PRELIMINARY ASSESSMENT REPORT

BUSE TIMBER & SALES, INC.
EVERETT, SNOHOMISH COUNTY, WASHINGTON

WAD009480542

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REPORT PREPARED BY:

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TOXICS CLEANUP PROGRAM

Buse Timber & Sales

1. Introduction

The Washington State Department of Ecology (Ecology) Preliminary Assessment/Site Inspection (PA/SI) Unit conducted a PA of Buse Timber & Sales in Everett, Snohomish County, Washington (Figure 1). This is one of the sites for which PA's are scheduled to be performed by Ecology under a Cooperative Agreement with the U.S. Environmental Protection Agency, signed July 31, 1989.

A PA represents the second of a three-step pre-remedial assessment process which begins with Site Discovery and concludes, if necessary, with a Screening 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 response. It does not include extensive or complete site characterization, containment fate determination or quantitative risk assessment.

The Buse Timber & Sales PA was conducted to identify potential public health and/or environmental hazards related to the site and, if present, then evaluate the need for additional investigations. The PA is based on data derived from available files, literature pertaining to the site, and a drive-by reconnaissance, as observed by the Ecology PA/SI Unit on December 18, 1989.[1]

Buse Timber & Sales is located on Smith Island in the Snohomish River flood plain. It is in the southeast quarter of the southwest quarter of Section 4, Township 29 North, Range 5 East, Willamette Meridian, and the northeast quarter of the northwest quarter of Section 9, Township 29 North, Range 5 East, Willamette Meudian. Buse Timber is at a latitude of 48° 1" 17" North and a longitude of 122° 10' 00" West. The site is adjacent to Union Slough and near the mouth of the Snohomish River, Port Gardner Bay and Possession Sound.

2. Background/Operating History

In 1986 EPA sponsored studies to determine whether wood treatment chemicals were entering the soil in certain lumber mills in Washington. Buse Timber & Sales in Everett was chosen as a likely place where wood treatment chemicals might be found. Sediment samples collected in the lumber yard indicated elevated levels of pentachlorophenol (PCP) and tetrachlorophenol (TCP). A sample taken at the storm drain near the dip tank at Buse Timber showed concentrations of 240.0 mg/kg PCP and 47.5 mg/kg TCP. Another sample near Union Slough had 1.970 mg/kg PCP and 0.890 mg/kg TCP.[2]

Buse Timber & Sales has operated a saw mill on Smith Island since 1946. They used PCP or pentachlorophenol to treat the lumber. In 1986, on a complaint from EPA and on the advice of their chemical supplier, Chapman Chemical Company, they changed to "PQ8". At the same time, they moved the dip tank into a shed in an area that is asphalted and bermed. Although the dip tank was moved the contaminated soils were not treated or removed.[3]

Historically, the site was not used by the timber industry until the Buse family purchased the land. Smith Island was originally utilized as an agricultural area. In the early part of the century the island was diked to help prevent the effects of the Snohomish Rivers flooding. A large mansion or estate was built northwest of the property. The railroad then built the rail system across the island; this still crosses the island. A spur was built across the Buse site. Destination of the spur and its use are not mentioned in Everett Library records.[4]

In 1936, the railroad spur had disappeared and the area was platted and a community was planned. There is no record that this development ever actually took place.

The lumber company is partially fenced but it is not a secured fence. The lumber yard is partially paved or asphalted.

The company is owned by a family: Delmar Buse is President and Norm Buse, his brother, is Secretary/Treasurer.

3. Waste Containment/Hazardous Substance Identification

Sediment samples collected at Buse Timber & Sales indicated elevated levels of pentachlorophenol and tetrachlorophenol.

Pentachlorophenol (Penta or PCP) is a needle-like crystalline solid that has a boiling point of 309°-310°F (with decomposition). It has a very pungent odor when hot and is almost insoluble in water (8 mg. in 100 ml.).[5] As a wood preservative it is usually dissolved in heavy petroleum oil or light petroleum solvents. When heavy petroleum oil is used as a carrier, little evaporation takes place; most of the oil remains in the wood permanently. If light petroleum solvents are used as the carrier, most of the solvent evaporates from the wood. When water is used as a carrier, PCP is dispersed in water to form an emulsion.[6]

Generally, PCP is applied as a five (5) percent solution in petroleum oils. Although PCP is normally contaminated with chlorodibenzodioxins (CDDs) and chlorodibenzofurans (CDFs), the presence of dioxin (2,3,7,8-TCDD) in PCP and wood treating mixtures containing PCP has not been reported.

Health risks involving PCP's include severe toxicity by ingestion and inhalation. Ingestion causes increase then decrease of respiration, blood pressure and urinary output; fever; increased bowel action; motor weakness; collapse with convulsions and death. Inhalation causes lung, liver and kidney damage. Contact dermatitis can also occur and PCP's can be absorbed through the skin. PCPs are more toxic in organic or petroleum solvents when heated to decompose, it emits highly toxic fumes of Cl2.[7]

Tetrachlorophenol (TCP) was also found in the soil and water samples taken adjacent to the lumber company. It is a brown solid with a pungent phenol odor. It is found in commercial and purified grades of pentachlorophenol. It is also severely toxic when ingested or absorbed through the skin. When heated to decomposition, TCPs also emit toxic fumes of Cl_2. Tetrachlorophenol is soluble in a sodium hydroxide solution and most organic solvents. It is insolvent in water.[8]

Wood treating processes may be sub-divided into two principal steps: conditioning and impregnation. Conditioning the wood reduces the wood's moisture content and improves the transport of preservatives into the wood cells. If wood is not properly seasoned or is not porous enough, wood conditioning is required. The following processes are usually used for wood conditioning: 1)The Boulton Process (using hot creosote or PCP solution and a vacuum), 2) steaming (open and closed containers), 3) vapor conditioning, 4) natural drying in yards, 5) kiln drying, and 6) incising.

Wood treating consists of drying and impregnating the wood with a preservative by one of the following methods: 1) Brushing and Spraying; 2) Dipping and Steeping; 3) A Thermal Process; and 4) Vacuum-Pressure Methods including the Full Cell Process, the Empty Cell Process, and the Modified Full Cell Process. Buse uses the Dipping and Steeping method.

There are three main types of wastes associated with wood treating: waste water, sludges, and spilled preservatives. Waste water is generated during wood conditioning. Sludges produced in the retort are designated as a hazardous waste.

Waste water can be treated by several different treatment methods. Oil/water separation is the most common primary treatment used by the wood treating industry. Oil/water separators with long detention can also be used for secondary treatment.

Sludges produced in the retort from PCP preservatives are classified as a hazardous waste. Sludges are frequently by-products of wastewater treatment. They contain hazardous components from the preservatives and its by-products. Buse

states that the sludges they produce are not toxic and fall within EPA's range of acceptable wastes. They state that there is very little sludge produced and it is disposed off-site.[9]

Preservatives can be spilled on site during normal operations. When freshly treated wood is removed,excess treating solution can be spilled outside of the retort. If excess treating solution is present on the wood when it is placed in the storage area, the solution can be washed off onto the ground. In some old treating plants, waste oil was sprayed across the entire site. Cracked sumps may also be a potential source of contamination. It is not known if any of these practices took place at Buse Lumber.

4. Pathway Characteristics

A. Air:

No qualitative or quantitative information exists to indicate an observed release to the air at this time. The major complaint was elevated levels of pentachlorophenol (PCP) and tetrachlorophenol (TCP) at the lumber company. Investigations and sampling were done in U.S. EPA sponsored studies in 1986. [10]

B. Ground Water:

Buse Timber is located on the east side of Smith Island in deltaic area at the mouth of the Snohomish River.

There are three aquifer systems of concern in the area: recent alluvial deposits associated with the Snohomish River (10-75 feet depth), the Marysville sand member (100-180 feet depth), and the Esperance sand member (greater than 225 feet).

Ground water levels at the project site are relatively high and are influenced by, and generally follow, the water levels of the river. The ground water in this area is not used for domestic or other water supply.

Ground water is of great importance as a contributor to streamflow, particularly during late summer when rainfall is usually less than at other times.

The Snohomish River estuary is also tidally influenced with salt or marine water intruding as far up the river as the south end of Ebey Island. Salt water or tidal water and fresh water are usually vertically distributed and homogeneous or well mixed.

The closest National Weather Service meteorological station is in Everett, within five miles of the site. Net precipitation, calculated from monthly precipitation and actual evapotranspiration data, is 18.5 inches. [11]

C. Surface Water:

There is no information to document an observed release to the surface water pathway from the site. Staining around the storm drain, on-site, indicates that some of the product has been released to surface water and soils.

Runoff is determined by evaluating three parameters: rainfall, a runoff curve number, and the drainage area. The 2-year, 24-hour rainfall value is 2.3 inches.

The runoff curve number reflects the ability of soils, and the nature of the land surface to retard runoff. The Soil Conservation Service has mapped soils in the project area. General soils in the area are mapped as Puget-Sultan-Pilchuck. These soils are very deep, poorly drained, moderately well drained to somewhat excessively drained, nearly level soils found on flood plains. More specific mapping indicates the site is located on alluvial soils deposited by the Snohomish River.[12]

The flow of surface water runoff is to the east - northeast. The closest surface water is that direction is Union Slough, a branch of the Snohomish River. It is adjacent to Buse Timber. A drainage ditch also runs along the east border of the site. The storm drain drains to the drainage ditch which then drains to Union Slough. The site lies in the 100 year flood plain.

The Snohomish River near Buse Timber is 850 feet wide and Union Slough which is adjacent the site is approximately 120 feet wide. The average mean flow of water is 9,951 ft/sec. Historic flow records are kept at Monroe, Washington, approximately 16 miles upstream.[13]

D. On-Site Pathway:

Samples taken on site indicate contamination of soils. A sample taken near a storm drain that was close to the dip tank showed concentrations of 240.0 mg/kg PCP and 47.5 mg/kg TCP. A sample near Union Slough had 1.970 mg/kg PCP and 0.890 mg/kg TCP.

5. Targets

A. Air Pathway:

As stated, there is no documentation of any release of hazardous constituents to the environment via the air pathway, relative to any off-site control (background). There is a remote potential for release since most PCP that is used as a wood preservative is mixed with petroleum solvents as the carrier. The solvents readily evaporate and could introduce PCP's into the air pathway. It should also be noted that when PCP is heated to decomposition temperature, Cl_2 is released and this product is highly toxic. However, the product, in its normal form would not release to the air pathway.

If a potential release is possible, the following targets could be affected: 1) population - both the maximally exposed and those within a four mile radius; 2) land use; and 3) sensitive environments also within four miles from the site.

It is assumed that the maximally exposed individuals would be the employees of Buse Timber & Supply. It is estimated that 120 people work at this facility.

The population of the surrounding area, within a four mile radius of the site has been calculated by using the 1990 Decennial Census which is a pre-census local review of the preliminary housing unit and special place counts done by the City of Everett Planning Department. [14] For those areas outside the Everett City limits, the most recent USGS 7.5 Minute topographic maps and the latest U.S. Census factor for the number of people per residence for Snohomish County, which is 2.6, were used to calculate the population. For each distance category the population is estimated to be:

Distance (miles)	Population
On-Site	120
0-¼	13
¼-½	10
½-1	702
1-2	4,242
2-3	9,586
3-4	8,753
TOTAL	23,426

Land within four miles of Canyon Lumber is used for a variety of purposes. Land use has been divided into the following categories along with the distance of the

closest occurrence to the site of concern. Land use was determined by studying the City of Everett Planning Department's maps and confirmed drive-by. The categories are:

1. Manufacturing, Industrial/Commercial:

Buse Timber is one of several businesses located on Smith Island. It is adjacent to Dagmar's Landing, a marine equipment and boat sales organization.

2. Single Family Residential:

To the west-northwest of Buse Timber and less than 1/8 mile away there's a single family residence.

3. Multiple Family Residential:

Both duplexes and apartment houses can be found within a one to two miles radius of the site. Most of these housing units are to the south-southwest of Buse Timber.

4. Parks:

Langus Park and The American Legion Memorial Park are within 2 miles of Buse Timber. Langus is a river park and is up stream (to the south), across the river and adjacent to I-5 (Interstate 5). The American Legion Memorial Park is southwest of the site, on top of the bluff. There are at least three other parks within the four mile radius.

5. Prime Agriculture:

There are some prime agricultural lands across the river and/or the interstate. Diking has been used in the area since the 1800's to provide flood protection. This has enhanced the use of these low-lying areas for agricultural grazing and crop production. These lands are 1/2 to four miles from Buse Lumber.

6. Non-Prime Agriculture:

These activities are found within one-half mile of the site. Hobby farms and tree farms are found on this land.

B. Ground Water Pathway:

The population living in Everett and its vicinity are served by public surface water systems that bring water from outside the area and not by ground water wells. Most of the wells are across the river; many are used for irrigation. The nearest well is 0.4 miles north of the site, on Smith Island.

Ground water within four miles of the site is predominately used for irrigation/agriculture and/or commercial industrial purposes.

Distance to nearest drinking well is 0.74 miles from the site. Population rings for "potential" contamination using Department of Health Public Water Supply Listing Information and well logs from the Department of Ecology are estimated as follows for three different aquifers:

Distance (miles)	Well Depth (feet)		
	10-75	100-200	>225
0-¼	0	0	0
¼-½	0	0	0
½-1	5	2	0
1-2	9	0	0
2-3	7	98	0
3-4	66	105	10

These figures account for only about 1% of the population within four (4) miles of the site.[15]

No well head protection areas have been defined in the State of Washington at this time.

C. Surface Water Pathway:

Surface water from the site drains off the paving into storm drains. The water than drains into drainage ditches on the east and south of the site and eventually into Union Slough, a branch of the Snohomish River that is adjacent to the property.

There is a population of 23,326 that might be affected. It is difficult to estimate the population affected beyond this point - distribution of PCP would be influenced by tides which run north and south depending

on whether they are incoming or out-going tides. (see figures 2 and 3) If you take into account populations within 125 miles of the site you have over 1.5 million people. But you must also account for PCP's insolubility in water and the fact that the petroleum products that would transport it, would evaporate or sink, depositing the PCP in the sediments.

The Snohomish River is a major migratory route for salmon and other sport fisheries and annually produces approximately 1,071,00 pounds of fish. The wetlands at the mouth of the river also serve as nurseries for such commercially valuable fisheries as shrimp, dungeness crab, and hake.[16]

Recreational use of the surface water pathway includes water sports such as boating, kayaking and canoeing. Other uses include fishing and wildlife viewing. There are public boat launches within one mile of the site and kayak launching areas are within two miles. The University of Washington's Women's Crew uses the area of the river for practice.

Wetland ecosystems are found 1/2 mile to the south, adjacent to the site, and throughout the Snohomish River Basin. There are wetland habitats on Smith Island, Jetty Island, and along Steamboat, Union and Ebey Sloughs which are all part of the Snohomish River estuary system and within a four mile radius. No known rare and endangered species breed in the area but Bald Eagles have been seen hunting along the river, the East Waterway, and Port Gardner Bay.

D. On-site Pathway:

On-site pathways include the storm drains that receive runoff from the paved areas. The area surrounding the storm drain by the dip tank was stained and soils in that area indicated contamination. The amount and extent of contamination in the drainage ditches on and adjacent to the site is unkown.

6. <u>Regulatory Involvement</u>

In 1986, the U.S. EPA sponsored studies to determine whether wood treatment chemicals were entering the soils and water surrounding certain lumber mills in Washington. Sediment and water samples were collected and results of the analysis indicated elevated levels of pentachlorophenol and tetrachlorophenol. The results of the analyses were mentioned in the Everett harbor Action Program: Evaluation of Potential Contaminant Sources. [15] In 1989 Ecology recommended that Buse Lumber be placed on the CERCLIS list.

According to Buse, EPA suggested that they move the dip tank and provide more protection for the dipping and steeping process. The tank was moved into a shed with an asphalted floor and a berm to help prevent contamination. Buse did not, however clean up the contaminated soil and did not determine the extent of contamination.

7. Conclusions and Recommendation's

Information gathered through this PA process indicates that, although hazardous contamination had been determined to have occurred on-site through past activities involving wood preservatives, the Buse Timber & Sales site presents no significant threats to nearby human populations and/or the environment, following scoring guidance for the proposed revised federal hazard ranking system (HRS). It is therefore recommended at this time that the Ecology PA/SI Unit pursue no further federally funded action at this site.

Elevated levels of pentachlorophenol and tetrachlorophenol were observed in sediment samples collected from a storm drain near an on-site dip tank and nearby adjacent offsite slough. Although the company changed to a non-hazardous preservative in 1986, it is not known that the soil contaminated from past activities has been cleaned up, nor has there been followup sampling to determine the extent of this contamination. It is thus further recommended that Ecology score this site under the Washington Ranking Method guidelines (WAC 173-340), following a site hazard assessment with appropriate on-site sampling.

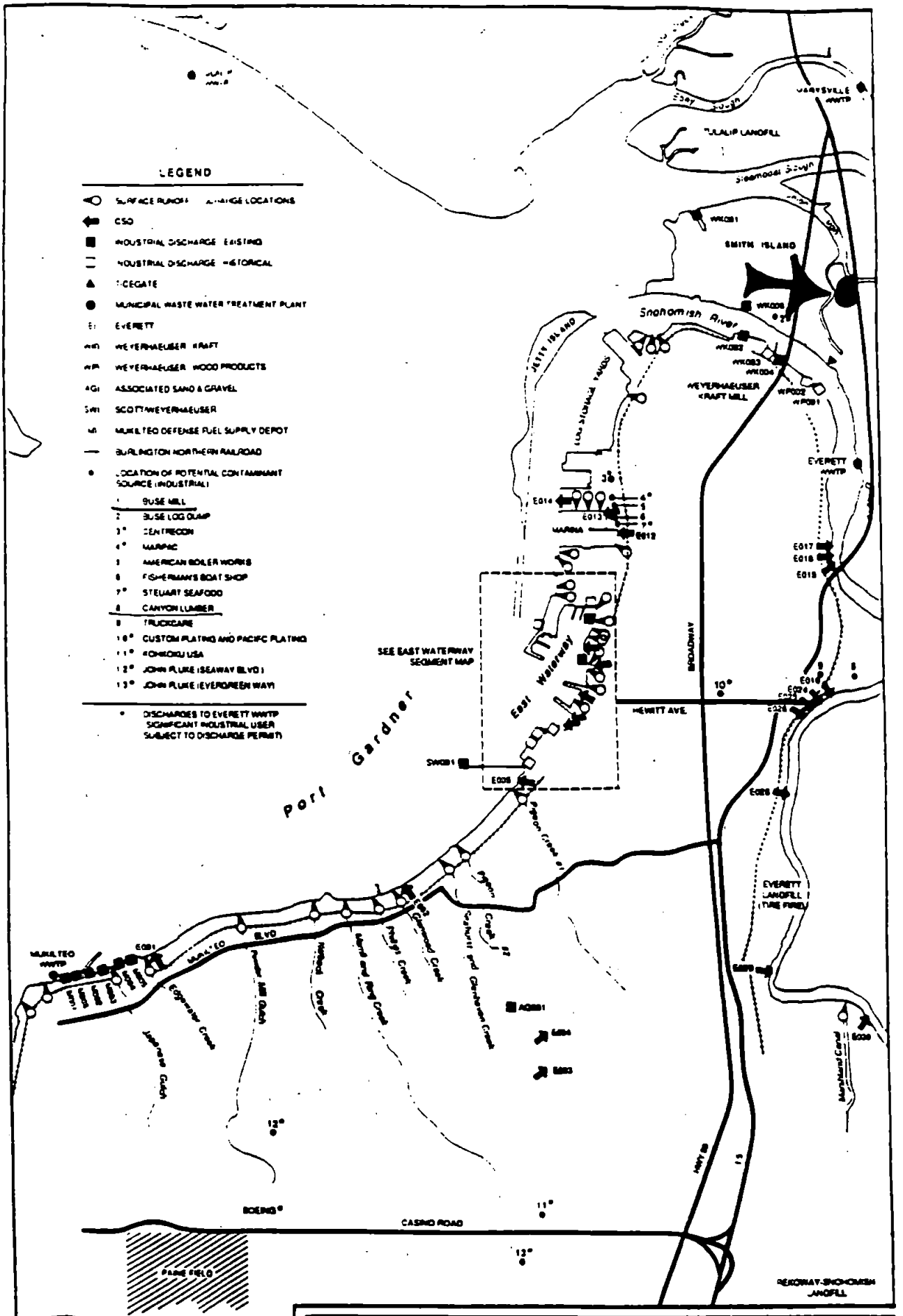

Figure Locations of potential sources of contamination in the Everett Harbor project area.

Buse Timber

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