#1235 Sulzer Pumps Report
Preliminary Assessment (12/10/02)

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PRELIMINARY ASSESSMENT
Sulzer Pumps (US) Inc.
2800 NW Front Avenue
Portland, Oregon
GDI Project: SulzerPump-1-04
DEQ File #1235

For
Sulzer Pumps (US) Inc.
December 10, 2002

GEODESIGN INC
Geotechnical • Environmental • Geological

December 10, 2002

Oregon Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201

Attention: Mr. Jim Anderson

Preliminary Assessmemt
Sulzer Pumps (US) Inc.
2800 NW Front Avenue
Portland, Oregon
DEQ File #1235
GDI Project: SulzerPump-1-04

GeoDesign, Inc. is pleased to present the Preliminary Assessment (PA) for the Sulzer Pumps site in Portland, Oregon. This PA was requested by the Oregon Department of Environmental Quality in a letter to Sulzer Pumps (US) Inc. dated August 23, 2002. Please contact us if you have any questions regarding this PA report.

Sincerely,

GeoDesign, Inc.

Robert E. Belding, R.G.
Principal

cc: Ms. Cheryl Moyer, Sulzer Pumps (US) Inc.

JFK:REB:kt
Attachments
Two copies submitted (1 bound, 1 unbound)
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1.0 INTRODUCTION

On behalf of Sulzer Pumps (US) Inc. (Sulzer), we are pleased to present this Preliminary Assessment (PA) for the Sulzer site in Portland, Oregon. This PA was prepared as requested by the Oregon Department of Environmental Quality (DEQ) in a Voluntary Cleanup Letter Agreement between Sulzer and DEQ dated August 23, 2002. Based on the terms of the letter agreement, a PA is to be submitted to the DEQ by December 10, 2002 in accordance with Oregon Revised Statutes 465.200 *et seq.* The intent of this PA report is to satisfy the terms of the letter agreement.

2.0 BACKGROUND

This section contains information regarding the current site and surrounding property uses and a summary of ownership and operational history. Known and potential environmental conditions are summarized and the regulatory history of the site is provided.

2.1 SITE DESCRIPTION

The site is located at 2800 NW Front Avenue in Portland, Oregon, and is currently occupied by Sulzer. The site is bounded by the Willamette River to the northeast, Port of Portland Terminal 2 to the northwest, NW Front Avenue to the southwest, and a City of Portland easement and Port of Portland Terminal 1 to the southeast. The site encompasses 24.1 acres, and is located within the northwest quarter of Section 28 of Township 1 North and Range 1 East. The site is located between approximately river mile (RM) 10.2 and 10.4, which is approximately 0.7-mile upriver of the Portland Harbor superfund site. A vicinity map for the site is provided in Figure 1.

The Sulzer facility produces engineered pumps primarily for the hydrocarbon processing and oil and gas production markets. Parcel 1 includes the northern two-thirds of the site, and Parcel 2 includes the southern third. The facility includes 11 buildings, 7 electrical substations, a dock along the Willamette River, parking areas, truck loading areas, and landscaped areas. Access to the site is restricted by fencing and two gates. A security guard is stationed at the southern entrance gate. The two largest buildings on site include an approximately 40,000-square-foot northeast operations office with a pump test and assembly area in the north portion of Parcel 1 and an approximately 200,000-square-foot component factory building immediately to the south. Parcel 1 also contains a painting and sandblasting building located between the component factory and the Willamette River, a hazardous waste storage area, a 500-gallon used oil aboveground storage tank (AST), a 500-gallon diesel AST, and a former service center building. One unused 10,000-gallon heating oil underground storage tank (UST) is located beneath the component factory. Four groundwater monitoring wells have been constructed onsite.

Parcel 2 contains a guard house, former cafeteria building, headquarters building, an office and pattern shop building, the former CAP building (currently occupied by City of Portland, Environmental Services, West Side CSO Tunnel, and Pump Station Project), and two storage buildings. Two adjacent, unused 8,000-gallon heating oil USTs are located east of the headquarters building. The site layout is shown in detail on Figure 2.

Based on the site Storm Water Pollution Control Plan (SWPCP), site storm water is collected by catch basins in six drainage areas, which lead to six point source discharges (Outfalls A through F). Four non-point discharge drainage areas are also identified in the SWPCP; two areas are located adjacent to the Willamette River in the northern portion of the site, and two are located along NW Front Avenue and drain onto the adjacent road. Catch basins and drainage areas are shown on a figure in Appendix B.

Adjacent land use is commercial and industrial with no residential properties within 1,000 feet of the site. Based on a review of well reports obtained from the Oregon Water Resources Department (OWRD), the water supply well nearest to the site is an industrial well approximately 1,000 feet south of the site at Griffith Rubber Mills located at 2439 NW 22nd Avenue. No domestic or municipal water supply wells were identified within Section 28 of Township 1 North Range 1 East.

2.2 OWNERSHIP AND OPERATIONAL HISTORY

Information on ownership and operational history of the site is based on a review of Sanborn Fire Insurance maps, aerial photographs, and an interview with Sulzer personnel. A summary of the site history is presented below.

2.2.1 Willamette Iron and Steel Corporation (1922 to 1946)

Willamette Iron and Steel owned the project site and leased adjacent property to the north from 1922 until 1946. During this period, Willamette Iron and Steel provided complete machine shop and foundry services with a focus on the fabrication of steam-powered locomotives and other equipment for the logging industry, equipment for the pulp and paper industry, water pipelines, penstocks, and repair of steel-hulled marine vessels.

During World War II, Willamette Iron and Steel constructed two large amphibious war ships, the USS Ozark and USS Catskill, as well as small naval auxiliaries, minesweepers, patrol craft, and submarine chasers. By 1945, Willamette Iron and Steel had manufactured 64 navy ships, converted 16 others, and manufactured 222 Liberty ship engines while continuing to manufacture locomotives.

2.2.2 Guy F. Atkinson (1946 to 1988)

In 1946, Guy F. Atkinson purchased Willamette Iron and Steel and directed the company into the manufacturing of heavy machinery such as penstocks, bridge cranes, spillway gates, and valves. In 1952, Mr. Atkinson purchased Bingham Pump Company and Davis Valve Company, thereby forming Bingham-Willamette Company. After 1952, the site was used for the manufacturing of pumps, missile silo components, prototype rocket fuel tanks for the aerospace industry, two luxury marine vessels, and overhauling marine vessels. In the 1960s Bingham-Willamette Company became Bingham Pump Company.

In the 1970s, marine work was discontinued at the site, and pump manufacturing came to dominate site operations. The facility became a major manufacturer of primary and auxiliary pumps for the nuclear power industry. In the late 1970s, Bingham Pump Company became Bingham International, Inc.

In the 1980s, pump manufacturing decreased, and the fabrication of special products increased. Special products included the manufacturing of boring equipment for the tunnel beneath the English Channel and for Trident ballistic missiles.

2.2.3 Sulzer Bingham Pumps Inc. and Sulzer Pumps (US) Inc. (1988 to present)

In June 1988, Guy F. Atkinson sold Bingham International, Inc. and the site to Sulzer Brothers Limited, thereby creating Sulzer Bingham Pumps Inc. In July 1999, Sulzer Bingham Pumps Inc. changed its name to Sulzer Pumps (US) Inc. Since 1988, the facility has focused its production on engineered pumps primarily for the hydrocarbon processing and oil and gas production markets. Special products continue to be developed and manufactured onsite.

Processes include metal fabrication and machining, pump testing, and painting. Materials currently used at the site include petroleum hydrocarbons, mercury, and paint. Petroleum hydrocarbons are used in the manufacturing and fabrication building and are collected in a 500-gallon AST. The AST contents are removed as needed by a licensed waste transporter. Approximately 15 pounds of mercury are stored on site for use in manometers in the pump test areas. Occasional mercury waste is also removed as needed by a licensed waste transporter. Since approximately 1990, solvents used on site have been citrus-based. Electrical transformer oils used in the onsite substations do not contain polychlorinated biphenyls (PCBs).

2.3 REGULATORY HISTORY

Permits and other information are on file with the DEQ's Land Quality, Water Quality, and Air Quality divisions. Information available from these DEQ divisions are summarized in the following sections.

2.3.1 DEQ Land Quality Division

Based on Land Quality files, the site is listed in the Environmental Cleanup Site Information (ECSI) system and in the Leaking Underground Storage Tank (LUST) program, Hazardous Waste program, and Spill program.

2.3.1.1 ECSI Records

The ECSI summary report states that soil and groundwater contamination were encountered during the decommissioning of 12 USTs in 1990. The DEQ ultimately issued a "No Further Action" (NFA) determination related to gasoline- and diesel-range petroleum hydrocarbons associated with the leaking USTs; however, chlorinated solvents and oil-range hydrocarbons remaining onsite were not included in the determination. Details on the leaking UST investigation are summarized in Section 3.0. Following the leaking UST investigation, the LUST program referred the site to the Site Assessment Section (SAS) for the remaining chlorinated solvents and oil-range hydrocarbons.

The site was added to the ECSI database in August 1992 and the Confirmed Release List in February 1996. The SAS evaluated site information and concluded that an additional remedial investigation should be conducted to address the residual contamination and that

the work should proceed under a low to medium priority. The SAS released a strategy recommendation in a letter dated April 12, 2002.

2.3.1.2 LUST Records

The site is registered in the DEQ's LUST database as file number 26-90-0334. In 1990, PEMCO removed 12 of 15 USTs from the site (PEMCO, 1990). Based on samples obtained from the tank cavities after soil removal activities, concentrations of petroleum hydrocarbons in remaining soil were less than DEQ Level 2 Soil Matrix Cleanup standards at all but one tank location. Three USTs in two areas contained waste oil, solvents, or acetone. Releases of these contaminants from these USTs were referred to the DEQ's SAS for further action. The DEQ issued an NFA determination for all other site USTs on August 22, 1997. The locations of the decommissioned and remaining USTs are shown on Figure 2. A detailed discussion of decommissioning results is provided in Section 3.0.

2.3.1.3 Hazardous Waste Program Records

Between January 1981 and May 1988, Bingham International, Inc. was registered as a small quantity hazardous waste generator under Unites States Environmental Protection Act (EPA) ID ORD009024605. On July 19, 1990, Sulzer registered as a small quantity hazardous waste generator also under EPA ID ORD009024605. The DEQ hazardous waste site reports since 1991 are included in Appendix A.

In 1991, the facility generated 10 tons of hazardous waste primarily comprised of paint wastes (paint thinner and petroleum distillates) from ongoing spray booth operations. From 1992 to 2001, the facility has generated between 2 and 5 tons of waste per year from between one and five waste streams. The majority of the hazardous wastes generated at the facility are organic paint, ink, lacquer, or varnish related to ongoing painting operations. Waste codes for these materials include ignitable waste, methyl ethyl ketone, and spent non-halogenated solvents. Lesser quantities of halogenated solvent wastes (primarily tetrachloroethene (PCE)) were generated as a result of degreasing. Other wastes were generated only occasionally and included benzene, chromium, lead, mercury, and selenium. In 1995 and 1998, mercury waste was generated due to a one time spill and cleanup.

On February 3, 2000, DEQ conducted a hazardous waste compliance inspection at the facility. As a result of the inspection, the DEQ issued Sulzer a Notice of Noncompliance (NON) for 11 violations. Many of the violations pertained to labeling and storage of drums, batteries, and used oil. The DEQ also required Sulzer to submit a Spill Prevention Control and Countermeasure (SPCC) plan. In a letter dated March 16, 2002, Sulzer responded to the NON and addressed each violation in a way consistent with DEQ's requested actions. Sulzer submitted an SPCC plan in March 2000.

2.3.1.4 Spill Program Records

Information contained in the DEQ's Spill Program files indicates that two spills were reported at the Sulzer facility. On October 30, 1990, approximately 20 to 25 gallons of soluble coolant was released due to overfilling a storage tank. Although a storm drain to the Willamette River was blocked immediately, a trace amount of coolant reportedly entered the storm drain. The DEQ did not require a spill report or any additional investigation.

On December 4, 1990, 2 gallons of liquid mercury were released onto a concrete floor. The mercury was collected with a shop vacuum and recycled for use at the site. The DEQ did not require a spill report or any additional investigation.

2.3.2 DEQ Water Quality Division

The DEQ Water Quality Division file number for the Sulzer facility is 102334. National Pollutant Discharge Elimination System (NPDES) 1500J, 1200Z, and 100J permits have been issued for the facility.

The 1500J permit was issued in September 1991 and covered discharges from a groundwater treatment system associated with the remediation system constructed for the gasoline UST release in the southwest corner of the site. Detailed information regarding the UST release and cleanup is presented in Section 2.3.1.2. Effluent samples were obtained either weekly or monthly between November 1991 and September 1993 and submitted to a laboratory for analysis of total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Effluent discharges ceased in September 1993 when the remediation system was shut down. The permit was terminated in July 1997. Available effluent sample results are summarized in Table 1.

The 1200Z storm water discharge permit was issued in August 1992. The permit required monitoring of outfall discharge for oil and grease and sheen at Outfalls A, B, and D. A site drainage map obtained from the site SWPCP with outfall locations is included in Appendix B. In 1995, DEQ agreed to allow Sulzer to discontinue monitoring outfall A because the outfall was a combined sewer overflow that periodically contained sewage. Available storm water monitoring results from December 1996 to present are summarized in Table 2.

The DEQ issued a NON in 1995 and 1996 due to exceedances of the oil and grease standard specified in the permit. Although zinc also exceeded the standard, the NON did not address the exceedance. Sulzer began periodic sweeping of the site, cleaning and flushing the storm drain system, and installed sorbent pads in selected catch basins in response to the NON.

On November 16, 2000, Water Truck Service, Inc. cleaned six catch basins and disposed of 100 gallons of sludge and 360 gallons of water offsite in an effort to address continued zinc exceedances. The catch basins cleaned included all of the site catch basins associated with Outfalls B, C, D, and E.

On May 25, 2001, Enviro-Comp Services, Inc. (Enviro-Comp) obtained samples of sand blast grit and spent dust from the paint and sandblasting building. Zinc concentrations in the grit and dust were 1,300 and 1,900 milligrams per kilogram (mg/Kg), respectively. Based on these results, Enviro-Comp recommended minimizing vehicle movement (primarily forklifts) in and out of the paint and sandblasting building and using a grit that does not contain zinc.

In July 2001, Enviro-Comp obtained samples of the two sand blast media used onsite by Sulzer Pumps. The media are referred to as Steel Grit Blast and Garnet Blast. Samples were

submitted to a laboratory for analysis of zinc using EPA Method 6010A. Zinc was detected only in the Steel Grit Blast at a concentration of 40.5 mg/Kg.

The 100J general discharge permit was issued in September 1996 and covers periodic discharges of non-contact cooling water, defrost water, heat pump transfer water, and cooling tower blowdown water from the pump testing building up to 500,000 gallons per day. The permit required monitoring of pH, flow, temperature, and total residual chlorine. Because the initial report reported pH only, the DEQ issued a NON for failure to report all required parameters. Subsequent reporting appears to have met the minimum requirements specified in the permit. Monitoring results are summarized in Table 3.

2.3.3 DEQ Air Quality Division

In 1974, the DEQ Air Quality Division received complaints of excessive air emissions from sand blasting operations at the site. According to observations by DEQ staff, sand blasting was conducted outside with little or no containment. By February 1976, a cyclone system and baghouse had been constructed to control emissions.

In 1981, Bingham Willamette applied for an air contaminant discharge permit for volatile organic compound (VOC) emissions from a spray paint booth and a solvent parts washer. An annual maximum emission volume of 32 tons was calculated for the annual emission limit for the facility. Opacity limits were also identified for air emissions from sand blasting and grinding activities. An emission calculation sheet showed that about 100 gallons of lacquer solvent and 550 gallons of cold cleaner solvent were used annually. The DEQ issued the air permit in 1984. Several source control inspections conducted by DEQ indicated that the site was in compliance with permit requirements. During a DEQ site visit in 1998, sand blast grit was observed on the ground surface near the sand dust control system.

In 1989, the DEQ received a notice of intent to construct a secondary lead smelter to melt lead bullion. The DEQ approved the system provided emission controls were implemented.

In 1991, the DEQ issued a permit for an air stripper installed as part of the groundwater remediation system discussed in Section 2.3.1.2.

In 1996, Sulzer Bingham reported that that site emissions included aliphatic compounds, methyl butyl ketone, and stoddard solvent. Also in 1996, Sulzer Bingham agreed to reduce facility emissions to 8 tons per year. A Standard Operating Procedure for painting submitted to the DEQ indicated that a primer paint containing inorganic zinc was used in painting pumps used in severe conditions.

In August 1998, the DEQ cancelled the air discharge permit after determining that an air discharge permit was no longer required for the facility because the site was below the emission threshold of 10 tons per year.

2.4 SUMMARY OF SITE VISIT

On October 29, 2002, GeoDesign personnel visited the site to observe current site conditions. The site visit included observations of the building interiors and facility grounds. During the

site visit five types of potential environmental conditions were observed, including remaining USTs, transformer leaks, fugitive sand blast debris, metal slag along the Willamette River bank, and a hazardous waste storage area. These potential source areas are described in detail in Section 3.0

3.0 SOURCE AREAS AND WASTE CHARACTERISTICS

This section discusses past, present, known, and potential sources of hazardous substances at the site. These comprise areas with documented releases, areas where there is the potential for a release, and areas where hazardous substances have been stored. Permitted and authorized releases presented in Section 2.3 are not included in this discussion.

3.1 FORMER GASOLINE USTS

The UST cavity with soil concentrations greater than DEQ Level 2 Soil Matrix Cleanup standards was a gasoline UST cavity in the west corner of the site. Approximately 113 cubic yards of impacted soil was removed from the tank cavity by PEMCO (1990), and an unknown volume of impacted soil was left in place. In October 1990, seven confirmation soil samples were obtained from the gasoline UST cavity floor and walls and submitted to a laboratory for analysis of TPH. TPH was detected in each of the soil samples at concentrations ranging from 6 to 5,100 mg/Kg.

In February 1991, six soil borings (B-1 through B-6) were completed west, north, and east of the gasoline UST cavity. Eighteen soil samples were obtained from these borings from depths ranging from 7.5 to 37.5 feet below ground surface (bgs) and submitted to a laboratory for analysis of TPH. TPH was detected in each boring except B-4, east of the cavity. TPH concentrations ranged up to 5,600 mg/Kg and were greatest in borings B-1 and B-3, which were completed north-northeast of the UST cavity. Samples from a depth of 21.5 to 22.5 feet bgs from borings B-1, B-3, B-4, B-5, and B-6 were also submitted for analysis of BTEX. BTEX were not detected in the samples obtained from B-4 and B-5 and were detected at relatively low concentrations in the soil sample obtained from B-6. Benzene was detected at concentrations of 54,000 and 2,000 micrograms per kilogram (µg/Kg) in the soil samples obtained from B-1 and B-3, respectively. Soil sample results are summarized in Table 4. Sample locations are shown on maps included in Appendix C.

In June 1991, three 4-inch-diameter monitoring wells (SB-1 through SB-3) and one 12-inch-diameter recovery well (RW-1) were constructed north to northeast of the gasoline UST cavity. An electric submersible pump was installed in RW-1 and extracted groundwater was treated with a tower air stripper prior to discharge into the storm sewer system. The remediation system operated from November 1991 until September 1993 under a 1500J waste discharge permit.

Groundwater samples were obtained from each of the three monitoring wells and the recovery well on a quarterly basis between March 1992 and July 1996. TPH and BTEX concentrations in groundwater decreased significantly in wells SB-1 through SB-3 during that period. By July 1996, only SB-3 contained detectable concentrations of TPH (0.72 milligrams per liter (mg/L)) and benzene (1.2 micrograms per liter (µg/L)), ethylbenzene (1.8 µg/L), and

total xylenes (6.8 µg/L). Groundwater samples from SB-1 and SB-2 were submitted for analysis of dissolved lead in 1992. Dissolved lead was detected in SB-2 at a concentration of 0.54 mg/L.

In September 1992, diesel-range petroleum hydrocarbons were detected in the groundwater sample obtained from SB-1 at a concentration of 0.45 mg/L. Oil-range petroleum hydrocarbons were positively identified but not quantified in each of the monitoring wells and the recovery well. PEMCO concluded that this heavier range petroleum was likely the result of contaminants pre-existing in the soils beneath the site.

Based on the declining contaminant concentrations in the monitoring wells and the confinement of the contaminant plume to the site, DEQ issued an NFA in 1997 for releases associated with the gasoline and other USTs at the site. For the same reasons DEQ issued an NFA, it is our opinion that residual soil and groundwater contamination in the gasoline UST area, if any, does not represent a significant contaminant source.

3.2 FORMER WASTE OIL UST

The former waste oil tank was located between the component factory and the NE operations office building (Figure 2). Nineteen soil samples were obtained from the waste oil UST cavity area and submitted for analysis of TPH and VOCs. Three soil samples were obtained from the center of the cavity at depths of 7, 12, and 17 feet bgs. In the soil sample from 7 feet bgs, TPH was detected at a concentration of 39,000 mg/Kg. The halogenated volatile organic compounds (HVOCs) PCE and trichloroethene (TCE) were detected at concentrations of 150,000 and 68,000 µg/Kg, respectively. In the soil sample from 12 feet bgs, TPH was detected at a concentration of 760 mg/Kg. Toluene was detected at a concentration of 370 µg/Kg. PCE, TCE, and cis-1,2-dichloroethene (cis-1,2-DCE) were detected at concentrations of 1,200, 2,600, and 20,000 µg/kg, respectively. In the soil sample from 17 feet bgs, TPH was detected at a concentration of 92 mg/Kg, and the only VOC detected was cis-1,2-DCE at a concentration of 35 µg/Kg. Soils from the center of the cavity above a depth 17 feet were permanently removed from the cavity. Approximately 80 cubic yards of contaminated soil were excavated and disposed of offsite.

One soil sample was obtained from each of the four cavity side walls at a depth of 11 feet bgs. TPH was detected in each sample at concentrations ranging from 92 to 10,000 mg/Kg. VOCs were detected in three of the four samples. PCE was detected in two samples at concentrations of 270 and 1,000 µg/Kg. TCE was detected in two samples at concentrations of 220 and 1,600 µg/Kg. Cis-1,2-DCE was detected in three samples at concentrations ranging from 550 to 2,700 µg/Kg. Soil samples were also obtained from three borings outside of the tank cavity at depths ranging from 7.5 to 22.5 feet bgs. TPH and VOC concentrations were generally less than those detected in tank cavity samples and were not detected in any of the samples obtained at a depth of 22.5 feet bgs. Soil sample results are summarized in Table 4. Sample locations are shown on maps included in Appendix C.

Monitoring well SB-4 was constructed north-northeast of the waste oil UST cavity. Fourteen groundwater samples were obtained from the well between March 1992 and July 1996. TPH was detected on only three occasions in 1992 and 1993. BTEX were detected on only one

occasion in June 1992. PCE and breakdown products were detected in groundwater samples on each sampling event. In general, concentrations of contaminants appear to have been either stable or decreasing between March 1992 and July 1996. On the last sampling event in July 1996, remaining contaminants included 1,1-dichloroethane (5.3 µg/L), 1,2-DCE (91 µg/L), PCE (3.3 µg/L), 1,1,2-TCE (17 µg/L), and vinyl chloride (15 µg/L). These concentrations are all less than DEQ generic risk-based concentrations (RBCs) for each pathway/receptor combination and less than DEQ Level 2 Ecological Screening Level Values for aquatic receptors in fresh water. Groundwater sample results are summarized in Table 5.

Due to the presence of HVOCs in soil and groundwater, cleanup of impacts associated with the waste oil tank was referred to the DEQ's Site Assessment for further action. The NFA issued for the USTs in 1997 did not include releases associated with the waste oil tank.

Remaining contamination appears limited to subsurface soil and groundwater in the vicinity of the waste oil tank. The downgradient extent and maximum depth of groundwater is currently unknown. Concentrations of contaminants in groundwater as of the most recent sampling event are all less than DEQ generic RBCs for each pathway/receptor combination and less than DEQ Level 2 Ecological Screening Level Values for aquatic receptors in fresh water. In addition, based on the previous trend of stable to decreasing concentrations following removal of the tank, the groundwater plume is likely to have either remained stable or decreased in size and concentration since groundwater monitoring stopped.

3.3 FORMER SOLVENT USTs

A 675-gallon cold cleaner and a 675-gallon acetone UST were removed from a single cavity between the component factory and NE Operations Office and east of the waste oil UST. One soil sample (Sample #1) was obtained beneath the cold cleaner and acetone USTs (Sample #2) at a depth of 6 feet bgs and submitted for analysis of HVOCs and acetone, respectively. Sample #1 contained PCE at a concentration of 4,300 µg/Kg. Sample #2 contained acetone at a concentration of 200 µg/Kg.

Additional soil was subsequently removed from the cavity floor and walls lowering the cavity floor to a depth of 8.0 to 8.5 feet bgs. Two soil samples were obtained from the cavity floor, and one soil sample was obtained from each of the four cavity walls at a depth of 5 feet bgs. Acetone was not detected in any of these soil samples. PCE and methylene chloride were detected in both floor samples and all but the north wall sample at concentrations up to 29 and 54 µg/Kg, respectively. Soil samples were then obtained 2 horizontal feet into the east and west walls and 2 vertical feet through the center of the cavity floor. These samples were submitted for analysis of HVOCs and not acetone. Only PCE was detected in the soil samples at a maximum concentration of 57 µg/Kg in the soil sample 2 feet below the center of the cavity floor. The detected concentrations are less than generic RBCs and EPA Region 9 Residential and Industrial Preliminary Remediation Goals.

Approximately 16 cubic yards of impacted soil was removed from the cavity and disposed of off-site. Groundwater was not encountered in the tank cavity during decommissioning activities.

3.4 *OTHER DECOMMISSIONED USTS*

In addition to the five USTs described in the previous sections, seven other USTs were decommissioned in 1990. Decommissioning results for each tank are summarized below.

3.4.1 Former Diesel UST

A 675-gallon diesel UST was removed from a location southwest of the former service center building (Figure 2). Groundwater was not encountered in the tank cavity. One soil sample was obtained from beneath the UST at a depth of 6 feet bgs. TPH was detected at a concentration of 77 mg/Kg, which is less than the DEQ Level 2 Soil Matrix Cleanup Standard of 500 mg/Kg for diesel.

3.4.2 Former Lacquer Thinner USTs

Two 675-gallon lacquer thinner USTs were removed from a single cavity beneath the NE Operations Office prior to construction of the northern portion of the building. Groundwater was not encountered in the tank cavity during decommissioning activities. Soil samples were obtained beneath each UST at a depth of 6.5 feet bgs. TPH was detected in both samples at concentrations of 420 mg/Kg beneath the east tank and 36 mg/Kg beneath the west tank. The soil sample containing 420 mg/Kg was also submitted for analysis of petroleum hydrocarbon identification. Gasoline-range petroleum hydrocarbons were detected at a concentration of 50 mg/Kg and oil-range petroleum hydrocarbons were detected at a concentration of 330 mg/Kg. Although these concentrations were less than the DEQ Level 2 Soil Matrix Cleanup Standards, Sulzer Bingham elected to remove additional soil from the cavity.

Following additional soil removal activities, soil samples were obtained from the cavity walls at a depth of 5 feet bgs and the cavity floor at a depth of 8 feet bgs. TPH was detected in each soil sample at concentrations ranging from 6 to 13 mg/Kg. These concentrations are less than DEQ Level 2 Soil Matrix Cleanup Standards. A total of approximately 50 cubic yards of soil was removed from the lacquer thinner UST cavity and disposed of offsite.

3.4.3 Former Hydraulic Oil USTs

Three 675-gallon hydraulic oil USTs were removed from a single cavity between the component factory and NE Operations Office and immediately south of the solvent and acetone USTs (Figure 2). Groundwater was not encountered in the tank cavity during decommissioning activities. Soil samples were obtained beneath each UST at a depth of 6.5 feet bgs. TPH was detected in both samples at concentrations ranging from 130 to 5,100 mg/Kg.

Following additional soil removal activities, five soil samples were obtained from the cavity walls at a depth of 5 to 5.5 feet bgs and the cavity floor at a depth of 8 feet bgs. TPH was not detected in three of the soil samples and was detected in the remaining two soil samples at a maximum concentration of 42 mg/Kg. These concentrations are less than DEQ Level 2 Soil Matrix Cleanup Standards. A total of approximately 50 cubic yards of soil was removed from the hydraulic oil UST cavity and disposed of offsite.

3.4.4 Former Heating Oil UST

Prior to decommissioning the heating oil UST, a sample of the tank contents was obtained and submitted for analysis of TPH, metals, PCBs, and HVOCs. TPH was the only substance detected. The 1,000-gallon heating oil UST was removed from a location in the parking lot west of the component factory and south of the gasoline USTs. Groundwater was not encountered in the tank cavity during decommissioning activities. A soil sample was obtained beneath the UST at a depth of 9 feet bgs. TPH was detected in the sample at concentration of 1,600 mg/Kg.

Following additional soil removal activities, five soil samples were obtained from the cavity walls at a depth of 9 feet bgs and the cavity floor at a depth of 13.5 feet bgs. TPH was detected in each soil sample at concentrations ranging from 7 to 11 mg/Kg. These concentrations are less than DEQ Level 2 Soil Matrix Cleanup Standards. A total of approximately 78 cubic yards of soil was removed from the heating oil UST cavity and disposed of offsite.

3.5 USTS REMAINING ON SITE

During our site visit three heating oil USTs were observed in two locations onsite. The USTs included a pair of 8,000-gallon heating oil tanks east of the headquarters building and a 10,000-gallon heating oil UST beneath the boiler room in the component factory. The case cell portion of the component factory was added in the 1970s, thereby eliminating access to the fill port for the 10,000-gallon UST.

3.6 HAZARDOUS WASTE STORAGE AREA

Hazardous wastes are currently stored in a paved area beneath a cover between the paint building and the Willamette River dock. During our site visit, the storage area contained partially full 55-gallon drums with secondary containment. No visual evidence of leaks or staining on the ground surface was observed in the storage area. Storage of hazardous wastes in this area is conducted under Sulzer Pumps' small quantity generator permit. A photograph of the hazardous waste storage area is included in Appendix D.

3.7 ELECTRICAL SUBSTATIONS

Seven electrical substations are located throughout the site. During our site visit, evidence of leaks from the transformers was not observed except at Substations 2 and 4. At Substation 2, oil stains were observed in the graveled ground surface within the fenced substation enclosure. Stained gravels are assumed to overlie bare ground. A small area of leakage was observed on the ground surface at Substation 4. The oil stains appeared to be limited to asphalt pavement. Sulzer personnel stated that the electrical transformers onsite have been tested for and do not contain PCBs. The transformer with leakage in Substation 2 was replaced by PGE in the summer of 2001. The transformer pad and associated asphalt area were cleaned by Sulzer in compliance with DEQ regulations. Photographs of Substations 2 and 4 are included in Appendix D.

3.8 SAND BLASTING AREA

No evidence of paint or primer spills was observed in the vicinity of the paint and sand blast building during the site visit. Rusty, dust-sized metallic particles were observed on the

ground surface north of the paint and sand blast building. The particles extended from the building to a catch basin west of the north end of the building. Sulzer personnel stated that this catch basin was plugged and that storm water in that area puddles during rainy weather. The SWPCP for the site does not indicate that this storm drain discharges to the storm drain system.

Based on work conducted by Enviro-Comp in July 2001, a sample of sand blast grit used in current site sand blasting operations contained zinc at a concentration of 40.5 mg/Kg. Grit is apparently tracked out of the paint building primarily by fork lift wheels. Sulzer has implemented periodic sweeping around the paint building and has cleaned out the catch basin sediment in the vicinity of the building. The most recent storm water sample obtained from Outfall D, which drains the portion of the site surrounding the paint building, contained zinc at a concentration of 1.99 mg/L, which exceeds the permit benchmark of 0.6 mg/L. Because the analysis reported total zinc concentrations, it is possible that the zinc detected in the storm water samples is adhered to suspended solids rather than being present in dissolved form.

3.9 METAL SLAG

Several large pieces of rusted metal slag were observed along the Willamette River bank. The pieces were up to 5 feet across and were located at and above the surface water level. Sulzer personnel did not have any knowledge of the source of the slag.

4.0 EXPOSURE PATHWAYS

Exposure to potential site contaminants in site groundwater, surface water, air, or soil may occur by inhalation, ingestion, or dermal contact. Exposure pathways for these media are discussed in the following sections.

4.1 GROUNDWATER

4.1.1 Hydrogeologic Setting

4.1.1.1 Regional Hydrogeology

The Sulzer site is located in the Portland Basin, which is a structural basin formed by Eocene to Miocene volcanic and marine sedimentary rocks. The Portland Basin is a northwest trending basin with northwest and northeast trending topographic lineations, faults, and folds (Swanson and others, 1993). One of the most prominent structures in the basin is the Tualatin Mountains-Clackamas River Fault that forms the western boundary of the basin. The volcanic and marine sedimentary rocks in the basin are offset downward into the basin by poorly defined faults (McFarland and Morgan, 1996). Eocene and Miocene units in the Portland Basin include the basalts of the Waverly Heights, Goble Volcanics, Skamania Volcanics, Scappoose Formation, Columbia River Basalt (CRB) Group, and Rhododendron Formation.

Pliocene and Pleistocene sediments fill the basin and are both lacustrine and fluvial in origin. The Sandy River Mudstone is the basal unit and is overlain and interbedded with the Troutdale Formation. The Troutdale Formation is probably the most commonly used aquifer in the basin (McFarland and Morgan, 1996) and contains a sequence of water bearing and

confining units. At some locations throughout the Portland Basin, the Boring Lava overlies the Troutdale Formation. Recent alluvium comprises the uppermost geologic unit. The recent alluvium is also utilized as a groundwater resource; however, its limited thickness and relatively low yield prohibit its use as a major resource.

The groundwater system in the Portland Basin is recharged principally from rainfall and stream flow. In most streams in the basin, stream stage is lower in the stream than the hydraulic head in the uppermost water bearing unit, indicating that the water bearing units discharge to the streams (McFarland and Morgan, 1996). Groundwater in the Portland Basin generally moves from upland areas downgradient to local, intermediate, or regional discharge areas such as springs, streams, and the Willamette and Columbia Rivers.

4.1.1.2 Site Hydrogeology

The Sulzer facility is underlain by recent alluvium, the Troutdale Formation, and the CRB. Hydrogeologic units generally correspond with geologic units. The Unconsolidated Sedimentary Aquifer is equivalent to the recent alluvium. The upper Troutdale Formation is differentiated into the Troutdale Gravel Aquifer (TGA) with the lower portion of the formation remaining as undifferentiated fine-grained aquifers.

Nine soil borings were completed by PEMCO as part of their delineation of the extent of impact associated with releases from onsite USTs. Borings B-1 through B-6 were completed at the former gasoline UST area and borings B-7 through B-9 were completed at the former waste oil UST area. Borings ranged in depth from 10 to 37.5 feet bgs. In the former gasoline UST area, soils consisted primarily of sands with varying amounts of clay, silt, and gravel. Wood and brick fragments were observed in borings B-1, B-3, and B-6 to a depth between 22 and 25 feet bgs, indicating that these soils were fill material. Silty sand, sand, and gravelly sand were encountered in borings B-7 through B-9. Explorations deeper than 37.5 feet bgs have not been completed onsite. Boring logs are included in Appendix E.

On the adjacent Port of Portland Terminal 2 site north of Sulzer Pumps, a boring was completed to a depth of 145 feet bgs. The well report for the boring (Well Log MULT 63657) indicates that fill of unspecified grain size was encountered from the ground surface to a depth of 20 feet bgs. Gravels were encountered between 20 and 145 feet bgs.

At the Griffith Rubber Mills site, located southwest of the Sulzer facility at 2439 NW 22nd Avenue, a boring was completed to a total depth of 395 feet bgs. Well Log MULT 1013 indicates that sandy soils were encountered between the ground surface and a depth of 22 feet bgs. Gravels were encountered between 22 and 165 feet bgs. Underlying the gravels was a sand unit extending to 198 feet bgs. A red clay unit was described between 198 and 285 feet bgs and was underlain by basalt, which extended to the terminal depth of the boring at 395 feet bgs.

Groundwater measurements were obtained from the Sulzer monitoring wells between 1992 and 1996 on either a quarterly or semi-annual basis. Groundwater was measured at depths ranging between approximately 16 and 25 feet bgs. In the PEMCO reports, groundwater measurements are reported in terms of depth to groundwater rather than groundwater

elevation. In addition, monitoring well casing elevations were not established; therefore, potentiometric surface maps have not been generated.

4.1.1.3 Climate

The site is located in the Willamette Valley Climate Zone. The climate is relatively mild throughout the year and is characterized by cool, wet winters and warm, dry summers. The Willamette Valley has a predominant winter rainfall climate. Typical distribution of precipitation includes about 50 percent of the annual total from December through February, lesser amounts in the spring and fall, and very little during summer. Rainfall amounts tend to vary inversely with temperatures; the cooler months are the wettest, and the warm summer months are the driest. The average annual precipitation at Station 356749 in Downtown Portland is 43.3 inches per year.

Extreme temperatures in the Willamette Valley are rare. Days with a maximum temperature above 90 degrees Fahrenheit occur only 5 to 15 times per year on average, and below 0 temperatures occur only about once every 25 years. Mean high temperatures range from the low 80s in the summer to about 40 degrees Fahrenheit in the coldest months, while average lows are generally in the low 50s in summer and low 30s in winter.

Relative humidity is highest during early morning hours, and is generally 80 to 100 percent throughout the year. During the afternoon, humidity is generally lowest, ranging from 70 to 80 percent during January and 30 to 50 percent during the summer months. Annual pan evaporation is about 35 inches, mostly occurring between April and October.

4.1.2 Groundwater Targets

Groundwater use in the site vicinity was evaluated by obtaining well reports from the OWRD in Section 28 and surrounding sections west of the Willamette River (Sections 29, 32, 33, and 34). Our search revealed 2,042 well reports in these sections of which 1,947 were for geotechnical borings or non-production monitoring wells. Of the remaining 95 reports, 10 were for abandonments of a well already on file and 5 were for abandonments of a well with no previous report, leaving 70 existing water supply wells in the sections. Details from these 95 water supply well reports are presented in Table 6.

The 70 existing water supply wells are completed in both the Troutdale Formation (38 wells) and the CRBs (32 wells). The intended use of the water is specified on 41 well reports, of which 37 are listed as industrial use, 3 are domestic, and 1 is irrigation. Due to the proximity of the Sulzer facility to the Willamette River, none of the water supply wells are located in the anticipated downgradient direction from the site. Construction of new domestic wells is considered unlikely because water for the site and vicinity is supplied by the City of Portland.

4.1.3 Conclusions

Groundwater beneath the site occurs in two heavily used aquifers including the TGA and the CRB Aquifer. Boring logs in the site vicinity indicate that the TGA is unconfined and that a clay confining unit may separate the TGA from the CRB Aquifer. Groundwater is not used beneath the site, and no water supply wells have been constructed between suspected contaminant sources onsite and the Willamette River. Therefore, the potential for human

exposure to groundwater beneath the site appears limited to an excavation worker-type scenario. Based on the results of prior groundwater monitoring of releases associated with the former gasoline USTs and waste oil UST, impacts to groundwater beneath the site appear to be limited in extent and decreasing in magnitude. It is therefore unlikely that shallow impacted groundwater from these two sources has reached the Willamette River.

4.2 SURFACE WATER

4.2.1 Hydrologic Setting

The Sulzer site is generally flat and located on the west bank of the Willamette River. Surface water onsite is collected by a system of storm drains and are discharged under an NPDES 1200J permit. The permit requires monitoring of outfall discharge for oil and grease and sheen at Outfalls A, B, and D. A site drainage map obtained from the site SWPCP with outfall locations are shown on a figure in Appendix B. In 1995, DEQ agreed to allow Sulzer to discontinue monitoring Outfall A because the outfall was a combined sewer overflow that periodically contained sewage. Metallic particulates may have been entrained in site runoff from the sand blasting area and discharged into the river via overland flow and/or Outfall D. Ongoing storm water monitoring indicates that site storm water contains elevated concentrations of zinc. Storm water monitoring results are summarized in Table 2.

In the SWPCP, the site has been divided into 11 drainage basins. Seven of the drainage basins contain storm drains, and four are considered non-point sources. Approximately 76 percent of the site is identified as impervious due to buildings or paved parking. Unpaved areas are gravel parking areas. Only drainage area NPS-I is identified as an area with runoff directly into the Willamette River. NPS-I is comprised of the Willamette River bank and shore beneath the pier along the east margin of the site. A copy of the SWPCP drainage map is included in Appendix B.

Data from the Oregon Climate Service for a downtown weather station indicates that the maximum 2-year, 24-hour rainfall is 2.65 inches. The entire site is also situated within the 500-year flood plain of the Willamette River.

4.2.2 Surface Water Targets

Although a Level I Ecological Screening has not been conducted for the site, information on surface water targets in the Portland Harbor is provided in an April 22, 2002 DEQ letter to Sulzer Pumps. Portland Harbor is comprised of a 6-mile reach of the Lower Willamette River extending from the upstream end of Sauvie Island at RM 3.5 and the upstream end of Swan Island at RM 9.5. Sulzer is located approximately 0.8-mile upstream of Portland Harbor at RM 10.3. The information presented in the DEQ letter (DEQ, 2002) for the Portland Harbor site is likely generally consistent with the Sulzer site and is restated in this section.

Recreational and subsistence fishing occur within the Lower Willamette River. Commercial fishing within the Portland Harbor is limited to a small Pacific lamprey fishery. Recreational boating, water skiing, swimming, and beach use also occur within the harbor.

The Lower Willamette River provides habitat for 39 fish species, including populations of wild cutthroat trout, rainbow trout, and mountain whitefish. White sturgeon is plentiful within the harbor. The harbor is also a migratory corridor, nursery habitat, and adult foraging area for two runs of Chinook salmon, two runs of steelhead trout, and individual runs of Coho and sockeye salmon.

Upper Willamette River populations of Chinook salmon and steelhead, which migrate through the harbor, are listed as threatened species under the Federal Endangered Species Act. The spring Chinook is listed as endangered in the Upper Willamette River evolutionary significant unit (ESU). Coho salmon are candidate species for listing in the Lower Columbia ESU, which includes the Lower Willamette River up to Willamette Falls in Oregon City. Chinook and steelhead are also listed as threatened species in the Lower Columbia River ESU. The Pacific lamprey is listed as a federal species of concern.

Great blue herons, cormorants, osprey, mergansers, kingfishers, peregrine falcons, and bald eagles routinely forage within the Portland Harbor area. The area is also part of the wintering range for the Aleutian Canada Goose. All are protected under the Migratory Bird Treaty Act. The peregrine falcon is federally listed as an endangered species, while the Aleutian Canada Goose is federally listed as a threatened species. The bald eagle also is a threatened species, but was recently proposed to be removed from this list.

There is little data on the nature and extend of the benthic community within Portland Harbor sediments. The Lower Willamette River is water quality limited for mercury in fish tissue and for pentachlorophenol in fish tissue and sediments in the vicinity of the McCormick and Baxter Superfund site within the Portland Harbor.

4.3 AIR

Releases from potential source areas identified in Section 3.0 are anticipated to have potentially impacted subsurface soil and groundwater except surface releases associated with the electrical transformers and fugitive sand blast grit. The combined aerial extent of transformer oil releases appears limited to an area less than approximately 50 square feet. In addition, transformer oil contains relatively little volatile compounds. The limited extent of impact combined with the non-volatile nature of the oil indicates that releases from electrical transformers are an insignificant source of air impact.

As previously stated, the Sulzer facility formerly had an air discharge permit primarily due to discharges from the painting and sand blasting operations. In August 1998, the DEQ determined that an air discharge permit was no longer required for the facility because the site was below the emission threshold of 10 tons per year and therefore cancelled Sulzer Pumps' air discharge permit.

4.4 DIRECT CONTACT

Potential sources available for direct contact include surface transformer oil releases, subsurface releases associated with former USTs, and sediments potentially impacted by metal slag and outfall discharges. The transformer oil release at Substation 4 is limited to an approximately 4-square-foot area of asphalt pavement. This release is in a portion of the site

with infrequent use by site workers. At Substation 2, the release is limited to the fenced substation compound. Access to this release is therefore limited to workers performing infrequent maintenance activities.

UST releases of petroleum hydrocarbons and solvents have been shown to be limited to subsurface soil and groundwater. Access to the impacted media is limited to future trench workers.

The metal slag on the Willamette River bank is essentially inaccessible. A fence prohibits access from the upland portion of the site and the pier prohibits access from the river. Outfall discharges are similarly restricted because they occur under the pier. A stairway exists north of the sand blasting building that provides access to the outfalls. Based on information provided by Sulzer, the outfalls are accessed only for the purpose of obtaining outfall discharge samples as specified in the site's NPDES 1200Z permit.

5.0 CONCLUSIONS AND RECOMMENDATIONS

GeoDesign has completed a PA of the Sulzer facility located at 2800 NW Front Avenue in Portland, Oregon. Our assessment included a review of available historical information, ownership and operational history, regulatory history, source areas and waste characteristics, and an evaluation of exposure pathways. Based on this assessment, we have identified both documented and potential environmental conditions.

Documented environmental conditions include residual soil and groundwater impacts at the former gasoline, waste oil, and solvent USTs; non-PCB-containing transformer oil releases to the ground surface at two electrical substations; zinc discharges from sand blasting operations to the storm sewer system; and metal slag along the Willamette River. Human exposure to these conditions is limited to infrequent contact by site workers or future excavation workers. Ecological exposure appears limited to potential impacts associated with zinc discharges and metal slag.

Two potential environmental conditions were identified and include a pair of unused heating oil USTs east of the headquarters building and an unused heating oil UST beneath the manufacturing building. It is unknown whether releases have occurred from these USTs. Potential releases would be limited to subsurface soil and groundwater.

Based on the results of this PA, GeoDesign deems Sulzer Pumps is in compliance with its DEQ requirements of performing and submitting this Preliminary Assessment.

♦ ♦ ♦

Please call if you have questions concerning this report.

Sincerely,

GeoDesign, Inc.

John F. King, R.G.
Project Geologist

Robert E. Belding, R.G.
Principal

REFERENCES

DEQ, 2002, Request for Performance of Preliminary Assessment with Sampling - Sulzer Pumps Site, letter dated April 22, 2002.

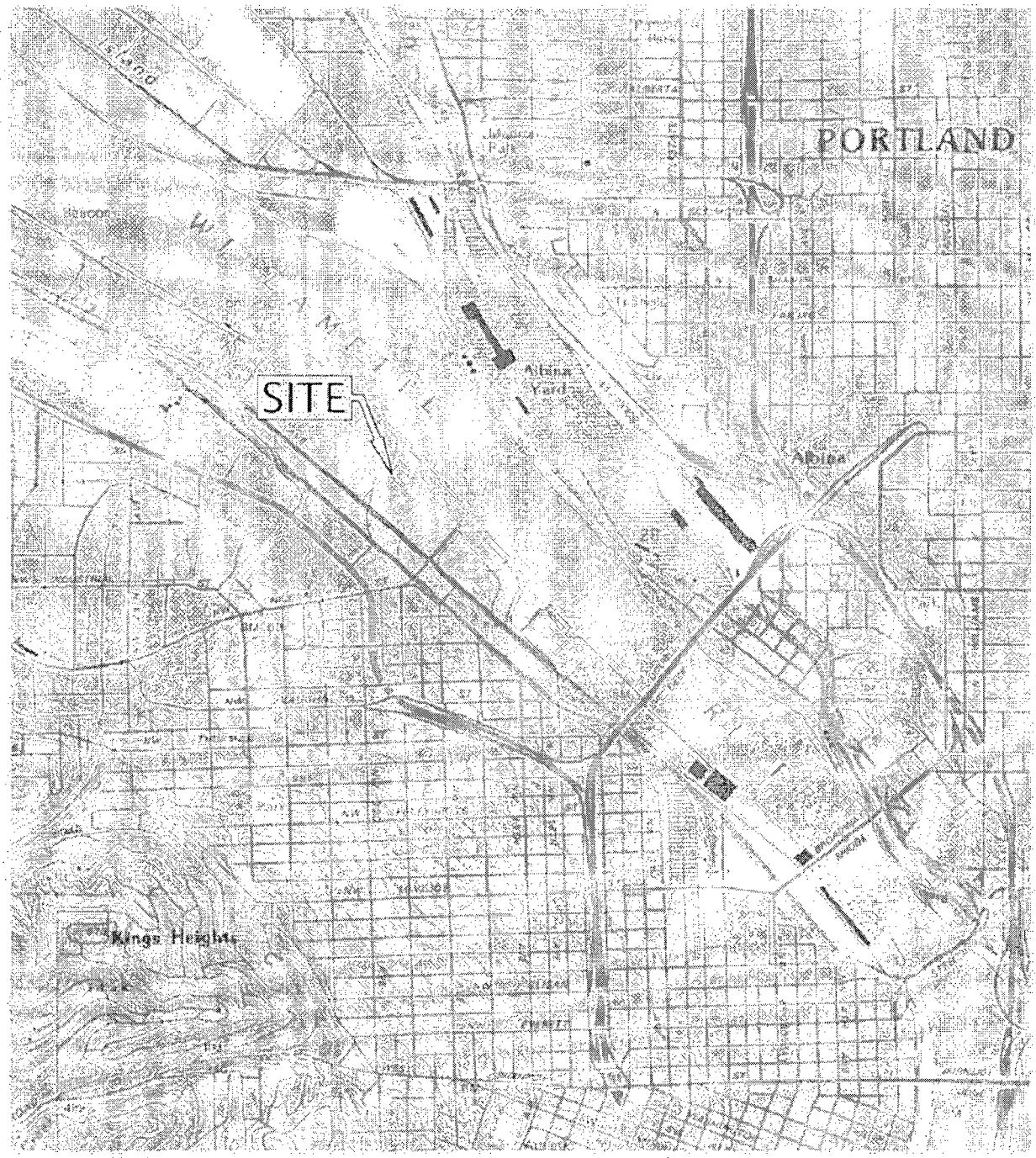
McFarland, W. D. and Morgan, D. S., 1996, Description of the Groundwater Flow System in the Portland Basin, Oregon and Washington: United States Geological Survey Water Supply Paper 96-2470-A.

PEMCO, 1990, Environmental Site Assessment for the Property Located at 2800 NW Front, Portland, Oregon.

Swanson, R. D., McFarland, W. D., Gonthier, J. B., and Wilkinson, J. W., 1993, A Description of Hydrogeologic Units in the Portland Basin, Oregon and Washington: United States Geological Survey Water Supply Paper 90-4196.

Figures

DEQ019804



USGS QUADRANGLE MAP
PORTLAND, OR-WA 1990

N

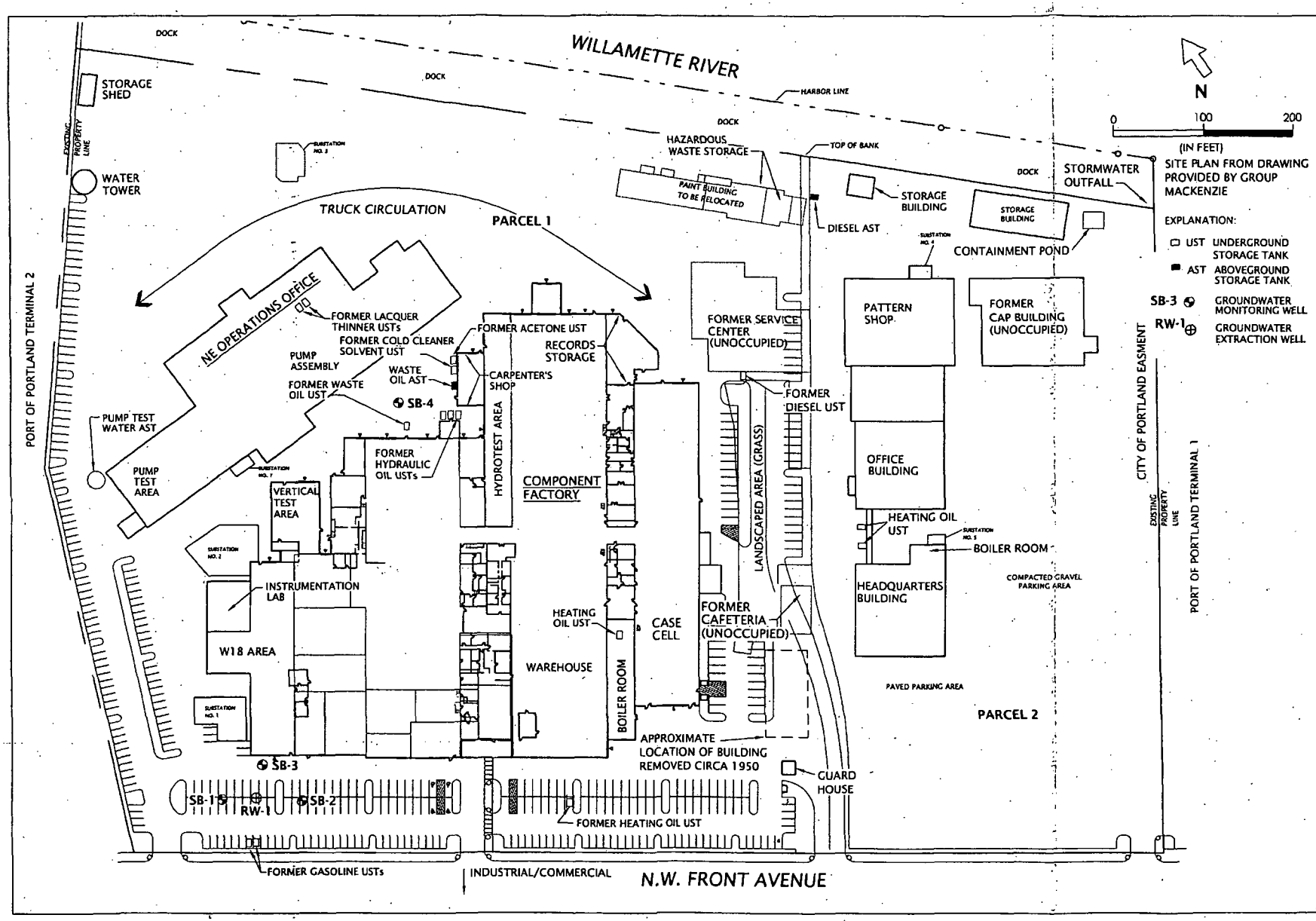
0 2000 4000
(IN FEET)

GEODESIGN INC

VICINITY MAP

SULZERPUMP-1-04	NOVEMBER 2002	FIGURE 1

DEQ019805



SITE PLAN

FIGURE 2

DECEMBER 2002

SULZERPUMP-1-04

GEODESIGN INC

DEQ019806

Tables

DEQ019807

Table 1
Summary of NPDES 1500J Permit Effluent Data
Sulzer Pumps Facility
Portland, Oregon

Date	TPH Method 418.1 (mg/)	Benzene	Ethylbenzene	Toluene	Total Xylenes	Free Product
		Method 8020 (µg/L)				
12/13/91	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
12/20/91	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
12/27/91	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/03/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/13/92	ND<0.5	1.8	8.9	1.8	16.9	No
01/17/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/24/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/31/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
02/07/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
02/14/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
02/21/92	75	ND<0.5	13	27	113	No
02/27/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/06/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/13/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/20/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/27/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
04/03/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2	No
04/10/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
04/17/92	9.4	10	ND<0.5	ND<0.5	24	No
04/24/92	6.0	0.9	1.1	2.1	43	No
05/04/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
06/05/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
06/12/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
06/19/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
06/25/92	ND<0.5	ND<0.5	ND<0.5	0.91	2.26	No
07/02/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
07/10/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
07/20/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
08/06/92	2.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
08/17/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
08/21/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
08/28/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
09/04/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
09/11/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
09/18/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
09/25/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
10/02/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
10/09/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
10/16/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
10/23/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
10/30/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
11/05/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No

Table 1
Summary of NPDES 1500J Permit Effluent Data
Sulzer Pumps Facility
Portland, Oregon

Date	TPH Method 418.1 (mg/)	Benzene	Ethylbenzene	Toluene	Total Xylenes	Free Product
		Method 8020 (µg/L)				
11/13/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
11/20/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
11/25/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
12/04/92	3.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
12/10/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
12/21/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
12/24/92	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/04/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/08/93	0.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/15/93	--	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/22/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
01/30/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
02/07/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
02/14/93	0.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
02/18/93	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
02/26/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/05/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/12/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/19/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
03/26/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
04/02/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
04/09/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
04/16/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
04/23/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
04/30/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
06/10/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
06/21/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
06/25/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
07/02/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
07/09/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
07/16/93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
07/23/93	2.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No
08/02/93	2.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	No

Notes:
TPH: total petroleum hydrocarbons
mg/L: milligrams per liter
µg/L: micrograms per liter
ND: not detected at a concentration greater than the laboratory reporting limit

Table 2
Summary of NPDES 1200Z Permit Effluent Data
Sulzer Pumps Facility
Portland, Oregon

Outfall	Date	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	pH	TSS	TOC	Oil and Grease	COD	Foam	Sheen
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	unitless	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
B	12/29/96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B	04/23/97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B	12/06/99	--	--	--	0.00523	0.00222	--	0.0813	--	7.20	ND<10.0	--	ND<5.0	--	No	No
B	04/14/00	--	--	--	0.00392	0.00101	--	0.0433	--	5.09	ND<10.0	--	ND<5.0	--	No	No
B	12/15/00	--	--	--	0.00602	0.00279	--	0.358	--	7.11	ND<10.0	--	ND<5.00	--	No	No
B	06/01/01	--	--	--	0.0206	0.00397	--	0.202	--	6.73	ND<10.0	--	ND<5.00	--	No	No
B	10/31/01	--	--	--	0.00511	0.00518	--	0.0649	--	6.96	ND<10.0	--	ND<5.00	--	No	No
B	05/28/02	--	--	--	0.0122	0.00578	--	0.132	--	6.18	ND<10.0	--	ND<5.00	--	No	No
D	12/29/96	ND<0.00100	ND<0.00100	0.0163	0.0324	0.105	0.0216	0.920	ND<0.000200	6.40	76.0	25.5	2.10	ND<5.00	No	Yes
D	04/23/97	ND<0.00100	ND<0.00100	0.00321	0.0128	0.0228	0.00857	0.480	ND<0.000200	6.52	ND<10.0	--	0.925	17.9	No	Yes
D	12/06/99	--	--	--	0.00806	0.0116	--	0.480	--	7.20	17.0	--	ND<5.0	--	No	Yes
D	04/14/00	--	--	--	0.0145	0.00691	--	0.611	--	5.22	ND<10.0	--	ND<5.0	--	No	Yes
D	12/15/00	--	--	--	0.00828	0.00754	--	2.37	--	6.93	ND<10.0	--	ND<5.00	--	Yes	Yes
D	06/01/01	--	--	--	0.0344	0.0206	--	1.69	--	7.00	13.0	--	ND<5.00	--	No	Yes
D	10/31/01	--	--	--	ND<0.0159	0.00601	--	0.0691	--	6.71	ND<10.0	--	ND<5.00	--	Yes	No
D	05/28/02	--	--	--	0.0363	0.0446	--	1.99	--	6.57	54.0	--	ND<5.00	--	No	No
Permit Benchmark		--	--	--	0.1	0.4	--	0.6	--	5.5 - 9.0	130	--	10	--	No	No

Notes:
TSS: total suspended solids
TOC: total organic carbon
COD: chemical oxygen demand
mg/L: milligrams per liter
ND: not detected at a concentration greater than the method reporting limit
Shaded cells indicate permit benchmark exceedence

DEQ019810

Table 3
Summary of NPDES 100J Permit Effluent Data
Sulzer Pumps Facility
Portland, Oregon

Date	pH unitless	Temperature (F)	Residual Chlorine (mg/L)	Flow (mgd)	Flow x Temperature
01/07/99	8.8	53	0.05	0.001	0.03
01/18/99	8.7	50	0.19	0.001	0.06
02/04/99	8.7	69	0.46	0.001	0.09
03/18/99	8.2	73	0.09	0.001	0.10
04/23/99	8.7	76	0.10	0.002	0.15
05/20/99	8.9	78	0.02	0.001	0.06
06/15/99	8.6	76	0.03	0.001	0.08
07/21/99	8.6	85	0.00	0.002	0.14
08/11/99	8.4	70	0.01	0.001	0.07
09/29/99	8.9	64	0.12	0.003	0.16
10/26/99	8.6	57	0.1	0.002	0.11
11/29/99	8.8	65	0.05	0.002	0.16
12/22/99	8.8	67	0.02	0.001	0.09
01/28/00	8.7	50	0.04	0.001	0.04
02/28/00	8.8	62	0.41	0.003	0.19
03/31/00	8.5	67	0.36	0.004	0.26
04/29/00	8.7	61	0.02	0.001	0.08
05/23/00	8.8	63	0.03	0.001	0.08
06/29/00	8.2	76	0.04	0.002	0.14
07/27/00	8.2	76	0.01	0.001	0.08
08/29/00	8.7	65	0.04	0.002	0.13
09/26/00	8.9	69	0.07	0.001	0.04
10/31/00	8.7	61	0.06	0.002	0.12
11/28/00	8.8	55	0.04	0.001	0.04
12/19/00	8.9	41	0.06	0.000	0.01
01/30/01	8.7	64	0.03	0.003	0.18
02/27/01	8.7	52	0.03	0.004	0.21
03/28/01	8.6	61	0.04	0.008	0.49
04/30/01	8.6	60	0.03	0.003	0.18
05/25/01	8.6	72	0.04	0.004	0.29
06/26/01	8.7	70	0.33	0.030	2.10
07/31/01	8.7	66	0.23	0.025	1.66
08/30/01	8.7	66	0.03	0.017	1.13
09/28/01	8.7	68	0.04	0.009	0.61
10/26/01	8.7	61	0.04	0.039	2.38
11/11/01	8.7	59	0.03	0.008	0.47
12/21/01	6.7	50	0.02	0.014	0.70
01/30/02	7.1	54	0.03	0.007	0.38
01/30/02	7.1	54	0.03	0.007	0.38
02/25/02	6.8	54	0.02	0.002	0.11
03/25/02	6.8	44	0.04	0.002	0.09
04/30/02	7.0	69	0.10	0.019	1.31
05/29/02	7.2	70	0.06	0.030	2.10
06/26/02	7.1	86	0.33	0.030	2.58
07/29/02	6.9	64	0.011	0.030	1.92
09/03/02	7.3	69	0.02	0.030	2.07
09/26/02	7.1	69	0.018	0.017	1.17
Permit Benchmark	6.0 - 9.0	100	0.5	0.05	25

Notes:
F: degrees Fahrenheit
mg/L: milligrams per liter
mgd: millions of gallons per day

DEQ019811

Table 5
Summary of UST Groundwater Sampling Data
Sulzer Pumps Facility
Portland, Oregon

Well	Date	Depth to Water	TPH Method 418.1 (mg/L)	Benzene	Ethyl-benzene	Toluene	Total Xylenes	Lead	Acetone	Vinyl Chloride	TCE	cis-1,2-DCE	1,2-DCE	1,1-DCA	1,1,2-TCA	PCE	Methylene Chloride
				Method 8020 (µg/L)					VOCs Method 8240 (µg/L)								
SB-1	12/06/91	23.37	0.7	2.4	ND<1.0	ND<1.0	ND<1.0	--	--	--	--	--	--	--	--	--	--
	03/13/92	23.43	3	ND<0.50	ND<0.50	ND<0.50	1.6	--	--	--	--	--	--	--	--	--	--
	06/17/92	24.20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	09/18/92	--	0.45 (Diesel)	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND	--	--	--	--	--	--	--	--	--
	12/10/92	24.06	12	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND	--	--	--	--	--	--	--	--	--
	03/10/93	24.39	1.1	ND<0.50	ND<0.50	ND<0.50	1.6	--	--	--	--	--	--	--	--	--	--
	06/28/93	22.57	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	08/31/93	25.20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	01/17/94	23.52	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	04/15/94	23.24	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1	--	--	--	--	--	--	--	--	--	--
	07/21/94	24.03	ND<0.50	ND<0.50	0.5	ND<0.50	0.7	--	--	--	--	--	--	--	--	--	--
	01/17/95	21.27	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	07/07/95	21.61	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	12/26/95	17.05	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	07/03/96	18.23	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	01/07/97	14.13	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
SB-2	12/06/91	23.42	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	--	--	--	--	--	--	--	--	--
	03/13/92	23.43	3	ND<0.50	ND<0.50	ND<0.50	1.6	--	--	--	--	--	--	--	--	--	--
	06/17/92	24.72	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	06/17/92	24.41	2.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	09/18/92	--		ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.54	--	--	--	--	--	--	--	--	--
	12/10/92	24.50	4.8	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	03/10/93	22.80	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	06/28/93	25.15	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	08/31/93	22.76	1.4	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	01/17/94	22.76	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	04/15/94	23.43	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	07/21/94	21.03	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	01/17/95	20.75	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	07/07/95	16.74	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	12/26/95	16.72	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	07/03/96	16.72	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	01/07/97	15.10	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
SB-3	12/06/91	23.31	1.2	69	ND<1.0	ND<1.0	ND<1.0	--	--	--	--	--	--	--	--	--	--
	03/13/92	22.69	23	4.8	0.7	0.58	ND<0.50	--	--	--	--	--	--	--	--	--	--
	06/17/92	23.83	20	3.4	ND<0.50	ND<0.50	2	--	--	--	--	--	--	--	--	--	--
	09/18/92	--	0.21 (Diesel)	ND<0.50	ND<0.50	0.93	ND<0.50	--	--	--	--	--	--	--	--	--	--
	12/10/92	23.69	36	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	03/10/93	24.00	19	0.9	ND<0.50	ND<0.50	2.1	--	--	--	--	--	--	--	--	--	--
	06/28/93	21.30	4.6	2.4	0.7	0.5	1.6	--	--	--	--	--	--	--	--	--	--
	08/31/93	24.65	12	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	01/17/94	23.29	17	1.9	ND<0.50	ND<0.50	1.2	--	--	--	--	--	--	--	--	--	--
	04/15/94	23.05	3.6	3.5	ND<0.50	0.6	1.8	--	--	--	--	--	--	--	--	--	--
	07/21/94	23.75	0.9	0.5	0.6	ND<0.50	0.8	--	--	--	--	--	--	--	--	--	--
	01/17/95	20.76	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
	07/07/95	20.19	ND<0.50	10	0.82	8.3	33	--	--	--	--	--	--	--	--	--	--
	12/26/95	16.48	0.7	5.3	ND<0.50	5.0	18	--	--	--	--	--	--	--	--	--	--
	07/03/96	17.35	0.72	1.2	ND<0.50	1.8	6.8	--	--	--	--	--	--	--	--	--	--
	01/07/97	13.40	1.09	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--

DEQ019812

Table 4
Summary of UST Soil Sampling Data
Sulzer Pumps Facility
Portland, Oregon

UST	Sample	Depth	Date	TPH	Acetone	PCE	Methylene Chloride	cis-1,2-DCE	trans-1,2-DCE	TCE	Others	Benzene	Ethyl-benzene	Toluene	Total Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
				Method 418.1	Method 3810	Method 8010						Method 8020				TCLP using Method 1311, 6010, 7000 series							
				(mg/Kg)	(mg/Kg)	(µg/Kg)						(µg/Kg)				(mg/L)							
Gasoline Pair	[illegible]	[illegible]	08/31/90	1,800																			
	[illegible]	[illegible]	08/31/90	16																			
	1	8	10/23/90	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2	8	10/23/90	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3	10	10/23/90	2,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4	9	10/23/90	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	10	10/23/90	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6	18	10/23/90	5,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7	8.5	10/23/90	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lacquer Thinner Pair	[illegible]	[illegible]	09/04/90	420																			
	[illegible]	[illegible]	09/04/90	36																			
	1	5	10/23/90	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2	5	10/23/90	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3	8	10/23/90	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4	5	10/23/90	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	5	10/23/90	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydraulic Oil	[illegible]	[illegible]	09/05/90	130																			
	[illegible]	[illegible]	09/05/90	140																			
	[illegible]	[illegible]	09/05/90	5,100																			
	1	5	10/18/90	ND<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2	8	10/18/90	ND<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	[illegible]	[illegible]	10/18/90	7,000																			
	4	8	10/18/90	42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	5.5	10/18/90	ND<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6	5.5	10/18/90	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7	5.5	10/23/90	ND<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cold Cleaner and Acetone	[illegible]	[illegible]	09/06/90	[illegible]	100	ND<10	ND<10	ND<10	ND<10	ND													
	[illegible]	[illegible]	09/06/90	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]													
	1	8.5	10/19/90	--	ND<0.2	25	41	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
	2	8.5	10/19/90	--	ND<0.2	27	54	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
	3	5	10/19/90	--	--	29	44	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
	4	5	10/19/90	--	ND<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	5	10/19/90	--	--	12	35	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
	6	5	10/19/90	--	--	12	46	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
	7	5.5	10/31/90	--	--	18	ND<1	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
	8	5.5	10/31/90	--	--	13	ND<1	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
	9	10	10/31/90	--	--	57	ND<1	ND<1	ND<1	ND<1	ND	--	--	--	--	--	--	--	--	--	--	--	--
Heating Oil	[illegible]	[illegible]	10/27/90	7,600																			
	1	13.5	12/03/90	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2	9	12/03/90	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3	9	12/03/90	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4	9	12/03/90	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	9	12/03/90	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Waste Oil	[illegible]	[illegible]	09/28/90	39,000		150,000	ND<1,000	ND<1,000	ND<1,000	68,000	ND<1,000												
	[illegible]	[illegible]	10/19/90	760		200	ND<125	20,000	ND<125	2,600	ND<125	ND<125	320	ND<125	ND<125	0.030	14	ND<0.01	ND<0.01	ND<0.05	ND<0.001	ND<0.01	ND<0.01
	1	11	10/23/90	170	--	270	ND<2	710	52	220	ND	--	--	--	--	--	--	--	--	--	--	--	--
	2	11	10/23/90	10,000	--	1,000	ND<100	550	ND<100	1,600	ND	--	--	--	--	--	--	--	--	--	--	--	--
	3	11	10/23/90	4,800	--	ND<100	ND<100	2,700	ND<100	ND<100	ND	--	--	--	--	--	--	--	--	--	--	--	--
	4	11	10/23/90	92	--	ND<2	ND<2	ND<2	ND<2	ND<2	ND	--	--	--	--	--	--	--	--	--	--	--	--
	5	17	10/23/90	ND<5	--	ND<5	ND<5	35	ND<5	ND<5	ND	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
UST: underground storage tank
TPH: total petroleum hydrocarbons
PCE: tetrachloroethene
DCE: dichloroethene
TCE: trichloroethene
TCLP: toxicity characteristic leaching procedure
mg/Kg: milligrams per kilogram
µg/Kg: micrograms per kilogram
mg/L: milligrams per liter
ND: not detected at a concentration greater than the laboratory reporting limit
Shaded cells indicate samples representing soil that was subsequently excavated and disposed offsite.

DEQ019813

Table 5
Summary of UST Groundwater Sampling Data
Sulzer Pumps Facility
Portland, Oregon

Well	Date	Depth to Water	TPH Method 418.1 (mg/L)	Benzene	Ethyl-benzene	Toluene	Total Xylenes	Lead	Acetone	Vinyl Chloride	TCE	cis-1,2-DCE	1,2-DCE	1,1-DCA	1,1,2-TCA	PCE	Methylene Chloride
				Method 8020 (µg/L)					VOCs Method 8240 (µg/L)								
SB-4	12/06/91	23.41	ND<0.50	ND<10	ND<10	ND<10	ND<10	--	ND<250	ND<50	240	440	--	ND<10	ND<10	22	ND<10
	03/13/92	22.34	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	12	--	--	41	2	18	4	5
	06/17/92	23.29	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	5	--	--	19	1	13	3	1
	09/18/92	--	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	5	--	--	49	2	40	14	1
	12/10/92	24.28	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	22	--	--	150	2.4	46	33	1.5
	03/10/93	23.68	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	11	--	--	100	2.6	62	23	1.1
	06/28/93	20.08	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	9.4	--	--	79	1.6	24	20	3.2
	08/31/93	23.1	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	ND<5.0	--	--	45	1.5	130	190	ND<1.0
	01/17/94	23.99	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	--	--	--	--	--	--	--	--	--
	04/15/94	22.78	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	--	--	--	--	--	--	--	--	--
	07/21/94	23.22	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<20	ND<5.0	--	--	19	1.0	16	19	ND<1.0
	01/17/95	17.89	ND<0.50	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<20	ND<5	--	--	38	ND<1	12	7.5	ND<1
	01/26/95	--	--	--	--	--	--	--	6.5	--	--	--	--	--	--	--	--
	07/07/95	20.15	ND<0.50	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	--	ND<5.0	8.1	19	--	ND<2.0	ND<2.0	6.5	ND<5.0
	12/26/95	16.25	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	36	3.3	8.7	71	--	1.5	8.7	5.1	ND<2.0
	07/03/96	15.88	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<25	15	17	91	--	5.2	ND<2.0	3.3	ND<2.0
	01/07/97		ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	--	--	--	--	--	--	--	--	--
RW-1	07/03/96	15.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/10/92	--	7.5	109	19	270	1500	--	--	--	--	--	--	--	--	--	--
	01/17/94	19.96	20	110	11	17	1500	--	--	--	--	--	--	--	--	--	--
	04/15/94	19.65	5.4	120	3.5	180	610	--	--	--	--	--	--	--	--	--	--
	07/21/94	20.48	6.1	140	7.0	2.6	360	--	--	--	--	--	--	--	--	--	--
	01/17/95	17.89	3.1	62	15	310	1340	--	--	--	--	--	--	--	--	--	--
	07/07/95	18.00	2.1	220	110	ND<2.5	140	--	--	--	--	--	--	--	--	--	--

Notes:
TPH: total petroleum hydrocarbons
TCE: trichloroethene
DCE: dichloroethene
DCA: dichloroethane
TCA: trichloroethane
PCE: tetrachloroethene
mg/L: milligrams per liter
µg/L: micrograms per liter
ND: not detected at a concentration greater than the laboratory reporting limit

DEQ019814

Table 6
Summary of Water Supply Well Reports in the Site Vicinity
Sulzer Pumps Facility
Portland, Oregon

County Code	Well Log ID	Version	Startcard	Township	Range	Section	Quarter 160	Quarter 40	Last Name	First Name	Company Name	First Water (feet bgs)	Completed Depth (feet bgs)	Tax Lot	Complete Date	Received Date	Bonded Company	Last Name	First Name	Street of Well	Street	Well Type	Well ID	Static Water Level (feet bgs)	Yield	work_abandonment	work_alter_record	work_alter_repair	work_conversion	work_deepening	work_new_constr	use_community	use_domestic	use_industrial	use_injection	use_irrigation	use_monitoring	use_thermal	use_livestock
MULT	1074	1		1 N	1 E	34		SE			NORTHWEST NATURAL GAS CO.		0		11/11/82	12/07/82	HANSEN DRILLING CO. INC.	HANSEN	JIM		125 NE FLANDERS ST	W									X								
MULT	1058	1		1 N	1 E	34	SW	SW			BENSON HOTEL		28		12/31/13	12/31/13					108 SW BROADWAY	W									X			X					
MULT	1052	1		1 N	1 E	34	SE	SW			U S NATIONAL BANK	24	35		03/29/72	04/04/72	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		308 SW 6TH AVE	W		20.8	1000						X								
MULT	58494	1	121830	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/08/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30858	8	20						X								
MULT	58496	1	121826	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/08/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30856	8	20						X								
MULT	58495	1	121828	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/08/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30857	8	20						X								
MULT	58490	1	121838	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/10/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30862	8	20						X								
MULT	58492	1	121834	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/09/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30860	8	20						X								
MULT	58491	1	121836	1 N	1 E	28					COFFMAN EXCAVATION	8	35	401	06/09/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30861	8	20						X								
MULT	58493	1	121832	1 N	1 E	28					COFFMAN EXCAVATION	8	35	401	06/09/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30859	8	20						X								
MULT	1047	1		1 N	1 E	34	SE	SW			U S BANKCORP	22	39		07/13/81	08/03/81	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		555 SW OAK ST	W		7.3	0						X								
MULT	1059	1		1 N	1 E	34	SW	SW			LIPMAN WOLF AND CO.		40		12/31/11	12/31/11					521 SW 5TH AVE	W									X		X						
MULT	1014	1		1 N	1 E	28	SW	SE			BLITZ WEINHARDT CO.		50								1081 NW UPSHUR	W									X			X					
MULT	1050	1		1 N	1 E	34	SE	SW			U S BANCORP	25	55		07/22/81	08/03/81	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		555 SW OAK ST	W		21	50						X								
MULT	1051	1		1 N	1 E	34	SE	SW			U S NATIONAL BANK	41	55		02/28/72	04/04/72	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		308 SW 6TH AVE	W		25	169						X								
MULT	1048	1		1 N	1 E	34	SE	SW			U S BANKCORP	33	55		07/22/81	08/03/81	R J STRASSER DRILLING CO	STRASSER	ROBERT L		555 SW OAK ST	W		24	50						X								
MULT	1046	1		1 N	1 E	34	SE	SW			U S BANKCORP	26	55		07/18/81	08/03/81	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		555 SW OAK ST	W		21	50						X								
MULT	1081	1		1 N	1 E	34	SE	NW			SWIFT AND CO.		60								434 NW HOYT	W									X			X					
MULT	1078	1		1 N	1 E	34	NW	SE			LA GRANDE CREAMERY		61									W									X		X						
MULT	1011	1		1 N	1 E	28	SW	NW			A YOUNG AND SON IRON WORKS		77		12/31/42	12/31/42					2300 NW NICOLAI ST	W									X			X					
MULT	1072	1		1 N	1 E	34	NE	SW			PORTLAND FISH CO. (ATLANTIC)		78		12/31/42	12/31/42					159 NW 3RD AVE	W		21	200						X			X					
MULT	1070	1		1 N	1 E	34	NE	SW			PORTLAND FISH CO.		78		12/31/42	12/31/42		STRASSER	R J		301 NW 3RD	W									X			X					
MULT	1063	1		1 N	1 E	34	SW	SW			NORTHWEST ELECTRIC CO. (PP AND L)		97		12/31/13	12/31/13					921 WASHINGTON SW	W									X			X					
MULT	1071	1		1 N	1 E	34	NE	SW			HOYT HOTEL		112		01/08/65	02/24/65	A M JANNSEN DRILLING CO.	JANNSEN	EDWARD M		814 NW HOYT	W		22	34						X			X					
MULT	1094	1		1 N	1 E	32			ENEBO-	KONVALE M	ENEBO, LAVERNE /		123		08/26/89	09/24/89	HAAKON BOTTNER DRILLING CO.	BOTTNER	HAAKON		18909 SE STARK ST	W		48	45					X			X						
MULT	1012	1		1 N	1 E	28	NE	SW			ZERUNG CHEMICAL	124	126		06/12/57	08/09/57	A M JANNSEN DRILLING CO.	JANNSEN	EDWARD M		2201 NW 20TH AVE	W		23	30						X			X					
MULT	1016	1		1 N	1 E	28	SE	SE			COMMISSION OF PUBLIC DOCKS		141		07/31/41	12/31/41					1844 NW FRONT AVE	W									X								
MULT	1080	1		1 N	1 E	34	NE	SE			NORTHWESTERN ICE AND COLD STORAGE CO.		145		02/28/27	12/31/27					88 SE WASHINGTON	W		83	118						X			X					
MULT	1060	1		1 N	1 E	34	SW	SW			OLD OREGONIAN BLDG		147								537 SW 6TH AVE	W									X			X					
MULT	3535	1		1 N	1 E	34	SW	SW			LANDSING PROPERTIES		149		11/19/88	06/30/93		HANSEN	JIM		421 SW 6 AVE SUITE 1010	W									X				X				
MULT	1065	1		1 N	1 E	34	SW	SW			UNITED ARTISTS THEATRE		149					STRASSER	R J		PARK & WASHINGTON	W		28	500						X								
MULT	1067	1		1 N	1 E	34	SW	SW			EQUITABLE SAVINGS AND LOAN ASSOCIATION		158		10/24/46	12/31/46	A M JANNSEN DRILLING CO.				411 SW 6TH AVE	W		15	225						X			X					
MULT	1073	1		1 N	1 E	34	SW	SW			WEISFIELDS		159		09/28/40	12/31/40	A M JANNSEN CO.					W		32.4							X			X					
MULT	1057	1		1 N	1 E	34	SW	SW			1ST NATIONAL BANK		161		12/31/58	12/31/58		STRAYER	LANCE			W		18.5							X			X					
MULT	1084	1		1 N	1 E	34	SW	SW			HOFFMAN CONSTRUCTION CO		161		06/08/58	08/07/58	BARRON & STRAYER	STRAYER	LANCE		6TH & WASHINGTON STS	W		11.3	165						X								
MULT	1066	1		1 N	1 E	34	SW	SW			EQUITABLE SAVINGS AND LOAN ASSOCIATION		165		02/20/47	12/31/47					411 SW 6TH AVE	W		15	510						X			X					
MULT	1068	1		1 N	1 E	34	SE	SE			S P AND S RAILROAD CO.		166		09/18/43	12/31/43		STRASSER	R J		900 NW FRONT AVE	W									X			X					
MULT	1069	1		1 N	1 E	34	NE	SW			DAY LITE MEAT MARKET		180		12/31/39	12/31/39		JANNSEN	A M		101 NW THIRD AVE	W									X								
MULT	1034	1		1 N	1 E	33	NE	SW			FRED MEYER		195		12/31/39	12/31/39		STRASSER	R J		2011 W BURNSIDE	W									X								
MULT	1042	1		1 N	1 E	33	SE	SE			PACIFIC TELEPHONE AND TELEGRAPH CO.		255		12/31/47	12/31/47	JANNSEN DRILLING CO.				509 SW OAK ST	W		210	299						X								
MULT	1085	1		1 N	1 E	34	SE	SE			CORVALLIS CREAMERY		261				O E JANNSEN DRILLING CO.					W			65						X			X					
MULT	1040	1		1 N	1 E	33	SE	NE			HAYDEN ISLAND INC.		269		06/02/78	07/17/78	HANSEN DRILLING CO. INC.	SAMPLE	MARVIN		HWY I-5 JANTZEN BEACH	W		22	1830		X						X						
MULT	1041	1		1 N	1 E	33	SE	NE			HAYDEN ISLAND INC.	233	289		06/15/72	06/21/72	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		HWY 5 AND INTERSTATE BRIDGE	W		5	2200						X		X						
MULT	1032	1		1 N	1 E	33	NW	SW	THIELE	HENRY		125	281		05/31/51	12/31/51		JANNSEN	A M		2305 W BURNSHID	W		10	75						X			X					
MULT	1037	1		1 N	1 E	33	SE	SE			FIRST NATIONAL BANK; UPTOWN BRANCH	106	300		10/01/56	07/15/57	R J STRASSER DRILLING CO.	STRASSER	R J		605 SW 14TH AVE	W		91	0						X								
MULT	1075	1		1 N	1 E	34		NW			MEMORIAL COLOSSEUM		300		07/25/58	08/01/60	BARRON & STRAYER	STRAYER	LANCE			W		70	1500						X			X					
MULT	1077	1		1 N	1 E	34	NE	NE			COLISEUM GARDENS		332		04/04/66	06/15/66	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		1520 NE 2ND AVE	W		118	334						X								
MULT	1076	1		1 N	1 E	34	NE	NE			COLISEUM GARDENS		361		05/19/66	06/15/66	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		1520 NE 2ND AVE	W		118.5	350						X								
MULT	1013	1		1 N	1 E	28	NW	SW			GRIFFITH RUBBER MILLS		395		08/31/46	12/31/46		JANNSEN	A M		2439 NW 22ND	W		33							X			X					
MULT	2428	1		1 N	1 E	33					OSWEGO JELLY	390	396		04/10/57	04/29/57	A M JANNSEN DRILLING CO.	JANNSEN	EDWARD M		1840 SW STEPHENSON RD	W		241	25					X				X					
MULT	1036	1		1 N	1 E	33		SW			GOOD SAMARITAN HOSPITAL		400		01/17/58	04/21/58	STEINMAN BROTHERS	MCCONNELL	R E		1015 NW 22ND	W		97	385						X					X			
MULT	5133	1		1 N	1 E	33					PACIFIC NORTHWEST BELL TELEPHONE	0	400		08/01/86	09/06/86		HANSEN	JIM			W		0							X								
MULT	5132	1		1 N	1 E	33					PACIFIC NORTHWEST BELL TELEPHONE CO.	0	400		08/08/86	09/06/86		HANSEN	JIM			W		0							X								
MULT	1082	1		1 N	1 E	34	SW	SW			DIRKS MEDICAL CENTER		418		01/10/58	06/26/58	BARRON & STRAYER	STRAYER	LANCE		10TH AND WASHINGTON STS	W									X								
MULT	1019	1		1 N	1 E	33	SE	SE			FIRST NATIONAL BANK OF PORTLAND; MAIN BRANCH		460		11/30/55	07/15/57					SW 5TH & STARK STS	W		88	300		X							X					
MULT	5135	1		1 N	1 E	34					NORTHWEST NATURAL GAS CO.	0	460		08/15/86	09/08/86						W		0							X								
MULT	1064	1		1 N	1 E	34	SW	SW			EQUITABLE SAVINGS AND LOAN ASSOC.		508		12/16/46	12/31/46	A M JANNSEN DRILLING CO.			PORTLAND	411 SW 6TH AVE	W		38	700						X			X					
MULT	1056	1		1 N	1 E	34	SW	SW			FIRST NATIONAL BANK		544		04/09/58	04/21/58	BARRON & STRAYER	STRAYER	LANCE		6TH & WASHINGTON ST	W		45	1000						X			X					
MULT	1082	1		1 N	1 E	34	SE	NW			TERMINAL ICE AND STORAGE CO.		552		08/31/14	12/31/14		JANNSEN	O E		320 NW HOYT	W			500						X			X					
MULT	1038	1		1 N	1 E	33	SW	SE			US NATIONAL BANK; STADIUM BRANCH		563		07/31/46	12/31/46					2000 SW MORRISON	W		100	100						X			X					
MULT	1017	1		1 N	1 E	28					HERCULES POWDER CO.		574		10/13/62	10/24/62	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		3366 NW YEON AVE	W		30	315						X			X					
MULT	1061	1		1 N	1 E	34	SW	SW			DIRKS MEDICAL CENTER		591		04/14/58	06/26/58	BARRON & STRAYER	STRAYER	LANCE	PORTLAND	10TH & WASHINGTON STS	W		59	610						X			X					
MULT	4113	1	17500	1 N	1 E	34	SW	SW			WESTON INVESTMENT CO.	624	645		03/30/94	04/20/94		HANSEN	JIM J	421 SW 6TH AVE	2154 NE BROADWAY	W		12						X					X				
MULT	1018	1		1 N	1 E	28		SW			HERCULES POWDER CO.		679		05/13/63	05/29/63	R J STRASSER DRILLING CO.	STRASSER	ROBERT L		3386 NW YEON AVE	W		32	365						X			X					
MULT	1083	1		1 N	1 E	34	SW	SW			PACIFIC TELEPHONE AND TELEGRAPH CO.		690		12/29/50	12/31/50					508 SW OAK ST	W		31	375						X			X					
MULT	1054	1		1 N	1 E	34	SW	SW			FEDERAL RESERVE BANK OF SAN FRANCISCO		755		02/22/52	12/31/52	R J STRASSER DRILLING CO.					W		40	500						X			X					
MULT	1033	1		1 N	1 E	33	NW	SW			NORTHWEST BREWING CO.				05/27/38	12/31/38						W		76							X			X					
MULT	1015	1		1 N	1 E	28	SW	SE			PORTLAND ICE AND COLD STORAGE										1610 NW 18TH	W									X			X					
MULT	1043	1		1 N	1 E	33	SW	SW	WHITCOMB	WALTER											805 SW VESTA	W		98	5						X								
MULT	1044	1		1 N	1 E	33					ICE COLISEUM											W									X								
MULT	4960	1	72883	1 N	1 E	34	NE	SW	KURILO	JAMES			0	1500	05/19/95	05/30/95		JANNSEN	PRESTON A	550 NW 123RD	550 NW 123RD	W		0	2	X					X		X						
MULT	4084	1	82373	1 N	1 E	34	NW	NE			METRO EXPO AND REC COMM	0	0			04/08/94		MCINNIS	GREG	1401 N WHEELER	PO BOX 2746	W		0		X													
MULT	4178	1	71190	1 N	1 E	33	NW	SW			BAUGH CONSTRUCTION OREGON INC.	0	0			10/06/94		JANNSEN	ROY H	23 RD & BURNSIDE, PORTLAND	PO BOX 787	W		0		X												X	
MULT	1049	1		1 N	1 E	34	SE	SW			U S BANKCORP	0	0			05/21/82	R J STRASSER DRILLING CO	STRASSER	ROBERT L		555 SW OAK ST	W		0		X													
MULT	58646	1	121849	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION		0	401	07/19/99	07/29/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30867			X													
MULT	58645	1	121852	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION		0	401	07/19/99	07/29/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30868			X													
MULT	58647	1	121847	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION		0	401	07/19/99	07/29/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30866			X													
MULT	58644	1	121843	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION		0	401	07/19/99	07/29/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30864			X													
MULT	58648	1	121845	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION		0	401	07/19/99	07/29/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30865			X													
MULT	58649	1	121841	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION		0	401	07/19/99	07/29/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30863			X													
MULT	4604	1	68111	1 N	1 E	34	SW	SW			THE ALTON GROUP	0	0			02/07/95		ERLER	RODNEY C	521 SW 5TH	6120 SW 66TH COURT	W		0		X								X					
MULT	63385	1	138873	1 N	1 E	34		NW			CITY OF PORTLAND		0		03/05/01	03/08/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY	1221 SW 4TH	W		17		X													
MULT	63387	1	138871	1 N	1 E	34		NW			CITY OF PORTLAND		0			03/08/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY	1221 SW 4TH	W		17		X													
MULT	63384	1	138874	1 N	1 E	34		NW			CITY OF PORTLAND		0		03/05/01	03/08/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY	1221 SW 4TH	W		17		X													
MULT	63386	1	138872	1 N	1 E	34		NW			CITY OF PORTLAND		0		03/02/01	03/08/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY	1221 SW 4TH	W		17		X													
MULT	58484	1	121850	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/14/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30868	8	20						X								
MULT	58487	1	121844	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/11/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30865	8	20						X								
MULT	58485	1	121848	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/14/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30867	8	20						X								
MULT	58486	1	121846	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/14/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30866	8	20						X								
MULT	58489	1	121840	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/10/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30863	8	20						X								
MULT	58488	1	121842	1 N	1 E	28	SW	NW			COFFMAN EXCAVATION	8	35	401	06/10/99	07/09/99	YOUNGBERG DRILLING	YOUNGBERG	W O	FAIRVIEW LAKEWAY, FAIRVIEW	PO BOX 687	W	30864	8	20						X								
MULT	63374	1	128851	1 N	1 E	34		NW			CITY OF PORTLAND		40		02/04/01	03/06/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY ST	1221 SW 4TH	W		16							X								
MULT	63373	1	128404	1 N	1 E	34		NW			CITY OF PORTLAND		40		02/04/01	03/06/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY ST	1221 SW 4TH	W		16							X								
MULT	63371	1	128402	1 N	1 E	34		NW			CITY OF PORTLAND		40		02/02/01	03/06/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY ST	1221 SW 4TH	W		16							X								
MULT	63372	1	128403	1 N	1 E	34		NW			CITY OF PORTLAND		40		02/02/01	03/06/01	DON FEAKIN	FEAKIN	DON	9TH AND LOVEJOY ST.	1221 SW 4TH	W		16							X								

DEQ019815

DEQ019816

Oregon DEQ Hazardous Waste Site Report

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Facility is Hazardous Waste Generator
Current Status: SQG as of 2/28/2002

Hazardous Waste Reporting History

Year	Generator Status	TRI Status	Number of Toxics Used	Number of Waste Streams	Tons Generated
2001	SQG	YES	4	2	3
2000	SQG	YES	4	3	3
1999	SQG	YES	4	2	4
1998	SQG	YES	3	4	3
1997	SQG	YES	4	2	4
1996	SQG	YES	4	1	3
1995	SQG	NO	0	2	3
1994	LQG	YES	1	3	5
1993	SQG	YES	0	5	5
1992	SQG	YES	0	3	2
1991	SQG	YES	0	2	10

Generator Status Descriptions

LQG Large Quantity Generator

SQG Small Quantity Generator

**CEG Conditionally Exempt Generator (not required to report)*

Other Descriptions

TRI EPA Toxic Chemical Release Inventory Reporting

For the most up to date information on this location, contact the closest NORTHWEST REGION office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Oregon DEQ Hazardous Waste Site Report

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EPA ID	ORD009024605	**TRI ID**	
Common Name	Bingham International	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	01/01/1981
Latitude	45° 32' 36.96"	**Activity End**	05/31/1988
Longitude	-122° 41' 50.64"	**Employee Count**	0
Primary SIC Code	3990-MISC MANUFACTURING INDUSTRIES	**Out of Business**	

Facility is Hazardous Waste Generator
Current Status: SQG as of 5/31/1988

Generator Status Descriptions

LQG Large Quantity Generator

SQG Small Quantity Generator

**CEG Conditionally Exempt Generator (not required to report)*

Other Descriptions

TRI EPA Toxic Chemical Release Inventory Reporting

For the most up to date information on this location, contact the closest NORTHWEST REGION office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 2001

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 2001

Waste Stream Waste paint related material
Waste Codes D001, D035, F003, F005
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 2850 LB = 1293 KG
Managed 1292 KG Off-site

Waste Stream HW Liquid NOS (aqueos parts washer solution)
Waste Codes D039
Form Aqueous waste with low other toxic organics
Origin Ongoing processes
Source Spray rinsing
Reported 362 GAL = 1369 KG
Managed 1369 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Toxics Used for 2001

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Toxics Used For 2001

Substance Code	Chemical Description	Amount Reported
7439-96-5	MANGANESE	7100 P = 3220 KG
7439-97-6	MERCURY	80 P = 36 KG
7440-02-0	NICKEL	29200 P = 13243 KG
7440-47-3	CHROMIUM	58300 P = 26440 KG

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 2000

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 2000

Waste Stream R.Q. WASTE PAINT RELATED MATERIALS, N.O.S.
Waste Codes D001, D035, F003, D005
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 5049.9 LB = 2290 KG
Managed 2289 KG Off-site

Waste Stream HAZARDOUS WASTE, LIQUID, N.O.S.
Waste Codes D039
Form Aqueous waste with low other toxic organics
Origin Ongoing processes
Source Spray rinsing
Reported 128 GAL = 481 KG
Managed 481 KG Off-site

Waste Stream RQ, HAZARDOUS WASTE LIQUID, N.O.S.
Waste Codes D008
Form Nonhalogenated solvent
Origin Ongoing processes
Source Spray rinsing
Reported 90 GAL = 326 KG
Managed 326 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Toxics Used for 2000

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Toxics Used For 2000

Substance Code	Chemical Description	Amount Reported
7439-96-5	MANGANESE	4500 P = 2041 KG
7439-97-6	MERCURY	80 P = 36 KG
7440-02-0	NICKEL	22000 P = 9977 KG
7440-47-3	CHROMIUM	43000 P = 19501 KG

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1999

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1999

Waste Stream RQ waste paint related material NOS
Waste Codes D001, D035, F003, F005
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 9075 LB = 4116 KG
Managed 4116 KG Off-site

Waste Stream Hazardous waste liquid nos (Aqueous parts washer solution)
Waste Codes D039
Form Aqueous waste with low other toxic organics
Origin Ongoing processes
Source Spray rinsing
Reported 17 GAL = 64 KG
Managed 64 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Toxics Used for 1999

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Toxics Used For 1999

Substance Code	Chemical Description	Amount Reported
7439-96-5	MANGANESE	6000 P = 2721 KG
7439-97-6	MERCURY	80 P = 36 KG
7440-02-0	NICKEL	26000 P = 11791 KG
7440-47-3	CHROMIUM	49000 P = 22222 KG

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1998

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1998

Waste Stream Paint wastes
Waste Codes D001, D035, F003, D007
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 637 GAL = 2456 KG
Managed 2455 KG Off-site

Waste Stream Parts Cleaning
Waste Codes D001, D035, F003, F005
Form Metal scale, filings, or scrap
Origin Ongoing processes
Source Clean out process equipment
Reported 37 GAL = 185 KG
Managed 185 KG Off-site

Waste Stream Obsolete product
Waste Codes D009
Form Other waste inorganic solids
Origin Ongoing processes
Source Discarding out-of-date products or chemicals
Reported 16 LB = 7 KG
Managed 7 KG Off-site

Waste Stream Clean up of a manometer spill
Waste Codes D009
Form Waste liquid mercury
Origin One-time/spill/clean-up
Source Cleanup of spill residues
Reported 16 LB = 7 KG
Managed 7 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Toxics Used for 1998

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Toxics Used For 1998

Substance Code	Chemical Description	Amount Reported
7439-96-5	MANGANESE	734400 P = 333061 KG
7440-02-0	NICKEL	408000 P = 185034 KG
7440-47-3	CHROMIUM	81600 P = 37007 KG

For the most up to date information on this location, contact the closest office or email us at [illegible]@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1997

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1997

Waste Stream Paint wastes
Waste Codes D001, D007, D008, D018
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 825 GAL = 3180 KG
Managed 3181 KG Off-site

Waste Stream Insulating process
Waste Codes D001
Form Reactive or polymerizable organic liquid
Origin Ongoing processes
Source Other processes other than surface preparation
Reported 104 GAL = 393 KG
Managed 393 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Toxics Used for 1997

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Toxics Used For 1997

Substance Code	Chemical Description	Amount Reported
7439-96-5	MANGANESE	631 P = 286 KG
7440-02-0	NICKEL	2500 P = 1134 KG
7440-47-3	CHROMIUM	650 P = 295 KG
7440-50-8	COPPER	750 P = 340 KG

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1996

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1996

Waste Stream Paint wastes
Waste Codes D001, F002, F003, F005
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 835 GAL = 3219 KG
Managed 3219 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Toxics Used for 1996

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Toxics Used For 1996

Substance Code	Chemical Description	Amount Reported
7439-96-5	MANGANESE	681 P = 309 KG
7440-02-0	NICKEL	2000 P = 907 KG
7440-47-3	CHROMIUM	600 P = 272 KG
7440-50-8	COPPER	620 P = 281 KG

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1995

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1995

Waste Stream Paint wastes.
Waste Codes D001, F002, F003, F005
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 750 GAL = 2898 KG
Managed 2898 KG Off-site

Waste Stream Waste mercury from manometers
Waste Codes D009
Form Waste liquid mercury
Origin One-time/spill/clean-up
Source Closure of mgmt unit(s) or equipmt other than by remediation specified
Reported 600 LB = 273 KG
Managed 273 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1994

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EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1994

Waste Stream Paint Wastes.
Waste Codes D001, F002, F003, F005
Form Organic paint, ink, lacquer, or varnish
Origin Ongoing processes
Source Painting
Reported 1320 GAL = 4560 KG
Managed 4560 KG Off-site

Waste Stream Waste from Pattern Cleaning Operation.
Waste Codes D001, D039, F001, F003
Form Halogenated/nonhalogenated solvent mixture
Origin Ongoing processes
Source Other surface coating/preparation
Reported 125 GAL = 432 KG
Managed 432 KG Off-site

Waste Stream Cleaning and Etching of Metals.
Waste Codes D002, D010
Form Spent acid without metals
Origin Ongoing processes
Source Etching
Reported 4 GAL = 15 KG
Managed 15 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Toxics Used for 1994

[Close Report]

Home > Profiler > Site Report

EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Toxics Used For 1994

Substance Code	Chemical Description	Amount Reported
67-64-1	ACETONE	8125 P = 3693 KG

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1993

[Close Report]

Home > Profiler > Site Report

EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1993

Waste Stream Paint-related materials from painting process, TCE benzene acetone, ignitablematerials.
Waste Codes D001, F003, F005, D018
Form Halogenated/nonhalogenated solvent mixture
Origin Ongoing processes
Source Painting
Reported 1183 GAL = 4087 KG
Managed 4087 KG Off-site

Waste Stream Flammable liquids NOS tetrachloroethylene, acetone.
Waste Codes D001, D039, F001, F003
Form Halogenated/nonhalogenated solvent mixture
Origin Ongoing processes
Source Product rinsing
Reported 230 GAL = 795 KG
Managed 795 KG Off-site

Waste Stream Waste combustible liquids NOS - mineral spirits - waste generated fromparts washing.
Waste Codes D001, D039
Form Nonhalogenated solvent
Origin Ongoing processes
Source Dip rinsing
Reported 94 GAL = 325 KG
Managed 326 KG Off-site

Waste Stream Waste dicyclohexylamine nitrate flammable solid used for packaging.
Waste Codes D001
Form Other waste inorganic solids
Origin Ongoing processes
Source Discarding out-of-date products or chemicals
Reported 35 LB = 16 KG
Managed 15 KG Off-site

Waste Stream Waste poison B NOS (Crome Solution) from lapping process.
Waste Codes D007, D001
Form Caustic solution with metals but no cyanides

Origin Ongoing processes
Source Spent process liquids removal
Reported 10 GAL = 35 KG
Managed 34 KG Off-site

For the most up to date information on this location, contact the closest office or email us at w@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1992

[Close Report]

Home > Profiler > Site Report

EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1992

Waste Stream Spent mineral spirits from parts washers Hazard due to ignitability
Waste Codes D001, D039
Form Halogenated solvent
Origin Ongoing processes.
Source Vapor degreasing
Reported 1204 LB = 547 KG
Managed 624 KG Off-site

Waste Stream Paint wastes from paint booth Hazard due to ignitability
Waste Codes D001, D018, D039, D040
Form Paint thinner or petroleum distillates
Origin Ongoing processes
Source Painting
Reported 385 GAL = 1211 KG
Managed 1211 KG Off-site

Waste Stream Parts washing/wiping down/ pump assembly Hazard due to ignitability
Waste Codes F003, F005, D039, F002
Form Paint thinner or petroleum distillates
Origin Ongoing processes
Source Vapor degreasing
Reported 110 GAL = 334 KG
Managed 334 KG Off-site

For the most up to date information on this location, contact the closest office or email us at HW@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

Hazardous Waste Site Report - Waste Stream for 1991

[Close Report]

Home > Profiler > Site Report

EPA ID	ORD009024605	**TRI ID**	97210SLZRB2800N
Common Name	Sulzer Pumps	**Legal Name**	
Location	2800 NW FRONT AVE PORTLAND OR 97210	**Activity Start**	07/19/1990
Latitude	45° 32' 36.96"	**Activity End**	
Longitude	-122° 41' 50.64"	**Employee Count**	265
Primary SIC Code	3561-PUMPS AND PUMPING EQUIPMENT	**Out of Business**	

Waste Streams by Volume for 1991

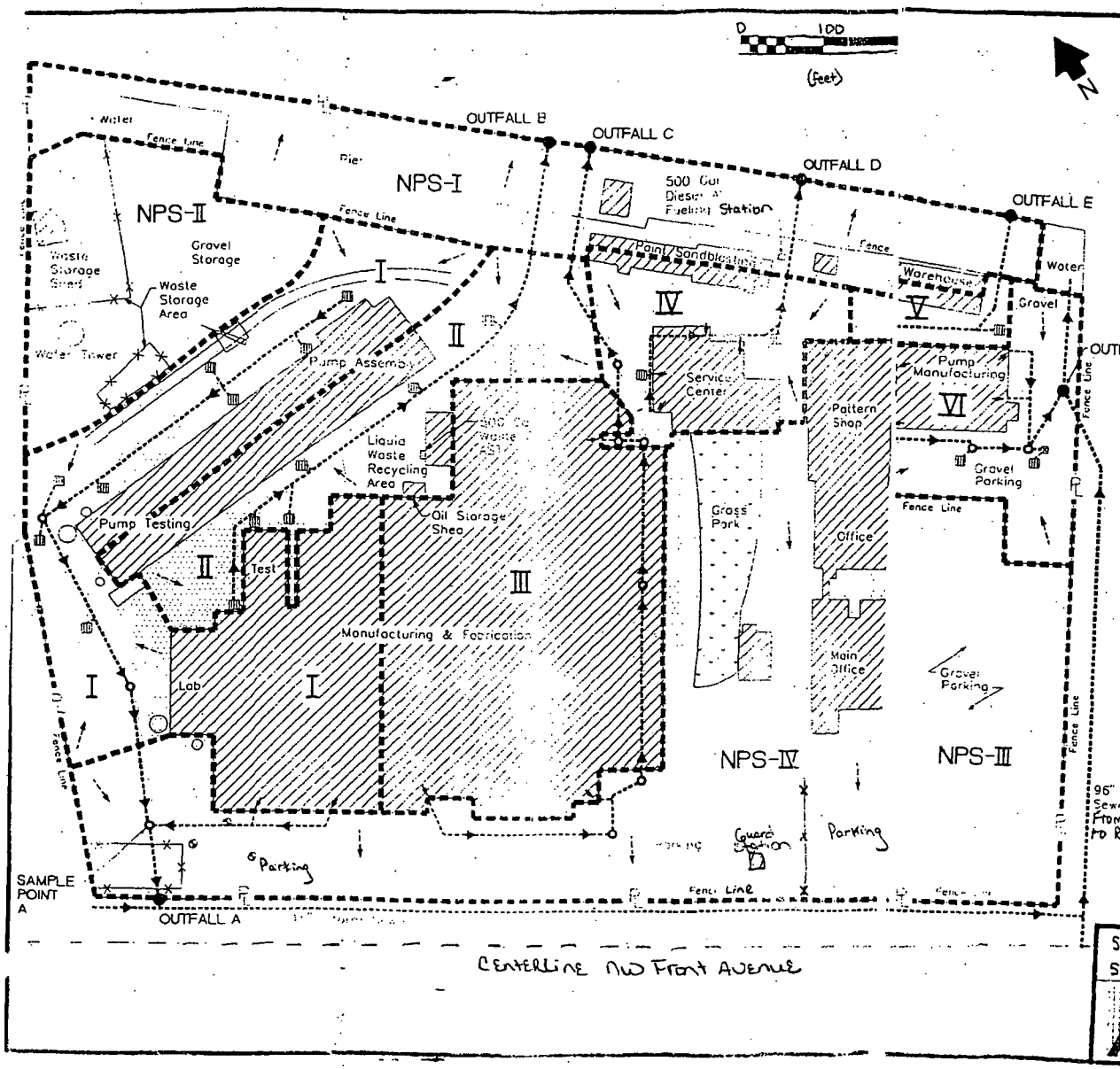
Waste Stream PAINT WASTES FROM SPRAY BOOTH OPERATION
Waste Codes D001, D035, F003, F005
Form Paint thinner or petroleum distillates
Origin Ongoing processes
Source Painting
Reported 2381 GAL = 9740 KG
Managed 8513 KG Off-site

Waste Stream SPENT SOLVENT FROM PARTS WASHERS
Waste Codes D001, D039
Form Paint thinner or petroleum distillates
Origin Ongoing processes
Source Dip rinsing
Reported 1335 LB = 607 KG
Managed 624 KG Off-site

For the most up to date information on this location, contact the closest office or email us at hw@deq.state.or.us.

For more information of Oregon DEQ Hazardous Waste Permits, see our HW Permits Page.

DEQ019838



DRAINAGE BASIN	TOTAL AREA (Acres)	IMPERVIOUS AREA (Acres)	IMPERVIOUS FRACTION (%)	DRAINAGE BASIN OUTFALL
I	3.8	3.8	100	A
II	1.9	1.9	100	B
III	3.3	3.3	100	C
IV	1.2	1.2	100	D
V	0.3	0.3	100	E
VI	1.2	0.3	25	F
NPS-I	2.9	2.9	100	
NPS-II	1.6	0.0	0.0	
NPS-III	2.4	0.0	0.0	
NPS-IV	5.5	5.1	93	
TOTAL	24.1	18.2	76	

NPS - Non-Point Source

SIGNIFICANT MATERIALS

- Petroleum Products
- Hydraulic Oil
- Cutting Oil
- Acetone
- Diesel #2
- Paint Products
- Solvents
- Coolants
- Blast Material Steel Grit
- Waste Oil
- Waste Paint and Solvents
- Miscellaneous Liquid Wastes
- Blasting Residue
- Miscellaneous Scrap Metal

LEGEND

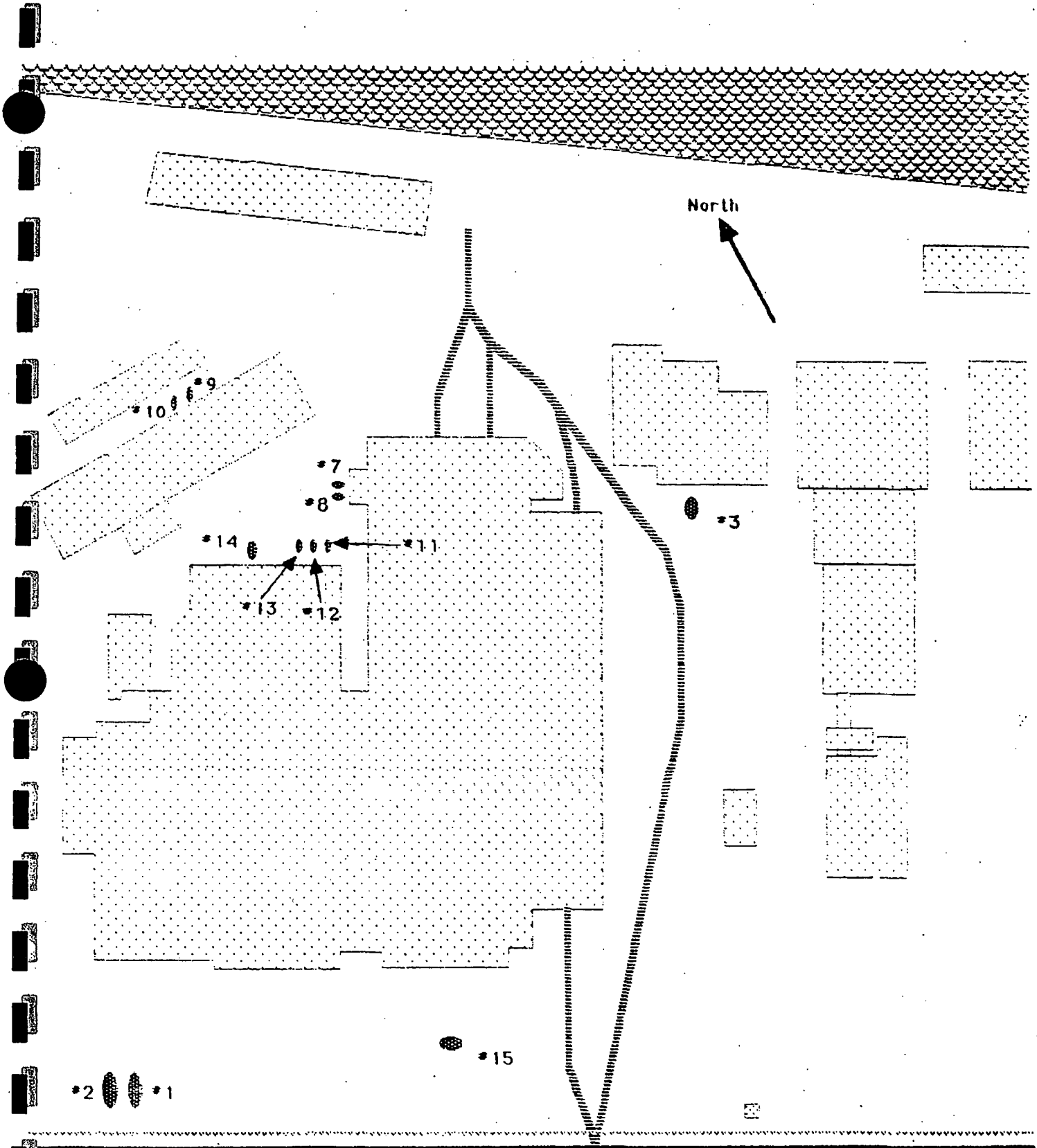
- Building
- Pavement/Concrete
- Grass
- Drainage Basin Boundary
- Catch Basin
- Storm Sewer Line
- Storm Sewer Drainage Direction
- Surface Drainage Direction
- Manhole
- Building Roof Drainage Pipe
- Clean out Hole
- Drainage Outfall Point
- Monitoring Well
- Property Line
- Fence Line

FIGURE 2

SULZER BWGHAM PUMPS INC Portland, OR 97210
Site Drainage MAP 2800 NW Front Ave
Bergeson-Boese & Associates PC
Environmental Engineering
65 Centennial Loop
Eugene, OR 97401

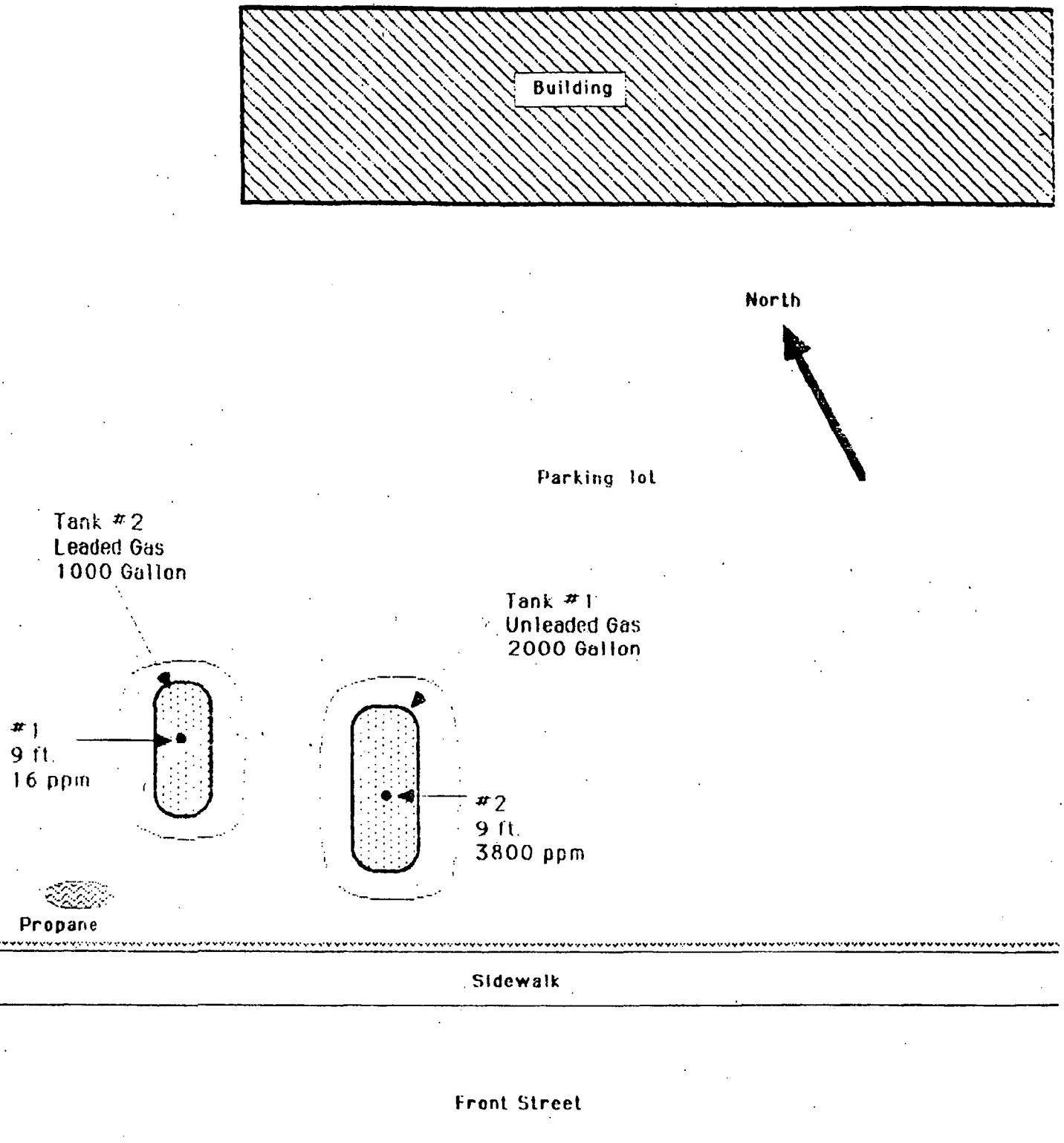
DEQ019839

DEQ019840



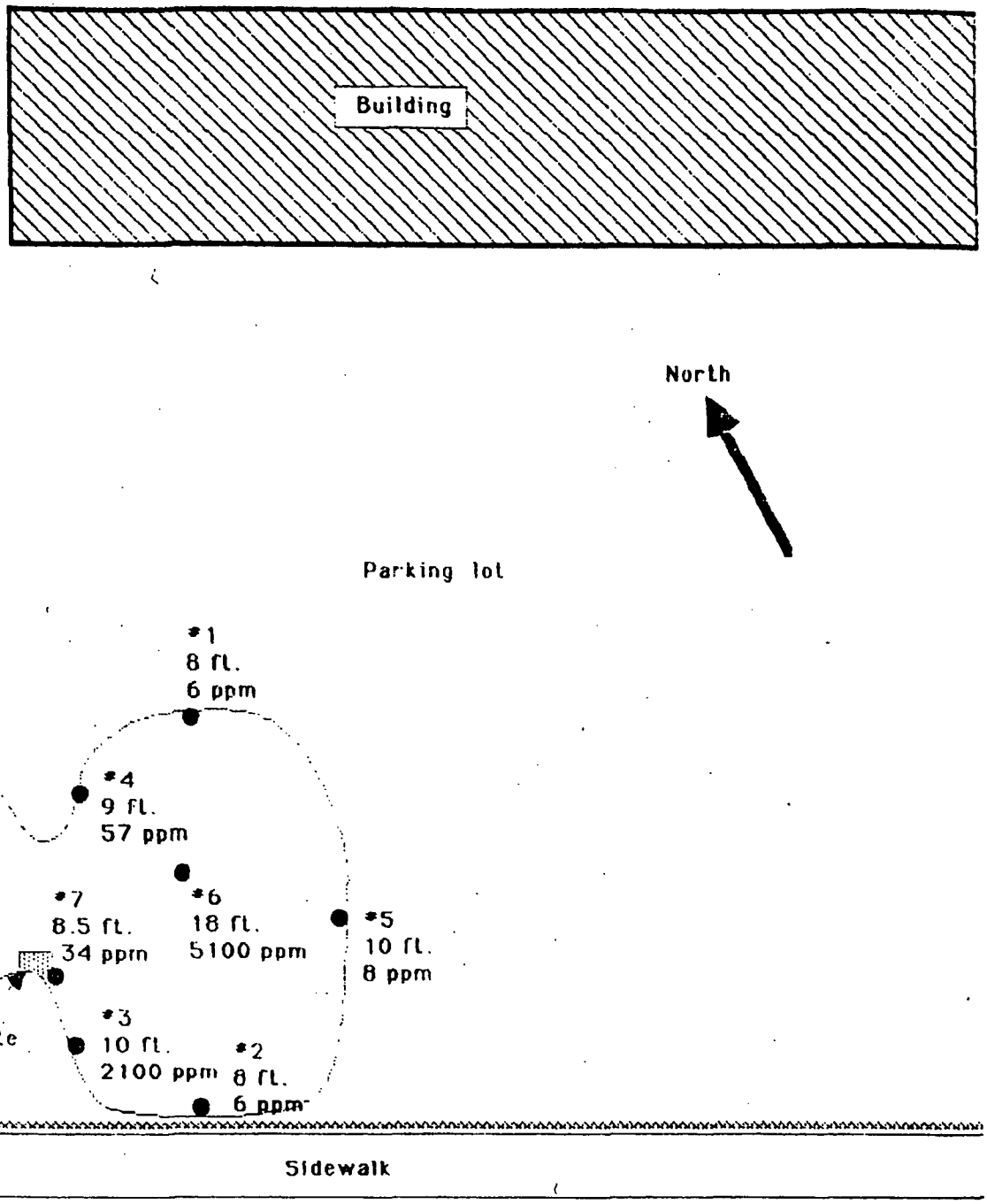
Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map # General Site Map	KEY UST Removed by PEMCO #1 Unleaded Gas, #2 Leaded Gas, #3 Diesel, #7 Acetone #8 Spot Cleaner, #9, #10 Lacquer Thinner, #11, #12, #13 Used Oil, #14 Waste Oil, #15 Fuel Oil Railroad tracks	PEMCO Job # 2712 Date: 11/5/90 Brad Harris

DEQ019841



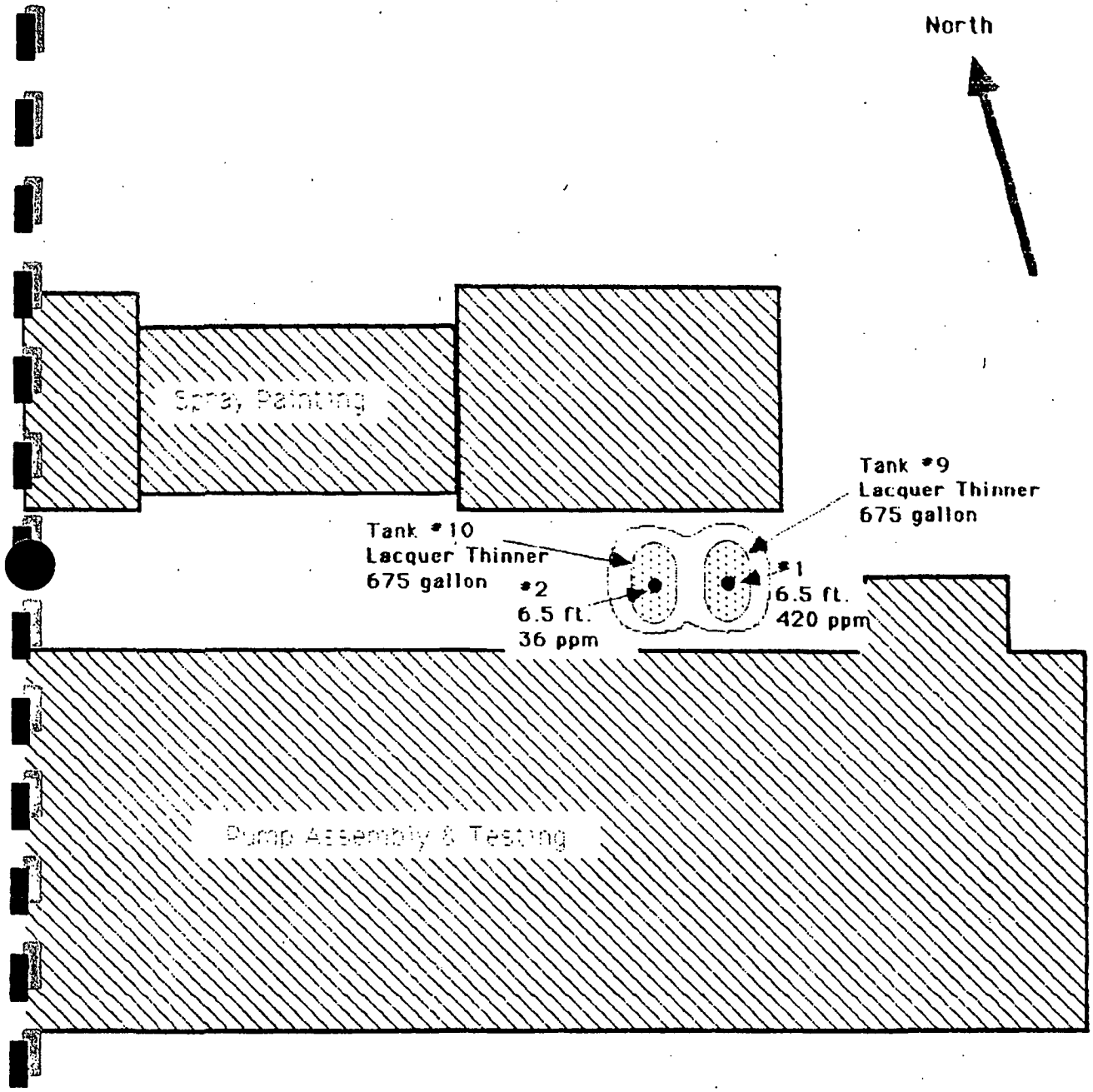
Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Plan #2 Gasoline Tanks	KEY ● Samples Collected on 8/31/90	PEMCO Job # 2712 Date: 11/5/90 Engineering

DEQ019842



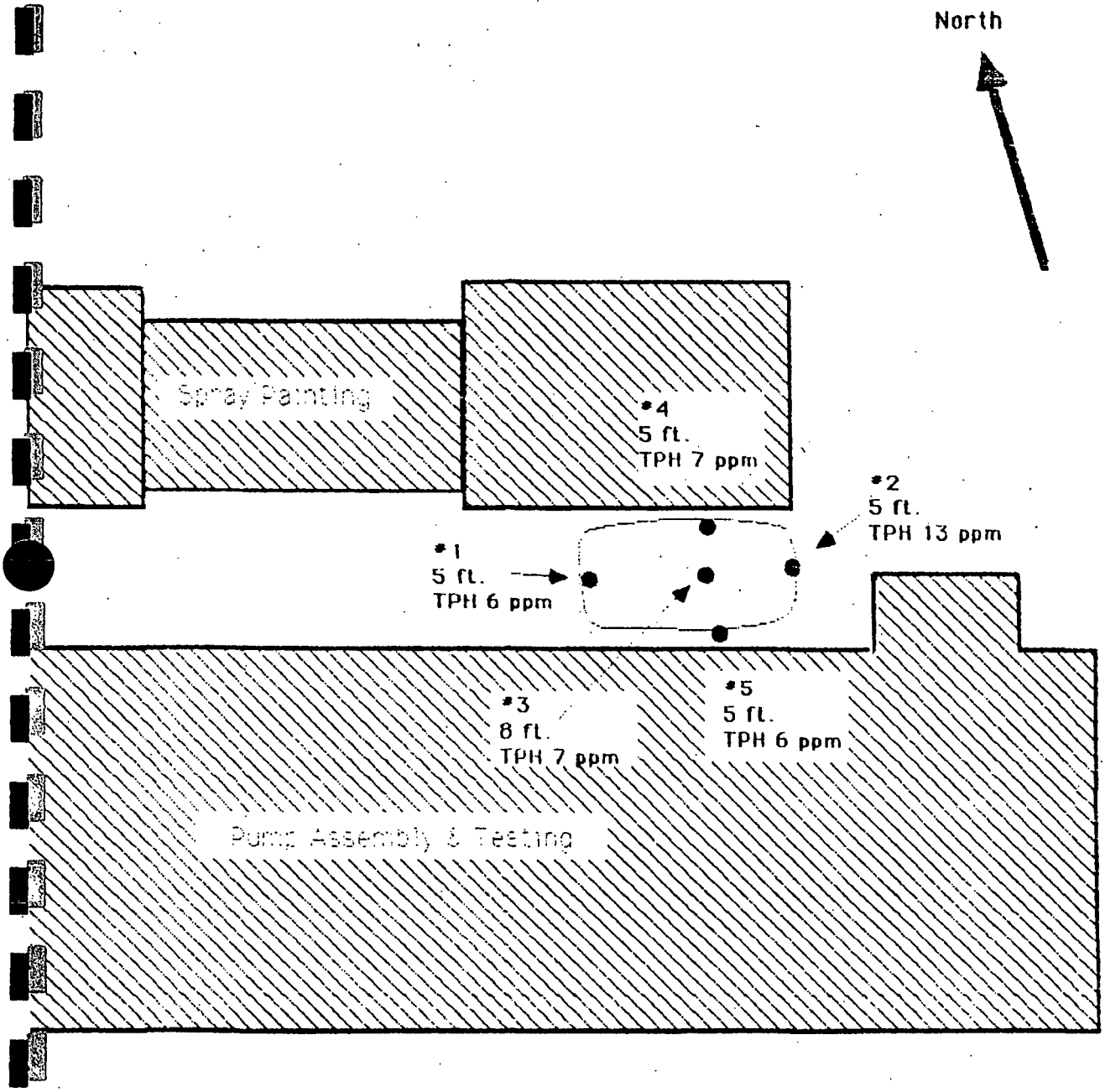
Sulzer Bingham Co. 2800 NW Front Portland, Oregon Gasoline Excavation	KEY ● Samples Collected on 10/23/90	PEMCO Job # 2712 Date: 11/5/90

DEQ019843



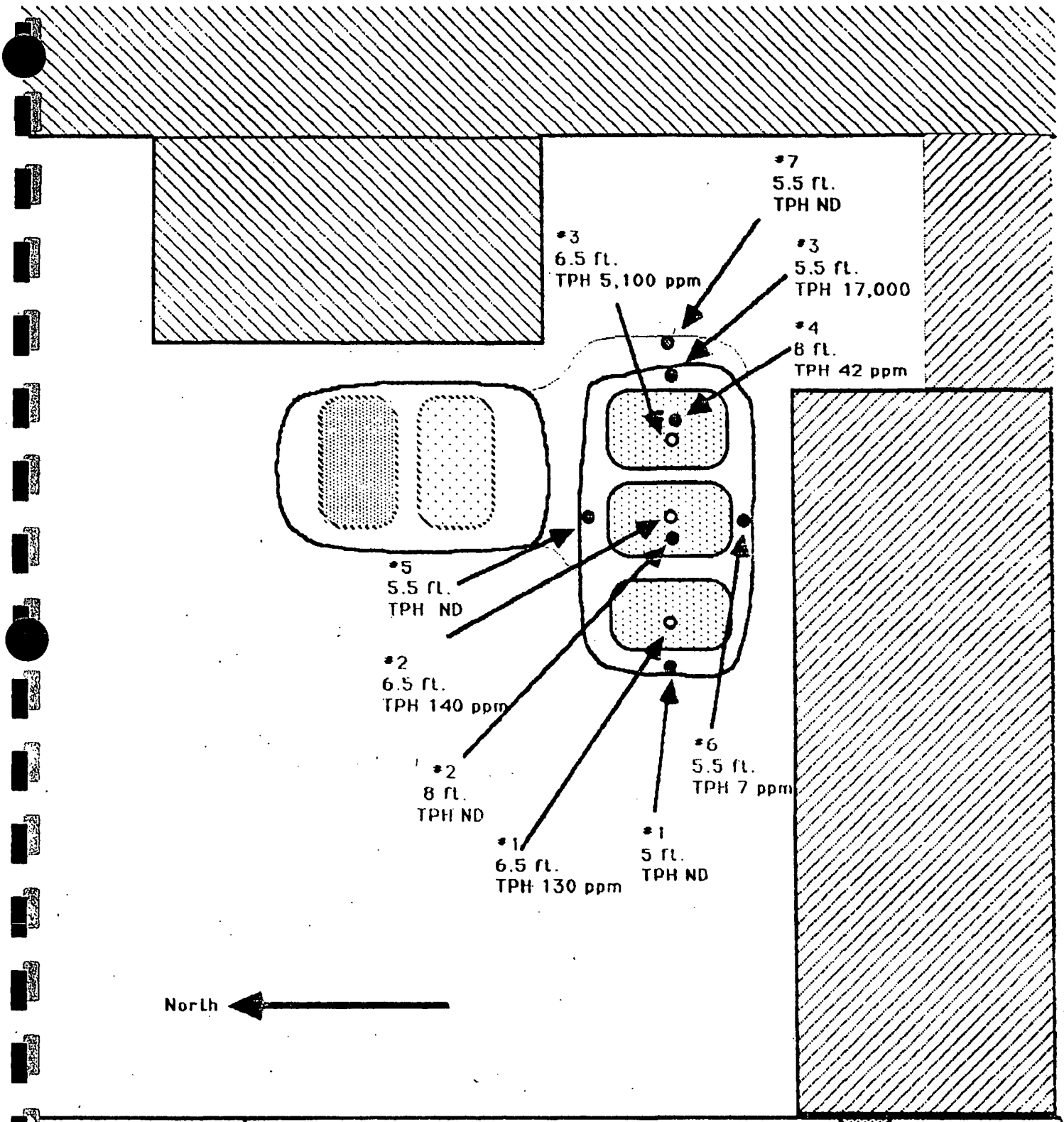
Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map #2 Lacquer Thinner Tanks #9 and #10	KEY ● Samples collected on 9/4/90	PEMCO Job # 2712 Date: 11/5/90 Drawn by:

DEQ019844



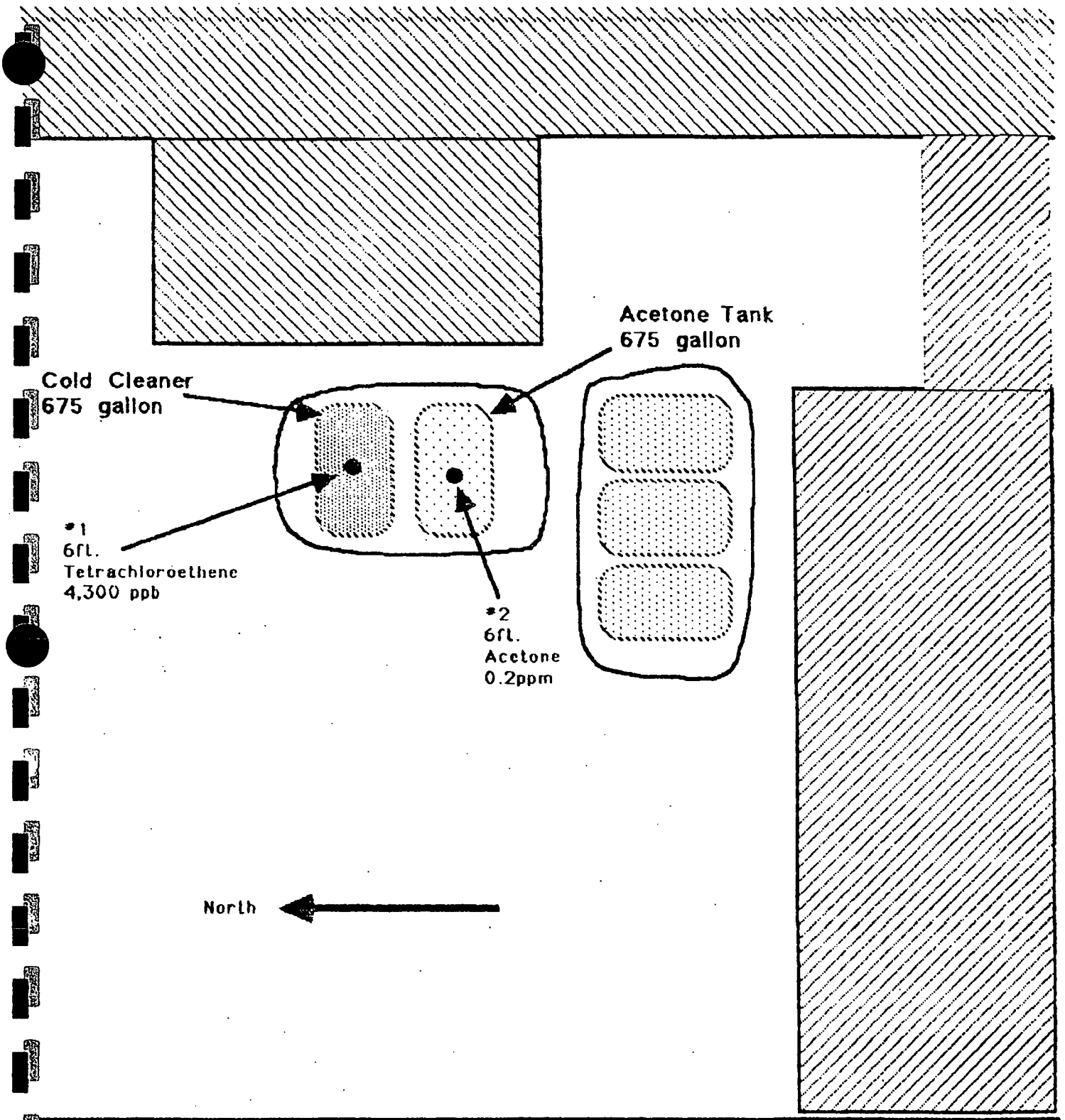
Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map #5 Lacquer Thinner Tanks #9, and #10	KEY ● Samples collected on 10/23/90	PEMCO Job # 2712 Date: 11/5/90 Brad J. Harris

DEQ019845

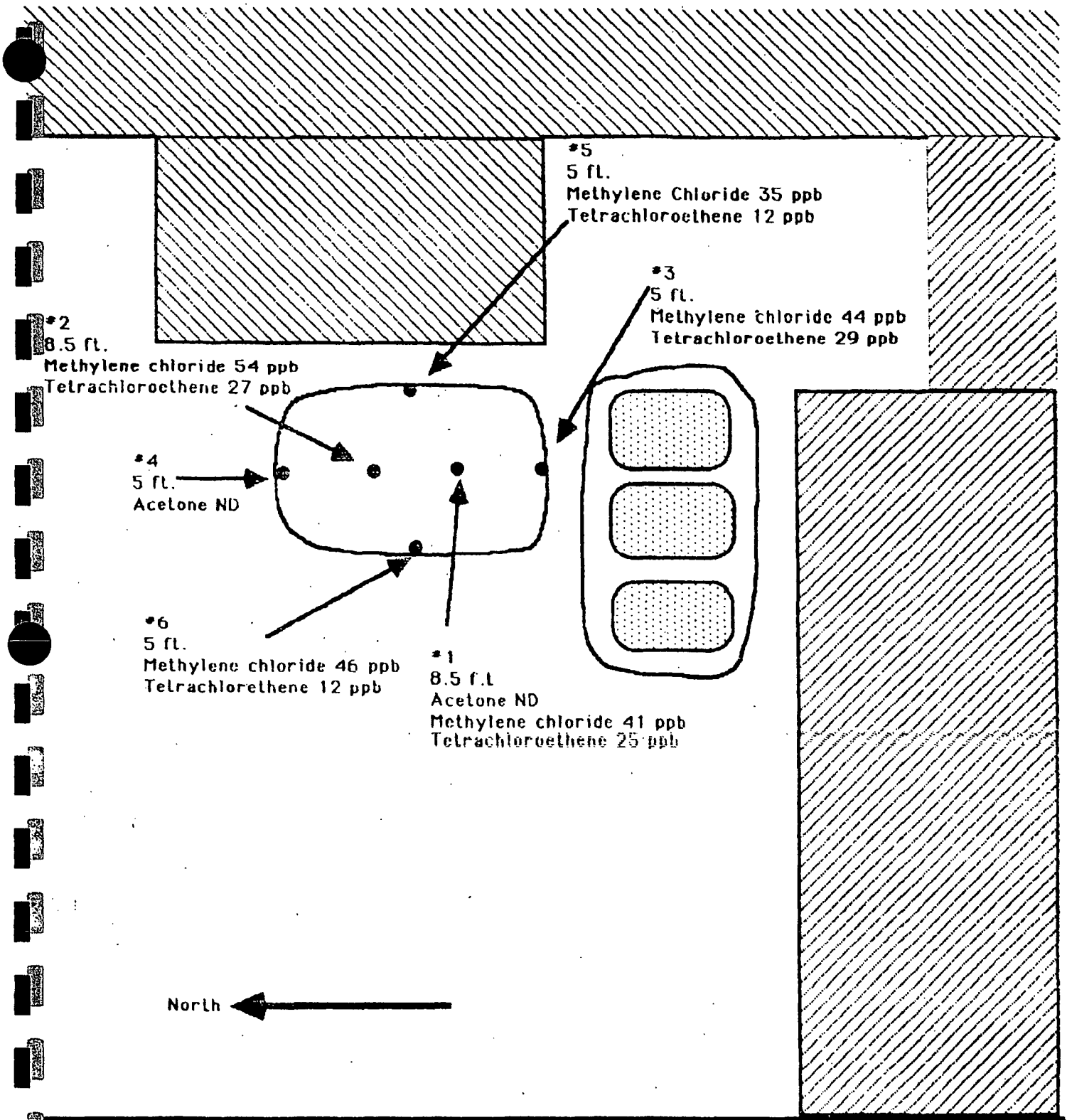


Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map # 6 UST's #11,12 and 13	KEY Hydraulic Oil Tanks ○ Samples collected on 9/5/90 ● Samples collected on 10/18/90 ◉ Sample collected on 10/23/90 —— First excavation —— Second excavation	PEMCO Job # 2712 Date: 11/6/90 Engineering

DEQ019846

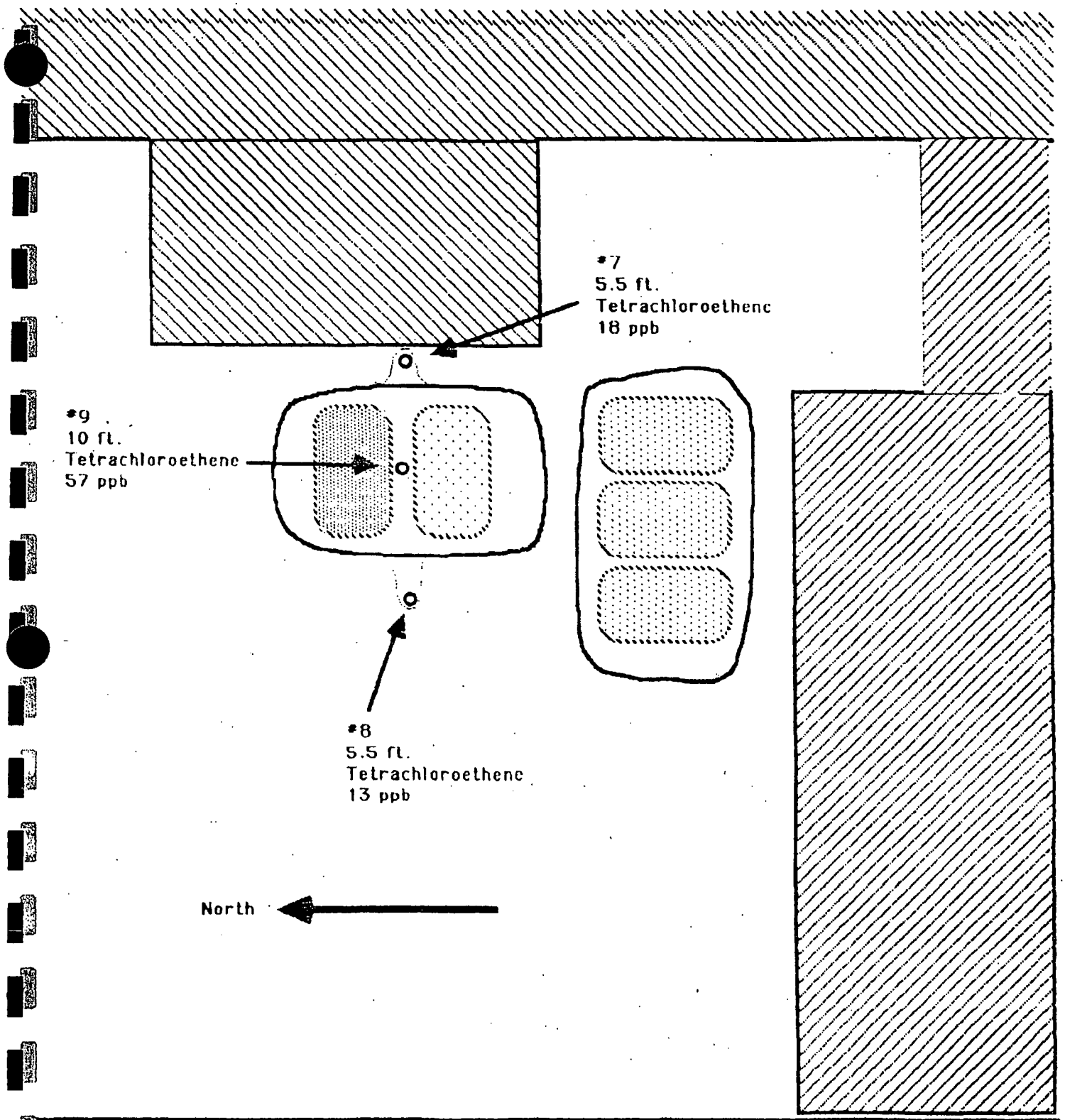


Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map # 7 UST's #7 and #8	KEY ● Samples collected on 9/6/90 (#1 using method 8010 for halogenated solvents and #2 using method 3810 for acetone)	PEMCO Job # 2712 Date: 11/6/90 Brad Fleming



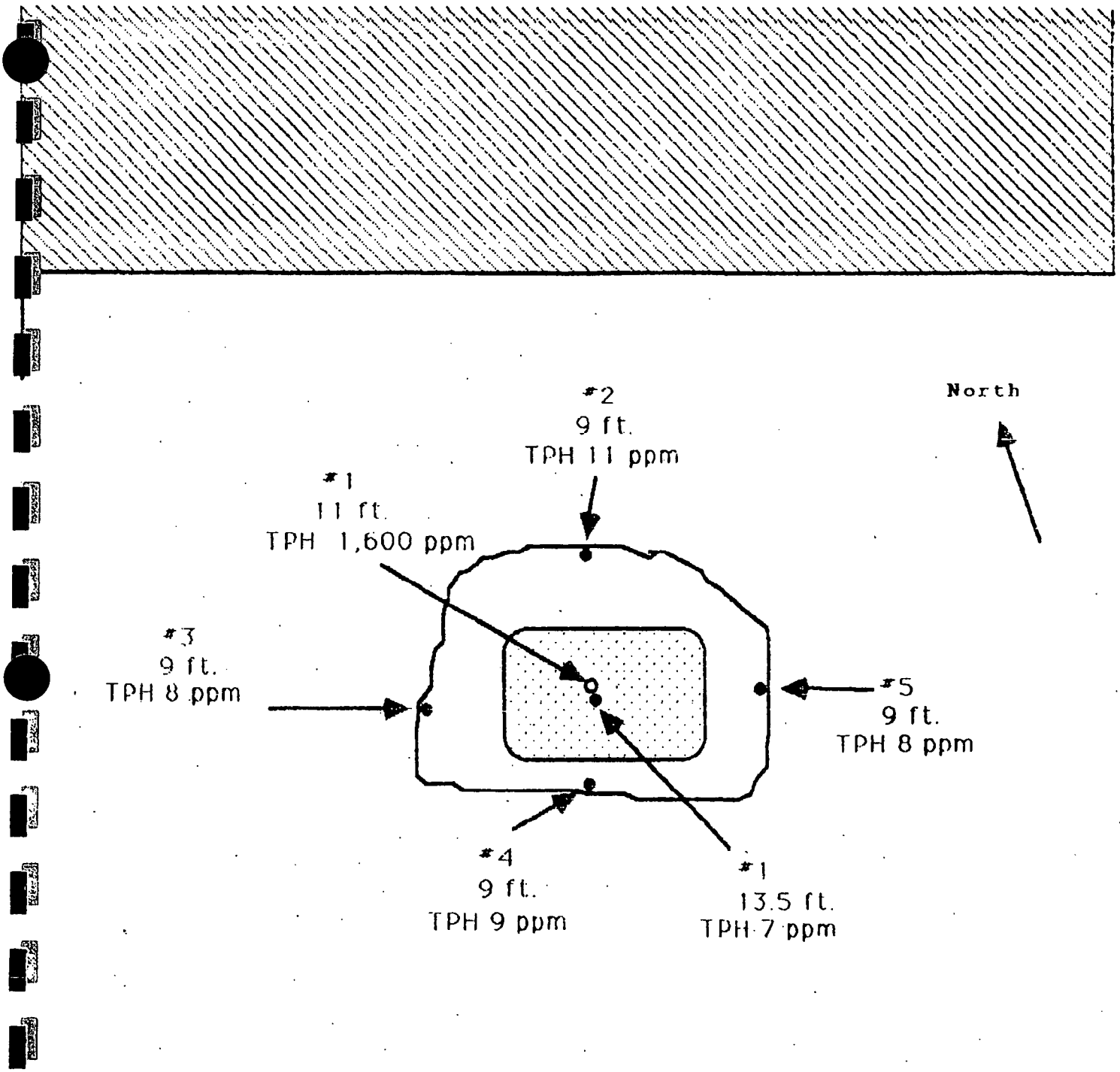
Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map 8 UST's # 7 and #8	KEY ● Samples collected on 10/19/90 (using method 8010 for halogenated solvents and method 3810 for acetone)	PEMCO Job # 2712 Date: 11/6/90 Brad J Hanna

DEQ019848



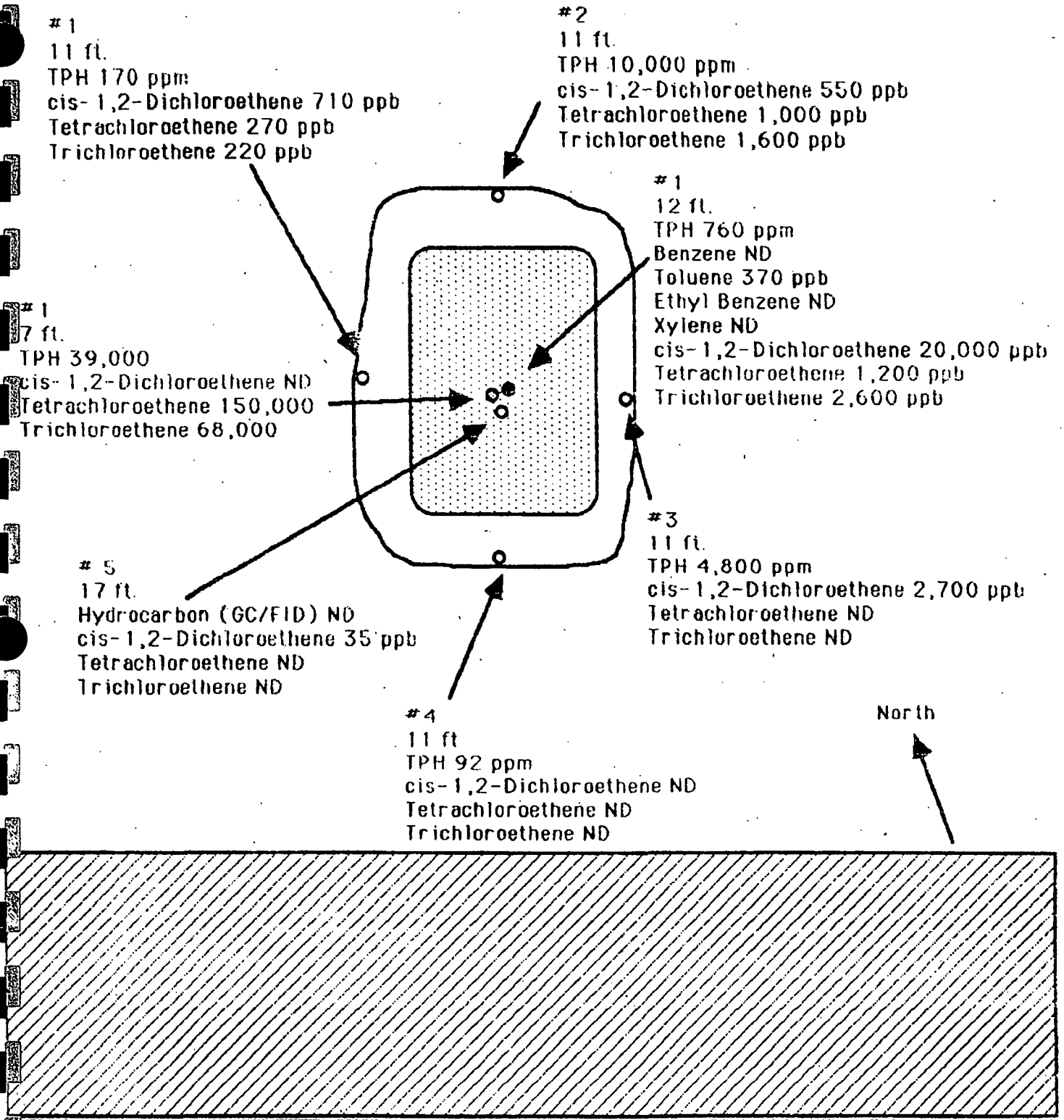
Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map #9 UST's #7 and #8	KEY O Samples collected on 10/31/90	PEMCO Job # 2712 Date: 11/6/90 Brad Hamm

DEQ019849



Sulzer Bingham Co. 2800 NW Front Portland, Oregon Site Map #10 UST #15	*KEY* Heating Oil Tank ○ Sample collected on 10/27/90 ● Samples collected on 12/3/90	PEMCO Job # 2712 Date: 12/3/90 [illegible]

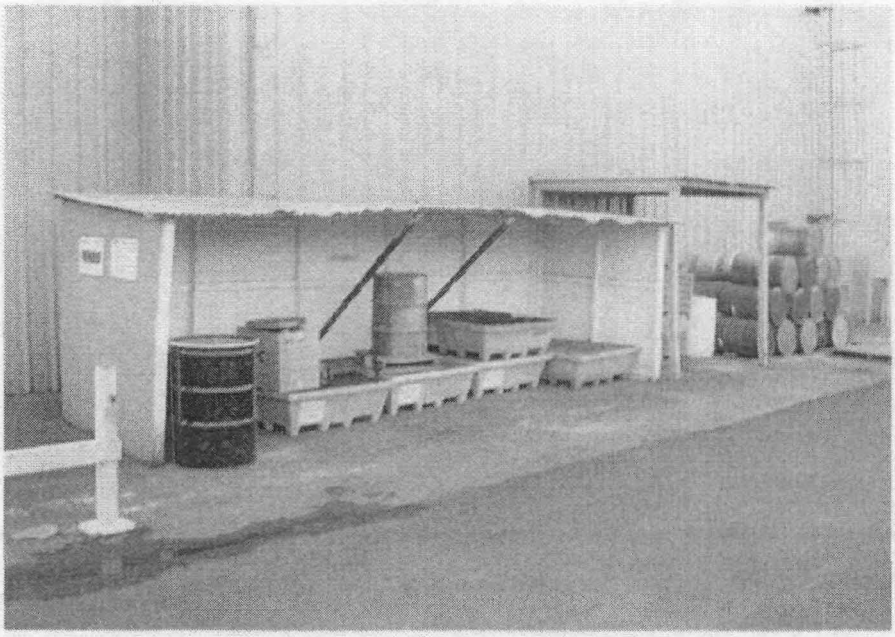
DEQ019850



Sulzer Bingham Co. 2800 NW Front Portland, Oregon UST #14	KEY Waste Oil Tank ● Sample taken 9/28./90 ● Sample taken 10/19/90 ○ Samples taken 10.23./90	PEMCO Job # 2712 Date: 11/6/90

DEQ019851

DEQ019852



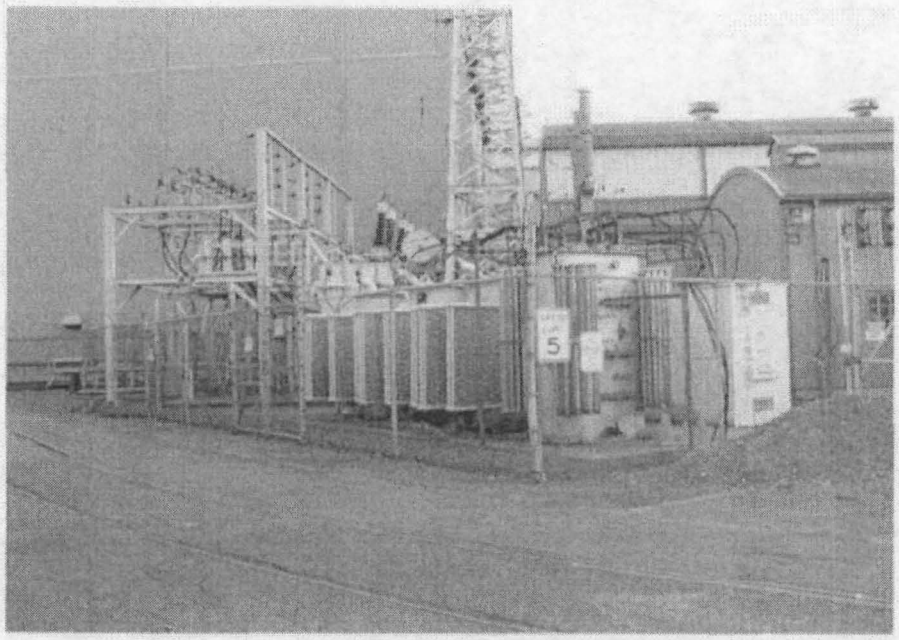
HAZARDOUS WASTE STORAGE AREA. PHOTOGRAPH TAKEN FACING WEST.

SAND BLASTING PARTICULARS ADJACENT TO SAND BLASTING BUILDING. PHOTOGRAPH TAKEN FACING EAST.

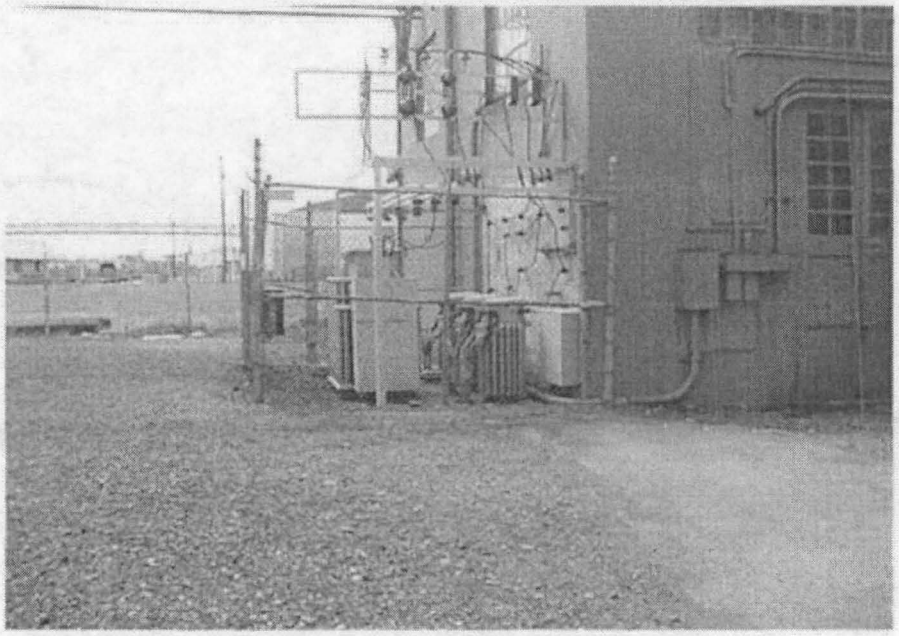
GEODESIGN INC

SITE PHOTOGRAPHS

SULZERPUMP-1-04	NOVEMBER 2002	FIGURE D-1



SUBSTATION #2. PHOTOGRAPH TAKEN FACING SOUTHEAST.



SUBSTATION #4. PHOTOGRAPH TAKEN FACING SOUTHEAST.

GEODESIGN INC

SITE PHOTOGRAPHS

SULZERPUMP-1-04	NOVEMBER 2002	FIGURE D-2

FORMER HEAVY BAY IN MANUFACTURING BUILDING. PHOTOGRAPH TAKEN FACING NORTHEAST.

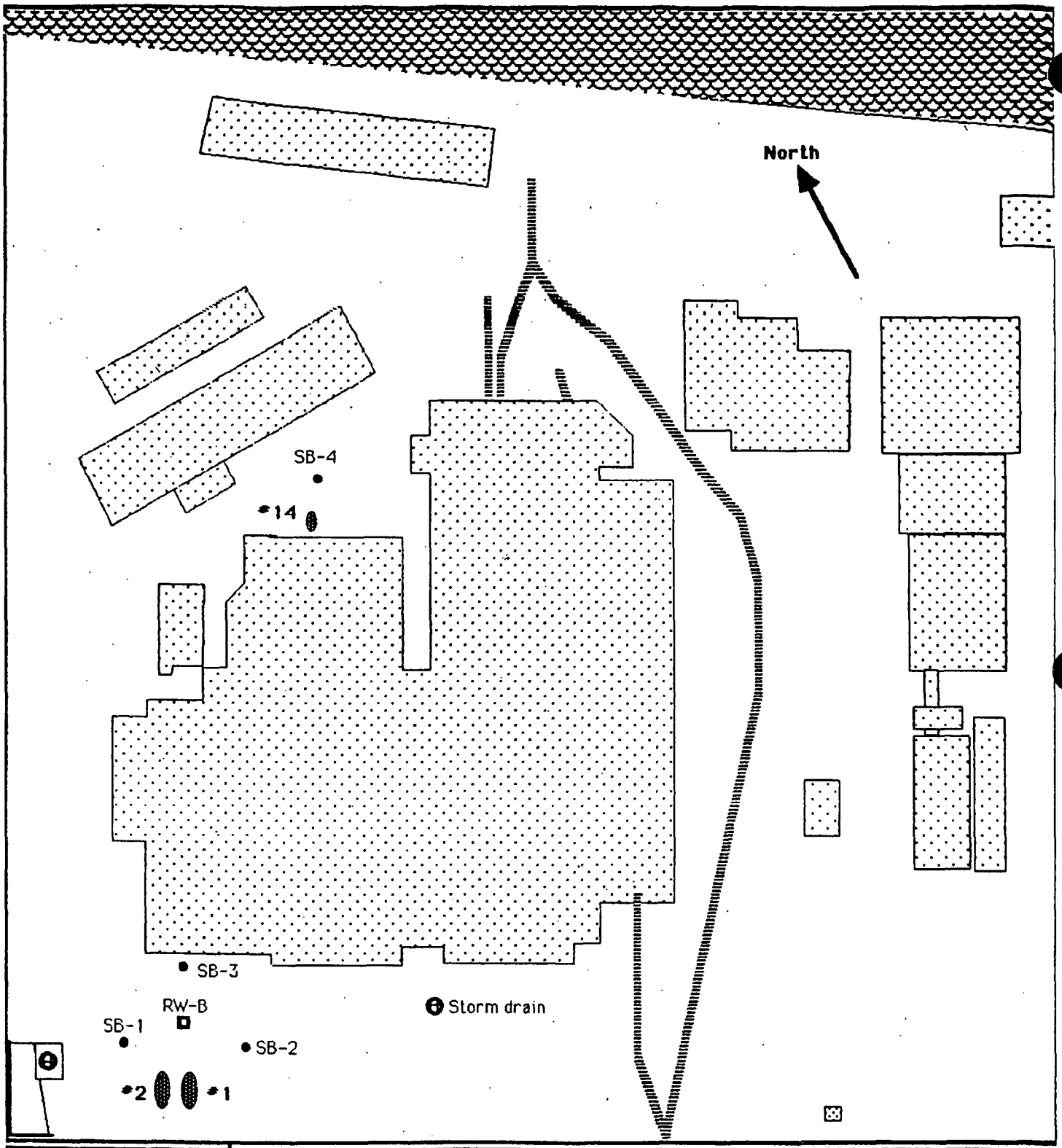
NORTHEAST STORAGE AREA. PHOTOGRAPH TAKEN FACING NORTH.

GEODESIGN INC

SITE PHOTOGRAPHS

SULZERPUMP-1-04	NOVEMBER 2002	FIGURE D-3

DEQ019856



Sulzer Bingham Co. **2800 NW Front** **Portland, Oregon** Site Map #1	*KEY* **UST Removed by PEMCO** #1 Unleaded Gas, #2 Leaded Gas, #14 Waste Oil **Railroad tracks**	*PEMCO* **Job # 3187** **Date: 9/13/91** Gail K. Wayper

Location Map

SB-1

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .020
Gravel Pack: 10x20 silica sand

Client: Sulzer Bingham
Date: 6/26/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-1
Page 1 of 2

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
			2				
			4				
			6				
	Dry	7-7-4	8				Black silty sand mixed with red brick debris, no odor
			10				
			12				
	Dry	11-7/4	14				No recovery- cuttings logged as black silty sand mixed with brick debris, no odor
			16				
	Dry	3-4-6	18				Black silty sand-gravel mixed with brick debris, no odor
			20				
			22				
	Wet	3-4-4	24			1	Black silt interbedded with sand-gravel mix. Strong oily odor.
			26				
	Moist	2-4-4	28			2	Grey silty clay, no odor.
			30				

Location Map

SB-1

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .020
Gravel Pack: 10x20 silica sand

Client: Sulzer Bingham
Date: 6/26/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-1
Page 2 of 2

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
	Moist	2-3-4	32				Grey silty clay, no odor.
			34				
			36				End of boring

Location Map

SB-2

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .020
Gravel Pack: 10x20 silica sand

Client: Sulzer Bingham
Date: 6/26/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-2
Page 1 of 2

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
			2				
			4				
			6				
	Dry	4-50 for 4	8				No recovery- cuttings consist of brown sand to 10 ft. turning to dark grey sand mixed with wood debris, no odor.
			10				
	Dry	4-7 -12	12				No recovery- cuttings consist of brown sand to 10 ft. turning to dark grey sand mixed with wood debris, no odor.
			14				
			16				
	Moist		18				Black, poorly graded sand, no odor.
			20				
	▽ Wet	7-9-14	22				Black, poorly graded sand, no odor.
			24				
			26				
	Moist	4-5-7	28				Grey silty clay, no odor.
			30				

Location Map

SB-2

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .020
Gravel Pack: 10x20 silica sand

Client: Sulzer Bingham
Date: 6/26/91
Location: 2800 NW Front
Hole Diam.: 11 inches.
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-2
Page 2 of 2

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
		3-4-6	32				Black silty clay with wood debris. No odor.
			34				
			36				End of boring

Location Map

SB-3

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .020
Gravel Pack: 10x20 silica sand

Client: Sulzer Bingham
Date: 6/26/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-3
Page 1 of 2

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
			2				
			4				
			6				
			8				No recovery- cuttings consist of brown sand to 10 ft. turning to dark grey sand mixed with wood debris, no odor.
			10				
			12				No recovery- cuttings consist of brown sand turning to dark grey sand mixed with wood debris, no odor.
			14				
			16				
	Dry	5-5-4	18				Dark grey sandy gravel with brick debris, no odor.
			20				
			22				
	▽ Wet	6-11-7	24				Black sand and gravel, strong odor. Poor recovery-disturbed sample. Auger drifted at 25 feet due to obstruction.
			26				
	Wet	1-2-5	28				Black sand and gravel, moderate odor. Disturbed sample.
			30				

Location Map

SB-3

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .020
Gravel Pack: 10x20 silica sand

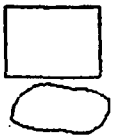
Client: Sulzer Bingham
Date: 6/26/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-3
Page 2 of 2

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
	Wet	3-3-3	32			4	Grey silty clay-no odor.
			34				
			36				End of boring

Location Map



SB-4

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .010
Gravel Pack: ~~10x20~~ 8x12 silica sand

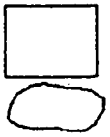
Client: Sulzer Bingham
Date: 6/27/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-4
Page 1 of 2

Well Completion	H20 Content	Blow Count	Depth In FT.	Sample	Graphic	Sample #	Lithology/Remarks
			2				
			4				
			6				
	Dry	7-7-7	8				No recovery- cuttings consist of brown poorly graded sand, no odor.
			10				
			12				
	Dry	4-3-4					Poor to well graded brown sand turning to grey silt, faint organic odor.
			14				
			16				
	Dry	7-9-12	18				Well graded grey sand mixed with gravel, no odor.
			20				
			22				
	Wet	8-8-9	24				Grey to black sand-gravel mix, no odor.
			26				
	Wet	8-10 -14	28				
			30				

Location Map



SB-4

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .010
Gravel Pack: 10x20 silica sand

Client: Sulzer Bingham
Date: 6/27/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 35 ft.
Well Diam.: 4 inch
Well Depth: 35 ft.

PEMCO

Well #SB-4
Page 2 of 2

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
	Wet	3-4-5	32				Black sand. No odor.
			34				
			36				End of boring

Location Map

RW-B

Project No. 3187
Logged By: BK
Drilling Method: HSA
Sample Method: ss
Casing Type: PVC 40sch
Slot Size: .020
Gravel Pack: 10x20 silica sand

Client: Sulzer Bingham
Date: 6/26/91
Location: 2800 NW Front
Hole Diam.: 11 inches
Hole Depth: 30 ft.
Well Diam.: 4 inch
Well Depth: 30 ft.

PEMCO

Well #RW-B
Page 1 of 1

Well Completion	H20 Content	Blow Count	Depth in FT.	Sample	Graphic	Sample #	Lithology/Remarks
			2				
			4				
			6				
	Dry	5-4-3	8				Poorly graded sand mixed with occasional gravel and brick debris.
			10				
			12				Sandy gravel (black) with brick debris.
		4-3-3	14				
			16				
		8-5-6	18				Silty clay mixed with brick debris, no odor.
			20				
	▽ Wet	50 for 5	22				No recovery, strong odor.
			24				
			26				
	Moist	15-50 for 1/2	28			3	Grey silty clay, no odor.
			30				