SOIL REMEDIATION COMPLETION REPORT FOR WEYERHAEUSER EVERETT WEST SITE

Prepared for
Weyerhaeuser Company
February 1995

Prepared by

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Project 0141-037.74

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SUMMARY

This report describes soil remediation activities performed by the Weyerhaeuser Company (Weyerhaeuser) at the Weyerhaeuser Everett West Site in Everett, Washington. These activities were undertaken to remediate specific areas of impacted soil. These areas were identified during previous investigations performed on Areas 11 through 18 at the West Site. This work was performed in compliance with the Consent Decree between the Washington State Department of Ecology and Weyerhaeuser. To achieve the objectives of the Consent Decree, Weyerhaeuser performed the following tasks:

- Surveyed and staked the locations of eight known areas of impacted soil for the purpose of directing excavation activities.
- Excavated impacted soil for off-site disposal at an approved landfill.
- Dismantled and removed a 577,500-gallon aboveground Bunker C fuel tank from the site.
- Performed confirmation soil sampling and analyses of the excavation areas to demonstrate soil cleanup was in compliance with action levels specified in the Consent Decree.
- Prepared a West Site specific compliance monitoring plan for long-term (five-year) groundwater monitoring.

The site consists of approximately 35 acres located on the western portion of the Weyerhaeuser Everett property and referred to as the West Site. The site is relatively flat. It is bordered by the Snohomish River on the north, and by Burlington Northern Railroad (BNRR) tracks on the east, west, and south.

Complete descriptions of Areas 11 through 18, including the West Site environmental setting, geology, and hydrogeology, were reported in the *Draft Remediation Work Plan* (EMCON, 1994).

Several phases of site assessment and field activities were conducted for the West-Site since 1992. They include the following:

- Sixteen hand augers, 66 test pits, and 55 soil borings were completed and sampled at the site.
- Seven new monitoring wells and 16 temporary wellpoints were installed and sampled at the site.
- Two additional rounds of groundwater samples were collected from the seven new wells and one existing well at the site.

Past West Site assessment activities and findings were reported in the Compilation of Assessment Documents for Weyerhaeuser Everett West Site, EMCON, 1994. Area specific soil and groundwater quality data were described in the Draft Remediation Work Plan (EMCON, 1994).

Eight specific areas (Areas 11, 12A, 12B, 13A, 13B, 14, 15, and 16), where impacted soil was identified, were surveyed and staked. The staked survey locations were based on soil sample data derived from past West Site investigation activities as described in the *Draft Remediation Work Plan* (EMCON, June 1994).

Based on landfill-specific acceptance criteria, two landfills were selected for off-site soil disposal. Soils containing metals, volatile organic compounds, polychlorinated biphenyls, or total petroleum hydrocarbons as oil (TPH-O), exceeding 20,000 mg/kg, were disposed of at the Regional Disposal Company (RDC) landfill. Soils containing less than 20,000 mg/kg TPH-O were disposed of at Weyerhaeuser's landfill in Castle Rock, Washington.

Olympus Environmental, Inc., dismantled and removed a 577,500-gallon aboveground Bunker C fuel tank, located in Area 15, from the site. Before the tank was dismantled, it was cleaned by WestPac, Inc., and certified gas free by a marine chemist. Polyester foam insulation was removed from the tank exterior and disposed of at the Weyerhaeuser landfill. The steel was taken to Seattle Iron and Metal Corporation, for recycling. The concrete foundation for the tank was left in place. After soil sampling, surface holes in the concrete foundation were sealed with grout, and the foundation was covered with clean sand. Nearby pump foundations were broken up and used as fill material along bulkheads at the site.

Approximately 1,118 tons of soil were trucked to the RDC transfer facility in Seattle, Washington. There the soil was loaded onto rail cars and transported to the RDC landfill. Approximately 1,991 tons of soil were trucked to Weyerhaeuser's transfer facility in Longview, Washington, where it was loaded onto rail cars and transported to the Weyerhaeuser landfill. An estimated 260 tons of soil were loaded directly onto rail cars at Weyerhaeuser landfill. An estimated 260 tons of soil were loaded directly onto rail cars at the West Site and transported to Weyerhaeuser's landfill. A total of 3,369 tons of soil were excavated from the eight West Site remediation areas and disposed off site.

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In accordance with the requirements of the Consent Decree, Weyerhaeuser conducted a confirmation sampling program to demonstrate that soil excavation activities at each of the eight areas successfully met the approved soil cleanup action levels. Confirmation soil sampling at the eight excavation areas following soil removal indicated that approved soil cleanup action levels were achieved. Confirmation sampling results were reviewed with cleanup action levels were received from the laboratory. Ecology's concurrence that no further Ecology as they were received from the laboratory. Ecology's concurrence that no further excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling was required in each area was received before excavation activities excavation or sampling results were reviewed with cleanup action levels.

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1 INTRODUCTION

1.1 Purpose

This report describes soil remediation activities Weyerhaeuser Company (Weyerhaeuser) performed at the Weyerhaeuser Everett West Site (West Site) in Everett, Washington (Figure 1-1). These activities were undertaken to remediate specific areas of impacted soil identified during previous investigations performed on Areas 11 through 18 at the West Site. This work was performed in compliance with the Consent Decree between the Washington State Department of Ecology (Ecology) and Weyerhaeuser. To achieve the objectives of the Consent Decree, Weyerhaeuser performed the following tasks:

- Surveyed and staked the locations of eight known areas of impacted soil for the purpose of directing excavation activities.
- Excavated impacted soil for off-site disposal at an approved landfill.
- Dismantled and removed a 577,500-gallon aboveground Bunker C fuel tank from the site.
- Performed confirmation soil sampling and analyses of the excavation areas to demonstrate soil cleanup was in compliance with action levels specified in the Consent Decree.
- Prepared a West Site specific compliance monitoring plan for long-term (five-year) groundwater monitoring.

The purpose of this report is to (1) describe the scope of work performed, (2) provide background information pertaining to West Site investigation activities and findings, (3) describe soil remediation and soil disposal activities, and (4) describe confirmation soil sampling activities and results.

Quality assurance (QA), quality control (QC), and health and safety requirements pertaining to the West Site remediation activities are described in the *Draft Remediation Work Plan* (EMCON, June 10, 1994).

1.2 Site Description and History

The site consists of approximately 35 acres located on the western portion of the Weyerhaeuser Everett property and referred to as the West Site (Figure 1-1). The site is relatively flat. It is bordered by the Snohomish River on the north, and by Burlington Northern Railroad (BNRR) tracks on the east, west, and south.

The following is a summary of known historical land uses near the site:

- According to an enforcement order (No. DE 92TC-N147) issued to America Smelting and Refining Company (ASARCO) on April 20, 1992, a lead smelter and ore refinery operated from approximately 1893 to 1914 on property immediately southeast of the West Site, near what is now the intersection of East Marine View Drive and State Route 529. The Puget Sound Reduction Company began operating the smelter to refine ore for lead, copper, gold, and silver. ASARCO bought the smelter in 1903. The lead smelter operated until 1907. An arsenic processing plant also operated at the smelter site from approximately 1898 until 1913. The smelter and processing plant were dismantled in 1914.
- BNRR currently operates and maintains a railroad right-of-way immediately south and east of the West Site.
- A residential area is located west of the site and south of Marine View Drive, at an elevation about 75 feet above and 1/8 mile south of the Weyerhaeuser facility. The residential area is separated from the West Site by a heavily used BNRR right-of-way.

Background information pertaining to the West Site was obtained from past assessment reports and interviews with former and current Weyerhaeuser employees. Weyerhaeuser began operations in the Everett area in 1902. The West Site consists of former Mill C, began operations in the Kraft Pulp Mill. Former Mill C, which manufactured wood boards, began operation in 1926 and closed in 1976. The Kraft Pulp Mill operations began in 1953 and closed in 1992. Former Mill D, which manufactured wood boards, began operation in 1963 and closed in 1971. Mills C and D have both been demolished.

Weyerhaeuser also operated sawmills south of State Route 529 from 1916 to around 1980. The wood waste landfills, aeration lagoons, and log sorting operations which supported the West Site are located north of the site on Smith Island.

The Weyerhaeuser West Site was divided into eight separate units, designated as Areas 11 through 18. These area designations were developed from previous investigations for purposes of investigation and remediation. They were based on the location of former structures and past areas of activity. To maintain continuity, the same numeric area designations were used for subsequent activities where applicable. Area descriptions,

including existing and former structures and past practices, were reported in the Compilation of Assessment Documents for Weyerhaeuser Everett West Site (EMCON,

Complete descriptions of Areas 11 through 18, including the West Site environmental setting, geology, and hydrogeology, were reported in the Draft Remediation Work Plan (EMCON, June 1994).

1.3 Previous Investigations

Site assessment activities at the West Site began in July 1992. These activities included a review of the West Site construction drawings, reports, aerial photographs, and agency files. Former and current Weyerhaeuser employees were interviewed. In addition, the engineering consultant toured and photographed the West Site to document site conditions.

Several phases of site assessment and field activities were conducted for the West Site since 1992. They included the following:

- Sixteen hand augers, 66 test pits, and 55 soil borings were completed and sampled at the site.
- Seven new monitoring wells and 16 temporary wellpoints were installed and sampled at the site.
- Two additional rounds of groundwater samples were collected from the seven new wells and one existing well at the site.

Based on the findings derived from the assessment, locations of former and existing structures, and associated past practices, the West Site was divided into eight study units, designated as Areas 11 through 18.

Past West Site assessment activities and findings were reported in the Compilation of Assessment Documents for Weyerhaeuser Everett West Site (EMCON, 1994).

Area-specific soil and groundwater quality data were described in the Draft Remediation Work Plan (EMCON, June 1994).

1.4 Project Organization

Weyerhaeuser directed the West Site soil remediation project in accordance with the Consent Decree. Weyerhaeuser retained EMCON of Bothell, Washington, to prepare a

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draft remediation work plan and remediation bid specifications, to perform confirmation soil sampling activities, to evaluate the confirmation soil sampling laboratory data, and to prepare this closure report.

Weyerhaeuser retained Olympus Environmental, Inc. (Olympus), of Auburn, Washington, to perform contractor services. These services included tank demolition, soil excavation, and trucking of excavated soil off site.

Olympus subcontracted Clark Leeman Land Surveying (Clark Leeman) of Everett, Washington, to survey and stake the proposed soil remediation areas and to prepare survey-as-excavated drawings following completion of the remediation project.

Laboratory analyses of the confirmation soil samples were performed by Weyerhaeuser Analytical Testing Services (WATS) of Federal Way, Washington.

Soil was disposed at two Ecology approved landfills; one operated by Weyerhaeuser and the other by Regional Disposal Company (RDC).

2 WORK PERFORMED

Remediation activities conducted at the West Site were performed as described in the Consent Decree. These activities are described in detail in the following sections.

2.1 Areas of Soil Remediation

Eight specific areas (Areas 11, 12A, 12B, 13A, 13B, 14, 15, and 16) where impacted soil was identified were surveyed and staked. The general locations of these eight areas are shown on Figure 2-1. Based on calculations made using the survey-as-excavated drawings provided by Clark Leeman, an estimated total volume of 1,850 cubic yards of soil were excavated and disposed off site. The West Site remediation survey-as-excavated drawings are attached in map pockets at the back of this report. A summary of areaspecific constituents and estimated excavated soil volumes is presented in Table 2-1.

Table 2-1 Summary of Area Specific Constituents and Excavated Soil Volumes Weyerhaeuser Everett West Site

	Constituent of Concern	Estimated Volume Excavated (cubic yards)
Excavation Area Designation 11 12A 12B 13A 13B 14 15 16	Constituent of Concorn Cr and PCBs TPH-D TPH-D, TPH-O TPH-D, TPH-O Hg TPH-D, TPH-O TPH-D, TPH-O TPH-D, TPH-O Xylenes, and Ethylbenzene	228 555 480 177 16.5 2.5 322 76
NOTE: Cr = chromium. TPH-D = total petroleum TPH-O = total petroleum Hg = mercury. PCBs = polychlorinate	hydrocarbons as diesel. hydrocarbons as oil.	

2.2 Soil Excavation

Initial soil excavation activities were performed at staked survey locations for each of the eight remediation areas. The staked survey locations were based on soil sample data derived from past West Site investigation activities as described in the *Draft Remediation Work Plan* (EMCON, June 1994).

Excavated soil destined for the RDC regional landfill, located in Roosevelt, Washington, was temporarily stockpiled on site before being loaded into trucks. Excavated soil destined for Weyerhaeuser's landfill was loaded directly into trucks, except for that soil excavated from Area 15. It was loaded directly into railcars or stockpiled for future loading to trucks.

Following completion of initial soil excavation activities, confirmation soil samples were collected as described in the *Draft Remediation Work Plan* (EMCON, June 1994). At collected as described in the *Draft Remediation Work Plan* (EMCON, June 1994). At confirmation soil sample locations where laboratory results exceeded the Consent Decree confirmation levels, further soil excavation was performed. Additional confirmation sampling ampling and analyses were then conducted. Excavation and confirmation sampling continued until soil cleanup action levels were achieved or groundwater was encountered. The confirmation soil sampling and analysis activities are described in Section 3 of this report.

Asphalt removed from Areas 13B and 16 was shipped off site for recycling. Concrete footings removed from Areas 13A and 15 were crushed and used as fill on site. Two concrete footings, one each in Areas 12A and 12B, were left in place. These footings were covered during backfilling of the excavations. The locations of these footings are shown on Figure 3-1.

Photographs of the eight soil remediation area excavations, taken during the remediation activities, are included in Appendix A.

2.3 Fuel Tank Dismantling

Olympus dismantled and removed a 577,500-gallon, aboveground Bunker C fuel tank, located in Area 15, from the site. Before the tank was dismantled, it was cleaned by WestPac, Inc., and certified gas free by a marine chemist. Polyester foam insulation was removed from the tank exterior and disposed of at the Weyerhaeuser landfill. The steel was taken to Seattle Iron and Metal Corporation for recycling. The concrete foundation for the tank was left in place. The tank bottom was field constructed plate steel. No evidence of holes or cracks were observed on any surface of the tank. To obtain subsurface soil samples, two holes were punched through the concrete foundation. Following sampling, surface holes and cracks were sealed with grout and the foundation

was covered with clean sand. Nearby pump foundations were broken up and used as fill material along bulkheads at the site.

2.4 Landfill Disposal

Based on landfill-specific acceptance criteria, two landfills were selected for off-site soil disposal. Soils containing metals, volatile organic compounds, polychlorinated biphenyls (PCBs), or TPH-O exceeding 20,000 mg/kg, were disposed of at the RDC landfill. Soils containing less than 20,000 mg/kg TPH-O were disposed of at Weyerhaeuser's landfill in Castle Rock, Washington. The Weyerhaeuser landfill acceptance criteria are included in Appendix B. Solid waste not accepted by Weyerhaeuser was sent to RDC.

Soil from Areas 11, 14, 16, and TP-1203 and TP-1204 was profiled for disposal at RDC. Soil from Areas 12A, 12B, 13A, 13B, 15, and East Site was profiled for disposal at the Weyerhaeuser landfill.

Approximately 1,118 tons of soil were trucked to the RDC transfer facility in Seattle, Washington. There the soil was loaded onto rail cars and transported to the RDC landfill. The RDC Bill of Lading and summary of loads hauled to the landfill are included in Appendix B.

Approximately 1,991 tons of soil were trucked to Weyerhaeuser's transfer facility in Longview, Washington. There the soil was loaded onto rail cars and transported to the Weyerhaeuser landfill. Approximately 260 tons of soil were loaded directly onto rail cars at the West Site and transported to Weyerhaeuser's landfill. The Weyerhaeuser landfill Bill of Lading and summary of loads hauled by truck and rail to Weyerhaeuser are included in Appendix B.

A total of 3,369 tons of soil were excavated from the eight West Site remediation areas and disposed off site.

2.5 Excavation Backfill

Each of the eight excavations were backfilled with clean sand. The clean sand was imported from a stockpile of Snohomish River dredge sands located on the Weyerhaeuser Everett East Site. The sand backfill in Excavation Area 16 was compacted and paved with 6 inches of asphalt. Excavation 13A was not compacted, but was paved with asphalt.

3 CONFIRMATION SAMPLING AND ANALYSIS

In accordance with the requirements of the Consent Decree, Weyerhaeuser conducted a confirmation sampling program to demonstrate that soil excavation activities at each of the eight areas successfully met the approved soil cleanup action levels. Parameter-specific soil cleanup action levels established for the site are shown in Table 3-1. EMCON collected soil samples and WATS analyzed them separately for each of the eight excavation areas. Results of the confirmation soil sampling program for each area are presented in the following sections. The WATS laboratory reports and the EMCON data validation report are attached as Appendix C.

Table 3-1
Parameter Specific Cleanup Action Levels for Soil
Weyerhaeuser Everett West Site

Parameter	Soil Cleanup Action Level
TPH-D and TPH-O	1,000 or 2,500 mg/kg ²
PCBs	10 mg/kg
Hg	1.0 mg/kg
Cr	500 mg/kg
Ethylbenzene	20 mg/kg
Total Xylenes	20 mg/kg

3.1 Area 11

Following excavation of the initial area of concern, eight confirmation soil samples (and one duplicate) were collected on November 10, 1994, for analysis of TPH-D, TPH-O, chromium, and PCBs. Laboratory results are summarized on Table 3-2. Soil sampling locations are shown on Figure 3-1. Two of the soil samples exceeded the PCB action level of 10 mg/kg, and one soil sample exceeded the chromium action level of 500 mg/kg. All other analytes were below their respective action levels. Additional soil was excavated from these areas, and three additional soil samples were collected for analysis on November 23, 1994. One of these soil samples, collected at the depth where groundwater

was encountered, exceeded the PCB cleanup action level of 10 mg/kg. Groundwater eventually rose and covered the excavation bottom from where sample CS-1110 was collected. All other analytes were below their respective action levels. An estimated 228 cubic yards (cy) of soil were excavated from Area 11.

3.2 Area 12A

Because soil samples collected from Area 12A contained high percentages of organic material, the 2,500 mg/kg soil cleanup action level for TPH-D and TPH-O was used.

Following excavation of the initial area of concern, 29 confirmation soil samples were collected for analysis of TPH-D and TPH-O on November 9, 1994. Laboratory results are summarized on Table 3-3. Soil sampling locations are shown on Figure 3-1. Five of the soil samples exceeded the action level of 2,500 mg/kg for either TPH-D or TPH-O. Additional soil was excavated from these areas, and nine additional soil samples (and two duplicates) were collected for analysis on November 10, 1994. Two of these soil samples (and one duplicate sample) exceeded the action level of 2,500 mg/kg for TPH-D or TPH-O. Additional soil was removed from the base of the excavation, and six additional soil samples were collected for analysis on November 22, 1994. Two of these six samples still exceeded the action level for both TPH-D and TPH-O. Further soil excavation was conducted, and two soil samples were collected for analysis on December 1, 1994. Both soil samples were well below the TPH-D and TPH-O action levels. An estimated 555 cy of soil were excavated from Area 12A. Soil excavation from Area 12A was terminated at the depth where groundwater was encountered.

3.3 Area 12B

Because soil samples collected from Area 12B contained high percentages of organic material, the 2,500 mg/kg soil cleanup action level for TPH-D and TPH-O was used.

Following excavation of the initial area of concern, 14 confirmation soil samples were collected for analysis of TPH-D and TPH-O on November 8, 1994. Laboratory, results are summarized on Table 3-4. Soil sampling locations are shown on Figure 3-1. Three of the soil samples exceeded the action level of 2,500 mg/kg for either TPH-D or TPH-O. Additional soil was excavated from these areas, and 20 additional soil samples were collected for analysis on November 9, 1994. Eleven of these soil samples exceeded the action level of 2,500 mg/kg for TPH-D or TPH-O. Additional soil was removed from the base of the excavation, and two additional soil samples (and one duplicate) were collected for analysis on November 22, 1994. One of these two samples still exceeded the action level for both TPH-D and TPH-O. Further soil excavation was conducted, and two soil samples were collected for analysis on December 1, 1994. Both soil samples were well below the TPH-D and TPH-O action levels. An estimated 480 cy of soil were excavated

from Area 12B. Soil excavation from Area 12B was terminated at the depth where groundwater was encountered.

3.4 Area 13A

Following excavation of the initial area of concern, 16 confirmation soil samples were collected for analysis of TPH-D and TPH-O on November 18, 1994. Laboratory results are summarized on Table 3-5. Soil sampling locations are shown on Figure 3-2. All the soil samples were below the TPH-D and TPH-O action levels of 1,000 mg/kg. An estimated 177 cy of soil were excavated from Area 13A. Groundwater was encountered at a depth of 5 feet across the entire bottom of the excavation.

3.5 Area 13B

Following excavation of the initial area of concern, eight confirmation soil samples (and one duplicate) were collected for analysis of TPH-D and TPH-O on November 10, 1994. Laboratory results are summarized on Table 3-6. Soil sampling locations are shown on Figure 3-2. All the soil samples were below the TPH-D and TPH-O action levels of 1,000 mg/kg. An estimated 16.5 cy of soil were excavated from Area 13B. Groundwater was encountered across the entire bottom of the excavation.

3.6 Area 14

Following excavation of the initial area of concern, two confirmation soil samples (and one duplicate) were collected for analysis of mercury on November 8, 1994. Laboratory results are summarized on Table 3-7. Soil sampling locations are shown on Figure 3-2. Both the soil samples (and the duplicate) exceeded the mercury action level of 1.0 mg/kg. Additional soil was excavated from this area, and three additional soil samples were collected for analysis on November 22, 1994. One of these three soil samples still exceeded the mercury action level of 1.0 mg/kg. However, no further excavation was feasible in this area due to a concrete footing at the bottom of the excavation at a depth where groundwater was encountered. Groundwater eventually rose and covered the excavation bottom. An estimated 2.5 cy of soil were excavated from Area 14.

3.7 Area 15

The soil cleanup action level for Area 15 was 1,000 mg/kg; however, soil samples collected from Area 15 contained high percentages of organic material, therefore Weyerhaeuser requested use of the higher soil cleanup action level for TPH-D and TPH-O.

Following excavation of the initial area of concern, 14 confirmation soil samples, 12 from the excavation surrounding the tank concrete foundation and 2 from beneath it, were collected for analysis of TPH-D and TPH-O on November 15 and 16, 1994. Laboratory results are summarized on Table 3-8. Soil sampling locations are shown on Figure 3-3. All sample locations (except two), TPH-D and TPH-O concentrations were below 1,000 mg/kg.

Two of the soil samples, one from the excavation (CS-1507), and one from beneath the tank concrete foundation (CS-1514), exceeded the action level of 2,500 mg/kg for either TPH-D and TPH-O. Additional soil was excavated from the CS-1507 location, and sample CS-1515 was collected from the over excavated area. In hand-auger boring CS-1514, sample CS-1516 was collected from a deeper interval to evaluate soil quality immediately above the groundwater interface beneath the concrete tank foundation. Both these soil samples were below the TPH-D and TPH-O action level of 2,500 mg/kg. The tank concrete foundation was left in place and covered with clean sand. Following sampling, surface holes and cracks were sealed with grout and the foundation was covered with clean sand. An estimated 322 cy of soil were excavated from Area 15.

3.8 Area 16

Following excavation of the initial area of concern, 20 confirmation soil samples (and one duplicate) were collected for analysis of TPH-D, TPH-O, ethylbenzene, and total xylenes on November 11, 1994. Laboratory results are summarized on Table 3-9. Soil sampling locations are shown on Figure 3-3. All the soil samples were below the action levels of 1,000 mg/kg for TPH-D and TPH-O and 20 mg/kg for ethylbenzene and xylenes. An estimated 76 cy of soil were excavated from Area 16.

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4 CONCLUSIONS

As described in Section 3, confirmation soil sampling at the eight excavation areas following soil removal indicated that approved soil cleanup action levels were achieved. Confirmation sampling results were reviewed with Ecology as they were received from the laboratory. Ecology's concurrence that no further sampling was required in each area was received before excavation activities were terminated. In accordance with the Consent Decree, these excavations were backfilled with clean sand.

Weyerhaeuser will implement a long-term groundwater compliance monitoring program including the seven West Site groundwater monitoring wells (Figure 2-1), in accordance with the requirements of the Consent Decree.

REFERENCES

State of Washington, Department of Ecology and Weyerhaeuser Company Consent Decree. Snohomish County Superior Court Case Number 94-2-07559-2

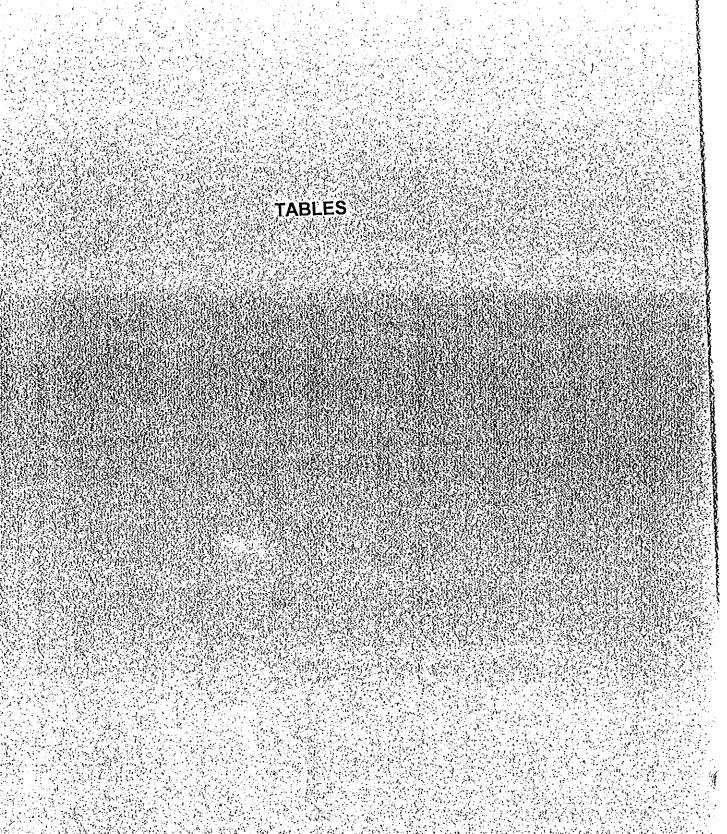
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LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.



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Table 3-2

Excavation 11 Soil Sample Results Weyerhaeuser Everett West Site

			177	O DOF	TDH-O	Chromium	PCBs	Woodwaste
Sample	Date	Sample Location	Sample deptn	(maj/ka)	(mg/kg)	(mg/kg)	(mg/kg)	(%)
Numper	Collected	(amhii aas)	7221	7				-
				į	1	427	19.4	20
, ,	70/07/77	east sidewall (01) x	0 to 2	170	9	171	1 :	7.5
CS-1101	11/10/84	east stachail (61) X	7000	41	220	165	29.7	C
CS-1102	11/10/94	north sidewall (02) X	000	- w	380	616	0.87	Ħ
CS-1103	11/10/94	west sidewall (03) x	0.10 3	8 ;	340	107	4.49	다
CS-1104	11/10/94	south sidewall (04)	0 to 3	0 ;	ָרְ נְּי	133	1 06	95
5 6	70/07/77	floor (0.5)	ന	400	200	2		40
CS-1105	11/10/84	(00)	c	210	340	217	1.03	ָר מילי
CS-1106	11/10/94	floor (06)	4 (. C	450	441	1.28	92
CS-1107	11/10/94	floor (07)	7 .	9 9	740	7	2.09	92
27700	11/10/94	floor (08)	က	460) 	. 010	124	1
2017	•	× (00) (00) (10)	0 to 3	160	300	807	1.1	6
CS-1109*	11/10/94	norm sidewall (09)	,	Ą	¥	¥	17.3	25
CS-1110	11/23/94	floor (10) x	n (<u> </u>	ΔN	Š	2.03	8
CS-1111	11/23/94	floor (11)	m (<u>ک</u> کے	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	154	¥	06
08-1112	11/23/94	floor (12)	33	KZ.	5	750	4 49	
201-00	7020	Collination of the colling (LICE):		738	/38	OC/	ř	
MICA D	per som con	וותפווכם בייווג (כ כב).						
Weyerhae	Weyerhaeuser West Site Consent	te Consent Decree		000	1 000	200	10	
Cleanup A	Cleanup Action Level (mg/kg):	mg/kg):		2001				

x = sample location was over excavated, resampled, or groundwater was encountered.
tr = trace amount of woodwaste (0 to 5% by volume), woodwaste content (%) were visual estimates.
* indicates CS-1109* is a duplicate of CS-1102.
--- = organic material not present.
NA = not analyzed. Note:

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Table 3-3

Excavation 12A Soil Sample Results Weyerhaeuser Everett West Site

Page 1 of 2	Woodwaste	(%)	100	, , ,		100	 تا ;	ٔ بد	100		33 2	70	-	±	-	20	ب	+	ָ בּ	 52	<u></u>	ــ	=		-	+	4		
		After cleanup	Clear	Yellow tint	Yellow tint Clear	Yellow tint	Clear Dark brown	Yellow tint	Dark yellow	Yellow tint	Black	Vellow fint	Yellow tint	Clear	Dark vellow	Yellow tint	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Yellow tint		
	Extract color	Before cleanup	1.5-14 244	Light yellow Medium brown	Medium brown	Medium brown	Yellow tint	1 inht brown	Black	Dark brown	Black	Dark brown	Dark brown	Mediain plowing	nod vellow	Leain yellow	Median promi	Light yellow	i ight vellow	Madium vellow	Medium vellow	Medium vellow	Miedidin Jener	Light yellow	Light yellow	Light yellow	Light yellow	Dark yellow	
/est Site	CHat	1_		3.800	2,100	480	120		Z,100 y	, 008 1	1,100			1,600 y			1,600 E	190	0 0	001	בר בר	2 5	490	130	71	130	64	089	
Weyerhaeuser Everett West Site		U-H-H-D	(Suzhin)	38 1000 cc		50 440	49		1,000 y	6,500 300	200 640	150	2,600 E	1,100 y	73	11,000 巨		170	. 67	75	48	2	200	25	37	. 67	3	390	
Weyerhaeus		Sample depth	(reet)	0 to 3	. 0 to 3	4 7	ე ა ა	0 to 1	4	0 to 3	4 6	5 5 5	0 to 3		∙ ⊀	· ব	4	4	4	4	4	4	• 🔻	* *4	r ~	+ ¬	t 4	r પ	
		Sample Location	(see figure)	north sidewall (01)	north sidewall (02)	north sidewall (04)	east sidewall (05)	east sidewall (07)			west sidewall (10) x	west sidewall (11)	_ ,	South Sidewall (19) ×	,	1100r (15) X	floor (16) X	1100f (17) X 4100f (18) X	_ ~	_ `	11001 (20) X	11001 (21) ×	1100r (22) x	floor (23) X	floor (24) x	floor (25) x	floor (25) x	floor (21) ×	floor (28) X
		Date	Collected	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94	11/09/94
		Sample	Number	CC 12401	CS-12A02	CS-12A03	CS-12A05	CS-12A06	CS-12A07	CS-12A08	CS-12A09	CS-12A11	CS-12A12	CS-12A13	CS-12A14	CS-12A15	CS-12A16	CS-12A17	CS-12A18	CS-12A19	CS-12A20	cs-12A21	CS-12A22	CS-12A23	CS-12A24	CS-12A25	CS-12A26	CS-12A27	CS-12A28

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Excavation 12A Soil Sample Results Weyerhaeuser Everett West Site Table 3-3

Page 2 of Woodwaste 6 5 5 જી .ear NA Clear Brown NA Light brown Brown Clear Clear Medium yellow Clear Yellow tint Clear Yellow tint Brown Yellow Yellow Yellow Clear Brown color After cleanup Brown Dark Bown Yellow tint Medium Yellow Extract c Before cleanup Medium brown Dark yellow Yellow Yellow Dark brown NA Yellow tint Dark Brown NA Light yellow Dark yellow Light yellow Dark brown Yellow Yellow Ш 8,900 14,000 ND 160 (mg/kg) 대 ₽ 86 86 14,000 2,800 2,000 630 11,000 380 2,500 860 91 230 шш 四 トト (mg/kg) 5,300 9,500 ND 7,300 710 640 140 5,500 중 은 양 260 260 25 25 25 25 25 Sample depth 94 south sidewall (47) 94 south sidewall (48) e Consent Decree floor (29) × floor (30) × floor (31) × floor (32) × floor (33) × floor (34) × floor (35) × floor (36) × floor (40) × floor (41) floor (42) floor (45) × floor (45 Sample Location (see figure) CS-12A43 11/22/94
CS-12A44 11/22/94
CS-12A45 11/22/94
CS-12A46 11/22/94
CS-12A47 12/01/94 sc
CS-12A48 12/01/94 sc 11/10/94 11/10/94 11/10/94 11/10/94 1/22/94 1/10/94 1/10/94 11/09/94 Date CS-12A41 CS-12A42 CS-12A29 CS-12A31 CS-12A32 CS-12A33 CS-12A35 CS-12A35 CS-12A36 CS-12A39* CS-12A39* Sample Number

Note:

x = sample location was over excavated, resampled, or groundwater was encountered.
y = Initial results were above the normal calibration range. The sample was diluted and reanalyzed.
tr = trace amount of woodwaste (0 to 5% by volume), woodwaste content (%) were visual estimates.
E = above calibration limit.
ND = not detected at or above method reporting limit.
* indicates CS-12A39* is a duplicate of CS-12A31, ** indicates CS-12A40 is a duplicate of CS-12A36.

NA = not analyzed. ___ = organic material not present.

2/1/95

Table 3-4

Excavation 12B Soil Sample Results Weyerhaeuser Everett West Site

Page 1 of 2	Woodwaste	(%)	##	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
		After cleanup	Yellow tint	Yellow tint Clear Yellow Yellow Yellow tint Light yellow Clear Cle	
	Tolor treats	Before cleanup	Dark brown	Dark brown Dark brown Light yellow Yellow tint Medium brown Medium brown Dark brown Dark brown Dark brown Dark brown Light brown Pale yellow Medium brown Kedium brown Redium brown Pale yellow Redium brown Pale yellow Pale yellow Redium brown Pale yellow Redium brown Pale yellow Redium brown Pale yellow	
Kesuns st Site			430	580 70 36 290 41 630 7,900 40,000 83,000 83,000 83,000 83,000 83,000 83,000 9,900 7,400 10,000 6,900 6,	
Soil Sample Everett We		TPH-D	(mg/kg) 220		
Excavation 12B Soil Sample Resuns Weyerhaeuser Everett West Site		Sample depth	(feet)	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
EXC	•	ocation	(see figure)	south sidewall (01) south sidewall (02) south sidewall (03) × south sidewall (04) × east sidewall (05) east sidewall (07) east sidewall (07) west sidewall (10) × west sidewall (10) × west sidewall (11) × floor (15) × floor (15) × floor (15) × floor (16) × floor (19) × floor (21) × floor (22) × floor (23) × floor (24) × floor (25) ×	
			Date Collected	11/08/94 11/08/94 11/08/94 11/08/94 11/08/94 11/08/94 11/08/94 11/08/94 11/09/94 11/09/94 11/09/94 11/09/94 11/09/94 11/09/94 11/09/94 11/09/94 11/09/94 11/09/94	
			Sample Number	CS-12B01 CS-12B02 CS-12B03 CS-12B06 CS-12B06 CS-12B06 CS-12B10 CS-12B10 CS-12B11 CS-12B12 CS-12B14 CS-12B16 CS-12B16 CS-12B16 CS-12B19 CS-12B19 CS-12B20	

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Table 3-4

Excavation 12B Soil Sample Results Weyerhaeuser Everett West Site

Page 2 of 2

Woodwaste (%)	•	tr tr 100 100 100 25 25		
color After cleanup	u	Medium yellow Light brown Yellow tint Yellow Medium brown Clear Brown Light brown Clear Clear Clear		stimates.
Pofore cleanin Affe	Deloic organization	Medium brown Medium brown Dark brown Dark brown Dark brown Dark brown Yellow tint Dark brown Yellow tint		were visual estimates.
O-HGT	(шдукд)	7,400 E 8,400 EJ 5,100 E 3,700 y 1,100 930 2,300 ND 4800 E 2400 y ND	2,500	
TPH-D	(mg/kg)	10,000 E 6,900 EJ 3,900 E 1,700 y 600 440 1,500 ND 2800 E 1400 y ND	2,500	•
Sample depth	(feet)	ი ი ი ი ი ი ი ი ი ი ი ი ი ი ი ი ი ი ი		
Sample Location	(see figure)	floor (28) × floor (29) × floor (30) × floor (31) × floor (32) × floor (34) × floor (35) × floor (36) × floor (36) × floor (37) × floor (37) ×		J.VO):
Date	Collected	11/09/94 11/09/94 11/09/94 11/09/94 11/09/94 11/22/94 11/22/94 11/22/94	er West Site	Cleanup Action Level (IIIg/ng).
alamoo	Number	CS-12B28 CS-12B39 CS-12B31 CS-12B34 CS-12B34 CS-12B34 CS-12B34 CS-12B36 CS-12B36	Weyerhaeus	Cleanup Act

tr = trace amount of woodwaste (0 to 5% by volume), woodwaste content (%) were visual estimates.

x = sample location was over excavated, resampled, or groundwater was encountered.

y = Initial results were above the normal calibration range. The sample was diluted and reanalyzed.

ND = not detected at or above method reporting limit.

E = above calibration limit.

J = estimated value.

-- = organic material not present.

* indicates CS-12B37* is a duplicate of CS-12B36. Note:

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Table 3-5

Excavation 13A Soil Sample Results Weyerhaeuser Everett West Site

	_		
Woodwaste	(8/)	44 12 14 1 1 1 4	
TPH-0	(mg/kg)	39 U ND ND 36 U 560 160 560 94 U 160 78 43 ND 41 160 240 140 140	
TPH-D	(mg/kg)	ND ND 220 220 47 47 270 830 858 170 ND ND ND ND ND ND 170 64	
Sample depth	(feet)	3 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -	::
Sample Location	(see figure)	north sidewall (1) north sidewall (2) north sidewall (3) north sidewall (4) east sidewall (5) east sidewall (5) east sidewall (7) east sidewall (7) south sidewall (10) south sidewall (11) south sidewall (12) west sidewall (14) west sidewall (15) west sidewall (16)	
	Collected	11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94 11/18/94	~
	Sample	CS-13A01 CS-13A02 CS-13A02 CS-13A04 CS-13A04 CS-13A04 CS-13A05 CS-13A05 CS-13A06 CS-13A06 CS-13A07 CS-13A08 CS-13A10 CS-13A10 CS-13A11 11/18/94 CS-13A12 11/18/94 CS-13A14 11/18/94 CS-13A15 CS-13A16 CS-13A	

Note:

ND = not detected at or above method reporting limit.
U= sample result is less than value because analyte was found in method blank.
tr = trace amount of woodwaste (0 to 5% by volume), woodwaste content (%) were visual estimates.
--- = organic material not present.

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Table 3-6

Excavation 13B Soil Samples Results Weyerhaeuser Everett West Site

(%)		
TPH-O (mg/kg)	390 320 320 320 74 74 160 1,000	
TPH-D (mg/kg)	A 25 22 22 22 22 22 22 22 22 22 22 22 22	
Sample depth (feet)	0 to 3 3 to 5 0 to 3 3 to 5 0 to 3 3 to 5 3 to 5 3 to 5	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Sample Location (see figure)	west sidewall (01) west sidewall (02) south sidewall (03) east sidewall (04) north sidewall (06) north sidewall (08) north sidewall (08) Decree	7 7
Date Collected	CS-13B01 11/10/94 CS-13B02 11/10/94 CS-13B03 11/10/94 CS-13B04 11/10/94 CS-13B05 11/10/94 CS-13B05 11/10/94 CS-13B07 11/10/94 CS-13B08 11/10/94 CS-13B09* 11/10/94 CS-13B09* 11/10/94 CS-13B09* CS-1	
Sample	CS-13B01 CS-13B02 CS-13B03 CS-13B04 CS-13B05 CS-13B06 CS-13B07 CS-13B08 CS-13B08	

Note:

ND = not detected at or above method reporting limit.
--- = organic material not present.
tr = trace amount of woodwaste (0 to 5% by volume), woodwaste content (%) were visual estimates.
* indicates CS-13B09* is a duplicate of CS-13B08.

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Table 3-7

Excavation 14 Soil Sample Results Weyerhaeuser Everett West Site

Woodwaste (%) 10 10 10 10 10 10 10 ם ה ב Mercury (mg/kg) 12 14 3.9 0.6 0.2 3.4 5 Sample depth (feet) 0 to 3 0 to 3 3 0-3 7 north sidewall (01) ×
north sidewall (02) ×
floor (03)
north sidewall (04)
north sidewall (05)
floor (06) × Sample Location (see figure) CS-1401 11/08/94 north
CS-1402 * 11/08/94 north
CS-1403 11/22/94 north
CS-1404 11/22/94 nortl
CS-1405 11/22/94 fortl
CS-1406 11/22/94
CS-1406 CS-1406
Weyerhaeuser West Site Consent Decree Date Collected Sample Number

Notes:

x= sample location was over excavated, resampled, or groundwater was encountered.
J= estimated value.
* indicates CS-1402 is a duplicate of CS-1401.
tr = trace amount of woodwaste (0 to 5% by volume), woodwaste content (%) were visual estimates.

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Table 3-8

Excavation 15 Soil Sample Results Weyerhaeuser Everett West Site

										7		\exists		
(%)	33	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	86 850	33 8	თ თ თ თ	25	6 G	99	5 5	10				
olor After cleanup	Clear	Yellow Yellow tint	Clear	Yellow tint Yellow	Clear	Clear	Clear	Pale Yellow	Pale Yellow	Yellow				
Extract color	I joht brown	Dark brown Light brown	Medium brown light brown	Dark brown	Diach Medium brown	Medium yellow	Medium yellow	Medium yellow Medium brown	Medium yellow	Dark brown	Dark blown			
		320 220	440	88	5,400 170	130	120 330	210	y 2,200 y 7 3,400 z	1,100	z 630 z		1,000/2,500	
TPH-D	(mg/kg)	380	150 300	22 23 23	10,000	. 89 80	180	120	1,000	320	200		1,000/2,500	
sample depth	(feet)	0-3.5 0-3.5	0-3.5 0-3.5	0-3.5	0-3.5		0-3.5	0-3.5	8	2.5		,		
	Sample Location (see figure)	Perimeter (1)	Perimeter (3)	Penmeter (*) Perimeter (5)	Perimeter (6)		Perimeter (9) Perimeter (10)	Penmeter (11)	Perimeter (12)	Beneath Foundation (14)	Near Perimeter (7)	Beneath Foundation (14)	onsent Decree	(6):
	Date Collected	11/15/94	11/15/94 11/15/94	11/15/94	11/15/94	11/15/94	11/16/94	11/16/94	11/16/94	11/16/94	11/10/34	11/23/94	CS-1310 West Site Consent Decree	Weyelliaeusci Tree (mg/kg):
	Sample	CS-1501	CS-1502	CS-1504	CS-1505 CS-1506	CS-1507	CS-1509 CS-1509	CS-1510	CS-1511 CS-1512	CS-1513	CS-1514	CS-1515	CS-1510	Weyelliacu

Cleanup Action Level

Woodwaste content (%) were visual estimates. $x = x_0$ woodwaste content (%) were visual estimates. $x = x_0$ was over excavated and resampled. The sample was diluted and reanalyzed. $x = x_0$ initial results were above the normal calibration range. The statistical analysis. $x = x_0$ initial results were above the average result was used in the statistical analysis. $x = x_0$ Note:

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Table 3-9

Excavation 16 Soil Sample Results Weyerhaeuser Everett West Site

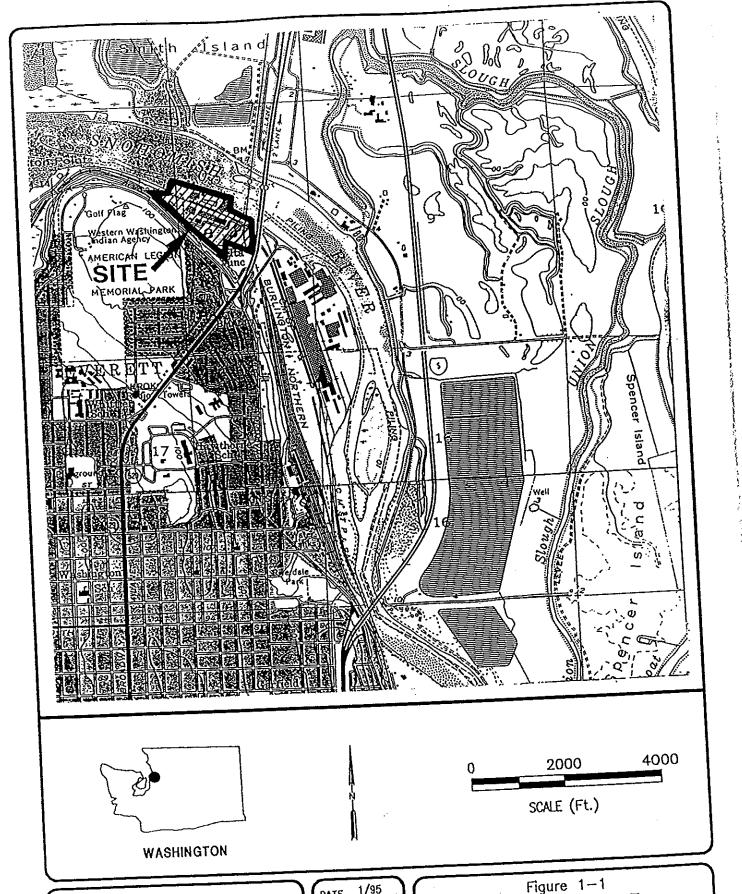
												_			_			_	-			-		٦			
Woodwaste		ł	l i	1	1	1	i	1	1	1		•	1	1		i	1		1	1	tt tt	•					
TPH-O (mg/kg)		120	120	99	79	2	45	45	42	280	9	9	9	100	100	2	110	4	250	140	09	170		1000			
TPH-D (ma/ka)	-{I	38	44	56	, c	2 2	<u>,</u>	- 5	- Z	, ,	2 5	2 5	2 5	3 5	ž Š	3 5	ž Ř	÷ 4	5 K	3 8	2 5	÷		1 000			•
Xylenes	(1119/ng) 1	CZ	2	2 5	5 5	2 2	2 :	2 :		140.0	2.8	0.0Z1	2 2	2 2	2 2	2 2	<u>2</u> !	2 5	2 5	S 25	20.5	25 0	7.7	Ç	3		
Ethylbenzene	(mg/kg)	į	2 9	2 :	2	2	2	2	2	2	0.35	2	2	2	2	2	2	2	2	Q	2	2	0.03		20		
Sample depth	(feet)		0 to 3	0 to 3	0 to 3	0 to 3	0 to 3	0 to 3	, (1)	ო	ო	ო	ო	ო	ო	ო	ო	ි ල	ຕ	1.5	1,5	5.7	က		İ		and at or shove method reporting limit.
Sample Location	(see figure)		north sidewall (01)	porth sidewall (02)	fort sidewall (03)	east sluchall (04)	South Sidewall (04)	South Sidewall (99)	_	1001 (01)	1001 (00)	1100f (US)	floor (19)	(15) (15)	11001 (12)	1001 (19)	10001	1100r (13)	11001 (10) 41001 (17)	11001 (11)		_		11001 (2.1)	onsent Decles		-
	Collected	Collected	70,77	+6/11/1L	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	11/11/94	Weverhaeuser West Site Cons	Cleanup Action Level (mg/kg).	
	Sample	Number	,	CS-1601	CS-1602	CS-1603	CS-1604	CS-1605	CS-1606	CS-1607	CS-1608	CS-1609	CS-1610	CS-1611	CS-1612	CS-1613	CS-1614	CS-1615	CS-1616	CS-1617	CS-1618	CS-1619	CS-1620	CS-1621*	Weverhaeuse	Cleanup Actic	

Note:

ND = not detected at or above method reporting limit.
--- = organic material not present.
tr = trace amount of woodwaste (0 to 5% by volume), woodwaste content (%) were visual estimates.
tr =indicates CS-1621* is a duplicate of CS-1609.
trindicates CS-1621* were above the normal calibration range. The sample was diluted and reanalyzed.

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FIGURES

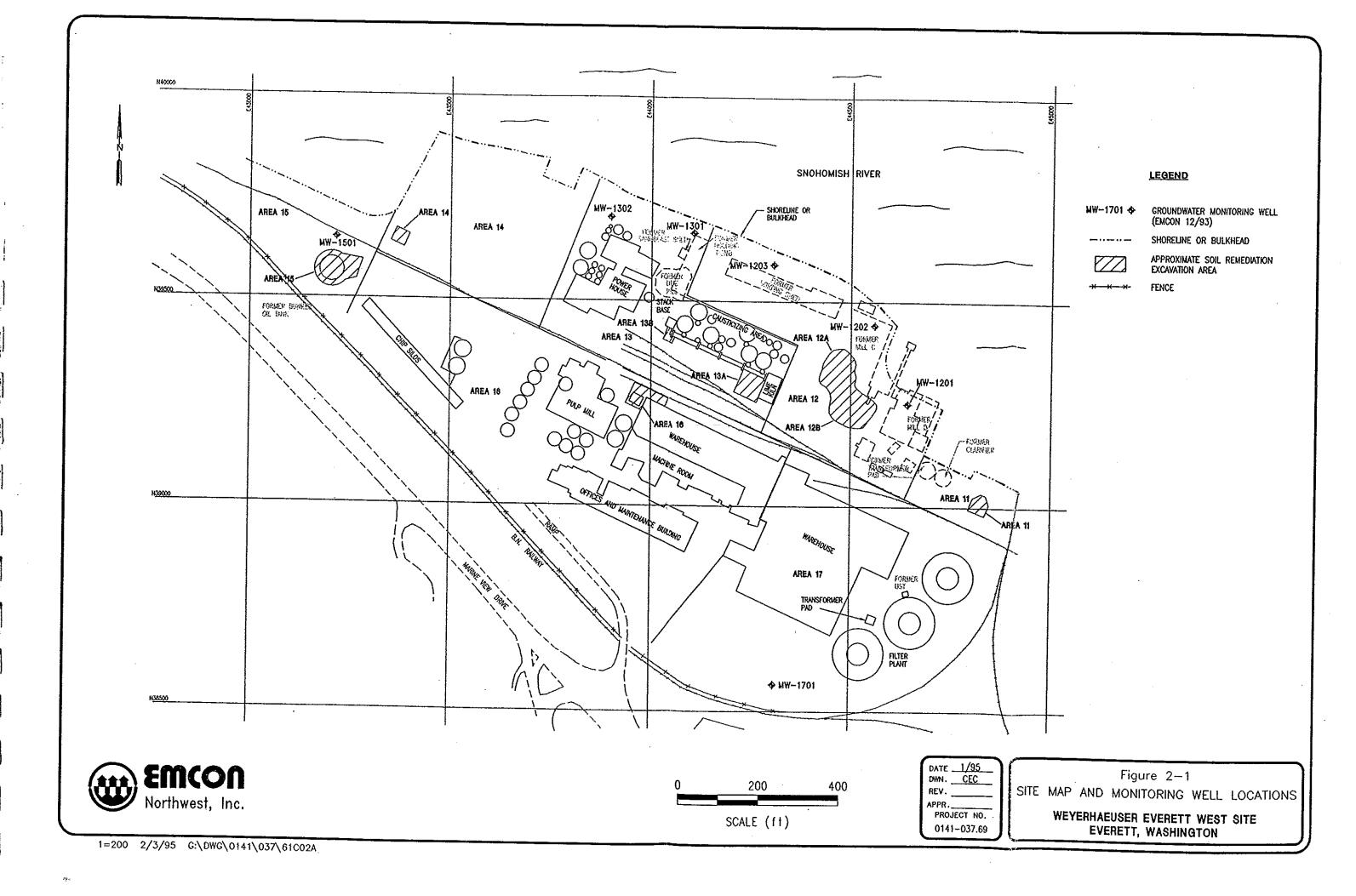


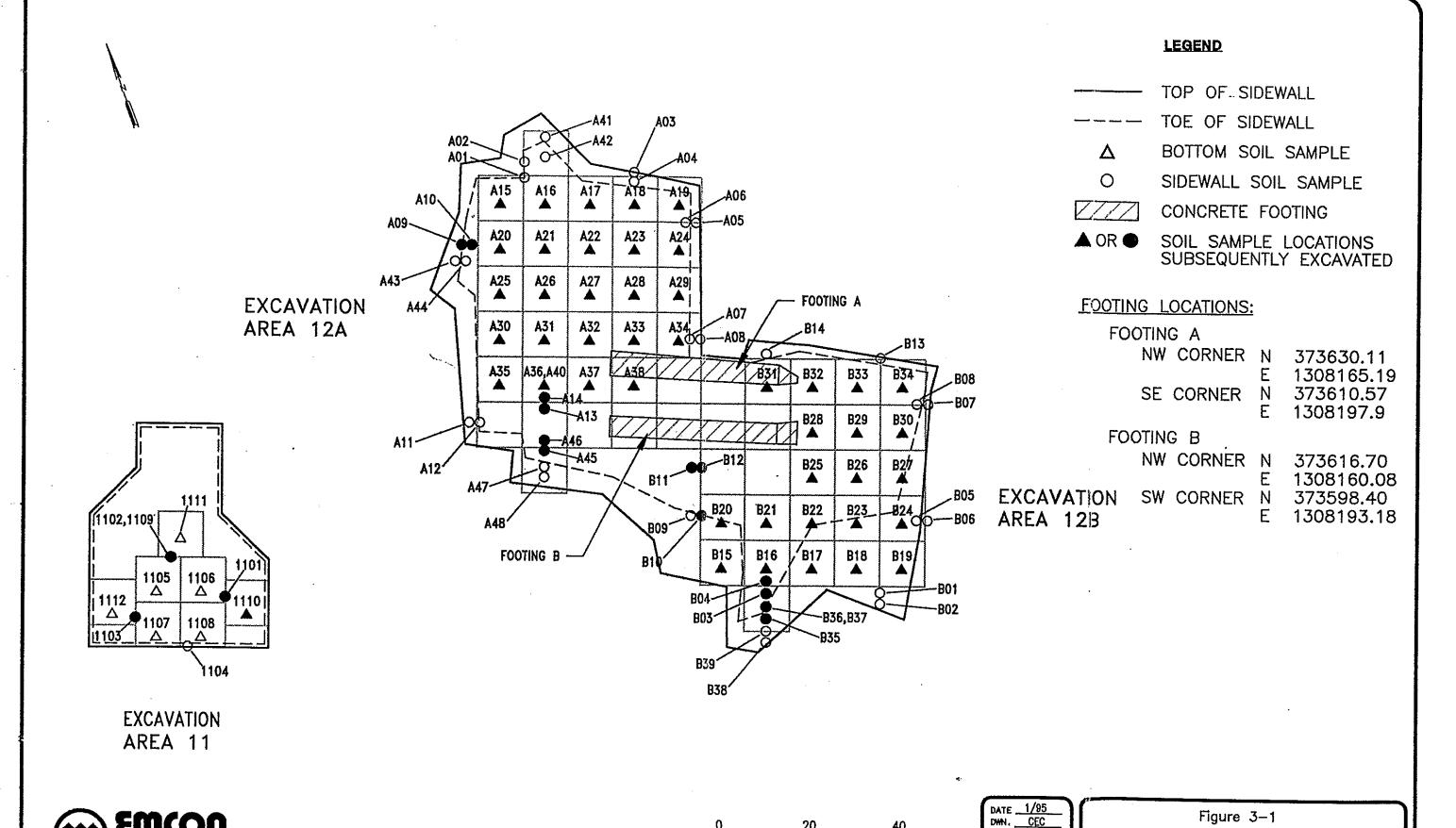


DATE 1/95 DMN. CEC REV. _____ APPR. ____ PROJECT NO.

0141-037.74

Figure 1-1
WEYERHAEUSER EVERETT
WEST SITE
EVERETT, WASHINGTON
BITE LOCATION MAP





SCALE (ft)

WEYERHAEUSER EVERETT WEST SITE

EVERETT, WASHINGTON

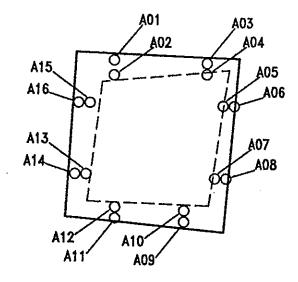
SOIL EXCAVATIONS 11, 12A, AND 12B

PROJECT NO.

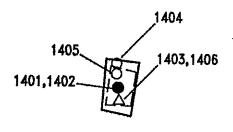
0141-037.69

1=20 1-30-95 G:\D\G\0141\037\74BLC01

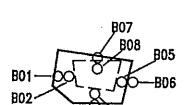
Northwest, Inc.



EXCAVATION AREA 13A



EXCAVATION AREA 14



EXCAVATION AREA 13B

LEGEND

TOP OF SIDEWALL

TOE OF SIDEWALL

BOTTOM SOIL SAMPLE

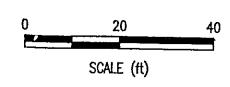
SIDEWALL SOIL SAMPLE

SOIL SAMPLE LOCATIONS SUBSEQUENTLY EXCAVATED



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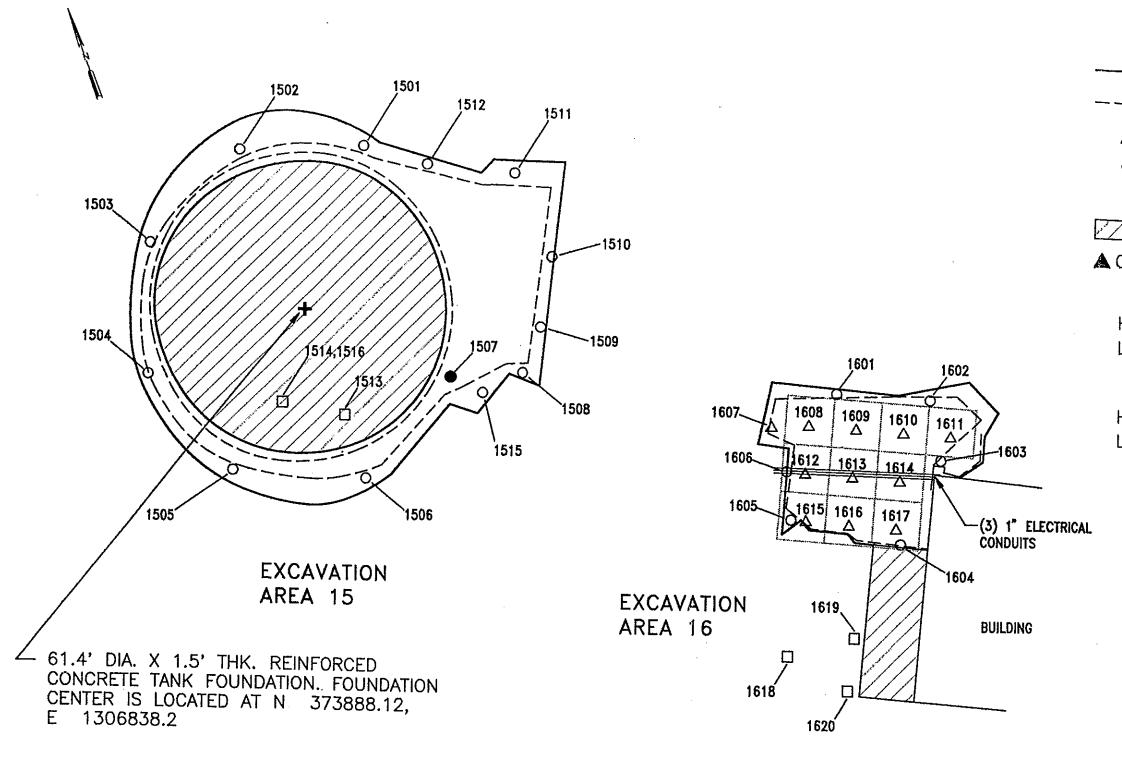


DWN. CEC REV. APPR._____PROJECT NO.

0141-037-69

Figure 3-2

WEYERHAEUSER EVERETT WEST SITE EVERETT, WASHINGTON SOIL EXCAVATIONS 13A, 13B, AND 14





- TOP OF SIDEWALL

--- TOE OF SIDEWALL

△ BOTTOM SOIL SAMPLE

O SIDEWALL SOIL SAMPLE

☐ HAND AUGER SOIL SAMPLE

CONCRETE FOUNDATION

▲ OR ● SOIL SAMPLE LOCATIONS SUBSEQUENTLY EXCAVATED

HAND AUGER SOIL SAMPLE 1514 LOCATION: N 373,876.5

E 1,306,829.0

HAND AUGER SOIL SAMPLE 1513

LOCATION: N 373,867.1 E 1,306,845.3



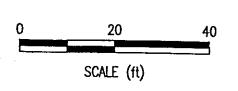


Figure 3-3
WEYERHAEUSER EVERETT WEST SITE EVERETT, WASHINGTON
SOIL EXCAVATIONS 15 AND 16