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PRELIMINARY SITE ASSESSMENT

Lakeside Industries
4850 NW Front Avenue
Portland, Oregon

December 26, 2001

Prepared for:

Lakeside Industries
Portland, Oregon

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Project No. 5366

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1.0 EXECUTIVE SUMMARY

At the request of Lakeside Industries ("Lakeside"), Hahn and Associates, Inc. (HAI) has completed this Preliminary Assessment (PA) of the Lakeside Industries - Portland Facility ("Facility") site in accordance with the Oregon Department of Environmental Quality's (ODEQ) regulations (Oregon Administrative Rules [OARs] 340-122-0072 'Preliminary Assessments'). The Facility is located on a site within the much larger Portland Harbor Superfund site. The ODEQ completed a site discovery process and screening of upland sites within the Portland Harbor Superfund site that resulted in strategy recommendations for over 30 smaller sites along the Portland Harbor, including the Lakeside Industries - Portland Facility site. The ODEQ recommended this site be designated "Medium" priority and recommended that a PA be completed for the site.

Lakeside Industries operates a hot-mix asphalt plant, first opened in 1987, at 4850 NW Front Avenue, Portland, Oregon, in a heavily industrial area of the city along the west bank of the Willamette River. The site has been developed since the early 1940s, first as a general construction yard until the early 1970s, and then as a portion of the adjacent Gunderson property storage yard and possibly warehousing until 1987 when it was redeveloped as a hot-mix asphalt plant.

The section of the river where Lakeside is located has been listed as a Superfund site. Based on ODEQ studies of sediments of the Willamette River, six metals and one acid are present in the sediments adjacent to and just downstream of the Lakeside facility at concentrations above maximum baseline values. Five of these contaminants were detected in the deeper core sample near a municipal storm water outfall at the downstream edge of the site. Industry studies conducted on both ≈ reclaimed asphalt pavement (RAP) and on hot-mix asphalt, indicate that these same metals which may be present in the materials do not leach from these materials and that when detected were below federal

cleanup characteristic waste levels and federal tap water standards. The acid is not used in the asphalt industry.

Based on the past uses of the site as storage yards for general contractors and a storage yard for the adjacent railcar manufacturer (Gunderson), its current use as a hot-mix asphalt plant, and the lack of surface water discharge from the site, it is unlikely that the site is a source the contaminants found in the Willamette River sediments adjacent to and downstream of the site.

2.0 INTRODUCTION

At the request of Lakeside Industries ("Lakeside"), Hahn and Associates, Inc. (HAI) has completed this Preliminary Assessment (PA) of the Lakeside Industries - Portland Facility ("Facility") site in accordance with the Oregon Department of Environmental Quality's (ODEQ) regulations (Oregon Administrative Rules [OARs] 340-122-0072 'Preliminary Assessments'). The Facility is located on a site within the much larger Portland Harbor Superfund site. The ODEQ completed a site discovery process and screening of upland sites within the Portland Harbor Superfund site that resulted in strategy recommendations for over 30 smaller sites along the Portland Harbor, including the Lakeside Industries - Portland Facility site (Appendix A). The ODEQ recommended this site be designated "Medium" priority and recommended that a PA be completed for the site.

Under state law (Oregon Revised Statutes [ORS] 465.245), ODEQ requires or conducts PAs at sites where hazardous substances may pose a significant threat to human health or the environment. Compared to a screening, a PA is a more formal and detailed investigation, designed to determine whether a site is releasing, has released, or could release hazardous substances to the environment and whether a response action is required. As specified in OAR 340-122-0072, the purpose of the PA is to "develop sufficient information to determine whether additional investigation, removal, remedial action, or long-term engineering or institutional controls related to removal or remedial action are needed at the facility to assure protection of present or future public health, safety and welfare, and the environment." To accomplish this purpose, the PA iavestigation and report include a site description and a description of adjacent land use; an ownership and operational history; a regulatory history; a description of potential source areas of hazardous substances, waste characterization; and exposure pathways evaluation for groundwater, surface water, air, and direct contact.

3.0 SITE DESCRIPTION

The Lakeside Industries - Portland Facility site is located at 4850 NW Front Avenue in Portland in Multnomah County, Oregon (Figure 1). The site encompasses approximately 9.41 acres of uplands on two tax lots, 1N1E19A-00600 and 1N1E19A-00700, in the northeast quarter of Section 19 in Township 1 North, Range 1 East (T1N, RIE) of the Willamette Meridian (WM). The site is situated in an historically industrial area along the west bank of the Willamette River, downstream of downtown Portland and other industrial areas. The geographic coordinates for the site are 45° 33' 28" north latitude and 122° 43' 45" west longitude.

The surrounding land uses include the following:

- To the northeast of the site is the Willamette River
- To the northwest of the site is a municipal storm sewer outfall, beyond which is Shaver Transportation, a shipping company
- To the southwest is Front Avenue, beyond which is Oncorp America Inc., a building materials wholesaler
- To the southeast is a materials storage yard for Gunderson Inc., a railcar manufacturer. Items noted to be stored in this yard include metal axles for rail cars.

The site is currently operated as a hot-mix asphalt plant, where graded aggregate and/or reclaimed asphalt pavement (RAP) is mixed with hot asphalt in a self-contained, enclosed, automated processor (the Ultradrum). The aggregate is delivered to the Facility by barge, and unloaded and stockpiled by one of three conveyor systems. The RAP is delivered to the Facility by truck either pre-crushed or then crushed onsite. The asphalt cement is delivered to the facility 'hot' (325° Fahrenheit [F]) by tanker truck and stored in one of two heated (325° F), contained tanks. The heated and dried aggregate and/or RAP are mixed with 5% asphalt cement in the Ultradrum to form the hot-mix asphalt concrete. It is then briefly stored in one of three silos (hoppers) and then directly loaded into open dump trucks for transport and immediate use at the paving site. It must be laid down and compacted before cooling. Lakeside maintains a fleet of 15 asphalt dump trucks and approximately 12

pieces of paving equipment. Vehicle maintenance is conducted onsite in an enclosed maintenance building and vehicle refueling occurs from a contained above ground fuel tank. Lakeside has been operating the hot-mix asphalt plant at the site since 1987, following some site redevelopment. Except for the riverfront portion of the property, the site is surrounded by a fence with gates that are locked and secured when the Facility is closed. HAI personnel, accompanied by Mr. Chuck Gaskill and Mr. Forest Lane of Lakeside, conducted a site survey on April 12, 2001.

The ODEQ Strategy Recommendation (Appendix A), page 3, second paragraph of the Operational History may inadvertently misrepresent the Facility and operations. The following comments are included to more clearly represent the Facility operators' description of the Facility operations, equipment and processes:

1. The Facility does not operate a concrete treated base (CTB) crusher; it does not operate a recycling and reclamation plant (although it does recycle some pavement); the product is not called a wet mix; RAP does not include asphaltic shingles; neither waste asphalt nor RAP is off-loaded dockside and stored adjacent to the river; and there is no hot melt process involved in any of the operations.

2. The Facility does manufacture two products: hot-mix asphalt (HMA) concrete and CTB. Both of these products use virgin crushed aggregate which is off-loaded dockside and stockpiled adjacent to the river. This material is clean crushed rock without any adulterations.

3. HMA is manufactured by heating and drying the aggregate in a drum dryer, and then adding about 5% asphalt cement in a separate chamber from the burner so there is no asphalt burning. Consequently, there is no asphalt smoke or fume emitted from the stack. The resulting mixture is conveyed to an insulated silo and loaded into trucks for transport to the paving site. RAP is added at the same time as the asphalt cement so it is away from the burner and does not get burned, either. Typically, the Facility incorporates about 20% RAP into the finished product, when specifications permit or require it. RAP is broken up on-site with a crusher, which breaks it into smaller pieces.

4. CTB is mixed at ambient temperatures and is a simple mixture of crushed aggregate, water and dry Portland cement. It looks wet and is carried in open dump trucks.

3.1 Current Buildings

All current buildings and structures are shown on Figure 2. All known previous buildings and structures are presented on Figure 3. At the time of the survey, there were three buildings onsite: 1) an office building and maintenance shop; 2) a control house for the conveyor system which is located adjacent to the dock; and 3) a control house for the hot-mix asphalt plant. Other structures include three overhead conveyor systems; a dock; a RAP crushing and conveyor system; a former vehicle wash rack; a 15,000-gallon above-ground tank (AST) containing diesel fuel and two associated fuel dispensers; the hot-mix asphalt plant; a multiple chambered baghouse for particulate from the asphalt processor; short-term storage silos; and a cement-treated base (CTB) processor, a specialty product produced infrequently.

The office and shop building, a wood-truss, metal-sided building built on concrete slab, was present in at least 1948 (according to a review of aerial photographs available from the U.S. Army Corps of Engineers, Central Map Files), although according to site personnel familiar with the property in 1987 at the time of acquisition, the maintenance building was larger and extended toward the river. The maintenance shop portion of the building includes an attached, covered, and contained bulk petroleum products storage shed in which used oil and bulk products including motor oil, hydraulic oil, and antifreeze are stored. These fluids are delivered by piping to the maintenance area. Vehicle and equipment maintenance is performed in the maintenance shop, include oil changes, repairs of hydraulic lines, replacement of other fluids including antifreeze, as well as infrequent parts painting. A solvent sink, utilizing non-hazardous solvents, is used in this area. As noted, bulk products are stored in an attached shed which is enclosed, covered, locked, and contained. There is an elongated work trench or pit to provide access beneath vehicles and equipment. The floor of the shop was concrete, as were the floors and walls of the work pit. No drains were noted in the pit. According to site personnel, seepage of water into the work pit has not occurred and visual evidence of such seepage, such as staining of the pit walls was not noted.

One drain (now plugged) was noted in the floor of the maintenance shop. Material that would have flowed down this drain would flow through piping that is connected to the Facility stormwater drainage system. The material would have passed through an oil-water separator before discharging into a dry well north of the shop.

The control house for the dock conveyor system, built by Lakeside in 1987, is a wood-sided building on a concrete slab, which houses the electronic controls for the aggregate conveyors. Another shed was noted at the same location in 1980 , but was not noted to be present in 1972, according to a review of aerial photographs available from the Army Corps' Central Map Files.

The asphalt plant control house (Figure 2), a raised building, contains the controls for the asphalt mixing unit and for the mixed-asphalt silos. The asphalt mixing unit, a Gencor Ultradrum (Appendix B), includes an aggregate conveyor feed (inlet), an aggregate drying zone, asphalt mixing zone, and the drum mix outlet. Dust or particulate from the aggregate is collected from the conveyor feed and the exhaust outlet, and recycled directly or through the baghouse into the mix. Asphalt is fed directly through an enclosed system from one of two 17,5000-gallon bulk asphalt ASTs. Volatile vapors are captured, returned to the unit, and combusted as fuel by the unit. The mixture is fed through an enclosed system of conveyors to silos for direct delivery to trucks.

3.2 Other Structures and Materials Storage Areas

Other structures at the facility include four overhead conveyor systems, including three conveyors to move aggregate from barges to stockpiles and then to the asphalt mixing unit, and one conveyor to feed crushed RAP into the asphalt mixing unit; a dock located in the Willamette River; a vehicle fueling area including the diesel-fuel AST and two dispenser pumps; a propane tank; a tractor trailer for parts storage; aggregate stockpiles (gravel); and RAP stockpiles (Figure 2). There are also five groundwater monitoring wells installed onsite to evaluate a groundwater contaminant plume from the adjacent Gunderson property.

Of materials exposed to the environment, aside from the diesel fuel which is an containment structure and the propane, none of these materials, including the aggregate, the hot-mix asphalt, or the RAP, are considered to be hazardous materials.

According to the results of two leachate testing studies of RAP and hot-mix asphalt conducted by the Heritage Research Group of Indianapolis, Indiana, concentrations of semivolatile compounds, polynuclear aromatic hydrocarbons (PAHs), and metals when detected were below Resource Conservation and Recovery Act (RCRA) Toxicity Characteristic Leachability Procedure (TCLP) levels and US Environmental Protection Agency (EPA) Region 9 Preliminary Remediation Goals (PRGs) for tap water. Copies of the study summaries are provided in Appendix C.

An approximate 200-gallon poly-tote of surfactant is stored and used at the former wash rack. The surfactant used to coat the inside of the box on dump trucks before loading in asphalt to reduce the likelihood of asphalt adhering to the inside of the box. This process is referred to as 'soaping'. In addition there are two poly tanks which contain non-hazardous liquid additives for the hot-mix asphalt; these are located beneath the mixer in a paved area.

3.3 Surface Runoff

During the April 2001 site survey, standing water was noted to pond around the aggregate stockpiles which are held in place by approximately 3-foot high retaining walls. Surface runoff from the paved areas around and beneath the asphalt mixing unit and the fueling area was noted to flow, as a result of sloping of pavement and shallow channels, to one of several catch basins, then to one of two oil/water separators, and then reportedly into one of two dry wells. Both the catch basins, which have an approximate 35-gallon holding capacity, and the oil/water separators are cleaned as needed, typically once or twice annually to reduce the likelihood of petroleum hydrocarbons entering the dry wells through the runoff. It is not uncommon at industrial facilities or even parking lots for minor drips of fuels or oils to occur from vehicles and equipment.

4.0 SITE HISTORY

The ownership and operational history of the site are discussed below.

Historical information on the subject property was gathered through the examination of historic aerial photographs, city directories, Sanborn Fire Insurance Maps (SFIMs), and Metskers Atlases. In addition, a search of recorded documents, including title documents (deeds), was conducted on the subject property (Tax Lots 1N1E19A-00600 and 1N1E19A-00700) by First American Title Insurance Company of Oregon under contract to HAI (Appendix D).

4.1 Ownership History

The property was acquired by Lakeside Industries in 1995 from Washington Asphalt Co., Inc. (Lakeside's parent company) which acquired the property from Shaver Transportation Company in 1987, at which time Washington Asphalt developed the asphalt plant. A summary of property owners since 1909 is presented in Table 1.

4.2 Operational History

A determination of the operational history is based on a review of historical maps, city directories, aerial photographs, and interviews, and is detailed below. Former site structures are depicted on Figure 3.

In summary, the site appears to have first been developed between 1940 and 1943/1944 by a general contracting company for use as a construction yard and offices. It appears to have remained in this use until sometime between 1970 and 1972. Issues of concern associated with this use appear limited to the presence of an oil house with an associated underground storage tank (UST) apparently used to store gasoline. From 1972 until acquisition of the site by Washington Asphalt in 1987, the property appears to have been used as storage and warehousing of railcar parts by Gunderson. The actual use of the buildings which appeared to be warehouses was not apparent from the sources reviewed. The property was

developed as an asphalt plant in 1987. A physical description of the plant is provided above under Site Description.

While the materials stored and used at Lakeside do not appear to present an issue for the Lakeside site, there is a documented groundwater contamination plume which flows beneath the Lakeside property from the adjacent portion of Gunderson (Appendix E).

4.2.1 Sanboru Fire Insurance Maps and Metsker's Atlas

The Oregon Historical Society (OHS) Library, located in Portland, Oregon was visited to review available SFIMs from 1898 to 1965 and Metskers Atlases from 1927 to 1944 for the subject property. Former structures are presented on Figure 3.

There was no coverage for the property in the 1898, 1908, 1926 or 1932 SFIMs. Both the 1955 and 1965 SFIMs indicate the property to be occupied by General Construction Company (a.k.a. Gilpin Construction Company). Aside from three warehouse structures (one relatively large that corresponds to the present maintenance shop), an office building, and a dock, the SFIMs indicate an oil house with an adjacent in-ground gasoline tank (UST) in both 1955 and 1965, as well as an oil and equipment warehouse in 1965. According to an overlay of the current property boundary with the SFIM and historic aerial photographs, the oil house appears to have been located on the adjacent property to the south (currently Gunderson Inc.) and the oil and equipment house appears to have been located on the adjacent property to the north (See Figure 3). According to Mr. Chuck Gaskill of Lakeside Industries who has been familiar with the property since 1987, an UST encountered during site re-development was removed from the vicinity of the current maintenance shop building in accordance with regulations applicable at the time. Since neither odors nor visible staining was noted, soil sampling was not conducted during the UST removal.

The Metskers Atlases of Multnomah County for 1927 and 1936 indicate the site to be a portion of the 50-acre parcel owned by the City Land Company, the name of which does not imply a use for the land, if any. However, Front Avenue had not been developed in 1927, so it is likely that without access other than by river that the site was not developed at that time. The 1944 atlas indicates the site is a portion of an approximately 22-acre parcel owned by Gilpin Construction.

4.2.2 City Directories

The OHS Library was visited to review available Polk City Directories (PCDs) for the subject property and adjacent properties from 1925 through 1999 (the most recent date available) at approximately 5-year intervals. The review of the PCDs indicated the following occupant history for the subject property:

1925:	No Coverage
1930:	No Coverage
1935:	No Coverage
1940:	No Coverage
1943/1944:	Gilpin Construction
1950:	General Construction Company
1955:	General Construction Company
1960:	General Construction Company
1965:	General Construction Company
1970:	General Construction Company
1975:	FMC Corporation (Rail Equipment Division)
1980/81:	FMC Corporation (Rail Equipment Division)
1985:	Gunderson, Inc.
1991:	Lakeside Industries
1995:	Lakeside Industries
1999:	Lakeside Industries

PCDs indicated the surrounding properties, including the adjacent sites, have historically been used for industrial purposes since first being developed in the early 1940s.

4.2.3 Aerial Photographs

Historical aerial photographs that were available at U.S. Army Corps of Engineers Central Map Files, Portland, Oregon, for the years 1936, 1940, 1948, 1957, 1963, 1972, 1980, 1991, 1996, and 1998 were examined for the subject property. Copies of the available aerial photographs, except those from 1936 and 1991, are presented in Appendix F.

The 1936 and 1940 aerial photographs depict the property as umdeveloped. The surrounding area is vacant land. There are several docks along the river bank to the south and log rafts in the river.

The 1948 aerial photograph indicates a relatively large warehouse-type structure (the current maintenance shop), an office building, and two smaller warehouses (shops), plus a couple of sheds and a dock (these structures conform with those indicated on the 1955 SFIM). The surrounding area is a mix of warehouse-type structures and vacant land, and what appears to a railyard to the west.

The 1957 and 1963 aerial photographs indicate two relatively large warehouse-type structures, the office building and the two smaller warehouses, plus and couple of sheds and an enlarged dock area (these structures conform with those indicated on the 1955 SFIM). There were large amounts of stored items which appeared to be lumber or logs in the yard area. The surrounding area is more heavily developed with warehouse-type structures which have been expanded to the southeast (Gunderson) and the railyard. There is little vacant land remaining, aside from yard areas.

The 1972 aerial photograph indicates the original relatively large warehouse-type structure, the office building and the two smaller warehouses, plus a couple of sheds and an enlarged dock area (these structures conform with those indicated on the 1955 SFIM). The yard area is empty and the property appears unused. The surroumding area, the warehouse-type structures and the railyard to the west, appears similar to the 1963 photograph. Aside from an area of fill along the river adjacent to the railyard, there is little vacant land remaining.

The 1980 aerial photograph appears similar to the 1972 photograph except that the yard area is again full of stored items which appear to be railcar axles. The surrounding area is developed with warehouse-type structures and the railyard, as before; and aside from the fill area adjacent to the railyard, there is little vacant land remaining.

The 1991, 1996, and 1998 aerial photographs all indicate the asphalt plant to be present with the overhead conveyors in-place, the maintenance building, the control houses, the dock, and large piles presumed to be gravel (aggregate).

4.3 Environmental Permits

The site has operated under two air contaminant discharge permits (ACDP) issued by ODEQ as follows: 1) ACDP #26-3242 for the hot mix asphalt plant and 2) ACDP #26-3229 for the RAP crusher and CTB (Appendix G). The hot-mix permit covers the mixer which was replaced in 1994 with a new, low NOx buruer counterflow drum mixer (Appendix B) and the baghouse replaced in 1995. In 1990 to 1992 there were opacity problems related to baghouse filters. The mixer did not pass a July 1995 source test for CO; however, the problem was corrected and the plant passed the October 1995 retest.

The site now operates under three General Air Contaminant Discharge Permits: AQGP-007 (Asphaltic Concrete Paving Plant); AQGP-008 (Stationary Rock Crusher); and AQGP-009 (Cement Treated Base) (Appendix G).

There are no water discharge permits required for storm water which is diverted into one of two onsite dry wells after being treated through one of two onsite oil/water separator (Appendix H). The facility does not generate or discharge industrial process water to the sanitary sewer.

A request for renewal of a Remove-Fill Permit (Joint Permit Application) (Appendix I) was submitted to the Corps of Engineers and the Oregon Division of State Lands. The permit is required to recover crushed rock which inadvertently spilled into the river during barge to shore rock loading operations. The permit was renewed in 2000 by the Division of State Lands, but as of March 2001 was still being reviewed by the Corps of Engineers.

There are no known onsite USTs. The following five ASTs which do not require environmental permits are present:

- One approximately 2,000-cubic foot propane tank
- One 15,000-gallon diesel fuel AST in an approximately 2,275 cubic foot (17,000 gallon) containment structure

- Two 17,500-gallon asphalt tanks, which due to the viscosity of unheated asphalt are not contained
- One 1,500-gallon used oil tank in the covered, contained petroleum storage shed.

4.4 Waste Handling

Wastes, aside from domestic-type waste from office operations and employee meals, include sludge generated from oil/water separator and catch-basin cleanings; used oil; and used antifreeze. The sludge, the used oil, and the used antifreeze are removed and handled by contractors as needed. The solvent sink previously used hazardous materials (naptha-based material) and was maintained under contract by Safety Kleen. Lakeside no longer generates hazardous waste.

Aside from sanitary wastes, no discharges occur to the sanitary sewer. Storm water runoff is treated onsite through a series catch-basins for settling and oil/water separators for removal of oil before discharging to two dry wells.

5.0 SOURCE AREAS

Lakeside (a.k.a. Washington Asphalt) has operated at the site since 1987. Documentation of material storage prior to that time was not available.

Materials currently stored onsite include the aforementioned propane, diesel fuel, asphalt, used oil, aggregate, RAP, and solvent (filterable solvent which is continuously reused at the solvent sink). In addition, bulk motor fuel, antifreeze, and hydraulic fuel are stored in the petroleum shed. Furthermore, relatively small quantities (5 gallons or less) of paints, epoxies, brake fluid, and transmission fluid are stored and used in the maintenance shop.

Some of the various products stored at the site represent potential sources of hazardous substances primarily under circumstances of containment failure. Diesel-tank or petroleum-product-tote failures would result in releases to containment structures or the maintenance building. Propane tank failure would result in a release to air. Asphalt tank or silo failure would result in a release to pavement and due to viscosity would not

flow and would be self-contained. Surfactant tote or hot-mix additive tank failures would likely result in a release to the storm water catch basin system.

As discussed previously, results of industry tests on both RAP and on hot-mix asphalt leachability (Appendix C) show constituents of concern (potential contaminants), when detected, were below RCRA TCLP levels and below EPA Region 9 PRGs for tap water.

There is a documented plume of groundwater contamination which originates at the adjacent Gunderson facility and flows beneath the site toward the Willamette River. Based on a review of the most recent groundwater sampling report[1] for the Gunderson site, halogenated volatile organic compounds (HVOCs) are present at total concentrations that range from below method detection to 2.72 parts per million (ppm) (Appendix E).

According to the ODEQ Strategy Recommendation (Appendix A) for the site, four sediment samples were collected from the vicinity of the site. One sample SD137, a surface sediment sample, was collected from a point near the dock on the upstream portion of site; two others SD135 (a surface sample) and SD135A (a deeper core sample) were collected at the downstream edge of the site near the municipal storm water outfall; and the fourth sample, SD131, was collected from a point approximately 0.1 mile downstream of the site. The following contaminants were detected at concentrations above baseline maximum values in three of these samples:

- Antimony (SD137)
- Barium (SD135A)
- Cadmium (SD135A)
- Manganese (SD135A)
- Silver (SD135A)
- Zinc (SD135A and SD131)
- Benzoic acid (SD135A).

While metals are naturally occurring in the gravel aggregate, according to the aforementioned RAP and hot-mix asphalt studies, the metal in the gravel (which in the hot-

[1] Squier Associates, April 2001. *Twenty-Third Quarterly Ground Water Sampling Event, Gunderson, Inc., Portland, Oregon*. April 12, 2001.

mix asphalt study included slag) were not leachable. In addition, all the metals detected were detected within natural background levels and most were detected in the deeper sample collected near the municipal storm water outfall rather than the surface sample near the dock where aggregate is unloaded and more likely to settle in the river if released during handling. The remaining contaminant, benzoic acid which is naturally occurring, is used in preserving foods and in manufacturing benzoates, and is not used in the asphalt industry and was also found in the deeper sample collected near the municipal storm water outfall. Therefore it is unlikely that the site is a source for the contaminants found in the sediments.

6.0 POTENTIAL PATHWAYS

The following subsections discuss potential pathways for groundwater, surface water, air, and direct contact to site contaminants.

6.1 Groundwater Pathway

6.1.1 Hydrogeologic Setting

The geologic units of interest at and in the vicinity of the site can be subdivided as follows, from youngest to oldest:

- Fill Deposits
- Alluvial Deposits
- Troutdale Formation
- Columbia River Basalt Group

The oldest and lowermost geologic unit of interest at the site consists of the Columbia River Basalt Group. The Miocene-age Columbia River Basalt, composed of a series of individual lava flows, generally forms the base (bedrock) of the Portland Basin and outcrops to the southwest of the site in the Tualatin Mountains. Pliocene-age Troutdale Formation gravel deposits, composed of interceded cemented sands and gravels with lesser amounts of silty sand and silt overlie the basalt. Quaternary-age Alluvial Deposits, composed of unconsolidated sands and silts, overlie the Troutdale Formation and/or Columbia River Basalt along the Willamette River in the area. A review of historical aerial photographs of the site indicates that a strip of land along the Willamette was filled-in through time.

Groundwater beneath the site was measured in the five Gunderson wells was encountered at depths ranging from 21.2 to 33.4 feet below ground surface (bgs). Groundwater flow direction as reported by Squier (2001) appears to be northward toward the Willamette with some variation between deep and shallow zones. As indicated above, groundwater beneath the site is impacted with HVOCs from the adjacent Gunderson property.

Surface runoff for the surrounding area appears to be directed to the river through storm water sewer that outfalls at the north of the site, while site runoff is treated and contained onsite. The portions of the site where hazardous substances are used and are stored are paved and surface flow is directed into a series of catch basins and then to one of two onsite oil/water separators prior to discharging to one of two onsite drywells. The catch basins act as settling basins and the oil/water separators remove petroleum products prior to discharge to the drywells. Petroleum may be present in the runoff from incidental drips from vehicles to the site pavement.

6.1.2 Groundwater Receptors

The site and surrounding properties are served by the City of Portland water and sewer systems. Based on well log reports available for Section 19 and the surrounding townships (Appendix J), several water wells are located in the vicinity of the site and several were indicated to be used for domestic purposes. Groundwater at times may discharge to the Willamette where potential receptors include recreational users and ecological receptors discussed below under surface water.

6.1.3 Conclusions

Although site groundwater has been shown to be contaminated with HVOCs, the source is indicated to be the adjacent property, Gunderson, Inc. It does not appear that Lakeside's operations have contributed to the documented groundwater contamination. Furthermore, the contaminants detected in the Willamette sediments in the vicinity of the site do not appear associated with Lakeside's activities or the Gunderson groundwater plume.

6.2 Surface Water Pathway

6.2.1 Site Hydrology

Aside from occasional ponded water following heavy rains, the Lakeside site contains no surface water bodies, but lies on the west bank of the Willamette River. Storm water from the operational areas of the site is collected through a series of onsite catch basins and then flows into one of two oil/water separators prior to discharging to one of two dry wells.

6.2.2 Receptors

Uses of the Willamette River include recreational fishing, boating, water skiing, swimming, and in public access areas, beach use. The river also provides habitat, including migratory routes, for several species of fish including the recently federally listed Chinook and steelhead, and for birds. Finally, Lakeside pumps water from the Willamette under permit (Application #S-80300, Oregon State Water Resources Department, Water Rights Division) to control dust from the conveyors.

6.2.3 Conclusions

There are no known ongoing sources of surface water contamination at the Lakeside site. Storm water discharges are handled by an onsite system of settling (catch) basins, oil/water separators, and dry wells. No industrial wastewater is generated and sanitary discharges are sent to the sanitary sewer. Therefore it is unlikely that hazardous materials used and or stored at the site are flowing to the river.

6.3 Air Pathway

6.3.1 Emissions

Air emissions from the Lakeside Facility are permitted by the Oregon Department of Environmental Quality under three General Air Contaminant Discharge Permits: AQGP-007 (Asphaltic Concrete Paving Plant); AQGP-008 (Stationary Rock Crusher); and AQGP-009 (Cement Treated Base).

The RAP crusher and CTB sources are estimated to emit approximately 1.2 tons/year of Particulate Matter. The sources currently meets the criteria for a Minimal Source Permit. These sources are not subject to regulations for New Source Performance Standards (NSP), Prevention of Significant Deterioration (PSD) or National Emission Standards for Hazardous Air Pollutants (NESHAPS).

The hot-mix asphalt plant, manufactured in 1994 with pulse jet baghouse, and vehicle traffic are the emission sources permitted under the other ACDP. Plant Site Emission Limits (PSELs) for these sources are: Particulate Matter (PM) - 24 tons per year (tpy); Particulate Matter less than 10 microns (PM10) – 14 tpy; Sulfur Dioxide (SO2)- 39 tpy; Nitrogen Oxides (NOx)- 39 tpy; Carbon Monoxide (CO)- 99 tpy; and Volatile Organic

Compounds (VOCs)- 39 tpy. The facility is not a major source of criteria pollutant or hazardous air pollutants.

The facility was inspected in August 1998, July 1997, and September 1996 and each time was found to be in compliance with permit conditions.

6.3.2 Receptors

The Lakeside site, surroumding properties, and the Willamette River are all potential receptors of air emissions from the Lakeside operations. Migration of particulate emissions or VOCs, in particular, from the RAP crusher, CTB, hot-mix asphalt plant or vehicle traffic sources historically or currently would be a minor potential source, if at all, of the low concentration metals and acid contaminants of concern discovered in the river sediments adjacent to the site.

6.3.3 Conclusions

The air pathway from the Lakeside site to the river is a potentially complete pathway; however, it is hkely to be only an insignificant contributor to the potential contamination of the river sediments adjacent to the site.

6.4 Site Soils Pathway

The site is an industrial facility. Approximately 40 percent is covered by pavement and/or buildings and 90 percent of the remainder is used as roadways, or covered by stockpiles or conveyor systems. Due to the industrial nature of the site and the amount of covered area, it is unlikely that the site is used by ecological receptors.

Aside from potential direct human contact to products or substances during normal Facility operations, there is no indication that environmental contamination of site soils exist. Therefore, since there is no likely environmental contamination of site soils, it is reasonably-likely to not expect any persons to be exposed via dfrect contact.

7.0 SUMMARY AND CONCLUSIONS

Lakeside Industries operates a hot-mix asphalt plant, first opened in 1987, at 4850 NW Front Avenue, Portland, Oregon, in a heavily industrial area of the city along the west bank of the Willamette River. The site has been developed since the early 1940s, first as a general construction yard until the early 1970s, and then as a portion of the adjacent Gunderson property storage yard and possibly warehousing until 1987, when it was redeveloped as a hot-mix asphalt plant.

The section of the river where Lakeside is located has been listed as a Superfund site. Based on ODEQ studies of sediments of the Willamette River, six metals and one acid are present in the sediments adjacent to and just downstream of the Lakeside Facility, at concentrations above maximum baseline values. Five of these contaminants were detected in the deeper core sample near a municipal storm water outfall at the downstream edge of the site. Industry studies conducted on both RAP (reclaimed asphalt pavement) and on hot-mix asphalt, indicate that these same metals which may be present in the materials do not leach from these materials and that when detected were below federal cleanup characteristic waste levels and federal tap water standards. The acid is not used in the asphalt industry.

Based on the past uses of the site as storage yards for general contractors and a storage yard for the adjacent railcar manufacturer (Gmiderson), its current use as a hot-mix asphalt plant, and the lack of surface water discharge from the site, it is unlikely that the site is a source of the contaminants found in the Willamette River sediments adjacent to and downstream of the site.

8.0 LIMITATIONS

The information presented in this report was collected, analyzed and interpreted following the standards of care, skill and diligence ordinarily provided by a professional in the performance of similar services as of the time the services were performed. This report is a work of opinion, therefore we can not offer any warranty regarding our conclusions, advice, or recommendations.

Any questions regarding the information presented in this report are welcome and should be referred to the undersigned. Thank you for the opportunity to be of service in this matter.

Prepared by

Philip A. Ralston

Philip A. Ralston
Principal
Hahn and Associates, Inc.

GLOSSARY OF ABBREVIATIONS

AST	above-ground storage tank
bgs	below ground surface
EPA	US Environmental Protection Agency
HAI	Hahn and Associates, Inc.
HVOCs	halogenated volatile organic compounds
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
PAHs	polynuclear aromatic hydrocarbons
ppm	parts per million
PRGs	Region 9 Preliminary Remediation Goals
RAP	reclaimed asphalt pavement
UST	underground storage tank

TABLE 1: Summary of Historic Ownership and Operations
Lakeside Industries, Inc.
4850 NW Front Avenue
Portland, Oregon

Project No. 5366

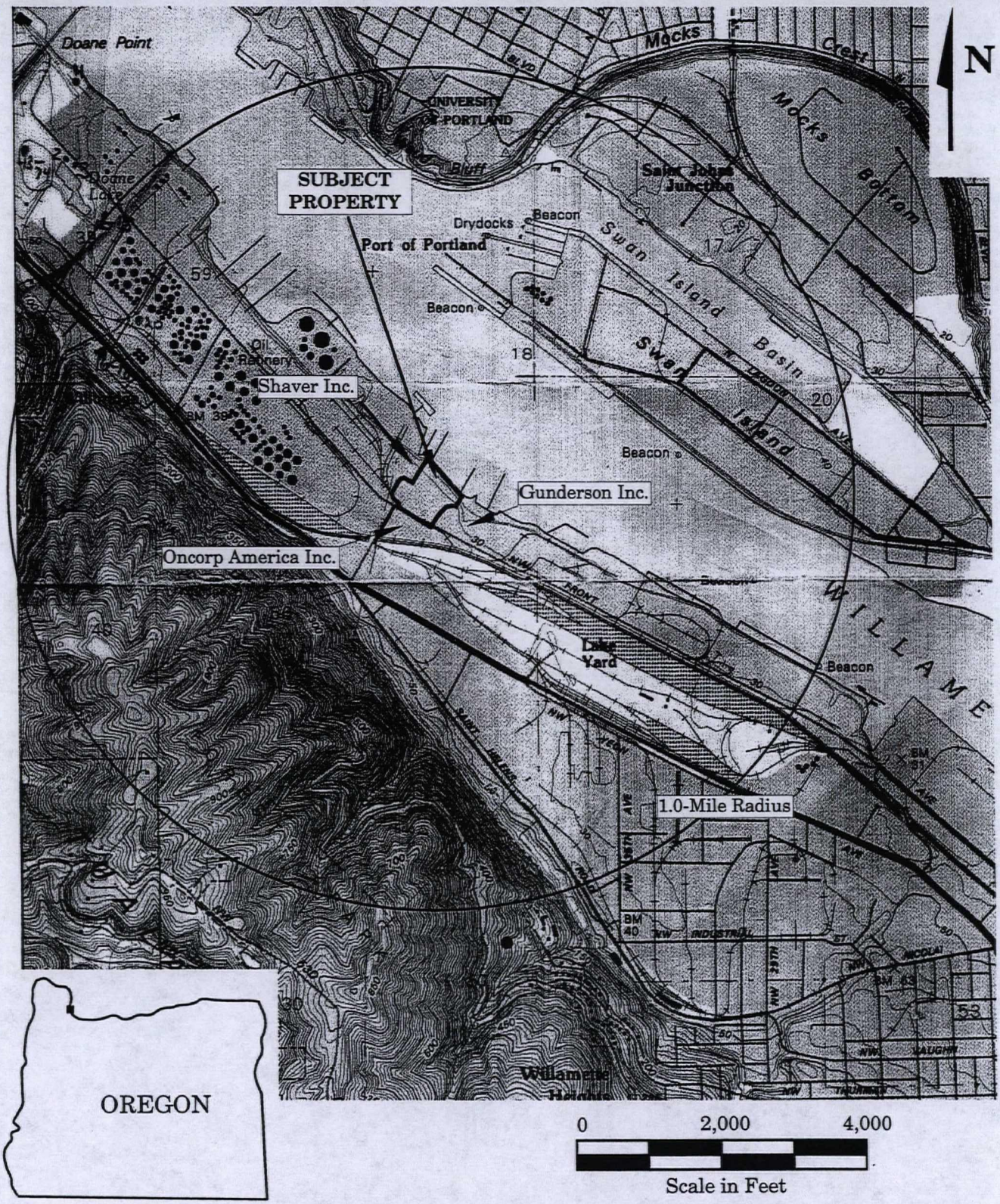
Year	Owner/Occupant	Source	Use*	Source
Prior to 1909	Hannah Potter	Title	Unknown	-
May 1909	City Land Company	Title	Unknown	-
March 1909	W.B. Gilbert	Title	Unknown	-
September 1919	Simon Benson	Title	Unknown	-
1927	City Land Company	MA	-	-
September 1930	Joseph & Sam Simon	Title	Unknown	-
January 1933	City Land Company	Title	Unknown	-
1936	City Land Company	MA	-	-
1936	-	-	Undeveloped	AP
1940	-	-	Undeveloped	AP
November 1941	Gilpin Construction Co.	Title	-	-
1943/1944	Gilpin Construction Co.	PCD	-	-
1944	Gilpin Construction Co.	MA	-	-
1948	-	-	Warehouse, 2 Shops, Office Building, Storage Yard, Dock	AP
1950	General Construction Company	PCD	-	-
1955	The Gilpin Construction Co. and General Construction Company	SFIM	Warehouse, 2 Shops (Warehouses/Storage), Office Building, Storage Yard, Dock	SFIM
1955	General Construction Company	PCD	-	-
April 1957	General Construction Company	Title	-	-
1957	-	-	2 Warehouses, Combined Shop, Office Building, Storage Yard, Dock	AP
1960	General Construction Company	PCD	-	-
1963	-	-	2 Warehouses, Combined Shop, Office Building, Storage Yard, 2 Docks	AP
1965	The Gilpin Construction Co. and General Construction Company	SFIM	Warehouse, 2 Shops (Warehouses/Storage), Office Building, Storage Yard, Dock	SFIM

TABLE 1: Summary of Historic Ownership and Operations
Lakeside Industries, Inc.
4850 NW Front Avenue
Portland, Oregon

Project No. 5366

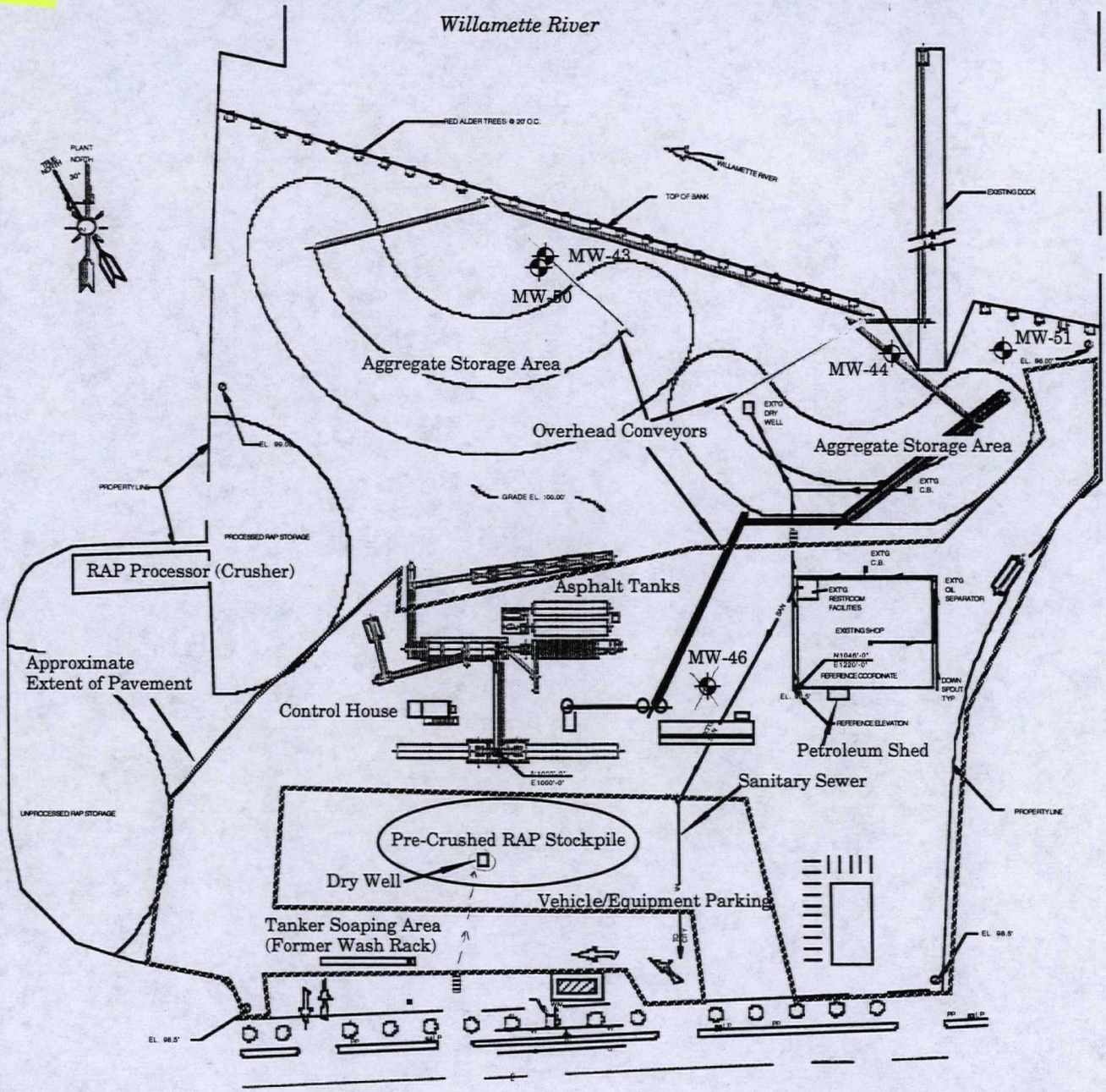
Year	Owner/Occupant	Source	Use*	Source
1965	General Construction Company	PCD	-	-
1970	General Construction Company	PCD	-	-
February 1972	Gunderson Inc.	Title	-	-
1972	-	-	Warehouse, Combined Shop, Office Building, Storage Yard, 2 Docks	AP
1975	FMC Corporation (Marine)	PCD	-	-
1980	-	-	Warehouse, Combined Shop, Office Building, Storage Yard, 2 Docks	AP
1980/1981	FMC Corporation (Marine)	PCD	-	-
October 1983	Shaver Transportation Company	Title	-	-
1985	Gunderson Inc.	PCD	-	-
January 1987	Washington Asphalt Co., Inc.	Title	-	-
1991	-	-	Warehouse, Control House, Gravel Piles, 2 Docks	AP
1991	Lakeside Industries	PCD	-	-
March 1995	Lakeside Industries	Title	-	-
1996	-	-	Warehouse, Control House, Gravel Piles, 2 Docks	AP
1998	-	-	Warehouse, Control House, Gravel Piles, 2 Docks	AP
1999	Lakeside Industries	PCD	-	-
2001	Lakeside Industries	Site Survey	Warehouse (Shop/Offices)/ Control Houses, Gravel Piles, Docks	Site Survey

Note: * = Property use information based on Sanborn Fire Insurance Maps (SFIM), Metskers Atlases (MA), Historic Aerial Photographs (AP), Polk City Directories (PCD)



Note: Base Map from Portland, Oregon, U.S.G.S. 7.5 Minute Quadrangle, 1990

HAI Project No. 5366	**HAHN and ASSOCIATES** INCORPORATED	**LOCATION MAP**	**FIGURE**
May 2001	ENVIRONMENTAL MANAGEMENT 434 NW SIXTH AVENUE, SUITE 203 PORTLAND, OREGON 97209 503/796-0717	Preliminary Assessment Lakeside Industries Inc. 4850 NW Front Avenue Portland, Oregon	1



LEGEND

MW-44 Gunderson Inc. Groundwater Monitoring Well

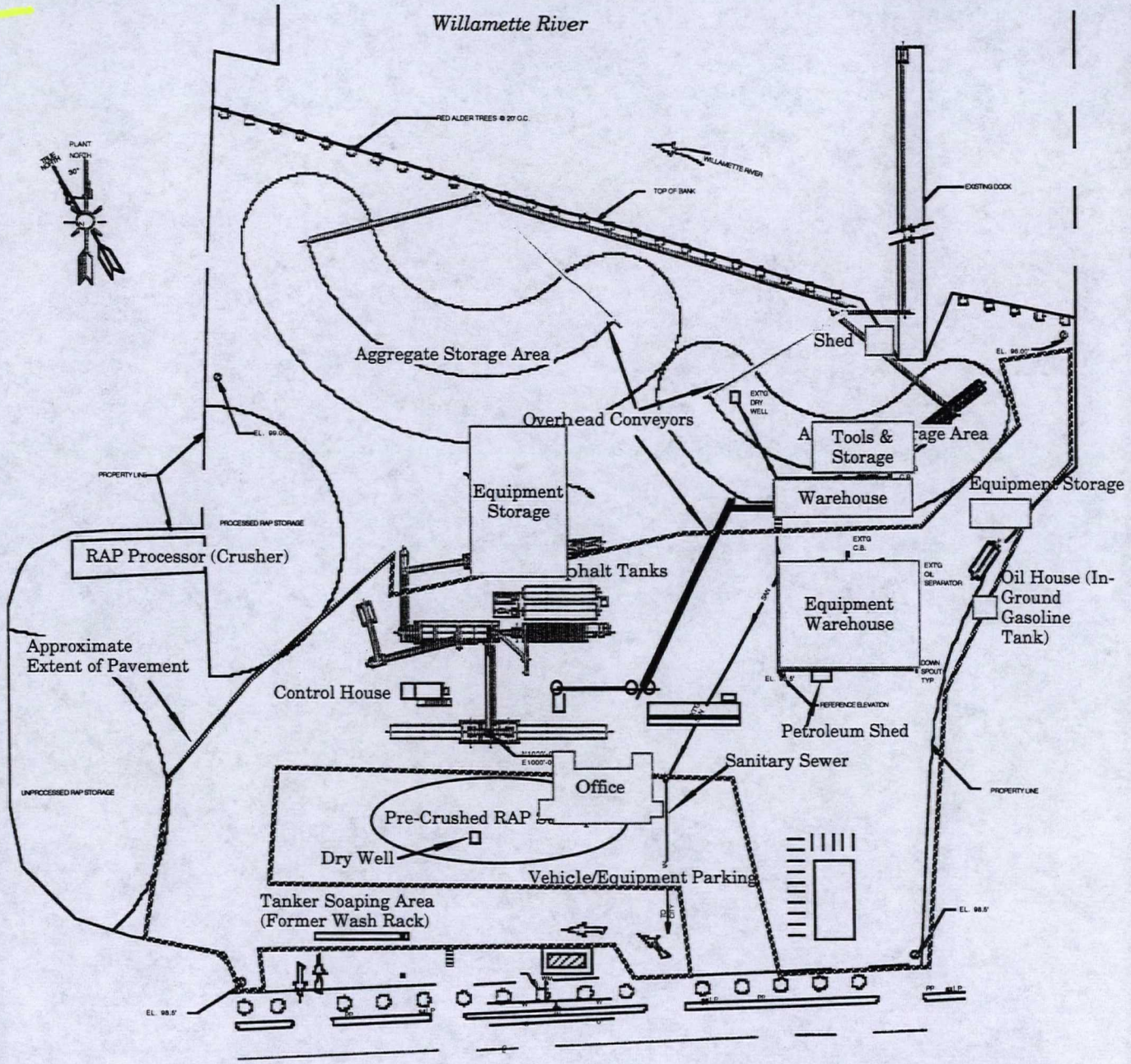
Diesel Fuel Dispenser

Oil/Water Separator

Diesel Tank in Containment Structure

Note: Site Plan from Smith & Monroe & Gray Engineers Inc., Beaverton, Oregon 1988

HAI Project No. 5366	**HAHN and ASSOCIATES** INCORPORATED	**Site Map**	**FIGURE**
May 2001	ENVIRONMENTAL MANAGEMENT 434 NW SIXTH AVENUE, SUITE 203 PORTLAND, OREGON 97209 503/796-0717	Preliminary Assessment Lakeside Industries Inc. 4850 NW Front Avenue Portland, Oregon	**2**



LEGEND

☐ Former Structure From Sanborn Fire Insurance Maps, 1955 and 1965 and From Historic Aerial Photographs

Note: Site Plan from Smith & Monroe & Gray Engineers Inc., Beaverton, Oregon 1988

HAI Project No. 5366	**HAHN and ASSOCIATES** INCORPORATED	**Former Structures Map**	**FIGURE**
May 2001	ENVIRONMENTAL MANAGEMENT 434 NW SIXTH AVENUE, SUITE 203 PORTLAND, OREGON 97209 503/796-0717	Preliminary Assessment Lakeside Industries Inc. 4850 NW Front Avenue Portland, Oregon	3

Appendix A

Oregon Department of Environmental Quality Strategic Recommendation

DEQ SITE ASSESSMENT PROGRAM - STRATEGY RECOMMENDATION

Site Name: Lakeside Industries

Site CERCLIS Number: (none)

DEQ ECSI Number: 2372

Site Address: 4850 NW Front Ave., Portland, OR

Recommendation By: Mark Pugh, Voluntary Cleanup and Site Assessment Section, DEQ Northwest Region

Approved By: Michael E. Rosen, Portland Harbor Manager, DEQ Northwest Region

FOR MER

Date: November 23, 1999

NOTE: This site (Figures 1 and 2) is within a 6-mile stretch of the Lower Willamette River in which the U.S. Environmental Protection Agency (EPA) conducted a sediment study in 1997. This area, referred to as the Portland Harbor, is between the upstream ends of Sauvie Island (River Mile 3.5) and Swan Island (RM 9.5). The purpose of this Strategy Recommendation is to determine whether a specific hazardous substance release or a specific past operation at the site can be linked to contamination documented by EPA in sediments adjacent to the site. Because of this focus, the Strategy Recommendation may omit some historical site information, regulatory issues, or further-action conclusions that might otherwise be included in a DEQ Strategy Recommendation.

Background, Portland Harbor Sediment Evaluation

In September and October 1997, EPA's contractor, Roy F. Weston, Inc., collected 187 near-shore sediment samples within the Portland Harbor area defined above. Most samples (150) were collected as shallow grab samples within the upper 6 to 17 centimeters (cm) of sediments. 37 deeper composite core samples, from depths of between 55 and 139 cm, were also collected. All samples were analyzed for total metals, semi-volatile organic compounds (SVOCs), total organic carbon (TOC), and sediment grain size. Selected samples were also variously analyzed for organotins (TBTs), pesticides, polychlorinated biphenyls (PCBs), chlorinated herbicides, and polychlorinated dioxins and dibenzofurans.

Based on analytical results from this study, which showed extensive sediment contamination, EPA is currently considering Portland Harbor for inclusion on the federal National Priority List (NPL - also known as Superfund).

Between late 1998 and mid-1999, DEQ examined EPA's analytical data to determine potential sources for sediment contamination in the Harbor. Potential sources associated with the most contaminated areas of sediment were sites already active in DEQ's Cleanup Programs.

DEQ categorized other areas of sediment contamination (i.e., those areas not thought to be associated with active Cleanup Program sites) by defining the areas:

- having the highest detected concentration of a given contaminant;
- with contaminant concentrations in the upper five percent of a given contaminant's detected concentrations; and
- having contaminant concentrations above an apparent "baseline range" most commonly detected throughout the harbor area.

DEQ categorized in this manner because there are no established freshwater sediment contaminant concentration guidelines or well-defined background contaminant concentrations for the harbor area. The contaminant "baseline range" was developed by examining the geometric distribution of concentrations for each contaminant detected. Any sediment concentrations that appeared to depart significantly from the ranges most commonly detected were suspected of lying near a potential contaminant source.

Two EPA sampling stations are located in the immediate vicinity of the site (SD135, SD137; Figure 2). SD135 is located near the northwestern (downstream) corner of the site. SD137 is located in the northeast central portion of the site. One surface sediment sample was collected from the upper 15 centimeters (cm) of sediment at SD135. In addition, a deeper subsurface core sample was collected from the upper 85 cm of sediment. The core sample was thoroughly mixed to form a representative sample (SD135A). At SD137 a surface sediment sample was collected from the upper 13 cm. Surface sediment sample stations also were located approximately 0.1 miles downstream (SD131), and approximately 0.8 miles upstream of the site (SD140).

Table 1 lists laboratory analytical results for the EPA samples compared to Portland Harbor baseline concentrations.

Concentrations for a variety of inorganic compounds reported for subsurface sample SD135A, including barium, cadmium, lead, mercury, silver, and zinc, exceed their respective baseline concentrations. The reported mercury concentration was twice the baseline concentration; other exceedences are less than two times the reference concentration for the respective inorganic compounds. The semi-volatile organic compound (SVOC) benzoic acid also exceeded the baseline concentration in the subsurface core sample. Baseline concentrations were not exceeded in the surface sediment sample collected at SD135.

Exceedences of baseline concentrations at sample station SD137 are limited to antimony.

Antimony and zinc both exceeded their respective baseline concentrations at the downstream sample station SD131.

None of the metals concentrations in the upstream sample exceeded baseline concentrations, suggesting a possible metals source area in the vicinity of the site. The SVOC 4-methylphenol was the only compound that exceeded baseline concentrations in the upstream sample.

Operational History

Lakeside Industries has been the owner/operator of a hot-mix asphaltic concrete manufacturing plant at the site since 1988. The current owners indicate the site was used as a steelyard prior to 1988. Lakeside Industries also provides road construction services. The site totals 18.42 acres, consisting of 9.73 acres of uplands above river level, and 8.69 acres of lowlands comprising the Lakeside Industries dock area (Figure 2).

The current plant consists of an asphalt and concrete treated base (CTB) crusher and an asphalt recycling and reclamation plant (Figure 4). Crushed material is used as aggregate in the asphaltic/concrete ~~wet~~ hot mix. Approximately 20 percent of the asphalt component is obtained from recycled asphalt product (RAP) which includes used asphalt and asphaltic shingles, but may include other asphaltic base materials. The asphalt recycling plant consists of a burner, dryer, scrubbers, and a baghouse. Waste asphalt material is off-loaded dockside and stockpiled adjacent to the Willamette River. As discussed below, the hot melt and crushing process are each conducted under DEQ Air Quality (AQ) Division permits (see Air Contaminant Discharge Permit 26-3242; 26-3229). No No

Other site features include three monitoring wells, a dry well, one 2,500-gallon waste oil tank, and one 15,000-gallon above-ground diesel storage tank within containment. Two City storm water outfalls (19, 19a) are located just west of the site. These

outfalls discharge near SD135 and may have contributed to elevated contaminant concentrations observed at this location. The relationship between the on site drywells and the City outfalls is not known.

City Dredge tested APR 95

Aerial photos from 1983 and 1977 appear to show materials, possibly steel products, staged at the site. The 1963 and 1957 aerial photos show what appears to be lumber staged at the site.

Investigation History

Subsurface environmental investigation at the site is limited to installation and sampling of three monitoring wells (MW-43, MW-44, MW-46) by Gunderson Inc. The Gunderson property is located immediately adjacent to the east of Lakeside Industries.

The wells were installed to determine the downgradient extent of the volatile organic compound (VOC) groundwater plume originating from the Gunderson site. Sampling results indicate low levels (<5 ppb) of chlorinated VOCs were detected in wells MW-43, MW-44, and MW-46, which is consistent with known chemical sources on the Gunderson property.

Other historical environmental sampling data is limited to air sampling conducted as required by the air discharge permits, as discussed below.

Nearby Sediment Sampling

Shaver Transportation, located adjacent to the site, conducted sediment sampling to characterize sediment prior to proposed dredging. Samples were collected from seven locations adjacent to the Shaver Transportation docks in June 1998 (Figure 3). The depth of the sediment samples is not known. The seven samples were mixed to form a composite sample, and analyzed for total metals, PAHs, PCBs, and organochlorine pesticides. Analytical results compared to baseline levels are shown in Table 2. Five metals (cadmium, copper, lead, mercury and zinc) were detected at concentrations above baseline concentrations, and above concentrations detected at SD135. These data suggest that there is a contaminant source in the immediate vicinity of Shaver Transportation. Another potential source is City outfall 19 and/or 19a. (Shaver Transportation is the subject of a separate DEQ Strategy Recommendation).

Regulatory History

Regulatory information in this section is based on a review of the following DEQ resources, including:

- DEQ Environmental Cleanup Site Information (ECSI) database
- DEQ Hazardous Waste Information Management System database(HWIMSy)
- DEQ Spill Information Network (SPIN) database
- DEQ Complaint files
- DEQ Water Quality Division (WQ) files
- DEQ Air Quality Division (AQ) files
- DEQ Leaking Underground Storage Tank (LUST) files

Lakeside Industries operates under two DEQ Air Quality (AQ) discharge permits. One permit (26-3242) covers emissions from the asphalt burner, and stipulates production limits and annual permissible levels of carbon monoxide (CO), total suspended particulates (TSP), nitrogen oxides (No_x), and volatile organic compounds (VOCs). The other permit (26-3229) sets opacity and particulate limits for emissions from crushing activities. From 1990 to 1992, a series five Notices of Noncompliance (NON), one civil penalty, and stipulated order were issued by DEQ to Lakeside Industries. The existing permit calls for a process change to reduce emissions and comply with the stipulated order. Since 1992, DEQ inspections have found the facility to be in compliance.

From 1889 to 1995 the site was identified as the source for six complaints pertaining to air emissions. Complaints include dust, from a rock crusher, asphalt droplets precipitating from smoke, and a 200-foot dust plume. Fugutive emissions over time may have released PAHs from the site, which are constituents of asphalt. Airborne PAH-bearing particulates may have settled out into the Willamette. However PAH concentrations in the sediment sample collected near the site were not elevated above baseline levels, suggesting this mechanism did not contribute appreciably to sediment contamination.

NO

No!!

Lakeside Industries registered as a Small Quantity Generator (SQG) of hazardous waste in 1989. Their primary waste stream consisted on spent petroleum naphtha solvent that was contained in a parts washer used for construction machinery maintenance. The waste was identified as D001 ignitable characteristic waste and F001 listed waste which includes spent chlorinated solvents used in degreasing. In 1993 2123 pounds of spent solvent and 581 pounds of ethylene glycol was transported off site. In 1996 they changed status to a conditionally exempt generator (CEG).

In 1988 Lakeside Industries reported a release from a diesel tank to the DEQ UST section, and the site was leaking UST (LUST) #26-88-0075. The site was closed in 1989. The file has been archived and was not available for review. The UST does not appear to be an environmental concern at the site.

There is a letter in the HW file indicating that Lakeside Industries inquired about using spent abrasive blast media (ABM) in place of fine aggregate in asphalt. ABM is of concern, as it may be associated with contaminants contained in paints, such as metals (including tributyl-tin). DEQ indicated at that time they did not provide approval for recycling programs. DEQ further stated that this practice is acceptable provided the ABM is not hazardous waste/material, and that documentation to that effect should be maintained for three years after the waste stream is no longer generated. It is unclear if ABM was used at the site, and if so, if a hazardous waste determination was made. If the ABM contained high levels of metals it is possible that a release of this material contributed to elevated metals concentration in sediment. The amount of ABM used on site, or releases of this material, have not been documented.

did not have

was not

Site Hydrogeology

The site lies in the northern-most Portland Basin, a major north-southeast trending sediment filled structural depression found in the northern part of the Willamette River valley and adjoining Columbia River valley (Swanson et al, 1993). The basin is filled with recent alluvium, Pleistocene cataclysmic flood deposits, Miocene to Holocene nonmarine sedimentary rocks, and is underlain by Eocene to Miocene volcanic and sedimentary rocks that are exposed along the basin margins.

The youngest deposits are recent alluvium (silt, sand and gravel mixtures) characteristic of an active fluvial environment. These are made up of shoreline, river channel, and adjacent floodplain deposits.

Lakeside Industries lies between U.S. Highway 30 (St.Helens Road) and the Willamette River, at the base of the Portland Hills. The facility was constructed on varying thicknesses of fill comprised of fine to medium sands and silts overlying alluvial floodplain deposits. Aquifers in the fill and floodplain deposits generally are unconfined and localized due to heterogeneity of the deposits. Occurring at various depths in the site vicinity, Columbia River Basalts (CRB) underlie these alluvial deposits. Deep wells installed in fractured CRB can be very productive and important supply wells. Site elevation is about 30 feet above mean sea level.

Investigations conducted at the Gunderson Inc. site, located east (upstream) of the site, indicate that groundwater flow in the site area is influenced by a northwest trending trough filled with coarse gravel. Basalt occurs at relatively shallow depths of about 50 feet bgs on either side of the trough. Groundwater flow is to the northwest, with local variations near the edge of the trough. Groundwater elevations at the site coincide with the level of the

Willamette River; depth to groundwater varies based on local relief above the river level.

Pathway Summary

Lakeside Industries lies in an industrialized area comprised largely of shipping/transportation, raw materials processing, and bulk chemical handling facilities. No residential-zoned properties are located within a quarter mile of the site (EPA, 1999).

The site is fenced on the three sides. The fourth side that faces the river is not fenced. Because the majority of the site appears paved, the risk of exposure to potentially contaminated surface soil appears minimal. Inhalation of fine asphaltic material or ABM, present in either smoke or residual dust may pose a risk to site workers, and potentially, downwind receptors including the Willamette River. Utility trench workers could potentially be exposed to subsurface contaminants through direct contact, inhalation, or incidental ingestion.

The Oregon Water Resources Department records indicate there are no known domestic wells within 1 mile of the site. Numerous monitoring wells have been installed in the vicinity of the site. The closest industrial use well is located less than one-quarter mile from the site. Lakeside Industries maintains a surface water right in the Willamette River adjacent to the site. No place of use was identified in the summary report, indicating the water right is not currently utilized.

The nearest wetland is located approximately 0.1 mile northwest of the site, and is listed at a total area of 0.5 acres (EPA, 1999).

Both 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 are plentiful within the Harbor. The Harbor is also an important 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 and steelhead, which migrate through the Harbor, are listed as threatened species under the Federal Endangered Species Act. The Pacific lamprey is considered a federal species of concern.

Great blue herons, cormorants, osprey, mergansers, kingfishers, peregrine falcons, and bald eagles routinely forage within the Harbor. 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 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 extent of the benthic community within Portland Harbor sediments. However, it is known that contamination in the benthos, which is a protected beneficial use, can be the source of food-chain effects that radiate up to the species listed above, including humans.

The Lower Willamette River is water quality limited for the following toxic compounds:

- Dioxins/furans (water column and sediments);
- Mercury (fish tissue);
- Pesticides (water column and sediments);
- Polynuclear Aromatic Hydrocarbons - PAHs - (water column and sediments); and
- Trace metals (water column and sediments).

DEQ's Water Quality Division is developing Total Maximum Daily Load requirements (TMDLs) within the lower Willamette River for these contaminants. A TMDL for 2,3,7,8-TCDD was established in 1991.

Conclusions/Recommendations

NOTE: As indicated previously, this review is limited to establishing a link between site activities and contamination in adjacent Portland Harbor sediments. It does not necessarily represent a thorough review of available site data, and the conclusions and recommendations presented below may reflect this limited focus.

Based on a review of the available information summarized in this strategy recommendation, DEQ has concluded that:

- Elevated concentrations of a number of metals, and one SVOC were detected in sediment located near the downstream edge of the site (SD135). However, the surface sediment sample collected near the Lakeside Industries dock, with the exception on antimony, does not contain metals elevated above baseline levels. Therefore, historical use of the site as a steelyard, and use of ABM at the site, does not appear to have impacted sediment quality at the site.

- Elevated concentrations of LPAHs and/or HPAHs were not detected in the sediment adjacent to the site. This suggests that although there was long term use and a high volume of RAP handled at the site dock, and emissions from the asphalt burner, the site is not a significant contributor to PAH contamination in sediments. NO NO

- Metals staged on site upland areas may have resulted in a discharge to the dry well during runoff events, and potentially to the Willamette River. The fate of potential contaminants in the dry well, and the relationship to the City storm water outfall is not known.

A Preliminary Assessment (PA) should be conducted to evaluate potential upland contaminant sources such as the dry well, and past waste management practices. As necessary, the PA should present recommendations aimed at preventing potential further contamination of adjacent sediment. DEQ has determined that these actions warrant a medium priority for follow-up.

There is insufficient information to propose adding the site to DEQ's Confirmed Release List or Inventory at this time.

References

DEQ consulted the following general references in preparing this Strategy Recommendation:

1. Portland Harbor Sediment Investigation Report, prepared by Roy F. Weston, Inc. for USEPA, May 1998.

2. Lakeside Industries response to DEQ Site Assessment Information Request, April 20, 1999.

3. DEQ LUST Database.

4. DEQ HWIMSy Hazardous Waste Generator Database.

5. DEQ SPINS Spill Database.

6. MetroScan Property Records, Multnomah County, Oregon.

7. EPA SITEINFO Mapping Application, available at website: http://www.epa.gov/r10earth/r10gis/r10site.html

Attachments

Table 1: River Sediment Contaminant Concentrations (1997)

Figure 1: Site Location Map

Figure 2: Site Property Boundary Map

Figure 3: Sediment Sampling Points, 1997 Portland Harbor Sediment Investigation

Figure 4: Site Features

TABLE 1

River Sediment Contaminant Concentrations (1997)

Lakeside Industries

Contaminant	Units	Downstream	Lskeside Industries			Uostrsam	Apparent Portland Harbor Sediment Baseline Maximum Value
		SD131	SD135	SD135A	SD137	SD140	
Aluminum	ppm	36500	33000	40900	38400	41000	42800
Antimony	ppm	5	<5	<5	6	<5	<5
Arsenic	ppm	<5	<5	<5	<5	<5	<5
Barium	ppm	170	157	197	181	186	195
Beryllium	ppm	0.55	0.53	0.56	0.6	0.6	0.7
Cadmium	ppm	0.5	0.4	0.7	0.5	0.5	0.6
Chromium	ppm	34.7	31.5	38.7	37.8	37.6	41
Cobalt	ppm	17.4	15.8	18.9	18.2	19	19.7
Copper	ppm	39.8	37.3	55.7	42.2	44	50
Iron	ppm	38700	35700	41400	41400	43400	45000
Lead	ppm	20	16	32	17	15	30
Manganese	ppm	542	505	658	573	694	810
Mercury	ppm	0.06	0.05	0.2	0.07	0.08	0.1
Nickel	ppm	28	25	30.2	29	30	32
Selenium	ppm	10	9	5	15	10	15
Silver	ppm	0.7	0.9	1.5	0.8	0.7	1.4
Thallium	ppm	9	10	6	15	11	13
Titanium	ppm	NA	NA	NA	1960	NA	2075
Vanadium	ppm	94.2	87.5	108	102	106	112
Zinc	ppm	125	103	181	103	102	118
2-Methylnaphthalene	ppb	<20	<20	54	<20	<20	150
4-Methylphenol	ppb	360	340	290	590	730	680
Benzoic Acid	ppb	<200	<200	380	<200	<200	<200
Benzyl Alcohol	ppb	<20	<20	<20	<20	<20	<20
bis(2-Ethylhexyl)phthalata	ppb	210	320	270	250	190	390
Butylbenzylphthalate	ppb	<20	<20	<20	<20	<20	<20
Carbazole	ppb	<20	<20	<20	<20	<20	100
Di-N-Butylphthalate	ppb	<20	<20	<20	<20	<20	<20
Di-N-Octylphthalate	ppb	<20	<20	<20	<20	<20	<20
Dibenzofuran	ppb	<20	<20	<20	<20	<20	100
Dimethylphthalate	ppb	<20	<20	<20	<20	<20	<20
Pentachlorophenol	ppb	<100	<100	<100	<99	<99	Detect
Phenol	ppb	<20	<20	<20	<20	<20	<20
LPAHs (total)	ppb	59	71	363	57	82	700
HPAHs (total)	ppb	406	438	894	462	524	2400
DDTs (total)	ppb	NA	NA	NA	4.5	NA	220
PCBs (total)	ppb	NA	NA	NA	<40	NA	<180
Organotins (total)	ppb	NA	NA	NA	<5.25	NA	300
2,4-0	ppb	NA	NA	NA	NA	NA	<3.3
2,4-DB	ppb	NA	NA	NA	NA	NA	<5
TOC	%	1.1	1	1.7	1.3	1.5	2

Water Depth	ft	10	16	20	10	18
Sediment Sample Depth	cm	0-13	0-15	0-85	0-18	0-17

Notes:

100 = Valua exceeds Portland Harbor Baseline Value

100 = Value is Greater than 2X Portland Harbor Baseline Value

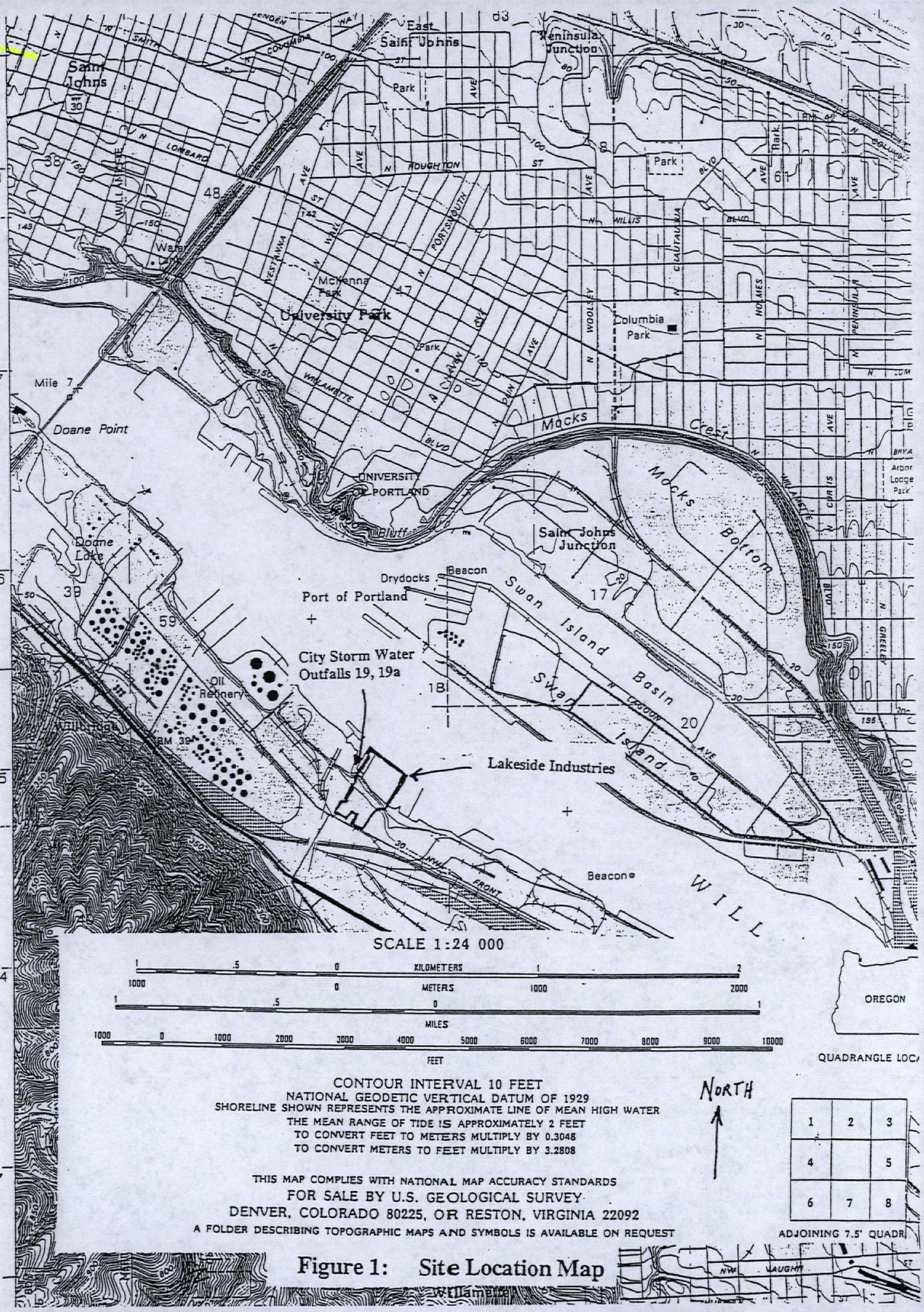


Figure 1: Site Location Map

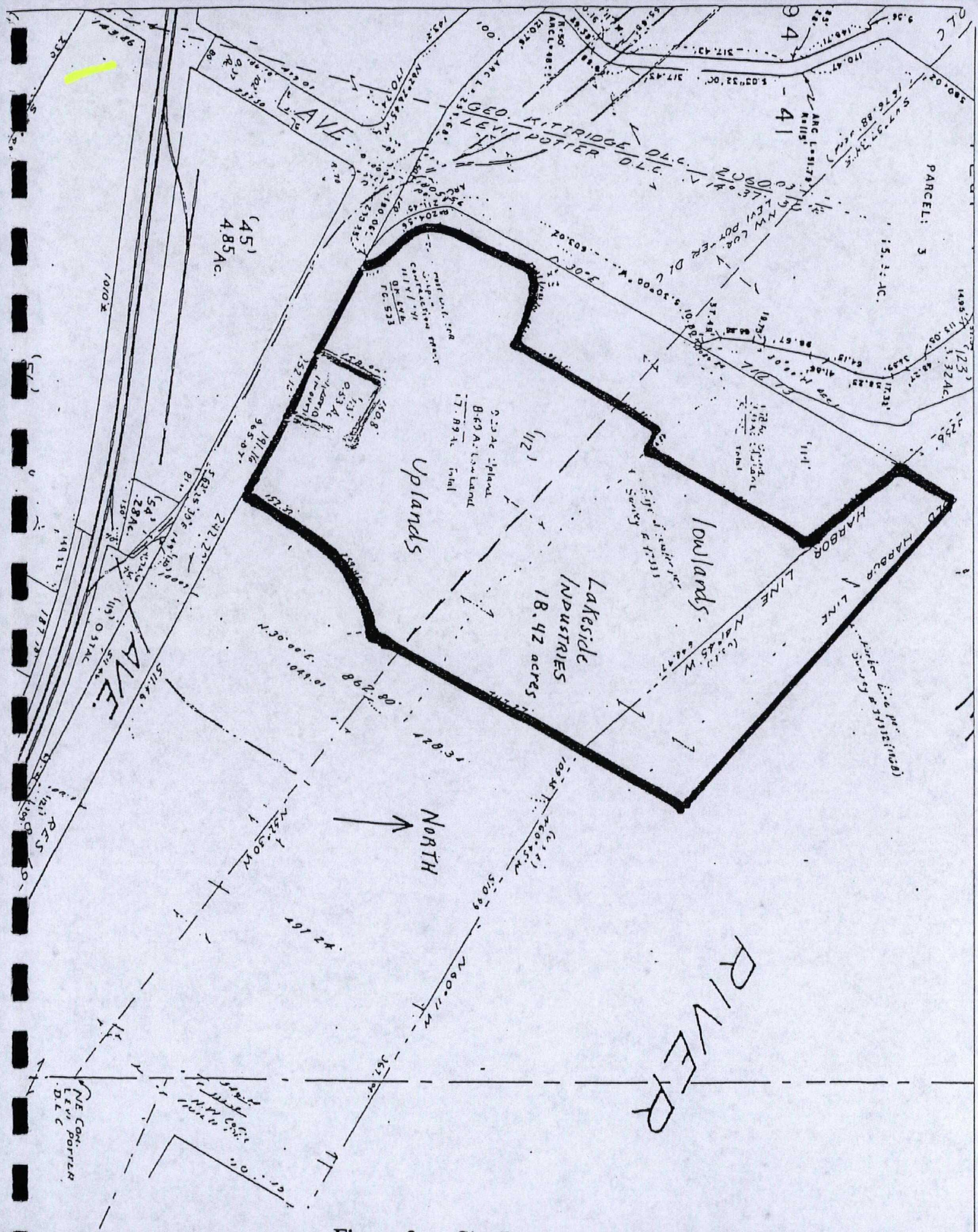


Figure 2: Site Property Boundary Map

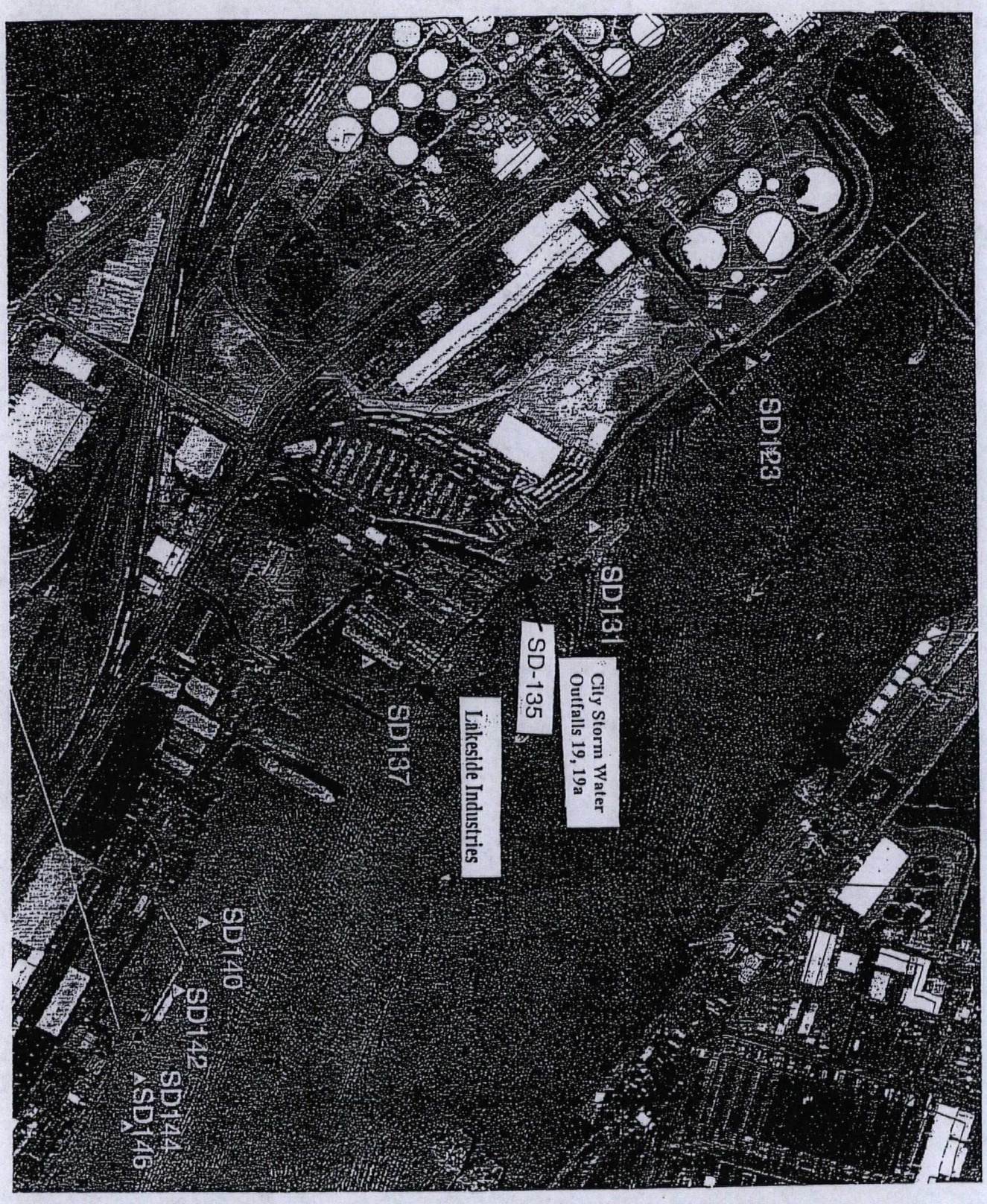


Figure 3: Sediment Sampling Stations (EPA, 1997)

Explanation:

▲surface sediment sample stations

●surface sediment and sediment core locations

→ NORTH

0 0.1 0.2 Miles

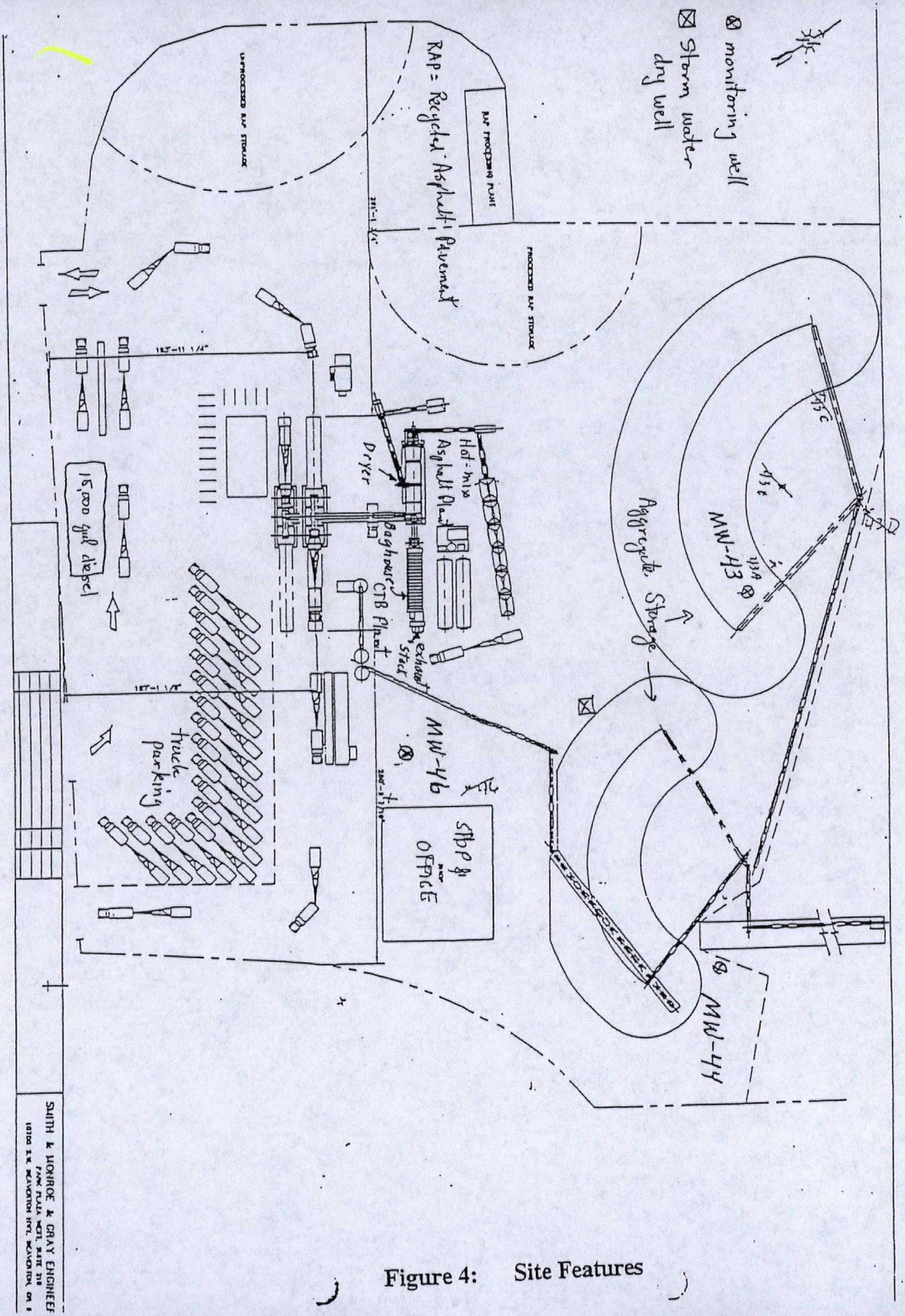
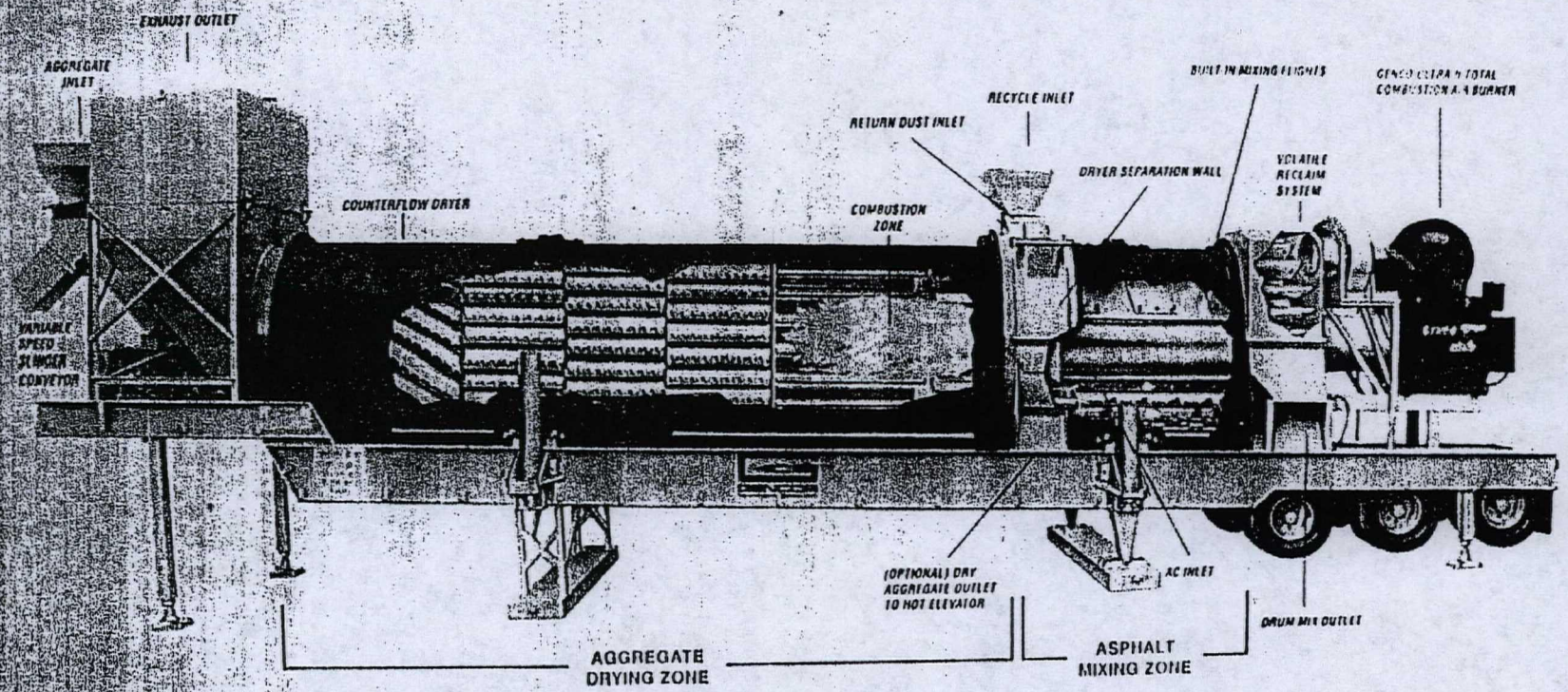


Figure 4: Site Features

Appendix B

Schematic of Ultradrum

The Environmental Solution



Gencor's Patented Ultradrum

GENCOR INDUSTRIES, INC., 5201 North Orange Blossom Trail, Orlando, Florida 32810 407-290-6000 FAX 407-578-0577

GENCOR INDUSTRIES INC.

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Appendix C

Hot-Mix Asphalt and Reclaimed Asphalt Pavement Studies

Evaluation of Hot-Mix Asphalt for Leachability

by Anthony J. Krieeh
Director of Research, Heritage Research Group

The results of recent tests for leachability of new hot-mix asphalt show very low levels of leachable compounds. The results also show that these levels are well below any current guidelines.

Heritage Research prepared a hot-mix asphalt surface mixture in its laboratory and tested it using the Toxic Characteristic Leachability Procedure (TCLP). Following the TCLP, the leachate was tested for metals, volatiles, semivolatiles and polynuclear aromatic hydrocarbons (PAH's) to determine what materials, if any, were leachable from the asphalt mixture.

Materials

The asphalt used for the mix was AC-20 asphalt cement from Asphalt Materials, Inc. of Indianapolis. The aggregate was slag, stone and sand from Martin Marietta in Indianapolis. The following lists the blend of materials by weight.

	Percent by Weight
Slag	23.4
Stone	23.4
Sand	46.7
AC-20	6.5

The mixture met current Indiana Department of Transportation (InDOT) 401.02 specifications.

Leachate Testing

Leachate testing and analyses were performed by Heritage EMS Laboratories of Indianapolis. After the TCLP testing, Heritage EMS used standard EPA test methods to analyze the leachate for the presence of semivolatiles, PAH's, metals and volatiles.

Metal Results

Table A lists the results of metal leachability. The metals selected are those heavy metals normally tested for by the EPA. The results show only chrome had a level above its detection limit at 0.1 ppm. This is 50-fold below the level of hazardous by characteristic under Resource Conservation Recovery Act (RCRA) standards. Since the asphalt does not typically contain measurable chrome levels, it is possible that the small level of chrome came from the slag aggregate, a by-product of the steel-making process.

Table B lists the volatile organic compounds. The results are in parts per billion and show no measurable compound above detection limits.

Table C lists the semivolatile organics after TCLP. Again, the results are in parts per billion. No measurable amounts were found above detection limits.

(continued on page 17)

TABLE A
Metal Leachates

Parameter	Result, mg/L	Detection Limit mg/L
Barium	BDL*	0.200
Cadmium	BDL	0.020
Chromium	0.10	0.010
Lead	BDL	0.200
Silver	BDL	0.040
Arsenic	BDL	0.005
Selenium	BDL	0.005
Mercury	BDL	0.005

* Below Detection Limits

TABLE B
Zero Head Space of TCLP Organic

Parameter	Result, µg/L	Detection Limit µg/L
Benzene	BDL	5
Carbon Tetrachloride	BDL	5
Chlorobenzene	BDL	5
Chloroform	BDL	5
1,2 dichloroethylene	BDL	5
1,1 dichloroethylene	BDL	5
Methyl Ethyl Ketone	BDL	5
Tetrachloroethylene	BDL	5
Trichloroethylene	BDL	5
Vinyl Chloride	BDL	5

TABLE C
TCLP Semi-Volatile Organics

Parameter	Result µg/L	Detection Limit µg/L
1,4-Dichlorobenzene	BDL	12
2,4-Dinitrotoluene	BDL	12
Hexachlorobenzene	BOL	12
Hexachlorobutadiene	BDL	12
Hexachloroethane	BDL	12
Nitrobenzene	BDL	12
Pyridine	BDL	60
Cresylic Acid	BDL	30
2-Methyl Phenol	BDL	30
3-Methyl Phenol	BDL	30
4-Methyl Phenol	BDL	30
Pentachlorophenol	BDL	60
2,4,5-Trichlorophenol	BDL	30
2,4,B-Trichlorophenol	BDL	30

TABLE D
Polynuclear Aromatic Hydrocarbons by TCLP

Parameter	Result µg/L	Detection Limit µg/L
Naphthalene	0.25	0.096
Acenaphthylene	BDL	0.15
Acenaphthene	BDL	0.194
Fluorene	BDL	0.023
Phenanthrene	BDL	0.033
Anthracene	BDL	0.015
Fluoranthene	BDL	0.037
Pyrene	BDL	0.04
Benzo(A)Anthracone	BDL	0.048
Chrysene	BDL	0.017
Benzo(B)Fluoranthene	BDL	0.02
Benzo(K)Fluoranthene	BDL	0.022
Benzo(A)Pyrene	BDL	0.023
Dibenzo(A,H)Anthracene	BDL	0.01B
Benzo(G,H,I)Perylene	BDL	0.036
Indeno(1,2,3-CD)Pyrene	BDL	0.021

Leachability — continued from page 16

PAH Organic Results

Table D shows the results of leachable PAH's. These compounds are the highest molecular weight group of organic compounds routinely tested for by the EPA. Because of asphalt's high molecular weight, there is a concern that these compounds could be present.

The detection limits for these compounds are extremely low, allowing measurement well below one part per billion. Only a quarter part per billion of naphthalene was found in the asphalt mix leachate. Naphthalene, the most volatile PAH, is well below any established guideline. Naphthalene is not carcinogenic like some of the other PAH's such as Benzo(A)pyrene, which was not found.

The conclusions of the leachate testing on the pavement surface showed very low levels of leachable compounds. They were well below any current guidelines. A

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- Chemists and Engineers
- Research & Development
- Consulting
- Materials Testing

EVALUATION OF RAP FOR USE AS A CLEAN FILL

by: Anthony J. Kriech

January 30, 1991
HRG #4122EM02

Background:

The IAPA (Illinois Asphalt Pavement Association) has asked Heritage Research Group to evaluate six RAP (Reciaimed Asphalt Pavements) for their potential use as a clean fill. In certain situations the RAP, which is produced by milling an old pavement is unsuitable for recycling and could be used on site for clean fill. The goal of this testing program is to detennine if the RAP contains materials which may make it environmentally unsuitable for clean fill.

Site Locadans:

Six RAP samples were selected based on achieving a wide geographical cross section of the state of Illinois. This would ensure that different aggregates, as well as asphalt sources, were included in the study. The sample location can be found in Figure A with a sample description and code in Table A.

Sample Log-in and Preparation:

Samples were received directiy from IDOT (Illinois Department of Transportation) personnel via UPS, along with a Sample Identification Form. This information includes date sampled, location, project, type of material, how it was removed and person obtaining the sample. This information is summarized in the sample identification Table A. The 50 lb. samples were split using a Gilson splitter to obtain smaller representative samples for further testing.

Sample Analysis:

The sample analysis was performed in two parts. The first is physical testing of the RAP for typical properties. This includes asphalt content, gradation (aggregate sizing) and Abson Recovery to look at the physical properties of the recovered asphalt cement, which is removed from the aggregate. These tests were performed by Heritage Research personnel using appropriate ASTM (American Society of Testing Materials) and AASHTO (American Association of State Highway and Transportation Officials) procedures. Heritage Research is inspected by AMRL (AASHTO Materials Reference Laboratories), a division of the National Bureau of Standards for procedures and laboratory equipment for these tests. Heritage Research also participates in a round robin of laboratories conducted by AMRL for these procedures on a regular basis. The results of the physical tests are enclosed in Table B.

The environmental testing involved testing for PCB's (Polychlorinated Biphenyls) on the samples before leachate testing. Identical samples were also prepared for TCLP (Toxic

Characteristic Leachability Procedure) for each RAP source. Samples were crushed to correspond to the size requirements of the test. Samples were hand carried to EMS Heritage Laboratories by Heritage Research personnel. Following the TCLP test the leachate was tested for semivolatile organics, Polynuclear Aromatic Hydrocarbons by HPLC and metals by Atomic Absorption.

Background information on EMS Heritage Laboratory qualification to run these tests are listed in Appendix A for your information.

Test procedures were in accordance with EPA procedures and are as follows.

	Method/Procedure
PCB Extraction Procedure	SW846-3550
PCB Analysis	SW846-8080
TCLP Procedure	SW846-1311
Semivolatiles GC/MS	SW846-3510
PAH's	SW846-8310
Metals	SW846-3010

A summary report of the results is listed in Table C. A complete listing of the results from EMS/Heritage is included in Appendix B.

Comments:

1. Physical testing indicates that these RAP samples are typical in gradation, asphalt content and asphalt residue properties to other RAP materials tested by Heritage Research Group.

2. PCB's were tested on the RAP samples, not on the leachate after TCLP. The results were then measured on a weight basis in mg/Kg. or parts per million. There is not a currently known method for testing on leachate. From these results it appears that no PCB's were found at the detection limits listed in any sample.

3. TCLP leachate did not contain any of the standard semivolatile compounds normally tested for by the EPA at the detection limits listed. It should be noted that semivolatiles are listed in μg/liter, which is parts per billion.

4. The polynuclear aromatic hydrocarbon show up in only trace levels. Naphthalene, the most volatile PAH is still under a half a part per billion, which is well within any guidelines tested for this material. Benzo (A) pyrene, a known carcinogen which is often used as a marker compound for PAH's, was not found in any sample at the detection limits reported.

5. Metals were also tested and found to have measurable values in three samples. Barium is present in all three samples, but 200-300 times below maximum concentration of contaminants for TCLP under RCRA (Resource Conservation Recovery Act) for hazardous materials by characteristics (see Table D for guidelines). Barium was also below national drinking water standards for this metal. For metals it is one hundred fold below Table D guidelines. Chrome and lead are also below the Table D guidelines for hazardous by characteristic. The leachate on Site #2 would, however, not meet drinking water standards. It is important to point out that Site #1 meets all guidelines, whereas Site #2 had low, but measurable levels of lead, chrome, and barium. Both of these were taken from the same project, but at different locations. This could indicate that contamination of the surface was a possible cause for having a low, but measurable level. Barium could be from a lube additive and be from crankcase drippings. The same is true for chrome, a wear metal. Lead could also be from crankcase oil and leaded gasoline.

   Background samples from soils along the roadside have been studied in the literature. It is not unusual to find much higher levels of lead than encountered in this sample due to the use of leaded fuel in the past.

Conclusions:

After a thorough investigation of these samples it can be ascertained that all of these samples meet current guidelines for TCLP maximum concentration for the contaminants by characteristic. Due to asphalt non-volatile viscoelastic properties this is not surprising. The migration of metals and organics are impaired greatly by the matrix of asphalt and aggregate. It is contaminants which may be spread on the road surface later through spills or accidents, which could change these characteristics. The results on this representative group of RAP samples would suggest that RAP should not be a concern for clean fill.

TABLE A

Site No.	Date Sampled	County	Route/ Sta. No.	Project	Material Type	How Removed	IDOT Personnel Taking Sample
#1	10/08/90	Vermillion	Route #1 1100+06	C-95-143-89	Surface/Binder	Milled	Alex Kedas
#2	10/08/90	Vermillion	Route #1 112+50	C-95-143-89	Surface/Binder	Milled	Alex Kedas
#3	10/11/90	Peoria	IL 88 36+88	FA 646/88171	Surface	Milled	Leroy Williams
#4	10/15/90	Cook	First Avenue	#80451	Surface	Milled	Eddie Pizarro
#5	09/26/90	St. Clair	IL 159 200+00	#96198 FA600	Surface/Binder	Roadtec RX50 Roto-Milled	Allan Guttmann
#6	09/13/90	Jackson	IL 3 IL 151	#98071 FA14	Surface	Cold Milling	Larry Miloshewsk

TABLE B

Site Number	#1	#2	#3	#4	#5	#6
County Located	Vermillion	Vermillion	Peoria	Cook	St. Clair	Jackson
Asphalt Content, %	5.2	4.9	4.4	4.4	5.2	3.9
Abson						
Penetration @ 77°F	33	23	26	42	48	35
Viscosity @ 140°F	15614	27040	19225	9121	9017	8335
Gradation						
Passing 2"	100.0	100.0	100.0	100.0	100.0	100.0
Passing 1-1/2"	100.0	100.0	100.0	100.0	100.0	100.0
Passing 1"	100.0	100.0	100.0	100.0	100.0	100.0
Passing 3/4"	100.0	100.0	99.0	98.6	99.8	100.0
Passing 1/2"	98.8	100.0	96.2	92.4	98.7	97.9
Passing 3/8"	95.1	99.3	90.6	85.6	95.2	92.8
Passing #4	76.5	73.5	64.9	56.2	69.5	59.3
Passing #8	60.0	47.5	45.4	37.9	51.4	39.3
Passing #16	47.8	35.3	36.2	30.2	41.9	30.3
Passing #30	37.7	27.6	29.2	25.3	30.8	23.1
Passing #50	24.4	16.6	19.0	18.7	19.7	15.0
Passing #100	12.0	9.2	11.6	7.8	11.6	8.3
Passing #200	6.6	6.4	7.5	7.7	7.4	5.4

TABLE C

STATE OF ILLINOIS TCLP TEST RESULTS

Site Number	#1	#2	#3	#4	#5	#6	Det. Limi
Semi-Volatiles, µg/L.							
1,4 Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	50
2,4 Dinitrotoluene	BDL	BDL	BDL	BDL	BDL	BDL	50
Hexachlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	50
Hexachlorobutadiene	BDL	BDL	BDL	BDL	BDL	BDL	50
Haxachloroethane	BDL	BDL	BDL	BDL	BDL	BDL	50
Nitrobenzene	BDL	BDL	BDL	BDL	BDL	BDL	250
Pyridine	BDL	BDL	BDL	BDL	BDL	BDL	120
Cresylic Acid	BDL	BDL	BDL	BDL	BDL	BDL	50
2 Methyl Phenol	BDL	BDL	BDL	BDL	BDL	BDL	50
3 Methyl Phenol	BDL	BDL	BDL	BDL	BDL	BDL	50
4 Methyl Phenol	BDL	BDL	BDL	BDL	BDL	BDL	250
Pentachlorophenol	BDL	BDL	BDL	BDL	BDL	BDL	250
2,4,5-Trichlorophenol	BDL	BDL	BDL	BDL	BDL	BDL	50
2,4,6-Trichlorophenol	BDL	BDL	BDL	BDL	BDL	BDL	---
PCB's, mg/Kg.							
PCB Arochlor 1016	BDL	BDL	BDL	BDL	BDL	BDL	1.0
PCB Arochlor 1221	BDL	BDL	BDL	BDL	BDL	BDL	5.0
PCB Arochlor 1232	BDL	BDL	BDL	BDL	BDL	BDL	1.0
PCB Arochlor 1242	BDL	BDL	BDL	BDL	BDL	BDL	1.0
PCB Arochlor 1248	BDL	BDL	BDL	BDL	BDL	BDL	1.0
PCB Arochlor 1254	BDL	BDL	BDL	BDL	BDL	BDL	1.0
PCB Arochlor 1260	BDL	BDL	BDL	BDL	BDL	BDL	1.0
PCB Arochlor 1262	BDL	BDL	BDL	BDL	BDL	BDL	1.0

TABLE C

STATE OF ILLINOIS TCLP TEST RESULTS

Site Number	#1	#2	#3	#4	#5	#6	Det. Limit
PAH's, µ/L.							
Naphthalene	0.49	BLD	BDL	0.30	BDL	BDL	0.13
Acenaphthylene	BDL	BDL	BDL	BDL	BDL	BDL	0.20
Acenapthene	0.14	BDL	BDL	BDL	BDL	BDL	0.13
Fiourene	BDL	BDL	BDL	BDL	BDL	BDL	0.015
Phenanthrene	BDL	BDL	BDL	BDL	BDL	BDL	0.13
Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	0.017
Fluorathene	BDL	BDL	BDL	BDL	BDL	BDL	0.017
Pyrene	BDL	BDL	BDL	BDL	BDL	BDL	0.060
Benzo(A)Anthracene	BDL	BDL	BDL	BDL	0.017	BDL	0.017
Chrysene	BDL	BDL	BDL	BDL	BDL	BDL	0.033
Benzo(B)Fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	0.023
Benzo(K)Fluoranthene	BDL	BDL	BDL	BDL	0.050	BDL	0.017
Benzo(A)Pyrene	BDL	BDL	BDL	BDL	BDL	BDL	0.240
Dibenzo(A,H)Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	0.068
Benzo(G,H,I)Perylenc	BDL	BDL	BDL	BDL	BDL	BDL	0.110
Indeno(1,2,3-cd)Pyrene	BDL	BDL	BDL	BDL	BDL	BDL	0.022
Metals, mg/L.							
Barium	BDL	0.40	0.36	0.33	BDL	BDL	0.200
Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	0.200
Chromium	BDL	0.52	BDL	BDL	BDL	BDL	0.050
Lead	BDL	1.80	BDL	BDL	BDL	BDL	0.200
Silver	BDL	BDL	BDL	BDL	BDL	BDL	0.040
Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	0.005
Selenium	BDL	BDL	BDL	BDL	BDL	BDL	0.025
Mercury	BDL	BDL	BDL	BDL	BDL	BDL	0.005

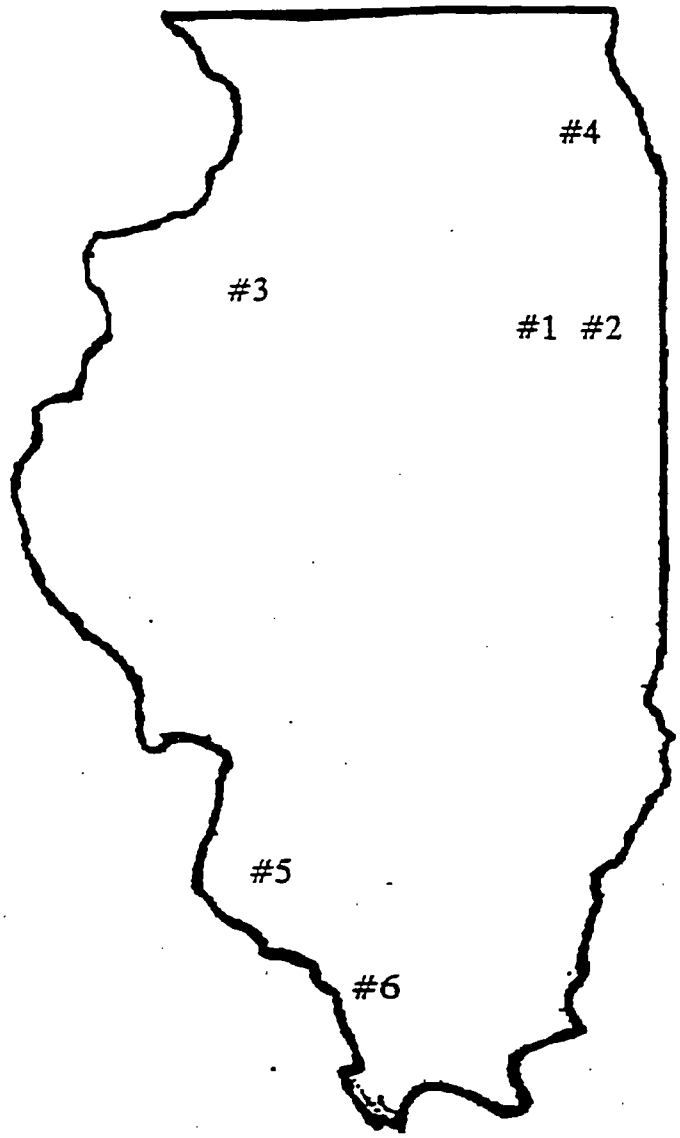
TABLE D

MAXIMUM CONCENTRATION OF CONTAMINANTS FOR THE TOXICITY CHARACTERISTIC (TCLP)

EPA HW NUMBER	CONTAMINANT	CHARACTERISTIC LEVEL (mg/L)
D004	Arsenic	5.0
D005	Barium	100.0
D018	Benzene	0.5
D006	Cadmium	1.0
D019	Carbon Tetrachloride	0.5
D020	Chlordane	0.03
D021	Chlorobenzene	100.0
D022	Chloroform	6.0
D007	Chromium	5.0
D023	0-Cresol	200.0
D024	m-Cresol	200.0
D025	p-Cresoi	200.0
D026	Cresol	200.0
D016	2,4-D	10.0
D027	1,4-Dichlorobenzene	7.5
D028	1,2-Dichloroethane	0.5
D029	1,1-Dichloroethylene	0.7
D030	2,4-Dinitrotoluene	0.13
D012	Endrin	0.02
D031	Heptachlor (and its hydroxide)	0.008
D032	Hexachlorobenzene	0.13
D033	Hexachlorobutadiene	0.5
D034	Hexachloroethane	3.0
D008	Lead	5.0
D013	Lindane	0.4
D009	Mercury	0.2
D014	Methoxychlor	10.0
D035	Methyl ethyl ketone	200.0
D036	Nitrobenzene	2.0
D037	Pentachlorophenol	100.0
D038	Pyridine	5.0
D010	Selenium	1.0
D011	Silver	5.0
D039	Tetrachloroethylene	0.7
D015	Toxaphene	0.5
D040	Trichloroethylene	0.5
D041	2,4,5-Trichlorophenol	400.0
D042	2,4,6-Trichlorophenol	2.0
D017	2,4,5-TP(8ilvex)	1.0
D043	Vinyl chloride	0.2

FIGURE A

SITE LOCATIONS FOR RAP SAMPLES



Appendix D

First American Title Insurance Company of Oregon Title Search

No. 922249 Liability Equal to the Fee Paid Fee: $500.00

TITLE INSURANCE COMPANY OF OREGON
dba FIRST AMERICAN TITLE INSURANCE COMPANY OF OREGON
herein called the Company, SUBJECT TO THE TERMS AND PROVISIONS OF THE APPLICATION FOR THIS GUARANTEE, THE LIABILITY EXCLUSIONS AND LIMITATIONS SET FORTH BELOW AND IN SCHEDULE A AND THE CONDITIONS CONTAINED HEREIN

GUARANTEES

Hahn & Associates herein called the Assured, against actual loss (except attorneys' fees or the cost of defense) not exceeding the liability amount stated above which the Assured shall sustain by reason of any incorrectness in the assurances set forth in Schedule A.

LIABILITY EXCLUSIONS AND LIMITATIONS

1. No guarantee is given or liability assumed with respect to the identity of any party named or referred to in Schedule A or with respect to the validity, legal effect or priority of any matter shown therein.

2. The Company's liability hereunder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurance herein set forth, but in no event shall the Company's liability exceed the liability amount set forth above.

3. IN ORDER FOR THIS GUARANTEE TO BE VALID AND EFFECTIVE, THE APPLICATION AND AGREEMENT FOR THE ISSUANCE OF A RECORDED DOCUMENT GUARANTEE EXECUTED BY THE ASSURED AND A COPY OF EACH DOCUMENT LISTED AND REFERRED TO IN SCHEDULE A MUST BE ATTACHED HERETO. ALL TERMS AND CONDITIONS OF THE APPLICATION ARE HEREBY INCORPORATED BY REFERENCE AS IF FULLY SET FORTH IN THIS GUARANTEE.

Dated: April 10, 2001

TITLE INSURANCE COMPANY OF OREGON
dba FIRST AMERICAN TITLE INSURANCE COMPANY OF OREGON

By: _____
(Authorized Signature)

SCHEDULE A

RECORDED DOCUMENT GUARANTEE No. 922249

The assurance referred to on the face page are:

That, according to the Company's title plant records and those records maintained by the County Recorder known as the Grantee/Grantor indices subsequent to April 1, 1900 relative to the following described real property (but without examination of those Company title plant records maintained and indexed by name), there are no Deeds, Contracts, Assignment of Contracts, Leases and Subleases (hereinafter Documents) describing said real property or any portion thereof, other than those listed below, copies of which are attached hereto and made a part hereof.

A. The following documents or matters disclosed by documents recorded in the Public Records are specifically excluded from the coverage of this guarantee, and the Company assumes no liability for loss or damage by reason of the following:

1. Unpatented mining claims, reservations or exceptions in patents or in acts authorizing the issuance thereof.

2. Water rights, claims or title to water.

3. Instruments, proceedings or other matters which do not specifically describe said land.

4. Documents pertaining to mineral estates.

B. Description:

Same as application

C. Listed Documents:

Document	Recorded	Book	Page	Fee No.
Deed Grantor Grantee	5-13-1909 Hannah M. Potter City Land Company			50324
Mortgage Mortgagor Mortgagee	3-11-1909 The City Land Company W.B. Gilbert	340	227	
Mortgage Mortgagor Mortgagee	9-19-13 The City Land Company S Benson	532	18	
Agreement	9-13-13 The City Land Company S. Benson	996	60	
Mortgage Extension Mortgagor Mortgagee	9-13-24 The City Land Company S. Benson	993	232	
Assignment Assignor Assignee	6-2-27 Amos S. Benson Caroline Benson Unander	1254	166	

SCHEDULE A continued

Mortgage	9-3-30	114	555	
Mortgagor	City Land Company			
Mortgagee	Joseph & Sam Simon			
Deed	1-17-33	198	272	
Grantor	The Security Savings and Trust Company			
Grantee	City Land Company			
Deed	10-11-41	642	448	
Grantor	Multnomah County			
Grantee	City of Portland			
Quitclaim Deed	11-4-41	646	521	
Grantor	City Land Company			
Grantee	City of Portland			
Deed	11-4-41	646	523	
Mortgagor	City of Portland			
Mortgagee	Gilpin Construction Co.			
Assignment	12-7-35	342	427	
Assignor	Sam Simon and Edgar Freed, Executors of the Estate of Joseph Simon, deceased			
Assignee	Minnie Oberdorfor			
Quiciaim Deed	4-3-57	1836	341	
Grantor	Gilpin Construction Co.			
Grantee	J.A. Mc Eachern Investment Co.			
Quitclaim Deed	4-3-57	1836	344	
Grantor	J.A. McEachern Investment Co.			
Grantee	General Construction Company			
Financing Statement	3-13-67			E 4337
Debtor	Shaver Transportation Co.			
Secured Party	Koninklijke Machine Fabric (no copy available)			
Easement	11-14-61	2090	415	
Grantor	Texaco Inc.			
Grantee	Van Waters & Rogers, Inc.			
Warranty Deed	2-2-72	837	1394	
Mortgagor	General Construction Company			
Mortgagee	Gunderson, Inc.			
Financing Statement	6-22-76	1111	294	
	Shaver Transportation Company			
	United States National Bank of Oregon			
Mechanic's Lien	7-18-79	1367	2454	
	Trustees of the Oregon-Washington Carpenters-Employers Health and Welfare Trust Fund, Pension Trust Fund, Vacation Savings Trust Fund and Apprenticeship and Training Fund			

SCHEDULE A continued

Construction Lien	7-23-79	1368	2337	
	Trustees of the Oregon Laborers - Employers Health and Welfare Trust Fund, the Oregon Laborers - Employers Pension Trust Fund, the Oregon Laborers - Employers Vacation Fund, the Oregon and Southwest Washington Laborers Training Trust Fund and the Oregon Laborers - Employers Construction Industry Advancement Fund			
Assignment of Lease	10-26-83	1701	2103	
Lessor	United States National Bank of Oregon			
Lessee	Shaver Transportation Company			
Mortgage	10-26-83	1701	2105	
Mortgagor	Shaver Transportation Company			
Mortgagee	United States National Bank of Oregon			
Assign. of Leases & Rents	10-26-83	1701	2109	
Assignor	Shaver Transportation Company			
Assignee	United State National Bank of Oregon			
Special Warranty Deed	10-27-83	1702	311	
Grantor	FMC Corporation			
Grantee	Shaver Transportation Company			
Special Warranty Deed	12-29-83	1716	299	
Grantor	FMC Corporation			
Grantee	Shaver Transportation Company			
Warranty Deed	1-7-87	1971	775	
Grantor	Shaver Transportation Company			
Grantee	Washington Asphalt Co., Inc.			
Re-recorded	1-27-87	1975	1866	
Trust Deed	1-7-87	1971	783	
Grantor	Washington Asphalt Co., Inc.			
Grantee	Shaver Transportation Company			
Re-recorded	1-27-87	1975	1874	
Land Use Review	6-14-88	2112	780	
Quitclaim Deed	3-21-95			95-32312
Grantor	Washington Asphalt Co., Inc.			
Grantee	Lakeside Industries			
Well Ownership	7-16-99			99138257
Well Ownership	7-16-99			99138258
Well Ownership	7-16-99			99138259
Well Ownership	1-18-01			2001-008668
Well Ownership	1-18-01			2001-008669

GUARANTEE CONDITIONS:

1. Definition of terms.

The following terms when used in this guarantee mean:

(a) "Land": the land described specifically or by reference, in this guarantee;

(b) "Public Records": those land records designated by state statutes for the purpose of imparting constructive notice of the matters relating to said land;

(c) "Date": effective date of this guarantee;

(d) "The Assured": the party or parties named as the assured in this guarantee, or in a supplemental writing executed by the Company;

(e) "Mortgage": mortgage or deed of trust, trust deed or other security instrument;

(f) "Lease": any lease or sublease of any estate in the land;

(g) "Assignment": the transfer of the beneficial ownership of any mortgage or lease;

(h) "Documents": any Deed, Mortgage, Lease or Assignment.

2. Notice of Loss - Limitation of Action. A statement in writing of any loss or damage for which the assured claims the company is liable under this guarantee shall be furnished to the company within sixty (60) days after such loss or damage shall have been determined.

3. Payment of Loss - Limitation of Liability.

(a) The liability of this Company under this guarantee shall be limited to the amount of actual loss sustained by the assured because of reliance upon the assurances herein set forth, but in no event shall such liability exceed the amount of the liability as stated on the face page of this Guarantee.

(b) All payments under this Guarantee shall reduce the amount of the liability hereunder pro tanto.

(c) When liability has been fixed in accordance with the conditions of this Guarantee, the loss shall be payable within thirty (30) days thereafter.

4. Arbitration - Unless prohibited by applicable law, either the Company or the assured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the insured arising out of or relating to this Guarantee, any service of the Company in connection with its issuance or the breach of a Guarantee provision or other obligation. Arbitration pursuant to this Guarantee and under the Rules in effect on the date the demand for arbitration is made or, at the option of the insured, the Rules in effect on the effective date of this Guarantee shall be binding upon the parties. The award may include attorneys' fees only if the laws of the state in which the land is located permit a court to award attorneys' fees to a prevailing party. Judgment upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

The law of the situs of the land shall apply to an arbitration under the Title Insurance Arbitration Rules.

A copy of the Rules may be obtained from the Company upon request.

5. Guarantee entire contract. No provision or condition of this Guarantee can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, a Secretary, an Assistant Secretary or other validating officer of the Company.

6. If any provision or any part of a provision of this Agreement is held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the legality, validity or enforceability of any other provision of this Guarantee.

7. This Guarantee is issued only for the benefit of the named assured and does not provide any other rights or remedies upon any other person or entity.

8. Notices. All notices required to be given the Company and any statement in writing required to be furnished the Company shall include the number of this Guarantee and shall be addressed to the Company at it principal office:

1700 SW Fourth Avenue
Portland, Oregon 97201-5512

Appendix E

Squier Associates Twenty-Third Quarterly Ground Water Sampling Report

SQUIER ASSOCIATES

Geotechnical and Geoenvironmental Consultants

GUNDERSON, INC.
Ground Water Monitoring

4260 Galewood Street
Lake Oswego, Oregon 97035

(503) 635-4419
FAX (503) 635-1430

TO: Mr. Matt McClincy
Oregon Department of Environmental Quality
Northwest Region
2020 S.W. Fourth Avenue, Suite 400
Portland, Oregon 97201-4987

April 12, 2001
90445.21

FROM: Scott E. Shoemaker, Staff Geologist

David Earl King, Principal Geologist, R.G.

SUBJECT: Twenty-Third Quarterly Ground Water Sampling Event, Gunderson, Inc., Portland, Oregon

This memorandum documents the Twenty-Third (23rd) Quarterly Ground Water Sampling Event for the Gunderson, Inc., property located at 4350 N.W. Front Avenue in Portland, Oregon. The ground water sampling was initiated on February 7, 2001, as part of the Oregon Department of Environmental Quality (DEQ)-approved Remedial Investigation and Feasibility Study (RI/FS).

Scope of Work

Ground water samples from the following monitoring wells were collected and analyzed during the 23rd Quarter, based on a revised sampling scheduled approved in 2000:

- MW-36
- MW-37
- MW-38
- MW-43
- MW-44
- MW-45
- MW-46
- MW-49
- MW-50
- MW-51
- MW-52
- MW-53

Water levels were measured in the monitoring wells listed above, at a point on the Willamette River, and in the following monitoring wells:

- MW-10
- MW-11
- MW-13
- MW-14
- MW-15
- MW-17
- MW-19
- MW-20
- MW-21
- MW-22
- MW-24
- MW-27
- MW-30
- MW-31
- MW-34
- MW-35
- MW-39
- MW-40
- MW-41
- MW-42

The purge water was inspected for the presence of immiscible compounds, such as light non-aqueous phase liquids (LNAPLs) and dense non-aqueous phase liquids (DNAPLs), also referred to as floating and sinking product, respectively. The presence of LNAPLs and DNAPLs were not visually detected in purge water.

Field measurements of pH, temperature, and specific conductivity were collected during purging. The field team also recorded the presence or absence of odor and/or sheen in the purged water. The field measurements and observations are recorded on the Water Sample Field Data Sheets (Attachment A).

Organic odor was observed in monitoring wells MW-44 and MW-46 during collection of the water samples. No sheen was observed in these wells. An organic odor and sheen was observed during sampling of monitoring wells MW-37 and MW-53. During the previous quarter of sampling and analysis (22nd Quarter) ground water from monitoring well MW-37 was also observed displaying a sheen. Subsequent analysis using U.S. Environmental Protection Agency (EPA) Method 8260 for a full scan of volatile organic compounds (VOCs) did not indicate the presence of other contamination. Based on this subsequent analysis, it is our opinion that the sheen and odor associated with monitoring well MW-37 and MW-53 are likely related to anaerobic vegetative decomposition. No sheen or sulfurous odors were observed in the remaining monitoring wells.

Shallow monitoring wells were sampled with bottom-filling disposable bailers with Teflon-coated stainless steel lines. Deep monitoring wells were sampled with dedicated stainless steel bailers designed to collect samples from discrete intervals of the water column. Both the shallow and the deep monitoring well ground water samples were collected from the bottom of the screened interval of each well.

All ground water samples were transferred from the bailers directly to laboratory-supplied, glass, 40-milliliter (ml) containers with Teflon septum lids. All sample containers were labeled, placed in secured iced coolers, and recorded on Squier Associates' chain-of-custody records (Attachment B). Ground water samples were submitted to North Creek Analytical, Inc. for analysis of halogenated volatile organic compounds (HVOCs) using EPA Method 8021B.

Ground Water Flow

The following tables summarize monitoring well construction details and historical ground water elevations for the following areas:

- Table 1: Area 1, Shallow Monitoring Well Summary
- Table 2: Area 1, Gravel Monitoring Well Summary

Figure 4 indicates that ground water levels are fairly uniform and very flat, while sloping more steeply near the Willamette River. Interpretation of Figure 4 suggests that shallow ground water flow is generally to the east, towards the Willamette River.

Currently there are six pairs of shallow and deep monitoring wells in close proximity to each other. Data is being collected and evaluated for the vertical gradient between the paired wells of monitoring wells. As part of this study the following vertical gradients were calculated:

- 0.037 feet per foot for the monitoring well pair of MW-52 and MW-53,
- 0.013 feet per foot for the monitoring well pair of MW-50 and MW-43,
- 0.006 feet per foot for the monitoring well pair of MW-45 and MW-36,
- -0.001 feet per foot for the monitoring well pair of MW-49 and MW-38,
- -0.002 feet per foot for the monitoring well pair of MW-20 and MW-39.
- -0.028 feet per foot for the monitoring well pair of MW-37 and MW-52,

A pair exists for monitoring well MW-41 and the CSO observation well FM48-15. However, since FM48-15 was dry, no vertical gradient calculation was made.

These calculations suggest that the vertical gradient is greatest between the Vantage Horizon and the basalt (pair of MW-52 and MW-53). This finding supports the confining nature of the massive basalt section between the two completed well depths. The greatest downward (negative) vertical gradient was also calculated using the weathered basalt well (MW-52) and another well with which it can be paired (MW-37). These findings may support the previous conclusions concerning hydraulic connectivity between the weathered basalt and the Willamette River.

The next largest calculated vertical gradient is also near the river, as previously anticipated but not supported by the prior data. The previously noted effect of migrating ground water mounding up as it deflects from the basalt block did not appear to be a factor this quarter. Evaluation of the vertical gradients should be continued and will be tabulated (historical and current) in a later report.

Analytical Results

Ground water samples were analyzed for HVOCs using EPA Method 8021B by North Creek Analytical's laboratory in Beaverton, Oregon. The laboratory analytical reports are included as Attachment B.

The following ground water samples had concentrations above regulatory limits:

- MW-36: 1,1-DCE, PCE and TCA
- MW-38: 1,1-DCE, PCE and TCA
- MW-39: 1,1-DCE and TCA
- MW-43: 1,1-DCE
- MW-45: 1,1-DCE and TCA
- MW-49: 1,2 DCA, 1,1-DCE, PCE and TCA
- MW-51: 1,1-DCE, TCA and TCE in duplicate sample
- MW-52: 1,1-DCE, PCE and TCA

Since the analysis conducted on the ground water from monitoring well MW-51 and Its duplicate sample (DUP010208) require a 5 times dilution, the detection limits were raised, including the TCE detection limit to 25 micrograms per liter (ug/L). A concentration of 26.9 ug/L of TCE was reported for the duplicate sample and less than 25 ug/L was reported for the ground water sample from MW-51. Based on this review it is our opinion that TCE was also above regulatory limits in the ground water from MW-51.

Table 23 presents our evaluation of the contaminant plume composition. Our review of the plume composition supports our opinion that the HVOC concentrations are generally similar to concentrations evaluated during previous quarters of ground water monitoring. It appears that degradation of TCA in the ground water occurs predominantly at depth near the source and at lateral extents of the plume. The shallow wells near source tend to have a low percentage of degradation compounds, while shallow and deep wells that are near the lateral extent of the plume have a higher percentage of degradation compounds. The lateral extent of HVOCs as shown in Figure 13 is not significantly different from previous quarters.

Quality Assurance and Quality Control

During the 23rd Quarter of ground water monitoring Squier Associates collected the following Quality Assurance and Quality Control (QA/QC) samples:

- Sample DUP010207 as a split duplicate of sample MW53010207
- Sample DUP010208 as a split duplicate of sample MW51010208
- Sample DUP021301 as a split duplicate of sample MW45021301

TABLE 1

AREA 1
SHALLOW MONITORING WELL SUMMARY

Well Construction Details

Monitoring Well	Elevation of Top of PVC Inner Casing (Feet, Mean Sea Level) Original Survey	Resurvey 3/2001	Date of Completion	Total Depth (Feet)	Screened Interval (Feet)	Slot Size (Inch)	Filter Pack (Type)	Well Diameter (Inches)	Well Material (Type)
MW-19	34.90	34.86	16-Jun-91	30.0	15 -30	0.02	8/12 sand	2-inch	PVC
MW-20	36.99	36.99	15-Jun-91	35.0	20-35	0.02	8/12 sand	2-inch	PVC
MW-21	35.55	35.56	16-Jun-91	35.0	20-35	0.02	8/12 sand	2-inch	PVC
MW-22	37.81	37.81	16-Jun-91	35.0	20-35	0.02	8/12 sand	2-inch	PVC
MW-34	39.20	39.19	21-Mar-95	35.0	20-35	0.01	2/12 sand	2-inch	PVC
MW-37	34.36	34.36	21-Jul-98	31.0	25.5-30.5	0.02	10/20 sand	2-inch	PVC
MW-45	36.87	36.87	14-Apr-99	35.0	20-35	0.02	10/20 sand	2-inch	PVC
MW-49	35.52	35.52	30-Oct-00	32.0	23-33	0.02	10/20 sand	2-inch	PVC

Ground Water Elevations
Feet Above Mean Sea Level

Date	MW-19		MW-20		MW-21		MW-22		MW-34		MW-37		MW-45		MW-49	
	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
22-Jul-91	24.45	10.45	29.56	7.43	26.75	8.80	28.98	8.83								
02-Apr-92	25.94	8.96	29.08	7.91	27.53	8.02	29.81	8.00								
06-Jun-92	25.79	9.11	28.10	8.89	26.67	8.88	28.96	8.85								
20-Jul-94	26.35	8.55	29.10	7.89	27.65	7.90	29.90	7.91								
25-Oct-94	27.85	7.05	30.56	6.43	29.16	6.39	31.40	6.41								
17-Feb-95	23.05	11.85	25.35	11.64	23.98	11.57	26.14	11.67								
18-Apr-95	24.11	10.79	26.21	10.78	24.81	10.74	26.99	10.82	28.37	10.83						
25-Jul-95	24.55	10.35	28.05	8.94	26.45	9.10	28.80	9.01	30.20	9.00						
19-Oct-95	27.00	7.90	31.30	5.69	28.40	7.15	30.81	7.00	32.05	7.15						
22-Jan-95			19.32	17.67	17.55	18.00	19.40	18.41	21.40	17.80						
23-Apr-96	18.45	16.45	20.81	16.18	19.4	16.15	21.49	16.32	22.95	16.25						
02-Aug-96	23.56	11.34	26.80	10.19	29.19	6.36	27.48	10.33	28.89	10.31						
05-Nov-96	26.14	8.76	29.53	7.46	27.95	7.60	30.78	7.03	31.76	7.44						
23-Jan-97	17.08	17.82	21.26	15.73	18.64	16.91	21.81	16.00	22.81	16.39						
16-Apr-97	21.35	13.55	24.47	12.52	22.95	12.60	25.22	12.59	26.26	12.94						
15-Jul-97	21.52	13.38	24.47	12.52	22.95	12.60	25.22	12.59	26.61	12.59						
03-Nov-97	24.90	10.00	27.08	9.91	25.62	9.93	27.85	9.96	29.25	9.95						
05-Feb-98	21.00	13.90	25.70	11.29	23.15	12.40	25.34	12.47	26.70	12.50						
16-Sep-98	26.47	8.43	29.68	7.31	28.13	7.42	30.43	7.38	31.82	7.38	27.00	7.36				
30-Dec-98	22.78	12.12	22.19	14.80	21.41	14.14	22.92	14.89	24.41	14.79	19.87	14.49				
24-May-99	21.60	13.30	24.19	12.80	22.69	12.86	24.92	12.89	26.31	12.89	21.70	12.66	24.02	12.85		
18-Aug-99	24.33	10.57	27.39	9.60	25.82	9.73	28.11	9.70	29.52	9.68	26.02	8.34	27.18	9.69		
21-Dec-99	22.98	11.92	23.36	13.63	22.14	13.41	24.05	13.76	25.51	13.69	21.16	13.20	23.27	13.60		
25-Apr-00	22.49	12.41	23.27	13.72	22.03	13.52	24.05	13.76	25.47	13.73	21.03	13.33	23.20	13.67		
25-Oct-00	27.23	7.67	30.08	6.91	28.65	6.90	30.97	6.84	32.36	6.84	27.48	6.88	29.98	6.89		
27-Nov-00	27.31	7.59	29.48	7.51	28.04	7.51	30.22	7.59	31.65	7.55	27.98	6.38	29.34	7.53	28.30	7.22
09-Feb-01	27.08	7.78	29.25	7.74	27.85	7.71	30.08	7.73	31.55	7.64	26.75	7.61	29.16	7.71	27.83	7.69

Depth = Depth of ground water, in feet, below the top of casing
= no measurement data

04/18/2001 11:28 AM
P:\Projects90\90445\90445.2\Grndwtr\Data\Waterlev.xls Area1 Shallow

Squier Associates
TABLE 1

AREA 1
GRAVEL MONITORING WELL SUMMARY

Well Construction Details

Monitoring Well	Elevation of Top of Inner PVC Casing (Feet, Mean Sea Level) Original Survey	Resurvey 3/2001	Date of Completion	Total Depth (Feet)	Screened Interval (Feet)	Slot Size (Inch)	Filter Pack (Type)	Well Diameter (Inches)	Well Material (Type)
MW-36	36.83	36.83	25-Jul-98	52.5	47 -52	0.02	10/20 sand	2-inch	SS
MW-38	34.87	34.87	30-Jul-98	49.5	39-49	0.02	10/20 sand	2-inch	PVC
MW-39	37.04	37.04	24-Jul-98	49.5	39-49	0.02	10/20 sand	2-inch	PVC
MW-40	39.49	39.49	27-Jul-98	51.5	45-51	0.02	10/20 sand	2-inch	PVC
MW-41	36.57	36.57	25-Jul-98	51.5	45-51	0.02	10/20 sand	2-inch	PVC
MW-42	38.49	38.49	29-Jul-98	56.3	45.8-55.8	0.02	10/20 sand	2-inch	PVC

Ground Water Elevations
Feet From Above Sea Level

	MW-36		MW-38		MW-39		MW-40		MW-41		MW-42	
Date	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
16-Sep-98	29.48	7.35	27.54	7.33	29.74	7.30	32.23	7.26	29.19	7.38	31.17	7.32
30-Oec-98	22.09	14.74	19.97	14.90	22.01	15.03	24.44	15.05	21.95	14.62	23.54	14.95
24-May-99	23.95	12.88	22.06	12.81	24.31	12.73	26.72	12.77	23.66	12.91	25.66	12.83
i8-Aug-99	27.17	9.66	25.31	9.56	27.47	9.57	29.89	9.60	26.83	9.74	28.84	9.65
21-Dec-99	23.19	13.64	21.28	13.59	23.45	13.59	25.85	13.64	22.90	13.67	24.80	13.69
25-Apr-00	23.11	13.72	21.26	13.61	23.31	13.73	25.79	13.70	22.88	13.69	24.75	13.74
25-Oct-00	29.17	7.66	28.00	6.87	30.17	6.87	32.80	6.69	29.48	7.09	31.69	6.80
27-Nov-00	29.30	7.53	27.36	7.51	29.56	7.48	32.01	7.48	28.99	7.58	30.95	7.54
09-Feb-01	29.00	7.83	27.20	7.67	29.34	7.70	31.88	7.61	28.80	7.77	30.80	7.69

Depth = Depth of ground water, in feet, below the top of casing

TABLE 3

LAKESIDE INDUSTRIES

SHALLOW AND DEEP MONITORING WELL SUMMARY

Well Construction Details

Monitoring Well	Elevation of Top of Inner PVC Casing (Feet, Mean Sea Level) Original Survey	Resurvey 3/2001	Date of Completion	Total Depth (Feet)	Screened Interval (Feet)	Slot Size (Inch)	Filter Pack (Type)	Well Diameter (Inches)	Well Material (Type)
MW-43	40.34	40.34	05-May-99	63.7	56-61	0.02	10/20 sand	2-inch	PVC
MW-44	34.78	34.78	11-May-99	57.5	47.5-57.5	0.02	10/20 sand	2-inch	PVC
MW-46	37.22	37.22	07-May-99	54.6	46.5-51.5	0.02	10/20 sand	2-inch	PVC
MW-50	40.05	40.05	30-Oct-00	50.0	40-50	0.02	10/20 sand	2-inch	PVC
MW-51	34.01	34.01	30-Oct-00	41.0	36-41	0.02	10/20 sand	2-inch	PVC

Ground Water Elevations
Feet Above Mean Sea Level

Date	MW-43 Depth	MW-43 Elevation	MW-44 Depth	MW-44 Elevation	MW-46 Depth	MW-46 Elevation	MW-50 Depth	MW-50 Elevation	MW-51 Depth	MW-51 Elevation
24-May-99	27.65	12.69	22.7	12.08	24.56	12.66				
18-Aug-99	30.85	9.49	25.21	9.57	27.68	9.54				
21-Dec-99	26.77	13.57	21.22	13.56	23.63	13.59				
25-Apr-00	26.68	13.66	21.09	13.69	23.53	13.69				
25-Oct-00	33.43	6.91	27.9	6.88	30.42	6.80				
27-Nov-00	32.88	7.46	27.4	7.38	29.75	7.47	32.67	7.38	26.61	7.40
09-Feb-01	32.81	7.53	27.05	7.73	29.63	7.59	32.68	7.37	26.55	7.46

Depth = Depth of ground water, in feet, below the top of casing
= no measurement data

TABLE 4

AREA 1
BASALT MONITORING WELL SUMMARY

Monitoring Well	Elevation of Top of PVC Inner Casing (Feet, Mean Sea Level) Original Survey	Resurvey 3/2001	Date of Completion	Total Depth (Feet)	Screened Interval (Feet)	Slot Size (Inch)	Filter Pack (Type)	Well Diameter (Inches)	Well Material (Type)
MW-27	35.01	35.01	09-Apr-92	44.0	34-44	0.01	10/20 sand	2-inch	PVC
MW-52	34.41	34.41	01-Nov-00	48.0	38-48	0.01	10/20 sand	2-inch	PVC
MW-53	34.28	34.28	03-Nov-00	101.5	90.5-101	0.02	10/20 sand	2-inch	PVC

Ground Water Elevations
Feet Above Mean Sea Level

Date	MW-27 Depth	MW-27 Elevation	MW-52 Depth	MW-52 Elevation	MW-53 Depth	MW-53 Elevation
02-Apr-92	26.94	8.07				
06-Jun-92	26.17	8.84				
20-Jul-94	27.20	7.81				
25-Oct-94	28.67	6.34				
17-Feb-95	23.45	11.56				
18-Apr-95	24.32	10.69				
25-Jul-95	26.00	9.01				
19-Oct-95	28.60	6.41				
22-Jan-95	17.55	17.46				
23-Apr-96	18.95	16.06				
02-Aug-96	24.74	10.27				
05-Nov-96	27.48	7.53				
23-Jan-97	19.26	15.75				
16-Apr-97	22.50	12.51				
15-Jul-97	22.46	12.55				
03-Nov-97	25.18	9.83				
05-Feb-98	22.77	12.24				
16-Sep-98	27.71	7.30				
30-Dec-98	20.67	14.34				
24-May-99	22.25	12.76				
18-Aug-99	25.31	9.70				
21-Dec-99	21.61	13.40				
25-Apr-00	21.49	13.52				
25-Oct-00	28.12	6.89				
27-Nov-00	27.56	7.45	27.61	6.80	26.50	7.78
09-Feb-01	27.32	7.69	27.21	7.20	25.11	9.17

Depth = Depth of ground water, in feet, below the top of casing
= no measurement data

TABLE 5

AREA 2
MONITORING WELL SUMMARY

Well Construction Details

Monitoring Well	Elevation of Top of Inner PVC Casing (Feet, Mean Sea Level) Original Survey	Resurvey 3/2001	Date of Completion	Total Depth (Feet)	Screened Interval (Feet)	Slot Size (Inch)	Filter Pack (Type)	Well Diameter (Inches)	Well Material (Type)
MW-17	34.87	34.87	16-Jun-91	34.5	19.5-34.5	0.02	8/12 sand	2-inch	Steel
MW-18	33.55	33.55	16-Jun-91	33.8	18.8-33.8	0.02	8/12 sand	2-inch	PVC
MW-23	35.99	35.99	15-Jun-91	35.0	20-35	0.02	8/12 sand	2-inch	PVC
MW-24	32.23	32.23	15-Jun-91	35.0	20-35	0.02	8/12 sand	2-inch	Steel
MW-30	34.01	34.01	14-Mar-92	20.0	5-20	0.02	8/12 sand	2-inch	Steel
MW-31	35.04	35.04	14-Mar-92	35.0	20-35	0.02	8/12 sand	4-inch	Steel
MW-35	30.91	31.18	13-Dec-96	25.0	25-10	0.01	10/20 sand	2-inch	PVC

Ground Water Elevations
Feet From Mean Sea Level

Date	MW-17		MW-18		MW-23		MW-24		MW-30		MW-31		MW-35	
	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
22-Jul-91	24.63	10.24	24.36	9.19	26.90	9.09	12.65	19.58						
02-Apr-92	25.73	9.14	25.53	8.02	27.57	8.42	12.79	19.44	10.41	23.60	25.20	9.84		
12-Jun-92	25.37	9.50	24.65	8.90	26.56	9.43	13.22	19.01	10.02	23.99	25.03	10.01		
20-Jul-94	26.24	8.63	26.61	6.94	27.65	8.34	13.81	18.42	>20.0	<14.01	26.04	9.00		
25-Oct-94	27.69	7.18	27.15	6.40	29.10	6.89	14.75	17.48	>20.0	<14.01				
17-Feb-95	23.55	11.32	22.02	11.53	23.88	12.11	12.05	20.18	10.88	23.13	23.38	11.66		
18-Apr-95	24.12	10.75	23.03	10.52	24.71	11.28	11.51	20.72	10.80	23.21	23.80	11.24		
25-Jul-95	25.11	9.76	24.30	9.25	26.68	9.31	12.44	19.79	17.60	16.41	24.70	10.34		
19-Oct-95	26.90	7.97	26.42	7.13	27.32	8.67	13.26	18.97	>20.0	<14.01	26.50	8.54		
22-Jan-96	18.25	16.62	17.20	16.35	11.20	24.79			8.39	25.62	18.29	16.75		
23-Apr-96	18.80	16.07	17.91	15.64	19.35	16.64	9.38	22.85	8.14	25.87	18.60	16.44		
02-Aug-96	23.91	10.96			25.10	10.89	11.21	21.02	>20.0	<14.01	23.43	11.61		
05-Nov-96	26.19	8.68	25.27	8.28	27.99	8.00	12.93	19.30	>20.0	<14.01	25.80	9.24		
23-Jan-97	18.60	16.27	17.08	16.47	19.34	16.65	8.36	23.87	8.67	25.34	18.67	16.37	14.46	16.45
16-Apr-97	21.98	12.89	19.95	13.60	22.65	13.34	9.68	22.55	9.24	24.77	21.63	13.41	17.84	13.07
15-Jul-97	21.99	12.88	19.62	13.93	22.74	13.25	10.52	21.71	11.28	22.73	21.65	13.39	17.41	13.50
03-Nov-97	24.71	10.16	23.45	10.10	25.52	10.47	12.61	19.62	17.90	16.11	24.46	10.58	19.06	11.85
05-Feb-98	23.20	11.67			22.95	13.04	11.45	20.78	16.95	17.06	23.00	12.04	17.41	13.50
16-Sep-98	26.27	8.60			27.99	8.00	13.25	18.98	>19.0	<15.01	25.89	9.15	21.42	9.49
30-Dec-98	21.24	13.63	19.67	13.88	20.74	15.25	11.63	20.60	18.55	15.46	21.64	13.40	16.25	14.66
24-May-99	21.89	12.98			22.47	13.52	10.48	21.75	15.14	18.87	21.73	13.31	16.21	14.70
18-Aug-99	24.51	10.36			26.82	9.17	12.14	20.09	18.22	15.79	24.17	10.87	19.25	11.66
21-Dec-99	21.66	13.21			21.81	14.18	12.24	19.99	18.98	15.03	21.92	13.12	16.75	14.16
25-Apr-00	21.37	13.50					11.60	20.63	19.01	15.00	21.29	13.75	16.95	13.96
25-Oct-00							14.20	18.03					21.86	9.05
09-Feb-01	26.52	8.35					14.01	18.22	>20.0	<14.01	26.71	8.33	21.49	9.69

Depth = Depth of ground water, in feet, below top of casing
= no measurement data
> = greater than, indicates the depth to water was greater than the well depth so the well was dry
< = less than, indicates the ground water elevation was less than the elevation of the bottom of the well

TABLE 6
AREA 3
MONITORING WELL SUMMARY

Well Construction Details									
Monitoring Well	Elevation of Top of Inner PVC Casing (Feet, Mean Sea Level)		Date of Completion	Total Depth (Feet)	Screened Interval (Feet)	Slot Size (Inch)	Filter Pack (Type)	Well Diameter (Inches)	Well Material (Type)
	Original Survey	Resurvey 3/2001							
MW-10	34.71	34.71	30-Jun-91	20.0	5-20	0.02	8/12 sand	2-inch	PVC
MW-11	35.98	35.98	03-Jul-91	21.5	6.5-21.5	0.02	8/12 sand	2-inch	PVC
MW-13	31.88	31.88	03-Jul-91	20.0	5-20	0.02	8/12 sand	2-inch	PVC
MW-14	33.51	33.51	30-Jun-91	30.0	15-30	0.02	8/12 sand	2-inch	PVC
MW-15	32.51	32.51	23-Jun-91	33.8	18.8-33.8	0.02	8/12 sand	2-inch	PVC

Ground Water Elevations
Feet from Mean Sea Level Datum

	MW-10		MW-11		MW-13		MW-14		MW-15	
Date	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
22-Jul-91	8.81	25.90	13.59	22.39	11.51	20.37	24.45	9.06	23.19	9.32
02-Apr-92	8.82	25.89	13.63	22.35	11.84	20.04	25.21	8.30	23.85	8.66
20-Jul-94			15.70	20.28	13.44	18.44	25.89	7.62	24.09	8.42
25-Oct-94			17.78	18.20	14.94	16.94	27.18	6.33	25.58	6.93
17-Feb-95			11.13	24.85	8.90	22.98	22.27	11.24	20.60	11.91
18-Apr-95			9.48	26.50	8.74	23.14	23.51	10.00	21.37	11.14
25-Jul-95			12.72	23.26	10.73	21.15	23.00	10.51	22.81	9.70
19-Oct-95	9.95	24.76	15.28	20.70	12.40	19.48	>30.0	<3.15	24.75	7.76
22-Jan-96	7.11	27.60			8.26	23.62	17.10	16.41	15.41	17.10
23-Apr-96	6.98	27.73	7.95	28.03	6.26	25.62	17.22	16.29	15.67	16.84
02-Aug-96	8.83	25.88	11.39	24.59			20.92	12.59	21.10	11.41
05-Nov-96	8.77	25.94	13.71	22.27			21.60	11.91	24.21	8.30
23-Jan-97	6.42	28.29	6.76	29.22			16.97	16.54	16.46	16.05
16-Apr-97	7.55	27.16	8.68	27.30	6.77	25.11	19.64	13.87	18.79	13.72
15-Jul-97	8.87	25.84	10.39	25.59	7.91	23.97	19.91	13.60	18.45	14.06
03-Nov-97	8.75	25.96	12.91	23.07	8.95	22.93	23.85	9.66	22.04	10.47
05-Feb-98	7.26	27.45	9.47	26.51	7.61	24.27	21.10	12.41	20.29	12.22
16-Sep-98	9.71	25.00	14.27	21.71	9.97	21.91	26.18	7.33	24.41	8.10
30-Dec-98	7.33	27.38	9.01	26.97	7.87	24.01	19.20	14.31		
06-Apr-99	7.11	27.60	8.2	27.78	5.92	25.96	18.67	14.84		
24-May-99	8.01	26.70	9.98	26.00	7.16	24.72	19.87	13.64		
18-Aug-99	9.4	25.31	12.85	23.13	9.11	22.77	22.68	10.83	21.98	10.53
21-Dec-99	7.68	27.03	11.95	24.03	8.06	23.82	20.27	13.24	18.80	13.71
25-Apr-00	8.02	26.69	11.13	24.85	8.27	23.61	20.26	13.25		
25-Oct-00	9.98	24.73	15.39	20.59	10.1	21.78	26.22	7.29	24.83	7.68
09-Feb-01	8.76	25.95	15.49	20.49	9.81	22.07	25.59	7.92	24.20	8.31

Depth = Depth of ground water, in feet, below top of casing
= no measurement data
> = greater than, indicates the depth to water was greater than the well depth so the well was dry
< = less than, indicates the ground water elevation was less than the elevation of the bottom of the well

TABLE 7

WESTSIDE CSO INVESTIGATION WELLS
MONITORING WELL SUMMARY

Well Construction Details

Monitoring Well	Elevation of Inner PVC Casing (Feet, Mean Sea Level) Surveyed 3/7/01	Date of Completion	Total Depth (Feet)	Screened Interval (Feet)	Slot Size (Inch)	Filter Pack (Type)	Well Diameter (Inches)	Well Material (Type)
FM48-9	32.72	12-Dec-00	20.0	8-18	0.01	10/20 Sand	2-inch	PVC
FM48-11	31.40	12-Dec-00	18.0	8-18	0.01	10/20 Sand	2-inch	PVC
FM48-13	34.83	11-Dec-00	25.0	15-25	0.01	10/20 Sand	2-inch	PVC
FM48-15	36.65	11-Dec-00	25.0	15-25	0.01	10/20 Sand	2-inch	PVC
FM48-17	36.55	06-Dec-00	26.0	16-26	0.01	10/20 Sand	2-inch	PVC

Ground Water Elevations
Feet Above Mean Sea Level

	48-9		48-11		48-13		48-15		48-17	
Date	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
09-Feb-01	10.75	21.97	11.12	20.28	21.98	12.85	>25.00	>11.65		

Depth = Depth of ground water, in feet, below the top of casing
= no measurement data
> = greater than, indicates the depth to water was greater than the well depth so the well was dry
< = less than, indicates the ground water elevation was less than the elevation of the bottom of the well

TABLE 8

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-36
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
17-Sep-98	ND	0.52	ND	1.07	ND	3.25	ND	4.84
17-Sept-98 Dupe	ND	0.43	ND	1.31	ND	4.87	ND	6.61
04-Jan-99	0.00223	0.152	ND	0.459	0.00778	0.991	0.00152	1.61
27-May-99	ND	ND	ND	0.445	ND	1.70	ND	2.15
23-Aug-99	ND	ND	ND	0.0148	ND	0.037	ND	0.05
22-Dec-99	ND	ND	ND	0.342	ND	0.565	ND	0.91
27-Apr-00	ND	0.023	ND	0.383	ND	0.700	ND	1.11
30-Oct-00	ND	0.104	ND	0.349	0.0108	1.410	ND	1.87
13-Feb-01	ND	0.136	ND	0.387	0.0151	1.03	ND	1.57
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
ND = not detected
Dupe at the end of a sample date denotes that the sample is a duplicate
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 9

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-37
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichioroethane	trichloroethene	total HVOC
18-Sep-98	ND	0.00114	ND	0.00141	ND	ND	ND	0.003
31-Dec-98	ND	0.00217	ND	ND	0.00198	0.00291	ND	0.007
26-May-99	ND	0.00136	ND	ND	ND	ND	ND	0.001
19-Aug-99	ND	0.00121	ND	ND	ND	ND	ND	0.001
22-Dec-99	ND	0.000612	ND	ND	ND	ND	ND	0.001
26-Apr-00	ND	ND	ND	ND	ND	ND	ND	0.000
25-Ocl-00	ND	ND	ND	ND	ND	ND	ND	0.000
07-Feb-01	ND	ND	ND	ND	ND	ND	ND	0.000
Regulatory Limit	0.1*	not lisled	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum ol halogenated volatile organic compound concentrations
Dates are the day oi sampling for the event.
ND = not detected
Dupe al the end ol a sample dale denotes that the sample is a duplicate
Regulatory Limit = Levels developed by the EPA, as required by the Sale Drinking Water Act and subsequent amendments.
0.1* = maximum coniaminant level (MCL) lor total trihalomelhanes (TTHM)

ISOLATED DETECTION:
1) 1,2-dichlorobenzene @ 0.000565 mg/L on 7-Feb-01.

TABLE 10

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-38
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
17-Sep-98	ND	0.454	ND	2.34	ND	6.25	ND	9.044
04-Jan-99	0.00365	0.237	0.0268	0.962	0.0397	1.810	0.00472	3.084
4-Jan-99 Dupe	0.00427	0.252	0.0258	1.170	0.048	2.160	0.00527	3.671
29-May-99	0.0015	0.0505	0.0221	0.692	0.0194	2.59	0.00249	3.378
29-May-99 Dupe	0.00136	0.0502	0.0187	0.634	0.0194	2.42	0.00243	3.146
23-Aug-99	0.00162	0.059	0.0107	0.821	0.0216	2.47	0.00276	3.387
23-Aug-99 Dupe	0.00165	0.059	0.0112	0.836	0.0217	2.53	0.00298	3.463
22-Dec-99	ND	ND	ND	0.779	ND	1.23	ND	2.009
27-Apr-00	ND	0.079	0.0277	0.554	0.0385	1.87	ND	2.569
30-Oct-00	ND	0.1	0.0208	1	0.0222	2.60	ND	3.743
30-Oct-00 DUP	ND	0.0807	ND	0.562	ND	2.14	ND	2.783
13-Feb-01	ND	0.178	ND	0.887	0.0385	2.730	ND	3.834
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Sale Drinking Water Act and subsequent amendments.
0.1* = maximum coniaminant level (MCL) lor total trihalomelhanes (TTHM)

ISOLATED DETECTION:
1) Methylene chloride @ 0.00544 mg/L on 4-Jan-99 Dupe only.

TABLE 11

Lakeside

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-43
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
29-May-99	ND	ND	ND	ND	ND	0.00195	ND	0.002
20-Aug-99	ND	ND	ND	ND	ND	0.00278	ND	0.003
22-Dec-99	ND	0.0101	0.00172	0.0675	0.00166	0.19	ND	0.271
27-Apr-00	0.000642	0.00241	ND	0.00169	ND	0.00716	ND	0.012
27 Apr 00 Dup	0.000634	0.00172	ND	0.00183	ND	0.00733	ND	0.012
27-Oct-00	ND	0.0121	0.00072	0.0184	0.000686	0.123	ND	0.155
08-Feb-01	ND	0.00646	ND	0.00287	ND	0.0217	ND	0.031
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 12

Lakeside

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-44
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
29-May-99	ND	ND	ND	0.00182	ND	0.00217	ND	0.004
20-Aug-99	ND	ND	ND	0.001	ND	0.00522	ND	0.006
22-Dec-99	ND	ND	ND	0.00411	ND	0.0104	ND	0.015
27-Apr-00	ND	0.00303	0.000729	0.0213	0.000752	0.0347	ND	0.061
27-Oct-00	ND	ND	ND	ND	ND	ND	ND	0.000
27-Oct-00	ND	ND	ND	ND	ND	0.00254	ND	0.003
07-Feb-01	ND	0.000831	ND	0.00382	ND	0.0131	ND	0.018
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 13

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-45
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
26-May-99	ND	ND	ND	5.08	ND	40.7	ND	45.78
26-May-99 Dupe	ND	ND	ND	5.18	ND	38.2	ND	43.38
19-Aug-99	ND	0.301	0.430	8.40	ND	53.3	ND	62.43
19-Aug-99 Dupe	ND	0.409	0.426	6.84	ND	53.2	ND	60.88
22-Dec-99	ND	ND	ND	9.95	ND	44.3	ND	54.25
22-Dec-99 Dupe	ND	ND	ND	10.1	ND	44.4	ND	54.50
26-Apr-00	ND	ND	ND	8.61	ND	56.7	ND	65.31
26-Oct-00	ND	0.218	0.394	3.86	ND	35.5	ND	39.97
13-Feb-01	ND	ND	ND	6.12	ND	41.4	ND	47.52
13-Feb-01 Dupe	ND	ND	ND	5.95	ND	39.5	ND	45.45
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
Dupe at the end of a sample date denotes that the sample is a duplicate
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 14

Lakeside

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-46
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
29-May-99	ND	ND	ND	0.000675	ND	0.00366	ND	0.004
20-Aug-99	ND	ND	ND	ND	ND	0.00181	ND	0.002
22-Dec-99	0.0011	ND	ND	ND	ND	0.00537	ND	0.006
27-Apr-00	0.0007	ND	ND	ND	ND	0.00201	ND	0.003
27-Oct-00	ND	ND	ND	ND	ND	0.00142	ND	0.001
07-Feb-01	ND	ND	ND	ND	ND	ND	ND	0.000
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 15

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-49
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
22-Nov-00	ND	0.0499	ND	0.189	0.0116	0.316	ND	0.5665
13-Feb-01	ND	0.117	0.0111	0.712	0.0342	1.48	ND	2.3543
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
Dupe at the end of a sample date denotes that the sample is a duplicate
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 16

Lakewide

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-50
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
22-Nov-00	0.00722	ND	ND	0.00178	ND	0.00413	ND	0.0131
08-Feb-01	ND	0.00123	ND	0.00158	0.000638	0.0119	ND	0.0153
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
Dupe at the end of a sample date denotes that the sample is a duplicate
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 17

Lakeside

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-51
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
22-Nov-00	ND	0.0495	ND	0.574	ND	1.61	ND	2.2335
22-Nov-00 Dup	ND	0.0468	ND	0.507	ND	1.44	ND	1.9938
08-Feb-01	ND	0.0474	ND	0.634	ND	1.99	ND	2.6714
08-Feb-01 Dup	ND	0.053	ND	0.611	0.0269	2.03	ND	2.7209
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
Dupe at the end of a sample date denotes that the sample is a duplicate
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 18

CONCENTRATIONS OF DETECTED ANALYTES
IN GROUND WATER COLLECTED FROM MONITORING WELL MW-52
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichioroethane	trichloroethene	total HVOC
22-Nov-00	ND	0.02	ND	0.226	0.0152	0.152	ND	0.4132
13-Feb-01	ND	0.028	ND	0.258	0.0173	0.229	ND	0.5323
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
Dupe at the end of a sample date denotes that the sample is a duplicate
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 19

CONCENTRATIONS OF DETECTED ANALYTES IN GROUND WATER COLLECTED FROM MONITORING WELL MW-53
milligrams per liter (mg/L)

	chloroform	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	tetrachloroethene	1,1,1-trichloroethane	trichloroethene	total HVOC
22-Nov-00	ND	ND	ND	ND	ND	ND	ND	0.000
07-Feb-01	ND	ND	ND	ND	ND	ND	ND	0.000
07-Feb-01 dup	ND	ND	ND	ND	ND	ND	ND	0.000
Regulatory Limit	0.1*	not listed	0.005	0.007	0.005	0.2	0.005	

Total HVOC = sum of halogenated volatile organic compound concentrations
Dates are the day of sampling for the event.
Dupe at the end of a sample date denotes that the sample is a duplicate
ND = not detected
Regulatory Limit = Levels developed by the EPA, as required by the Safe Drinking Water Act and subsequent amendments.
0.1* = maximum contaminant level (MCL) for total trihalomethanes (TTHM)

TABLE 20
Evaluation of Contaminant Plume Composition

	TCA mg/L	Total HVOCs mg/L	Percent of Total HVOCs that is 1,1,1-trichloroethane								
	Feb-01	Feb-01	Sep-98	Dec-98	May-99	Aug-99	Dec-99	Apr-00	Oct-00	Nov-00	Feb-01
Shallow monitoring wells, upgradient from source											
MW-34			100%	0%	0%	0%	0%	0%	0%		
MW-22			0%	0%	0%	0%	0%	0%	0%		
Deep monitoring wells, upgradient from source											
MW-41			83%	84%	89%	89%	75%	86%	93%		
MW-42			100%	100%	0%	0%	0%	0%	0%		
Shallow monitoring wells, near source											
MW-45	41.4	45.45			89%	85%	82%	87%	89%		91%
MW-21			12%	72%	57%	34%	67%	71%	8%		
Deep monitoring wells, near source											
MW-27			51%	38%	47%	31%	33%	44%	54%		
MW-36	1.03	1.568	74%	62%	79%	71%	62%	63%	75%		66%
Shallow monitoring wells, downgradient from source											
MW-19			81%	0%	29%	18%	0%	0%	0%		
MW-20			0%	0%	0%	0%	0%	0%	0%		
MW-37	non-detect	0.001	0%	41%	0%	0%	0%	0%	0%		0%
MW-49	1.48	2.354								56%	63%
MW-50	0.0119	0.015								31%	78%
MW-51	2.030	2.721								72%	75%
Deep monitoring wells, down gradient from source											
MW-38	2.73	3.834	69%	59%	77%	73%	61%	73%	69%		71%
MW-39			62%	72%	78%	57%	72%	72%	83%		
MW-40			90%	100%	84%	100%	73%	0%	75%		
MW-43	0.0217	0.031			100%	100%	70%	60%	79%		70%
MW-44	0.0131	0.018			54%	84%	72%	57%	0%		74%
MW-46	non-detect	0.000			84%	100%	83%	74%	100%		0%
MW-52	0.229	0.532								37%	43%
MW-53	non-detect	0.000								0%	0%

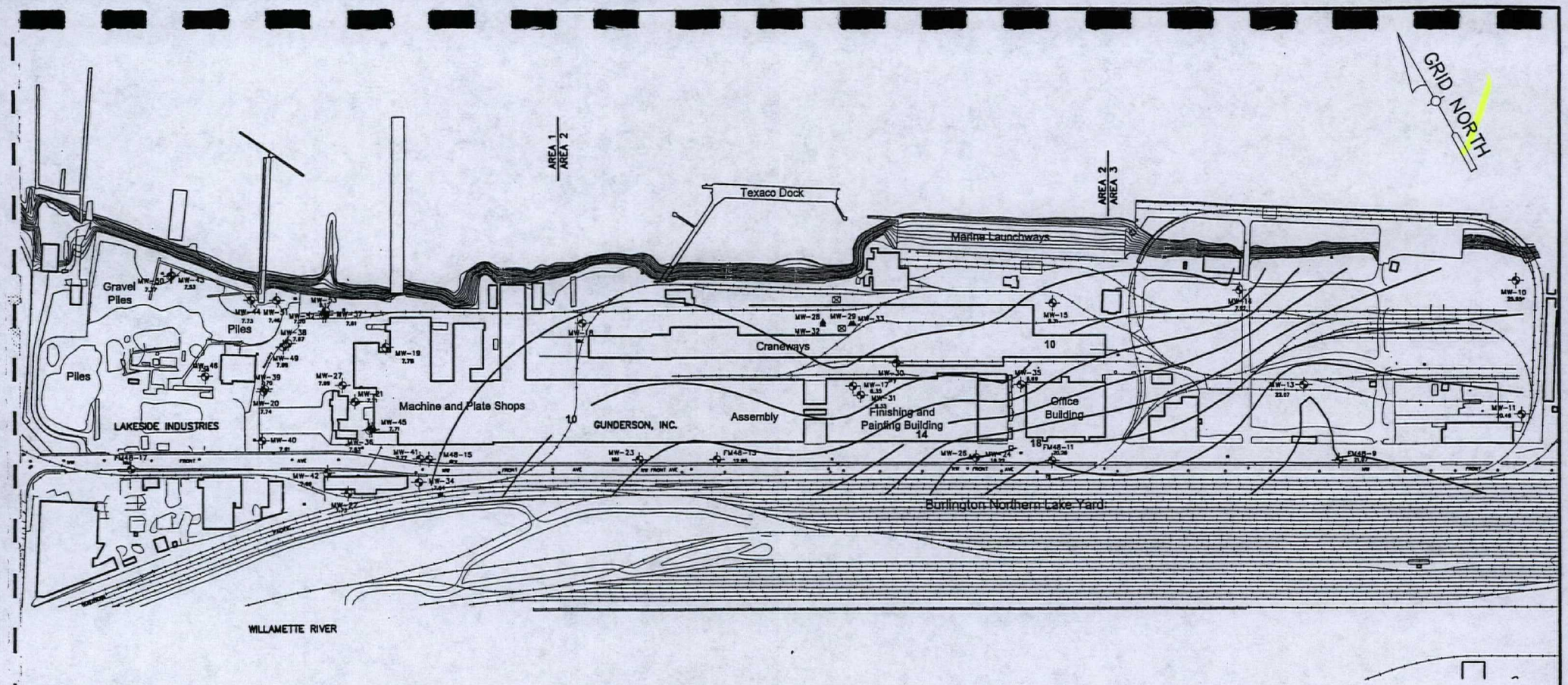
TABLE 20
Evaluation of Contaminant Plume Composition

	degradation compounds (mg/L)	Total HVOCs mg/L	Percent ot Total HVOCs that are Degradation Compounds								
	Feb-01	Feb-01	Sep-98	Dec-98	May-99	Aug-99	Dec-99	Apr-00	Oct-00	Nov-00	Feb-01
Shallow monitoring wells, upgradient from source											
MW-34			0%	0%	0%	0%	0%	0%	0%		
MW-22			0%	0%	0%	0%	0%	0%	0%		
Deep monitoring wells, upgradient from source											
MW-41			12%	16%	11%	11%	19%	8%	8%		
MW-42			0%	0%	0%	0%	0%	0%	0%		
Shallow monitoring wells, near source											
MW-45	6.12	45.45			11%	15%	18%	13%	11%		13%
MW-21			63%	26%	41%	58%	32%	27%	69%		
Deep monitoring wells, near source											
MW-27			44%	59%	43%	66%	63%	51%	40%		
MW-36	0.523	1.568	26%	38%	21%	29%	38%	37%	24%		33%
Shallow monitoring wells, downgradient from source											
MW-19			7%	100%	58%	82%	0%	68%	75%		
MW-20			0%	0%	0%	0%	0%	0%	0%		
MW-37	non-detect	0.001	100%	31%	100%	100%	0%	0%	0%		0%
MW-49	0.840	2.354								42%	36%
MW-50	0.003	0.015								14%	18%
MW-51	0.664	2.721								28%	24%
Deep monitoring wells, down gradient from source											
MW-38	1.065	3.834	31%	40%	23%	26%	39%	26%	30%		28%
MW-39			36%	26%	21%	42%	28%	28%	17%		
MW-40			8%	0%	0%	0%	27%	0%	25%		
MW-43	0.009	0.031			0%	0%	29%	30%	20%		30%
MW-44	0.004651	0.018			46%	16%	28%	41%	0%		26%
MW-46	non-detect	0.000			16%	0%	0%	0%	0%		0%
MW-52	0.286	0.532								60%	54%
MW-53	non-detect	0.000								0%	0%

TABLE 20
Evaluation of Contaminant Plume Composition

	Other Compounds (mg/L)	Total HVOCs mg/L	Percent of Total HVOCs that are Other HVOCs								
	Feb-01	Feb-01	Sep-98	Dec-98	May-99	Aug-99	Dec-99	Apr-00	Oct-00	Nov-00	Feb-01
Shallow monitoring wells, upgradient from source											
MW-34			0%	0%	0%	0%	0%	0%	0%		
MW-22			0%	0%	0%	0%	0%	0%	0%		
Deep monitoring wells, upgradient from source											
MW-41			5%	0%	0%	0%	6%	6%	0%		
MW-42			0%	0%	0%	0%	0%	0%	0%		
Shallow monitoring wells, near source											
MW-45	non-detect	45.45			0%	0%	0%	0%	0%		0%
MW-21			24%	1%	1%	7%	1%	2%	22%		
Deep monitoring wells, near source											
MW-27			6%	6%	0%	3%	4%	5%	5%		
MW-36	0.0151	1.568	0%	1%	0%	0%	0%	0%	1%		1%
Shallow monitoring wells, downgradient from source											
MW-19			11%	0%	23%	18%	14%	32%	25%		
MW-20			0%	0%	0%	100%	0%	0%	0%		
MW-37	0.001	0.001	0%	28%	0%	0%	0%	0%	0%		100%
MW-49	0.034	2.354								2%	1%
MW-50	0.001	0.015								55%	4%
MW-51	0.027	2.721								0%	1%
Deep monitoring wells, down gradient from source											
MW-38	0.039	3.834	0%	2%	1%	1%	0%	1%	1%		1%
MW-39			1%	2%	1%	1%	1%	0%	0%		
MW-40			2%	0%	0%	0%	0%	0%	0%		
MW-43	non-detect	0.031			0%	0%	1%	5%	2%		0%
MW-44	non-detect	0.018			0%	0%	0%	1%	0%		0%
MW-46	non-detect	0.000			0%	0%	17%	26%	0%		0%
MW-52	0.017	0.532								4%	3%
MW-53	non-detect	0.000								0%	0%

=data not available for the dates
mg/L = milligrams per liter
Total HVOCs = summation of halogenated volatile organic compounds
Degradation Compounds = 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride
Other HVOCs = tetrachloroethene, trichloroethene, chloroform, and dichloropropane



MW-31 Monitoring Wells by Squier Associates
13.04 Elevation of ground water in feet above mean sea level
13.04* Water elevation not used in calculation of contour model
MW-26 Abandoned Monitoring Well Location
Riverbank
Building
Rail Line
Fence Line
10 Ground water contours, elevation in feet above mean sea level (2 foot contour interval)
NM Not Measured

0' 100' 200' 300'
SCALE 1"=300'

Gunderson Inc. Property
4350 N.W. Front Avenue
Portland Oregon

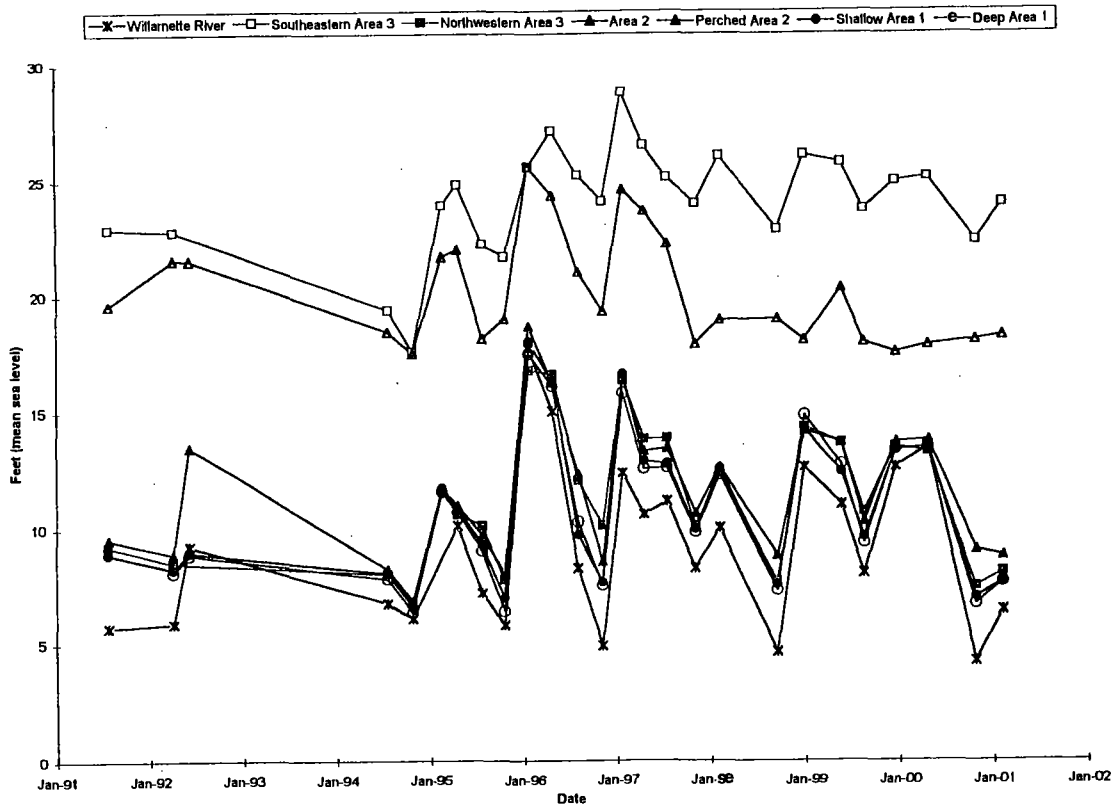
FEBRUARY 8, 2001
GROUND WATER CONTOURS

SQUIER ASSOCIATES

FIGURE 1

Drawn By: SES	Checked By: DAL	Graphics Check:		File: P:\90445\CAD\GWCONT	Date: Mar. 2001	Job No. 90445.2

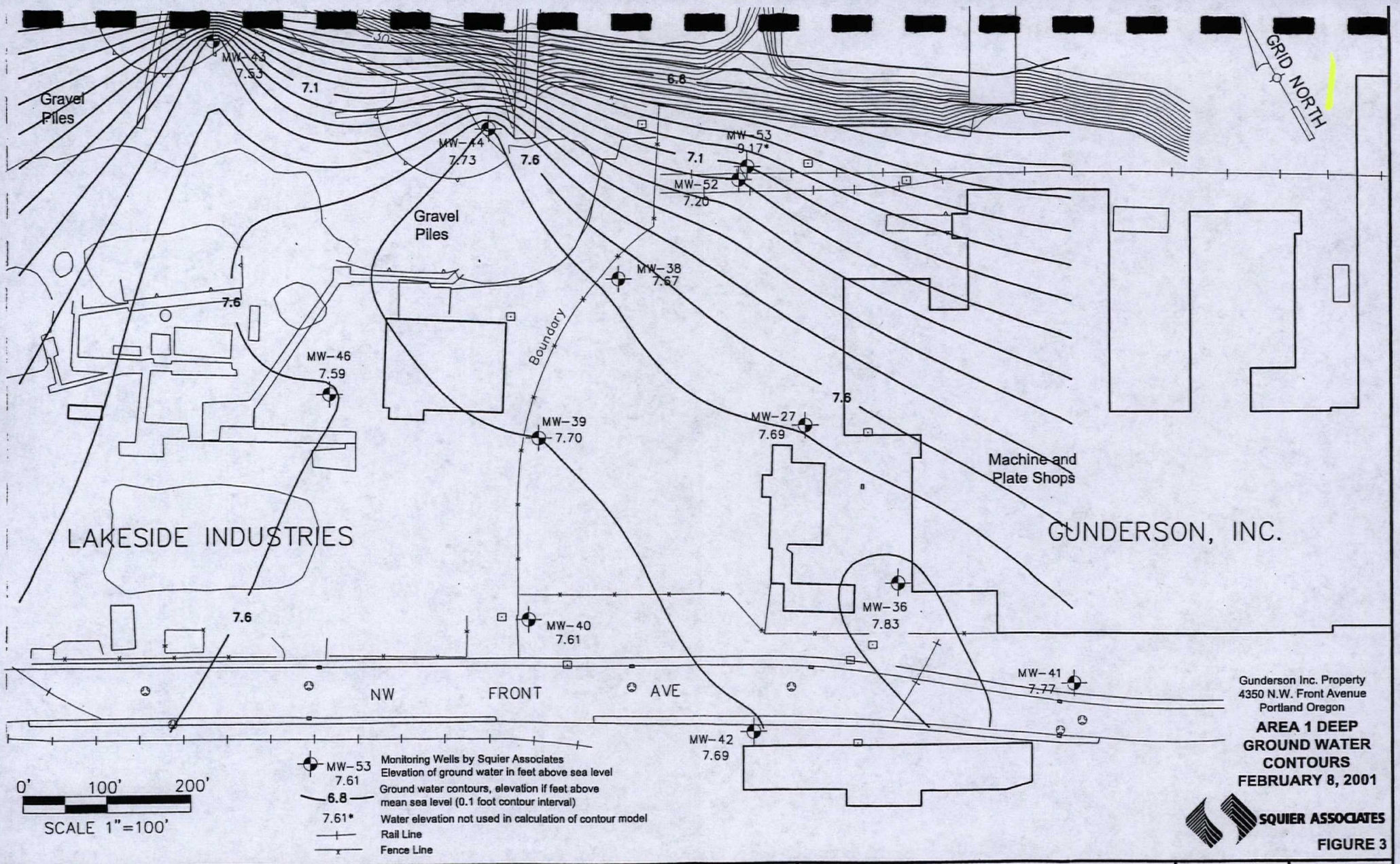
Water Level Elevations



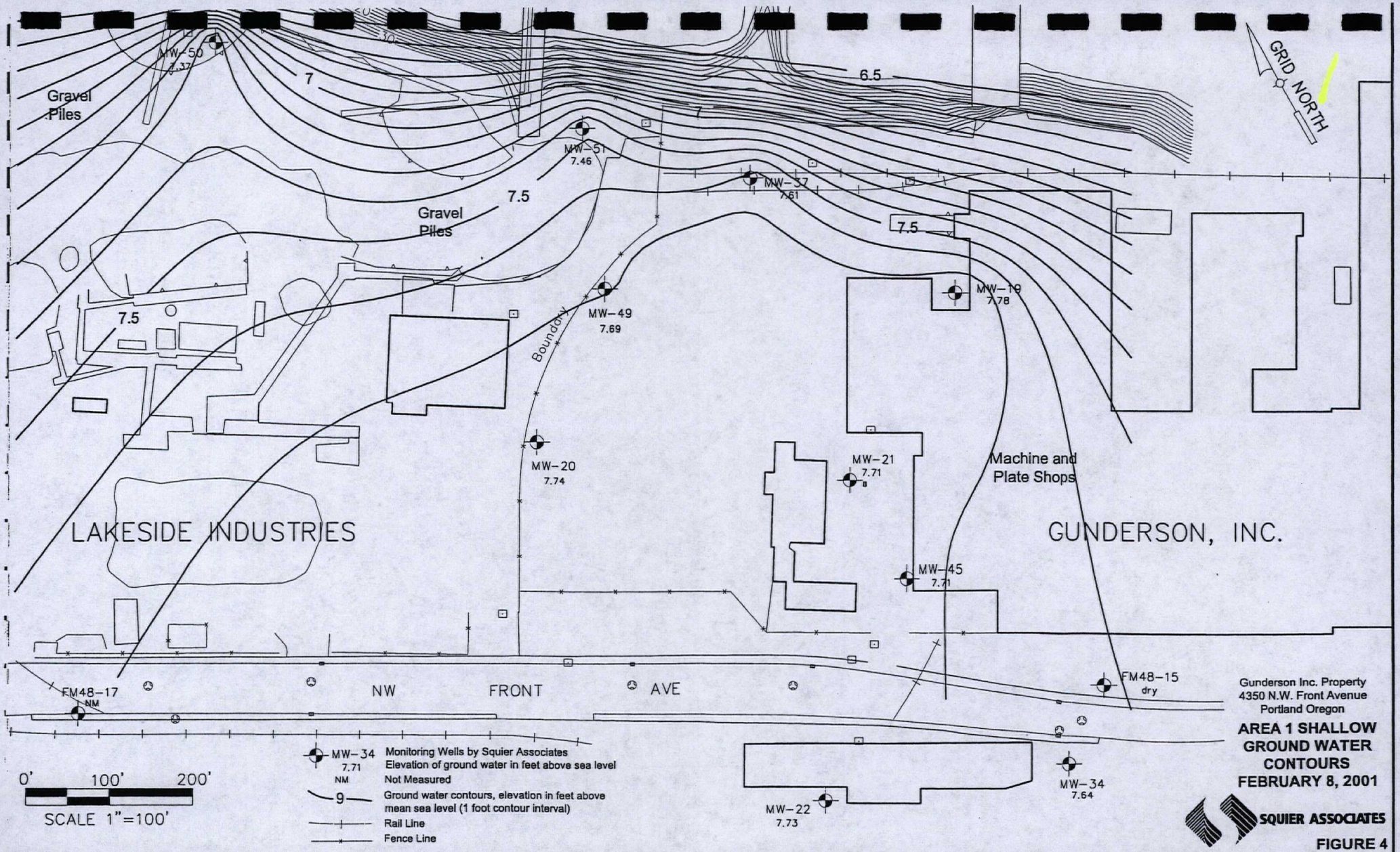
04/23/2001 2:19 PM
P:\Projects\00\00445\50445 2\Gmdwt\Wtrlev2.xls Avg Water Level Elevations Chart 1

Gunderson, Inc

Squier Associates
FIGURE 2



Drawn By: SES	Checked By:	Graphics Check:	File: P:\90445\CAD\DEEP	Date: Mar. 2001	Job No. 90445.2



Gunderson Inc. Property
4350 N.W. Front Avenue
Portland Oregon

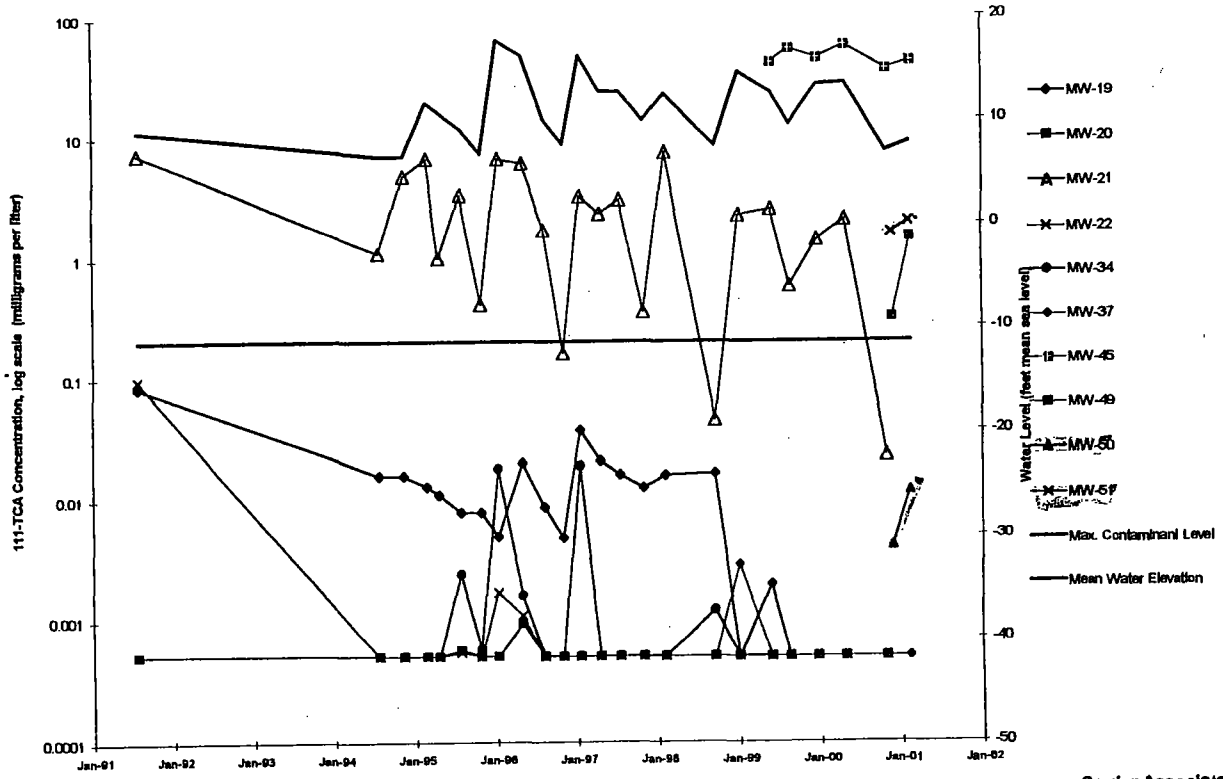
AREA 1 SHALLOW GROUND WATER CONTOURS FEBRUARY 8, 2001

SQUIER ASSOCIATES

FIGURE 4

Drawn By: SES	Checked By:	Graphics Check:		File: P:\90445\CAD\SHALLOW	Date: Mar. 2001	Job No. 90445.2

1,1,1-Trichloroethane Concentrations In Shallow Ground Water



Note: Non-Detect values wore assigned a value of one-hall the detection limit.

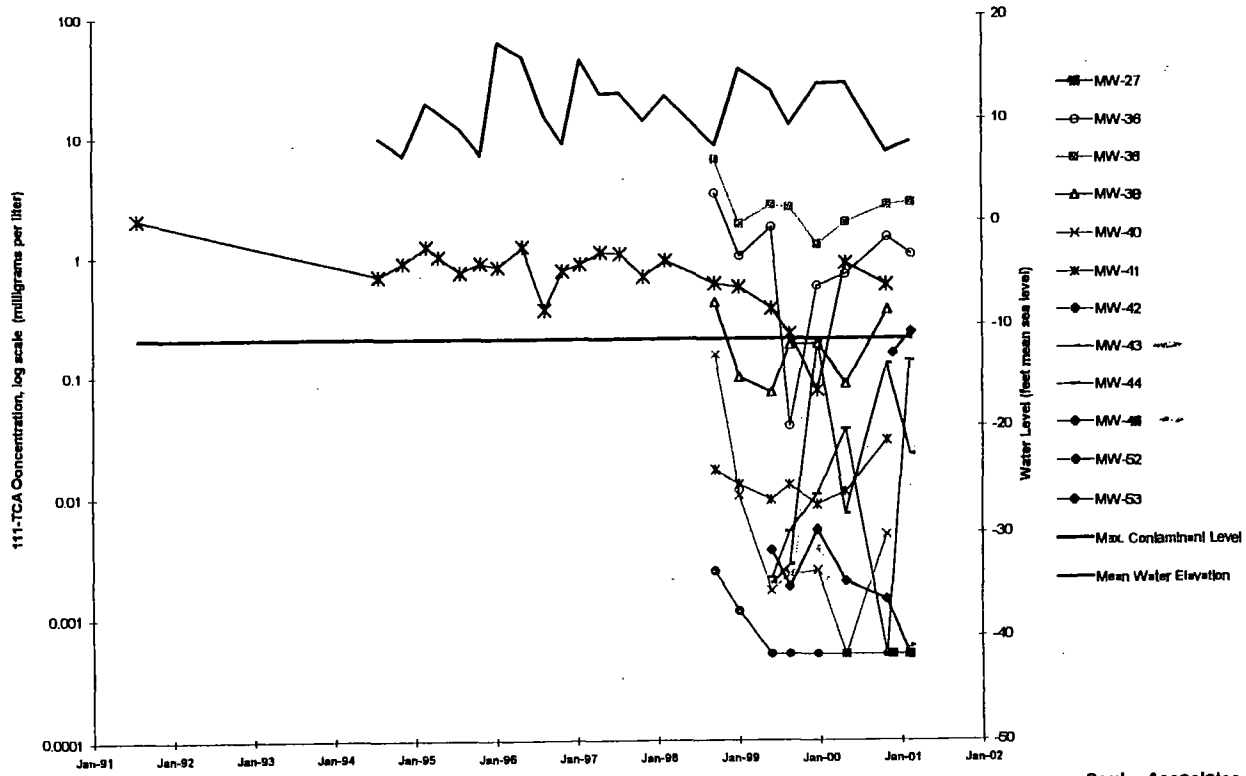
03/08/2001 2:28 PM
P:\Projects90\90445\90445.2\Gmdwt\A1nexstet.xls TCAshalo Chart 1

Gunderson, Inc.

Squier Associates

FIGURE 5

1,1,1-Trichloroethane Concentrations In Deep Ground Water



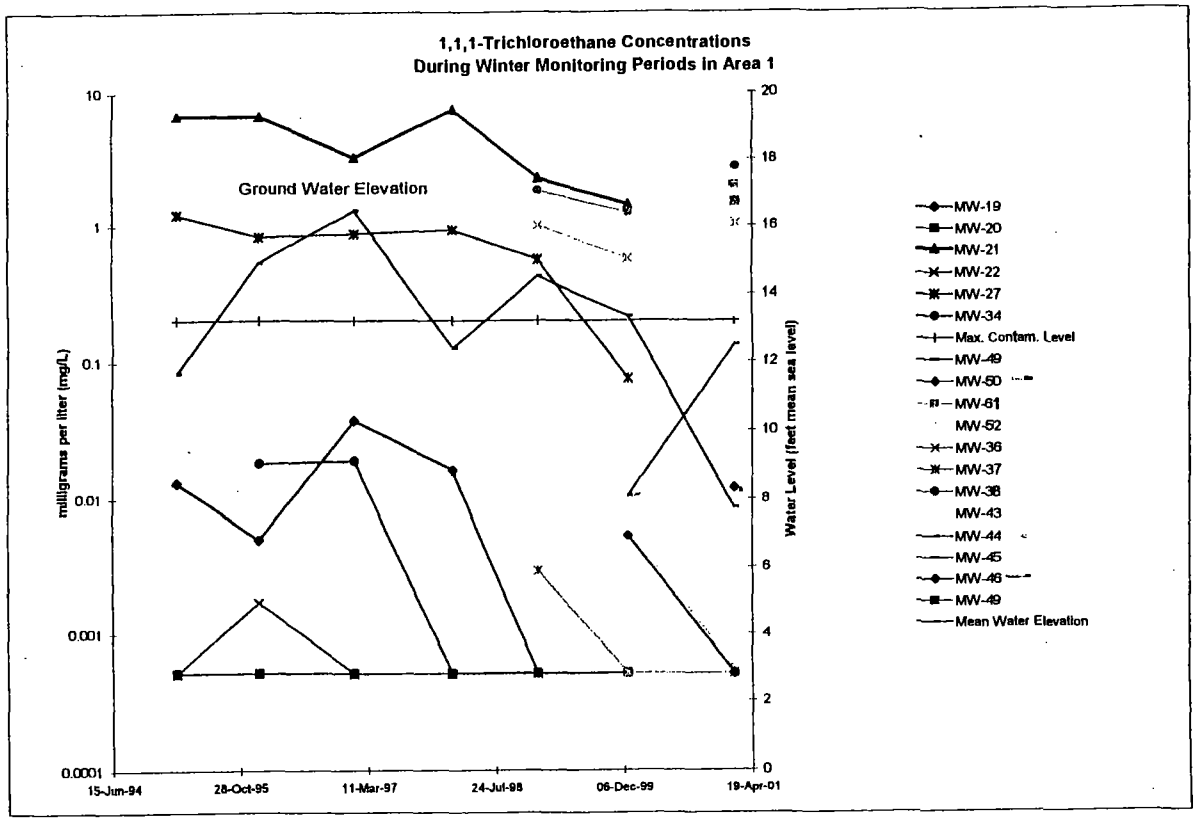
Note: Non-Detect values were assigned a value of one-half the detection limit.

04/M/2001 2:23 PM
P:\Projects90\90445\90445.2\Gmdwin\A1newdat.xls TCAdsllp Chart 1

Gunderson, Inc.

Squier Associates

FIGURE 6

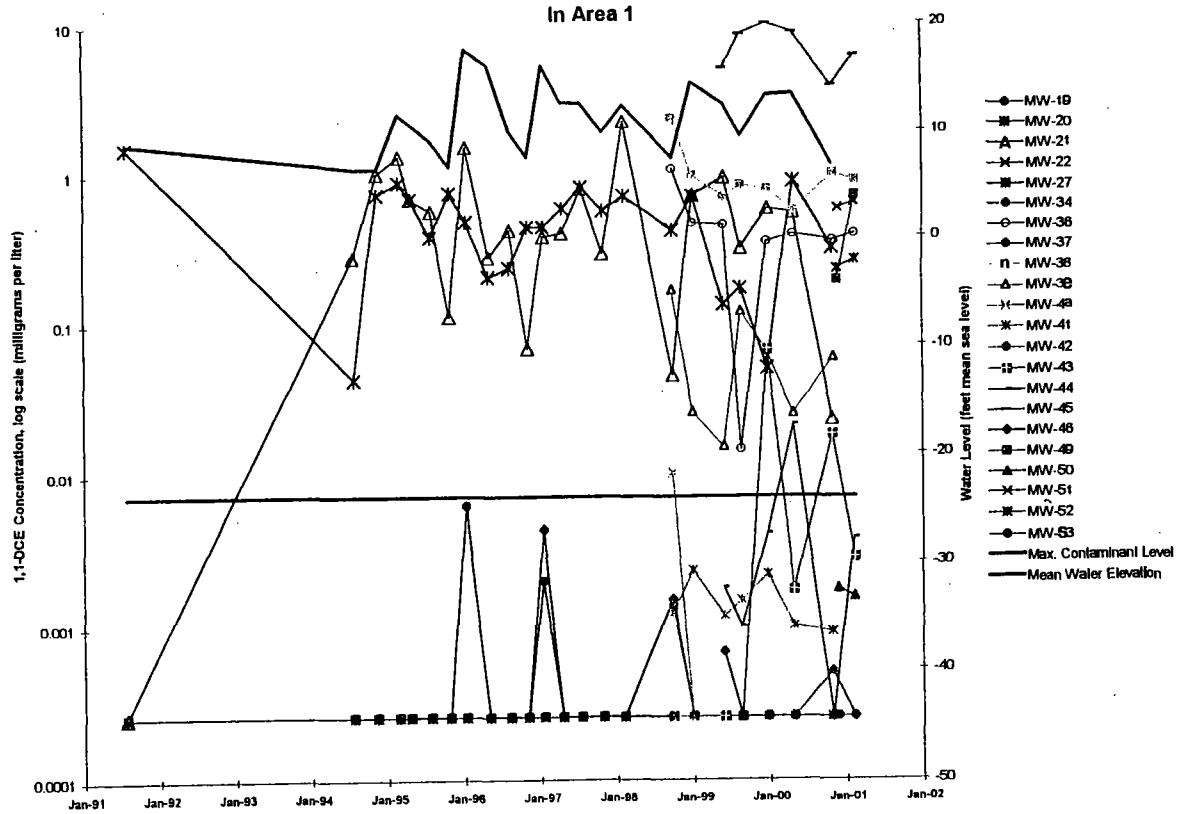


Note: Non-Detect values were assigned a value of one-half the detection limit.
03/13/2001 10:03 AM
annual.xls TCAwinter Chart 3

Gunderson, Inc.

SQUIER ASSOCIATES
FIGURE 7

1,1-Dichloroethene Concentrations In Area 1



Note: Non-Detect values were assigned a value of one-half the detection limit.

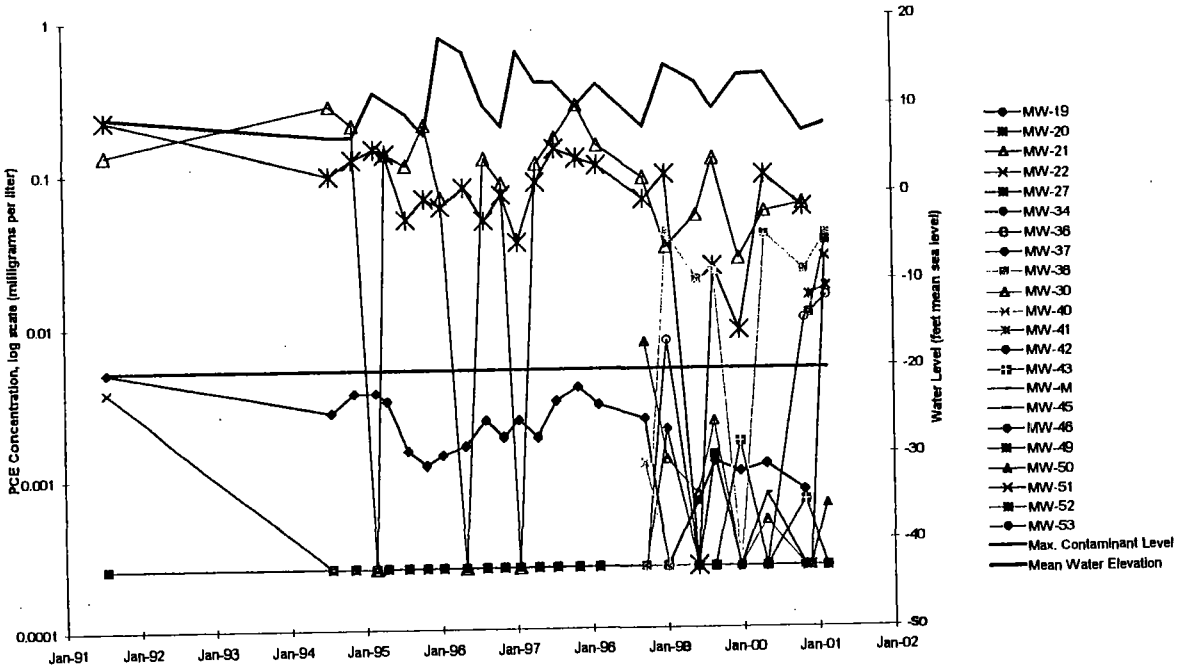
03/13/2001 12:40 PM
P:\Projects90\90445\90445.2\Gmdwtr\data\A1newdat.xls DCEchart Chart 2

Gunderson, Inc.

Squier Associates

FIGURE 8

Tetrachloroethene Concentrations In Area 1



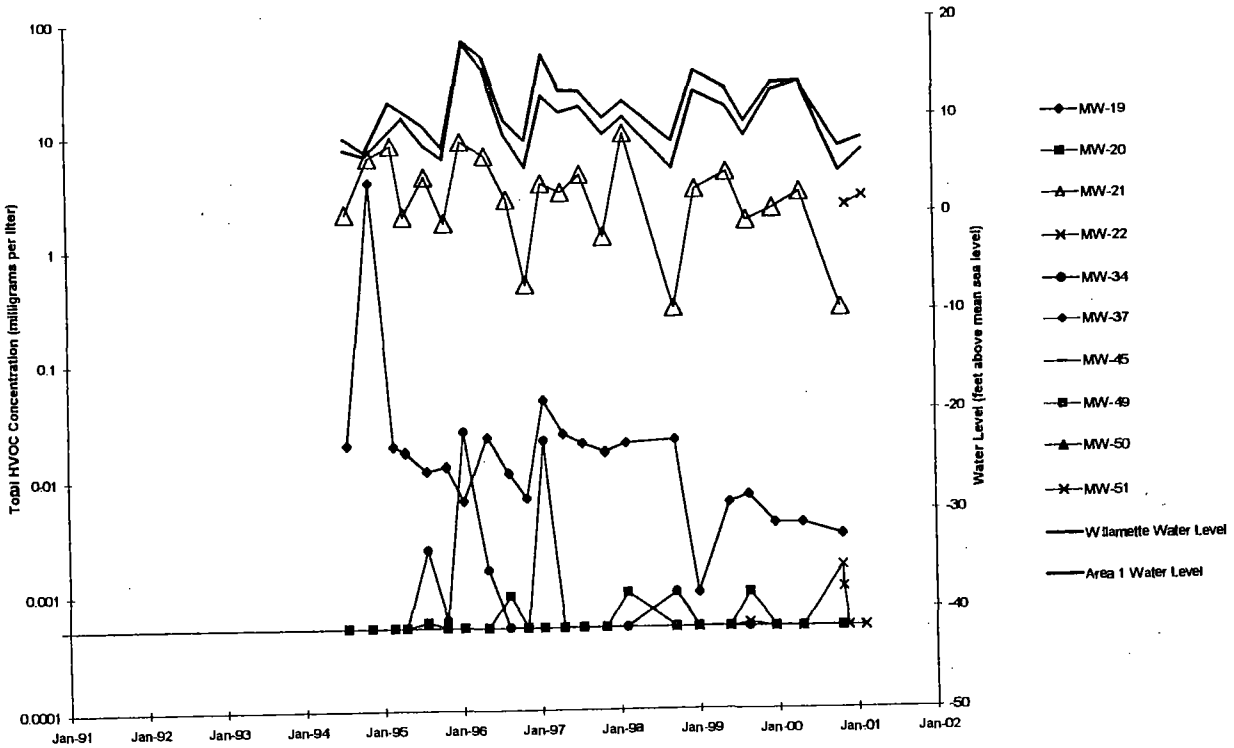
Note: Non-Detect values were assigned a value of 0.00025 mg/L (one-half the current method detection limit for an undiluted sample).

03/13/2001 4:10 PM
P:\Projects90\90445\90445.2\Gmdwtr\data\A1newdat.xls PCEchart Chart 1

Gunderson, Inc.

Squier Associates
FIGURE 9

Comparison of Total HVOC in Shallow Ground Water to Water Levels



Note: Non-Detect values were assigned a value of one-half the detection limit.

03/13/2001 2:10 PM
P:\Projects90\90445\90445 2\Gmdwtr\A1newdat.xls total HVOC-a Chart 1

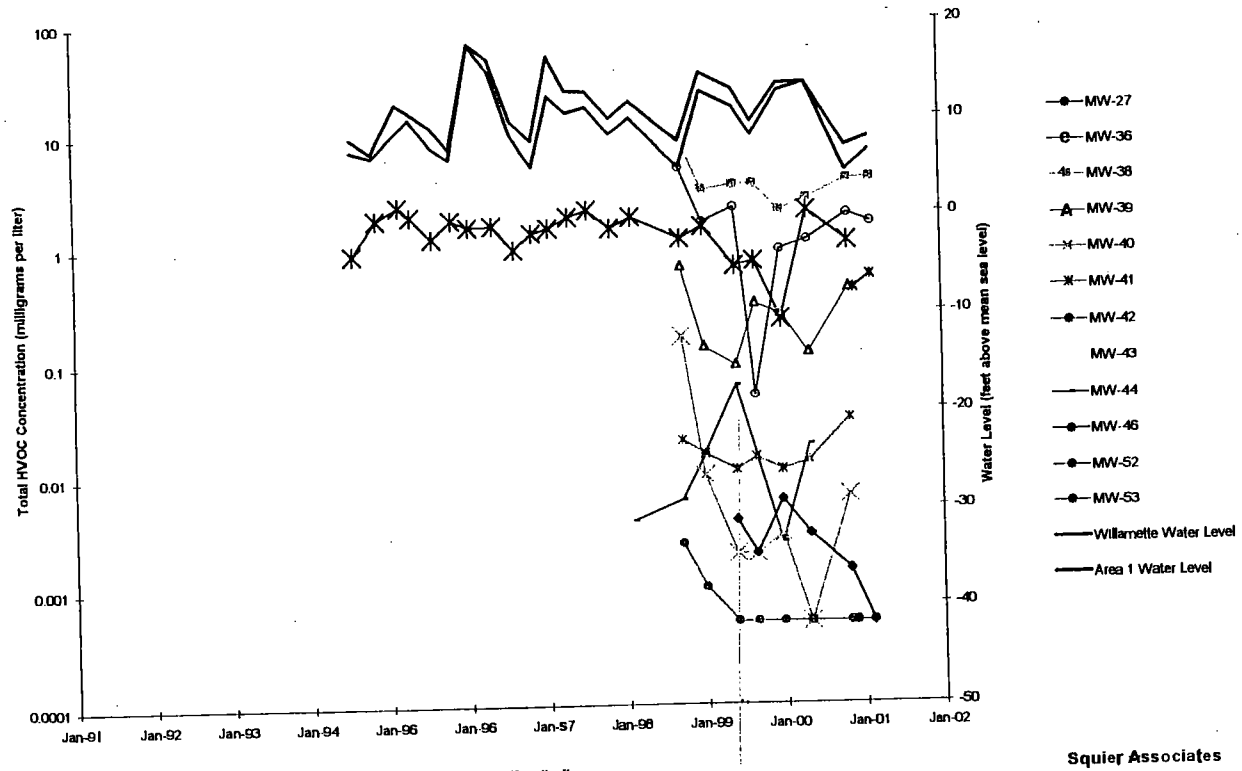
Gunderson, Inc.

Squier Associates

FIGURE 10

Comparison of Total HVOC in Deep Ground Water to Water Levels

HVOC = halogenated volatile organic compounds



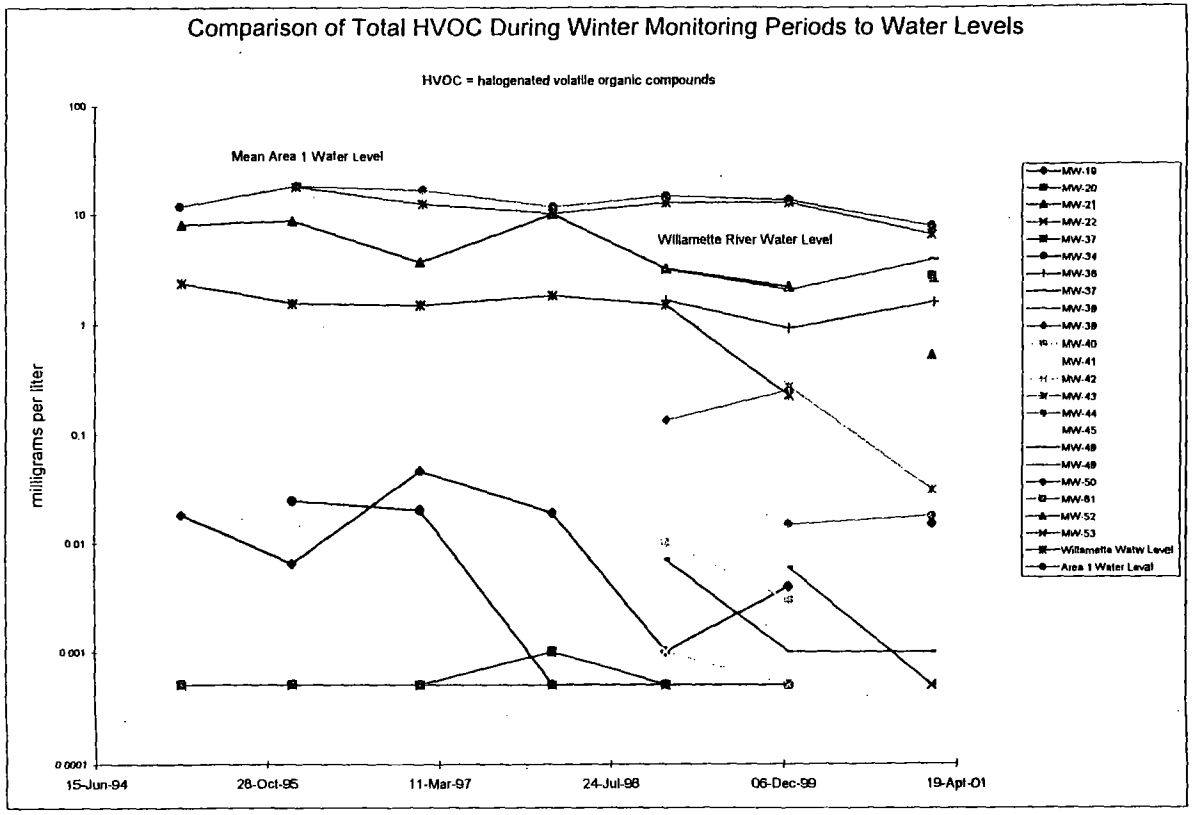
Note: Non-Detect values were assigned a value of one-half the detection limit.

03/13/2001 4:28 PM
P:\Projects50\50445\20445 2\3mdwt\A1newdat.xls total HVOC-d Chart 1

Guuderson, Inc.

Squier Associates

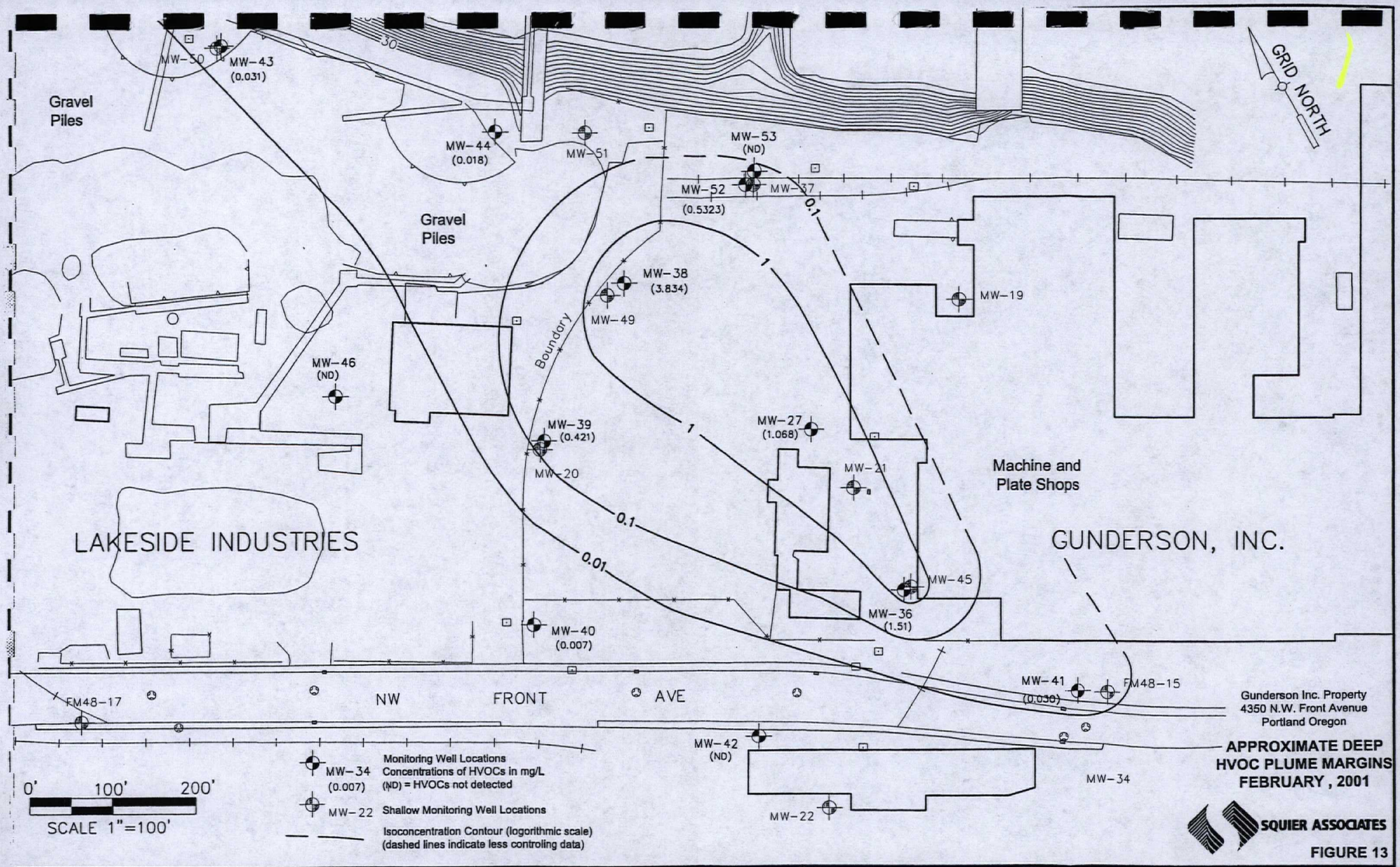
FIGURE 11



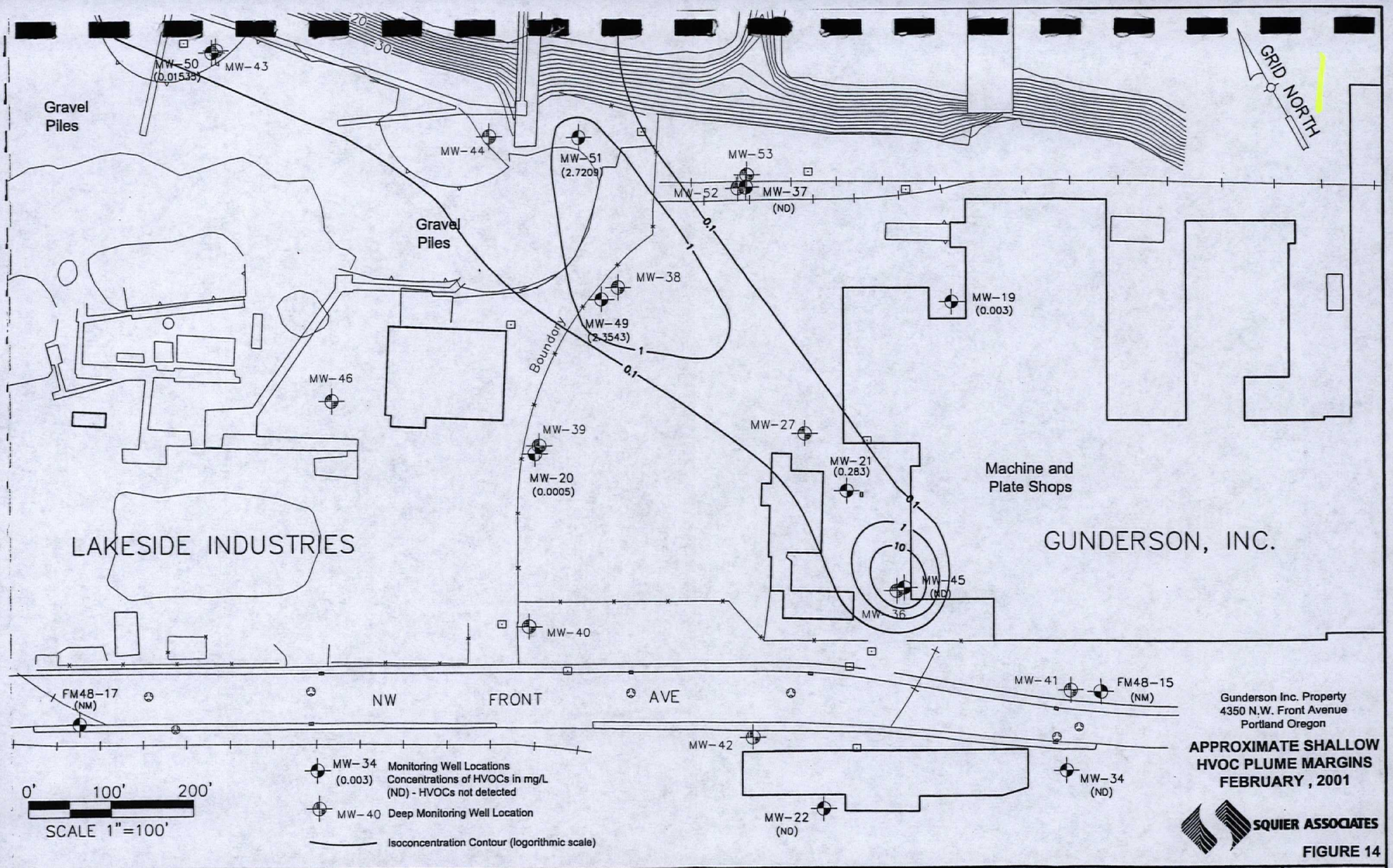
Note: Non-Detect values were assigned a value of one-half the detection limit.
03/23/2001 10:03 AM
Annual.xls HVOCwinter Chart 1

Gunderson, Inc.

SQUIER ASSOCIATES
FIGURE 12



Drawn By: SES	Checked By:	Graphics Check:		File: P:\90445\CAD\HVOC	Date: Mar. 2001	Job No. 90445.2



Gunderson Inc. Property
4350 N.W. Front Avenue
Portland Oregon

APPROXIMATE SHALLOW HVOC PLUME MARGINS FEBRUARY , 2001

SQUIER ASSOCIATES

FIGURE 14

Drawn By: SES	Checked By:	Graphics Check:		File: P:\90445\CAD\HVOC	Date: Mar. 2001	Job No. 90445.2

Attachment A
STAFF FIELD NOTES

WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 23rd Qtr
SAMPLE/WELL ID: MW-36
PROJECT NUMBER: 90445.21
DATE SAMPLED: 2-13-07
SAMPLED BY: SES/BAB
TIME SAMPLED: 1235

WATER TYPE: Ground Water ✓ Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2" HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 52.5 CALCULATED PURGE (gal): 11.28

DEPTH TO WATER (feet): 29.0 ACTUAL PURGE VOLUME (gal): 12 gal

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

PURGE DATA

1216

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1221	4	6.75	0.186	13.5	Clear	None
1223	6	6.68	0.190	13.5	clear	None
1225	8	6.58	0.167	13.6	Clear	None
1228	10	6.56	0.162	13.6	Clear	None
1230	12	6.53	0.153	13.6	"	"

BAILED DRY?: ____ ODOR: No SHEEN: NO

FIELD QA/QC SAMPLES COLLECTED: ____

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Centrifugal Pump ____ Bailer (PVC) ____
Submersible Pump ✓ Bailer (Stainless Steel) ____
Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Discrete Sampler ____ Dipper ____
Submersible Pump ____ Bailer (Stainless Steel) ✓
Dedicated ✓ Other ____

CALIBRATION CHECK

pH Meter: Date: 2-13-07 Time: 0830
Conductivity Meter: Date: 2-13-07 Time: 0830 Type:: YSI ✓ Orion ___ Other ____

WELL INTEGRITY ____ KEY AND LOCK NUMBER ____

REMARKS: ____

SIGNATURE: ____ REVIEWED BY: ____

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WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 2320 Qtr SAMPLE/WELL ID: MW-43

PROJECT NUMBER: 90445-21 DATE SAMPLED 2/8/01

SAMPLED BY: SES / BAB TIME SAMPLED: 1000

WATER TYPE: Ground Water X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2" HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 52 CALCULATED PURGE (gal): 14.8

DEPTH TO WATER (feet): 32.8 ACTUAL PURGE VOLUME (gal): 15 gals

WELLVOLUMES: (1"id...0.04 gal/fl) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

0930

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
0932	2	6.35	0.214	12.5	brown	Slight
0933	4	6.33	0.212	13.1	lt brown	None
0934	6	6.38	0.210	13.4	lt brown	None
0935	8	6.36	0.211	13.5	clear	None
0936	10	6.34	0.206	13.5	clear	None

BAILED DRY?: NO ODOR: Organic SHEEN: None

FIELD QA/QC SAMPLES COLLECTED: ____

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____

Centrifugal Pump ____ Bailer (PVC) ____

Submersible Pump X Bailer (Stainless Steel) ____

Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ✓

Discrete Sampler ____ Dipper ____

Submersible Pump ✓ Bailer (Stainless Steel) ✓

Dedicated ____ Other ____

CALIBRATION CHECK

pH Meter: Date: 2-7-01 Time: 0900

Conductivity Meter: Date: 2-7-01 Time: 0900 Type:: YSI X Orion ___ Other ____

WELL INTEGRITY ____ KEY AND LOCK NUMBER ____

REMARKS: ____

SIGNATURE: ____ REVIEWED BY: ____

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0941	12 gal	6.33	0.207	13.5	clear	None
0943	15 gal	6.31	0.207	13.5	"	"

WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 23RD Qte SAMPLE/WELL ID: MW-44

PROJECT NUMBER: 904/521 DATE SAMPLED 2-7-01

SAMPLED BY: SES/BAB TIME SAMPLED: 1605

WATER TYPE: Ground Water X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2" HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 57.5' CALCULATED PURGE (gal): 14.6

DEPTH TO WATER (feet): 26.95 ACTUAL PURGE VOLUME (gal): 15 gal

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

1538

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1539	3	7.11	0.575	12.8	lt. gray	slight
1540	6	7.50	0.582	13.3	lt. gray	None
1541	9	7.65	0.592	13.8	lt. gray	Slight
1544	12	7.68	0.592	14.1	gray	Slight
1546	13	7.75	0.589	14.0	gray	Slight

BAILED DRY?: dry yes ODOR: ____ SHEEN: ____

FIELD QA/QC SAMPLES COLLECTED: ____

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Centrifugal Pump ____ Bailer (PVC) ____
Submersible Pump X Bailer (Stainless Steel) ____
Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Discrete Sampler ____ Dipper ____
Submersible Pump ____ Bailer (Stainless Steel) ✓
Dedicated X Other ____

CALIBRATION CHECK

pH Meter: Date: 2-7-01 Time: 0900

Conductivity Meter: Date: 2-7-01 Time: 0900 Type:: YSI Y Orion ___ Other ____

WELL INTEGRITY ____ KEY AND LOCK NUMBER ____

REMARKS: ____

SIGNATURE: ____ REVIEWED BY: ____

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@ 1552 H_2O is 37.6

WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 23RD Qtr. SAMPLE/WELL ID: MW-45

PROJECT NUMBER: 90445.21 DATE SAMPLED 2-13-01

SAMPLED BY: SES/BAB TIME SAMPLED: 1416

WATER TYPE: Ground Water X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): ____ HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 35' CALCULATED PURGE (gal): 2.832

DEPTH TO WATER (feet): 29.1 ACTUAL PURGE VOLUME (gal): 4 gallons

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1357	1	5.86	0.440	13.7	lt. brown	mod.
1359	2	6.51	0.574	13.7	brown	mod.
1402	3	5.75	0.663	14.2	dk. brown	high
1403	4	5.76	0.681	14.0	brown	high

BAILED DRY?: yes ODOR: No SHEEN: No

FIELD QA/QC SAMPLES COLLECTED: DUP021301 0845

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Centrifugal Pump ____ Bailer (PVC) ____
Submersible Pump X Bailer (Stainless Steel) ____
Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) X
Discrete Sampler ____ Dipper ____
Submersible Pump ____ Bailer (Stainless Steel) ____
Dedicated ____ Other ____

CALIBRATION CHECK

pH Meter: Date: 2-13-01 Time: 0830

Conductivity Meter: Date: 2-13-01 Time: 0830 Type:: YSI Y Orion ___ Other ____

WELL INTEGRITY ____ KEY AND LOCK NUMBER ____

REMARKS: ____

SIGNATURE: ____ REVIEWED BY: ____

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WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gundy 23RD Qtr
SAMPLE/WELL ID: MW-46
PROJECT NUMBER: 90445.21
DATE SAMPLED 2-7-01
SAMPLED BY: SES/BAB
TIME SAMPLED: 1500

WATER TYPE: Ground Water X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): ____ HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 54.6 CALCULATED PURGE (gal): 11.9

DEPTH TO WATER (feet): 29.67 ACTUAL PURGE VOLUME (gal): 12

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.1S gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/fl)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Start 1448

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1445	2	7.21	0.335	13.3	lt gray	none
1446	4	6.88	0.280	13.7	lt. brown	None
1447	6	6.58	0.248	14.0	lt. brown	none
1447	8	6.49	0.247	14.1	Clear	NONE
1449	12	6.34	0.233	14.3	clear	None

BAILED DRY?: NO ODOR: Organic SHEEN: ____

FIELD QA/QC SAMPLES COLLECTED: ____

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Centrifugal Pump ____ Bailer (PVC) ____
Submersible Pump X Bailer (Stainless Steel) ____
Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Discrete Sampler ____ Dipper ____
Submersible Pump ____ Bailer (Stainless Steel) X
Dedicated X Other ____

CALIBRATION CHECK

pH Meter: Date: 2-7-01 Time: 0900
Conductivity Meter: Date: 2-7-00 Time: 0900 Type:: YSI X Orion ___ Other ____

WELL INTEGRITY fair KEY AND LOCK NUMBER ____

REMARKS: Needs new cap

SIGNATURE: ____ REVIEWED BY: ____

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WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 23RD Qtr SAMPLE/WELL ID: MW-49

PROJECT NUMBER: 90445.21 DATE SAMPLED 2-13-01

SAMPLED BY: SES/BAB TIME SAMPLED: 1030

WATER TYPE: Ground Water X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2" HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 33' CALCULATED PURGE (gal): 13.3 gal

DEPTH TO WATER (feet): 27.73 ACTUAL PURGE VOLUME (gal): 15 gal

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/Np	Yes/No	Yes/No

0957

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1003	3	5.96	0.293	14.5	brown	moderate
1007	6	5.96	0.298	14.7	Clear	None
1011	9	5.96	0.313	14.8	Clear	None
1014	12	5.95	0.312	14.8	Clear	None
1017	15	5.97	0.312	14.8	Clear	None

BAILED DRY?: ____ ODOR: NO SHEEN: None

FIELD QA/QC SAMPLES COLLECTED: ____

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____
Centrifugal Pump ____ Bailer (PVC) ____
Submersible Pump X Bailer (Stainless Steel) ____
Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) X
Discrete Sampler ____ Dipper ____
Submersible Pump ____ Bailer (Stainless Steel) ____
Dedicated ____ Other ____

CALIBRATION CHECK

pH Meter: Date: 2-13-01 Time: 0830

Conductivity Meter: Date: 2-13-01 Time: 0830 Type:: YSI X Orion ___ Other ____

WELL INTEGRITY ____ KEY AND LOCK NUMBER ____

REMARKS: Could not get H_2O levels ≈ 29'-30'

SIGNATDRE: ____ REVIEWED BY: ____

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WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 23rd quart SAMPLE/WELL ID: MW 50

PROJECT NUMBER: 90445.21 DATE SAMPLED 02-08-01

SAMPLED BY: BB / SES TIME SAMPLED:

WATER TYPE: Ground Water ✓ Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2" HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 52 CALCULATED PURGE (gal): 8.28

DEPTH TO WATER (feet): 32.74 ACTUAL PURGE VOLUME (gal): 10

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCl					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1147	2	6.4	0.187	13.4	brown	high
1152	4	6.39	0.191	13.5	brown	high
1157	6	6.38	0.192	13.5	brown	high
1201	8	6.37	0.193	13.6	Lt. Brown	Med.
1206	10	6.40	0.192	13.6	Lt. Brown	None

BAILED DRY?: ____ ODOR: ____ SHEEN: ____

FIELD QA/QC SAMPLES COLLECTED: ____

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ✓

Centrifugal Pump ____ Bailer (PVC) ____

Submersible Pump ____ Bailer (Stainless Steel) ____

Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ✓

Discrete Sampler ____ Dipper ____

Submersible Pump ____ Bailer (Stainless Steel) ____

Dedicated ____ Other ____

CALIBRATION CHECK

pH Meter: Date: 2-7-01 Time: 0900

Conductivity Meter: Date: 2-7-01 Time: 0900 Type:: YSI X Orion ___ Other ____

WELL INTEGRITY Good KEY AND LOCK NUMBER ____

REMARKS: ____

SIGNATURE: Bill Blake REVIEWED BY: ____

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WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 23rd Qtr. SAMPLE/WELL ID: MW-51

PROJECT NUMBER: 90445.21 DATE SAMPLED 2-8-01

SAMPLED BY: SES / BAB TIME SAMPLED: 1425

WATER TYPE: Ground Water X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2" HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 41' CALCULATED PURGE (gal): 6.79 gal

DEPTH TO WATER (feet): 26.84 ACTUAL PURGE VOLUME (gal): 7 gal

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1400	2	6.26	0.234	13.3	lt. brown	v.slight
1406	4	6.25	0.238	13.5	clear	None
1409	5	6.23	0.241	13.5	clear	None
1412	6	6.21	0.241	13.5	clear	None
1414	7	6.22	0.242	13.5	clear	None

BAILED DRY? NO ODOR: NO SHEEN: NO

FIELD QA/QC SAMPLES COLLECTED: yes DU20010208 1320

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____

Centrifugal Pump ____ Bailer (PVC) ____

Submersible Pump X Bailer (Stainless Steel) ____

Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) X

Discrete Sampler ____ Dipper ____

Submersible Pump ____ Bailer (Stainless Steel) ____

Dedicated ____ Other ____

CALIBRATION CHECK

pH Meter: Date: 2/8/01 Time: 0900

Conductivity Meter: Date: 2/8/01 Time: 0900 Type:: YSI ___ Orion ___ Other ____

WELL INTEGRITY ____ KEY AND LOCK NUMBER ____

REMARKS: ____

SIGNATURE: ____ REVIEWED BY: ____

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WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gunderson 23RD Qtr SAMPLE/WELL ID: MW-52

PROJECT NUMBER: 90445-21 DATE SAMPLED 2-13-01

SAMPLED BY: SES/BAB TIME SAMPLED: 1130

WATER TYPE: Ground Water X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2" HEADSPACE READING(ppmv): ____

CASING ELEVATION (feet/MSL): ____ VOLUME CASING/SAND PACK (gal): ____

TOTAL DEPTH OF WELL (feet): 48' CALCULATED PURGE (gal): 10.18

DEPTH TO WATER (feet): 26.79 ACTUAL PURGE VOLUME (gal): 8 gallons

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	HCL VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

1107

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)	
1111	4	6.39	0.499	14.4	lt. brown	slight	42
1116	6	6.76	0.405	14.9	dark brown	high	>49
1122	8	6.40	0.376	14.9	lt. brown	v. slight to none	
	10						
	12						

BAILED DRY?: yes ODOR: no SHEEN: no

FIELD QA/QC SAMPLES COLLECTED: ____

PURGING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ____

Centrifugal Pump ____ Bailer (PVC) ____

Submersible Pump ✓ Bailer (Stainless Steel) ____

Dedicated ____ Other ____

SAMPLING EQUIPMENT

2" Bladder Pump ____ Bailer (Disposable) ✓

Discrete Sampler ____ Dipper ____

Submersible Pump ____ Bailer (Stainless Steel) ____

Dedicated ____ Other ____

CALIBRATION CHECK

pH Meter: Date: 2-13-01 Time: 0830

Conductivity Meter: Date: 2-13-01 Time: 0830 Type:: YSI X Orion ___ Other ____

WELL INTEGRITY ____ KEY AND LOCK NUMBER ____

REMARKS: ____

SIGNATURE: ____ REVIEWED BY: ____

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WATER SAMPLE FIELD DATA SHEET

SQUIER ASSOCIATES

PROJECT NAME: Gundy 2ND Qtr
SAMPLE/WELL ID: MW-53
PROJECT NUMBER: 90445.21
DATE SAMPLED 2-7-01
SAMPLED BY: SES/BAB
TIME SAMPLED: 1645

WATER TYPE: Ground Water____ Surface Water____ Leachate____ Other____

CASING DIAMETER (inches):____ HEADSPACE READING(ppmv):____

CASING ELEVATION (feet/MSL):____ VOLUME CASING/SAND PACK (gal):____

TOTAL DEPTH OF WELL (feet): 104' CALCULATED PURGE (gal): 12.52 x 3 = 37.56

DEPTH TO WATER (feet): 25.74 ACTUAL PURGE VOLUME (gal): 13.08

WELLVOLUMES: (1"id...0.04 gal/ft) (1.5"id...0.09 gal/ft) (2"id...0.16 gal/ft) (4"id...0.65 gal/ft) (6"id...1.47 gal/ft)

CONTAINER INFORMATION

NUMBER	3					
TYPE	VOA					
PRESERVATIVE	HCL					
FILTERED	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

PURGE DATA

TIME (2400 Hr)	VOLUME (gal)	pH (units)	CONDUCTIVITY mmhos or umhos?	TEMPERATURE (C °)	COLOR (visual)	TURBIDITY (NTUs/visual)
1232	2	8.22	0.561	10.6	Clear	None
1234	4	8.23	0.575	11.2	Clear	None
1236	6	8.21	0.584	11.7	Clear	None
1239	8	8.21	0.588	12.3	Clear	None
1241	10	8.23	0.611	13.9	Clear	None
1244	12	8.36	0.564	14.6	Clear	None
1245	13	8.36	0.619	14.5	Clear	None

BAILED DRY?: - ODOR: Organic - sewer SHEEN: yes (slight)

FIELD QA/QC SAMPLES COLLECTED: yes DUP 010207

PURGING EQUIPMENT

2" Bladder Pump____ Bailer (Disposable)____
Centrifugal Pump____ Bailer (PVC)____
Submersible Pump X Bailer (Stainless Steel)____
Dedicated____ Other____

SAMPLING EQUIPMENT

2" Bladder Pump____ Bailer (Disposable)____
Discrete Sampler____ Dipper____
Submersible Pump____ Bailer (Stainless Steel) X
Dedicated____ Other____

CALIBRATION CHECK

pH Meter: Date: 2-7-01 Time: 0900
Conductivity Meter: Date: 2-7-01 Time: 0900 Type:: YSI X Orion___ Other____

WELL INTEGRITY____ KEY AND LOCK NUMBER____

REMARKS:____

SIGNATURE:____ REVIEWED BY:____

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Attachment B
CHEMICAL ANALYSIS OF GROUND WATER SAMPLES

www.ncalabs.com

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomury, Suite B, Spokane, WA 39206-4776
500.924.9200 fax 509.924 9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

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SQUIER ASSOCIATES

9 February, 2001

Dave King
Squier Associates
4260 Galewood Street
Lake Oswego, OR 97013

RE: GUNDERSON/NW FRONT

Enclosed are the results of analyses for samples received by the laboratory on 02/08/01 15:02. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Philip Nerenberg
Laboratory Manager

Work Orders included in this report:
P1B0232

www.ncalabs.com

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425.420.9200 fax 425.420.9210
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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW37010207	P1B0232-01	Water	02/07/01 12:00	02/08/01 15:02
MW44010207	P1B0232-02	Water	02/07/01 16:05	02/08/01 15:02
MW46010207	P1B0232-03	Water	02/07/01 15:00	02/08/01 15:02
MW53010207	P1B0232-04	Water	02/07/01 16:45	02/08/01 15:02
DUP010207	P1B0232-05	Water	02/07/01 13:55	02/08/01 15:02

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW37010207 (P1B0232-01) Water					Sampled: 02/07/01	Received: 02/08/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/09/01	02/09/01	1020278	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
Chlorobenzene	ND	0.500	"	"	"	"	"	"	
Chloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	ND	0.500	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	0.565	0.500	"	"	"	"	"	"	
1,3-Dichiorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
trans-1,2-Dichioroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
1,1,2,2-Tetrachioroethane	ND	0.500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.500	"	"	"	"	"	"	
1,1,1-Trichioroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichioroethane	ND	0.500	"	"	"	"	"	"	
Trichloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
Vinyl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*139 %*	*70-130*							*S-09*
Surr: 2-BCB(PID)	*114 %*	*70-130*							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW44010207 (P1B0232-02) Water					Sampled: 02/07/01	Received: 02/08/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/09/01	02/09/01	1020278	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
Chlorobenzene	ND	0.500	"	"	"	"	"	"	
Chloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	ND	0.500	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	0.831	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,1-Dichloroethene	3.82	0.500	"	"	"	"	"	"	
cis-1,2-Dichioroethene	ND	0.500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.500	"	"	"	"	"	"	
1,1,1-Trichloroethane	13.1	1.00	"	"	"	"	"	"	
1,1,2-Trichioroethane	ND	0.500	"	"	"	"	"	"	
Trichloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
Vinyl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*132 %*	*70-130*							*S-09*
Surr: 2-BCB(PID)	*104 %*	*70-130*							

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW46010207 (P1B0232-03) Water					Sampled: 02/07/01	Received: 02/08/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/09/01	02/09/01	1020278	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
Chlorobenzene	ND	0.500	"	"	"	"	"	"	
Chloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	ND	0.500	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.500	"	"	"	"	"	"	
Trichloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
Vinyl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*121 %*	*70-130*							
Surr: 2-BCB(PID)	*103 %*	*70-130*							

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW53010207 (P1B0232-04) Water					Sampled: 02/07/01	Received: 02/08/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/09/01	02/09/01	1020278	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
Chlorobenzene	ND	0.500	"	"	"	"	"	"	
Chloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	ND	0.500	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
trans-1,3-Dichioropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.500	"	"	"	"	"	"	
1,1,1-Trichioroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.500	"	"	"	"	"	"	
Trichloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
Vinyl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*127 %*	*70-130*							
Surr: 2-BCB(PID)	*104 %*	*70-130*							

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
DUP010207 (P1B0232-05) Water					Sampled: 02/07/01	Received: 02/08/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/09/01	02/09/01	1020278	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
Chlorobenzene	ND	0.500	"	"	"	"	"	"	
Chloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	ND	0.500	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.500	"	"	"	"	"	"	
cis-1,2-Dichioroethene	ND	0.500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.500	"	"	"	"	"	"	
Trichloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
Vinyl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*129 %*	*70-130*							
Surr: 2-BCB(PID)	*106 %*	*70-130*							

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020278 - EPA 5030B										
Blank (1020278-BLK1)				Prepared & Analyzed: 02/09/01						
Bromobenzene	ND	0.500	ug/l							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
Carbon tetrachloride	ND	0.500	"							
Chlorobenzene	ND	0.500	"							
Chloroethane	ND	5.00	"							
Chloroform	ND	0.500	"							
Chloromethane	ND	5.00	"							
Dibromochloromethane	ND	0.500	"							
1,2-Dibromoethane	ND	0.500	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	0.500	"							
1,3-Dichlorobenzene	ND	0.500	"							
1,4-Dichlorobenzene	ND	0.500	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	0.500	"							
1,2-Dichloroethane	ND	0.500	"							
1,1-Dichloroethene	ND	0.500	"							
cis-1,2-Dichloroethene	ND	0.500	"							
trans-1,2-Dichloroethene	ND	0.500	"							
1,2-Dichloropropane	ND	0.500	"							
cis-1,3-Dichloropropene	ND	0.500	"							
trans-1,3-Dichloropropene	ND	0.500	"							
Methylene chloride	ND	10.0	"							
1,1,1,2-Tetrachloroethane	ND	0.500	"							
1,1,2,2-Tetrachloroethane	ND	0.500	"							
Tetrachloroethene	ND	0.500	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	0.500	"							
Trichloroethene	ND	0.500	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	0.500	"							
Vinyl chloride	ND	0.500	"							
Surr: 2-BCB (ELCD)	*38.4*		"	*30.0*		*128*	*70-130*			

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/19/01 14:00

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020278 - EPA 5030B										
Blank (1020278-BLK1)				Prepared & Analyzed: 02/09/01						
Surr: 2-BCB(PID)	*32.1*		*ug/l*	*30.0*		*107*	*70-130*			
LCS (1020278-BS1)				Prepared & Analyzed: 02/09/01						
Chlorobenzene	19.9	0.500	ug/l	20.0		99.5	76-127			
1,1-Dichloroethene	20.1	0.500	"	20.0		100	61-145			
Trichloroethene	20.4	0.500	"	20.0		102	75-130			
Surr: 2-BCB (ELCD)	*38.6*		*"*	*30.0*		*129*	*70-130*			
Surr: 2-BCB(PID)	*32.9*		*"*	*30.0*		*110*	*70-130*			
Matrix Spike (1020278-MS1)		Source: P1B0228-01		Prepared & Analyzed: 02/09/01						
Chlorobenzene	20.1	0.500	ug/l	20.0	ND	98.0	76-127			
1,1-Dichloroethene	19.7	0.500	"	20.0	ND	98.5	61-145			
Trichloroethene	20.4	0.500	"	20.0	ND	101	75-130			
Surr: 2-BCB (ELCD)	*42.2*		*"*	*30.0*		*141*	*70-130*			*S-09*
Surr: 2-BCB(PID)	*34.3*		*"*	*30.0*		*114*	*70-130*			
Matrix Spike Dup (1020278-MSD1)		Source: P1B0228-01		Prepared & Analyzed: 02/09/01						
Chlorobenzene	20.2	0.500	ug/l	20.0	ND	98.5	76-127	0.496	11	
1,1-Dichloroethene	19.2	0.500	"	20.0	ND	96.0	61-145	2.57	14	
Trichloroethene	20.6	0.500	"	20.0	ND	102	75-130	0.976	13	
Surr: 2-BCB (ELCD)	*43.4*		*"*	*30.0*		*145*	*70-130*			*S-09*
Surr: 2-BCB(PID)	*35.7*		*"*	*30.0*		*119*	*70-130*			

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Squier Associates 4260 Galewood Street Lake Oswego, OR 97013	Project: GUNDERSON/NW FRONT Project Number: 90445.21 Project Manager: Dave King	Reported: 02/19/01 14:00

Notes and Definitions

S-09	Surrogate recovery is outside control limits due to matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. MRLs are adjusted if %Solids are less than 50%.
wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference

SQUIER ASSOCIATES
4260 Galewood
Post Office Box 1317
Lake Oswego Oregon
97035
(503) 635-4419
Fax 635-1430

Chain of Custody

LABORATORY NUMBER:
LABORATORY NAME:

Project Manager: DAVID E. King
Project Name:
Project Number: 90445.21
Site Location: NW Portland
Sampled By: SES/BAB

TURN AROUND TIME: ☐ 24 hr. ☐ 48 hr. ☐ 5 day ☒ 10 day

ANALYSIS REQUEST

LAB ID	SAMPLE ID	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	TPH-HCID State: OR/WA	TPH-G State: OR/WA	TPH-D State: OR/WA	418.1M State: OR/WA	EPA 418.1	8270 SIM	8020M-BETX only	8310 HPLC PAHs	7421 Lead	TCLP Cr, Cd, Pb	8010 Halogenated VOCs	8020 Aromatic VOCs	8040 Phenols	8240 GCMS Volatiles	8270 GCMS Semivolatiles	8080 OC Pesticides/PCBs	8080M PCBs only	Drinking Water (8)	Priority Pol. Metals (13)	ICP Metal Scan (22)	TCLP Metals (8)	TCLP Vol. 8240 ZH-EXT	TCLP Semivolatiles 8270	8021 HVOCs
	MW37010207	2-7-01	1200	H_2O	3																								X
	MW44010207	↓	1605	↓	3																								X
	MW46010207	↓	1500	↓	3																								X
	MW53010207	↓	1645	↓	3																								X
	DUP010207	↓	1355	↓	3																								X

Total Number of Containers: 15

Special Instructions:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Scott Shoud Time: 1745	Signature: BRIDGE (DX) Time: 1320	Signature: Time:
Company: Squier Date: 2-7-01	Company: SQUIER Date: 2/12/01	Company: NA Date: 2-8-01

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: 3.
Signature: Fridge Time: 1745	Signature: Time: 1320	Signature: Rachel Christ Time: 15:02
Company: Squier Date: 2-7-01	Company: NA Date: 2-8-01	Company: NCA Date: 2/8/01
Container:	Container:	Container:
Sealed: Y N Iced: Y N	Sealed: Y N Iced: Y N	Sealed: Y N Iced: Y N

STRIP: N: W... anan... alytic... oralor... Pink = Squier Files

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RECEIVED
FEB 21 2001
SQUIER ASSOCIATES

20 February, 2001

Dave King
Squier Associates
4260 Galewood Street
Lake Oswego, OR 97013

RE: GUNDERSON/NW FRONT

Enclosed are the results of analyses for samples received by the laboratory on 02/09/01 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Philip Nerenberg
Laboratory Manager

Work Orders included in this report:
P1B0264

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Squier Associates	Project: GUNDERSON/NW FRONT	
60 Galewood Street	Project Number: 90445.21	Reported:
ke Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W50010208	P1B0264-01	Water	02/08/01 12:15	02/09/01 16:30
W43010208	P1B0264-02	Water	02/08/01 09:55	02/09/01 16:30
EQ-1	P1B0264-03	Water	02/08/01 15:00	02/09/01 16:30
W51010208	P1B0264-04	Water	02/08/01 14:25	02/09/01 16:30
DUP010208	P1B0264-05	Water	02/08/01 13:20	02/09/01 16:30

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
IW50010208 (P1B0264-01) Water					Sampled: 02/08/01	Received: 02/09/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/12/01	02/12/01	1020317	
romodichloromethane	ND	1.00	"	"	"	"	"	"	
romoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
hlorobenzene	ND	0.500	"	"	"	"	"	"	
hloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	ND	0.500	"	"	"	"	"	"	
hloromethane	ND	5.00	"	"	"	"	"	"	
ibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
2-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
chlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1-Dichloroethane	1.23	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1-Dichloroethene	1.58	0.500	"	"	"	"	"	"	
s-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
ans-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
hs-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
,2,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
etrachloroethene	0.638	0.500	"	"	"	"	"	"	
1,1,1-Trichloroethane	11.9	1.00	"	"	"	"	"	"	
2-Trichloroethane	ND	0.500	"	"	"	"	"	"	
chloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
yl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*116 %*	*70-130*							
Surr: 2-BCB(PID)	*100 %*	*70-130*							

th Creek Analytical - Portland

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ip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW43010208 (P1B0264-02) Water					Sampled: 02/08/01	Received: 02/09/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/12/01	02/12/01	1020317	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
Chlorobenzene	ND	0.500	"	"	"	"	"	"	
Chloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	ND	0.500	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	6.46	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,1-Dicbloroethene	2.87	0.500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.500	"	"	"	"	"	"	
1,1,1-Trichioroethane	21.7	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethanc	ND	0.500	"	"	"	"	"	"	
Trichloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
Vinyl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*118 %*	*70-130*							
Surr: 2-BCB(PID)	*105 %*	*70-130*							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
EQ-1 (P1B0264-03) Water					Sampled: 02/08/01	Received: 02/09/01			
Bromobenzene	ND	0.500	ug/l	1	EPA 8021B	02/12/01	02/12/01	1020317	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.500	"	"	"	"	"	"	
Chlorobenzene	ND	0.500	"	"	"	"	"	"	
Chloroethane	ND	5.00	"	"	"	"	"	"	
Chloroform	3.71	0.500	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.500	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	"	"	"	"	"	"	
Methylene chloride	ND	10.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.500	"	"	"	"	"	"	
Tetrachloroethene	ND	0.500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.500	"	"	"	"	"	"	
Trichloroethene	ND	0.500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	"	"	"	"	"	"	
Vinyl chloride	ND	0.500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*119 %*	*70-130*							
Surr: 2-BCB(PID)	*103 %*	*70-130*							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
8260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW51010208 (P1B0264-04RE1) Water					Sampled: 02/08/01	Received: 02/09/01			
Bromobenzene	ND	25.0	ug/l	50	EPA 8021B	02/13/01	02/13/01	1020358	
Bromodichloromethane	ND	50.0	"	"	"	"	"	"	
Bromoform	ND	50.0	"	"	"	"	"	"	
Bromomethane	ND	250	"	"	"	"	"	"	
Carbon tetrachloride	ND	25.0	"	"	"	"	"	"	
Chlorobenzene	ND	25.0	"	"	"	"	"	"	
Chloroethane	ND	250	"	"	"	"	"	"	
Chloroform	ND	25.0	"	"	"	"	"	"	
Chloromethane	ND	250	"	"	"	"	"	"	
Dibromochloromethane	ND	25.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	25.0	"	"	"	"	"	"	
Dibromomethane	ND	50.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	250	"	"	"	"	"	"	
1,1-Dichloroethane	47.4	25.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethene	634	25.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	25.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	25.0	"	"	"	"	"	"	
Methylene chloride	ND	500	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
Tetrachloroethene	ND	25.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	1990	50.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	25.0	"	"	"	"	"	"	
Trichloroethene	ND	25.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	50.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	25.0	"	"	"	"	"	"	
Vinyl chloride	ND	25.0	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*119 %*	*70-130*							
Surr: 2-BCB(PID)	*109 %*	*70-130*							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
DUP010208 (P1B0264-05RE1) Water					Sampled: 02/08/01	Received: 02/09/01			
Bromobenzene	ND	25.0	ug/l	50	EPA 8021B	02/13/01	02/13/01	1020358	
Bromodichloromethane	ND	50.0	"	"	"	"	"	"	
Bromoform	ND	50.0	"	"	"	"	"	"	
Bromomethane	ND	250	"	"	"	"	"	"	
Carbon tetrachloride	ND	25.0	"	"	"	"	"	"	
Chlorobenzene	ND	25.0	"	"	"	"	"	"	
Chloroethane	ND	250	"	"	"	"	"	"	
Chloroform	ND	25.0	"	"	"	"	"	"	
Chloromethane	ND	250	"	"	"	"	"	"	
Dibromochloromethane	ND	25.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	25.0	"	"	"	"	"	"	
Dibromomethane	ND	50.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	250	"	"	"	"	"	"	
1,1-Dichloroethane	53.0	25.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethene	611	25.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	25.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	25.0	"	"	"	"	"	"	
Methylene chloride	ND	500	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
Tetrachloroethene	26.9	25.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	2030	50.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	25.0	"	"	"	"	"	"	
Trichloroethene	ND	25.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	50.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	25.0	"	"	"	"	"	"	
Vinyl chloride	ND	25.0	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*124 %*	*70-130*							
Surr: 2-BCB(PID)	*108 %*	*70-130*							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020317 - EPA 5030B										
Blank (1020317-BLK1)				Prepared & Analyzed: 02/12/01						
Bromobenzene	ND	0.500	ug/l							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
Carbon tetrachloride	ND	0.500	"							
Chlorobenzene	ND	0.500	"							
Chloroethane	ND	5.00	"							
Chloroform	ND	0.500	"							
Chloromethane	ND	5.00	"							
Dibromochloromethane	ND	0.500	"							
1,2-Dibromoethane	ND	0.500	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	0.500	"							
1,3-Dichlorobenzene	ND	0.500	"							
1,4-Dichlorobenzene	ND	0.500	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	0.500	"							
1,2-Dichloroethane	ND	0.500	"							
1,1-Dichloroethene	ND	0.500	"							
cis-1,2-Dichloroethene	ND	0.500	"							
trans-1,2-Dichloroethene	ND	0.500	"							
1,2-Dichloropropane	ND	0.500	"							
cis-1,3-Dichloropropene	ND	0.500	"							
trans-1,3-Dichloropropene	ND	0.500	"							
Methylene chloride	ND	10.0	"							
1,1,1,2-Tetrachloroethane	ND	0.500	"							
1,1,2,2-Tetrachloroethane	ND	0.500	"							
Tetrachloroethene	ND	0.500	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	0.500	"							
Trichloroethene	ND	0.500	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	0.500	"							
Vinyl chloride	ND	0.500	"							
Surr: 2-BCB (ELCD)	*35.7*		"	*30.0*		*119*	*70-130*			

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
1260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020317 - EPA 5030B										
Blank (1020317-BLK1)				Prepared & Analyzed: 02/12/01						
Surr: 2-BCB(PID)	*32.9*		*ug/l*	*30.0*		*110*	*70-130*			
LCS (1020317-BS1)				Prepared & Analyzed: 02/12/01						
Chlorobenzene	19.7	0.500	ug/l	20.0		98.5	76-127			
1,1-Dichloroethene	19.9	0.500	"	20.0		99.5	61-145			
Trichloroethene	19.9	0.500	"	20.0		99.5	75-130			
Surr: 2-BCB (ELCD)	*37.7*		"	*30.0*		*126*	*70-130*			
Surr: 2-BCB(PID)	*33.5*		"	*30.0*		*112*	*70-130*			
Matrix Spike (1020317-MS1)		Source: P1B0264-02		Prepared & Analyzed: 02/12/01						
Chlorobenzene	19.2	0.500	ug/l	20.0	ND	93.7	76-127			
1,1-Dichloroethene	21.7	0.500	"	20.0	2.87	94.2	61-145			
Trichloroethene	19.7	0.500	"	20.0	ND	97.0	75-130			
Surr: 2-BCB (ELCD)	*40.4*		"	*30.0*		*135*	*70-130*			*S-09*
Surr: 2-BCB(PID)	*33.5*		"	*30.0*		*112*	*70-130*			
Matrix Spike Dup (1020317-MSD1)		Source: P1B0264-02		Prepared & Analyzed: 02/12/01						
Chlorobenzene	19.4	0.500	ug/l	20.0	ND	94.7	76-127	1.04	11	
1,1-Dichloroethene	22.8	0.500	"	20.0	2.87	99.6	61-145	4.94	14	
Trichloroethene	20.1	0.500	"	20.0	ND	99.0	75-130	2.01	13	
Surr: 2-BCB (ELCD)	*38.3*		"	*30.0*		*128*	*70-130*			
Surr: 2-BCB(PID)	*32.2*		"	*30.0*		*107*	*70-130*			
Batch 1020358 - EPA 5030B										
Blank (1020358-BLK1)				Prepared & Analyzed: 02/13/01						
Bromobenzene	ND	0.500	ug/l							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
Carbon tetrachloride	ND	0.500	"							
Chlorobenzene	ND	0.500	"							
Chloroethane	ND	5.00	"							
Chloroform	ND	0.500	"							
Chloromethane	ND	5.00	"							
Dibromochloromethane	ND	0.500	"							
1,2-Dibromoethane	ND	0.500	"							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020358 - EPA 5030B										
Blank (1020358-BLK1)				Prepared & Analyzed: 02/13/01						
Dibromomethane	ND	1.00	ug/l							
1,2-Dichlorobenzene	ND	0.500	"							
1,3-Dichlorobenzene	ND	0.500	"							
1,4-Dichlorobenzene	ND	0.500	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	0.500	"							
1,2-Dichloroethane	ND	0.500	"							
1,1-Dichloroethene	ND	0.500	"							
cis-1,2-Dichloroethene	ND	0.500	"							
trans-1,2-Dichloroethene	ND	0.500	"							
1,2-Dichloropropane	ND	0.500	"							
cis-1,3-Dichloropropene	ND	0.500	"							
trans-1,3-Dichloropropene	ND	0.500	"							
Methylene chloride	ND	10.0	"							
1,1,1,2-Tetrachloroethane	ND	0.500	"							
1,1,2,2-Tetrachloroethane	ND	0.500	"							
Tetrachloroethene	ND	0.500	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	0.500	"							
Trichloroethene	ND	0.500	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	0.500	"							
Vinyl chloride	ND	0.500	"							
Surr: 2-BCB (ELCD)	*35.9*		"	*30.0*		*120*	*70-130*			
Surr: 2-BCB(PID)	*32.2*		"	*30.0*		*107*	*70-130*			
LCS (1020358-B51)				Prepared & Analyzed: 02/13/01						
Chlorobenzene	19.7	0.500	ug/l	20.0		98.5	76-127			
1,1-Dichloroethene	18.4	0.500	"	20.0		92.0	61-145			
Trichloroethene	20.0	0.500	"	20.0		100	75-130			
Surr: 2-BCB (ELCD)	*38.9*		"	*30.0*		*130*	*70-130*			
Surr: 2-BCB(PID)	*34.2*		"	*30.0*		*114*	*70-130*			

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020358 - EPA 5030B										
LCS Dup (1020358-BSD1)				Prepared & Analyzed: 02/13/01						
Chlorobenzene	19.8	0.500	ug/l	20.0		99.0	76-127	0.506	11	
1,1-Dichloroethene	19.4	0.500	"	20.0		97.0	61-145	5.29	14	
Trichloroethene	20.1	0.500	"	20.0		100	75-130	0.499	13	
Surr: 2-BCB (ELCD)	*38.9*		"	*30.0*		*130*	*70-130*			
Surr: 2-BCB(PID)	*34.8*		"	*30.0*		*116*	*70-130*			

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/20/01 18:55

Notes and Definitions

S-09	Surrogate recovery is outside control limits due to matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. MRLs are adjusted if %Solids are less than 50%.
wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference

SQUIER ASSOCIATES
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Lake Oswego, Oregon
97035
(503) 635-4419
Fax 635-1430

Chain of Custody

LABORATORY NUMBER: P1B0264
LABORATORY NAME:

Project Manager: DAVID E. KING
Project Name: [illegible]
Project Number: 90445.21
Site Location: NW FRONT ST.
Sampled By: SES/BAB

TURN AROUND TIME

☐ 24 hr. ☐ 48 hr. ☐ 5 day ☒ 10 day

LAB ID	SAMPLE ID	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	TPH-HCID State: OR/WA	TPH-G State: OR/WA	TPH-D State: OR/WA	418.1M State: OR/WA	EPA 418.1	8270 SIM	8020M-BETX only	8310 HPLC PAHs	7421 Lead	TCLP Cr, Cd, Pb	8010 Halogenated VOCs	8020 Aromatic VOCs	8040 Phenols	8240 GCMS Volatiles	8270 GCMS Semivolatiles	8080 OC Pesticides/PCBs	8080M PCBs only	Drinking Water (8)	Priority Pol. Metals (13)	ICP Metal Scan (22)	TCLP Metals (8)	TCLP Vol. 8240 ZH-EXT	TCLP Semivolatiles 8270	8021 HVOC					
	MW50010208	2-8-01	1215	H_2O	3																								✓					
	MW43010208	2-8-01	0955	↓	3																								✓					
	EQ-1	2-8-01	1500	↓	3																								✓					
	MW51010208	2-8-01	1425	↓	3																								✓					
	DUP010208	2-8-01	1320	↓	3																								✓					

Total Number of Containers:

Special Instructions:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Scott Shoal Time: 1645 ~~2/8/01~~	Signature: FRIDGE (Dot) Time: 1630	Signature: [illegible] Time: 4:30 pm
Company: Squier Associates Date: 2/8/01	Company: SQUIER Date: 9/Feb/01	Company: Squier Date: 2/9/01
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: 3.**
Signature: FRIDGE Time: 1645	Signature: [illegible] Time: 4:30 pm	Signature: Jessica Roberts Time: 1630
Company: Squier Date: 2/8/01	Company: Squier Date: 2/9/01	Company: NCA Date: 2/9/01
Container:	Container:	Container:
Sealed: ~~Y~~ N Iced: ~~Y~~ N	Sealed: ~~Y~~ N Iced: ~~Y~~ N	Sealed: Y N Iced: Y N

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FEB 23 2001
SQUIER ASSOCIATES

22 February, 2001

Dave King
Squier Associates
4260 Galewood Street
Lake Oswego, OR 97013

RE: GUNDERSON/NW FRONT

Enclosed are the results of analyses for samples received by the laboratory on 02/14/01 09:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Philip Nerenberg
Laboratory Manager

Work Orders included in this report:
P1B0336

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 9044 5.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW52021301	P1B0336-01	Water	02/13/01 11:30	02/14/01 09:55
DUP021301	P1B0336-02	Water	02/13/01 08:45	02/14/01 09:55
MW49021301	P1B0336-03	Water	02/13/01 10:45	02/14/01 09:55
MW36021301	P1B0336-04	Water	02/13/01 12:35	02/14/01 09:55
MW38021301	P1B0336-05	Water	02/13/01 13:20	02/14/01 09:55
MW45021301	P1B0336-06	Water	02/13/01 14:15	02/14/01 09:55

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW52021301 (P1B0336-01) Water					Sampled: 02/13/01	Received: 02/14/01			
Bromobenzene	ND	2.50	ug/l	5	EPA 8021B	02/14/01	02/14/01	1020405	
Bromodichloromethane	ND	5.00	"	"	"	"	"	"	
Bromoform	ND	5.00	"	"	"	"	"	"	
Bromomethane	ND	25.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	2.50	"	"	"	"	"	"	
Chlorobenzene	ND	2.50	"	"	"	"	"	"	
Chloroethane	ND	25.0	"	"	"	"	"	"	
Chloroform	ND	2.50	"	"	"	"	"	"	
Chloromethane	ND	25.0	"	"	"	"	"	"	
Dibromochloromethane	ND	2.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	2.50	"	"	"	"	"	"	
Dibromomethane	ND	5.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.50	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethane	28.1	2.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.50	"	"	"	"	"	"	
1,1-Dichloroethene	258	2.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	2.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	2.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	2.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	2.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	2.50	"	"	"	"	"	"	
Methylene chloride	ND	50.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	2.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	2.50	"	"	"	"	"	"	
Tetrachloroethene	17.3	2.50	"	"	"	"	"	"	
1,1,1-Trichloroethane	229	5.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	2.50	"	"	"	"	"	"	
Trichloroethene	ND	2.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	2.50	"	"	"	"	"	"	
Vinyl chloride	ND	2.50	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*114 %*	*70-130*							
Surr: 2-BCB(PID)	*92.0 %*	*70-130*							

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
DUP021301 (P1B0336-02) Water					Sampled: 02/13/01	Received: 02/14/01			
Bromobenzene	ND	500	ug/l	1000	EPA 8021B	02/14/01	02/14/01	1020405	
Bromodichloromethane	ND	1000	"	"	"	"	"	"	
Bromoform	ND	1000	"	"	"	"	"	"	
Bromomethane	ND	5000	"	"	"	"	"	"	
Carbon tetrachloride	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	500	"	"	"	"	"	"	
Chloroethane	ND	5000	"	"	"	"	"	"	
Chloroform	ND	500	"	"	"	"	"	"	
Chloromethane	ND	5000	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	1000	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	5950	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Methylene chloride	ND	10000	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	39500	1000	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
Trichloroethene	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1000	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*127 %*	*70-130*							
Surr: 2-BCB(PID)	*102 %*	*70-130*							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW49021301 (P1B0336-03RE1) Water					Sampled: 02/13/01	Received: 02/14/01			
Bromobenzene	ND	10.0	ug/l	20	EPA 8021B	02/15/01	02/15/01	1020434	
Bromodichloromethane	ND	20.0	"	"	"	"	"	"	
Bromoform	ND	20.0	"	"	"	"	"	"	
Bromomethane	ND	100	"	"	"	"	"	"	
Carbon tetrachloride	ND	10.0	"	"	"	"	"	"	
Chlorobenzene	ND	10.0	"	"	"	"	"	"	
Chloroethane	ND	100	"	"	"	"	"	"	
Chloroform	ND	10.0	"	"	"	"	"	"	
Chloromethane	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	10.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	10.0	"	"	"	"	"	"	
Dibromomethane	ND	20.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	100	"	"	"	"	"	"	
1,1-Dichloroethane	117	10.0	"	"	"	"	"	"	
1,2-Dichloroethane	11.1	10.0	"	"	"	"	"	"	
1,1-Dichloroethene	712	10.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	10.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	10.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	10.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	10.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	10.0	"	"	"	"	"	"	
Methylene chloride	ND	200	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	10.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	10.0	"	"	"	"	"	"	
Tetrachloroethene	34.2	10.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	1480	20.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	10.0	"	"	"	"	"	"	
Trichloroethene	ND	10.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	20.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	10.0	"	"	"	"	"	"	
Vinyl chloride	ND	10.0	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*125 %*	*70-130*							
Surr: 2-BCB(PID)	*104 %*	*70-130*							

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
1260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW36021301 (P1B0336-04) Water					Sampled: 02/13/01	Received: 02/14/01			
Bromobenzene	ND	10.0	ug/l	20	EPA 8021B	02/14/01	02/14/01	1020405	
Bromodichloromethane	ND	20.0	"	"	"	"	"	"	
Bromoform	ND	20.0	"	"	"	"	"	"	
Bromomethane	ND	100	"	"	"	"	"	"	
Carbon tetrachloride	ND	10.0	"	"	"	"	"	"	
Chlorobenzene	ND	10.0	"	"	"	"	"	"	
Chloroethane	ND	100	"	"	"	"	"	"	
Chloroform	ND	10.0	"	"	"	"	"	"	
Chloromethane	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	10.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	10.0	"	"	"	"	"	"	
Dibromomethane	ND	20.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	100	"	"	"	"	"	"	
1,1-Dichloroethane	136	10.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	10.0	"	"	"	"	"	"	
1,1-Dichloroethene	387	10.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	10.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	10.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	10.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	10.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	10.0	"	"	"	"	"	"	
Methylene chloride	ND	200	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	10.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	10.0	"	"	"	"	"	"	
Tetrachloroethene	15.1	10.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	1030	20.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	10.0	"	"	"	"	"	"	
Trichloroethene	ND	10.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	20.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	10.0	"	"	"	"	"	"	
Vinyl chloride	ND	10.0	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*127 %*	*70-130*							
Surr: 2-BCB(PID)	*103 %*	*70-130*							

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Philip Nerenberg, Laboratory Manager

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Squier Associates	Project: GUNDERSON/NW FRONT	
260 Galewood Street	Project Number: 9044 5.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW38021301 (P1B0336-05) Water					Sampled: 02/13/01	Received: 02/14/01			
Bromobenzene	ND	25.0	ug/l	50	EPA 8021B	02/14/01	02/14/01	1020405	
Bromodichloromethane	ND	50.0	"	"	"	"	"	"	
Bromoform	ND	50.0	"	"	"	"	"	"	
Bromomethane	ND	250	"	"	"	"	"	"	
Carbon tetrachloride	ND	25.0	"	"	"	"	"	"	
Chlorobenzene	ND	25.0	"	"	"	"	"	"	
Chloroethane	ND	250	"	"	"	"	"	"	
Chloroform	ND	25.0	"	"	"	"	"	"	
Chloromethane	ND	250	"	"	"	"	"	"	
Dibromochloromethane	ND	25.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	25.0	"	"	"	"	"	"	
Dibromomethane	ND	50.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	250	"	"	"	"	"	"	
1,1-Dichloroethane	178	25.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethene	887	25.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	25.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	25.0	"	"	"	"	"	"	
Methylene chloride	ND	500	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
Tetrachloroethene	38.5	25.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	2730	50.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	25.0	"	"	"	"	"	"	
Trichloroethene	ND	25.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	50.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	25.0	"	"	"	"	"	"	
Vinyl chloride	ND	25.0	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*132 %*	*70-130*							*S-09*
Surr: 2-BCB(PID)	*103 %*	*70-130*							

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Squier Associates	Project: GUNDERSON/NW FRONT	
1260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
MW45021301 (P1B0336-06) Water					Sampled: 02/13/01	Received: 02/14/01			
Bromobenzene	ND	500	ug/l	1000	EPA 8021B	02/14/01	02/14/01	1020405	
Bromodichloromethane	ND	1000	"	"	"	"	"	"	
Bromoform	ND	1000	"	"	"	"	"	"	
Bromomethane	ND	5000	"	"	"	"	"	"	
Carbon tetrachloride	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	500	"	"	"	"	"	"	
Chloroethane	ND	5000	"	"	"	"	"	"	
Chloroform	ND	500	"	"	"	"	"	"	
Chloromethane	ND	5000	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	1000	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	6120	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Methylene chloride	ND	10000	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	41400	1000	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
Trichloroethene	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1000	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	500	"	"	"	"	"	"	
Surr: 2-BCB (ELCD)	*135 %*	*70-130*							*S-09*
Surr: 2-BCB(PID)	*105 %*	*70-130*							

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020405 - EPA 5030B										
Blank (1020405-BLK1)				Prepared & Analyzed: 02/14/01						
Bromobenzene	ND	0.500	ug/l							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
Carbon tetrachloride	ND	0.500	"							
Chlorobenzene	ND	0.500	"							
Chloroethane	ND	5.00	"							
Chloroform	ND	0.500	"							
Chloromethane	ND	5.00	"							
Dibromochloromethane	ND	0.500	"							
1,2-Dibromoethane	ND	0.500	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	0.500	"							
1,3-Dichlorobenzene	ND	0.500	"							
1,4-Dichlorobenzene	ND	0.500	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	0.500	"							
1,2-Dichloroethane	ND	0.500	"							
1,1-Dichloroethene	ND	0.500	"							
cis-1,2-Dichloroethene	ND	0.500	"							
trans-1,2-Dichloroethene	ND	0.500	"							
1,2-Dichloropropane	ND	0.500	"							
cis-1,3-Dichloropropene	ND	0.500	"							
trans-1,3-Dichloropropene	ND	0.500	"							
Methylene chloride	ND	10.0	"							
1,1,1,2-Tetrachloroethane	ND	0.500	"							
1,1,2,2-Tetrachloroethane	ND	0.500	"							
Tetrachloroethene	ND	0.500	"							
1,1,1-Trichioroethane	ND	1.00	"							
1,1,2-Trichioroethane	ND	0.500	"							
Trichloroethene	ND	0.500	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	0.500	"							
Vinyl chloride	ND	0.500	"							
Surr: 2-BCB (ELCD)	*35.1*		"	*30.0*		*117*	*70-130*			

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020405 - EPA 5030B										
Blank (102040S-BLK1)				Prepared & Analyzed: 02/14/01						
Surr: 2-BCB(PID)	*31.2*		*ug/l*	*30.0*		*104*	*70-130*			
LCS (1020405-BS1)				Prepared & Analyzed: 02/14/01						
Chlorobenzene	20.1	0.500	ug/l	20.0		100	76-127			
1,1-Dichloroethene	20.4	0.500	"	20.0		102	61-145			
Trichloroethene	20.6	0.500	"	20.0		103	75-130			
Surr: 2-BCB (ELCD)	*38.8*		*"*	*30.0*		*129*	*70-130*			
Surr: 2-BCB(PID)	*32.9*		*"*	*30.0*		*110*	*70-130*			
LCS Dup (1020405-BSD1)				Prepared & Analyzed: 02/14/01						
Chlorobenzene	19.6	0.500	ug/l	20.0		98.0	76-127	2.52	11	
1,1-Dichloroethene	19.6	0.500	"	20.0		98.0	61-145	4.00	14	
Trichloroethene	20.2	0.500	"	20.0		101	75-130	1.96	13	
Surr: 2-BCB (ELCD)	*37.6*		*"*	*30.0*		*125*	*70-130*			
Surr: 2-BCB(PID)	*31.9*		*"*	*30.0*		*106*	*70-130*			
Batch 1020434 - EPA 5030B										
Blank (1020434-BLK1)				Prepared & Analyzed: 02/15/01						
Bromobenzene	ND	0.500	ug/l							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
Carbon tetrachloride	ND	0.500	"							
Chlorobenzene	ND	0.500	"							
Chloroethane	ND	5.00	"							
Chloroform	ND	0.500	"							
Chloromethane	ND	5.00	"							
Dibromochloromethane	ND	0.500	"							
1,2-Dibromoethane	ND	0.500	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	0.500	"							
1,3-Dichlorobenzene	ND	0.500	"							
1,4-Dichlorobenzene	ND	0.500	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	0.500	"							
1,2-Dichloroethane	ND	0.500	"							

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Halogenated Volatile Organics per EPA Method 8021B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1020434 - EPA 5030B										
Blank (1020434-BLK1)				Prepared & Analyzed: 02/15/01						
1,1-Dichloroethene	ND	0.500	ug/l							
cis-1,2-Dichloroethene	ND	0.500	"							
trans-1,2-Dichloroethene	ND	0.500	"							
1,2-Dichloropropane	ND	0.500	"							
cis-1,3-Dichloropropene	ND	0.500	"							
trans-1,3-Dichloropropene	ND	0.500	"							
Methylene chloride	ND	10.0	"							
1,1,1,2-Tetrachloroethane	ND	0.500	"							
1,1,2,2-Tetrachloroethane	ND	0.500	"							
Tetrachloroethene	ND	0.500	"							
1,1,1-Trichioroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	0.500	"							
Trichloroethene	ND	0.500	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	0.500	"							
Vinyl chloride	ND	0.500	"							
Surr: 2-BCB (ELCD)	*37.5*		"	*30.0*		*125*	*70-130*			
Surr: 2-BCB(PID)	*31.1*		"	*30.0*		*104*	*70-130*			
LCS (1020434-BS1)				Prepared & Analyzed: 02/15/01						
Chlorobenzene	19.1	0.500	ug/l	20.0		95.5	76-127			
1,1-Dichloroethene	17.9	0.500	"	20.0		89.5	61-145			
Trichloroethene	19.2	0.500	"	20.0		96.0	75-130			
Surr: 2-BCB (ELCD)	*38.9*		"	*30.0*		*130*	*70-130*			
Surr: 2-BCB(PID)	*34.5*		"	*30 0*		*115*	*70-130*			
LCS Dup (1020434-BSD1)				Prepared & Analyzed: 02/15/01						
Chlorobenzene	19.4	0.500	ug/l	20.0		97.0	76-127	1.56	11	
1,1-Dichloroethene	18.1	0.500	"	20.0		90.5	61-145	1.11	14	
Trichloroethene	19.9	0.500	"	20.0		99.5	75-130	3.58	13	
Surr: 2-BCB (ELCD)	*38.4*		"	*30 0*		*128*	*70-130*			
Surr: 2-BCB(PID)	*33.5*		"	*30.0*		*112*	*70-130*			

North Creek Analytical - Portland

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Squier Associates	Project: GUNDERSON/NW FRONT	
4260 Galewood Street	Project Number: 90445.21	Reported:
Lake Oswego, OR 97013	Project Manager: Dave King	02/22/01 18:21

Notes and Definitions

S-09	Surrogate recovery is outside control limits due to matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. MRLs are adjusted if %Solids are less than 50%.
wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference

SQUIER ASSOCIATES
4260 Galewood
Post Office Box 1317
Lake Oswego, Oregon
97039
(503) 635-4419
Fax 635 1430

Chain of Custody

LABORATORY NUMBER: P1B0336
LABORATORY NAME: NCA

Project Manager: DAVE E. KING
Project Name: Gunderson
Project Number: 90445.21
Site Location: NW Portland
Sampled By: SES/BAB

TURN AROUND TIME

☐ 24 hr. ☐ 48 hr. ☐ 5 day ☒ 10 day

ANALYSIS REQUEST

LAB ID	SAMPLE ID	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	PETROLEUM HYDROCARBONS: TPH-HCID State: OR/WA	TPH-G State: OR/WA	TPH-D State: OR/WA	418.1M State: OR/WA	EPA 418.1	8270 SIM	8020M-BETX only	8310 HPLC PAHs	7421 Lead	TCLP Cr, Cd, Pb	ORGANICS: 8010 Halogsnated VOCs	8020 Aromatic VOCs	8040 Phenols	8240 GCMS Volatiles	8270 GCMS Semivolatiles	8080 OC Pesticides/PCBs	8080M PCBs only	INORG.: Drinking Water (8)	Priority Pol. Metals (13)	ICP Metal Scan (22)	TCLP: TCLP Metals (8)	TCLP Vol. 8240 ZH-EXT	TCLP Semivolatiles 8270	OTHER: 8021 HVOCs
	MW52021301	2-13-01	1130	H_2O	3																								X
	DUP021301	↓	0845	↓	3																								X
	MW49021301	↓	1030	↓	3																								X
	MW36021301	↓	1235	↓	3																								X
	MW38021301	↓	1320	↓	3																								X
	MW45021301	↓	1415	↓	3																								X
	Total Number of Containers:				18																								

Special Instructions:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Scott Shoud Time: 1620	Signature: [signature] Time: 9:00	Signature Time:
Company: Squier Date: 2/13/01	Company: Squier Date: 2/14/01	Company: Date:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: 3.**
Signature: FRIDGE Time: 1620	Signature: [signature] Time: 2/14/01	Signature: [signature] Time: 2/14/01
Company: Squier Date: 2/13/01	Company: NCA Date: 9:00	Company: NCA Date: 09:55
Container:	Container:	Container:
Sealed: Y ☒ N Iced: ☒ N	Sealed: Y ☒ N Iced: ☒ N	Sealed: Y N Iced: Y N

Attachment C
QUALITY ASSURANCE / QUALITY CONTROL REVIEW

Summary: DATA VALID ? YES NO

Analytical Laboratory Data Validation Check Sheet

Job Name: Gunderson Groundwater Job Number: 90445.21

Date of Review: 4/12/01 Lab Name: NCA Lab Batch Id #: P182320

Chain of Custody

1.) Correct containers used ? yes no

2.) Correct preservative (if any) used ? yes no

3.) Signature blocks complete and ending with lab ? yes no

4.) Analyses requested matches analyses reported ? yes no

5.) Sample identification number matches with lab report ? yes no

6.) Trip Blank Submitted ? yes no

7.) Field Blank Submitted ? yes no

Timing

8.) Samples extracted within holding time ? yes no

9.) Analysis performed within holding time ? yes no

Quality Assurance/Quality Control

10.) Lab Blank Completed ? yes no

11.) Lab, Field, or Trip Blank(s) reports contaminants ? yes no

If yes, indicate blank type, chemical(s) and concentration(s):

12.) Are Reporting Limits raised ? (If yes, explain @ "Comments") yes no

Accuracy

13.) Surrogate Recovery within limits (Default is 70-130%) yes no

If no, list exceptions: MW37, MW44, MS1, MSD1 outside control limits due to matrix interfer.

Precision

14.) Laboratory Control Sample (LCS) Recovery within 50-150% ? yes no

15.) Laboratory Control Sample Duplicate (LCSD) Recovery within 50-150% ? yes no N/A

16.) Rel. % Diff. (RPD) within limits (Default 25%) ? yes no

17.) RPD calculation for Field Duplicates within limits (Default 75%) ? yes no

Comments:
No LCSD reported

Initial Review By: SES Final Review By: [illegible]

QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT AND SAMPLE INFORMATION

Project Name:	Gunderson, Inc.
Project No.:	90445.21
Date of Review:	February 20, 2001
Lab Name:	North Creek Analytical
Report Date:	April 12, 2001
Sample Group:	Postfix 010208
Sample No.:	MW43, MW50, MW51, EQ-1, DUP
Lab Batch No.:	P1B0264

ANALYTICAL METHODS

EPA Method 8021B – Halogenated VOCs

CHAIN OF CUSTODY DOCUMENTATION

Samples transferred under chain of custody.

SAMPLE HOLDING TIMES

Water samples were extracted and analyzed within recommended holding times.
EPA Method 8021B – maximum 5 days (recommended = 14 days)

INSTRUMENT CALIBRATION

No discrepancies noted.

METHOD DETECTION LIMITS

Detection limits are laboratory Method Reporting Limits (MRLs) which are in general accordance with established EPA Method Detection Limits for EPA Method 8021B. MRLs are developed based on repeated method studies and the laboratory's ability to successfully reproduce the accurate data. The MRLs are below regulatory action levels.

BLANK ANALYSIS

a) Field Blanks - Equipment Rinsate field blank = acceptable results.
Chloroform = 3.71 ug/L
- No trip blanks were submitted with this batch.
- No transfer blanks were submitted with this batch.

b) Method Blanks - Acceptable results (No detectable target analytes).

QUALITY CONTROL

a) Accuracy - Surrogate Recoveries - Outside control limits due to matrix interference.
Range (8021B) = 100 to 124%

Batch Control: Laboratory Control Sample (LCS) - Acceptable results
Range (8021B) = 107 to 130%

b) Precision - Laboratory Matrix Spike Duplicates (RPDs) - Acceptable results
Range (8021B) = 1.04 to 4.94%
Field Duplicates – Acceptable results.
RPD Range = 2.0 to 11.2%

DATA USE LIMITATIONS: No limitations.

Gunderson Ground Water Monitoring QA/QC Review Calculations

Relative Percent Difference (RPD)= $\frac{\text{Project - QC duplicate}}{\left(\frac{\text{Project + QC duplicate}}{2}\right)}$ X 100

WATER

		Sample	Value	
1,1-dichloroethane	project	MW51010208	47.40	
	QC	DUP010208	53.00	
	RPD		11.2 percent	

		Sample	Value	
1,1,1-trichloroethane	project	MW51010208	1,990.00	
	QC	DUP010208	2,030.00	
	RPD		2.0 percent	

		Sample	Value	
1,2-dichloroethane	project	MW51010208	25.0	
	QC	DUP010208	25.0	(ND)
	RPD		0.0 percent	

		Sample	Value	
1,1-dichloroethene	project	MW51010208	634	
	QC	DUP010208	611	
	RPD		3.7 percent	

		Sample	Value	
tetrachloroethene	project	MW51010208	25.0	(ND)
	QC	DUP010208	26.9	
	RPD		7.3 percent	

Summary: DATA VALID ? YES NO

Analytical Laboratory Data Validation Check Sheet

Job Name: Gunderson Groundwater Job Number: 90445.21

Date of Review: 4/12/01 Lab Name: NCA Lab Batch Id #: P1B0264

Chain of Custody

1.) Correct containers used ? yes no

2.) Correct preservative (if any) used ? yes no

3.) Signature blocks complete and ending with lab ? yes no

4.) Analyses requested matches analyses reported ? yes no

5.) Sample identification number matches with lab report ? yes no

6.) Trip Blank Submitted ? yes no

7.) Field Blank Submitted ? yes no

Timina

8.) Samples extracted within holding time ? yes no

9.) Analysis performed within holding time ? yes no

Quality Assurance/Quality Control

10.) Lab Blank Completed ? yes no

11.) Lab, Field, or Trip Blank(s) reports contaminants ? yes no

If yes, indicate blank type, chemical(s) and concentration(s):

12.) Are Reporting Limits raised ? (If yes, explain @ "Comments") yes no

Accuracy

13.) Surrogate Recovery within limits (Default is 70-130%) yes no

If no, list exceptions: Matrix Spike 135% outside control limits due to matrix interference

Precision

14.) Laboratory Control Sample (LCS) Recovery within 50-150% ? yes no

15.) Laboratory Control Sample Duplicate (LCSD) Recovery within 50-150% ? yes no

16.) Rel. % Diff. (RPD) within limits (Default 25%) ? yes no

17.) RPD calculation for Field Duplicates within limits (Default 75%) ? yes no

Comments:
Reporting limit was raised on MW51 and Duplicate sample due to high concentration of some HVOCs. Dilution of 50 ~~ug/L~~ times was used.

Initial Review By: SES

Final Review By: [signature]

QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT AND SAMPLE INFORMATION

Project Name:	Gunderson, Inc.
Project No.:	90445.21
Date of Review:	April 12, 2001
Lab Name:	North Creek Analytical
Report Date:	February 22, 2001
Sample Group:	Postfix 021301
Sample No.:	MW36, MW38, MW45, MW49, MW52, DUP
Lab Batch No.:	P1B0336

ANALYTICAL METHODS

EPA Method 8021B – Halogenated VOCs

CHAIN OF CUSTODY DOCUMENTATION

Samples transferred under chain of custody.

SAMPLE HOLDING TIMES

Water samples were extracted and analyzed within recommended holding times.
EPA Method 8021B – maximum 2 days (recommended = 14 days)

INSTRUMENT CALIBRATION

No discrepancies noted.

METHOD DETECTION LIMITS

Detection limits are laboratory Method Reporting Limits (MRLs) which are in general accordance with established EPA Method Detection Limits for EPA Method 8021B. MRLs are developed based on repeated method studies and the laboratory's ability to successfully reproduce the accurate data. The MRLs are above regulatory action levels for samples with high detections that required dilution.

BLANK ANALYSIS

a) Field Blanks
- No equipment rinsate field blanks were submitted with this batch
- No trip blanks were submitted with this batch.
- No transfer blanks were submitted with this batch.

b) Method Blanks - Acceptable results (No detectable target analytes).

QUALITY CONTROL

a) Accuracy - Surrogate Recoveries - Outside control limits due to matrix interference.
Range (8021B) = 92 to 135%

Batch Control: Laboratory Control Sample (LCS) - Acceptable results
Range (8021B) = 89.5 to 128%

b) Precision - Laboratory Control Samples (RPDs) - Acceptable results
Range (8021B) = 1.11 to 4.00%
Field Duplicates – Acceptable results.
RPD Range = 3.0 to 5.0%

DATA USE LIMITATIONS: No limitations.

Gunderson Ground Water Monitoring QA/QC Review Calculations

$$\text{Relative Percent Difference (RPD)} = \frac{\text{Project - QC duplicate}}{\left(\frac{\text{Project + QC duplicate}}{2}\right)} \times 100$$

		WATER		
		Sample	Value	
1,1-dichloroethene	project	MW45021301	6,120	
	QC	DUP0213O1	5,950	
	RPD			3 percent
		Sample	Value	
1,1,1-trichloroethane	project	MW45021301	41,400	
	QC	DUP0213G1	39,500	
	RPD			5 percent

Summary: DATA VALID ? YES NO

Analytical Laboratory Data Validation Check Sheet

Job Name: Gunderson Groundwater Job Number: 90445.21

Date of Review: 4/12/01 Lab Name: NCA Lab Batch Id #: P1B0336

Chain of Custody

1.) Correct containers used ? yes no

2.) Correct preservative (if any) used ? yes no

3.) Signature blocks complete and ending with lab ? yes no

4.) Analyses requested matches analyses reported ? yes no

5.) Sample identification number matches with lab report ? yes no

6.) Trip Blank Submitted ? yes no

7.) Field Blank Submitted ? yes no

Timing

8.) Samples extracted within holding time ? yes no

9.) Analysis performed within holding time ? yes no

Quality Assurance/Quality Control

10.) Lab Blank Completed ? yes no

11.) Lab, Field, or Trip Blank(s) reports contaminants ? yes no

If yes, indicate blank type, chemical(s) and concentration(s):

12.) Are Reporting Limits raised ? (If yes, explain @ "Comments") yes no

Accuracy

13.) Surrogate Recovery within limits (Default is 70-130%) yes no

If no, list exceptions: MW38 132% MW45 135% Outside control limits due to Matrix interference

Precision

14.) Laboratory Control Sample (LCS) Recovery within 50-150% ? yes no

15.) Laboratory Control Sample Duplicate (LCSD) Recovery within 50-150% ? yes no

16.) Rel. % Diff. (RPD) within limits (Default 25%) ? yes no

17.) RPD calculation for Field Duplicates within limits (Default 75%) ? yes no

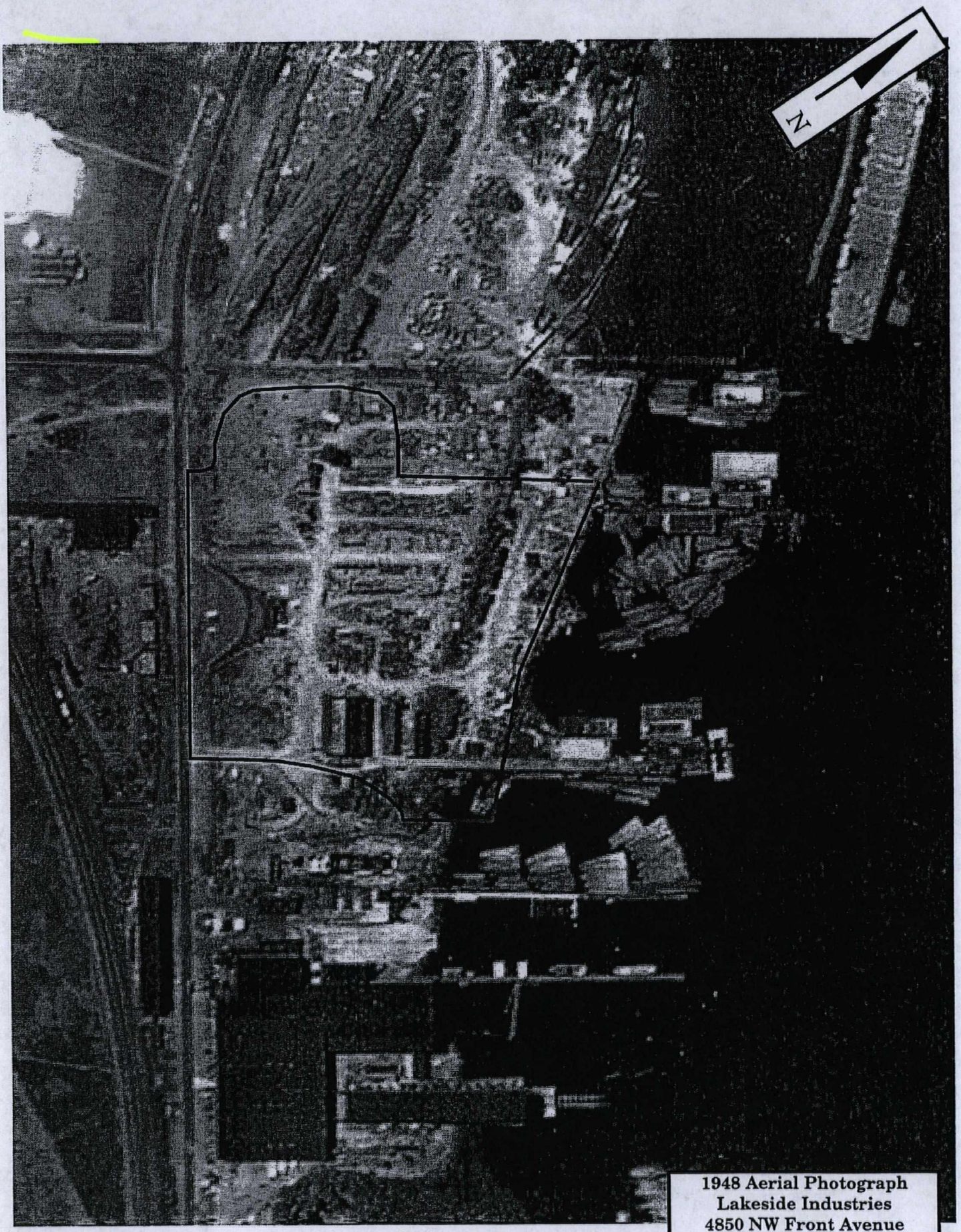
Comments:
Reporting limit was raised on MW52 by 5 ~~ug/L~~ time Dilution, on MW45 and DUP by 1000 ~~ug/L~~ time dilution, on MW49 by 20 ~~ug/L~~ time dilution, on MW36 by 20 ~~ug/L~~ time dilution, and on MW38 by 50 ~~ug/L~~ times dilution

initial Review By: SES Final Review By: [signature]

Appendix F

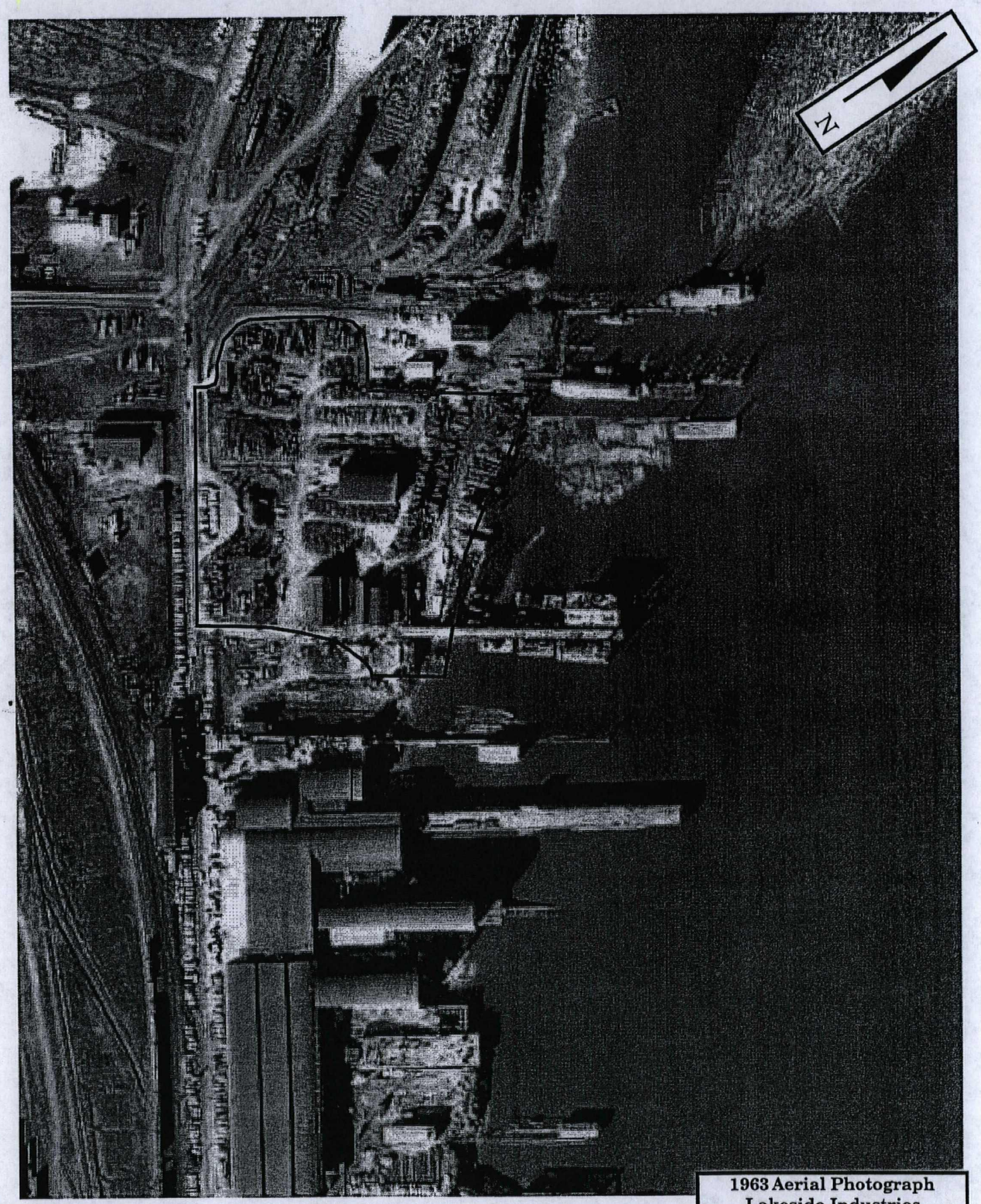
Aerial Photographs

1940 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon

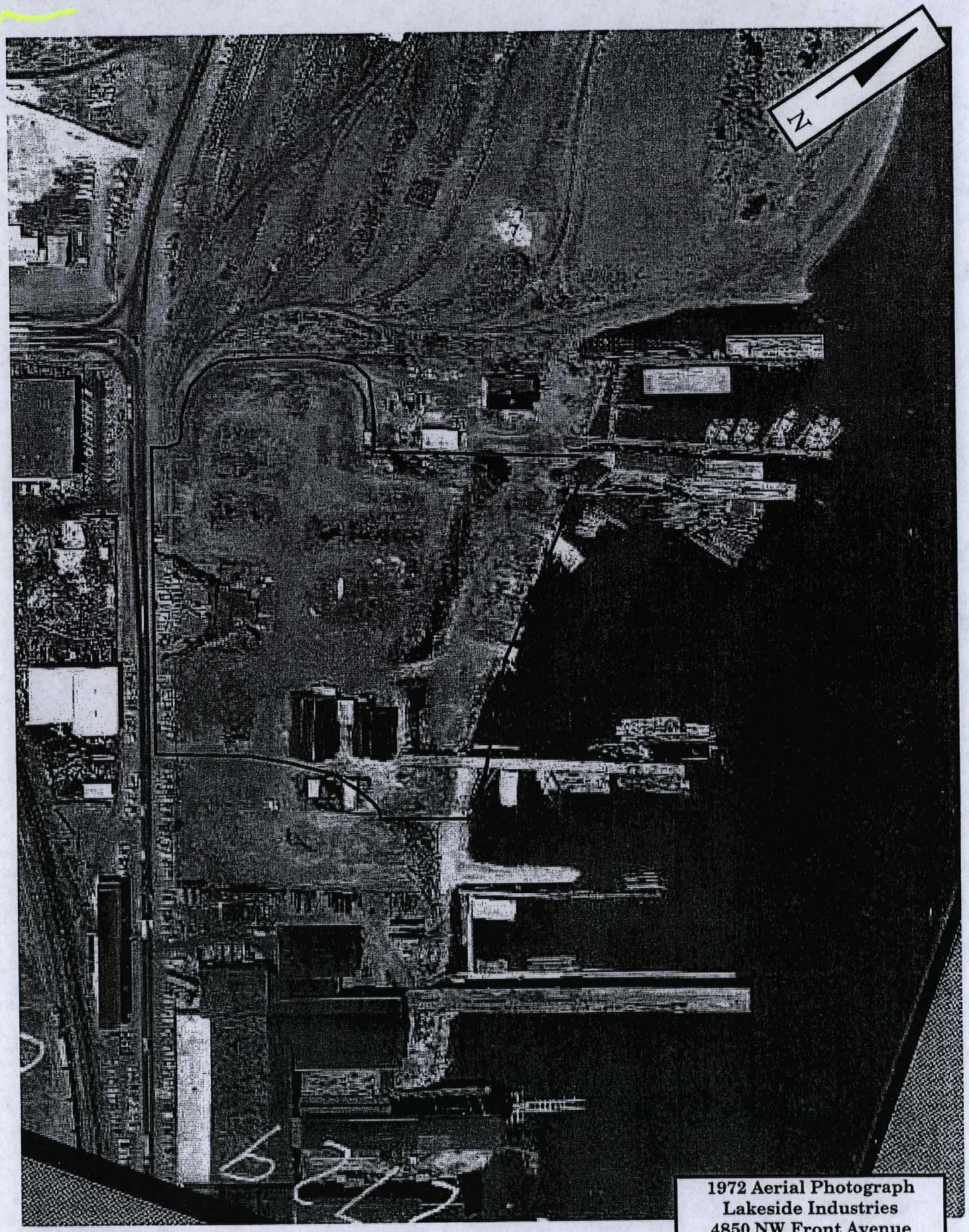


1948 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon

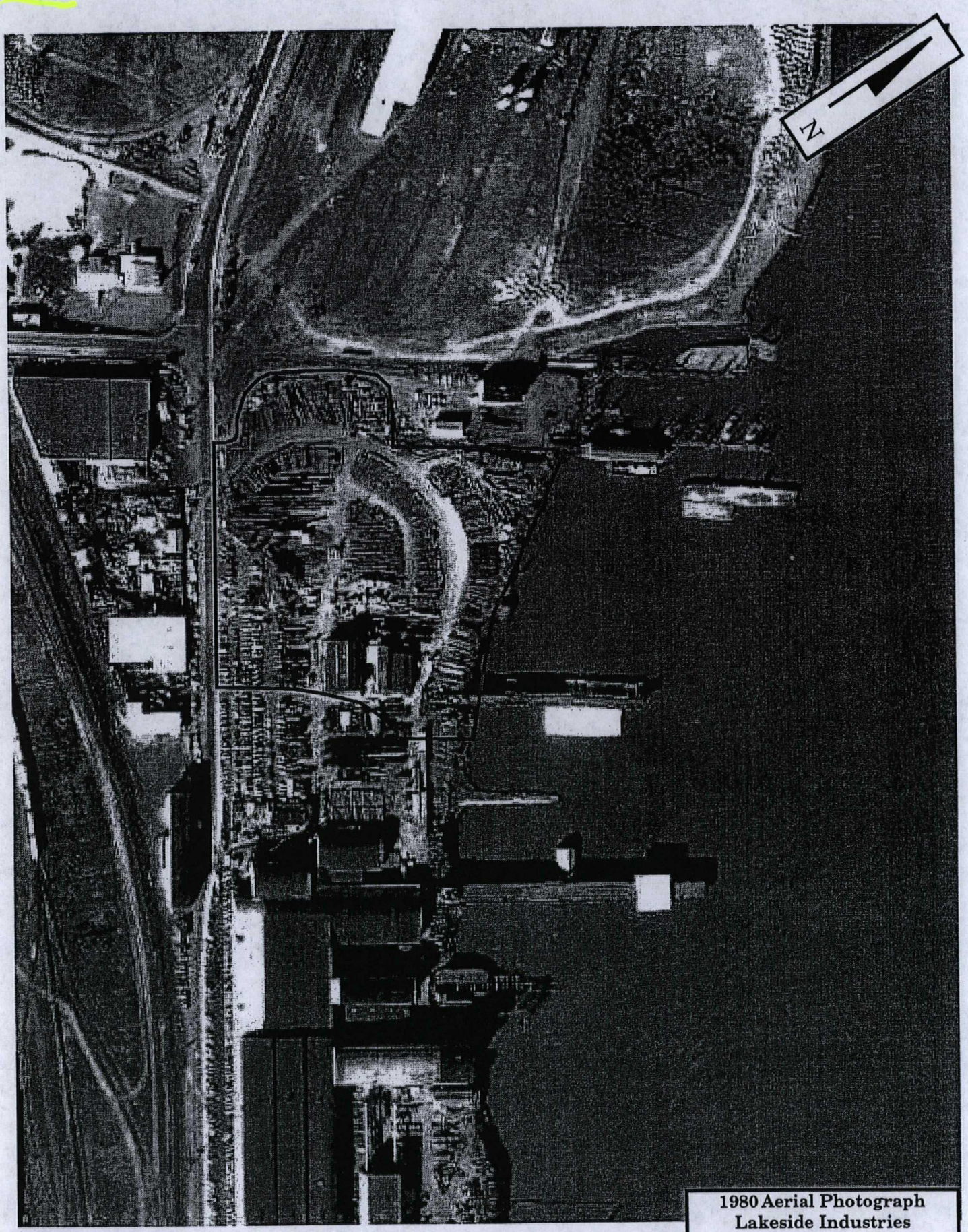
1957 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon



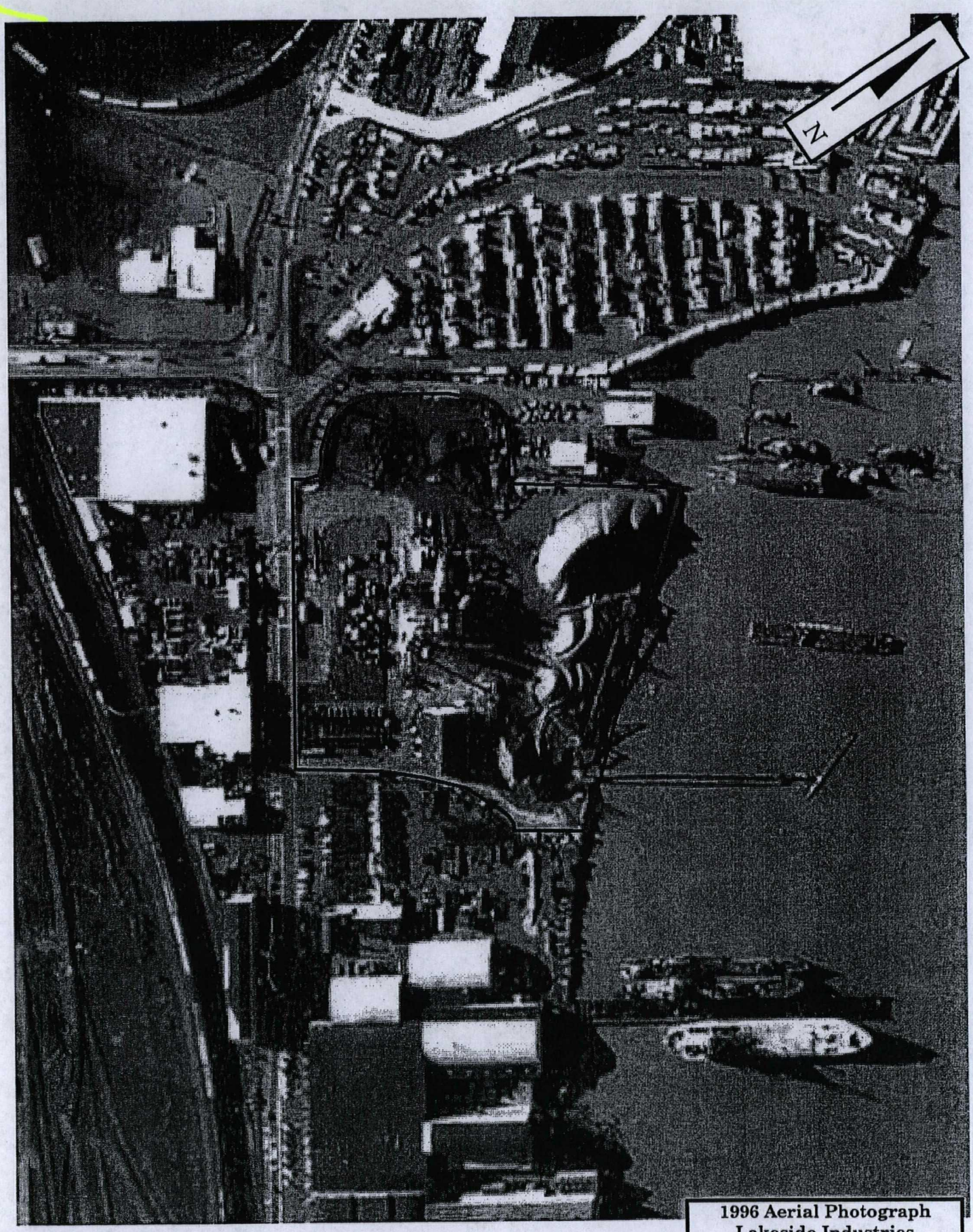
1963 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon



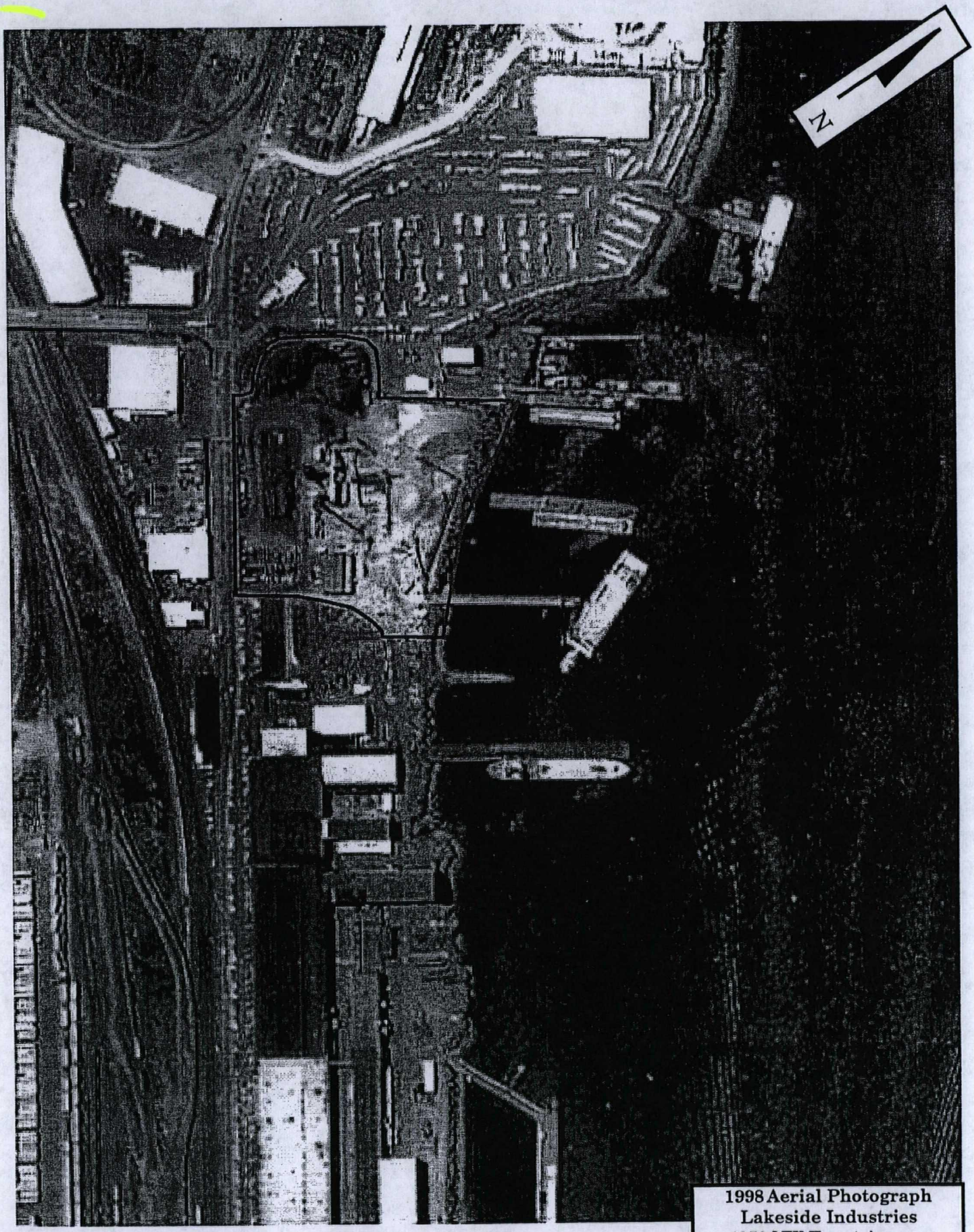
1972 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon



1980 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon



1996 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon



1998 Aerial Photograph
Lakeside Industries
4850 NW Front Avenue
Portland, Oregon

Appendix G

Oregon Department of Environmental Quality Air Contaminant Discharge Permits

ASSIGNMENT

to

GENERAL AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, #400
Portland, Oregon 97201
(503) 229-5554

PERMITTEE:

Red-Samm Mining Company, Inc.
dba Lakeside Industries
PO Box 7016
Issaquah, WA 98027

INFORMATION RELIED UPON:

Application No.: 019659
Date Received: 11/29/01

PLANT SITE LOCATION:

4850 NW Front Avenue
Portland, OR 97210

LAND USE COMPATABILITY STATEMENT:

Approving Authority: City of Portland
Approval Date: 05/01/88

ASSIGNMENT: The permittee identified above is assigned by the Department of Environmental Quality to the General ACDP listed below in accordance with ORS 468A.040, OAR 340-216-0060(4) and based on the land use compatibility findings included in the permit record (note: land use compatibility statements are not applicable to portable sources).

Audrey M O'Brien
Audrey O'Brien, Northwest Region Air Quality Manager

JAN 01 2002
Dated

General Air Contaminant Discharge Permit Issued in Accordance with OAR 340-216-0060:

General ACDP Number	Expiration Date	Source Category Description	SIC
AQGP-007	08/01/11	Asphalt plants (OAR 340-216-0020, Table 1, Part B, 7)	2951

SUPPLEMENTAL INFORMATION:

Facility contact:		
Name:	Chuck Gaskill, Division Manager	
Phone number:	(503) 222-6421	
Facsimile number:	(503) 222-6460	
e-mail address:	chuckg@lakesideind.com	
Permit Summary:		
Source Test Requirement	Yes	due date
Reports Required	Annual	Due date January 15
NSPS (40 CFR Part 60)	Yes	Subpart I
NESHAP (40 CFR Part 63)	No	Subpart
Public Notice	Category I	
Application review report:		
The Department has reviewed the application for assignment to the General ACDP and determined that the application is complete and the subject facility qualifies for assignment to the General ACDP.		

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, #400
Portland, Oregon 97201
(503) 229-5554

This permit is being issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record

ISSUED TO:

Red-Samm Mining Company, Inc.
dba Lakeside Industries
PO Box 7016
Issaquah, WA 98027

PLANT SITE LOCATION:

4850 NW Front Avenue
Portland, OR 97210

INFORMATION RELIED UPON:

Application No.: 17651
Date Received: 8/3/99

LAND USE COMPATIBILITY FINDING:

Approving Authority: City of Portland
Approval Date: 5/1/88

PERMIT PREVIOUSLY ISSUED TO:

Washington Asphalt Co., Inc.
dba Lakeside Industries

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Ed Druback, Northwest Region

NOV 24 2000
Dated

Source(s) Permitted to Discharge Air Contaminants:

TYPE OF FACILITY (OAR 340-216-0090)	TABLE 1 Code	SIC
Asphaltic Concrete Paving Plant, Stationary,	34.a	2951

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PERFORMANCE AND EMISSION STANDARDS

1. This permit is site specific and is valid only at the facility address shown on the front of the permit.

2. In any instance in which there is an apparent conflict relative to conditions of this permit, the most stringent condition shall apply.

3. Particulate matter emissions from any fuel burning source must not exceed:

   a. 0.1 grains per standard cubic foot. Particulate emissions are measured in accordance with Oregon Method 5 (combined front and back half particulate captures of sampling train)
   b. 0.04 grains per dry standard cubic foot, as measured by EPA Method 5 (front half capture of sampling train).

4. Visible emissions from any single air contaminant source must not exceed the following:

   a. for fuel burning equipment in Benton, Clackamas, Columbia, Linn, Marion, Multnomah, Polk, Washington, and Yamhill Counties, an opacity equal to or greater than 20% for a period aggregating more than 3 minutes in any one hour.

   b. for other equipment in Benton, Clackamas, Columbia, Linn, Marion, Multnomah, Polk, Washington, and Yamhill Counties, an opacity equal to or greater than 20% for a period aggregating more than 30 seconds in any one hour.

5. Particulate matter which is larger than 250 microns and which may be deposited upon the real property of another person must not be emitted in Benton, Clackamas, Columbia, Linn, Marion, Multnomah, Polk, Washington, and Yamhill Counties.

6. The permittee must not allow the emission of odorous or other fugitive emissions so as to create nuisance conditions off the permittee's property. Nuisance conditions will be verified by Department personnel. The creation of nuisance conditions may, in addition to other action the Department may take, result in a permit modification to require a compliance schedule to control the nuisance condition.

7. The permittee must take reasonable precautions to control fugitive dust from becoming airborne. Such reasonable precautions include but are not limited to:

   a. controlling vehicle speeds on unpaved roadways;
   b. treating vehicular traffic areas of the plant site under the control of the permittee;
   c. storing collected material from air pollution control equipment in covered containers or use of other method(s) equally effective in preventing the material from becoming airborne during storage and transfer;
   d. treating storage piles as necessary;

e. prompt removal of "tracked-out" material from paved streets.

8. The permittee must not use any fuel oil that exceeds the following sulfur content limitations:

a. 0.3 percent sulfur by weight for ASTM Grade 1 (distillate).
b. 0.5 percent sulfur by weight for ASTM Grade 2 (distillate).

PLANT SITE EMISSION LIMITS

9. The plant site emissions must not exceed the following:

Pollutant	Plant Site Emission Limits	
	(lbs/hr)	(ton/yr)
PM	11	16
CO	37	56
NO_x	20	39
SO_2	2	5
VOC	9	13

10. The permittee may combust either natural gas or diesel oil to fuel the plant, so long as NO_x emissions in any consecutive 12-month period do not exceed 39 tons.

COMPLIANCE DETERMINATION FOR PSEL

11. Compliance with the PSEL is based on the following calculation for each pollutant:

$$E = \Sigma(EF \times P) \times K$$

Where,

E = pollutant emissions (lb/hr or ton/yr)
EF = pollutant emission factor (see below)
P = process production (tons asphalt and gallons of fuel burned for the generator)
K = conversion constant (1 lb/lb for short term emission calculation and 1 ton/2000 lb for annual emission

0.017 lb/ton × 533,921 ton/yr = 39,510 lb/yr = 19.76 ton/yr

Emission Factors			
Emission Device	Pollutant	Emission Factor (EF)	EF Units
Asphalt Plant	PM	0.017	Lb/ton
	CO	0.074	Lb/ton
	NO_x – natural gas	0.04	Lb/ton
	NOx – diesel	0.051	Lb/ton
	SO_2 – natural gas	0.003	Lb/ton
	SO_2 – diesel oil	0.006	Lb/ton
	VOC	0.017	Lb/ton

OPERATION AND MAINTENANCE REQUIREMENTS

12. The permittee must tune the bumer of the Hot Mix Asphalt Plant annually prior to the peak paving season. The annual tuning must be performed by the later of the following: a) May 15th or b) prior to achieving 1/3 of the prior year's annual production. Tuning must include analysis of stack exhaust gas for CO and NO_X emissions as described below. Stack exhaust gas analyses must be performed while the plant is operating within 10% of its normal maximum operating capacity. Normal maximum operating capacity must be recognized as the rate which approximates the plant's maximum operating capacity or the maximum rate which the permittee expects to achieve within the term of the Air Contaminant Discharge Pennit. This is not a requirement for a formal Source Test of the asphalt plant.

    a. Stack exhaust gas must be analyzed for CO and NO_x emissions utilizing a combustion gas analyzer or other method approved by the Department. The combustion gas analyzer must be calibrated according to the manufacturer's specifications. Unless an alternate analysis method is approved by the Department, the average CO and NO_x concentrations (expressed in ppm) of the exhaust gas must be determined by monitoring the exhaust gas once each minute over a period of twenty (20) consecutive minutes and averaging the results. Plant production rate (expressed in tons of asphalt production per hour), exhaust gas flow rate (if available) and stack exhaust gas temperature must be monitored and recorded during the exhaust gas analysis.

    b. This condition is not applicable during a year in which a source test has been performed that demonstrates the asphalt plant to be in compliance with CO and NO_X PSELs.

    c. Once the initial tune-up and analysis has been performed, facilities that produce

less than 75,000 tons of asphaltic concrete per year are exempted from this condition. The owner of a facility that has produced 75,000 tons or more of asphaltic concrete in any year this permit is in effect must perform the tune-up and analysis the following year, as stated in Condition a. and b., above.

MONITORING AND RECORDKEEPING REQUIREMENTS

13. The permittee must inspect and monitor the operation and maintenance of the plant and associated air contaminant control facilities and must implement the procedures necessary to monitor and record the following parameters. A record of all such data must be maintained for a period of two years at the plant site for inspection by the authorized representatives of the Department.

	Monitored Parameter	Frequency
a.	Total hot mix produced	Hourly/Monthly
b.	All operating and production parameters to be reported to the Department annually as required in Condition 14.	As Required
c.	Excess emissions records as defined in OAR 340-214-0300 through 340-214-0340.	Each Occurrence
d.	A description of any maintenance to the air contaminant control system	Each Occurrence

REPORTING REQUIREMENTS

Annual Report

14. The permittee must submit an annual report to the Department by January 30 of each year this permit is ih effect. Two (2) copies of the report must be provided in the submission. The annual report must contain the following information for the preceding calendar year:

    a. Plant operating parameters for the previous calendar year:

        i. highest hourly hot mix production rate that occurred;
        ii. total hot mix asphalt produced in the previous calendar year
        iii. type and quantity of fuels used for the plant;
        iv. calculation of plant site emissions for the previous calendar year, using the factors presented in Condition 11
        v. results of the annual CO and NO_X exhaust gas analysis data, as required by Condition 12.

    b. A log of all planned and unplanned excess emissions in accordance with OAR

340-214-0340 (formerly OAR 340-028-1440).

c. Explain any permanent changes made in the plant process or production which would effect air contaminant emissions, and indicate when changes were made.

d. List all major maintenance performed on air pollution equipment

Reports must be sent to the appropriate DEQ Regional office, as shown on the last page of this permit, unless otherwise noted. The permit number must be prominently displayed on the report.

PERMIT ACTIONS AND ASSOCIATED FEES

Annual Compiiance Fee

15. The Annual Compliance Determination Fee for this permit is due on December 1 of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date. The fee must be submitted to:

Department of Environmental Quality
Business Office
811 SW Sixth Avenue
Portland, Oregon 97204

Construction Notices and Permit Modifications

16. The permittee must notify the Department in writing using a Departmental "Notice of Construction Form," or "Permit Application Form," and obtain approval in accordance with OAR 340-210-0200 through 340-210-0220 before:

    a. Constructing or installing any new source of air contaminant emissions, including air pollution control equipment, or
    b. Modifying or altering an existing source that may significantly affect the emission of air contaminants, or
    c. Making any physical change which increases emissions, or
    d. Changing the method of operation, the process, or the fuel use, or increasing the normal hours of operation to levels above those contained in the permit application and reflected in this permit and which result in increased emissions.

17. Application for a modification of this permit must be submitted not less than 60 days prior to the source modification. A Filing Fee and an Application Processing Fee must be submitted with an application for the permit modification.

18. The permittee must notify the Department in writing using a Departmental "Permit Application Form" within 60 days of the following:

a. Legal change of the registered name of the company with the Corporations Division of the State of Oregon, or
b. Sale or exchange of the activity or facility.

Applicable Permit Fees must be submitted with an application for the name change.

Permit Renewal

19. The completed application package and the Application Processing and Filing fees for renewal of this permit are due on 8/1/04. An invoice indicating the amount, as detennined by Department regulations, will be mailed to the permittee prior to the above date. The fees and two (2) copies of the application must be submitted to the Business Office of the Department at the aforementioned address (unless otherwise notified).

GENERAL CONDITIONS AND DISCLAIMERS

G1. This permit allows the permittee to discharge air contaminants from processes, activities, and insignificant activities related to the air contaminant source(s) listed on the first page of this pennit until this permit expires, is modified, or is revoked.

G2. In addition to the specific requirements listed in this permit, the permittee must comply with all other legal requirements enforceable by the Department.

G3. The permittee must allow the Department's representatives access to the plant site and pertinent records at all reasonable times for the purposes of performing inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emissions discharge records and conducting all necessary functions related to this permit in accordance with ORS 468-095.

G4. The permittee must have a copy of the permit available at the facility at all times.

G5. The permittee may not conduct any open burning except as allowed by OAR 340 Division 264.

G6. The permittee must at all times conduct dust suppression measures to meet the requirements of "Fugitive Emissions" and "Nuisance Conditions" in OAR 340-208-0210.

G7. The permittee must notify the Department by telephone or in person of any excess emissions which are of a nature that could endanger public health. Such notice must be provided as soon as possible, but never more than one hour after becoming aware of the problem. Notice must be made to the branch office identified at the end of this permit. The permittee must also submit follow-up reports when required by the Department.

If the excess emissions occur during non-business hours, the permittee must immediately notify the Department by calling the Oregon Emergency Response System (OERS). The current number is 1-800-452-0311.

G8. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

G9. The Department may modify or revoke this permit pursuant to OAR 340-014-0040 and 340-014-0045.

ALL INQUIRIES SHOULD BE DIRECTED TO:

Department of Environmental Quality
Northwest Region, Air Quality Program
2020 SW 4th Avenue, #400
Portland, OR 97201
(503) 229-5554

Department of Environmental Quality
Northwest Region
Air Quality Program

AIR CONTAMINANT DISCHARGE PERMIT REVIEW REPORT

Red-Samm Mining Company, Inc.
dba Lakeside Industries
4850 Front Street
Portland, OR 97210
(503) 222-6421

Source Test	Compliance Schedule	Report				Excess		NSPS	NSR	PSD	NESHAP	Size	Public Notice
		A	S	Q	M	R	N						
		x					x	x				A-2	

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PERMITTING

PERMITTING ACTION

1. The permit is a renewal for an existing Air Contaminant Discharge Permit which was issued on 5/23/95 and was originally scheduled to expire on 10/1/99. The permit has been modified twice, once in 1996 to increase the CO PSEL and require monitoring of CO, and again in 1999 to adjust the due date of annual compliance determination fees.

OTHER PERMITS

2. No other permits have been issued or are required by the Department of Environmental Quality for this source.

ATTAINMENT STATUS

3. The source is located in a non-attainment area for PM, CO, and Ozone, and is an insignificant source of PM, CO, and the Ozone precursors VOC and NO_x. The area is in attainment for all other pollutants.

SOURCE DESCRIPTION

OVERVIEW

4. The permittee operates an asphalt drum mix plant. The plant is stationary and is located on NW Front Street in Portland. The process includes the manufacture of 1,500,000 tons of hot mix asphalt annually. The asphalt plant was built in April 1988. The old drum was replaced with a counter-flow drum in 1994, and the baghouse was replaced in 1995.

5. Since the last permit renewal, the baghouse has been replaced on the plant.

PROCESS AND CONTROL DEVICES

6. Existing air contaminant sources at the facility consist of the following:

   a. one drum-mix asphalt plant, manufactured in 1994 with pulse jet baghouse;
   b. fugitives from vehicle traffic

COMPLIANCE

7. The facility was inspected on 8/18/98, 7/31/97, and 9/23/96 and found to be in compliance with permit conditions.

8. During the prior permit period there were no complaints recorded for this facility.

9. Since the last permit renewal, one Notice of Noncompliance was issued to this source. The facility was cited 10/4/95 for exceeding the short-term CO PSEL. The company made adjustments to combustion equipment and performed a source test later that month to determine actual CO emission levels. The permit was subsequently modified to increase the CO PSEL.

EMISSIONS

10. Proposed PSEL infonnation:

Pollutant	Significant Emission Rate (tons/yr)	Plant Site Emission Limits (PSEL)		
		Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Correction (tons/yr)
PM	25	15	12	-3
SO_2	40	N/A	5	5
NO_x	40	27	39	12
CO	100	56	56	0
VOC	40	21	13	-8

a. This facility was manufactured in 1994 and therefore has no baseline emissions rates, as baseline applies only to facilities operating prior to 1979.
b. The increases/decreases shown above reflect corrections due to updated emissions factors and a source test.
c. SO_2 was not included in the PSEL in the previous permit. The previous permit did not reflect the use of diesel oil as a fuel, although the capacity to use a back-up in the plant has always existed.

11. The PSEL is based on production rates of 1.5 million tons of asphaltic concrete per year and 500 tons per hour. Included in the PSEL calculation were emissions from the combustion of either 159 MMCF of natural gas or 1,238,000 gallons of diesel oil, or a combination of the two, not to exceed 39 tons NOx per year.

SIGNIFICANT EMISSION RATE ANALYSIS

12. The proposed Plant Site Emission Limits area less than the Significant Emission Rates, thus no further air quality analysis is required.

MAJOR SOURCE APPLICABILITY

CRITERIA POLLUTANTS

13. A major source is a facility that has the potential to emit more than 100 tons per year of any criteria pollutant. This facility is not a major source of criteria pollutant emissions.

HAZARDOUS AIR POLLUTANTS

14. A major source is a facility that has the potential to emit more than 10 tons/year of any single HAP or 25 tons/year of combined HAPs. This source is not a major source of hazardous air pollutants.

ADDITIONAL REQUIREMENTS

NESHAPS/MACT APPLICABILITY

15. There are no sources at this facility for which NESHAPS/MACT standards have been promulgated.

NSPS/RACT APPLICABILITY

16. 40 CFR Part 60, Subpart I is applicable to the source because the plant was constructed after the rule was promulgated.

17. The facility is located in the Portland AQMA, but it is not one of the listed source categories in OAR 340-232-0010, thus the RACT rules do not apply

SOURCE TESTING

PRIOR TESTING RESULTS

18. The results of the most recent source tests are listed below:

Emission Device	Test Date	Production Rate	Pollutant	Measured Value
Baghouse	10/13/95	480 ton/hr asphalt 42,500 dscfm	CO	27.6 lb/hr
			NOx	16.08 lb/hr
			VOC	5.77 lb/hr

PUBLIC NOTICE

19. The proposed Plant Site Emission Limits differ from the previous permit and are shown below. The increase is due to a correction and does not represent an actual emissions increase from the previous permit; therefore, no public notice is required.

Pollutant	Previous PSEL (tons/year)	Proposed Corrected PSEL (tons/year)
PM	15	12
SO_2	N/A	5
NO_x	27	39
CO	56	56
VOC	21	13

KA:ED
11/26/00

LIST OF COMMON ABBREVIATIONS USED IN AIR CONTAMINANT DISCHARGE PERMITS

A	annual
ACDP	Air Contaminant Discharge Permit
ASTM	American Society for Testing and Materials
bbl	barrel (42 gal)
calendar year	The 12 month period beginning January 1st and ending December 31st
CFR	Code of Federal Regulations
CO	carbon monoxide
date	mm/dd/yy
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic foot
EPA	US Environmental Protection Agency
FCAA	Federal Clean Air Act
gal	gallon(s)
gr/dscf	grains per dry standard cubic foot
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040
ID	identification number
I&M	inspection and maintenance
lb	pound(s)
M	monthly
MMBtu	million British thermal units
N	not required
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NOx	nitrogen oxides
NSPS	New Source Performance Standard
NSR	New Source Review
O_2	oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	operation and maintenance
Pb	lead
PCD	pollution control device
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
ppm	part per million
ppmv	part per million by volume
PSD	Prevention of Significant Deterioration
PSEL	Plant Site Emission Limit
Q	quarterly
R	required
RACT	Reasonably Available Control Technology
S	semi-annual
scf	standard cubic foot
SERP	Source Emission Reduction Plan
SIP	State Implementation Plan
SO_2	sulfur dioxide
VE	visible emissions
VOC	volatile organic compound
year	A period consisting of any 12 consecutive calendar months

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY — INTEROFFICE MEMORANDUM

DATE: June 21, 1996

TO: Greg Grunow:NWR

cc: Terri Sylvester:AQ
Wes Risher:AQ

AQ Multnomah County

FROM: Jack Herbert:NWR through Audrey O'Brien:NWR AOB

SUBJECT: Source Test Review Report — ACDP No: 26-3242

Lakeside Industries
Asphalt Plant
Portland

Test Date: October 13, 1995
Report Received: November 13, 1995

Source Testers: Am Test-Air Quality

Source: Gencor-Bituma 500 Ultradrum counter-flow asphalt plant

Locations Tested: Baghouse stack

Pollutants Tested: CO, NO_x, VOCs

Air Contaminant Sources Tested	SIC
34a. Stationary asphaltic concrete paving plant	2951

This test was the second performed to comply with the Air Contaminant Discharge Permit's Condition 12. This condition requires testing to demonstrate compliance with the permit limits on grain loading, opacity, and plant site emissions of particulates, VOCs, NO_x, and CO. CO emissions measured during the first test, performed July 18, 1995, exceeded the Plant Site Emission Limit (PSEL) by a factor of 17.5. Lakeside adjusted the combustion while monitoring CO to minimize emissions. Lakeside found that this counter-flow, drum-mix plant, properly tuned, emitted more carbon monoxide per ton of asphalt than the permit allowed. The permit limit came from emission factors from standard drum-mix plants. Therefore, this test was to determine whether those emission factors were realistic for this plant. It remeasured emissions of the other pollutant gases as well.

Validity of Results

I have reviewed the report of this test. The test methods, data, and calculations appear to be adequate for quantifying emissions.

The CO results may be high by about five percent because the analyzer was somewhat nonlinear and the measured concentrations were half the lowest non-zero calibration concentration. The previously permitted levels were one third less than the measured

ones, a difference much greater than the errors in measurement.

Results

The average reported production rate during testing of 480 tons/hr was within four percent of the maximum rating of 500 tons/hr.

Carbon monoxide emissions were 92 percent lower than they were during the previous test. This test confirmed that with well tuned combustion they were still higher than expected in the original permit.

The measured hourly emission rates of NO_x and VOCs were below their PSELs and so were the annual emission rates estimated by multiplying hourly rates by 3,000 hours/yr and the emissions per ton of production by 1,500,000 tons/yr.

Stack Conditions

Stack height (ft)	Not reported
Stack diameter (in)	68
Avg stack gas flow rate (dscfm)	42,500
Avg stack temperature (°F)	311

STRN96.16

AMTEST
AIR QUALITY, LLC

SUMMARY OF RESULTS - METHODS 7E, 10, AND 25A
AM TEST-AIR QUALITY, LLC

FILE NAME: DG118\LAKESUM
CLIENT: Lakeside Industries
LOCATION: Portland, Oregon

BAGHOUSE EXHAUST STACK

	RUN #1	RUN #2	RUN #3	AVERAGE	Permit Limit
DATE:	10/13/95	10/13/95	10/13/95		
START TIME:	0552	0749	0959		
STOP TIME:	0652	0849	1059		
SAMPLE LENGTH (minutes):	60.0	60.0	60.0		
AIRFLOW (dry std. cubic feet per min.):	42647	42396	42410	42484	
OXYGEN (%):	12.2	12.0	12.0	12.1	
STACK GAS MOISTURE (%):	31.46	30.62	30.53	30.88	
Bws:	0.3146	0.3062	0.3055	0.3088	
METHOD 7E - NITROGEN OXIDES (NOx)					
NOx EMISSION CONCENTRATION (ppm):	52.4	52.0	54.1	52.8	
NOx EMISSION RATE (lb/hr):	16.01	15.79	16.44	16.08	18
(tons/yr) 3000 hrs 1,500,000 t/yr				24.1	27
				25.1	
METHOD 10 - CARBON MONOXIDE (CO)					
CO EMISSION CONCENTRATION (ppm):	133.2	160.5	153.2	149.0	
CO EMISSION RATE (lb/hr):	24.78	29.68	28.34	27.60	
(tons/yr) 3000 hrs/yr 1,500,000 tons/yr				41.4	
				43.1	
METHOD 25A - TOTAL HYDROCARBONS (THC)					
THC EMISSION CONC. (ppm, measured hot-wet):	14.7	13.3	13.0	13.7	
THC EMISSION CONC. (ppm, corrected to dry):	21.4	19.2	18.7	19.8	
THC EMISSION RATE (lb/hr, dry):	6.28	5.58	5.45	5.77	14
(tons/yr) 3000 hrs/yr 1,500,000 tons/yr				8.7	21
				9.0	

September 4, 1996

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

MR FOREST LANE
LAKESIDE INDUSTRIES
PO BOX 1379
BELLEVUE WA 98009

Re: AQ-Multnomah County
Lakeside Industries
ACDP 26-3242

Dear Mr. Lane:

The Department has reviewed your letter requesting Department approval of the use of ground recycled asphalt shingles as a component of Lakeside Industries' hot mix production. The recycled shingle material would be added to the drum mixer in an identical manner as the current recycled asphalt product (RAP). Your letter states that the source of the ground recycled asphalt shingles would be from local asphalt roofing product manufacturers.

The Department recognizes environmental benefits from this proposed recycling activity. However, the Department's review of this proposed activity is not without concern. Shingles and roofing products frequently contain asbestos which is a known carcinogen and strictly regulated under a Federal National Emission Standard for Hazardous Air Pollutants (NESHAP). The Department will approve this request and will recognize recycled asphalt shingles within the definition of RAP with the following stipulations:

1. Lakeside shall limit its use of recycled asphalt shingles to:
   a) Virgin product sourced from asphalt roofing product manufacturers which can verify or demonstrate that there is no asbestos content in the subject recycled material; or
   b) Virgin and/or non-virgin product sourced from an asphalt roofing product recycler having a valid Air Contaminant Discharge Permit issued by the Department which specifically regulates the asphalt roofing product recycling activity. Each lot of recycled non-virgin product must be demonstrated by the recycler to have no asbestos content.
2. On a case-by-case basis, Lakeside may obtain Department approval to accept non-virgin recycled asphalt shingles from a non-permitted source if Department approved acceptance criteria are met.

John A. Kitzhaber
Governor

2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

The Department encourages recycling activities as they have the effect of reducing the volume of solid waste disposed of in landfills and often provide additional pollution prevention benefits as well. If you have any questions or require assistance, please contact me at 229-5571. Thank you for your attention to this matter.

Sincerely,

Greg Grunow
Environmental Specialist
Northwest Region

cc: DEQ AQ Division
Kathy Amidon, DEQ NWR
Bob Harris, DEQ WR (Salem)
Frank Messina, DEQ ER (Bend)

DE[redacted]TM[redacted] OF[redacted]VIR[redacted]MEN[redacted] QU[redacted]TY

SOURCE INSPECTION FORM

☐ WQ
☐ SW
☒ AQ
☐ NC

OUNTY: Multnomah

OURCE AME: Lakeside Industries

FFICIAL ONTACTED: Pat Dunigan, Chuck Gaskill

SOURCE ADDRESS: P.O. Box 1379 Bellevue, WA 98009

Site: 4850 N.W. Front Ave. Portland, OR

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
34 a	0.3	0.5	1.2	0.5

PERMIT NUMBER CO.	SOURCE	POINT	ACTION NO.		TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
26	3242	000		7	07		08/18/98	X	B41

1
2 In Compliance
3
4

OMPLIANCE STATUS (RESULT CODE)

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	Q		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	V	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT – ADDITIONAL REMARKS – OPERATING CONDITIONS

Plant was operating with no visible emissions.

Plant appeared to be well maintained. All duct work was in good condition with no observed rust.

Fugitive emissions were adequately controled.

Only minor odors were observed off plant site.

Lakeside submitted an annual report to the Department on 01/19/98. Based upon the reported information the facility operated in compliance with its PSELs in 1997.

[signature] 08/18/98
SIGNATURE OF INSPECTOR AND DATE

Source

SIGNATURE OF PERSON INTERVIEWED AND DATE

EQ/RQ—101 (1-88)

DEPARTMENT OF ENVIRONMENTAL QUALITY
SOURCE INSPECTION FORM

☐ WQ
☐ SW
☒ AQ
☐ NC

COUNTY: MULTNOMAH
SOURCE NAME: LAKESIDE INDUSTRIES
OFFICIAL CONTACTED: PAT DUNIGAN

SOURCE ADDRESS: P.O. BOX 1379
BELLEVUE, WA 98009
4850 N.W. FRONT AVE.
PORTLAND, OR

TABLE A PARA	PREP TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
34a	0.3	0.7	1.0	0.2

PERMIT NUMBER CODE	PERMIT NUMBER SOURCE	POINT	ACTION NO.	ACTION TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
26	3242	000	7	07		07/31/97	X	B41

1
2 IN COMPLIANCE
3
4

COMPLIANCE STATUS (RESULT CODE)

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	Q		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT — ADDITIONAL REMARKS — OPERATING CONDITIONS

FACILITY WAS OPERATING AT APPROXIMATELY 280 TONS/HOUR WITH MIX TEMPERATURE OF 320 AND 10% RAP CONTENT.

FACILITY WAS OBSERVED TO OPERATE FROM A START-UP. NO VISIBLE EMISSIONS WERE OBSERVED FROM THE BAGHOUSE STACK. NO POINTS WITH FUGITIVE EMISSIONS WERE OBSERVED AT THE PLANT. PLANT DUCTWORK WAS IN EXCELLENT CONDITION WITH NO HOLES AND ONLY MINOR SIGNS OF WEAR.

FUGITIVE DUST FROM HAUL ROADS WAS ADEQUATELY CONTROLED.

VERY LITTLE ODOR WAS NOTICED WITH NO ODORS DETECTED OFF THE PLANT SITE.

FACILITY WAS DETERMINED TO BE IN COMPLIANCE WITH ITS PSELS BASED ON ITS ANNUAL REPORT, SUBMITTED FOR 1996.

Greg Gunnar 07/31/97
SIGNATURE OF INSPECTOR AND DATE

PAT Dunigan
SIGNATURE OF PERSON INTERVIEWED AND DATE

[redacted] JRC[redacted]NSP[redacted]ION FORM [redacted]

COUNTY: MULTNOMAH NWR-P

Charles W Gask
503 222 4421

SOURCE NAME: LAKESIDE INDUSTRIES

SOURCE ADDRESS: 4850 NW FRONT AVE
PORTLAND 97210

OFFICIAL CONTACTED: CHUCK GASKILL, CASEY KING

SW
AQ
NC

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
34a	0.5	1.0	1.5	0.5

PERMIT NUMBER CO.	PERMIT NUMBER SOURCE	POINT	ACTION NO.		ACTION TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
26	3242	000	51	7	07	07 01 96	09/23/96	X	B41

8,1, IN COMPLIANCE
8,2,
8,3,
8,4,

COMPLIANCE STATUS *(RESULT CODE)*

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	Q		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT – ADDITIONAL REMARKS – OPERATING CONDITIONS

FACILITY WAS OPERATING AT TIME OF INSPECTION. OPERATING RATE WAS APPROX. 330 TONS/HR. @ 320°F MIX TEMP. AND 20% RAP CONTENT.

NO VISIBLE EMISSIONS WERE OBSERVED FROM THE EXHAUST STACK OF THE PLANT.

ALL HAUL ROADS WERE WATERED. WINDS WERE APPROX. 20-30 MPH FROM THE EAST/NE AND SOME MINOR FUGITIVE EMISSIONS WERE NOTICED OFF STORAGE PILES.

I NOTIFIED CHUCK GASKILL & K.C. KING THAT THE DEPARTMENT HAD RECENTLY RECEIVED 3 ANONYMOUS COMPLAINTS RE: FUGITIVE DUST (POSSIBLY FROM RAP CRUSHING). A VIOLATION FOR FUGITIVES COULD NOT BE VERIFIED AT TIME OF INSPECTION.

Greg Grunert 09/23/96
SIGNATURE OF INSPECTOR AND DATE

[signature]
SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/RO-101 (1-88)

~~DIVISION COPY~~ SOURCE

[redacted] SOURCE INSPECTION FORM [redacted] CHUCK [redacted] 503 222 6421 [redacted] SW [redacted] AQ NC

COUNTY: MULTNOMAH NWR-P

SOURCE NAME: LAKESIDE INDUSTRIES

SOURCE ADDRESS: 4850 NW FRONT STREET PORTLAND 97210

OFFICIAL CONTACTED: ASPHALT PLANT

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
	0.2	0.2	1.2	0.2

PERMIT NUMBER CO.	PERMIT NUMBER SOURCE	POINT	ACTION NO.	ACTION	ACTION TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
6	3242	000	37	7	08	09 30 94	07/19/94	X	B41

81 IN COMPLIANCE
82
83
84

COMPLIANCE STATUS (RESULT CODE)

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	Q		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT — ADDITIONAL REMARKS — OPERATING CONDITIONS

ASPHALT PLANT WAS IN OPERATION AT TIME OF INSPECTION. TEMPERATURE WAS APPROXIMATELY 90°F WITH WINDS FROM THE NW AT APPROX 5-10 MPH.

NO VISIBLE EMISSIONS WERE OBSERVED FROM THE BAG HOUSE OR SILOS. ASPHALT PLANT WAS OPERATING WITH A 20% RAP CONTENT AT TIME OF OBSERVATION. PREVIOUSLY IT WOULD HAVE BEEN UNHEARD OF FOR THIS PLANT TO RUN 20% RAP WITHOUT ANY VISIBLE EMISSIONS (PRIOR TO THE RECENT DRUM REPLACEMENT). THE RESULTS OF THIS INSPECTION VERIFY THE CAPABILITIES OF THE COUNTERFLOW DRUM TECHNOLOGY.

[signature] 7/19/94
SIGNATURE OF INSPECTOR AND DATE

Patrick L. Dunigan
SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/RQ—101 (1-88)

SOURCE COPY

[redacted] PAI[redacted]ENT [redacted] EN[redacted]ONI[redacted]TAL [redacted]JAL [redacted]

COUNTY: MULTNOMAH NWR-P

SOURCE INSPECTION FORM

CHUCK GASKILL
503 222 6421

[redacted] SW [redacted]
☒ AQ
☐ NC

SOURCE NAME: LAKESIDE INDUSTRIES

SOURCE ADDRESS: 4850 NW FRONT STREET
PORTLAND 97210

OFFICIAL CONTACTED: PAT DUNIGAN
ASPHALT PLANT

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
	0.2	0.5	1.5	0.5

PERMIT NUMBER CO.	PERMIT NUMBER SOURCE	POINT	ACTION NO.		ACTION TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
26	3242	000	36	7	07	05 01 94	06/09/94	X	B41

|8,1| IN COMPLIANCE
|8,2|
|8,3|
|S,4|

COMPLIANCE STATUS *(RESULT CODE)*

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	☒		
Permit emission limits	B	A	I
Emission standards	B	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	G	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

TREATMENT/PROCESS EQUIPMENT – ADDITIONAL REMARKS – OPERATING CONDITIONS

LAKESIDE RECENTLY REPLACED THEIR PARALLEL FLOW DRUM (ZURUMA MSSOORS) WITH A "HOT GENERATION" COUNTER FLOW DRUM (GUNCOR ULTRADRUM) IN ACCORDANCE WITH NC NO NR-0006. AT THE TIME OF INSPECTION THE PLANT WAS RUNNING WITH A RAP CONTENT OF 5%. NO VISIBLE EMISSIONS WERE OBSERVED FROM ANY EMISSION POINT. THIS FACILITY HAS BEEN THE SOURCE OF A NUMBER OF VISIBLE EMISSIONS COMPLAINTS AS WELL AS VIOLATIONS IN THE PAST (BEFORE THE GUNCOR DRUM). ONE OF THE ASSUMED CAUSES OF THOSE INCIDENTS WAS THE VOLATILIZATION OF HYDROCARBONS FROM RAP IN THE MIX, WHICH THEN CONDENSED AFTER EXITING THE BAGHOUSE STACK WITH THE NEW PLANT CONFIGURATION, VOLATILIZED HYDROCARBONS ARE REROUTED THROUGH THE BURNER. THE INSPECTION WAS PERFORMED IN THE AFTERNOON AT A TIME OF HIGH SUN ANGLE. THIS WOULD HAVE CAUSED ILLUMINATION OR MAGNAFICATION OF ANY PARTICULATES IF THEY WERE PRESENT. I HAVE TO SAY THAT THIS WAS THE CLEANEST HOT MIX ASPHALT PLANT OPERATION I HAVE OBSERVED. THE FOLLOWING WERE THE OPERATING PARAMETERS AT THE TIME OF INSPECTION:

BAGHOUSE $\Delta P = 4$" H_2O, STACK TEMP = 255° F, MIX TEMP = 300-305° F
PRODUCTION RATE = 350-360 TPH, RAP = 5%

~~SOURCES IN VIOLATION & LIMITS VIOLATED~~

[signature] 6/9/94
SIGNATURE OF INSPECTOR AND DATE

SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/RQ-101 (1-85)

SOURCE COPY

[redacted] PA[redacted]ENT[redacted] EN[redacted]ON[redacted]TAL[redacted]AL[redacted]

SOURCE INSPECTION FORM

COUNTY: MULTNOMAH

SOURCE NAME: LAKESIDE INDUSTRIES

SOURCE ADDRESS: 4850 NW FRONT STREET
PORTLAND 97210

[redacted] SW [redacted]
[AI] AQ
[ ] NC

OFFICIAL CONTACTED: ASPHALT PLANT

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
	0.1	0.2	0.3	0.1

PERMIT NUMBER CO.	PERMIT NUMBER SOURCE	POINT	ACTION NO.	ACTION	ACTION TYPE	DATE SCHEDULED MO. DAY YR.	DATS ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
[illegible]	[illegible]	001	29	7	08	09 30 93		X	

81 IN COMPLIANCE
82
83
84

COMPLIANCE STATUS (RESULT CODE)

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	Q		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

~~SOURCES IN VIOLATION & LIMITS VIOLATED~~

TREATMENT/PROCESS EQUIPMENT – ADDITIONAL REMARKS – OPERATING CONDITIONS

OBSERVED THE LAKESIDE FACILITY FOR VISIBLE EMISSIONS. A FORMAL VISIBLE EMISSIONS EVALUATION SHEET WAS NOT COMPLETED AS DUE TO CONDITIONS IT WAS NECESSARY TO OBSERVE THE SOURCE FROM A DISTANCE GREATER THAN 1/4 MILE WHICH IS THE MAXIMUM DISTANCE RECOGNIZED BY EPA METHOD 9.

EMISSIONS FROM THE ASPHALT PLANT WERE OBSERVED AGAINST A GREEN BACKGROUND. A STEAM PLUME WAS PRESENT. PLANT EMISSIONS WERE GREY/WHITE. AT THE POINT OF STEAM PLUME DISIPATION THE ASPHALT PLANT'S VISIBLE EMISSIONS WERE ESTIMATED TO RANGE BETWEEN 10-20% OPACITY FOR AN AVERAGE OF APPROXIMATELY 15% OPACITY

RECEIVED
LAKESIDE INDUSTRIES
PORTLAND DIVISION
JUL 23 REC'D
ACTION ☐
FILE ☐
BY

[signature] 7/21/93
SIGNATURE OF INSPECTOR AND DATE

SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/PO-101 (1-88)

SOURCE COPY

[redacted] ART[redacted]NT [redacted]ENV[redacted]NM[redacted]AL QUALIT[redacted]

SOURCE INSPECTION FORM

[redacted] W [redacted]

[redacted] AQ [redacted]

☐ NC

NTY: MULTNOMAH

SOURCE NAME: LAKESIDE INDUSTRIES

SOURCE ADDRESS: 4850 NW FRONT STREET
PORTLAND 97210

OFFICIAL CONTACTED: ASPHALT PLANT

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
	1.0	0.5	2.0	0.5

PERMIT NUMBER CO.	PERMIT NUMBER SOURCE	POINT	ACTION NO.	ACTION	ACTION TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
26	1247	001	28	7	02	01 01 93	03/26/93	X	B41

8,1, IN COMPLIANCE
8,2,
8,3,
8,4,

COMPLIANCE STATUS *(RESULT CODE)*

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	Q		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT – ADDITIONAL REMARKS – OPERATING CONDITIONS

FACILITY WAS INSPECTED FOR COMPLIANCE WITH SFO (ISSUED IN OCT./92) AS WELL AS THE PERMIT. THE COMPANY HAS COMPLETED AND COMPLIED WITH ALL ITEMS IDENTIFIED IN THE SFO. THE INSPECTION VERIFIED THAT THE FOLLOWING EQUIPMENT HAS BEEN INSTALLED AND IS OPERATING.

1. BROKEN BAG DETECTOR
2. MIX TEMP./EXHAUST TEMP. RECORDING DEVICE

IN ADDITION, STORAGE SILOS ARE NOW EXHAUSTED INTO MIX DRUM.

AT TIME OF INSPECTION MIX TEMP. WAS 305°F; EXHAUST TEMP RANGE WAS 150-330°F WITH AN AVERAGE OF ~320°F; MIX CONTAINED 5% RAP; PRODUCTION RATE = 470 TPH

VISIBLE EMISSIONS WERE NOT FORMALLY DOCUMENTED DUE TO BAD CONDITIONS BUT THEY APPEARED TO AVERAGE LESS THAN 20% OPACITY

COMPANY HAD JUST COMPLETED DYE TEST ON BAGHOUSE AFTER COMPLETELY REPLACING ALL BAGS AS EXCESS EMISSIONS HAD BEEN NOTED. DYE TEST

Gregory Gunnar 3/26/93
SIGNATURE OF INSPECTOR AND DATE

SIGNATURE OF PERSON INTERVIEWED AND DATE

SOURCE INSPECTION FORM

COUNTY: MULTNOMAH

SOURCE NAME: LAKESIDE INDUSTRIES

OFFICIAL CONTACTED: HAROLD NICKEL

ASPHALT PLANT

SOURCE ADDRESS: 4850 NW FRONT ST.
PORTLAND, OR 97210

☒ AQ
☐ NC

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
	0.5	0.5	1.0	0.5

PERMIT NUMBER CO.	SOURCE	POINT	ACTION NO.		TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
26	3242	000		7	08		9/3/92	X	B41

81 IN COMPLIANCE
82
83
84

COMPLIANCE STATUS (RESULT CODE)

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	Q		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT — ADDITIONAL REMARKS — OPERATING CONDITIONS

I MET LAKESIDE INDUSTRIES PRODUCTION MGR., MR. HAROLD NICKEL, TO VERIFY COMPLIANCE WITH VISIBLE EMISSIONS STANDARDS WHICH HAVE RECENTLY BEEN VIOLATED BY THE FACILITY. AS PART OF ADDRESSING A STIPULATED FINAL ORDER, MR. NICKEL AND PLANT PERSONNEL HAD DETERMINED THAT THE FACILITY COULD MAINTAIN COMPLIANCE WHEN OPERATED AT 500 TONS/HOUR (PLANT'S RATED CAPACITY) WITH 5% RAP AND 300° MIX TEMPERATURE. THESE CONDITIONS WERE VERIFIED AT THE TIME OF MY OBSERVATION. DURING THE OBSERVATION PERIOD ONLY A STEAM PLUME WAS NOTICED. A SOURCE TEST IS SCHEDULED FOR SEP. 17, 1992.

Gregory Grimes 9/

SIGNATURE OF INSPECTOR AND DATE

SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/RQ—101 (1-88)

DIVISION COPY

OCT 28 1996

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

RED-SAMM MINING CO INC
LAKESIDE INDUSTRIES
PO BOX 1379
BELLEVUE WA 98009

RE: ISSUANCE OF AIR
CONTAMINANT DISCHARGE PERMIT
Permit No. 26-3229

The Department of Environmental Quality has completed processing your application for an Air Contaminant Discharge Permit. Based on the material contained in the application we have issued the enclosed permit.

The effective date of the permit is the date it was signed by the Regional Administrator. The signature and date appear on the first page of the document. The permit is issued pursuant to Oregon Revised Statutes 468A and Oregon Administrative Rules (OAR) 340-14-005 through 340-14-050, and 28-1700 through 28-1790.

You may appeal conditions or limitations contained in the attached permit by applying to the Environmental Quality Commission, or its authorized representative, within twenty days from the date of this letter. Appeals are pursuant to ORS Chapter 183 and OAR Chapter 340, Division 14-025(6). Appeal procedures are contained in OAR Division 11-005 through 11-140.

A copy of the current permit must be available at the facility at all times (Condition G2). Failure to comply with permit conditions may result in civil penalties. You are expected to read the permit carefully and comply with all conditions to protect the environment of Oregon.

If you have any questions, please contact Kathy Amidon at (503) 229-5568.

Sincerely,

Ed Druback
Air Quality Manager
Northwest Region

ED:jdb
Enclosure
cc: next page

John A. Kitzhaber
Governor

2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

DEQ-1

cc: Terri Sylvester/AQ
EPA - Region X
Kathy Amidon/NWR

MINIMAL SOURCE AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Northwest Region
2020 SW 4th, Suite 400
Portland, Oregon 97201-4987
Telephone: (503) 229-5554

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Red-Samm Mining Company, Inc.
dba Lakeside Industries
PO Box 1379
Bellevue, WA 98009

INFORMATION RELIED UPON:

Application No.: 15829
Date received: 8/28/96

PLANT SITE LOCATION:

4580 NW Front Avenue
Portland, OR

LAND USE COMPATIBILITY STATEMENT:

From: City of Portland
Dated: 5/10/88

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY:

Tom Bispham, Northwest Region Administrator

OCT 28 1996
Dated

Source(s) Permitted to Discharge Air Contaminants:

TYPE OF FACILITY (from Table 4, OAR 340-28-1750)	STANDARD INDUSTRY CODE
39., Cement treated base (CTB)	3271
42a., Stationary crusher, Recycled asphalt product (RAP)	1442

PERMIT CONDITIONS

1. The permittee is herewith allowed to discharge exhaust gases containing air contaminants only in accordance with the permit application and the limitations contained in this permit. Until such time as this permit expires or is modified or revoked, at the permittee is herewith allowed to discharge exhaust gases from those processes and activities directly related or associated

7. The permittee shall promptly notify the Department of any change of mailing address, company name, or plant ownership.

8. This permit is site specific. The permittee shall apply for a new permit prior to moving the plant to a new site.

9. At least one compliance determination fee for this source will be required within five years of the issuance date of this permit. The permittee will be invoiced according to the fee schedule in effect at the time the fee is due.

10. Application for renewal of this permit must be submitted not less than 60 days prior to the permit expiration date. A Filing Fee, an Application Processing Fee, and an Annual Compliance Determination Fee must be submitted with the application for the permit renewal.

11. The Department has determined that this source has minimal emissions, insignificant impact on air quality in the area, and creates no nuisance conditions of any kind. If changes in annual operations result in increased emissions, the permittee must notify the Department and may be required to obtain a regular Air Contaminant Discharge Permit. This would result in requirements for annual inspections and annual fees.

12. The permittee shall allow Department of Environmental Quality representatives access to the plant site and pertinent records at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit in accordance with ORS 468.095.

13. The permittee shall have available at the facility at all times a copy of the Air Contaminant Discharge Permit.

14. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

15. This permit is subject to revocation for cause as provided in OAR 340-14-045.

ALL INQUIRIES SHOULD BE DIRECTED TO:

Department of Environmental Quality
Northwest Region
2020 SW 4th, Suite 400
Portland, Oregon 97201-4987
Telephone: (503) 229-5554

Department of Environmental Quality
Air Quality Division

AIR CONTAMINANT DISCHARGE PERMIT APPLICATION REVIEW REPORT

Red-Samm Mining Company, Inc.
dba Lakeside Industries
PO Box 1379
Bellevue, WA 98009

PSEL CRED	SOURCE TEST	AMB MON	COMPL SCHED	SPEC COND	RPT FREQ	EXCESS	NSPS	NSR	PSD	NESHAP	SIZE	PUBL NOTC
											B	

GENERAL BACKGROUND INFORMATION

1. Red-Samm Mining Company, Inc., dba Lakeside Industries, operates a cement-treated base (CTB) plant and recycled asphalt (RAP) crusher located at 4850 NW Front Avenue in Portland. Cement treated base is similar to concrete, but is drier, having a moisture content of about 6.5%.

2. Material from two aggregate hoppers is dropped onto a feeder belt, which has a belt scale. This belt feeds aggregate into a pug mill. From a silo, cement is fed into the mill. Water is added as the materials are mixed in the mill. The product is fed to a truck loading silo, from which it is loaded into open trucks. The facility was built in 1988.

3. The source is located in a nonattainment area for carbon monoxide, nitrogen oxides, volatile organic compounds, and particulate matter. The plant is an insignificant source of particulate matter, and does not emit the other pollutants. The area is in attainment for other pollutants not listed.

4. A Land Use Compatibility Statement signed by the City of Portland on May 10, 1988 granted conditional approval. All conditions have been met to date. The plant is located in an area which requires a Greenway Review for changes in type of land use.

5. No other permits have been issued for this source by the Department of Environmental Quality.

14. The estimated normal annual rate of air contaminant emissions is 1.2 tons/year of Particulate Matter.

Emission Point	Operating Parameter	Emission Factor	Reference	Estimated Emissions
CTB Baghouse	60,000 yd^3/yr 460 yd^3/hr	0.02 lb/yd^3	DEQ Factor	0.6 ton/yr 9.2 lb/hr
Crushers, belts, screens	60,000 ton/yr 120 ton/hr	0.02 lb/ton	DEQ Factor	0.6 ton/yr 2.4 lb/hr
			Totals:	1.2 ton/yr 11.6 lb/hr

15. There are no special conditions in this permit.

16. This source is not subject to regulations for New Source Performance Standards (NSPS), Prevention of Significant Deterioration (PSD) or National Emissions Standards for Hazardous Air Pollutants (NESHAP).

17. The anticipated particulate matter emissions are less than five tons per year. This source currently meets the other criteria for a Minimal Source Permit.

KAmidon:EDruback
October 24, 1996

LAKESIDE INDUSTRIES

P.O. BOX 1379 BELLEVUE, WA 98009 (206) 313-2600 FAX (206) 313-2620

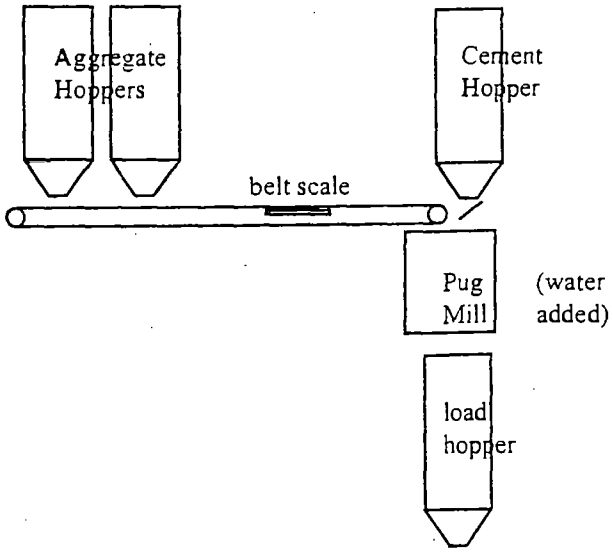
Supplemental Information about the Cement Treated Base (CTB) Plant
DEQ permit # 26-3229

1. The Concrete Treated Base (CTB) process is different than ready-mix concrete. The product is not the wet, flowing concrete product that most people are familiar with. The CTB is a relatively dry product that looks like damp gravel, is loaded and dumped from standard open trucks. Since this plant is different than the ready-mix concrete plants listed on form AQ204, I have provided this supplementary information.

2. The plant consists of two aggregate hoppers which drop aggregate onto a feeder belt with belt-scale. This belt feeds aggregate into a pug mill. Also feeding into the pug mill is a cement silo. Cement is added at about 4% by weight. Inside the pug mill are water sprays which add small amounts of water (about 3%) to bring the water content to about 6.5% of the total product by weight. CTB is processed through the pug mill mixer in a continuous fashion where it drops into a truck loading silo. There are two different products which are produced:

   - a 1" base material which is mixed with water only.
   - a CTB product which has small amounts of Portland cement added as well as water.

3. Both these products are loaded "dry" into open trucks. It is laid down like any other aggregate product, bladed into place and compacted.



SOURCE INSPECTION FORM

COUNTY: Multnomah

SOURCE NAME: Lakeside Industries

OFFICIAL CONTACTED: Chuck Gaskill

SOURCE ADDRESS: P.O. Box 1379 Bellevue WA 98009 Site 4850 N.W. Front Ave. Portland, OR

PERMIT NUMBER CO.	SOURCE	POINT	ACTION NO.	SEC.	TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
26	3229	000		7	07		08/18/98	X	B41

TABLE A PARA	PREP TIME	TRANS TIME	INSPECTION TIME	PAPER TIME
39	0.2	0.5	0.5	0.3
42a				

8 1

8 2 In Compliance

8 3

8 4

COMPLIANCE STATUS (RESULT CODE)

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	O		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT — ADDITIONAL REMARKS — OPERATING CONDITIONS

The RAP crusher was operating at the time of inspection. Water spray were observed to be [illegible] emissions were observed from the crusher operation. No fugitive dust or evidence (fallout) of prior deposition was observed at neighboring premises (Shaver Transportation).

The CTB operation was not in operation at time of inspection. It appeared to be well maintained and no noticeable evidence of past fugitive emissions.

SIGNATURE OF INSPECTOR AND DATE

Greg Grundel 08/18/98

SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/RQ-101 (1-88)

SOURCE COPY

SOURCE INSPECTION FORM

COUNTY: Multnomah

SOURCE NAME: Lakeside Industries

OFFICIAL CONTACTED: Chuck Gaskill

SOURCE ADDRESS: P.O. Box 1379 Ballevue WA 98009 Site 4850 N.W. Front Ave. Portland, OR

PERMIT NUMBER CO.	SOURCE	POINT	ACTION NO.		TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
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Procedural Reqts.	W	F	N
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SOURCES IN VIOLATION & LIMITS VIOLATED

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The RAP crusher was operating at the time of the Water sprays were observed to be [illegible] emissions were observed from the crushing operation. No fugitive dust or evidence (fallout) of prior deposition was observed at neighboring premises (Shaver Transportation).

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SIGNATURE OF INSPECTOR AND DATE

Greg Grundel 08/18/98

SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/RQ-101 (1-88)

SOURCE COPY

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
1120 SW Fifth Avenue, Room 400, Portland, Oregon 97204-1972 (503) 823-7769, FAX (503) 823-6995 Dean Marriott, Director

RECEIVED
LAKESIDE INDUSTRIES
PORTLAND DIVISION
APR 07 1995
ACTION ☐
FILE ☐
BY

REC'D
APR 11 1995
LAKESIDE INDUSTRIES
REDMOND OFFICE

April 6, 1995

Chuck Gaskill
Lakeside
4309 NW Front Ave.
Portland, OR 97210

Dear Mr. Gaskill

The Oregon Department of Environmental Quality (DEQ), in accordance with the 1990 Federal Regulations 40 CFR 122, has been issuing NPDES Storm Water Discharge Permits to industries that have storm water discharges to waters of the State. Industries required to fill out a storm water permit application are based on, among other criteria, SIC Codes.

The City of Portland has a Memorandum of Agreement (MOA) with DEQ to administer the permits issued by DEQ to facihties that discharge storm water to the City's municipal separate storm sewer system (MS4). In addition, the City is responsible for notifying DEQ of those industries that discharge storm water to the MS4 and need to submit a storm water permit application to DEQ.

Your facility has been identified, by SIC Code, as potentially needing an NPDES Storm Water Permit. You can expect staff from the City or DEQ to visit your site in the near fature for a brief inspection to evaluate the need for a permit. A courtesy call announcing the day of the inspection will be made.

In addition, there may be issues that need to be addressed regardless of the requirement for a permit. These would include, but not be limited to, outside storage of materials, equipment washing operations, and loading/unloading operations. City Code 17.39 was enacted to address any discharge to the City's storm sewer.

If you have any questions please call John Holtrop at the City of Portland (823-7885) or Paul Kieran at DEQ (229-5937).

Thank you for your cooperation,

John Holtrop

John Holtrop
Environmental Tech II
City of Portland

Paul Kieran
Storm Water Control Specialist
Department of Environmental Quality

Appendix I

Oregon Division of State Lands Remove-Fill Joint Permit Application (RP 4686)

Oregon

DSL

DIVISION OF
STATE LANDS

STATE LAND BOARD

JOHN A. KITZHABER
Governor

PHIL KEISLING
Secretary of State

JIM HILL
State Treasurer

775 Summer Street NE
Salem, OR 97310-1337
(503) 378-3805
FAX (503) 378-4844
TTY (503) 378-4615

August 14, 1995

RECEIVED
LAKESIDE INDUSTRIES
PORTLAND, OREGON
AUG 21 1995
ACTION ☐
FILE ☐
BY

RP 4868
Lakeside Industries
4850 NW Front Avemue
Portland, Oregon 97201

Your removal-fill permit is due to expire soon. If you wish to continue the activity outlined in the permit, it will be necessary to renew the permit within the next few weeks. Please respond so we can issue your permit for another five year period. A multi-year permit can be issued provided that the application is current and the designated disposal site(s) is sufficient for the five year period.

Please return this letter, indicating the action you wish to be taken, if applicable. If there are any questions regarding the permit program or this renewal, please call Mindy Manley at 378-3805, extension 275.

PLEASE RESPOND BY: September 6, 1995

_____ Do not renew
( ) Project completed ( ) Project withdrawn

_X_ Please renew (fee enclosed)

Permit No.: RP 4868
Waterway: Willamette R.
Expiration Date: October 9, 1995
Fee: $150.00

NOTE: If we have not received a response to this letter within 30 days of the expiration date noted above, we will consider the project complete and close the file.

Enclosure: Permit Application

JOINT
PERMIT APPLICATION FORM

THIS APPLICATION WILL MEET THE REQUIREMENTS OF BOTH AGENCIES

Corps
eers
trict

AGENCIES WILL ASSIGN NUMBERS

ID Number 071-OYA-Z-007844 Oregon Division of State Lands Number RP-4868

SEND ONE SIGNED COPY OF YOUR APPLICATION TO EACH AGENCY

District Engineer	State of Oregon
ATTN: CENPP-PE-RP	Division of State Lands
P O Box 2946	775 Summer Street NE
Portland, OR 97208-2946	Salem OR 97310
503/326-7730	503/378-3805

nt Name	Lakeside Industries 4850 N.W. Front Street Portland OR 97210	business phone # (503) ~~878~~ - 222-6421 home phone # FAX # (503) -222-6460
icant Agent Address		business phone # home phone # FAX #
er pplicant) Address		business phone # home phone # FAX #

PROJECT LOCATION

or other descriptive location N.W. Front Avenue		Legal Description			
		Quarter	Section	Township	Range
		NE	19	1N	1E
City or Town) d	County ~~#~~	Tax Map #		Tax Lot #	
				112 + 113	
nette	River Mile 8.5	Latitude		Longitude	

enter property granted to the Corps and the Division of State Lands? ⊗ Yes ○ No

PROPOSED PROJECT INFORMATION

○ Fill ⊗ Excavation (removal) ○ In-Water Structure ○ Maintain/Repair an Existing Structure

tion: Maintenance dredging to provide barge access to unloading facilities

e _____ cubic yards annually and/or _____ cubic yards for the total project

_____ cubic yards in a wetland or below the ordinary high water or high tide line

○ Riprap ○ Rock ○ Gravel ○ Sand ○ Silt ○ Clay ○ Organics ○ Other

ea is _____ Acres; _____ length; _____ width; _____ depth

ill involve 1500 cubic yards annually and/or 3000 cubic yards for the total project

_____ cubic yards below the ordinary high water or high tide line

be ○ Riprap ○ Rock ○ Gravel ○ Sand ⊗ Silt ○ Cloy ○ Organics ○ Other _____

npact Area is 1.25 Acres; 365' length; 150' width; _____ depth

rt Date as needed Estimated Completion Date as needed

erial, construction debris, runoff, etc. enter a wetland or waterway? ○ Yes ⊗ No

be the type of discharge and show the discharge location on the site plan. material is already in waterway.

US Army Corps of Engineers
Portland District

JOINT PERMIT APPLICATION FORM

THIS APPLICATION WILL MEET THE REQUIREMENTS OF BOTH AGENCIES

STATE OF OREGON 1859

AGENCIES WILL ASSIGN NUMBERS

Corps Action ID Number 071-OYA-2-007844 Oregon Division of State Lands Number RP-4868

SEND ONE SIGNED COPY OF YOUR APPLICATION TO EACH AGENCY

District Engineer	State of Oregon
ATTN: CENPP-PE-RP	Division of State Lands
P O Box 2946	775 Summer Street NE
Portland, OR 97208-2946	Salem OR 97310
503/326-7730	503/378-3805

① Applicant Name and Address: Lakeside Industries, 4850 N.W. Front Street, Portland OR 97210
business phone # (503) ~~878~~ - 222 - 6421
home phone #
FAX # (503) - 222 - 6460

O Co-Applicant
O Authorized Agent
O Contractor
Name and Address
business phone #
home phone #
FAX #

Property Owner (if different than applicant) Name and Address
business phone #
home phone #
FAX #

② **PROJECT LOCATION**

Street, Road or other descriptive location	Legal Description			
4850 N.W. Front Avenue	Quarter	Section	Township	Range
	NE	19	1N	1E

In or Near (City or Town)	County	Tax Map #	Tax Lot #
Portland	~~#~~		112 + 113

Waterway	River Mile	Latitude	Longitude
Willamette	8.5		

Is consent to enter property granted to the Corps and the Division of State Lands? ⊗ Yes O No

③ **PROPOSED PROJECT INFORMATION**

Activity Type: O Fill ⊗ Excavation (removal) O In-Water Structure O Maintain/Repair an Existing Structure

Brief Description: maintenance dredging to provide barge access to unloading facilities

Fill will involve _____ cubic yards annually and/or _____ cubic yards for the total project

_____ cubic yards in a wetland or below the ordinary high water or high tide line

Fill will be O Riprap O Rock O Gravel O Sand O Silt O Clay O Organics O Other

Fill Impact Area is _____ Acres; _____ length; _____ width; _____ depth

Removal will involve 1500 cubic yards annually and/or 3000 cubic yards for the total project

_____ cubic yards below the ordinary high water or high tide line

Removal will be O Riprap O Rock O Gravel O Sand ⊗ Silt O Clay O Organics O Other _____

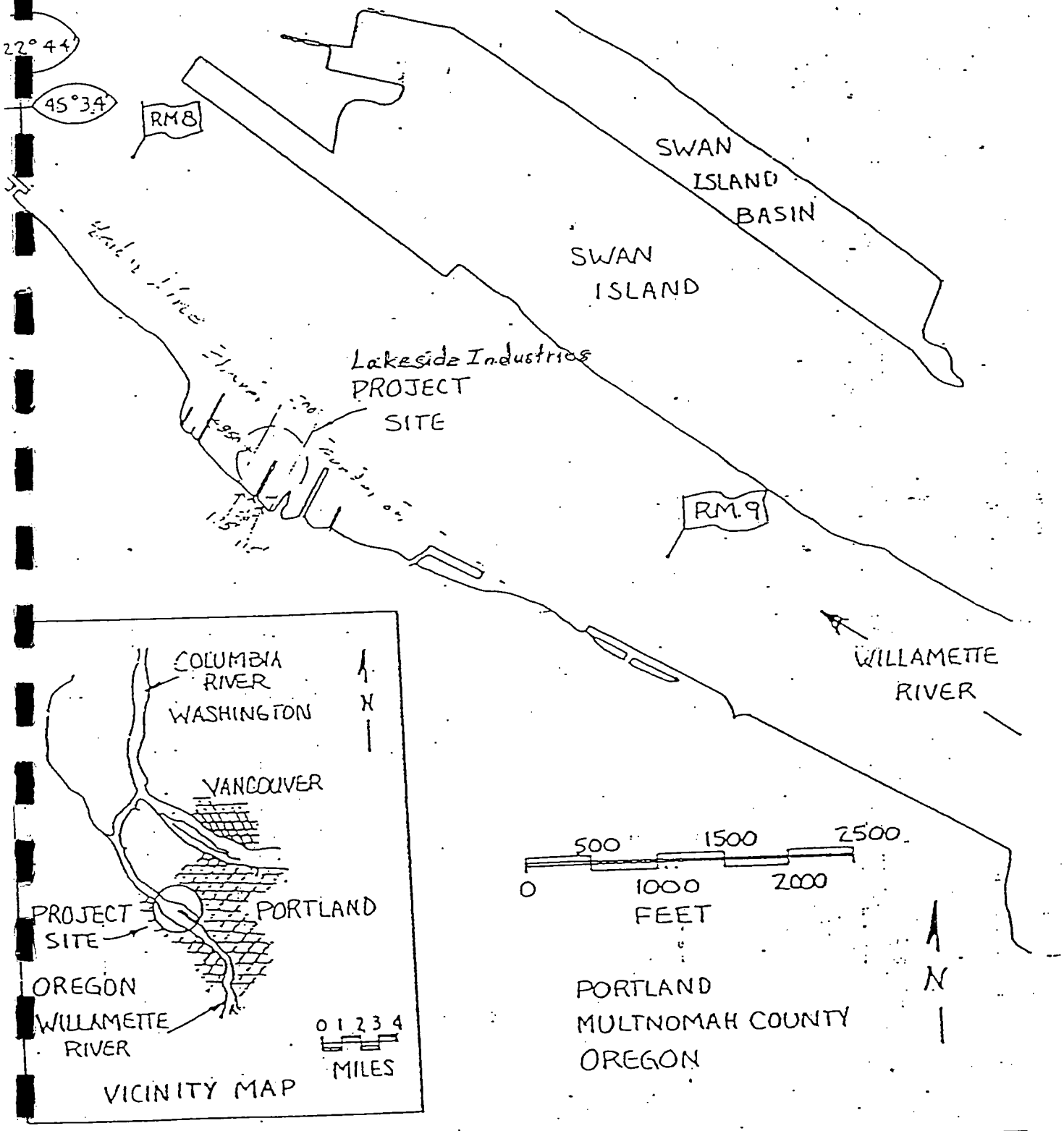
Removal impact Area is 1.25 Acres; 365' length; 150' width; _____ depth

Estimated Start Date as needed Estimated Completion Date as needed

Will any material, construction debris, runoff, etc. enter a wetland or waterway? O Yes ⊗ No

If yes, describe the type of discharge and show the discharge location on the site plan. material is already in waterway.

007844 (Willamette River - Dredging/Dolphins)



PURPOSE: BARGE ACCESS AND TIE-UP ADJACENT TO EXSITING DOCK

ATUM: COLUMBIA RIVER DATUM (CRD)

ADJACENT PROPERTY OWNERS:

1. GUNDERSON INC.
2. SHAVER TRANSPORTATION CO.

PROPOSED MAINTENANCE DREDGING

IN: WILLAMETTE RIVER RIVER MILE: 8.44

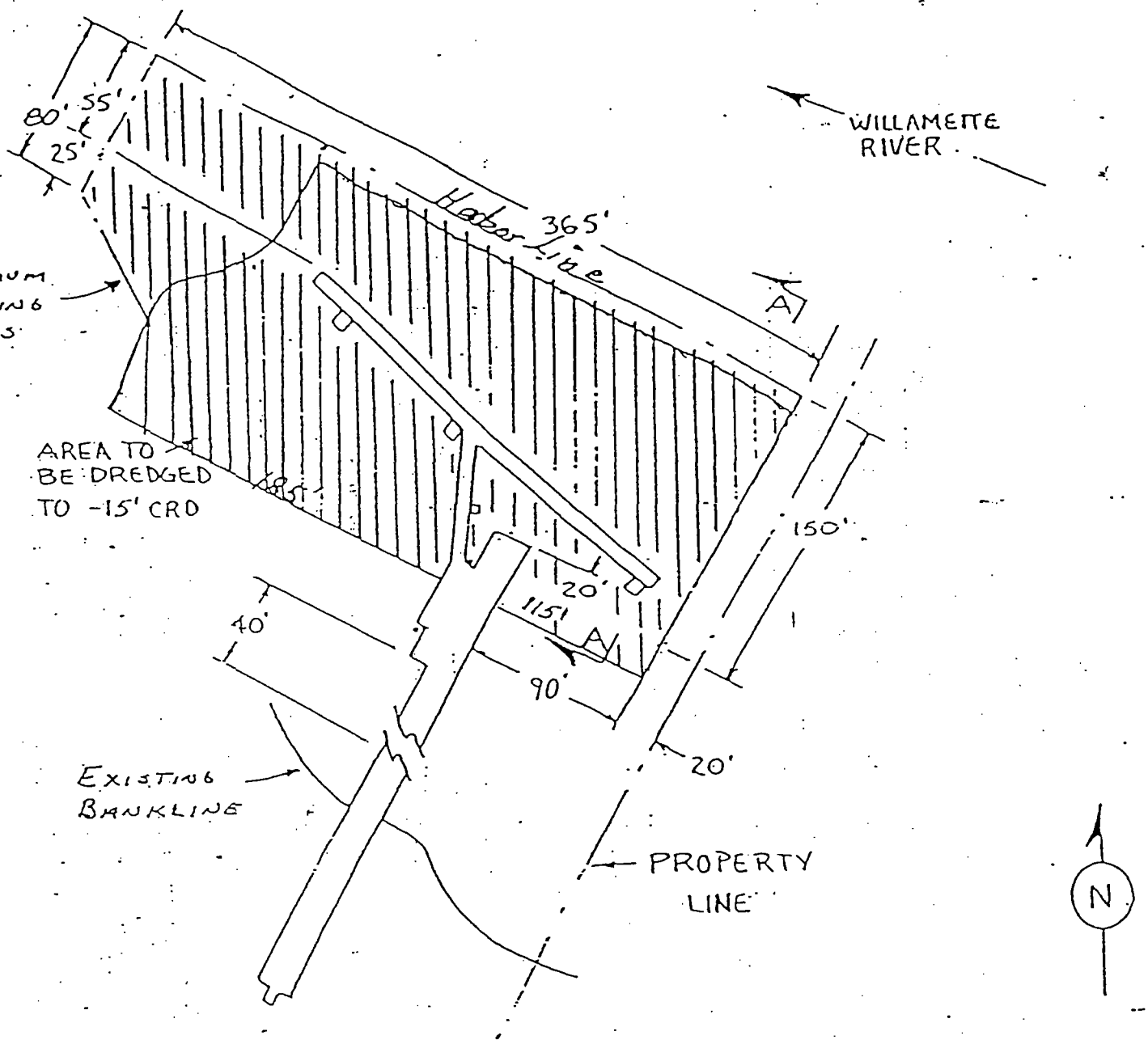
NEAR: PORTLAND

COUNTY: MULTNOMAH STATE: OREGON

APPLICANT: LAKESIDE INDUSTRIES

DATE: MARCH 22, 1988

SHEETS: 1 OF 2



SCALE 1/8" = 10'-0"

SEE SHEET 2 OF 2 FOR DETAIL

PURPOSE: BARGE ACCESS AND TIE-UP ADJACENT TO EXSITING DOCK

DATUM: COLUMBIA RIVER DATUM (CRD)

ADJACENT PROPERTY OWNERS:

1. GUNDERSON INC.
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PROPOSED MAINTENANCE DREDGING

IN: WILLAMETTE RIVER RIVER MILE: 8.44

NEAR: PORTLAND

COUNTY: MULTNOMAH STATE: OREGO

APPLICANT: LAKESIDE INDUSTRIE

DATE: MARCH 22, 1988

SHEETS: 2 OF 2

Appendix H

City of Portland Stormwater Discharge Evaluation Letter

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
1211 S.W. 5th Ave., Suite 800, Portland, Oregon 97204-3713
(503) 823-5320, FAX (503) 823-5559

5-23-95

Forest Lane
Lakeside Industries
P.O. Box 1379
Bellevue, WA 98009

RE: Stormwater inspection of,

Lakeside Industries
4850 NW Front Ave.
Portland, OR 97210

Dear Mr. Lane

This letter is to follow up on the stormwater inspection of 5-4-95 and the subsequent dye testing of the oil water separator. The diesel tank containment drains to the oil water separator. The flow from the separator was not observed in the city storm sewer so it is assumed that the separator drains to a dry well. It does not appear that Lakeside Industries is required to apply for a stormwater permit at this time. If you have any questions please call me at 823-7885.

Sincerely

John Holtrop

John Holtrop
Industrial Stormwater Section

CC: Paul Keiran

Appendix J

Oregon Water Resources Department Water Well Log Reports

ell Log Report - Page 1 of 1

Township: 1N, Range: 1E, Section: 19, Well Log ID: NONE

k on the column heading to re-sort the results, Click on Well Log to view image, Click here if you are having problems

ell Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type: New	Abandon	Deepen	Recond.	Repair	Conversion	Well Use: Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal
ULT 5	1N-1E-19 -	33	3800 NW ST HELENS RD, PORTLAND		TEXACO	M	11	20	9		6/21/1993	7/16/1993	NIERMEYER , BRUCE	52161		X												
MULT 3556	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	10	20	10		6/21/1993	7/16/1993	NIERMEYER , BRUCE	52162		X												
LT 7	1N-1E-19 -	33	3800 NW ST HELENS RD, PORTLAND		TEXACO	M	12	20	12		6/21/1993	7/16/1993	NIERMEYER , BRUCE	52163		X												
MULT 3558	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	12	20	12		6/21/1993	7/16/1993	NIERMEYER , BRUCE	52164		X												
LT 9	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	12	20	12		6/21/1993	7/16/1993	NIERMEYER , BRUCE	52165		X												
MULT 3560	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/22/1993	7/16/1993	NIERMEYER , BRUCE	52166		X												
LT 61	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	14	20	14		6/22/1993	7/16/1993	NIERMEYER , BRUCE	52167		X												
MULT 62	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/23/1993	7/16/1993	NIERMEYER , BRUCE	52168		X												
ULT 3563	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/23/1993	7/16/1993	NIERMEYER , BRUCE	52169		X												
MULT 64	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	6	20	6		6/23/1993	7/16/1993	NIERMEYER , BRUCE	52170		X												
ULT 3565	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/23/1993	7/16/1993	NIERMEYER , BRUCE	52171		X												
ULT 66	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/23/1993	7/16/1993	NIERMEYER , BRUCE	52172		X												
MULT 3567	1N-1E-19 -	33	3800 NW ST HELENS RD, PORTLAND		TEXACO	M	9	20	9		6/24/1993	7/16/1993	NIERMEYER , BRUCE	52173		X												
ULT 68	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	9	20	9		6/24/1993	7/16/1993	NIERMEYER , BRUCE	52174		X												
MULT 3569	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/24/1993	7/16/1993	NIERMEYER , BRUCE	52175		X												
ULT 70	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	9	20	9		6/24/1993	7/16/1993	NIERMEYER , BRUCE	52176		X												
MULT 3571	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/25/1993	7/16/1993	NIERMEYER , BRUCE	52177		X												
ULT 72	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/29/1993	7/16/1993	NIERMEYER , BRUCE	52178		X												
MULT 3573	1N-1E-19 -	33	3800 NW ST HELENS		TEXACO	M	8	20	8		6/28/1993	7/16/1993	NIERMEYER , BRUCE	52179		X												
ULT 74	1N-1E-19 -	33	3800 NW ST HELENS		TEXACO	M	8	20	8		6/28/1993	7/16/1993	NIERMEYER , BRUCE	52180		X												
MULT 3575	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	13	20	9		6/28/1993	7/16/1993	NIERMEYER , BRUCE	52181		X												
ULT 76	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	8	20	8		6/29/1993	7/16/1993	NIERMEYER , BRUCE	52182		X												
MULT 3577	1N-1E-19 -	33	3800 NW ST HELENS, PORTLAND		TEXACO	M	9	20	9		6/29/1993	7/16/1993	NIERMEYER , BRUCE	52183		X												
MULT 56735	1N-1E-19 -				NW NATURAL GAS	W					11/3/1969	11/4/1998	UNKNOWN , UNKNOWN															
MULT 996	1N-1E-19 -NE				NORTHWEST NATURAL GAS CO.	W		0			10/22/1982	10/26/1982	HANSEN , JIM HANSEN DRILLING CO. INC.			X												
MULT 997	1N-1E-19 -NE				NORTHWEST NATURAL GAS CO.	W		0			10/21/1982	10/26/1982	HANSEN , JIM HANSEN DRILLING CO.			X												
MULT 998	1N-1E-19 -NE				NORTHWEST NATURAL GAS CO.	W		0			10/20/1982	10/26/1982	HANSEN , JIM HANSEN DRILLING CO. INC.			X												
MULT 281	1N-1E-19 NE-NE	57			GUNDERSON INC.	M	25	35	25		6/15/1991	6/27/1991	MCINNIS , GREG	30854		X												
MULT 282	1N-1E-19 NE-NE	57			GUNDERSON INC.	M	25	35	25		6/15/1991	6/27/1991	MCINNIS , GREG	30855		X												

[redacted]	1N-1E-19 SW-NE	50	4959 SW FRONT		SCHNITZER STEEL INDUSTRIES	W			21.5		6/26/1996	7/15/1996	M TACOMA PUMP & DRILLING CO. INC	85690			X											
[redacted]	1N-1E-19 SW-NE	112	4850 NW FRONT AVE		LAKESIDE INDUSTRIES	M	5	57			5/11/1999	6/11/1999	BENSON , JIM GREAT WEST DRILLING, INC.	59571	26951	X												
MULT 289	1N-1E-19 NE-NW	57			GUNDERSON	M		18	10		6/23/1991	6/27/1991	MCINNIS , GREG	30870		X												
[redacted]	1N-1E-19 NE-NW	57			GUNDERSON	M	23	34	23		6/23/1991	6/27/1991	MCINNIS , GREG	30871		X												
[redacted] 3614	1N-1E-19 NW-NW				CHEVRON USA	M	0	0	0			8/3/1993	MCINNIS , GREG	57379			X											
MULT [redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	0	0	0			8/3/1993	MCINNIS , GREG	57378			X											
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	15		7/23/1993	8/3/1993	MCINNIS , GREG	57337		X												
MULT 3617	1N-1E-19 NW-NW				CHEVRON USA	M	10	15	10		7/22/1993	8/3/1993	MCINNIS , GREG	57336		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	14	19	13.5		7/22/1993	8/3/1993	MCINNIS , GREG	57335		X												
[redacted] 3619	1N-1E-19 NW-NW				CHEVRON USA	M	13	18	12.5		7/22/1993	8/3/1993	MCINNIS , GREG	57334		X												
MULT 3620	1N-1E-19 NW-NW				CHEVRON USA	M	13	18	12.5		7/21/1993	8/3/1993	MCINNIS , GREG	57333		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	8	14	8		7/21/1993	8/3/1993	MCINNIS , GREG	57332		X												
MULT 3622	1N-1E-19 NW-NW				CHEVRON USA	M	8	14	8		7/21/1993	8/3/1993	MCINNIS , GREG	57331		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	15		7/20/1993	8/3/1993	MCINNIS , GREG	57330		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	14.5		7/20/1993	8/3/1993	MCINNIS , GREG	57329		X												
MULT 3625	1N-1E-19 NW-NW				CHEVRON USA	M	18	23	17.5		7/19/1993	8/3/1993	MCINNIS , GREG	57328		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	19	14		1/12/1994	2/9/1994	MCINNIS , GREG	62353		X												
MULT 4013	1N-1E-19 NW-NW				CHEVRON USA	M	15	18	14		1/12/1993	2/9/1994	MCINNIS , GREG	62354		X												
MULT [redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	14		1/12/1994	2/9/1994	MCINNIS , GREG	62355		X												
[redacted]	1N-1E-19 SE-NW		5501 NW FRONT AVE		CHEVRON USA INC.	W	94	310	27	150	4/26/1989	5/26/1989	JANNSEN , PRESTON A	9987		X											X	
MULT [redacted]	1N-1E-19 SE-NW				BURLINGTON NORTHERN SOUTHERN PACIFIC RR	M	15	24	15		6/8/1995	6/19/1995	VANDEHEY , GREG	62239		X												
[redacted] 58462	1N-1E-19 SE-NW	100	4240 NW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
MULT [redacted]	1N-1E-19 SE-NW	100	4240 NW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
[redacted] 464	1N-1E-19 SE-NW	100	4240 NW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
MULT 58465	1N-1E-19 SE-NW	100	4240 SW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
[redacted] 467	1N-1E-19 SE-NW	100	540 NW YEON AVE		PACIFIC REALITY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
MULT 4813	1N-1E-19 NE-SE				GUNDERSON INC.	M	0	0	0		5/26/1995	6/26/1995	CRISMAN , RANDY L	78992			X											
[redacted] 9151	1N-1E-19 NE-SE	1300	4025 NE EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		16	8.2		9/13/1999	10/6/1999				X	X											
MULT 59152	1N-1E-19 NE-SE	1300	4025 NW EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		20	9.4		9/13/1999	10/6/1999				X	X											
[redacted] 9153	1N-1E-19 NE-SE	1300	4025 NW EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		20	10.2		9/13/1999	10/6/1999				X	X											
MULT 59154	1N-1E-19 NE-SE	1300	4025 NW EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		16	10.3		9/13/1999	10/6/1999				X	X											
[redacted] 5651	1N-1E-19 NW-SE	900	4319 YEON NW		AIR LIQUIDE INC.	G		20			4/23/1998	5/15/1998				X												
MULT 55652	1N-1E-19 NW-SE	900	4319 YEON NW		AIR LIQUIDE INC.	G		20			4/23/1998	5/15/1998				X												
MULT [redacted] 5653	1N-1E-19 NW-SE	900	4319 YEON NW		AIR LIQUIDE INC.	G		20			4/23/1998	5/15/1998				X												
[redacted] 85	1N-1E-19 SE-SE				MCWHORTER	M	11	18	11		2/22/1991	2/27/1991	MCINNNIS , GREG	27141		X												
MULT 86	1N-1E-19 SE-SE				MCWHORTER	M	11	18	11		2/22/1991	2/27/1991	MCINNIS , GREG	27142		X												
[redacted] 36	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	14	29	10.3		3/25/1991	4/9/1991	MCINNIS , GREG	27077		X												
MULT 137	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	12	25	10.5		3/25/1991	4/9/1991	MCINNIS , GREG	27076		X												
MULT [redacted]	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	13	23	10.5		3/26/1991	4/9/1991	MCINNIS , GREG	27075		X												
[redacted] 139	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	10	20	6.9		3/25/1991	4/9/1991	MCINNIS , GREG	27078		X												
MULT 958	1N-1E-19 SE-SE		3800 NW ST HELENS RD		TEXACO ENVIRONMENTAL SERVICES	M	5	10	4.5		9/23/1991	10/17/1991	SLOTTA , TIM	35847		X	X											
[redacted] MULT	1N-1E-19		3800 NW ST		TEXACO ENVIRONMENTAL	M	10	15	10.1		9/2/1991	10/17/1991	SLOTTA , TIM	35846		X	X											

[redacted]	1N-1E-19 SW-NE	50	4959 SW FRONT		SCHNITZER STEEL INDUSTRIES	W			21.5		6/26/1996	7/15/1996	M TACOMA PUMP & DRILLING CO. INC	85690			X											
[redacted]	1N-1E-19 SW-NE	112	4850 NW FRONT AVE		LAKESIDE INDUSTRIES	M	5	57			5/11/1999	6/11/1999	BENSON , JIM GREAT WEST DRILLING, INC.	59571	26951	X												
MULT 289	1N-1E-19 NE-NW	57			GUNDERSON	M		18	10		6/23/1991	6/27/1991	MCINNIS , GREG	30870		X												
[redacted]	1N-1E-19 NE-NW	57			GUNDERSON	M	23	34	23		6/23/1991	6/27/1991	MCINNIS , GREG	30871		X												
[redacted] 3614	1N-1E-19 NW-NW				CHEVRON USA	M	0	0	0			8/3/1993	MCINNIS , GREG	57379			X											
MULT [redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	0	0	0			8/3/1993	MCINNIS , GREG	57378			X											
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	15		7/23/1993	8/3/1993	MCINNIS , GREG	57337		X												
MULT 3617	1N-1E-19 NW-NW				CHEVRON USA	M	10	15	10		7/22/1993	8/3/1993	MCINNIS , GREG	57336		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	14	19	13.5		7/22/1993	8/3/1993	MCINNIS , GREG	57335		X												
[redacted] 3619	1N-1E-19 NW-NW				CHEVRON USA	M	13	18	12.5		7/22/1993	8/3/1993	MCINNIS , GREG	57334		X												
MULT 3620	1N-1E-19 NW-NW				CHEVRON USA	M	13	18	12.5		7/21/1993	8/3/1993	MCINNIS , GREG	57333		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	8	14	8		7/21/1993	8/3/1993	MCINNIS , GREG	57332		X												
MULT 3622	1N-1E-19 NW-NW				CHEVRON USA	M	8	14	8		7/21/1993	8/3/1993	MCINNIS , GREG	57331		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	15		7/20/1993	8/3/1993	MCINNIS , GREG	57330		X												
[redacted] 3624	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	14.5		7/20/1993	8/3/1993	MCINNIS , GREG	57329		X												
MULT 3625	1N-1E-19 NW-NW				CHEVRON USA	M	18	23	17.5		7/19/1993	8/3/1993	MCINNIS , GREG	57328		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	19	14		1/12/1994	2/9/1994	MCINNIS , GREG	62353		X												
MULT 4013	1N-1E-19 NW-NW				CHEVRON USA	M	15	18	14		1/12/1993	2/9/1994	MCINNIS , GREG	62354		X												
[redacted]	1N-1E-19 NW-NW				CHEVRON USA	M	15	20	14		1/12/1994	2/9/1994	MCINNIS , GREG	62355		X												
[redacted]	1N-1E-19 SE-NW		5501 NW FRONT AVE		CHEVRON USA INC.	W	94	310	27	150	4/26/1989	5/26/1989	JANNSEN , PRESTON A	9987		X											X	
MULT [redacted]	1N-1E-19 SE-NW				BURLINGTON NORTHERN SOUTHERN PACIFIC RR	M	15	24	15		6/8/1995	6/19/1995	VANDEHEY , GREG	62239		X												
[redacted] 58462	1N-1E-19 SE-NW	100	4240 NW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
MULT [redacted]	1N-1E-19 SE-NW	100	4240 NW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
[redacted] 464	1N-1E-19 SE-NW	100	4240 NW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
MULT 58465	1N-1E-19 SE-NW	100	4240 SW YEON AVE		PACIFIC REALTY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
[redacted] 467	1N-1E-19 SE-NW	100	540 NW YEON AVE		PACIFIC REALITY ASSOCIATES LP	G		12	7		6/8/1999	7/8/1999				X	X											
MULT 4813	1N-1E-19 NE-SE				GUNDERSON INC.	M	0	0	0		5/26/1995	6/26/1995	CRISMAN , RANDY L	78992			X											
[redacted] 251	1N-1E-19 NE-SE	1300	4025 NE EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		16	8.2		9/13/1999	10/6/1999				X	X											
MULT 59152	1N-1E-19 NE-SE	1300	4025 NW EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		20	9.4		9/13/1999	10/6/1999				X	X											
[redacted] 153	1N-1E-19 NE-SE	1300	4025 NW EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		20	10.2		9/13/1999	10/6/1999				X	X											
MULT 59154	1N-1E-19 NE-SE	1300	4025 NW EXPRESS AVE		GUILDS LAKE INVESTMENT CO	G		16	10.3		9/13/1999	10/6/1999				X	X											
[redacted] 651	1N-1E-19 NW-SE	900	4319 YEON NW		AIR LIQUIDE INC.	G		20			4/23/1998	5/15/1998				X												
MULT 55652	1N-1E-19 NW-SE	900	4319 YEON NW		AIR LIQUIDE INC.	G		20			4/23/1998	5/15/1998				X												
MULT [redacted] 653	1N-1E-19 NW-SE	900	4319 YEON NW		AIR LIQUIDE INC.	G		20			4/23/1998	5/15/1998				X												
[redacted]	1N-1E-19 SE-SE				MCWHORTER	M	11	18	11		2/22/1991	2/27/1991	MCINNNIS , GREG	27141		X												
MULT 186	1N-1E-19 SE-SE				MCWHORTER	M	11	18	11		2/22/1991	2/27/1991	MCINNIS , GREG	27142		X												
[redacted] 6	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	14	29	10.3		3/25/1991	4/9/1991	MCINNIS , GREG	27077		X												
MULT 137	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	12	25	10.5		3/25/1991	4/9/1991	MCINNIS , GREG	27076		X												
MULT [redacted] 8	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	13	23	10.5		3/26/1991	4/9/1991	MCINNIS , GREG	27075		X												
[redacted] 9	1N-1E-19 SE-SE				VAN WATERS AND ROGERS	M	10	20	6.9		3/25/1991	4/9/1991	MCINNIS , GREG	27078		X												
MULT [redacted]	1N-1E-19 SE-SE		3800 NW ST HELENS RD		TEXACO ENVIRONMENTAL SERVICES	M	5	10	4.5		9/23/1991	10/17/1991	SLOTTA , TIM	35847		X	X											
[redacted] ULT	1N-1E-19		3800 NW ST		TEXACO ENVIRONMENTAL	M	10	15	10.1		9/2/1991	10/17/1991	SLOTTA , TIM	35846		X	X											

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Township: 1N, Range: 1E, Section: 17, Well Log ID: NONE

Click on the column heading to re-sort the results. Click on Well Log to view image. Click here if you are having problems

Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type: New	Abandon	Deepen	Recond.	Repair	Conversion	Well Use: Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal
MULT 92[illegible]	1N-1E-17 -				PAC PACIFIC INLAND NAVIGATION	W	197	200	22	24	3/6/1974	3/28/1974	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X										X		
MULT 55786	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/12/1998	6/4/1998				X	X											
MULT 5[illegible]7	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/12/1998	6/4/1998				X	X											
MULT 5[illegible]	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/12/1998	6/4/1998				X	X											
MULT 55791	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/12/1998	6/4/1998				X	X											
MULT 5[illegible]	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/12/1998	6/4/1998				X	X											
MULT 5[illegible]3	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/12/1998	6/4/1998				X	X											
MULT 55794	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/12/1998	6/4/1998				X	X											
MULT 5[illegible]5	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT 55796	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT [illegible]7	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT [illegible]8	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT 55799	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT [illegible]01	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT [illegible]02	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT 55805	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT [illegible]4	1N-1E-17 -	75	5555 N CHANNEL AVE		PORTLAND SHIPYARD	G		0			5/11/1998	6/4/1998				X	X											
MULT 59828	1N-1E-17 NE-NE		6845 N CUTTER CIRCLE		ROADWAY EXPRESS, INC	G		25	13		12/3/1999	12/29/1999				X												
[illegible]SH [illegible]03	1N-1E-17 NE-NE	2000	4200 SW 160TH AVE, BEAVERTON		ZANDALL REALTY	M		15	6		10/9/1996	11/8/1996	MCINNIS , GREG GEO TECH EXPLORATIONS INC.	93668			X											
MULT [illegible]53	1N-1E-17 SE-NE		5550 NORTH BASIN AVE		PAC TRUST	G		16	9.6		12/18/1997	12/30/1997				X												
[illegible]ULT [illegible]90	1N-1E-17 SW-NE	225775	6447 N CUTTER CIRCLE		RPS	G		0			2/2/2000	2/16/2000				X	X											
MULT 60091	1N-1E-17 SW-NE		6447 N CUTTER CIRCLE		RPS	G		0			2/2/2000	2/16/2000				X	X											
[illegible]LT [illegible]00	1N-1E-17 SW-NE		6447 N CUTTER CIRCLE		RPS PACKAGE DISTRIBUTION	G		0	17		2/8/2000	3/2/2000				X	X											
MULT 60201	1N-1E-17 SW-NE		6447 N CUTTER CIRCLE		RPS PACKAGE DISTRIBUTION	G		0	18		2/7/2000	3/2/2000				X	X											
[illegible]ULT 60202	1N-1E-17 SW-NE		6447 N CUTTER CIRCLE		RPS PACKAGE DISTRIBUTION	G		0	18		2/8/2000	3/2/2000				X	X											
[illegible]ULT [illegible]205	1N-1E-17 SW-NE		6447 N CUTTER CIRCLE		RPS PACKAGE DISTRIBUTION	G		0	16		2/8/2000	3/2/2000				X	X											
MULT [illegible]393	1N-1E-17 SW-NE	1100	6735 N BASIN AVE		NAVY MARINE CORPS RESERVE CENTER	G		45			9/26/2000	10/26/2000				X												
MULT 62594	1N-1E-17 SW-NE	1100	6785 N BASIN AVE		NAVY MARINE CORPS RESERVE CENTER	G		45			9/26/2000	10/26/2000				X												
[illegible]ULT [illegible]873	1N-1E-17 NE-NW	600	6851 N FATHOM AVE, PORTLAND		BT OHIO	G		0			5/2/2000	5/12/2000				X	X											
MULT [illegible]874	1N-1E-17 NE-NW	600	6851 N FATHOM AVE, PORTLAND		BT OHIO	G		0	10		5/2/2000	5/12/2000				X	X											
[illegible]ULT [illegible]875	1N-1E-17 NE-NW	600	6851 N FATHOM AVE, PORTLAND		BT OHIO	G		0			5/2/2000	5/12/2000				X	X											
MULT [illegible]876	1N-1E-17 NE-NW	600	6851 N FATHOM AVE, PORTLAND		BT OHIO	G		0			5/2/2000	5/12/2000				X	X											
[illegible]	[illegible]	[illegible]	6851 N FATHOM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[redacted]73	SE-SE	129	AVENUE		PROPERTIES	G		24	19.7		10/20/1998	11/17/1998				X													
[redacted]LT [redacted]74	1N-1E-17 SE-SE	129	6135 N. BASIN AVENUE		SAMUELSON PROPERTIES	G		20	18.9		10/20/1998	11/17/1998				X													
MULT 56875	1N-1E-17 SE-SE	129	6135 N. BASIN AVENUE		SAMUELSON PROPERTIES	G		24	19.7		10/20/1998	11/17/1998				X													
[redacted]LT [redacted]80	1N-1E-17 SE-SE		5550 N BASIN AVE, PORTLAND		PAC TRUST	G		14			1/6/1999	2/3/1999				X	X												
MULT 62401	1N-1E-17 SE-SE	17 AND 57	5550 N BASIN AVE, PORTLAND		UPS	G		0			10/16/2000	10/30/2000				X	X												
[redacted]LT [redacted]402	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/16/2000	10/30/2000				X	X												
[redacted]LT [redacted]03	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0	14		10/16/2000	10/30/2000				X	X												
[redacted]ULT [redacted]404	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/16/2000	10/30/2000				X	X												
MULT [redacted]405	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/16/2000	10/30/2000				X	X												
MULT 62406	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/16/2000	10/30/2000				X	X												
[redacted]ULT 62407	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/16/2000	10/30/2000				X	X												
[redacted]ULT [redacted]408	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0	14		10/16/2000	10/30/2000				X	X												
[redacted]ULT [redacted]409	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/16/2000	10/30/2000				X	X												
MULT [redacted]410	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/16/2000	10/30/2000				X	X												
MULT 62411	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/17/2000	10/30/2000				X	X												
MULT 62412	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/17/2000	10/30/2000				X	X												
[redacted]ULT 62413	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/17/2000	10/30/2000				X	X												
[redacted]ULT 62414	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/17/2000	10/30/2000				X	X												
MULT 62415	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/17/2000	10/30/2000				X	X												
MULT 62416	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/17/2000	10/30/2000				X	X												
MULT 62417	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0	14		10/17/2000	10/30/2000				X	X												
MULT 62418	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0			10/17/2000	10/30/2000				X	X												
MULT 62419	1N-1E-17 SE-SE	17	5550 N BASIN AVE, PORTLAND; ALSO TAX LOT 57		UPS	G		0	14		10/17/2000	10/30/2000				X	X												
MULT [redacted]262	1N-1E-17 SW-SE				PORT OF PORTLAND	M	19	0	19		6/3/1991	6/17/1991	VAN DE HEY, GREG	30715		X	X												
MULT [redacted]263	1N-1E-17 SW-SE				PORT OF PORTLAND	M	19	0	19		6/3/1991	6/17/1991	VAN DE HEY, GREG	30716		X	X												
MULT [redacted]264	1N-1E-17 SW-SE				PORT OF PORTLAND	M	19	0	19		6/3/1991	6/17/1991	VAN DE HEY, GREG	30717		X	X												
MULT [redacted]984	1N-1E-17 SW-SE	52			LYNDEN FARMS	W					10/11/1988	11/7/1988	SCHNEIDER, THOMAS A		23119				X								X		
MULT	1N-1E-17				LYNDEN								SCHNEIDER,																

5	SW-SE	52			FARMS	W		172	23	2960	5/26/1988	7/1/1988	STEPHEN J		23119	X										X			
MULT 60323	IN-1E-17 SW-SE	52	6135 N BASIN		LYDEN FARMS	W					2/28/2000	3/16/2000	BRANT, BRADLEY W BRANT WELL DRILLING	113305	23119				X	X								
MULT 782	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			4/29/2000	5/3/2000				X	X												
MULT 783	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			4/29/2000	5/3/2000				X	X												
MULT 60785	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			4/28/2000	5/3/2000				X	X												
MULT 786	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			4/28/2000	5/3/2000				X	X												
MULT 60787	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			4/27/2000	5/3/2000				X	X												
MULT 60788	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST	G		0			4/27/2000	5/3/2000				X	X												
MULT 789	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			4/28/2000	5/3/2000				X	X												
MULT 60792	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST	G		0	13		4/27/2000	5/3/2000				X	X												
MULT 0794	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0	12.5		4/27/2000	5/3/2000				X	X												
MULT 0796	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0	11		4/27/2000	5/3/2000					X												
MULT 60798	IN-1E-17 NE-SW	100	6840 N CUTTER		COLUMBIA	G		0	13		4/28/2000	5/3/2000				X	X												
MULT 0800	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0	15		4/28/2000	5/3/2000				X	X												
MULT 61179	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			5/5/2000	5/31/2000				X	X												
MULT 61180	IN-1E-17 NE-SW	100	6840 N CUTTER CIRCLE		COLUMBIA DIST.	G		0			5/5/2000	5/31/2000				X	X												
MULT 7	IN-1E-17 NW-SW				PORT OF PORTLAND	M		33	23		1/8/1991	1/15/1991	MCINNIS, GREG	26942		X													
MULT 68	IN-1E-17 NW-SW				PORT OF PORTLAND	M	23	33	25		1/9/1991	1/15/1991	MCINNIS, GREG	26929		X													
MULT 9	IN-1E-17 NW-SW				PORT OF PORTLAND	M		33	25		1/8/1991	1/15/1991	MCINNIS, GREG	26930		X													
MULT 56124	IN-1E-17 SW-SW		5566 N DOLPHIN ST	LEDERBRAND, MR RANDY		G		0	18		7/22/1998	8/6/1998					X												
MULT 56125	IN-1E-17 SW-SW		5566 N DOLPHIN ST	LEDERBRAND, MR RANDY		G		0	18		7/22/1998	8/6/1998					X												
MULT 56126	IN-1E-17 SW-SW		5566 N DOLPHIN ST	LEDERBRAND, MR RANDY		G		0	18		7/23/1998	8/6/1998					X												
MULT 56127	IN-1E-17 SW-SW		5566 N DOLPHIN ST	LEDERBRAND, MR RANDY		G		0	16		7/23/1998	8/6/1998					X												
MULT 56877	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	M		27			10/20/1998	11/19/1998	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	117143			X												
MULT 56878	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	M		27			10/20/1998	11/19/1998	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	117144			X												
MULT 56879	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	M		27			10/20/1998	11/19/1998	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	117145			X												
MULT 56880	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	M		27			10/20/1998	11/19/1998	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	117146			X												
MULT 56882	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	G		20			10/20/1998	11/19/1998				X	X												
MULT 56884	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	G		20			10/20/1998	11/19/1998				X	X												
MULT 56885	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	G		20			10/20/1998	11/19/1998				X	X												
MULT 56886	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	G		20			10/20/1998	11/19/1998				X	X												
MULT 56887	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	G		20			10/20/1998	11/19/1998				X	X												
MULT 56888	IN-1E-17 SW-SW	300	5555 N CHANNEL AVE		BRADAVIN PROPERTY TRUST	G		20			10/20/1998	11/19/1998				X	X												

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G[redacted]	NW-SW				INC.								GREG															
M[redacted]T 989	1N-1E-18 NW-SW				FIBREBOARD PAPER PRODUCTS CO.	W		425								X										X		
M[redacted]T 9[redacted]	1N-1E-18 NW-SW				FIBREBOARD PAPER PRODUCTS CORP.	W		240			12/31/1945	12/31/1945	TUALATIN VALLEY DRILLING CO.			X										X		
MULT 4633 1	1N-1E-18 NW-SW				GS ROOFING	M		20	9		2/21/1995	3/8/1995	CRISMAN, RANDY L	75807		X												
M[redacted]T [redacted]	1N-1E-18 NW-SW				GS ROOFING PRODUCTS	M		20	8.1		2/21/1995	3/8/1995	CRISMAN, RANDY L	75810		X												
M[redacted]T 62551	1N-1E-18 NW-SW		6350 NW FRONT AVE		G S ROOFING PRODUCTS CO.	G		12			10/10/2000	11/13/2000				X												
MULT [redacted]2	1N-1E-18 NW-SW		6350 NW FRONT AVE		G S ROOFING PRODUCTS CO.	G		16			10/10/2000	11/13/2000																

[redacted]

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Township: 1N, Range: 1E, Section: 29, Well Log ID: NONE

Click on the column heading to re-sort the results. Click on Well Log to view image. Click here if you are having problems

Well Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type: New	Abandon	Deepen	Recond.	Repair	Conversion	Well Use: Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal
MULT 017	1N-1E-29 -				HERCULES POWDER CO.	W		574	30	315	10/13/1962	10/24/1962	STRASSER, ROBERT L R J STRASSER DRILLING CO.			X										X		
MULT 54216	1N-1E-29 -		3055 NW YEON AVE, PORTLAND	VAN DONELEN, FRED		G		22	15		8/28/1997	9/22/1997				X												
MULT 54217	1N-1E-29 -		3933 NW YEON AVE, PORTLAND	VAN DONELEN, FRED		G		22	15		8/28/1997	9/22/1997				X												
MULT 312	1N-1E-29 NE-NE				CONSOLIDATED FREIGHT	M		30	18		6/27/1991	7/8/1991	KNUTSON, BILL	29628		X												
MULT 3192	1N-1E-29 NE-NE	169			CONSOLIDATED FREIGHT	M	0	0	0			9/24/1992	KNUTSON, BILL	42710			X											
MULT 3474	1N-1E-29 NE-NE		5501 NW FRONT		CHEVRON U S A	M	0	0	0			5/19/1993	MCINNIS, GREG	51894			X											
MULT 4474	1N-1E-29 NE-NE		2737 NW NELA D. PORTLAND	BRUNE, HOWARD		M	21	30	21		11/11/1994	12/13/1994	MCINNIS, GREG	72839		X												
MULT 4475	1N-1E-29 NE-NE		2737 NW NELA D. PORTLAND	BRUNE, HOWARD		M	21	28	21		11/12/1994	12/13/1994	MCINNIS, GREG	72840		X												
MULT 4479	1N-1E-29 NE-NE		2737 NW NELA D. PORTLAND	BRUNE, HOWARD		M	15	30	15		11/14/1994	12/15/1994	MCINNIS, GREG	72841		X												
MULT 53101	1N-1E-29 NE-NE		2550 NW NICOLAI ST, PORTLAND	CHASE, PACKAGING, CORP		G		16			2/21/1997	2/27/1997				X												
MULT 53102	1N-1E-29 NE-NE		2530 NW NICOLAI ST, PORTLAND	CHASE, PACKAGING, CORP		G		16			2/21/1997	2/27/1997				X												
MULT 53103	1N-1E-29 NE-NE		2530 NW NICOLAI ST, PORTLAND	CHASE, PACKAGING, CORP		G		16			2/21/1997	2/27/1997				X												
MULT 53104	1N-1E-29 NE-NE		2550 NW NICOLAI ST, PORTLAND	CHASE, PACKAGING, CORP		G		16			2/21/1997	2/27/1997				X												
MULT 53105	1N-1E-29 NE-NE		2550 NW NICOLAI ST, PORTLAND	CHASE, PACKAGING, CORP		G		16			2/21/1997	2/27/1997				X												
MULT 55554	1N-1E-29 NE-NE	2766	2770 NW INDUSTIUAL ST	DUFFY, PATRICK	AMERICAN MACHINE	G		22	20		4/14/1998	4/29/1998				X	X											
MULT 55555	1N-1E-29 NE-NE	2726	2770 NW INDUSTRIAL ST	DUFFY, PATRICK	AMERICAN MACHINE	G		20	20		4/14/1998	4/29/1998				X	X											
MULT 55556	1N-1E-29 NE-NE	2726	2770 NW INDUSTRIAL ST	DUFFY, PATRICK	AMERICAN MACHINE	G		22	20		4/14/1998	4/29/1998				X	X											
MULT 62892	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	M		125			12/18/2000	12/26/2000	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	134665	5874	X												
MULT 62893	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	M		75			12/8/2000	12/26/2000	MCINNIS, GREG OEO TECH EXPLORATIONS INC.		40466	X												
MULT 62894	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	M		150			11/30/2000	12/26/2000	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	134581	40465	X												
MULT 62900	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	G		0			12/13/2000	12/26/2000				X	X											
MULT 62901	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	G		0			12/7/2000	12/26/2000				X	X											
MULT 62902	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	G		0			12/4/2000	12/26/2000				X	X											
MULT 62903	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	G		0			11/28/2000	12/26/2000				X	X											
MULT 63350	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI INC.	G		0	16		1/15/2001	2/15/2001				X	X											
MULT 63351	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI LLC	G		0	96		1/15/2001	2/15/2001				X	X											
MULT 63352	1N-1E-29 NE-NE	900	3445 NW FRONT AVE		ELI INC.	G		0	13.1		1/15/2001	2/15/2001				X	X											
MULT 50581	1N-1E-29 NW-NE		2800 NW FRONT AVE		SULZER AND BINGHAM PUMPS, INC.	G					9/22/1995	10/20/1995				X	X											
MULT 50582	1N-1E-29 NW-NE		2800 NW FRONT AVE		SULZER AND BINGHAM PUMPS INC.	G					9/22/1995	10/20/1995				X	X											
MULT 50737	1N-1E-29 NW-NE		2800 NW FRONT AVE		SULZER AND BINGHAM PUMPS INC.	G					9/22/1995	10/20/1995				X	X											
MULT 59682	1N-1E-29 NW-NE		3366 NW YEON AVE		HERCULES INC.	G		0	20		12/2/1999	12/10/1999				X	X											

[redacted]	1N-1E-29 NW-SE		2406 NW 30TH		GALVANIZERS CO.	G			11.6		7/12/1996	9/3/1996				X	X											
[redacted] 51779	1N-1E-29 NW-SE		2406 NW 30TH		GALVANIZERS CO.	G			11.4		7/12/1996	9/3/1996				X	X											
MULT [redacted]	1N-1E-29 NW-SE		2406 NW 30TH		GALVANIZERS CO.	G			9.6		7/12/1996	9/3/1996				X	X											
[redacted]	1N-1E-29 NW-SE		2533 NW 28TH AVE, PORTLAND	SCHNITZER, INVESTMENT CORP	SCHNITZER INVESTMENT CORP	G		30	20		9/19/1997	10/6/1997				X												
MULT [redacted]	1N-1E-29 NW-SE		2535 NW 28TH AVE	SCHNITZER, INVESTMENTS	SCHNITZER INVESTMENTS CORP	G		15	15		9/19/1997	10/6/1997				X												
[redacted] 56169	1N-1E-29 NW-SE	3	2770 NW INDUSTIUAL AVE		CHEVRON INC	G		22	19.2		6/27/1998	8/12/1998				X	X											
[redacted]	1N-1E-29 NW-SE	3	2770 NW INDUSTIUAL AVE		CHEVRON INC	G		22	19.2		6/27/1998	8/12/1998				X	X											
MULT 56172	1N-1E-29 NW-SE	3	2770 NW INDUSTRIAL AVE		CHEVRON INC	G		22	19.2		6/27/1998	8/12/1998				X	X											
[redacted]	1N-1E-29 NW-SE	3	2770 NW INDUSTIUAL AVE		CHEVRON INC	G		22	19.2		6/27/1998	8/12/1998				X	X											
MULT 56174	1N-1E-29 NW-SE	3	2770 NW INDUSTRIAL AVE		CHEVRON INC	G		22	19.2		6/27/1998	8/12/1998				X	X											
[redacted]	1N-1E-29 NW-SE	3	2770 NW INDUSTRIAL AVE		CHEVRON, INC.	G		22	19.2		6/27/1998	8/12/1998				X	X											
MULT 56176	1N-1E-29 NW-SE	3	2770 NW INDUSTRIAL AVE		CHEVRON, INC.	G		24	19.2		6/28/1998	8/12/1998				X	X											
[redacted]	1N-1E-29 NW-SE	3	2770 NW INDUSTRIAL AVE		CHEVERON, INC	G		24	19.2		6/28/1998	8/12/1998				X	X											
MULT 58339	1N-1E-29 SE-SE		2684 NW VAUGHN STREET	CHANG, MYUNO		G		16			6/1/1999	7/1/1999				X	X											
[redacted]	1N-1E-29 SE-SE		2684 NW VAUGHN STREET	CHANG, MYUNO		G		16			6/1/1999	7/1/1999				X	X											
MULT 58341	1N-1E-29 SE-SE		2684 NW VAUGHN ST	CHANG, MYUNG		G		16			6/1/1999	7/1/1999				X	X											
[redacted]	1N-1E-29 SE-SE		2684 NW VAUGHN ST	CHANG, MYUNG		G		16			6/1/1999	7/1/1999				X	X											
MULT 58343	1N-1E-29 SE-SE		2684 NW VAUGHN ST	CHANG, MYUNG		G		16			6/1/1999	7/1/1999				X												
[redacted]	1N-1E-29 SW-SE		RALEIGH ST WEST OF 29TH	CITY OF, PORTLAND	CITY OF PORTLAND	G		33			10/15/1997	11/10/1997				X												
[redacted]	1N-1E-29 SW-SE		RALEIGH ST WEST OF 29TH	CITY OF, PORTLAND	CITY OF PORTLAND	G		36			10/15/1997	11/10/1997				X												
MULT 54542	1N-1E-29 SW-SE		RALEIGH ST WEST OF 29TH	CITY OF, PORTLAND	CITY OF PORTLAND	G		35			10/16/1997	11/10/1997				X												
[redacted]	1N-1E-29 SW-SE		RALEIGH ST WEST OF 29TH	CITY OF, PORTLAND	CITY OF PORTLAND	G		40			10/16/1997	11/10/1997				X												
MULT 1018	1N-1E-29 -SW				HERCULES POWDER CO.	W		679	32	365	5/13/1963	5/29/1963	STRASSER, ROBERT L R J STRASSER DRILLING CO.			X											X	
[redacted]	1N-1E-29 NE-SW	11			CARSON OIL CO.	M	11	14	10.5		3/26/1992	4/24/1992	SCOTT, NORMAN P	36029		X												
MULT 2993	1N-1E-29 NE-SW	11	3125 NW 35TH AVE		CARSON OIL CO.	M	11	14	10.5		3/26/1992	4/24/1992	SCOTT, NORMAN P	36028		X												
[redacted]	1N-1E-29 NE-SW	11	3123 NW 33TH AVE		CARSON OIL CO.	M	11	14	10.5		3/26/1992	4/24/1992	SCOTT, NORMAN P	36030		X												
[redacted]	1N-1E-29 NE-SW	11	3123 NW 35TH AVE		CARSON OIL CO.	M	11	14	10.5		3/26/1992	4/24/1992	SCOTT, NORMAN P	36031		X												
MULT [redacted]	1N-1E-29 NE-SW		3232 NW INDUSTRIAL WAY, PORTLAND	DURHAM, JOHN	ST RYKOFF AND CO	M	10	19	10		12/9/1994	12/27/1994	MCINNIS, GREG	73324		X												
[redacted] 52927	1N-1E-29 NE-SW		2953 NW ST HELENS RD		U S SPRINT	G		0			1/15/1997	2/5/1997				X	X											
MULT [redacted]	1N-1E-29 NE-SW		2953 NW ST HELENS RD		U S SPRINT	G		25			1/15/1997	2/5/1997				X												
[redacted] 53551	1N-1E-29 NE-SW		2625 NW INDUSTIUAL ST., PORTLAND	FROMER, JIM		G		16	12.7		4/8/1997	5/2/1997				X												
[redacted] 552	1N-1E-29 NE-SW		2665 NW INDUSTRIAL ST, PORTLAND	FROMER, JIM		G		16	13.2		4/8/1997	5/2/1997				X												
[redacted] 53553	1N-1E-29 NE-SW		2625 NW INDUSTRIAL ST	FROMER, JIM		G		16	13.2		4/8/1997	5/2/1997				X												
[redacted]	1N-1E-29 NE-SW		2704 NE 30TH		GALVANIZERS	G		12	8.8		10/2/1998	10/30/1998				X	X											
[redacted] 56764	1N-1E-29 NE-SW		2704 NE 30TH		GALVANIZERS	G		12	8.8		10/6/1998	11/6/1998				X	X											
MULT 56765	1N-1E-29 NE-SW		2704 NE 30TH		GALVANIZERS	G		14	10.2		10/6/1998	11/6/1998				X	X											
[redacted] 66	1N-1E-29 NE-SW		2704 NE 30TH		GALVANIZERS	G		14	10.2		10/6/1998	11/6/1998				X	X											
MULT 56767	1N-1E-29 NE-SW		2704 NE 30TH		GAVANIZERS	G		14	10.2		10/6/1998	11/6/1998				X	X											
[redacted]	1N-1E-29 NW-SW				A N R FREIGHT SYSTEMS INC.	M		15	12		6/17/1991	7/2/1991	MCINNIS, GREG	30874		X												
[redacted]	1N-1E-29				A N R FREIGIT	M		15	12		6/17/1991	7/2/1991	MCINNIS,	208TS		X												

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Township: 1N, Range: 1E, Section: 30, Well Log ID: NONE

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Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type: New	Abandon	Deepen	Recond.	Repair	Conversion	Well Use: Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal
MULT	1N-1E-30 -		6335 NW CORNEL RD	WOODMAN , DAN		W	85	240	80	15	8/18/1983	8/18/1983	FEAKIN , DON TURNER DRILLING CO.			X						X						
MULT 1020	1N-1E-30 -			MEDOFF , KERMIT G		W	102	125	25	18	2/28/1972	3/2/1972	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X						X						
LT 30	1N-1E-30 NE-NE	117	3030 NW ST HELENS RD	HARRIS , TRANSPORTATION	HARRIS TRANSPORTATION CO	G		30			9/23/1997	10/23/1997				X												
MULT 54481	1N-1E-30 NE-NE		3030 NW ST HELENS RD	HARRIS , TRANSPORTATION	HARRIS TRANSPORTATION	G		30			9/23/1997	10/23/1997				X												
LT	1N-1E-30 SE-NE	6	6103 NW CORNELL	MILLER , CONRAD		W	290	332	225	24	7/18/1991	7/29/1991	JANNSEN , ROY N	26145		X						X						
LT 54382	1N-1E-30 SE-NE		3250 NW ST HELENS RD	WILHELM , TRUCKING	WILHELM TRUCKING	G		20	11.9		9/5/1997	10/8/1997				X												
MULT 83	1N-1E-30 SE-NE		3250 NW ST HELENS RD	WILHELM , TRUCKING	WIHELM TRUCKING	G		20	11.9		9/9/1997	10/8/1997				X												
LT 84	1N-1E-30 SE-NE		3230 NW ST HELENS RD	WILHELM , TRUCKING	WILHELM TRUCKING	G		20	11.9		9/9/1997	10/8/1997				X												
MULT 54385	1N-1E-30 SE-NE		3250 NW ST HELENS RD	WILHELM , TRUCKING	WILHELM TRUCKING	G		20	11.9		9/9/1997	10/8/1997				X												
LT 54	1N-1E-30 NE-SE		2021 NE SANDY BLVD		IANTZEN CREDIT	G		25			11/22/1995	12/18/1995				X												
WASH 54004	1N-1E-30 SW-SE	300	17107 NW CORNELL RD		SPECHT PROPERTIES	W		0	24		9/20/1998	9/29/1998	CROONQUIST , , DOUGLAS EXETER WATER WELL DRILLING	89562			X											
LT 9	1N-1E-30 -SW			MCKENZIE , DAN		W	420	450	330	25	7/11/1994	7/19/1994	JANNSEN , PRESTON A	69456		X						X						
WASH 005	1N-1E-30 NE-SW	200	17115 NW CORNELL RD		SPECHT PROPERTIES	W		0	14		9/15/1998	9/29/1998	CROONQUIST , DOUGLAS EXETER WATER WELL DRILLING	89563			X											
ULT 56306	1N-1E-30 NW-SW	10700	34 NW 9TH ST		GREMAR INC.	G		0	22		5/2/1997	8/24/1998				X	X											
MULT 607	1N-1E-30 NW-SW	10700	34 NW 9TH ST		GREMAR INC.	G		0	22		5/2/1997	8/24/1998				X	X											
ULT 608	1N-1E-30 NW-SW	10700	34 NW 9TH ST		GREMAR INC.	G		0	22		5/2/1997	8/24/1998				X	X											
MULT 21	1N-1E-30 SW-SW				MEDOFF AND ELTZROTH	W	100	125	5	9	12/7/1978	12/11/1978	JANNSEN , EDWARD M A M JANNSEN WELL DRILLING CO			X						X						
MULT 51872	1N-1E-30 SW-SW	33	6105 NW THOMPSON RD		CITY OF PORTLAND: BES	W					9/10/1996	9/23/1996	SCHNEIDER , STEPHEN J SCHNEIDER EQUIPMENT CO.	87128	1708		X											

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Township: 1N, Range: 1W, Section: 25, Well Log ID: NONE

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Well Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type						Well Use						
																New	Abandon	Deepen	Recond.	Repair	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal
MULT	1N-1W-25 -	45	7445 NW THOMPSON, PORTLAND	LOUGH , JIM		W	280	348	218	25	6/12/1989	6/23/1989	ANTHONY , GLENN	10614		X						X						
MULT 874	1N-1W-25 -			BUNUEL , LUIS GARCIA		W	350	490	260	15	9/16/1974	9/27/1974	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.					X				X						
MULT	1N-1W-25 -			CARSON , JOHN		W	450	550	428	10	10/12/1972	10/18/1972	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X						X						
MULT	1N-1W-25 -			SWIM , ROGER		W	319	530	312	17.5	10/17/1972	10/20/1972	SKYLES , MARVIN D SKYLES DRILLING & SUPPLY INC.			X						X						
MULT 878	1N-1W-25 -			ATKINSON , ROBERT G		W	400	530	299	15	10/14/1970	10/23/1970	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.					X				X						
MULT 879 -	1N-1W-25 -			RONNE , J A	MOORE, W L	W		125	23	20	5/29/1969	6/13/1969	TURNER , RALPH RALPH TURNER DRILLING CO.			X						X						
MULT 0	1N-1W-25 -		3200 NW SKYLINE BLVD	JOHNSON , JAMES D	JOHNSON, GENEVIEVE W	W		448	343	15	1/25/1966	10/27/1966	BOTTNER , H HAAKON BOTTNER DRILLING CO.			X						X						
MULT 1	1N-1W-25 -			MASON , JAMES		W		623	380	10.5	2/28/1964	3/9/1964	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.					X				X						
MULT 882	1N-1W-25 -			MASON , JAMES F		W		464			5/27/1963	6/20/1963	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X												
MULT 83	1N-1W-25 -			MASON , JAMES F		W		540	244	6	3/10/1963	5/8/1963	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X												
MULT 84	1N-1W-25 -			SCHREIBER , C H		W		425	300	6	9/7/1963	9/18/1963	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X						X						
MULT 885	1N-1W-25 -		2920 NW 53RD DR	MORTON , DON		W		260	90	15	5/29/1961	6/2/1961	STRAYER , LANCE BARRON & STRAYER			X												
MULT 86	1N-1W-25 -			HOWARD , ARTHUR		W		520	350	10	4/20/1961	5/22/1961	STRAYER , LANCE BARRON & STRAYER			X						X						
WASH 794	1N-1W-25 -			BLACHLY MD , PAUL H		W	0	546	335	12	6/9/1970	6/12/1970	JANNSEN , EDWARD			X						X						
WASH 4795	1N-1W-25 -			BLACHLY M D , PAUL H		W	0	0	0		6/12/1970	6/12/1970				X												
MULT 70	1N-1W-25 NW-NE			OLESEN , PETER		W	392	405	325	30	10/13/1987	11/5/1987	JANNSEN , ROY N			X						X						
MULT 875	1N-1W-25 SE-NE		29811 NW 53RD DR, PORTLAND		CITADEL PROPERTIES INC.	W	321	490	265	10	8/25/1987	8/31/1987	JANNSEN , ROY N			X						X						
MULT 52960	1N-1W-25 SE-NE		SKYLINE SUMMIT		HGW CO.	G		25			1/22/1997	2/13/1997				X												
MULT 52961	1N-1W-25 SE-NE		SKYLINE SUMMIT		HGW CO.	G		25			1/22/1997	2/13/1997				X												
MULT 52962	1N-1W-25 SE-NE		SKYLINE SUMMIT		HGW CO.	G		25			1/22/1997	2/13/1997				X												
MULT 52963	1N-1W-25 SE-NE		SKYLINE SUMMIT		HGW CO.	G		25			1/22/1997	2/13/1997				X												
MULT 52964	1N-1W-25 SE-NE		SKYLINE SUMMIT		HGW CO.	G		25			1/22/1997	2/13/1997				X												
MULT 52965	1N-1W-25 SE-NE		SKYLINE SUMMIT		HGW CO.	G		25			1/22/1997	2/13/1997				X												
MULT 52966	1N-1W-25 SE-NE		SKYLINE SUMMIT		HGW CO.	G		25			1/22/1997	2/13/1997				X												
MULT 871	1N-1W-25 SW-NE		7007 NW THOMPSON RD	WALKER , JOHN	HOLDEN, HELEN (TRUSTEE)	W	245	450	225	15	9/9/1987	9/14/1987	JANNSEN , ROY N			X						X						
WASH 56528	1N-1W-25 SW-NE	500	TANN. CORP. CENTER		MELVIN MARK DEVELOPMENT CO.	M	15	28	15		9/13/2000	10/4/2000	MCCANN , WARREN SUBSURFACE TECHNOLOGIES	133471	11399	X												
WASH 56529	1N-1W-25 SW-NE	500	TANN. CORP. CENTER		MELVIN MARK DEVELOPMENT CO.	M	14.5	31.5	14.5		9/14/2000	10/4/2000	MCCANN , WARREN SUBSURFACE TECHNOLOGIES	133470	11398	X												

ASH 36	1N-1W-25 SW-NE	500	TANNASBOURNE CORP. CENTER		MELVIN MARK DEVELOPMENT CO.	G		0	15		9/14/2000	10/4/2000				X	X												
WASH 37	1N-1W-25 SW-NE	500	TANNASBOURNE CORP. CENTER		MELVIN MARK DEVELOPMENT CENTER	G		0	15		9/14/2000	10/4/2000				X	X												
ASH 38	1N-1W-25 SW-NE	500	TANNASBOURNE CORP. CENTER		MELVIN MARK DEVELOPMENT CENTER	G		0	15		9/14/2000	10/4/2000				X	X												
WASH 39	1N-1W-25 SW-NE	500	TANNASBOURNE CORP. CENTER		MELVIN MARK DEVELOPMENT CO.	G		0	15		9/13/2000	10/4/2000				X	X												
ASH 56540	1N-1W-25 SW-NE	500	TANNASBOURNE CORP. CENTER		MELVIN MARK DEVELOPMENT CO.	G		0	15		9/13/2000	10/4/2000				X	X												
WASH 541	1N-1W-25 SW-NE	500	TANNASBOURNE CORP. CENTER		MELVIN MARK DEVELOPMENT CO.	G		0	15		9/13/2000	10/4/2000				X	X												
WASH 57042	1N-1W-25 SW-NE	500	TANN CORP CENTER		MELVIN MARK DEVELOPMENT CO.	M	15	0	15		2/19/2001	3/1/2001	MCCANN, WARREN SUBSURFACE TECHNOLOGIES	133484	11399		X												
ASH 57043	1N-1W-25 SW-NE	500	TANN CORP. CENTER		MELVIN MARK DEVELOPMENT CO.	M	14.5	0	14.5		2/19/2001	3/1/2001	MCCANN, WARREN SUBSURFACE TECHNOLOGIES	133483	11398		X												
ULT 2	1N-1W-25 NW-NW			VOLLUM, LARRY		W	375	580	363	3	9/3/1987	9/11/1987	JANNSEN, ROY N			X						X							
ULT 3066	1N-1W-25 SE-NW		NW THOMPSON RD	GIONET, LEONARD		W	356	400	270	30	6/24/1992	7/2/1992	FEAKIN, DON	42306	28597	X						X							
ULT 792	1N-1W-25 SW-NW	8	NW 81ST PLACE	KALK, ELAINE	KALK, CORDON	M	10	15	8.5		3/13/1996	3/28/1996	MCINNIS, GREG CEO TECH EXPLORATIONS	81551		X													
MULT 50793	1N-1W-25 SW-NW	8	NW 81ST PLACE	KALK, ELAINE	KALK, CORDON	G		37				3/28/1996				X													
ULT 958	1N-1W-25 SW-NW	8		KALK, ELAINE	KALK, GORDON	M	13	30	13		4/15/1996	4/22/1996	MCINNIS, GREG GEO TECH EXPLORATIONS	81618		X													
ULT 2432	1N-1W-25 SW-NW	8	NW 81ST PLACE	KALK, ELAINE	KALK, CORDON	M		30	20		11/22/1996	12/12/1996	MCINNIS, GREG CEO TECH EXPLORATIONS INC.	93804			X												
WASH 4793	1N-1W-25 SW-NW	970000000		SCHMIDT, STEVEN		W	487	510	409	20	9/16/1989	9/25/1989	JANNSEN, PRESTON A	13032		X						X							
ULT 3686	1N-1W-25 NE-SE	87	SKYLINE BLVD, PORTLAND		C AND M CONSTRUCTION INC.	W		0			6/2/1997	6/5/1997	JANNSEN, ROY N A M JANNSEN DRILLING	99605			X					X							
MULT 3045	1N-1W-25 SE-SE	22	6707 CORNELL RD	WHEARY, DENIS	WHEARY, ALENA	W	240	307	225	25	6/15/1992	6/18/1992	JANNSEN, PRESTON A	37574		X						X							
ULT 50922	1N-1W-25 SE-SE		2631 NW 81ST PLACE	HIEMS, JACK	PANAVISTA PARK	M	10	30			3/15/1996	4/18/1996	VANDEHEY, SPENCER A VANDEHEY SOIL EXPLORATION	39825		X													
ULT 2267	1N-1W-25 SW-SE	200	7000 NW SUMMIT VIEW DR	FOSLER, STEVE		M		36			9/21/2000	10/4/2000	MEEUWSEN, ALLEN SUBSURFACE TECHNOLOGIES	133472	30464	X													
ULT 2268	1N-1W-25 SW-SE	200	7000 NW SUMMIT VIEW DR	FOSLER, STEVE		M		20			9/22/2000	10/4/2000	MEEUWSEN, ALLEN SUBSURFACE TECHNOLOGIES	133473	30465	X													
MULT 3013	1N-1W-25 NW-SW	100	NW 81ST PLACE	CITY OF, PORTLAND	CITY OF PORTLAND	M	20	30	20		2/7/1997	2/19/1997	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	99803	5672	X													

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Well Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type						Well Use						
																New	Abandon	Deepen	Recond.	Repair	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal
MULT 239	1N-1W-13 NW-SE				RHONE POULENC AG CO.	M	20	24	18		4/30/1991	6/4/1991	MCINNIS , GREG	29478		X	X											
MULT 240	1N-1W-13 NW-SE				RHONE POULENC AG	M	20	24	18		4/30/1991	6/4/1991	MCINNIS , GREG	29479		X	X											
MULT 241	1N-1W-13 NW-SE				RHONE POULENC	M	20	24	18		5/1/1991	6/4/1991	MCINNIS , GREG	29482		X	X											
MULT 242	1N-1W-13 NW-SE				RHONE POULENC AG	M	20	24	18		5/2/1991	6/4/1991	MCINNIS , GREG	29483		X	X											
MULT 243	1N-1W-13 NW-SE				RHONE POULENC AG	M	17	24	17		5/10/1991	6/4/1991	MCINNIS , GREG	29484		X												
MULT 244	1N-1W-13 NW-SE				RHONE POULENC AG	M	17	56	17		5/9/1991	6/4/1991	MCINNIS , GREG	29485		X												
MULT 245	1N-1W-13 NW-SE				RHONE POULENC AG	M	17	43	17		5/9/1991	6/4/1991	MCINNIS , GREG	29486		X												
MULT 803	1N-1W-13 -				LIQUID AIR INC.	W		0			8/9/1973	8/22/1973	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X	X									X		
MULT 804	1N-1W-13 -				LIQUID AIR INC.	W	200	302	18	222	8/15/1973	8/22/1973	JANNSEN , EDWARD M A M JANNSEN DRILLING CO.			X										X		
MULT 805	1N-1W-13 SE-SE				PENNSALT CHEMICAL CORP.	W		15	6.5	0	1/14/1969	1/24/1969	HANSEN , JOE E HANSEN DRILLING CO. INC.			X												
MULT 806	1N-1W-13 SE-SE				PENNSALT CHEMICAL CORP.	W		15	6.5	0	1/16/1969	1/24/1969	HANSEN , JOE E HANSEN DRILLING CO. INC.			X												
MULT 807	1N-1W-13 NE-SE				PENN SALT CO.	W		420	35	30	4/30/1949	12/31/1949	JANNSEN , A M			X												
MULT 808	1N-1W-13 NE-SE				PENN SALT CO.	W		760	58	120	9/30/1953	9/30/1953	JANNSEN , A M			X												
MULT 3177	1N-1W-13 NE-NE	13	6161 NW 61ST		METROPOLITAN SERVICE DISTRICT	M	0	0	0			9/17/1992	VANDEHEY , SPENCER	35756			X											
MULT 3214	1N-1W-13 NE-SE	6	5880 NW ST HELENS RD, PORTLAND		SHELL OIL CO.	M		15			9/15/1992	10/12/1992	MCINNIS , GREG	47813		X												
MULT 3215	1N-1W-13 NE-SE	6	5880 NW ST HELENS RD, PORTLAND		SHELL OIL CO.	M	10	15	8		9/15/1992	10/12/1992	MCINNIS , GREG	47814		X												
MULT 3276	1N-1W-13 SW-NE	31		PALANC , RHONE		M		40	8		11/9/1992	12/8/1992	MCINNIS , GREG	48391		X	X											
MULT 3277	1N-1W-13 SW-NE	31		PALANC , RHONE		M		35	8		11/9/1992	12/8/1992	MCINNIS , GREG	48392		X	X											
MULT 3278	1N-1W-13 SW-NE	31		PALANC , RHONE		M		35	8		11/10/1992	12/8/1992	MCINNIS , GREG	48393		X	X											
MULT 3279	1N-1W-13 SW-NE	31		PALANC , RHONE		M	0	0	0			12/8/1992	MCINNIS , GREG	48394			X											
MULT 3280	1N-1W-13 SW-NE	31		PALANC , RHONE		M	15	28	15		11/12/1992	12/8/1992	MCINNIS , GREG	48395		X												
MULT 3503	1N-1W-13 SW-NE	31			RHONE PALANC	M	15	85	70		5/17/1993	6/10/1993	MCINNIS , GREG	51924		X												
MULT 3504	1N-1W-13 SW-NE	31			RHONE PALANC	M	10	20	10		5/11/1993	6/10/1993	MCINNIS , GREG	51954		X	X											
MULT 3505	1N-1W-13 SW-NE	31			RHONE PALANC	M	10	14	10		5/12/1993	6/10/1993	MCINNIS , GREG	51955		X	X											
MULT 3506	1N-1W-13 SW-NE	31		PALANC , RHONE		M	10	15	10		5/12/1993	6/10/1993	MCINNIS , GREG	51956		X												
MULT 3507	1N-1W-13 SW-NE	31			RHONE PALANC	M	10	14	10		5/13/1993	6/10/1993	MCINNIS , GREG	51957		X	X											
MULT 3508	1N-1W-13 SW-NE	31			RHONE PALANC	M	10	14	10		5/13/1993	6/10/1993	MCINNIS , GREG	51958		X	X											
MULT 3509	1N-1W-13 SW-NE	31			RHONE PALANC	M	10	14	10		5/14/1993	6/10/1993	MCINNIS , GREG	51959		X	X											
MULT 3510	1N-1W-13 SW-NE	31			RHONE PALANC	M	5	5	2.5		5/14/1993	6/10/1993	MCINNIS , GREG	51960		X	X											
MULT 3543	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	14	60	14		6/15/1993	7/14/1993	MCINNIS , GREG	54763		X												
MULT 3544	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	14	41	14		6/16/1993	7/14/1993	MCINNIS , GREG	54764		X												
MULT 3545	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	14	24	14		6/17/1993	7/14/1993	MCINNIS , GREG	54765		X												
MULT 3546	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	16	25	15.5		6/18/1993	7/14/1993	MCINNIS , GREG	54766		X												
MULT 3547	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	16	44	15.5		6/21/1993	7/14/1993	MCINNIS , GREG	54767		X												
MULT 3548	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	16	58	15.5		6/22/1993	7/14/1993	MCINNIS , GREG	54768		X												
MULT 3549	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	16	56	16		6/23/1993	7/14/1993	MCINNIS , GREG	54769		X												
MULT 3550	1N-1W-13 SW-NE	31			RHONE AND POULENC	M	16	37	16		6/24/1993	7/14/1993	MCINNIS , GREG	54770		X												
MULT	1N-1W-13				RHONE AND																							

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Well Log	T-R-S/ Q-QQ	Taxlot	Street of Well	Owner	Company	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	Construction Type						Well Use						
																New	Abandon	Deepen	Recond.	Repair	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal
[illegible]LT	1N-1W-24			WINN SR, THOMAS R		W		175	105	12	7/20/1958	7/30/1958	ROSS, PAUL E			X						X						
MULT 53969	1N-1W-24 NW-NW	100	3125 NW 35TH AVE	CARSON, OIL COMPANY	CARSON OIL CO.	M		20	9		7/1/1997	7/28/1997	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	100189	5830	X												
[illegible]LT 53970	1N-1W-24 NW-NW		3123 NW 35TH AVE, PORTLAND	CARSON, OIL COMPANY	CARSON OIL COMPANY	M		20	9		7/1/1997	7/28/1997	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	100190	5831	X												
[illegible]LT 971	1N-1W-24 NW-NW	100	3125 NW 35TH AVE	CARSON, OIL COMPANY	CARSON OIL CO.	M		20	9		7/1/1997	7/28/1997	MCINNIS, GREG GEO TECH EXPLORATIONS INC.	100191	5832	X												

[illegible] to page: 1

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