PRELIMINARY ASSESSMENT REPORT
WEYERHAEUSER COMPANY
SNOQUALMIE, WASHINGTON

TDD F10-9010-006
PAN FWA0653PA

Report Prepared by: ECOLOGY AND ENVIRONMENT, INC.

Date: February 1991

Submitted to: J.E. Osborn, Regional Project Officer
Technical Support Branch
U.S. Environmental Protection Agency
Region 10
Seattle, Washington

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MEMORANDUM

DATE: February 27, 1991

TO: John Osborn, FIT-RPO, USEPA, Region 10

THRU: Andrew Hafferty, FITOM, E & E, Seattle

FROM: Amy Houghton, FIT-PM, E & E, Seattle

SUBJ: Preliminary Assessment Report for
Weyerhaeuser Company Site
Snoqualmie, Washington

REF: TDD F10-9010-006
PAN FWA0653PA

CC: David Bennett, HWD-SM, USEPA, Region 10
Kathy Bahnick, AFITOM, E & E, Seattle
Mark Ader, FIT-PD, E & E, Seattle

1. Introduction and Purpose of the Preliminary Assessment:

Pursuant to United States Environmental Protection Agency (EPA) Contract No. 68-01-7347 and Technical Directive Document (TDD) F10-9010-006, Ecology and Environment, Inc. (E & E) conducted a Preliminary Assessment (PA) of Weyerhaeuser Company in Snoqualmie, Washington. The PA represents the second of a three-step assessment process which begins with Site Discovery and concludes, if necessary, with a Site Inspection. The assessment process, in general, is intended to identify, compare, and rank the potential hazards associated with a particular site relative to other sites across the nation for the purpose of identifying priority sites requiring remedial responses. It does not include extensive or complete site characterization, contaminant fate determination, or quantitative risk assessment.

The Weyerhaeuser Company Site PA was conducted to identify potential public health and/or environmental hazards related to the site and, if present, evaluate the need for additional investigative action. The PA is based on data derived from available files and literature pertaining to the site (HDR 1990) and on an assessment of site conditions, as observed by E & E on December 12, 1990. Due to equipment failure, photodocumentation is not contained within the report.

2. Person(s) Conducting the Site Visit:

   Amy Houghton and Lila Transue

3. Date(s) of the Site Visit:

   December 12, 1990

4. Person(s) Contacted for the Site Visit:

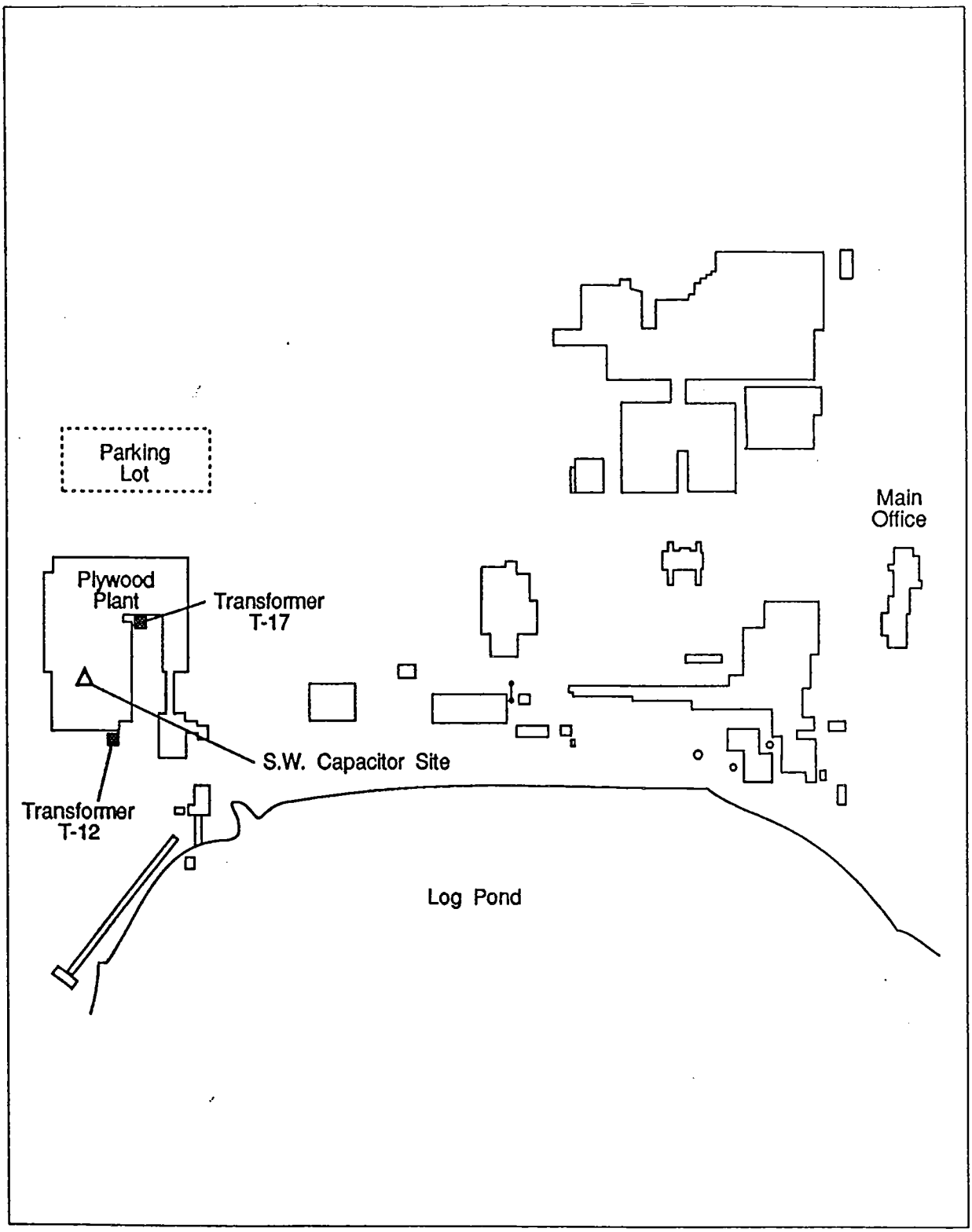
   Rodney G. Proctor

5. Information Obtained During the Site Visit and File Review:

   o Site Location and Description - The Weyerhaeuser Company, located in section 29, Township 24 North, and Range 8 East in King County, Washington, includes a plywood manufacturing facility, a sawmill, a planing mill, and other company buildings. The 10-acre plywood site, situated in the southwest portion of Weyerhaeuser's wood manufacturing facility (Figures 1 and 2) is the only area of concern addressed in this investigation (Proffitt 1967). The site address is 7001 396th Street, Snoqualmie, Washington, 98965. Since the 1989 plywood plant fire, the site has been designated inactive. Site access is restricted partially by fencing or natural barriers. The area surrounding the site to the east and north is primarily forest interspersed with residential areas. The Snoqualmie River lies west of the site and a log pond lies south of the site. The city of Snoqualmie is located to the southwest of the plywood site (USGS 1985a).

   o Site History/Potential Problem(s) at the Site - The Weyerhaeuser Company Plywood site has been vacant since 1989 when a fire destroyed the plywood manufacturing plant which had operated at the site since 1960. From 1916 to 1960, Weyerhaeuser operated a saw mill at the site. Before 1916, the site was forested (Proffitt 1990).

     Plywood production involved a multi-step manufacturing process. Untreated trees were taken from the log pond and processed through a debarker. The trees were then cut into 8-foot logs and placed in a steam conditioning vat. Once conditioned, the logs were peeled into veneer sheets and prepared for gluing. The gluing process involved coating the veneer sheets with glue and phenolic or urea resin, and placing them on top of one another to produce the actual plywood board. The boards are then pressed, trimmed, and transported to the plywood storage area not located within the plywood mill.



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ecology & environment, inc.	
Job: FT1310/FWA0653PA	Site: Weyerhaeuser
Drawn by: T.V.	Date: Jan. 28, 1991

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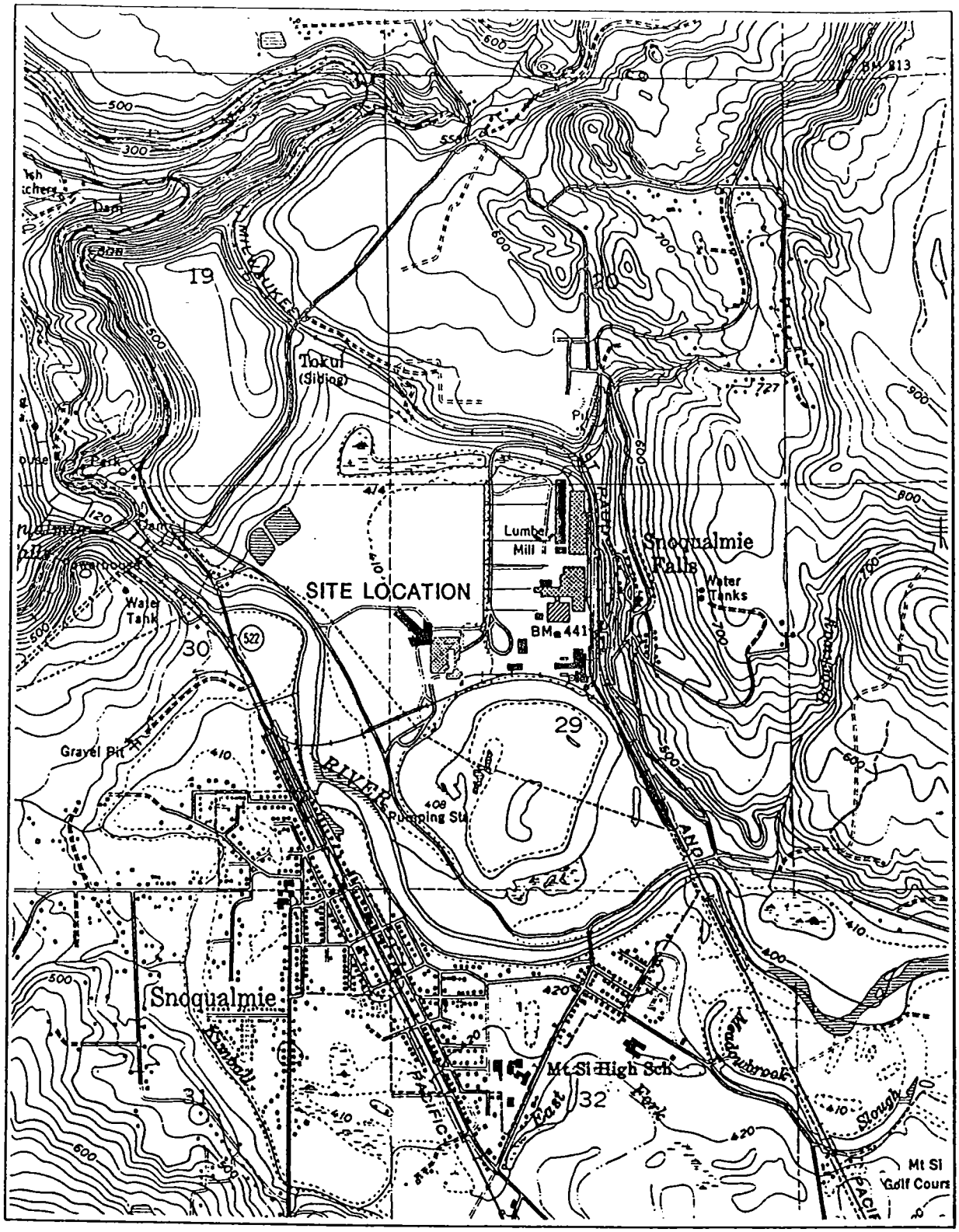
FIGURE 1
SITE MAP

WEYERHAEUSER
Snoqualmie, WA



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scale in feet

ecology & environment, inc.	
Job: FT1310/FWA0653PA	Site: Weyerhaeuser
Drawn by: T.V.	Date: Jan. 28, 1991

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FIGURE 2
SITE LOCATION MAP

WEYERHAEUSER
Snoqualmie, WA

Waste generated on-site during the plywood plant's active manufacturing period included wood scraps, glues, phenolic and urea resins and dear oil. The wood scraps, glue, and resin waste produced from the plywood trimming process was disposed of in Weyerhaeuser's private incinerator. The incinerator, located approximately .25 miles from the plywood site, was used by the entire Weyerhaeuser wood manufacturing facility. Oil spills or drippings involved with the plywood machinery were recovered by oil/water separator system, and disposed of off-site.

On Sunday, February 5, 1989, a fire at the Weyerhaeuser site destroyed the 160,000 square foot plywood manufacturing building. During the fire, falling debris ruptured the secondary bushing around two askarel-filled 200-gallon capacity transformers (T-12 and T-17), causing polychlorinated biphenyl (PCB)-bearing cooling fluid to spill onto nearby soils (HDR 1990).

After the fire, PCB contamination at the transformer sites was investigated and cleanup procedures were implemented. The immediate removal of the hazardous transformer fluid was accomplished by Olympus Environmental, Inc., and the transformers were disposed of by General Electric. The long term remediation of the site was handled by HDR Engineering, Inc. (HDR), of Bellevue, Washington (E & E 1990).

Olympus Environmental, Inc., and HDR recommended that the entire plywood building and soils adjacent to the transformers be excavated. Soils were excavated and placed in several piles on site, and each pile was sampled. This excavation procedure continued until the underlying clay layer was reached (approximately 6 feet down). Twenty-one additional soil samples were collected at 14 different points within the 28 by 29 foot clay pit floor. Six of the samples were duplicates. Test results verified that soil at site T-17 met Toxic Substance Control Act (TSCA) standards. PCB concentration levels were recorded below 1 ppm (HDR 1990).

Site T-12 did not meet TSCA cleanup requirements. Although similar cleanup procedures were used, PCBs and chlorinated benzenes remained with the clay layer 10 feet below ground surface (bgs) at levels above cleanup requirements. Soil excavation procedures continued and sampling was repeated within the pit floor. Test results showed that PCB concentration levels ranged between 33 and 34,000 ppm. From these results, HDR estimated that 1 to 71 pounds of PCBs remained in the deeper clay layers 13 feet below site T-12. Because only 2 to 3 feet of unsaturated clay remained above the shallow aquifer which is situated 15 feet bgs, Weyerhaeuser and HDR decided that it would

be more environmentally sound to cease the remediation rather than to penetrate the clay layer and increase the risk to the underlying aquifer. As of September 1989, four boreholes were completed, three adjacent to and one diagonally positioned under the T-12 transformer. Although no raw data were provided, HDR concluded that contaminates were still contained within the clay layer, and had not seeped into the groundwater (HDR 1990).

Because results showed no groundwater contamination, HDR chose to design a liner system instead of excavating the soil. The system consisted of a tarp to line the excavated pit followed by 10 feet of clay. Plastic sheeting was then placed over the clay layer to inhibit rainwater infiltration, and a layer of topsoil was added to cover the entire system (HDR 1990).

- Physical Environment - The average temperature for the Snoqualmie area is 41°F. Normal yearly precipitation is 96 inches, with a mean annual lake evaporation of 25 inches, generating a net precipitation of 71 inches (USDC 1968).

  The city of Snoqualmie (population of 1,525) obtains its drinking water from two municipal wells approximately 4.5 miles upgradient of the plywood manufacturing site (McCullough, 1990). Four miles northwest of the city of Snoqualmie lies Fall City with a population of approximately 1,000 (Census Bureau 1990). Drinking water for Fall City is received from two municipal wells located about 1000 feet south of the city (Lilljoiz 1990). Weyerhaeuser's on-site water is collected from two springs on the Tokul Creek, upgradient of the site (McCullough 1990).

  Topographically, the plywood manufacturing plant is relatively flat at an elevation of approximately 410 feet above sea level. The facility lies 2,000 feet east of the Snoqualmie River and 100 feet north of a log pond (USGS 1985a). The average flow rate of the Snoqualmie River is 2,677 cubic feet per second (USGS 1985b).

- Waste Types, Quantities, and Characteristics - After the excavation process was completed at the plywood manufacturing plant site by HDR, elevated concentrations of PCBs and chlorinated benzenes still existed within the deeper clay layer (13 feet below the T-12 site). The actual PCB concentration levels recorded ranged from 33 ppm to 34,000 ppm. The relatively high concentration levels were believed to be caused by small pockets of concentrated material interspersed within the clay layer. HDR concluded that these discontinuous tubules or small pockets were created by decomposing plant material. Therefore, the soil sample with a PCB concentration of 34,000 ppm is not believed to be representative of the overall PCB soil concentration measured

at site T-12 (HDR, 1990). Weyerhaeuser recently estimated the waste quantity remaining on site to be approximately 9 lb. of PCBs and chlorinated benzenes combined (E & E, 1990). Characteristically, PCBs are not very mobile in water, and have an affinity for clay. When combined with chlorinated benzenes, however, PCBs are known to migrate more easily. The PCB/chlorinated benzene mixture is still not very mobile (HDR 1990). Because of the small quantity of contaminants and their low mobility potential, the probability of the chemicals remaining within the clay bearing layer is high.

o Pollutants, Mobilization, Pathways, and Risks -

Groundwater: All city drinking water for Snoqualmie and Fall city is received from municipal wells which are located outside the 4-mile radius of the site (McCullough 1990). The general direction of groundwater movement from the plywood plant site is northwest toward Snoqualmie River Falls. The nearest drinking water well is located approximately 0.5 miles from the site. Well logs in the area indicate groundwater is encountered at depths from 15 to 200 feet. The population potentially affected by a release to groundwater is presented in Table 1 (Ecology 1987).

Surface Water: A PCB/chlorinated benzene release to surface water is possible through groundwater migration, due to the 15 foot depth to aquifer, and the northwestern movement of groundwater toward the Snoqualmie River. Two domestic surface water intakes are located on the Snoqualmie River 3 miles downstream from the site (Ecology 1990).

The Snoqualmie River makes up a large portion of the Snohomish River Basin. According to Veronica Bates, Department of Fisheries, the Snoqualmie River supports a productive recreational steelhead fishery; however, no commercial fishing is conducted on the river. From May 1989 to April 1990, 470 summer steelhead, and 1,066 winter steelhead were harvested by anglers (Washington Department of Fisheries 1990).

Table 1

DISTRIBUTION OF POPULATION USING GROUNDWATER
FROM DOMESTIC WELLS

Distance (miles)	# Wells		People/House		Population
On site	0	x	2.66	=	0
0 - 1/4	0	x	2.66	=	0
1/4 - 1/2	0	x	2.66	=	0
1/2 - 1	12	x	2.66	=	32
1 - 2	64	x	2.66	=	170
2 - 3	85	x	2.66	=	226
3 - 4	130	x	2.66	=	346

The people per house ratio for the Snoqualmie Valley was obtained from the National Census Bureau located in Seattle, Washington.

Cutthroat, rainbow trout, and brook trout also are caught from the river. No andromous species inhabit the Snoqualmie River due to the Snoqualmie Falls located about a mile downstream from the site. Coho and Chinook salmon are prevalent in the lower reaches of the river below the falls (HDR 1990).

There are extensive wetland areas adjacent to the Snoqualmie River. The site lies within the 10-year flood frequency zone, and has a history of flooding (HDR 1990). The wetland acreage potentially affected by a release to surface water or air is presented in Table 2.

Air: Due to the depth at which PCBs and chlorinated benzenes are located, a release of hazardous materials to the air has not been observed. The Hatch's click beetle and the Beller's ground beetle located two miles northeast from the site are both possible endangered species candidates. As a result of the contamination depth, and the distance between the site and the beetle's habitat, the possibility for terrestrial contamination is low. The resident population potentially affected by a chemical release to air is presented in Table 3 (Washington National Heritage Database):

Table 2

WETLANDS ACREAGE

Distance (miles)	Acreage
On site	0
0 - 1/4	25
1/4 - 1/2	85
1/2 - 1	90
1 - 2	370
2 - 3	490
3 - 4	470

Table 3

Distance (miles)	Population
On site	0
0 - 1/4	41
1/4 - 1/2	80
1/2 - 1	1,330
1 - 2	931
2 - 3	585
3 - 4	2,607

These estimates were calculated by obtaining the house count within 4 miles of the site from several topographic quadrangle maps and multiplying this number by the people per house ratio determined by the Washington Census Bureau for the Snoqualmie and Fall City area.

6. Follow-Up Recommendations:

Due to the assumed containment of the waste on site, a Screening Site Inspection under the Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act (CERCLA/SARA) at the Weyerhaeuser Company site is not recommended.

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