/28/2006	5/01/2006
Chemical Group	**Compound**	**Units**										
PAH	Naphthalene	mg/kg	0.066	U	--	0.0042	U	--	0.013		--	--
PAH	2-Methylnaphthalene	mg/kg	0.24		--	0.064	U	--	0.059	U	--	--
SVOC	4-Nitroaniline	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	4-Nitrophenol	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	Benzyl Alcohol	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	2,4-Dimethylphenol	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	4-Methylphenol	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	4-Chloroaniline	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Phenol	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Hexachlorobenzene	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	2,4-Dichlorophenol	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	Dimethylphthalate	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Dibenzofuran	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	2,4-Dinitrophenol	mg/kg	0.66	U	--	0.64	U	--	0.59	U	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	0.66	U	--	0.64	U	--	0.59	U	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	Benzoic Acid	mg/kg	0.66	U	--	0.64	U	--	0.59	U	--	--
SVOC	Hexachloroethane	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--
SVOC	Isophorone	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Diethylphthalate	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Di-n-Butylphthalate	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Butylbenzylphthalate	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Carbazole	mg/kg	0.066	U	--	0.064	U	--	0.059	U	--	--
SVOC	Hexachlorobutadiene	mg/kg	0.066	U	--	0.0042	U	--	0.0045	U	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	0.33	U	--	0.32	U	--	0.29	U	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

							excavated		
Sample ID			**ACSI-ECS-22**	**ACSI-ECS-23**	**ACSI-ECS-24**	**ACSI-SWS-02**	**ACSI-SWS-03**	**ACSI-SWS-05**	**ACSI-SWS-06**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/26/2006	4/26/2006	4/26/2006	5/01/2006	4/28/2006	4/28/2006	5/01/2006
Chemical Group	**Compound**	**Units**							
SVOC	2-Nitroaniline	mg/kg	0.33 U	--	0.32 U	--	0.29 U	--	--
SVOC	2-Nitrophenol	mg/kg	0.33 U	--	0.32 U	--	0.29 U	--	--
SVOC	2-Chloronaphthalene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	0.33 U	--	0.32 U	--	0.29 U	--	--
SVOC	2-Methylphenol	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
SVOC	2-Chlorophenol	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	0.33 U	--	0.32 U	--	0.29 U	--	--
SVOC	Nitrobenzene	mg/kg	0.066 U	--	0.064 U	--	0.059 U	--	--
SVOC	3-Nitroaniline	mg/kg	0.33 U	--	0.32 U	--	0.29 U	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	200	24	120	5.5 U	22	5.3 U	29
TPH	Gasoline Range Hydrocarbons	mg/kg	5.8 U	4.8 U	22	5.2 U	**64**	4.4 U	4.6 U
TPH	Motor Oil	mg/kg	370	150	210	13	72	16	110
TPH	Oil Range	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg							
VOC	Styrene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	n-Propylbenzene	mg/kg	--	--	8.00E-04 U	--	0.010	--	--
VOC	n-Butylbenzene	mg/kg	--	--	8.00E-04 U	--	0.019 M	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,4-Dichlorobenzene	mg/kg	0.066 U	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Ethylene Dibromide	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Acrolein	mg/kg	--	--	0.042 U	--	0.045 U	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Acrylonitrile	mg/kg	--	--	0.0042 U	--	0.0045 U	--	--
VOC	Vinyl Acetate	mg/kg	--	--	0.0042 U	--	0.0045 U	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	0.0042 U	--	0.0045 U	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

							excavated		
Sample ID			**ACSI-ECS-22**	**ACSI-ECS-23**	**ACSI-ECS-24**	**ACSI-SWS-02**	**ACSI-SWS-03**	**ACSI-SWS-05**	**ACSI-SWS-06**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/26/2006	4/26/2006	4/26/2006	5/01/2006	4/28/2006	4/28/2006	5/01/2006
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	8.00E-04 U	--	0.029	--	--
VOC	Bromobenzene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Chlorobenzene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	0.0042 U	--	0.0045 U	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	0.0042 U	--	0.0045 U	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	0.066 U	--	0.0042 U	--	0.0045 U	--	--
VOC	Dibromochloromethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Tetrachloroethene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	8.00E-04 U	--	0.0015	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,3-Dichlorobenzene	mg/kg	0.066 U	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Carbon Tetrachloride	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	2-Hexanone	mg/kg	--	--	0.0042 U	--	0.0045 U	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Acetone	mg/kg	--	--	0.041	--	0.016	--	--
VOC	Chloroform	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Bromomethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Chloromethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Methyl Iodide	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Dibromomethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Bromoethane	mg/kg	--	--	0.0017 U	--	0.0018 U	--	--
VOC	Bromochloromethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Chloroethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Vinyl Chloride	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Methylene Chloride	mg/kg	--	--	0.0017 U	--	0.0019	--	--
VOC	Carbon Disulfide	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Bromoform	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Bromodichloromethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	8.00E-04 U	--	9.00E-04 U	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	0.0017 U	--	0.0018 U	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								excavated			
Sample ID			**ACSI-ECS-22**		**ACSI-ECS-23**	**ACSI-ECS-24**		**ACSI-SWS-02**	**ACSI-SWS-03**	**ACSI-SWS-05**	**ACSI-SWS-06**
Location ID			Shipping Area		Shipping Area	Shipping Area		Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			4/26/2006		4/26/2006	4/26/2006		5/01/2006	4/28/2006	4/28/2006	5/01/2006
Chemical Group	**Compound**	**Units**									
VOC	1,2-Dichloropropane	mg/kg	--		--	8.00E-04	U	--	9.00E-04	U --	--
VOC	2-Butanone	mg/kg	--		--	0.0054		--	0.0045	U --	--
VOC	1,1,2-Trichloroethane	mg/kg	--		--	8.00E-04	U	--	9.00E-04	U --	--
VOC	Trichloroethene	mg/kg	--		--	8.00E-04	U	--	9.00E-04	U --	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--		--	8.00E-04	U	--	9.00E-04	U --	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--		--	0.0042	U	--	0.0045	U --	--
VOC	2-Chlorotoluene	mg/kg	--		--	8.00E-04	U	--	9.00E-04	U --	--
VOC	1,2-Dichlorobenzene	mg/kg	0.066	U	--	8.00E-04	U	--	9.00E-04	U --	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--		--	0.0024		--	0.064	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--		--	0.0042	U	--	0.0045	U --	--
VOC	1,2,3-Trichloropropane	mg/kg	--		--	0.0017	U	--	0.0018	U --	--
VOC	tert-Butylbenzene	mg/kg	--		--	8.00E-04	U	--	9.00E-04	U --	--
VOC	Isopropylbenzene	mg/kg	--		--	8.00E-04	U	--	0.0022	--	--
VOC	4-Isopropyltoluene	mg/kg	--		--	8.00E-04	U	--	0.0024	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-07**	**ACSI-SWS-072**	**ACSI-SWS-08**	**ACSI-SWS-09**	**ACSI-SWS-10**	**ACSI-SWS-11**	**ACSI-SWS-12**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/04/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006
Chemical Group	**Compound**	**Units**							
VOC	Ethylbenzene	mg/kg	0.0013 M	9.00E-04 U	8.00E-04 U	0.030 U	0.025 U	0.029 U	0.031 U
VOC	m,p-Xylene	mg/kg	0.0039	9.00E-04 U	8.00E-04 U	0.061 U	0.050 U	0.058 U	0.062 U
VOC	Toluene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	0.030 U	0.025 U	0.029 U	0.031 U
VOC	Xylenes, Total	mg/kg	0.11 U	0.11 U	0.092 U	0.12 U	0.10 U	0.12 U	0.12 U
VOC	Benzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	0.015 U	0.013 U	0.014 U	0.016 U
VOC	o-Xylene	mg/kg	9.00E-04 M	9.00E-04 U	8.00E-04 U	0.030 U	0.025 U	0.029 U	0.031 U
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	6.0	6.0	5.0 U	5.0 U	6.0 U
Metals	Barium	mg/kg	--	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	--
PAH	Anthracene	mg/kg	0.29	--	0.066 U	0.066 U	--	--	--
PAH	Pyrene	mg/kg	0.75	--	0.066 U	0.066 U	--	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
PAH	Benzo(b)fluoranthene	mg/kg	0.062 U	--	0.066	0.066 U	--	--	--
PAH	Fluoranthene	mg/kg	0.86	--	0.066 U	0.066 U	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
PAH	Acenaphthylene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
PAH	Chrysene	mg/kg	0.10	--	0.066 U	0.066 U	--	--	--
PAH	Benzo(a)pyrene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
PAH	Benzo(a)anthracene	mg/kg	0.098	--	0.066 U	0.066 U	--	--	--
PAH	Acenaphthene	mg/kg	1.2	--	0.066 U	0.066 U	--	--	--
PAH	Phenanthrene	mg/kg	2.5	--	0.10	0.094	--	--	--
PAH	Fluorene	mg/kg	0.81	--	0.066 U	0.066 U	--	--	--
PAH	Pentachlorophenol	mg/kg	0.31 U	--	0.33 U	0.33 U	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated											
Sample ID			**ACSI-SWS-07**		**ACSI-SWS-072**		**ACSI-SWS-08**		**ACSI-SWS-09**		**ACSI-SWS-10**	**ACSI-SWS-11**	**ACSI-SWS-12**
Location ID			Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006		5/04/2006		5/03/2006		5/03/2006		5/03/2006	5/03/2006	5/03/2006
Chemical Group	**Compound**	**Units**											
PAH	Naphthalene	mg/kg	0.20		0.083		0.0039	U	0.066	U	--	--	--
PAH	2-Methylnaphthalene	mg/kg	0.18		--		0.066	U	0.076		--	--	--
SVOC	4-Nitroaniline	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	4-Nitrophenol	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	Benzyl Alcohol	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	4-Methylphenol	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	4-Chloroaniline	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Phenol	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Hexachlorobenzene	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	Dimethylphthalate	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Dibenzofuran	mg/kg	0.48		--		0.066	U	0.066	U	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	0.62	U	--		0.66	U	0.66	U	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	0.62	U	--		0.66	U	0.66	U	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	Benzoic Acid	mg/kg	0.62	U	--		0.66	U	0.66	U	--	--	--
SVOC	Hexachloroethane	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--
SVOC	Isophorone	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Diethylphthalate	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	0.062	U	--		0.066	U	0.066	U	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	0.062	U	--		0.066	U	0.072	Y	--	--	--
SVOC	Carbazole	mg/kg	0.15		--		0.066	U	0.066	U	--	--	--
SVOC	Hexachlorobutadiene	mg/kg	0.0043	U	0.0047	U	0.0039	U	0.066	U	--	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	0.31	U	--		0.33	U	0.33	U	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-07**	**ACSI-SWS-072**	**ACSI-SWS-08**	**ACSI-SWS-09**	**ACSI-SWS-10**	**ACSI-SWS-11**	**ACSI-SWS-12**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/04/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006
Chemical Group	**Compound**	**Units**							
SVOC	2-Nitroaniline	mg/kg	0.31 U	--	0.33 U	0.33 U	--	--	--
SVOC	2-Nitrophenol	mg/kg	0.31 U	--	0.33 U	0.33 U	--	--	--
SVOC	2-Chloronaphthalene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	0.31 U	--	0.33 U	0.33 U	--	--	--
SVOC	2-Methylphenol	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
SVOC	2-Chlorophenol	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	0.31 U	--	0.33 U	0.33 U	--	--	--
SVOC	Nitrobenzene	mg/kg	0.062 U	--	0.066 U	0.066 U	--	--	--
SVOC	3-Nitroaniline	mg/kg	0.31 U	--	0.33 U	0.33 U	--	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	65	--	120	320	5.6 U	5.8 U	6.2 U
TPH	Gasoline Range Hydrocarbons	mg/kg	**39**	15	10	**94**	5.0 U	5.8 U	6.2 U
TPH	Motor Oil	mg/kg	200	--	85	120	14	12 U	12 U
TPH	Oil Range	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg							
VOC	Styrene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	n-Propylbenzene	mg/kg	0.017	0.0090	8.00E-04 U	--	--	--	--
VOC	n-Butylbenzene	mg/kg	0.015 M	0.011	8.00E-04 M	--	--	--	--
VOC	4-Chlorotoluene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	0.066 U	--	--	--
VOC	Ethylene Dibromide	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Acrolein	mg/kg	0.043 U	0.047 U	0.039 U	--	--	--	--
VOC	1,2-Dichloroethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Acrylonitrile	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	Vinyl Acetate	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-07**	**ACSI-SWS-072**	**ACSI-SWS-08**	**ACSI-SWS-09**	**ACSI-SWS-10**	**ACSI-SWS-11**	**ACSI-SWS-12**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/04/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Bromobenzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Chlorobenzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	2-Chloroethylvinylether	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	0.0043 U	0.0047 U	0.0039 U	0.066 U	--	--	--
VOC	Dibromochloromethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Tetrachloroethene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	sec-Butylbenzene	mg/kg	0.0028	0.0031	8.00E-04 U	--	--	--	--
VOC	1,3-Dichloropropane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	0.066 U	--	--	--
VOC	Carbon Tetrachloride	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,1-Dichloropropene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	2-Hexanone	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	2,2-Dichloropropane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Acetone	mg/kg	0.016	0.0068	0.024	--	--	--	--
VOC	Chloroform	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Bromomethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Chloromethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Methyl Iodide	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Dibromomethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Bromoethane	mg/kg	0.0017 U	0.0019 U	0.0016 U	--	--	--	--
VOC	Bromochloromethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Chloroethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Vinyl Chloride	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Methylene Chloride	mg/kg	0.0017 U	0.0019 U	0.0016 U	--	--	--	--
VOC	Carbon Disulfide	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Bromoform	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Bromodichloromethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,1-Dichloroethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,1-Dichloroethene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Trichlorofluoromethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	0.0017 U	0.0019 U	0.0016 U	--	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-07**	**ACSI-SWS-072**	**ACSI-SWS-08**	**ACSI-SWS-09**	**ACSI-SWS-10**	**ACSI-SWS-11**	**ACSI-SWS-12**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/01/2006	5/04/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006	5/03/2006
Chemical Group	**Compound**	**Units**							
VOC	1,2-Dichloropropane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	2-Butanone	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Trichloroethene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	2-Chlorotoluene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	0.066 U	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	0.0061 M	0.0018 M	8.00E-04 U	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	0.0043 U	0.0047 U	0.0039 U	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	0.0017 U	0.0019 U	0.0016 U	--	--	--	--
VOC	tert-Butylbenzene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--
VOC	Isopropylbenzene	mg/kg	0.0053	0.0026	8.00E-04 U	--	--	--	--
VOC	4-Isopropyltoluene	mg/kg	9.00E-04 U	9.00E-04 U	8.00E-04 U	--	--	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-SWS-13**	**ACSI-SWS-14**	**ACSI-SWS-142**	**ACSI-SWS-15**	**ACSI-SWS-16**	**ACSI-SWS-17**	**ACSI-SWS-18**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/04/2006	5/05/2006	5/05/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006
Chemical Group	**Compound**	**Units**							
VOC	Ethylbenzene	mg/kg	0.031 U	0.026 U	0.025 U	0.026 U	7.00E-04 U	0.021 U	0.023 U
VOC	m,p-Xylene	mg/kg	0.062 U	0.052 U	0.050 U	0.051 U	7.00E-04 U	0.041 U	0.046 U
VOC	Toluene	mg/kg	0.10	0.026 U	0.025 U	0.026 U	7.00E-04 U	0.021 U	0.023 U
VOC	Xylenes, Total	mg/kg	0.12 U	0.10 U	0.10 U	0.10 U	0.091 U	0.083 U	0.092 U
VOC	Benzene	mg/kg	0.079	0.013 U	0.013 U	0.013 U	7.00E-04 U	0.010 U	0.011 U
VOC	o-Xylene	mg/kg	0.11	0.026 U	0.025 U	0.026 U	7.00E-04 U	0.021 U	0.023 U
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--	--
Metals	Arsenic	mg/kg	7.0	**8.0**	**8.0**	6.0	--	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
PAH	Pyrene	mg/kg	--	0.094	0.20	--	0.078	0.066 U	0.064 U
PAH	Benzo(g,h,i)perylene	mg/kg	--	0.064 U	0.067	--	0.065 U	0.066 U	0.064 U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
PAH	Benzo(b)fluoranthene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
PAH	Fluoranthene	mg/kg	--	0.066	0.15	--	0.065 U	0.066 U	0.064 U
PAH	Benzo(k)fluoranthene	mg/kg	--	0.064 U	0.079	--	0.065 U	0.066 U	0.064 U
PAH	Acenaphthylene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
PAH	Chrysene	mg/kg	--	0.064 U	0.088	--	0.065 U	0.066 U	0.064 U
PAH	Benzo(a)pyrene	mg/kg	--	0.064 U	0.084	--	0.065 U	0.066 U	0.064 U
PAH	Dibenz(a,h)anthracene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
PAH	Benzo(a)anthracene	mg/kg	--	0.064 U	0.075	--	0.065 U	0.066 U	0.064 U
PAH	Acenaphthene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
PAH	Phenanthrene	mg/kg	--	0.064 U	0.18	--	0.067	0.066 U	0.064 U
PAH	Fluorene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
PAH	Pentachlorophenol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-SWS-13**	**ACSI-SWS-14**	**ACSI-SWS-142**	**ACSI-SWS-15**	**ACSI-SWS-16**	**ACSI-SWS-17**	**ACSI-SWS-18**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/04/2006	5/05/2006	5/05/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006
Chemical Group	**Compound**	**Units**							
PAH	Naphthalene	mg/kg	--	0.064 U	0.064 U	--	0.077	0.066 U	0.064 U
PAH	2-Methylnaphthalene	mg/kg	--	0.064 U	0.064 U	--	0.10	0.066 U	0.064 U
SVOC	4-Nitroaniline	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	4-Nitrophenol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	Benzyl Alcohol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	4-Bromophenyl-phenylether	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	2,4-Dimethylphenol	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	4-Methylphenol	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	4-Chloroaniline	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Phenol	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Di-n-Octyl phthalate	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Hexachlorobenzene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	2,4-Dichlorophenol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	2,4-Dinitrotoluene	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	Dimethylphthalate	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Dibenzofuran	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	2,4-Dinitrophenol	mg/kg	--	0.64 U	0.64 U	--	0.65 U	0.66 U	0.64 U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	0.64 U	0.64 U	--	0.65 U	0.66 U	0.64 U
SVOC	4-Chloro-3-methylphenol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	2,6-Dinitrotoluene	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	Benzoic Acid	mg/kg	--	0.64 U	0.64 U	--	0.65 U	0.66 U	0.64 U
SVOC	Hexachloroethane	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Hexachlorocyclopentadiene	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	Isophorone	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Diethylphthalate	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Di-n-Butylphthalate	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Butylbenzylphthalate	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	N-Nitrosodiphenylamine	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Carbazole	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	Hexachlorobutadiene	mg/kg	--	0.064 U	0.064 U	--	0.0033 U	0.066 U	0.064 U
SVOC	2,4,6-Trichlorophenol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-SWS-13**	**ACSI-SWS-14**	**ACSI-SWS-142**	**ACSI-SWS-15**	**ACSI-SWS-16**	**ACSI-SWS-17**	**ACSI-SWS-18**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/04/2006	5/05/2006	5/05/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006
Chemical Group	**Compound**	**Units**							
SVOC	2-Nitroaniline	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	2-Nitrophenol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	2-Chloronaphthalene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	2-Methylphenol	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	2-Chlorophenol	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	2,4,5-Trichlorophenol	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
SVOC	Nitrobenzene	mg/kg	--	0.064 U	0.064 U	--	0.065 U	0.066 U	0.064 U
SVOC	3-Nitroaniline	mg/kg	--	0.32 U	0.32 U	--	0.32 U	0.33 U	0.32 U
TPH	Diesel Range Hydrocarbons	mg/kg	50	46	49	19	200	44	65
TPH	Gasoline Range Hydrocarbons	mg/kg	**380**	5.2 U	5.0 U	5.1 U	5.5	4.1 U	4.6 U
TPH	Motor Oil	mg/kg	36	150	110	36	570	260	160
TPH	Oil Range	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg							
VOC	Styrene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	n-Propylbenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	n-Butylbenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	0.064 U	0.064 U	--	7.00E-04 U	0.066 U	0.064 U
VOC	Ethylene Dibromide	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Acrolein	mg/kg	--	--	--	--	0.033 U	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	0.0033 U	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-SWS-13**	**ACSI-SWS-14**	**ACSI-SWS-142**	**ACSI-SWS-15**	**ACSI-SWS-16**	**ACSI-SWS-17**	**ACSI-SWS-18**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/04/2006	5/05/2006	5/05/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Bromobenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	0.064 U	0.064 U	--	0.0033 U	0.066 U	0.064 U
VOC	Dibromochloromethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	0.064 U	0.064 U	--	7.00E-04 U	0.066 U	0.064 U
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	2-Hexanone	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Acetone	mg/kg	--	--	--	--	0.021	--	--
VOC	Chloroform	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Bromomethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Chloromethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Dibromomethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Bromoethane	mg/kg	--	--	--	--	0.0013 U	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Chloroethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	--	0.0013 U	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Bromoform	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	0.0013 U	--	--

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-SWS-13**	**ACSI-SWS-14**	**ACSI-SWS-142**	**ACSI-SWS-15**	**ACSI-SWS-16**	**ACSI-SWS-17**	**ACSI-SWS-18**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/04/2006	5/05/2006	5/05/2006	5/05/2006	5/11/2006	5/12/2006	5/12/2006
Chemical Group	**Compound**	**Units**							
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	2-Butanone	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Trichloroethene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	0.064 U	0.064 U	--	7.00E-04 U	0.066 U	0.064 U
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	0.0033 U	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	0.0013 U	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	--	7.00E-04 U	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	7.00E-04 U	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-20**	**ACSI-SWS-21**	**ACSI-SWS-22**	**ACSI-SWS-222**	**ACSI-SWS-23**	**ACSI-SWS-24**	**ACSI-SWS-25**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/12/2006	5/12/2006	5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006
Chemical Group	**Compound**	**Units**							
VOC	Ethylbenzene	mg/kg	0.093	0.022 U	0.019 U	0.018 U	0.017 U	0.025 U	0.021 U
VOC	m,p-Xylene	mg/kg	0.041 U	0.045 U	0.038 U	0.037 U	0.035 U	0.050 U	0.042 U
VOC	Toluene	mg/kg	0.021 U	0.022 U	0.019 U	0.018 U	0.017 U	0.025 U	0.021 U
VOC	Xylenes, Total	mg/kg	0.082 U	0.089 U	0.076 U	0.073 U	0.070 U	0.099 U	0.084 U
VOC	Benzene	mg/kg	0.010 U	0.011 U	0.0094 U	0.0092 U	0.0087 U	0.012 U	0.011 U
VOC	o-Xylene	mg/kg	0.059	0.022 U	0.019 U	0.018 U	0.017 U	0.025 U	0.021 U
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	--	--
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	--	--
Metals	Lead	mg/kg	--	--	--	--	--	--	--
Metals	Mercury	mg/kg	--	--	--	--	--	--	--
Metals	Silver	mg/kg	--	--	--	--	--	--	--
Metals	Arsenic	mg/kg	--	--	--	--	--	--	--
Metals	Barium	mg/kg	--	--	--	--	--	--	--
Metals	Cadmium	mg/kg	--	--	--	--	--	--	--
Metals	Chromium	mg/kg	--	--	--	--	--	--	--
Metals	Selenium	mg/kg	--	--	--	--	--	--	--
PAH	Anthracene	mg/kg	--	--	--	--	--	--	--
PAH	Pyrene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	--	--
PAH	Fluoranthene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	--	--	--
PAH	Acenaphthylene	mg/kg	--	--	--	--	--	--	--
PAH	Chrysene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	--	--	--
PAH	Acenaphthene	mg/kg	--	--	--	--	--	--	--
PAH	Phenanthrene	mg/kg	--	--	--	--	--	--	--
PAH	Fluorene	mg/kg	--	--	--	--	--	--	--
PAH	Pentachlorophenol	mg/kg	--	--	--	--	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-20**	**ACSI-SWS-21**	**ACSI-SWS-22**	**ACSI-SWS-222**	**ACSI-SWS-23**	**ACSI-SWS-24**	**ACSI-SWS-25**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/12/2006	5/12/2006	5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006
Chemical Group	**Compound**	**Units**							
PAH	Naphthalene	mg/kg	--	--	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	--	--	--
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	--	--	--
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	--	--	--
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	--	--	--
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	--	--	--
SVOC	Phenol	mg/kg	--	--	--	--	--	--	--
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	--	--	--
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	--	--	--
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Dibenzofuran	mg/kg	--	--	--	--	--	--	--
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	--	--	--
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	--	--	--
SVOC	Benzoic Acid	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachloroethane	mg/kg	--	--	--	--	--	--	--
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	--	--
SVOC	Isophorone	mg/kg	--	--	--	--	--	--	--
SVOC	Diethylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	--	--	--
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	--	--
SVOC	Carbazole	mg/kg	--	--	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	--	--	--
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-20**	**ACSI-SWS-21**	**ACSI-SWS-22**	**ACSI-SWS-222**	**ACSI-SWS-23**	**ACSI-SWS-24**	**ACSI-SWS-25**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/12/2006	5/12/2006	5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006
Chemical Group	**Compound**	**Units**							
SVOC	2-Nitroaniline	mg/kg	--	--	--	--	--	--	--
SVOC	2-Nitrophenol	mg/kg	--	--	--	--	--	--	--
SVOC	2-Chloronaphthalene	mg/kg	--	--	--	--	--	--	--
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	--	--	--
SVOC	2-Methylphenol	mg/kg	--	--	--	--	--	--	--
SVOC	2-Chlorophenol	mg/kg	--	--	--	--	--	--	--
SVOC	2,4,5-Trichlorophenol	mg/kg	--	--	--	--	--	--	--
SVOC	Nitrobenzene	mg/kg	--	--	--	--	--	--	--
SVOC	3-Nitroaniline	mg/kg	--	--	--	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/kg	1,100	12	140	84	13	100	5.2 U
TPH	Gasoline Range Hydrocarbons	mg/kg	**240**	4.5 U	3.8 U	3.7 U	3.5 U	5.0 U	4.2 U
TPH	Motor Oil	mg/kg	200	62	740	190	26	130	11
TPH	Oil Range	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C10-C12 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/kg	--	--	--	--	--	--	--
TPH	C8-C10 Aromatics	mg/kg	--	--	--	--	--	--	--
TPH	Total EPH	mg/kg							
VOC	Styrene	mg/kg	--	--	--	--	--	--	--
VOC	cis-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--	--
VOC	n-Propylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	n-Butylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	4-Chlorotoluene	mg/kg	--	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Ethylene Dibromide	mg/kg	--	--	--	--	--	--	--
VOC	Acrolein	mg/kg	--	--	--	--	--	--	--
VOC	1,2-Dichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Acrylonitrile	mg/kg	--	--	--	--	--	--	--
VOC	Vinyl Acetate	mg/kg	--	--	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--	--	--	--	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-20**	**ACSI-SWS-21**	**ACSI-SWS-22**	**ACSI-SWS-222**	**ACSI-SWS-23**	**ACSI-SWS-24**	**ACSI-SWS-25**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/12/2006	5/12/2006	5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	Bromobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Chlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Dibromochloromethane	mg/kg	--	--	--	--	--	--	--
VOC	Tetrachloroethene	mg/kg	--	--	--	--	--	--	--
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	--	--	--
VOC	2-Hexanone	mg/kg	--	--	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Acetone	mg/kg	--	--	--	--	--	--	--
VOC	Chloroform	mg/kg	--	--	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Bromomethane	mg/kg	--	--	--	--	--	--	--
VOC	Chloromethane	mg/kg	--	--	--	--	--	--	--
VOC	Methyl Iodide	mg/kg	--	--	--	--	--	--	--
VOC	Dibromomethane	mg/kg	--	--	--	--	--	--	--
VOC	Bromoethane	mg/kg	--	--	--	--	--	--	--
VOC	Bromochloromethane	mg/kg	--	--	--	--	--	--	--
VOC	Chloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Vinyl Chloride	mg/kg	--	--	--	--	--	--	--
VOC	Methylene Chloride	mg/kg	--	--	--	--	--	--	--
VOC	Carbon Disulfide	mg/kg	--	--	--	--	--	--	--
VOC	Bromoform	mg/kg	--	--	--	--	--	--	--
VOC	Bromodichloromethane	mg/kg	--	--	--	--	--	--	--
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	--	--	--

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

			excavated						
Sample ID			**ACSI-SWS-20**	**ACSI-SWS-21**	**ACSI-SWS-22**	**ACSI-SWS-222**	**ACSI-SWS-23**	**ACSI-SWS-24**	**ACSI-SWS-25**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/12/2006	5/12/2006	5/15/2006	5/15/2006	5/15/2006	5/16/2006	5/16/2006
Chemical Group	**Compound**	**Units**							
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	2-Butanone	mg/kg	--	--	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	--	--
VOC	Trichloroethene	mg/kg	--	--	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	--	--
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	Isopropylbenzene	mg/kg	--	--	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	--	--	--

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								Waste Char sample
Sample ID			**ACSI-SWS-26**	**ACSI-SWS-27**	**ACSI-SWS-28**	**ACSI-SWS-29**	**ACSI-SWS19**	**ACSI-WCS-03-1-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area
Sample Date			5/16/2006	5/16/2006	5/16/2006	5/17/2006	5/12/2006	2/23/2006
Chemical Group	**Compound**	**Units**						
VOC	Ethylbenzene	mg/kg	0.028 U	0.022 U	0.028 U	0.032 U	0.025 U	0.0040
VOC	m,p-Xylene	mg/kg	0.057 U	0.044 U	0.055 U	0.065 U	0.050 U	0.0063
VOC	Toluene	mg/kg	0.028 U	0.022 U	0.028 U	0.032 U	0.025 U	0.0032
VOC	Xylenes, Total	mg/kg	0.11 U	0.088 U	0.11 U	0.13 U	0.10 U	--
VOC	Benzene	mg/kg	0.014 U	0.011 U	0.014 U	0.016 U	0.012 U	0.0015
VOC	o-Xylene	mg/kg	0.028 U	0.022 U	0.028 U	0.032 U	0.025 U	0.0053
Aroclors	Aroclor 1260	mg/kg	--	--	--	--	--	0.032 U
Aroclors	Aroclor 1254	mg/kg	--	--	--	--	--	0.032 U
Aroclors	Aroclor 1221	mg/kg	--	--	--	--	--	0.032 U
Aroclors	Aroclor 1232	mg/kg	--	--	--	--	--	0.032 U
Aroclors	Aroclor 1248	mg/kg	--	--	--	--	--	0.032 U
Aroclors	Aroclor 1016	mg/kg	--	--	--	--	--	0.032 U
Aroclors	Aroclor 1242	mg/kg	--	--	--	--	--	0.032 U
Metals	Lead	mg/kg	--	--	--	--	--	17
Metals	Mercury	mg/kg	--	--	--	--	--	0.060
Metals	Silver	mg/kg	--	--	--	--	--	0.30 U
Metals	Arsenic	mg/kg	--	--	--	--	--	6.0
Metals	Barium	mg/kg	--	--	--	--	--	46
Metals	Cadmium	mg/kg	--	--	--	--	--	0.20 U
Metals	Chromium	mg/kg	--	--	--	--	--	17
Metals	Selenium	mg/kg	--	--	--	--	--	5.0 U
PAH	Anthracene	mg/kg	--	--	--	--	0.064 U	2.4
PAH	Pyrene	mg/kg	--	--	--	--	0.064 U	5.0
PAH	Benzo(g,h,i)perylene	mg/kg	--	--	--	--	0.064 U	0.32 U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	0.064 U	0.32 U
PAH	Benzo(b)fluoranthene	mg/kg	--	--	--	--	0.064 U	**0.42**
PAH	Fluoranthene	mg/kg	--	--	--	--	0.064 U	5.2
PAH	Benzo(k)fluoranthene	mg/kg	--	--	--	--	0.064 U	**0.47**
PAH	Acenaphthylene	mg/kg	--	--	--	--	0.064 U	0.32 U
PAH	Chrysene	mg/kg	--	--	--	--	0.064 U	**1.3**
PAH	Benzo(a)pyrene	mg/kg	--	--	--	--	0.064 U	**0.37**
PAH	Dibenz(a,h)anthracene	mg/kg	--	--	--	--	0.064 U	0.32 U
PAH	Benzo(a)anthracene	mg/kg	--	--	--	--	0.064 U	**1.1**
PAH	Acenaphthene	mg/kg	--	--	--	--	0.064 U	5.0
PAH	Phenanthrene	mg/kg	--	--	--	--	0.064 U	11
PAH	Fluorene	mg/kg	--	--	--	--	0.064 U	4.5
PAH	Pentachlorophenol	mg/kg	--	--	--	--	0.32 U	1.6 U

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

									Waste Char sample
Sample ID			**ACSI-SWS-26**	**ACSI-SWS-27**	**ACSI-SWS-28**	**ACSI-SWS-29**	**ACSI-SWS19**		**ACSI-WCS-03-1-4.5**
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area		Shipping Area
Sample Date			5/16/2006	5/16/2006	5/16/2006	5/17/2006	5/12/2006		2/23/2006
Chemical Group	**Compound**	**Units**							
PAH	Naphthalene	mg/kg	--	--	--	--	0.064	U	10
PAH	2-Methylnaphthalene	mg/kg	--	--	--	--	0.064	U	6.1
SVOC	4-Nitroaniline	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	4-Nitrophenol	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	Benzyl Alcohol	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	4-Bromophenyl-phenylether	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	2,4-Dimethylphenol	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	4-Methylphenol	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	4-Chloroaniline	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Phenol	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Di-n-Octyl phthalate	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Hexachlorobenzene	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	2,4-Dichlorophenol	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	2,4-Dinitrotoluene	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	Dimethylphthalate	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Dibenzofuran	mg/kg	--	--	--	--	0.064	U	3.0
SVOC	2,4-Dinitrophenol	mg/kg	--	--	--	--	0.64	U	3.2 U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	--	--	--	0.64	U	3.2 U
SVOC	4-Chloro-3-methylphenol	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	2,6-Dinitrotoluene	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	Benzoic Acid	mg/kg	--	--	--	--	0.64	U	3.2 U
SVOC	Hexachloroethane	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Hexachlorocyclopentadiene	mg/kg	--	--	--	--	0.32	U	1.6 U
SVOC	Isophorone	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Diethylphthalate	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Di-n-Butylphthalate	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Butylbenzylphthalate	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	N-Nitrosodiphenylamine	mg/kg	--	--	--	--	0.064	U	0.32 U
SVOC	Carbazole	mg/kg	--	--	--	--	0.064	U	0.86
SVOC	Hexachlorobutadiene	mg/kg	--	--	--	--	0.064	U	0.0056 U
SVOC	2,4,6-Trichlorophenol	mg/kg	--	--	--	--	0.32	U	1.6 U

Table E-4

Removal Action Soil Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

													Waste Char sample	
Sample ID			**ACSI-SWS-26**		**ACSI-SWS-27**		**ACSI-SWS-28**		**ACSI-SWS-29**		**ACSI-SWS19**		**ACSI-WCS-03-1-4.5**	
Location ID			Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area		Shipping Area	
Sample Date			5/16/2006		5/16/2006		5/16/2006		5/17/2006		5/12/2006		2/23/2006	
Chemical Group	**Compound**	**Units**												
SVOC	2-Nitroaniline	mg/kg	--		--		--		--		0.32	U	1.6	U
SVOC	2-Nitrophenol	mg/kg	--		--		--		--		0.32	U	1.6	U
SVOC	2-Chloronaphthalene	mg/kg	--		--		--		--		0.064	U	0.32	U
SVOC	3,3'-Dichlorobenzidine	mg/kg	--		--		--		--		0.32	U	1.6	U
SVOC	2-Methylphenol	mg/kg	--		--		--		--		0.064	U	0.32	U
SVOC	2-Chlorophenol	mg/kg	--		--		--		--		0.064	U	0.32	U
SVOC	2,4,5-Trichlorophenol	mg/kg	--		--		--		--		0.32	U	1.6	U
SVOC	Nitrobenzene	mg/kg	--		--		--		--		0.064	U	0.32	U
SVOC	3-Nitroaniline	mg/kg	--		--		--		--		0.32	U	1.6	U
TPH	Diesel Range Hydrocarbons	mg/kg	26		18		9.4		--		30		210	
TPH	Gasoline Range Hydrocarbons	mg/kg	5.7	U	4.4	U	5.5	U	6.5	U	5.0	U	54	U
TPH	Motor Oil	mg/kg	190		81		40		--		100		310	
TPH	Oil Range	mg/kg	--		--		--		--		--		270	>
TPH	C10-C12 Aliphatics	mg/kg	--		--		--		--		--		--	
TPH	C10-C12 Aromatics	mg/kg	--		--		--		--		--		--	
TPH	C12-C16 Aliphatics	mg/kg	--		--		--		--		--		--	
TPH	C12-C16 Aromatics	mg/kg	--		--		--		--		--		--	
TPH	C16-C21 Aliphatics	mg/kg	--		--		--		--		--		--	
TPH	C16-C21 Aromatics	mg/kg	--		--		--		--		--		--	
TPH	C21-C34 Aliphatics	mg/kg	--		--		--		--		--		--	
TPH	C21-C34 Aromatics	mg/kg	--		--		--		--		--		--	
TPH	C8-C10 Aliphatics	mg/kg	--		--		--		--		--		--	
TPH	C8-C10 Aromatics	mg/kg	--		--		--		--		--		--	
TPH	Total EPH	mg/kg												
VOC	Styrene	mg/kg	--		--		--		--		--		0.0011	U
VOC	cis-1,3-Dichloropropene	mg/kg	--		--		--		--		--		0.0011	U
VOC	trans-1,3-Dichloropropene	mg/kg	--		--		--		--		--		0.0011	U
VOC	n-Propylbenzene	mg/kg	--		--		--		--		--		0.0020	
VOC	n-Butylbenzene	mg/kg	--		--		--		--		--		0.0022	M
VOC	4-Chlorotoluene	mg/kg	--		--		--		--		--		0.0011	U
VOC	1,4-Dichlorobenzene	mg/kg	--		--		--		--		0.064	U	0.0011	U
VOC	Ethylene Dibromide	mg/kg	--		--		--		--		--		0.0011	U
VOC	Acrolein	mg/kg	--		--		--		--		--		0.056	U
VOC	1,2-Dichloroethane	mg/kg	--		--		--		--		--		0.0011	U
VOC	Acrylonitrile	mg/kg	--		--		--		--		--		0.0056	U
VOC	Vinyl Acetate	mg/kg	--		--		--		--		--		0.0056	U
VOC	4-Methyl-2-Pentanone (MIBK)	mg/kg	--		--		--		--		--		0.0056	U

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

								Waste Char sample	
Sample ID			**ACSI-SWS-26**	**ACSI-SWS-27**	**ACSI-SWS-28**	**ACSI-SWS-29**	**ACSI-SWS19**	**ACSI-WCS-03-1-4.5**	
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area	
Sample Date			5/16/2006	5/16/2006	5/16/2006	5/17/2006	5/12/2006	2/23/2006	
Chemical Group	**Compound**	**Units**							
VOC	1,3,5-Trimethylbenzene	mg/kg	--	--	--	--	--	0.0058	
VOC	Bromobenzene	mg/kg	--	--	--	--	--	0.0011	U
VOC	Chlorobenzene	mg/kg	--	--	--	--	--	0.0011	U
VOC	trans-1,4-Dichloro-2-butene	mg/kg	--	--	--	--	--	0.0056	U
VOC	2-Chloroethylvinylether	mg/kg	--	--	--	--	--	0.0056	U
VOC	1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	0.064 U	0.0056	U
VOC	Dibromochloromethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Tetrachloroethene	mg/kg	--	--	--	--	--	0.0011	U
VOC	sec-Butylbenzene	mg/kg	--	--	--	--	--	0.0014	
VOC	1,3-Dichloropropane	mg/kg	--	--	--	--	--	0.0011	U
VOC	cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	0.0011	U
VOC	trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	0.0011	U
VOC	1,3-Dichlorobenzene	mg/kg	--	--	--	--	0.064 U	0.0011	U
VOC	Carbon Tetrachloride	mg/kg	--	--	--	--	--	0.0011	U
VOC	1,1-Dichloropropene	mg/kg	--	--	--	--	--	0.0011	U
VOC	2-Hexanone	mg/kg	--	--	--	--	--	0.0056	U
VOC	2,2-Dichloropropane	mg/kg	--	--	--	--	--	0.0011	U
VOC	1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Acetone	mg/kg	--	--	--	--	--	0.29	
VOC	Chloroform	mg/kg	--	--	--	--	--	0.0011	U
VOC	1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Bromomethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Chloromethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Methyl Iodide	mg/kg	--	--	--	--	--	0.0011	U
VOC	Dibromomethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Bromoethane	mg/kg	--	--	--	--	--	0.0022	U
VOC	Bromochloromethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Chloroethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	Vinyl Chloride	mg/kg	--	--	--	--	--	0.0011	U
VOC	Methylene Chloride	mg/kg	--	--	--	--	--	0.0022	U
VOC	Carbon Disulfide	mg/kg	--	--	--	--	--	0.0026	
VOC	Bromoform	mg/kg	--	--	--	--	--	0.0011	U
VOC	Bromodichloromethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	1,1-Dichloroethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	1,1-Dichloroethene	mg/kg	--	--	--	--	--	0.0011	U
VOC	Trichlorofluoromethane	mg/kg	--	--	--	--	--	0.0011	U
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	--	--	--	0.0022	U

Table E-4
Removal Action Soil Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

									Waste Char sample	
Sample ID			**ACSI-SWS-26**	**ACSI-SWS-27**	**ACSI-SWS-28**	**ACSI-SWS-29**	**ACSI-SWS19**		**ACSI-WCS-03-1-4.5**	
Location ID			Shipping Area	Shipping Area	Shipping Area	Shipping Area	Shipping Area		Shipping Area	
Sample Date			5/16/2006	5/16/2006	5/16/2006	5/17/2006	5/12/2006		2/23/2006	
Chemical Group	**Compound**	**Units**								
VOC	1,2-Dichloropropane	mg/kg	--	--	--	--	--		0.0011	U
VOC	2-Butanone	mg/kg	--	--	--	--	--		0.052	
VOC	1,1,2-Trichloroethane	mg/kg	--	--	--	--	--		0.0011	U
VOC	Trichloroethene	mg/kg	--	--	--	--	--		0.0011	U
VOC	1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--		0.0011	U
VOC	1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--		0.0056	U
VOC	2-Chlorotoluene	mg/kg	--	--	--	--	--		0.0011	U
VOC	1,2-Dichlorobenzene	mg/kg	--	--	--	--	0.064	U	0.0011	U
VOC	1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--		0.0093	
VOC	1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--		0.0056	U
VOC	1,2,3-Trichloropropane	mg/kg	--	--	--	--	--		0.0022	U
VOC	tert-Butylbenzene	mg/kg	--	--	--	--	--		0.0011	U
VOC	Isopropylbenzene	mg/kg	--	--	--	--	--		0.0056	
VOC	4-Isopropyltoluene	mg/kg	--	--	--	--	--		0.0035	

Notes:

> HCID analysis result, fuel type is present (result is not qua
< HCID analysis result, fuel type is not present at the indicat
mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The ass
numerical value is at or below the sample-specific method d
M = A matrix effect was present.

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-5
Phase II ESA Groundwater Sample Results
*Abitibi West Tacoma Mill RI/FS Report, Steilacoom, *

Sample ID			LBSP1	LBSP2	LBSP3	MP1	MP2	MP3
Location ID			ASB Seep	ASB Seep	ASB Seep	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater
Sample Date			3/04/2005	3/04/2005	3/04/2005	3/03/2005	3/03/2005	3/03/2005
Chemical Group	**Compound**	**Units**						
VOC	Ethylbenzene	mg/L	--	--	--	--	--	--
VOC	m,p-Xylene	mg/L	--	--	--	--	--	--
VOC	Toluene	mg/L	--	--	--	--	--	--
VOC	Methyl tert-Butyl Ether	mg/L	--	--	--	--	--	--
VOC	Benzene	mg/L	--	--	--	--	--	--
VOC	o-Xylene	mg/L	--	--	--	--	--	--
Metals	Lead, dissolved	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0020	0.0030	0.0030
Metals	Mercury, dissolved	mg/L	1.00E-04 U	1.00E-04 U	1.00E-04 U	1.00E-04 U	1.00E-04 U	1.00E-04 U
Metals	Silver, dissolved	mg/L	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Metals	Arsenic, dissolved	mg/L	**0.0044**	**0.0016**	**4.00E-04**	**0.0044**	**0.0077**	**0.015**
Metals	Barium, dissolved	mg/L	0.0070	0.0080	0.0030	0.038	0.037	0.055
Metals	Cadmium, dissolved	mg/L	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Metals	Chromium, dissolved	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Metals	Selenium, dissolved	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
PAH	Anthracene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0037
PAH	Pyrene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0018
PAH	Benzo(g,h,i)perylene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Indeno(1,2,3-cd)pyrene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Benzo(b)fluoranthene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Fluoranthene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0030
PAH	Benzo(k)fluoranthene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Acenaphthylene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Chrysene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Benzo(a)pyrene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Dibenz(a,h)anthracene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Benzo(a)anthracene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
PAH	Acenaphthene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.033
PAH	Phenanthrene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.022
PAH	Fluorene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.018
PAH	Pentachlorophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
PAH	Naphthalene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.13
PAH	2-Methylnaphthalene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.030
SVOC	4-Nitroaniline	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	4-Nitrophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	Benzyl Alcohol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	4-Bromophenyl-phenylether	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4-Dimethylphenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U

Table E-5
Phase II ESA Groundwater Sample Results
*Abitibi West Tacoma Mill RI/FS Report, Steilacoom, *

Sample ID			LBSP1	LBSP2	LBSP3	MP1	MP2	MP3
Location ID			ASB Seep	ASB Seep	ASB Seep	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater
Sample Date			3/04/2005	3/04/2005	3/04/2005	3/03/2005	3/03/2005	3/03/2005
Chemical Group	**Compound**	**Units**						
SVOC	4-Methylphenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0030	0.0010 U
SVOC	4-Chloroaniline	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Phenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	bis(2-Chloroethoxy) Methane	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0015	0.0010 U
SVOC	Di-n-Octyl phthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Hexachlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4-Dichlorophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2,4-Dinitrotoluene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	Dimethylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Dibenzofuran	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.015
SVOC	2,4-Dinitrophenol	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
SVOC	4,6-Dinitro-2-Methylphenol	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
SVOC	4-Chloro-3-methylphenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2,6-Dinitrotoluene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	N-Nitroso-Di-N-Propylamine	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	Benzoic Acid	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
SVOC	Hexachloroethane	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	4-Chlorophenyl-phenylether	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Hexachlorocyclopentadiene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	Isophorone	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Diethylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Di-n-Butylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Butylbenzylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	N-Nitrosodiphenylamine	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Carbazole	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	**0.0095**
SVOC	Hexachlorobutadiene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4,6-Trichlorophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Nitroaniline	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Nitrophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Chloronaphthalene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	3,3'-Dichlorobenzidine	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Methylphenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2-Chlorophenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4,5-Trichlorophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U

Table E-5
Phase II ESA Groundwater Sample Results
*Abitibi West Tacoma Mill RI/FS Report, Steilacoom, *

Sample ID			LBSP1	LBSP2	LBSP3	MP1	MP2	MP3
Location ID			ASB Seep	ASB Seep	ASB Seep	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater
Sample Date			3/04/2005	3/04/2005	3/04/2005	3/03/2005	3/03/2005	3/03/2005
Chemical Group	**Compound**	**Units**						
SVOC	Nitrobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	3-Nitroaniline	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
TPH	Diesel Range Hydrocarbons	mg/L	0.63 U	0.63 U	0.63 U	0.63 U	0.63 >	0.63 >
TPH	Gasoline Range Hydrocarbons	mg/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 <	0.25 U
TPH	Oil Range	mg/L	0.63 U	0.63 U	0.63 U	0.63 U	0.63 <	0.63 U
TPH	C10-C12 Aliphatics	mg/L	--	--	--	--	0.040 U	0.040 U
TPH	C10-C12 Aromatics	mg/L	--	--	--	--	0.040 U	0.15
TPH	C12-C13 Aromatics	mg/L	--	--	--	--	--	--
TPH	C12-C16 Aliphatics	mg/L	--	--	--	--	0.040 U	0.040 U
TPH	C12-C16 Aromatics	mg/L	--	--	--	--	0.040 U	0.14
TPH	C16-C21 Aliphatics	mg/L	--	--	--	--	0.040 U	0.040 U
TPH	C16-C21 Aromatics	mg/L	--	--	--	--	0.040 U	0.10
TPH	C21-C34 Aliphatics	mg/L	--	--	--	--	0.040 U	0.076
TPH	C21-C34 Aromatics	mg/L	--	--	--	--	0.040 U	0.040
TPH	C5-C6 Aliphatics	mg/L	--	--	--	--	--	--
TPH	C6-C8 Aliphatics	mg/L	--	--	--	--	--	--
TPH	C8-C10 Aliphatics	mg/L	--	--	--	--	0.040 U	0.040 U
TPH	C8-C10 Aromatics	mg/L	--	--	--	--	0.040 U	0.040 U
VOC	1,4-Dichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
VOC	1,2,4-Trichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
VOC	1,3-Dichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
VOC	1,2-Dichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U

Notes:

> HCID analysis result, fuel type is present (result is ncl, use carbon fraction results to assess hazard)
< HCID analysis result, fuel type is not present at the irDL
mg/L = milligrams per liter
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. Thed
numerical value is at or below the sample-specific metlon limit (MDL).

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-5
Phase II ESA Groundwater Sample Results
*Abitibi West Tacoma Mill RI/FS Report, Steilacoom, *

Sample ID			**MP4**		**MP4DUP**		**MP5**		**MP6**		**MP7**	
Location ID			Main Plant Area Groundwater		Main Plant Area Groundwater		Main Plant Area Groundwater		Main Plant Area Groundwater		Main Plant Area Groundwater	
Sample Date			3/03/2005		3/03/2005		3/02/2005		3/02/2005		3/02/2005	
Chemical Group	**Compound**	**Units**										
VOC	Ethylbenzene	mg/L	0.011		0.011		--		--		--	
VOC	m,p-Xylene	mg/L	0.045		0.044		--		--		--	
VOC	Toluene	mg/L	0.0071		0.0074		--		--		--	
VOC	Methyl tert-Butyl Ether	mg/L	0.0050	U	0.0050	U	--		--		--	
VOC	Benzene	mg/L	**0.18**		**0.18**		--		--		--	
VOC	o-Xylene	mg/L	0.0050	U	0.0050	U	--		--		--	
Metals	Lead, dissolved	mg/L	0.015		0.013		0.0030		0.0010		0.0010	
Metals	Mercury, dissolved	mg/L	1.00E-04	U	1.00E-04	U	1.00E-04	U	1.00E-04	U	1.00E-04	U
Metals	Silver, dissolved	mg/L	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U
Metals	Arsenic, dissolved	mg/L	**0.040**		**0.042**		**0.0062**		**0.0087**		**0.0056**	
Metals	Barium, dissolved	mg/L	0.022		0.014		0.0080		0.018		0.023	
Metals	Cadmium, dissolved	mg/L	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
Metals	Chromium, dissolved	mg/L	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Metals	Selenium, dissolved	mg/L	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
PAH	Anthracene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Pyrene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Benzo(g,h,i)perylene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Indeno(1,2,3-cd)pyrene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Benzo(b)fluoranthene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Fluoranthene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Benzo(k)fluoranthene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Acenaphthylene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Chrysene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Benzo(a)pyrene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Dibenz(a,h)anthracene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Benzo(a)anthracene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Acenaphthene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Phenanthrene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Fluorene	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
PAH	Pentachlorophenol	mg/L	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
PAH	Naphthalene	mg/L	0.0012		0.0014		0.0010	U	0.0010	U	0.0010	U
PAH	2-Methylnaphthalene	mg/L	0.0016		0.0018		0.0010	U	0.0010	U	0.0010	U
SVOC	4-Nitroaniline	mg/L	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
SVOC	4-Nitrophenol	mg/L	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
SVOC	Benzyl Alcohol	mg/L	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
SVOC	4-Bromophenyl-phenylether	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
SVOC	2,4-Dimethylphenol	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U

Table E-5
Phase II ESA Groundwater Sample Results
*Abitibi West Tacoma Mill RI/FS Report, Steilacoom, *

Sample ID			MP4	MP4DUP	MP5	MP6	MP7
Location ID			Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater
Sample Date			3/03/2005	3/03/2005	3/02/2005	3/02/2005	3/02/2005
Chemical Group	**Compound**	**Units**					
SVOC	4-Methylphenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	4-Chloroaniline	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Phenol	mg/L	0.0012 Y	0.0011 Y	0.0010 U	0.0010 U	0.0010 U
SVOC	Bis-(2-Chloroethyl) Ether	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	bis(2-Chloroethoxy) Methane	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	bis(2-Ethylhexyl)phthalate	mg/L	0.0024	0.0022	0.0010 U	0.0010 U	0.0010 U
SVOC	Di-n-Octyl phthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Hexachlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4-Dichlorophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2,4-Dinitrotoluene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	Dimethylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Dibenzofuran	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4-Dinitrophenol	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
SVOC	4,6-Dinitro-2-Methylphenol	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
SVOC	4-Chloro-3-methylphenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2,6-Dinitrotoluene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	N-Nitroso-Di-N-Propylamine	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	Benzoic Acid	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
SVOC	Hexachloroethane	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	4-Chlorophenyl-phenylether	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Hexachlorocyclopentadiene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	Isophorone	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Diethylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Di-n-Butylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Butylbenzylphthalate	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	N-Nitrosodiphenylamine	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Carbazole	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	Hexachlorobutadiene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4,6-Trichlorophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Nitroaniline	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Nitrophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Chloronaphthalene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	3,3'-Dichlorobenzidine	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
SVOC	2-Methylphenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2-Chlorophenol	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	2,4,5-Trichlorophenol	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U

Table E-5
Phase II ESA Groundwater Sample Results
*Abitibi West Tacoma Mill RI/FS Report, Steilacoom, *

Sample ID			**MP4**	**MP4DUP**	**MP5**	**MP6**	**MP7**
Location ID			Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater	Main Plant Area Groundwater
Sample Date			3/03/2005	3/03/2005	3/02/2005	3/02/2005	3/02/2005
Chemical Group	**Compound**	**Units**					
SVOC	Nitrobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
SVOC	3-Nitroaniline	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
TPH	Diesel Range Hydrocarbons	mg/L	0.63 <	0.63 <	0.63 <	0.63 <	0.63 <
TPH	Gasoline Range Hydrocarbons	mg/L	0.25 >	0.25 >	0.25 <	0.25 <	0.25 <
TPH	Oil Range	mg/L	0.63 <	0.63 <	0.63 <	0.63 <	0.63 <
TPH	C10-C12 Aliphatics	mg/L	0.072	0.080	--	--	--
TPH	C10-C12 Aromatics	mg/L	0.11	0.12	--	--	--
TPH	C12-C13 Aromatics	mg/L	0.050 U	0.050 U	--	--	--
TPH	C12-C16 Aliphatics	mg/L	--	--	--	--	--
TPH	C12-C16 Aromatics	mg/L	--	--	--	--	--
TPH	C16-C21 Aliphatics	mg/L	--	--	--	--	--
TPH	C16-C21 Aromatics	mg/L	--	--	--	--	--
TPH	C21-C34 Aliphatics	mg/L	--	--	--	--	--
TPH	C21-C34 Aromatics	mg/L	--	--	--	--	--
TPH	C5-C6 Aliphatics	mg/L	0.49	0.50	--	--	--
TPH	C6-C8 Aliphatics	mg/L	1.7	1.7	--	--	--
TPH	C8-C10 Aliphatics	mg/L	0.057	0.064	--	--	--
TPH	C8-C10 Aromatics	mg/L	0.16	0.16	--	--	--
VOC	1,4-Dichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
VOC	1,2,4-Trichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
VOC	1,3-Dichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
VOC	1,2-Dichlorobenzene	mg/L	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U

Notes:

> HCID analysis result, fuel type is present (result is no
< HCID analysis result, fuel type is not present at the in
mg/L = milligrams per liter
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. Th
numerical value is at or below the sample-specific meth

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			DP-DUP1	DP-DUP2	DP1	DP10	DP11	DP12	DP13	DP14
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/25/2005	5/25/2005	5/25/2005	5/26/2005	5/25/2005	5/25/2005	5/25/2005	5/25/2005
Chemical Group	**Compound**	**Units**								
VOC	Ethylbenzene	mg/L	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U
VOC	m,p-Xylene	mg/L	0.010 U	0.010 U	0.0011	0.010 U	0.010 U	0.0010 U	0.010 U	0.010 U
VOC	Toluene	mg/L	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U
VOC	Methyl tert-Butyl Ether	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
VOC	Benzene	mg/L	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U
VOC	o-Xylene	mg/L	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U	0.0010 U	0.0050 U	0.0050 U
Metals	Arsenic, dissolved	mg/L	**0.0090**	--	--	**0.0080**	**0.0080**	--	--	--
PAH	Anthracene	mg/L	--	--	--	--	--	--	--	--
PAH	Pyrene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/L	--	--	--	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/L	--	--	--	--	--	--	--	--
PAH	Fluoranthene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/L	--	--	--	--	--	--	--	--
PAH	Acenaphthylene	mg/L	--	--	--	--	--	--	--	--
PAH	Chrysene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/L	--	--	--	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/L	--	--	--	--	--	--	--	--
PAH	Acenaphthene	mg/L	--	--	--	--	--	--	--	--
PAH	Phenanthrene	mg/L	--	--	--	--	--	--	--	--
PAH	Fluorene	mg/L	--	--	--	--	--	--	--	--
PAH	Naphthalene	mg/L	--	--	--	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/L	--	--	--	--	--	--	--	--
SVOC	Dibenzofuran	mg/L	--	--	--	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/L	--	--	--	--	--	--	--	--
SVOC	1-Methylnaphthalene	mg/L	--	--	--	--	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/L	--	--	--	--	--	--	--	--
TPH	Gasoline Range Hydrocarbons	mg/L	--	--	0.42 >	--	--	0.25 <	--	--
TPH	Motor Oil	mg/L	--	--	--	--	--	--	--	--
TPH	Oil Range	mg/L	--	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C10-C12 Aromatics	mg/L	0.050 U	0.093	0.087	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C12-C13 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C5-C6 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C6-C8 Aliphatics	mg/L	0.051	0.096	0.082	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C8-C10 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C8-C10 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
VOC	Styrene	mg/L	--	--	--	--	--	--	--	--

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			DP-DUP1	DP-DUP2	DP1	DP10	DP11	DP12	DP13	DP14
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/25/2005	5/25/2005	5/25/2005	5/26/2005	5/25/2005	5/25/2005	5/25/2005	5/25/2005
Chemical Group	**Compound**	**Units**								
VOC	cis-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	--	--
VOC	n-Propylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	n-Butylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	4-Chlorotoluene	mg/L	--	--	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Ethylene Dibromide	mg/L	--	--	--	--	--	--	--	--
VOC	Acrolein	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Acrylonitrile	mg/L	--	--	--	--	--	--	--	--
VOC	Vinyl Acetate	mg/L	--	--	--	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/L	--	--	--	--	--	--	--	--
VOC	1,3,5-Trimethylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Bromobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Chlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/L	--	--	--	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Dibromochloromethane	mg/L	--	--	--	--	--	--	--	--
VOC	Tetrachloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	sec-Butylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/L	--	--	--	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/L	--	--	--	--	--	--	--	--
VOC	2-Hexanone	mg/L	--	--	--	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Acetone	mg/L	--	--	--	--	--	--	--	--
VOC	Chloroform	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Bromomethane	mg/L	--	--	--	--	--	--	--	--
VOC	Chloromethane	mg/L	--	--	--	--	--	--	--	--
VOC	Methyl Iodide	mg/L	--	--	--	--	--	--	--	--
VOC	Dibromomethane	mg/L	--	--	--	--	--	--	--	--
VOC	Bromoethane	mg/L	--	--	--	--	--	--	--	--
VOC	Bromochloromethane	mg/L	--	--	--	--	--	--	--	--

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			DP-DUP1	DP-DUP2	DP1	DP10	DP11	DP12	DP13	DP14
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/25/2005	5/25/2005	5/25/2005	5/26/2005	5/25/2005	5/25/2005	5/25/2005	5/25/2005
Chemical Group	**Compound**	**Units**								
VOC	Chloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Vinyl Chloride	mg/L	--	--	--	--	--	--	--	--
VOC	Methylene Chloride	mg/L	--	--	--	--	--	--	--	--
VOC	Carbon Disulfide	mg/L	--	--	--	--	--	--	--	--
VOC	Bromoform	mg/L	--	--	--	--	--	--	--	--
VOC	Bromodichloromethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1-Dichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	2-Butanone	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Trichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	2-Chlorotoluene	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	tert-Butylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Isopropylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/L	--	--	--	--	--	--	--	--

Notes:

mg/L = milligrams per liter
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The a
numerical value is at or below the sample-specific methodlimit (MDL)

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**DP15**	**DP16**	**DP17**	**DP18**	**DP19**	**DP2**	**DP3**	**DP4**
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/26/2005	5/26/2005	5/26/2005	5/26/2005	5/26/2005	5/25/2005	5/25/2005	5/25/2005
Chemical Group	**Compound**	**Units**								
VOC	Ethylbenzene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0010 U	0.0010 U	0.0013
VOC	m,p-Xylene	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.0010 U	0.0010 U	0.010 U
VOC	Toluene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0010 U	0.0010 U	0.0024
VOC	Methyl tert-Butyl Ether	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
VOC	Benzene	mg/L	0.0050 U	**0.015**	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0010 U	**0.056**
VOC	o-Xylene	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0010 U	0.0010 U	0.0015
Metals	Arsenic, dissolved	mg/L	--	--	--	--	--	--	--	--
PAH	Anthracene	mg/L	--	--	--	--	--	--	--	--
PAH	Pyrene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/L	--	--	--	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/L	--	--	--	--	--	--	--	--
PAH	Fluoranthene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/L	--	--	--	--	--	--	--	--
PAH	Acenaphthylene	mg/L	--	--	--	--	--	--	--	--
PAH	Chrysene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/L	--	--	--	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/L	--	--	--	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/L	--	--	--	--	--	--	--	--
PAH	Acenaphthene	mg/L	--	--	--	--	--	--	--	--
PAH	Phenanthrene	mg/L	--	--	--	--	--	--	--	--
PAH	Fluorene	mg/L	--	--	--	--	--	--	--	--
PAH	Naphthalene	mg/L	--	--	--	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/L	--	--	--	--	--	--	--	--
SVOC	Dibenzofuran	mg/L	--	--	--	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/L	--	--	--	--	--	--	--	--
SVOC	1-Methylnaphthalene	mg/L	--	--	--	--	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/L	--	--	--	--	--	--	--	--
TPH	Gasoline Range Hydrocarbons	mg/L	--	--	--	--	--	0.25 <	0.25 U	**1.3**
TPH	Motor Oil	mg/L	--	--	--	--	--	--	--	--
TPH	Oil Range	mg/L	--	--	--	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C10-C12 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.41
TPH	C12-C13 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.13
TPH	C5-C6 Aliphatics	mg/L	0.065	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.16
TPH	C6-C8 Aliphatics	mg/L	0.20	0.075	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.62
TPH	C8-C10 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C8-C10 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.10
VOC	Styrene	mg/L	--	--	--	--	--	--	--	--

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Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			DP15	DP16	DP17	DP18	DP19	DP2	DP3	DP4
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/26/2005	5/26/2005	5/26/2005	5/26/2005	5/26/2005	5/25/2005	5/25/2005	5/25/2005
Chemical Group	**Compound**	**Units**								
VOC	cis-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	--	--
VOC	n-Propylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	n-Butylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	4-Chlorotoluene	mg/L	--	--	--	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Ethylene Dibromide	mg/L	--	--	--	--	--	--	--	--
VOC	Acrolein	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Acrylonitrile	mg/L	--	--	--	--	--	--	--	--
VOC	Vinyl Acetate	mg/L	--	--	--	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/L	--	--	--	--	--	--	--	--
VOC	1,3,5-Trimethylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Bromobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Chlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/L	--	--	--	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Dibromochloromethane	mg/L	--	--	--	--	--	--	--	--
VOC	Tetrachloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	sec-Butylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/L	--	--	--	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/L	--	--	--	--	--	--	--	--
VOC	2-Hexanone	mg/L	--	--	--	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Acetone	mg/L	--	--	--	--	--	--	--	--
VOC	Chloroform	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Bromomethane	mg/L	--	--	--	--	--	--	--	--
VOC	Chloromethane	mg/L	--	--	--	--	--	--	--	--
VOC	Methyl Iodide	mg/L	--	--	--	--	--	--	--	--
VOC	Dibromomethane	mg/L	--	--	--	--	--	--	--	--
VOC	Bromoethane	mg/L	--	--	--	--	--	--	--	--
VOC	Bromochloromethane	mg/L	--	--	--	--	--	--	--	--

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**DP15**	**DP16**	**DP17**	**DP18**	**DP19**	**DP2**	**DP3**	**DP4**
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/26/2005	5/26/2005	5/26/2005	5/26/2005	5/26/2005	5/25/2005	5/25/2005	5/25/2005
Chemical Group	**Compound**	**Units**								
VOC	Chloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Vinyl Chloride	mg/L	--	--	--	--	--	--	--	--
VOC	Methylene Chloride	mg/L	--	--	--	--	--	--	--	--
VOC	Carbon Disulfide	mg/L	--	--	--	--	--	--	--	--
VOC	Bromoform	mg/L	--	--	--	--	--	--	--	--
VOC	Bromodichloromethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1-Dichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	2-Butanone	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	Trichloroethene	mg/L	--	--	--	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	2-Chlorotoluene	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/L	--	--	--	--	--	--	--	--
VOC	tert-Butylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	Isopropylbenzene	mg/L	--	--	--	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/L	--	--	--	--	--	--	--	--

Notes:

mg/L = milligrams per liter
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The a
numerical value is at or below the sample-specific method

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**DP5**	**DP6**	**DP7**	**DP8**	**DP9**
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/25/2005	5/25/2005	5/25/2005	5/26/2005	5/26/2005
Chemical Group	**Compound**	**Units**					
VOC	Ethylbenzene	mg/L	0.0010 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
VOC	m,p-Xylene	mg/L	0.0010 U	0.010 U	0.010 U	0.010 U	0.010 U
VOC	Toluene	mg/L	0.0010 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
VOC	Methyl tert-Butyl Ether	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
VOC	Benzene	mg/L	0.0010 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
VOC	o-Xylene	mg/L	0.0010 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Metals	Arsenic, dissolved	mg/L	--	--	**0.010**	--	--
PAH	Anthracene	mg/L	--	--	--	--	--
PAH	Pyrene	mg/L	--	--	--	--	--
PAH	Benzo(g,h,i)perylene	mg/L	--	--	--	--	--
PAH	Indeno(1,2,3-cd)pyrene	mg/L	--	--	--	--	--
PAH	Benzo(b)fluoranthene	mg/L	--	--	--	--	--
PAH	Fluoranthene	mg/L	--	--	--	--	--
PAH	Benzo(k)fluoranthene	mg/L	--	--	--	--	--
PAH	Acenaphthylene	mg/L	--	--	--	--	--
PAH	Chrysene	mg/L	--	--	--	--	--
PAH	Benzo(a)pyrene	mg/L	--	--	--	--	--
PAH	Dibenz(a,h)anthracene	mg/L	--	--	--	--	--
PAH	Benzo(a)anthracene	mg/L	--	--	--	--	--
PAH	Acenaphthene	mg/L	--	--	--	--	--
PAH	Phenanthrene	mg/L	--	--	--	--	--
PAH	Fluorene	mg/L	--	--	--	--	--
PAH	Naphthalene	mg/L	--	--	--	--	--
PAH	2-Methylnaphthalene	mg/L	--	--	--	--	--
SVOC	Dibenzofuran	mg/L	--	--	--	--	--
SVOC	Hexachlorobutadiene	mg/L	--	--	--	--	--
SVOC	1-Methylnaphthalene	mg/L	--	--	--	--	--
TPH	Diesel Range Hydrocarbons	mg/L	--	--	--	--	--
TPH	Gasoline Range Hydrocarbons	mg/L	0.25 <	--	--	--	--
TPH	Motor Oil	mg/L	--	--	--	--	--
TPH	Oil Range	mg/L	--	--	--	--	--
TPH	C10-C12 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C10-C12 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C12-C13 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C5-C6 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C6-C8 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C8-C10 Aliphatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
TPH	C8-C10 Aromatics	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
VOC	Styrene	mg/L	--	--	--	--	--

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**DP5**	**DP6**	**DP7**	**DP8**	**DP9**
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/25/2005	5/25/2005	5/25/2005	5/26/2005	5/26/2005
Chemical Group	**Compound**	**Units**					
VOC	cis-1,3-Dichloropropene	mg/L	--	--	--	--	--
VOC	trans-1,3-Dichloropropene	mg/L	--	--	--	--	--
VOC	n-Propylbenzene	mg/L	--	--	--	--	--
VOC	n-Butylbenzene	mg/L	--	--	--	--	--
VOC	4-Chlorotoluene	mg/L	--	--	--	--	--
VOC	1,4-Dichlorobenzene	mg/L	--	--	--	--	--
VOC	Ethylene Dibromide	mg/L	--	--	--	--	--
VOC	Acrolein	mg/L	--	--	--	--	--
VOC	1,2-Dichloroethane	mg/L	--	--	--	--	--
VOC	Acrylonitrile	mg/L	--	--	--	--	--
VOC	Vinyl Acetate	mg/L	--	--	--	--	--
VOC	4-Methyl-2-Pentanone (MIBK)	mg/L	--	--	--	--	--
VOC	1,3,5-Trimethylbenzene	mg/L	--	--	--	--	--
VOC	Bromobenzene	mg/L	--	--	--	--	--
VOC	Chlorobenzene	mg/L	--	--	--	--	--
VOC	trans-1,4-Dichloro-2-butene	mg/L	--	--	--	--	--
VOC	2-Chloroethylvinylether	mg/L	--	--	--	--	--
VOC	1,2,4-Trichlorobenzene	mg/L	--	--	--	--	--
VOC	Dibromochloromethane	mg/L	--	--	--	--	--
VOC	Tetrachloroethene	mg/L	--	--	--	--	--
VOC	sec-Butylbenzene	mg/L	--	--	--	--	--
VOC	1,3-Dichloropropane	mg/L	--	--	--	--	--
VOC	cis-1,2-Dichloroethene	mg/L	--	--	--	--	--
VOC	trans-1,2-Dichloroethene	mg/L	--	--	--	--	--
VOC	1,3-Dichlorobenzene	mg/L	--	--	--	--	--
VOC	Carbon Tetrachloride	mg/L	--	--	--	--	--
VOC	1,1-Dichloropropene	mg/L	--	--	--	--	--
VOC	2-Hexanone	mg/L	--	--	--	--	--
VOC	2,2-Dichloropropane	mg/L	--	--	--	--	--
VOC	1,1,1,2-Tetrachloroethane	mg/L	--	--	--	--	--
VOC	Acetone	mg/L	--	--	--	--	--
VOC	Chloroform	mg/L	--	--	--	--	--
VOC	1,1,1-Trichloroethane	mg/L	--	--	--	--	--
VOC	Bromomethane	mg/L	--	--	--	--	--
VOC	Chloromethane	mg/L	--	--	--	--	--
VOC	Methyl Iodide	mg/L	--	--	--	--	--
VOC	Dibromomethane	mg/L	--	--	--	--	--
VOC	Bromoethane	mg/L	--	--	--	--	--
VOC	Bromochloromethane	mg/L	--	--	--	--	--

TABLE E-6

Supplemental Field Investigation Groundwater Res

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**DP5**	**DP6**	**DP7**	**DP8**	**DP9**
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			5/25/2005	5/25/2005	5/25/2005	5/26/2005	5/26/2005
Chemical Group	**Compound**	**Units**					
VOC	Chloroethane	mg/L	--	--	--	--	--
VOC	Vinyl Chloride	mg/L	--	--	--	--	--
VOC	Methylene Chloride	mg/L	--	--	--	--	--
VOC	Carbon Disulfide	mg/L	--	--	--	--	--
VOC	Bromoform	mg/L	--	--	--	--	--
VOC	Bromodichloromethane	mg/L	--	--	--	--	--
VOC	1,1-Dichloroethane	mg/L	--	--	--	--	--
VOC	1,1-Dichloroethene	mg/L	--	--	--	--	--
VOC	Trichlorofluoromethane	mg/L	--	--	--	--	--
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	--	--	--	--	--
VOC	1,2-Dichloropropane	mg/L	--	--	--	--	--
VOC	2-Butanone	mg/L	--	--	--	--	--
VOC	1,1,2-Trichloroethane	mg/L	--	--	--	--	--
VOC	Trichloroethene	mg/L	--	--	--	--	--
VOC	1,1,2,2-Tetrachloroethane	mg/L	--	--	--	--	--
VOC	1,2,3-Trichlorobenzene	mg/L	--	--	--	--	--
VOC	2-Chlorotoluene	mg/L	--	--	--	--	--
VOC	1,2-Dichlorobenzene	mg/L	--	--	--	--	--
VOC	1,2,4-Trimethylbenzene	mg/L	--	--	--	--	--
VOC	1,2-Dibromo-3-chloropropane	mg/L	--	--	--	--	--
VOC	1,2,3-Trichloropropane	mg/L	--	--	--	--	--
VOC	tert-Butylbenzene	mg/L	--	--	--	--	--
VOC	Isopropylbenzene	mg/L	--	--	--	--	--
VOC	4-Isopropyltoluene	mg/L	--	--	--	--	--

Notes:

mg/L = milligrams per liter
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The a
numerical value is at or below the sample-specific method

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

TABLE E-7

Monitoring Well Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-GWS-01-01**		**ACSI-GWS-01-02**		**ACSI-GWS-01-03**		**ACSI-GWS-01-04**		**ACSI-GWS-01-100**	
Well ID			**MW-1**		**MW-2**		**MW-3**		**MW-4**		**MW-2 Dup**	
Location ID			Main Plant Area		Main Plant Area		Main Plant Area		Main Plant Area		Main Plant Area	
Sample Date			9/01/2006		8/31/2006		8/31/2006		9/01/2006		8/31/2006	
Chemical Group	**Compound**	**Units**										
VOC	Ethylbenzene	mg/L	9.00E-04		2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	m,p-Xylene	mg/L	8.00E-04		0.0030		8.00E-04		--		0.0028	
VOC	Toluene	mg/L	0.0010		4.00E-04		2.00E-04	U	--		4.00E-04	
VOC	Methyl tert-Butyl Ether	mg/L	--		--		--		--		--	
VOC	Benzene	mg/L	3.00E-04		3.00E-04		2.00E-04	U	--		3.00E-04	
VOC	o-Xylene	mg/L	5.00E-04		2.00E-04		2.00E-04	U	--		2.00E-04	U
Metals	Arsenic, dissolved	mg/L	**0.0087**		**0.018**		**0.023**		**0.0069**		**0.019**	
PAH	Anthracene	mg/L	0.0019		0.0010	U	0.0010	U	--		0.0010	U
PAH	Pyrene	mg/L	0.0027		0.0010	U	0.0010	U	--		0.0010	U
PAH	Benzo(g,h,i)perylene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Indeno(1,2,3-cd)pyrene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Benzo(b)fluoranthene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Fluoranthene	mg/L	0.0049		0.0010	U	0.0010	U	--		0.0010	U
PAH	Benzo(k)fluoranthene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Acenaphthylene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Chrysene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Benzo(a)pyrene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Dibenz(a,h)anthracene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Benzo(a)anthracene	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
PAH	Acenaphthene	mg/L	0.054		0.0010	U	0.0010	U	--		0.0010	U
PAH	Phenanthrene	mg/L	0.034		0.0010	U	0.0010	U	--		0.0010	U
PAH	Fluorene	mg/L	0.028		0.0010	U	0.0010	U	--		0.0010	U
PAH	Naphthalene	mg/L	**0.25**		5.00E-04	U	5.00E-04	U	--		5.00E-04	U
PAH	2-Methylnaphthalene	mg/L	**0.046**		0.0010	U	0.0010	U	--		0.0010	U
SVOC	Dibenzofuran	mg/L	0.020		0.0010	U	0.0010	U	--		0.0010	U
SVOC	Hexachlorobutadiene	mg/L	5.00E-04	U	5.00E-04	U	5.00E-04	U	--		5.00E-04	U
SVOC	1-Methylnaphthalene	mg/L	**0.034**		0.0020		0.0010	U	--		0.0018	
TPH	Diesel Range Hydrocarbons	mg/L	**1.0**		0.63	U	0.63	U	--		0.63	U
TPH	Gasoline Range Hydrocarbons	mg/L	**0.92**		0.25	U	0.25	U	--		0.25	U
TPH	Motor Oil	mg/L	0.50	U	--		--		--		--	
TPH	Oil Range	mg/L	0.63	U	0.63	U	0.63	U	--		0.63	U
VOC	Styrene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	cis-1,3-Dichloropropene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	trans-1,3-Dichloropropene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	n-Propylbenzene	mg/L	0.0040		0.011		2.00E-04	U	--		0.010	
VOC	n-Butylbenzene	mg/L	0.0015		0.0015		2.00E-04	U	--		0.0014	
VOC	4-Chlorotoluene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	1,4-Dichlorobenzene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	Ethylene Dibromide	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U

TABLE E-7

Monitoring Well Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-GWS-01-01**	**ACSI-GWS-01-02**	**ACSI-GWS-01-03**	**ACSI-GWS-01-04**	**ACSI-GWS-01-100**
Well ID			**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-2 Dup**
Location ID			Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area	Main Plant Area
Sample Date			9/01/2006	8/31/2006	8/31/2006	9/01/2006	8/31/2006
Chemical Group	**Compound**	**Units**					
VOC	Acrolein	mg/L	0.0050 U	0.0050 U	0.0050 U	--	0.0050 U
VOC	1,2-Dichloroethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Acrylonitrile	mg/L	0.0010 U	0.0010 U	0.0010 U	--	0.0010 U
VOC	Vinyl Acetate	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	4-Methyl-2-Pentanone (MIBK)	mg/L	0.0010 U	0.0010 U	0.0010 U	--	0.0010 U
VOC	1,3,5-Trimethylbenzene	mg/L	2.00E-04	3.00E-04	2.00E-04 U	--	3.00E-04
VOC	Bromobenzene	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Chlorobenzene	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	trans-1,4-Dichloro-2-butene	mg/L	0.0010 U	0.0010 U	0.0010 U	--	0.0010 U
VOC	2-Chloroethylvinylether	mg/L	5.00E-04 U	5.00E-04 U	5.00E-04 U	--	5.00E-04 U
VOC	1,2,4-Trichlorobenzene	mg/L	5.00E-04 U	5.00E-04 U	5.00E-04 U	--	5.00E-04 U
VOC	Dibromochloromethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Tetrachloroethene	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	sec-Butylbenzene	mg/L	5.00E-04	6.00E-04	2.00E-04 U	--	5.00E-04
VOC	1,3-Dichloropropane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	cis-1,2-Dichloroethene	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	trans-1,2-Dichloroethene	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	1,3-Dichlorobenzene	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Carbon Tetrachloride	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	1,1-Dichloropropene	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	2-Hexanone	mg/L	0.0010 U	0.0010 U	0.0010 U	--	0.0010 U
VOC	2,2-Dichloropropane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	1,1,1,2-Tetrachloroethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Acetone	mg/L	0.0079	0.0010 U	0.0093	--	0.0010 U
VOC	Chloroform	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	1,1,1-Trichloroethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Bromomethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Chloromethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Methyl Iodide	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Dibromomethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Bromoethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Bromochloromethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Chloroethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Vinyl Chloride	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Methylene Chloride	mg/L	3.00E-04 U	3.00E-04 U	3.00E-04 U	--	3.00E-04 U
VOC	Carbon Disulfide	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Bromoform	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	Bromodichloromethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U
VOC	1,1-Dichloroethane	mg/L	2.00E-04 U	2.00E-04 U	2.00E-04 U	--	2.00E-04 U

TABLE E-7

Monitoring Well Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID			**ACSI-GWS-01-01**		**ACSI-GWS-01-02**		**ACSI-GWS-01-03**		**ACSI-GWS-01-04**		**ACSI-GWS-01-100**	
Well ID			**MW-1**		**MW-2**		**MW-3**		**MW-4**		**MW-2 Dup**	
Location ID			Main Plant Area		Main Plant Area		Main Plant Area		Main Plant Area		Main Plant Area	
Sample Date			9/01/2006		8/31/2006		8/31/2006		9/01/2006		8/31/2006	
Chemical Group	**Compound**	**Units**										
VOC	1,1-Dichloroethene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	Trichlorofluoromethane	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	1,2-Dichloropropane	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	2-Butanone	mg/L	0.0010	U	0.0010	U	0.0010	U	--		0.0010	U
VOC	1,1,2-Trichloroethane	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	Trichloroethene	mg/L	2.00E-04	U	3.00E-04	Y	2.00E-04	U	--		2.00E-04	U
VOC	1,1,2,2-Tetrachloroethane	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	1,2,3-Trichlorobenzene	mg/L	5.00E-04	U	5.00E-04	U	5.00E-04	U	--		5.00E-04	U
VOC	2-Chlorotoluene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	1,2-Dichlorobenzene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	1,2,4-Trimethylbenzene	mg/L	0.0010		3.00E-04		2.00E-04	U	--		3.00E-04	
VOC	1,2-Dibromo-3-chloropropane	mg/L	0.0020	U	0.0020	U	0.0020	U	--		0.0020	U
VOC	1,2,3-Trichloropropane	mg/L	5.00E-04	U	5.00E-04	U	5.00E-04	U	--		5.00E-04	U
VOC	tert-Butylbenzene	mg/L	2.00E-04	U	2.00E-04	U	2.00E-04	U	--		2.00E-04	U
VOC	Isopropylbenzene	mg/L	0.0013		0.0033		2.00E-04	U	--		0.0030	
VOC	4-Isopropyltoluene	mg/L	0.0022		2.00E-04		2.00E-04	U	--		2.00E-04	U

Notes:

mg/L = milligrams per liter
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The a
numerical value is at or below the sample-specific methodlimit (MDL)

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value

Table E-8

Sediment Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID				**OU1**	
Location ID				Outfall	
Sample Date				2/24/2005	
Chemical Group	**Compound**	**Units**	**CV**		
Aroclors	Aroclor 1016	mg/kg	--	0.020	U
Aroclors	Aroclor 1221	mg/kg	--	0.020	U
Aroclors	Aroclor 1232	mg/kg	--	0.020	U
Aroclors	Aroclor 1242	mg/kg	--	0.020	U
Aroclors	Aroclor 1248	mg/kg	--	0.020	U
Aroclors	Aroclor 1254	mg/kg	--	0.020	U
Aroclors	Aroclor 1260	mg/kg	--	0.020	U
Metals	Arsenic	mg/kg	57	20	U
Metals	Barium	mg/kg	--	29	
Metals	Cadmium	mg/kg	5.1	1.2	
Metals	Chromium	mg/kg	260	31	
Metals	Lead	mg/kg	450	38	
Metals	Mercury	mg/kg	0.41	0.19	
Metals	Selenium	mg/kg	--	20	U
Metals	Silver	mg/kg	6.1	1.0	U
Metals	Sulfide	mg/kg	--	1,300	
PAH	2-Methylnaphthalene	mg/kg	0.67	0.020	U
PAH	Acenaphthene	mg/kg	0.50	0.020	U
PAH	Acenaphthylene	mg/kg	1.3	0.020	U
PAH	Anthracene	mg/kg	0.96	0.020	U
PAH	Benzo(a)anthracene	mg/kg	1.3	0.043	
PAH	Benzo(a)pyrene	mg/kg	1.6	0.039	
PAH	Benzo(b)fluoranthene	mg/kg	--	0.036	
PAH	Benzo(g,h,i)perylene	mg/kg	0.67	0.023	
PAH	Benzo(k)fluoranthene	mg/kg	--	0.026	
PAH	Chrysene	mg/kg	1.4	0.057	
PAH	Dibenz(a,h)anthracene	mg/kg	0.23	0.020	U
PAH	Fluoranthene	mg/kg	1.7	0.056	
PAH	Fluorene	mg/kg	0.54	0.020	U
PAH	Indeno(1,2,3-cd)pyrene	mg/kg	0.60	0.024	
PAH	Naphthalene	mg/kg	2.1	0.020	U
SVOC	Pentachlorophenol	mg/kg	0.36	0.10	U
PAH	Phenanthrene	mg/kg	1.5	0.020	U
PAH	Pyrene	mg/kg	2.6	0.058	
PAH	Total LPAH	mg/kg	5.2	0.020	
PAH	Total HPAH	mg/kg	12	0.362	
PAH	Total Benzofluoranthenes	mg/kg	3.2	0.062	

Table E-8

Sediment Sample Results

Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID				**OU1**	
Location ID				Outfall	
Sample Date				2/24/2005	
Chemical Group	**Compound**	**Units**	**CV**		
SVOC	2,2'-Oxybis(1-Chloropropane)	mg/kg	--	0.020	U
SVOC	2,4,5-Trichlorophenol	mg/kg	--	0.10	U
SVOC	2,4,6-Trichlorophenol	mg/kg	--	0.10	U
SVOC	2,4-Dichlorophenol	mg/kg	--	0.10	U
SVOC	2,4-Dimethylphenol	mg/kg	0.029	0.020	U
SVOC	2,4-Dinitrophenol	mg/kg	--	0.20	U
SVOC	2,4-Dinitrotoluene	mg/kg	--	0.10	U
SVOC	2,6-Dinitrotoluene	mg/kg	--	0.10	U
SVOC	2-Chloronaphthalene	mg/kg	--	0.020	U
SVOC	2-Chlorophenol	mg/kg	--	0.020	U
SVOC	2-Methylphenol	mg/kg	0.063	0.020	U
SVOC	2-Nitroaniline	mg/kg	--	0.10	U
SVOC	2-Nitrophenol	mg/kg	--	0.10	U
SVOC	3,3'-Dichlorobenzidine	mg/kg	--	0.10	U
SVOC	3-Nitroaniline	mg/kg	--	0.10	U
SVOC	4,6-Dinitro-2-Methylphenol	mg/kg	--	0.20	U
SVOC	4-Bromophenyl-phenylether	mg/kg	--	0.020	U
SVOC	4-Chloro-3-methylphenol	mg/kg	--	0.10	U
SVOC	4-Chloroaniline	mg/kg	--	0.10	U
SVOC	4-Chlorophenyl-phenylether	mg/kg	--	0.020	U
SVOC	4-Methylphenol	mg/kg	0.067	0.020	U
SVOC	4-Nitroaniline	mg/kg	--	0.10	U
SVOC	4-Nitrophenol	mg/kg	--	0.10	U
SVOC	Benzoic Acid	mg/kg	--	0.20	U
SVOC	Benzyl Alcohol	mg/kg	0.057	0.020	U
SVOC	bis(2-Chloroethoxy) Methane	mg/kg	--	0.020	U
SVOC	Bis-(2-Chloroethyl) Ether	mg/kg	--	0.020	U
SVOC	bis(2-Ethylhexyl)phthalate	mg/kg	1.3	0.022	
SVOC	Butylbenzylphthalate	mg/kg	0.063	0.020	U
SVOC	Carbazole	mg/kg	--	0.020	U
SVOC	Dibenzofuran	mg/kg	0.54	0.020	U
SVOC	Diethylphthalate	mg/kg	0.20	0.020	U
SVOC	Dimethylphthalate	mg/kg	0.071	0.020	U
SVOC	Di-n-Butylphthalate	mg/kg	1.4	0.020	U
SVOC	Di-n-Octyl phthalate	mg/kg	6.2	0.020	U
SVOC	Hexachlorobenzene	mg/kg	0.022	0.020	U
SVOC	Hexachlorobutadiene	mg/kg	0.011	0.020	U

Table E-8
Sediment Sample Results
Abitibi West Tacoma Mill RI/FS Report, Steilacoom, WA

Sample ID				**OU1**	
Location ID				Outfall	
Sample Date				2/24/2005	
Chemical Group	**Compound**	**Units**	**CV**		
SVOC	Hexachlorocyclopentadiene	mg/kg	--	0.10	U
SVOC	Hexachloroethane	mg/kg		0.020	U
SVOC	Isophorone	mg/kg	--	0.020	U
SVOC	Nitrobenzene	mg/kg	--	0.020	U
SVOC	N-Nitroso-Di-N-Propylamine	mg/kg	--	0.10	U
SVOC	N-Nitrosodiphenylamine	mg/kg	0.028	0.020	U
SVOC	Phenol	mg/kg	0.42	0.020	U
TPH	Diesel Range Hydrocarbons	mg/kg	--	51	U
TPH	Gasoline Range Hydrocarbons	mg/kg	--	20	U
TPH	HEM Oil & Grease	mg/kg	--	3,750	
TPH	Non-Polar Fraction	mg/kg	--	672	U
TPH	Oil Range	mg/kg	--	100	U
TPH	Polar Oil and Grease	mg/kg	--	739	UJ
VOC	1,2,4-Trichlorobenzene	mg/kg	--	0.020	U
VOC	1,2-Dichlorobenzene	mg/kg	0.035	0.020	U
VOC	1,3-Dichlorobenzene	mg/kg	0.17	0.020	U
VOC	1,4-Dichlorobenzene	mg/kg	0.11	0.020	U

Notes:

mg/kg = milligrams per kilograms
MDL = method detection limit

Data Qualifiers
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the sample-specific method detection limit (MDL).
J = The analyt The analyte was positively identified; the quantitation is an estimation

PAH = polynuclear aromatic hyrdrocarbons
SVOC = semivolatile organic compound
TPH = Total petroleum hydrocarbons
VOC = volatile organic hydrocarbons

= exceeds comparison value