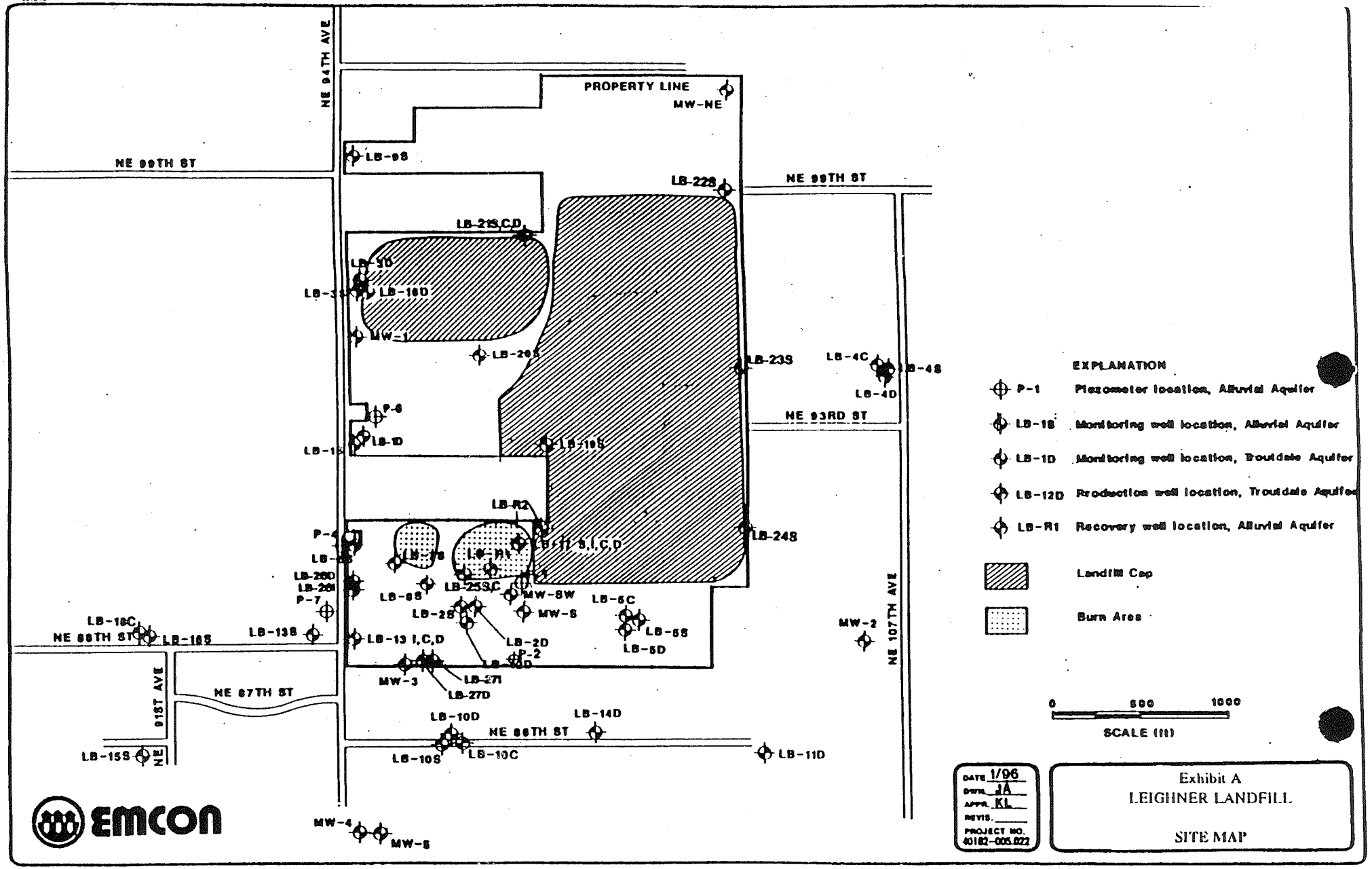

NE 94TH AVE
PROPERTY LINE
MW-NE
LB-9S
NE 89TH ST
LB-22S
NE 89TH ST
LB-21S,C,D
LB-3D
LB-16D
LB-1S
MW-1
LB-20S
LB-23S
LB-4C
LB-4S
LB-4D
P-6
LB-1D
LB-1S
LB-19S
NE 83RD ST
LB-R2
LB-24S
P-4
LB-1S
LB-R1
LB-11 S,I,C,D
LB-26D
LB-26I
P-7
LB-8S
LB-25S,C
MW-8W
LB-5C
LB-28
MW-8
LB-5S
LB-5D
LB-16C
NE 88TH ST
LB-16S
LB-13S
LB-13 I,C,D
LB-2D
P-2
LB-10D
MW-2
NE 107TH AVE
MW-3
LB-27I
LB-27D
91ST AVE
NE 87TH ST
LB-10D
LB-14D
NE 86TH ST
LB-15S
NE
LB-10S
LB-10C
LB-11D
MW-4
MW-5
EXPLANATION
P-1 Piezometer location, Alluvial Aquifer
LB-1S Monitoring well location, Alluvial Aquifer
LB-1D Monitoring well location, Troutdale Aquifer
LB-12D Production well location, Troutdale Aquifer
LB-R1 Recovery well location, Alluvial Aquifer
Landfill Cap
Burn Area
0 500 1000
SCALE (ft)
DATE 1/96
DWN. JA
APPR. KL
REVIS.
PROJECT NO. 40182-005.022
Exhibit A
LEIGHNER LANDFILL
SITE MAP
EMCON

EXHIBIT - B

CLEANUP ACTION PLAN

LEICHNER LANDFILL

CLARK COUNTY, WASHINGTON

JUNE 1996

CONTENTS

1. INTRODUCTION

This Cleanup Action Plan (CAP) has been prepared by the Washington State Department of Ecology (Ecology) to specify cleanup standards and identify the cleanup action to be implemented at the Leichner Landfill (also referred to as "the site"). As required by the Model Toxics Control Act (MTCA), this CAP describes the alternatives for remediation at the site.

2. SITE DESCRIPTION

Leichner Landfill is a solid waste landfill currently owned and historically operated by Leichner Brothers Land Reclamation Corporation (Leichner). The landfill is located in Clark County, Washington, about 5 miles northeast of the City of Vancouver in Section 4, Township 2N, Range 2E, and Section 33, Township 3N, Range 2E of the Willamette Meridian (Figure 1).

The unlined facility was a gravel pit prior to the start of landfill operations in the late-1930s. Prior to the mid-1960s, waste received at the landfill was burned. The burning of waste was terminated in the mid-1960s, and the landfill subsequently operated by compacting waste in areas where sand and gravel had been mined. The majority of the solid waste received at the landfill was collected by the Clark County Disposal Group from residential and commercial customers located within the city limits of Vancouver and throughout unincorporated Clark County. Solid waste was also received from the other cities and towns within Clark County, and the general public and other self-haul customers.

The landfill was open and accepted waste for disposal until the end of 1991. Seventy acres of the 100-acre site have received solid waste. All of the landfilled acres have received final closure with an engineered composite cap and a landfill gas control/recovery system. The composite final cover consists of a 60-mil high density polyethylene (HDPE) geomembrane covered by a 1-foot thick drainage layer, geotextile filter, and 16-inches of topsoil. A stormwater control system collects stormwater runoff from the cover system. Landfill closure occurred in phases during the summer seasons of 1989, 1990, 1991, and 1992. Final closure occurred in 1992 and included improvements to the dumpster and truck wash areas. The Clark County Disposal Group utilizes the dumpster and truck wash areas. Refuse hauling operations will continue to be based at the site. Refuse is now collected and hauled to a transfer station. The landfill cap design, landfill gas control/recovery system, and the stormwater control system are discussed in detail in the February 1989 Leichner Brothers Landfill Master Operations Plan prepared by Sweet-Edwards/EMCON (now EMCON). The facility layout, monitoring well locations, and locations of solid waste are shown in Figure 2.

3. PROJECT HISTORY

In 1987, Ecology and Leichner executed Consent Order No. DE 86-S131 under authority of the State of Washington Water Pollution Control Act, Chapter 90.48 Revised Code of Washington (RCW). This order required Leichner to analyze site conditions and develop a corrective plan to protect public health and the environment. Work completed under the order confirmed the existence of hazardous substances in ground water under the site. This work is summarized in the February 1988 Remedial Investigation Report (RI) and the April 1988 Feasibility Study Report (FS), both prepared by EMCON.

In November 1988, voters passed the State of Washington Hazardous Waste Cleanup - Model Toxics Control Act (MTCA), which requires remedial actions at landfills and other sites contaminated with hazardous substances. As a result, Ecology issued Order No. DE 89-S119 under the MTCA in April 1989. The order, issued to Leichner as a potentially liable person (PLP) for the Leichner Landfill, required further investigation and remediation of contaminated ground water beneath the site. In June 1989, Ecology amended Order No. DE 89-S119. As required by the order, an Interim Report prepared by EMCON was submitted to Ecology in November 1989. The Interim Report summarized hydrogeologic and treatability studies on-going at the time of writing. In August 1990, Ecology issued the Second Amendment to Order No. DE 89-S119 outlining further required investigations. The results of these further investigations are summarized in the October 1991 Remedial Investigation Amendment prepared by EMCON. Since issuance of Order DE 89-S119, project progress has been summarized in monthly progress reports submitted to Ecology, the Southwest Washington Health District, the City of Vancouver, and the Clark County Department of Public Works.

Based on technical considerations and costs, the April 1989 order established that ground water withdrawal and treatment would be part of the final remedial action alternative. It was also established that treated ground water would be discharged to the stormwater control system. Order No. DE 89-S119 also required an evaluation and determination of the most effective pump and treat technology to remediate contaminated ground water at Leichner Landfill. As a result, a total of five additional documents evaluating various ground water pump and treat technologies at the site were prepared by EMCON and submitted to Ecology. The *Technical Memorandum for Ground Water Treatment Alternatives*, March 1990, evaluated alternative ground water treatment technologies proposed for bench- and pilot-scale studies. The *Technical Memorandum of Ground Water Modeling*, May 1990, described the numerical modeling used to define contaminant transport in ground water. The *Ground Water Treatment Bench-Scale Studies Report*, July 1990, presented results of the bench-scale studies performed by EMCON in March 1990. Results of the bench-scale studies were the basis for selecting the preferred treatment system evaluated during the pilot-scale study. In October 1990, the *Ground Water Treatment Pilot-Scale Study Experimental Plan* described the objectives, requirements, preliminary design, and experimental procedures to be performed in conducting eight pilot-scale study tests. The final document, *Ground Water Treatment Pilot-Scale Study Report*, September 1991, summarized results obtained from

performing the eight planned tests, with some modifications, of the experimental plan in October 1990 and March 1991. This pilot-scale study report provides the technical foundation for full-scale design, implementation, and operation of a final ground water treatment system.

In April 1992, the former refuse burn area southwest of the landfill was investigated as a potential source of hazardous substances (Figure 2). Soil samples collected and analyzed from nine excavated test pits indicated that the burn area was a source of ammonia and nitrate. About 68,000 yards of material was excavated from this area. This material was placed within the landfill footprint prior to final closure with a composite cap system.

A consent decree was proposed for remedial action at the landfill in July 1992. However, due to some legal uncertainties between Leichner, the City of Vancouver and Clark County about cleanup costs, the consent decree was never finalized in court. In addition to the design, implementation, and operation of a ground water extraction and treatment system, the proposed consent decree required an amendment to the Closure Plan, post-closure requirements, and a domestic well canvass. At the time consent decree negotiations were underway, the number of nearby residences still using domestic supply wells completed in the Alluvial or Troutdale aquifers was not known. The lateral and vertical extent of the leachate contaminant plume emanating from the landfill had not been fully defined. Low concentrations of volatile organic compounds (VOCs) had been detected in ground water samples collected from four domestic supply wells that are located downgradient of Leichner Landfill.

In May 1993, Ecology and Leichner entered into Agreed Order No. 93TC-S151 to continue with remedial actions while the legal uncertainties regarding ground water extraction and treatment costs were being resolved. This Order required all of the actions specified in the proposed 1992 Consent Decree, except for the design, implementation, and operation of a ground water extraction and treatment system.

To ensure the protection of public health and the environment, a survey was performed to determine the number and location of Alluvial and Troutdale domestic supply wells within a reasonable distance downgradient of the landfill. In addition, the domestic well canvass included sampling of currently used domestic supply wells to determine if they have been impacted by Leichner Landfill. Provisions for replacing domestic wells affected by the landfill that exceed drinking water standards with water supplied by the City of Vancouver or other alternate water supplies were included. No domestic wells were found to exceed drinking water standards.

The procedures for conducting the domestic well survey are outlined in a document titled *Leichner Landfill, Domestic Well Canvass Work Plan*, March 1993. The findings of the domestic well survey are summarized in *Leichner Landfill, Domestic Well Canvass*, November, 1993. The requirements of the Closure Plan Amendment are included in a report titled *Construction Report, Leichner Brothers Landfill Closure*, May 1993. Post-closure

requirements are outlined in a two volume operation and maintenance manual. Volume I addresses the landfill gas collection/destruction system, and was finalized in April, 1995. Volume II addresses the storm water system and the final cover system, and is currently in draft form.

Quarterly ground water monitoring has continued since final landfill closure in 1992. Ground water contaminant concentrations have declined since the unfinalized Consent Decree and Cleanup Action Plan were proposed in July 1992. This CAP reflects the changes that have occurred since the proposed July 1992 CAP. When the Consent Decree implementing this CAP becomes effective, the May 1993 Agreed order No. 93TC-S151 will terminate.

4. SUBSURFACE CONDITIONS

Leichner Landfill is underlain by two distinct geologic units. The Pleistocene age alluvium (Alluvium) extends from the ground surface to a depth of about 70 to 100 feet. Beneath the Alluvium is the upper member of the Pliocene age Troutdale formation. The Alluvium consists of sand, gravelly sand, and silty sand. The upper member of the Troutdale formation typically consists of sand and gravel, with a fine sand and silt matrix.

The hydrogeology of the site consists of an unsaturated, or vadose zone from the ground surface to a depth of about 30 to 40 feet; the Alluvial aquifer, an unconfined sand aquifer about 35 to 45 feet thick; and the Troutdale aquifer, a semi-confined to confined, cemented to unconsolidated, sand and gravel aquifer. East of the landfill, at monitoring well LB-4C, a local 20 foot thick confining/perching layer of interbedded silt, sandy silt and clayey silt is present at the base of the Alluvium. At LB-5C, south of the landfill, a 40 foot thick layer of interbedded sand and silty sand at the base of the Alluvium may act as a local semi-confining/perching layer. No other potential confining layer between the Alluvial and Troutdale aquifers is suggested at the site. A downward vertical hydraulic gradient from the alluvium to the Troutdale aquifer is indicated throughout the site. Local vertical hydraulic communication between the Alluvial and Troutdale aquifers has been observed in the area southwest of the landfill. Horizontal ground water flow in the Alluvial aquifer is to the southwest and west. In the Troutdale aquifer, horizontal ground water flow is predominately to the south.

hydraulic gradient

The Troutdale aquifer is the drinking water supply for the City of Vancouver. There are two City of Vancouver well fields in operation near the landfill: The Orchards Well Field (Station 8) and the Andresen Road Well Field (Station 14). Station 8 is about 8,000 feet south-southeast of the site. The three wells at Station 8 withdraw ground water from the Troutdale aquifer at depth intervals of 86 to 105 feet, 94 to 109 feet, and 189 to 200 feet. At Station 14, located about 9,000 feet southwest of the site, two wells pump ground water from the Troutdale aquifer from depth intervals of 156 to 172 feet and 179 to 194 feet. Although most of the residences in the vicinity of the landfill now receive drinking water

from the City of Vancouver, both the Troutdale and Alluvial aquifers provide drinking water for some neighboring homes and farms.

5. NATURE AND EXTENT OF CONTAMINATION

Investigations performed at Leichner Landfill indicate that ground water is the only medium affected by the release of hazardous substances from the landfill. Leaching is probably the primary contaminant release mechanism for hazardous substances from the landfill. Leachate is a product of natural biodegradation, infiltration, and ground water migrating through landfilled refuse. The infiltration of precipitation through the refuse was probably the major source of leachate production. However, data from site investigations indicate that ground water levels may be within the landfilled refuse in the northeast quadrant of the capped area in Figure 2. Since the actual vertical extent of landfilled refuse is not known, it is possible that refuse is below ground water levels in other parts of the landfill as well.

Ground water quality in both the Alluvial and Troutdale aquifers has been affected by the landfill. However, the composite cap system constructed over the landfill has minimized infiltration of precipitation through the waste. Leachate production is predicted to decline accordingly. Ground water monitoring data reflect the downward trend in leachate generation.

5.1 Alluvial Aquifer

Monitoring wells completed in the Alluvial aquifer downgradient (southwest) of the landfill display elevated levels of inorganic water quality parameters, metals, and low levels of VOCs. VOCs present the greatest potential threat to human health at this site. Inorganic water quality parameters that are elevated in the Alluvial aquifer include specific conductance, chloride, calcium, and ammonia. Concentrations of both total and dissolved iron and manganese above the secondary drinking water standards of 0.3 mg/l and 0.05 mg/l, respectively, are present in the alluvial aquifer.

A variety of VOCs are present in the Alluvial aquifer downgradient of the landfill. The distribution of specific VOCs is variable from well to well. Presented in Table 1 are the primary VOCs and concentration ranges reported in the Alluvial aquifer from the time routine monitoring began in 1987 until the landfill cover was completed in 1992, and the concentration ranges since the landfill cover system was installed in 1992 (summarized from the Leichner Landfill Ground Water Database as of September 1995).

The pre-remedial action distribution of total VOCs in the Alluvial aquifer, using time averaged data, is shown in Figure 3. The post-remedial action distribution of VOCs in the Alluvial aquifer using time-averaged data for 1992 through 1995 is shown in Figure 4. The summarized pre and post closure data presented in Table 1 and Figures 3 and 4 demonstrate the reduction in ground water VOC concentrations since final closure of the landfill.

5.2 Troutdale Aquifer

Monitoring wells completed in the Troutdale aquifer downgradient (south-southwest) of the landfill display elevated levels of inorganic water quality parameters, and metals. However, the Troutdale aquifer appears to be less impacted by the landfill than the Alluvial aquifer. Elevated inorganic water quality parameters include specific conductance, calcium, chloride, and sulfate. Total and/or dissolved manganese in concentrations exceeding the secondary drinking water standard of 0.05 mg/l have been detected in Troutdale monitoring wells LB-2D, LB-13D, LB-17D, and LB-21D. Concentrations of total and/or dissolved iron exceeding the secondary drinking water standard of 0.3 mg/l have been detected in Troutdale monitoring wells LB-1D, LB-4D (background), LB-10D, LB-13D, LB-14D, LB-17D, and LB-21D. Low concentrations of VOCs have sporadically been detected in monitoring wells LB-1D, LB-5D, LB-10D, and LB-27D. Low concentrations of VOCs (below drinking water standards and MTCA cleanup levels) were detected in domestic supply wells completed in the Troutdale aquifer. These wells are located about 3,000 ft southwest of the Leichner Landfill property boundary. It is not clear from these data alone whether these contaminants are from the landfill.

6.0 CLEANUP STANDARDS

As outlined in Washington Administrative Code (WAC) 173-340-700 (2)(a), establishing cleanup standards for individual sites requires the specification of cleanup levels, point(s) of compliance, and additional regulatory requirements that apply to a particular cleanup action.

6.1 Ground Water Cleanup Levels

Under WAC 173-340-720(1)(a), cleanup levels for ground water are based on the highest beneficial use of the affected ground water, and the reasonable maximum exposure expected to occur under both current and potential future site use conditions. The highest beneficial use of ground water from both the Alluvial and Troutdale aquifers is for drinking water. Therefore, cleanup standards are based on exposure to hazardous substances via ingestion of drinking water, which represents the reasonable maximum exposure at the site. Ground water cleanup levels were determined using the standard Method B. The cleanup of contaminated ground water at Leichner Landfill is not considered a routine cleanup by Ecology (see WAC 173-340-130(7)).

The Method B ground water cleanup levels and compliance levels for both the Alluvial and Troutdale aquifers are presented in Table 2. These parameters require cleanup levels because they were consistently detected in ground water at the site in concentrations that exceed cleanup levels. The cleanup levels for vinyl chloride and 1,1-dichloroethylene were calculated using the Method B equations in WAC 173-340-720 (3)(a)(ii) because the concentrations established under applicable state and federal laws are not sufficiently protective. To be considered sufficiently protective, all individual concentrations established

under applicable state and federal laws must have an excess cancer risk less than 1 in 100,000 and a hazard quotient less than 1. The cancer risk and hazard quotient are calculated by solving the ground water equations (WAC 173-340-720(3)(a)(ii)) for cancer risk and hazard quotient using the concentration established under applicable state and federal laws. If the concentration established under applicable state and federal laws is not sufficiently protective, then a protective cleanup level is calculated by solving the equations in WAC 173-340-720(3)(a)(ii) using a cancer risk of 1 in 1,000,000 and a hazard quotient of 1. All of the other cleanup levels are maximum or secondary maximum contaminant levels established under the Safe Drinking Water Act and are sufficiently protective.

The Method B cleanup levels for both vinyl chloride and 1,1-dichloroethylene are lower than the current practical quantitation limit (PQL). In these cases, the cleanup level may be considered to be attained if the parameter is undetected at the PQL, and the conditions outlined in WAC 173-340-707 are met to Ecology's satisfaction. The current PQL for both vinyl chloride and 1,1-dichloroethylene is 0.1 ppb, and is considered to be the compliance level for these two contaminants (Table 2). The ground water cleanup levels and compliance levels in Table 2 do not exceed a total excess cancer risk of 1 in 100,000 and do not exceed a total hazard quotient of 1, as required in WAC 173-340-720 (5).

6.2 Point of Compliance

The point of compliance for ground water cleanup at Leichner Landfill will be the existing property boundary (Figure 2). Ground water cleanup levels shall be achieved in waters of the Alluvial and Troutdale aquifers from the point of compliance to the outer boundary of the existing contaminant plume. The remedial action of capping the landfill appears to be containing the contaminant plume source. Cleanup levels are anticipated to be achieved through natural attenuation.

7. SUMMARY OF REMEDIAL ACTION ALTERNATIVES

The remedial action alternatives presented in the April 1988 FS focused on leachate control (capping), landfill gas control/recovery, surface water and erosion control, environmental monitoring, and the provision of a public water supply.

Leachate control (capping), landfill gas control/recovery and monitoring, surface water and erosion control, and improvements to the dumpster/truck wash areas have been implemented as part of landfill closure under the Washington State Minimum Functional Standards for Solid Waste Handling (MFS), Chapter 173-304 WAC. Public water supply concerns have been addressed by the Domestic Well Canvass conducted in 1993. The survey confirmed that the majority of neighboring homes are now supplied water by the City of Vancouver water system. Seventeen domestic supply wells were sampled for inorganic parameters, metals and VOCs. Low levels of VOCs were detected in 11 wells. None of the test results exceed the cleanup levels presented in Table 2.

Although capping the landfill appears to have significantly reduced the quantity of leachate being generated, migration of ground water through portions of the landfill will be an ongoing potential source of leachate production. The technologies available to control the migration of leachate contaminated ground water are limited to physical or hydraulic containment. Containment via a slurry wall was evaluated in the RI/FS. A slurry wall is not technologically viable at the site because no continuous low permeability layer, which could serve as a tie-in for a containment wall, was identified within a depth of 150 ft below ground surface. In addition, a slurry wall would not impede the downward migration of contaminated ground water from the Alluvial to the Troutdale aquifer. In 1992, Ecology determined that hydraulic containment via pump and treat was the only technologically feasible alternative to control the lateral and vertical migration of leachate contaminated ground water, and to remediate leachate contaminated ground water. By hydraulically controlling the contaminant plume source, further off site migration would be minimized.

However, since the landfill was capped in 1992, ground water contaminant concentrations have decreased. The concentrations of VOCs, inorganic parameters, and metals in ground water at the site are now too low to justify ground water extraction and treatment. Based on ground water monitoring data, the landfill cover appears to be effectively controlling leachate production. Ongoing ground water monitoring is necessary to ensure that the landfill cover system continues to be effective. If ground water concentrations increase in the future, Ecology reserves the right to re-evaluate remedial actions required.

8. PROPOSED REMEDIAL ACTION ALTERNATIVE

The remedial action objective is to minimize further production and migration of leachate contaminated ground water in order to achieve cleanup standards at the points of compliance.

Capping the landfill has minimized lateral and vertical migration of leachate contaminated ground water by reducing the volume of leachate generated. As discussed previously in this document, capping the landfill was implemented as part of the MFS closure requirements. In addition to meeting MFS requirements, the landfill cap, gas control/recovery system, the surface water and erosion control system, and improvements to the dumpster and truckwash areas are remedial actions under the MTCA.

The post-closure requirements of Chapter 173-304 WAC and compliance monitoring will ensure that the above remedial actions achieve the remedial action objective. Therefore, the selected cleanup action consists of final landfill closure and post-closure requirements outlined in Chapter 173-304 WAC, and compliance monitoring as approved by Ecology. Leichner shall obtain a post-closure permit from the Southwest Washington Health District and shall submit a compliance monitoring plan to Ecology for review and approval.

9. SELECTION OF CLEANUP ACTION

The MTCA specifies the criteria for selecting an appropriate cleanup action. Presented below are the requirements for selecting a cleanup action along with determinations of how the selected cleanup action meets each requirement.

9.1 Protection of Human Health and the Environment

The selected alternative will protect human health and the environment by minimizing the vertical migration of leachate contaminated ground water to the Troutdale aquifer, and further off-site migration of contaminated ground water in the Alluvial aquifer.

9.2 Compliance with Cleanup Standards

The selected cleanup action will continue to minimize the volume of leachate generated. Cleanup standards will be achieved in the Alluvial and Troutdale aquifers from the point of compliance to the outer boundary of the existing contaminant plume through natural attenuation. Some cleanup levels have been achieved in some monitoring wells located near the property boundary. Compliance with cleanup levels using post-closure (1992 through 1995) ground water monitoring data will be evaluated in the compliance monitoring plan.

To ensure that human health and the environment are being protected, the cleanup action shall be reviewed every five years by Ecology in accordance with WAC 173-340-420 and section XXVII of the Consent Decree.

9.3 Compliance with Applicable, Relevant and Appropriate Requirements (ARARs)

The following ARARs apply to the site:

a. Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC.

b. Hazardous Waste Cleanup - Model Toxics Control Act, Chapter 70.105D RCW

c. State Environmental Policy Act, Chapter 197-11 WAC.

d. Minimum Standards for Construction and Maintenance of Water Wells, Chapter 173-160 WAC.

e. Water Pollution Control, Chapter 90.48 RCW.

f. NPDES Permit Program, Chapter 173-220 WAC.

g. Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201 WAC.

h. Minimum Functional Standards for Solid Waste Handling, Chapter 173-304 WAC.

i. Dangerous Waste Regulations, Chapter 173-303 WAC.

j. Washington Clean Air Act, Chapter 70.94 RCW.

k. Washington Industrial Safety and Health Act (WISHA).

Federal Laws and Regulations

l. Resource Conservation and Recovery Act (RCRA).

m. Occupational Safety and Health Act (OSHA), 29 CFR subpart 1910.120.

n. Federal Water Pollution Control Act of 1972 (Clean Water Act).

o. Water Quality Act of 1987:
1) Section 308. Establishes water quality criteria for toxic pollutants.
2) Section 402. Establishes the NPDES permit process for discharges to surface water bodies.

p. Safe Drinking Water Act of 1974.

The above list of ARARs does not preclude subsequent identification of applicable state and federal laws (WAC 173-340-360 (10)(a)(vii)). The selected cleanup action is capable of complying with all of the above ARARs.

9.4 Compliance Monitoring

Compliance monitoring requirements are specified in WAC 173-340-410. The following compliance monitoring will be included as part of the selected cleanup action:

a. Protection monitoring will be provided to ensure protection of human health and the environment during the operation and maintenance period of the landfill cover system.

b. Performance monitoring will be provided to confirm the cover system has achieved cleanup standards, and all other performance criteria (ARARs). Performance monitoring data collected since landfill closure in September 1992 will be used to determine if cleanup levels have been achieved.

c. Confirmational monitoring will be provided to confirm the long-term effectiveness of the landfill cover system, after cleanup standards and all other performance criteria have been achieved.

A compliance monitoring plan shall be prepared and submitted to Ecology for review and approval.

9.5 Long-Term Effectiveness

The selected remedial design will remain effective in the long-term provided continuous monitoring and maintenance occur. These factors will be addressed in the compliance monitoring plan, and the post-closure plan required by WAC 173-304-407. Institutional controls, including deed restrictions will prevent use of the site in ways which will compromise the cleanup action. The effectiveness of the cleanup action will be evaluated as part of the periodic review required in WAC 173-340-420 and section XXVII of the Consent Decree.

9.6 Short-Term Effectiveness

Human health and the environment were protected during construction and implementation of the landfill cover system and was addressed in various engineering design reports submitted to Ecology for approval.

9.7 Permanent Reduction of Toxicity, Mobility and Volume of Hazardous Substances

Since it is not feasible to remove the contents of the landfill, there is no way to reduce the toxicity or volume of hazardous substances within the landfill. The mobility of hazardous substances has been reduced by capping the landfill. The landfill cover system will minimize the vertical and lateral migration of leachate contaminated ground water by reducing the quantity of leachate generated.

9.8 Ability to be Implemented

The selected cleanup alternative has been implemented. The landfill has been closed, the cover system is complete, and required post-closure requirements are being implemented. Ground water monitoring required in the approved compliance monitoring plan will replace the current quarterly monitoring being performed.

9.9 Cleanup Costs

For the purpose of this cleanup action plan, the cost of the selected cleanup action includes the ongoing maintenance and operation of the facility, monitoring, and analysis of data generated. The annual cost to perform these activities is estimated to be between $300,000 and $500,000 per year (in 1996 dollars). As required under WAC 173-304-407, post-closure

maintenance and monitoring activities shall continue for at least a twenty year period or until the health department finds that post-closure monitoring has established that the facility is stabilized (i.e., little or no settlement, gas production, or leachate generation). In addition, WAC 173-340-360(8)(b) requires long-term monitoring and institutional controls to continue until residual hazardous substance concentrations no longer exceed site cleanup levels. The institutional controls required for this site are described in Exhibit C, Restrictive Covenant, of the Consent Decree implementing this CAP.

9.10 Addresses Community Concerns

Community acceptance was evaluated based on the comments received during the public comment period. Public comments were considered during preparation of this final CAP.

REFERENCES

Mundorff, W.J., 1964, Geology and Ground Water Conditions of Clark County, Washington, with a Description of a Major Alluvial Aquifer Along the Columbia River, United States Geological Survey Water-Supply Paper 1600.

Sweet-Edwards/EMCON, Inc., 1988, Leichner Landfill Remedial Investigation Report.

Sweet-Edwards/EMCON, Inc., 1988, Feasibility Study for the Leichner Landfill.

Sweet-Edwards/EMCON, Inc., 1989, Leichner Brothers Landfill Master Operations Plan.

Sweet-Edwards/EMCON, Inc., 1989, Interim Report Hydrogeologic Characterization and Pilot Treatment System.

Sweet-Edwards/EMCON, Inc., 1990, Technical Memorandum for Ground Water Treatment Alternatives.

Sweet-Edwards/EMCON, Inc., 1991, Ground Water Treatment Pilot-Scale Study Report.

Sweet-Edwards/EMCON, Inc., 1991, Leichner Landfill Remedial Investigation Amendment.

EMCON, 1993, Leichner Landfill, Domestic Well Canvass Work Plan.

EMCON, 1993, Leichner Landfill, Domestic Well Canvass.

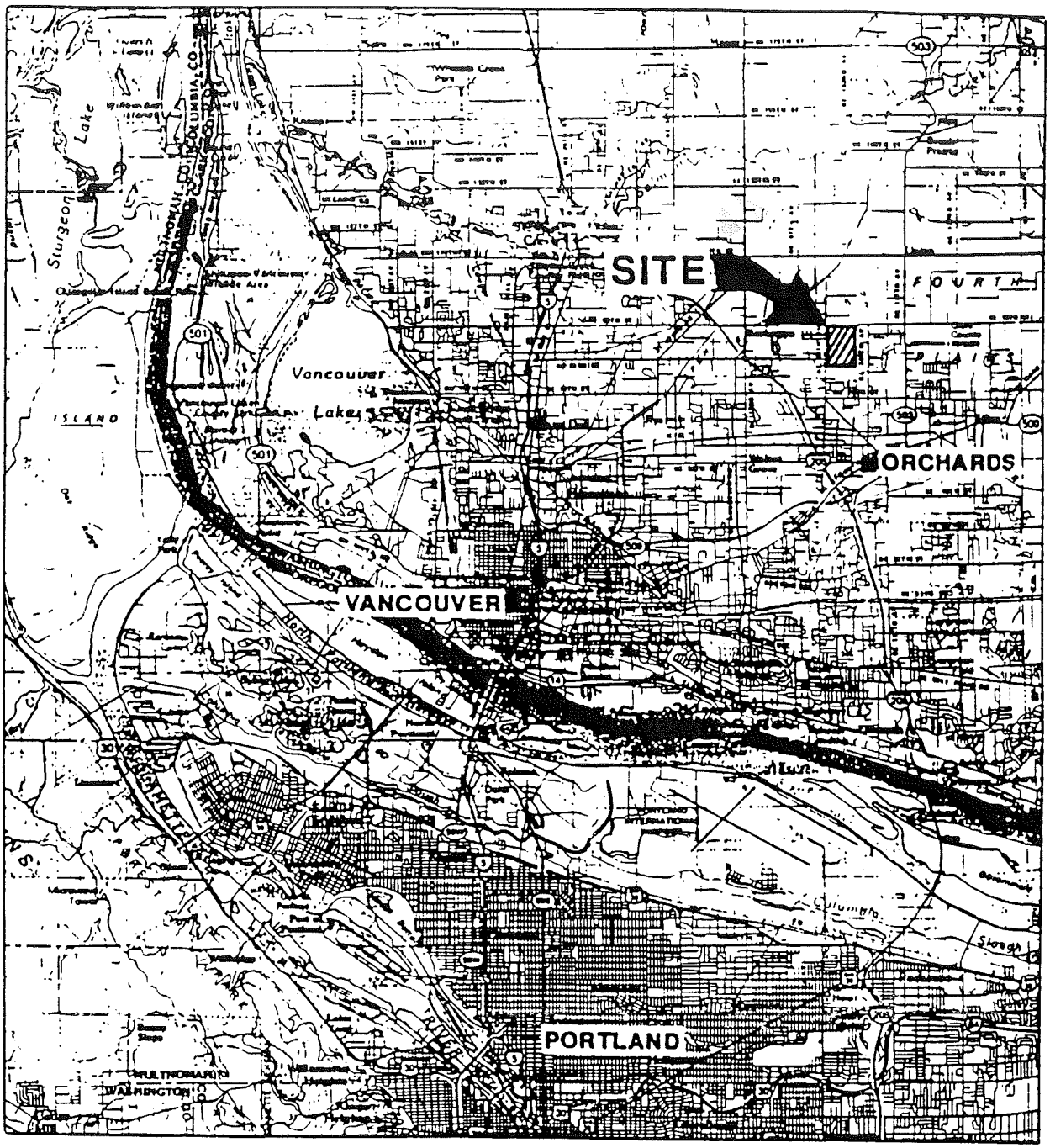
EMCON, 1993, Construction Report, Leichner Brothers Landfill Closure.

EMCON, 1995, Operation and Maintenance Manual for Leichner Brothers Landfill, Volume I: Landfill Gas Extraction System.

EMCON, 1996, Operation and Maintenance Manual for Leichner Brothers Landfill, Volume II: Storm Water System and Final Cover System.

Table 1. Pre-remedial and Post-remedial VOC Distribution in the Alluvial Aquifer.

Volatile Organic Compound	Pre-1992 Data	Post-1992 Data
Tetrachloroethylene (PCE)	< 1.0 - 21.2 ppb	< 0.2 -1.4 ppb
1,1,1-Trichloroethane	< 1.0 -22.0 ppb	< 0.1 -0.3 ppb
Trichloroethylene (TCE)	< 1.0 - 8.6 ppb	0.2 - 0.3 ppb
1,1-Dichlorotheylene (1,1-DCE)	< 1.0 - 5.1 ppb	< 0.1 - 1.6 ppb
Chlorobenzene	< 1.0 - 2.4 ppb	< 0.1 - 1.9 ppb
Cis -1,2 Dichloroethylene (cis-1,2-DCE)	< 1.0 - 40.0 ppb	< 0.1 - 6.6 ppb
Vinyl Chloride	< 1.0 - 6.0 ppb	< 0.1 - 0.2 ppb
1,1-Dichloroethane (1,1-DCA)	< 1.0 - 13.0 ppb	< 0.1 - 3.6 ppb
Chloroethane	< 1.0 -14.0 ppb	< 0.1 - 6.6 ppb
1,4-Dichlorobenzene (1,4-DCB)	< 1.0 - 2.3 ppb	< 0.1 - 1.6 ppb



Sweet-Edwards
EMCON

Figure 1

LEICHNER LANDFILL

SITE LOCATION MAP

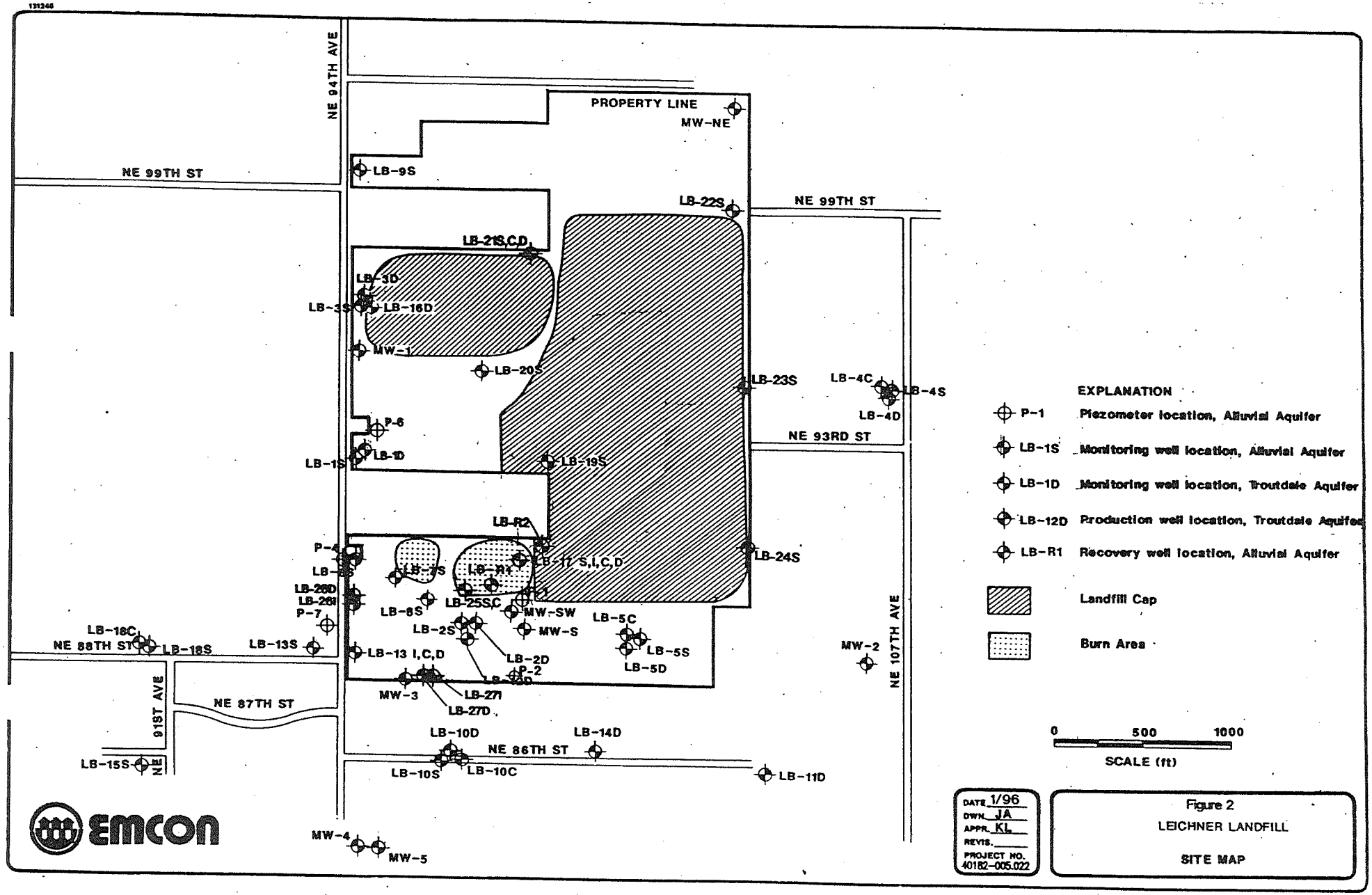
DATE 11-89
DWN. JA
APPR. KL
REVIS.
PROJECT NO. S8202.13

KUKER-RANKEN INC./ 128502

Table 2. Leichner Landfill Ground Water Cleanup Levels for the Alluvial and Troutdale Aquifers.

Parameter	Cleanup Level (ppb)	Compliance Level (ppb)
Tetrachloroethylene	5.0	5.0
Vinyl Chloride	0.023	0.1[1]
Trichloroethylene	5.0	5.0
1,4-dichlorobenzene	1.82	1.82
1,1-dichloroethylene	0.0729	0.1[1]
Iron (dissolved)	300	300
Manganese (dissolved)	50	50
Ammonia-N (NH_3)	34,000	34,000
Nitrate (as N) NO_3	10,000	10,000
Total Dissolved Solids	500,000	500,000
Specific Conductance	700 μmho/cm	700 μmho/cm

[1] This concentration represents the current practical quantitation limit (PQL). Ecology recognizes that in some cases the PQL may be higher than the cleanup standard for a given parameter. In these cases, the cleanup standard may be considered to be attained if the parameter is undetected at the PQL, and the conditions outlined in WAC 173-340-707 are met to Ecology's satisfaction.


131246
NE 94TH AVE
PROPERTY LINE
MW-NE
NE 99TH ST
LB-9S
LB-22S
NE 99TH ST
LB-21S,C,D
LB-3D
LB-3S
LB-16D
MW-1
LB-20S
LB-23S
LB-4C
LB-4S
LB-4D
P-6
LB-1D
LB-1S
LB-19S
NE 93RD ST
LB-R2
P-4
LB-17 S,I,C,D
LB-24S
LB-7S
LB-R1
LB-26D
LB-26I
LB-8S
LB-25S,C
MW-SW
LB-5C
P-7
LB-2S
MW-S
LB-18C
NE 88TH ST
LB-18S
LB-13S
LB-13 I,C,D
LB-2D
LB-5S
LB-5D
MW-2
NE 107TH AVE
P-2
MW-3
LB-27I
LB-27D
91ST AVE
NE 87TH ST
LB-10D
LB-14D
NE 86TH ST
LB-15S
NE
LB-10S
LB-10C
LB-11D
MW-4
MW-5
EMCON
EXPLANATION
P-1 Piezometer location, Alluvial Aquifer
LB-1S Monitoring well location, Alluvial Aquifer
LB-1D Monitoring well location, Troutdale Aquifer
LB-12D Production well location, Troutdale Aquifer
LB-R1 Recovery well location, Alluvial Aquifer
Landfill Cap
Burn Area
0 500 1000
SCALE (ft)
DATE 1/96
DWN. JA
APPR. KL
REVIS.
PROJECT NO. 40182-005.022
Figure 2
LEICHNER LANDFILL
SITE MAP

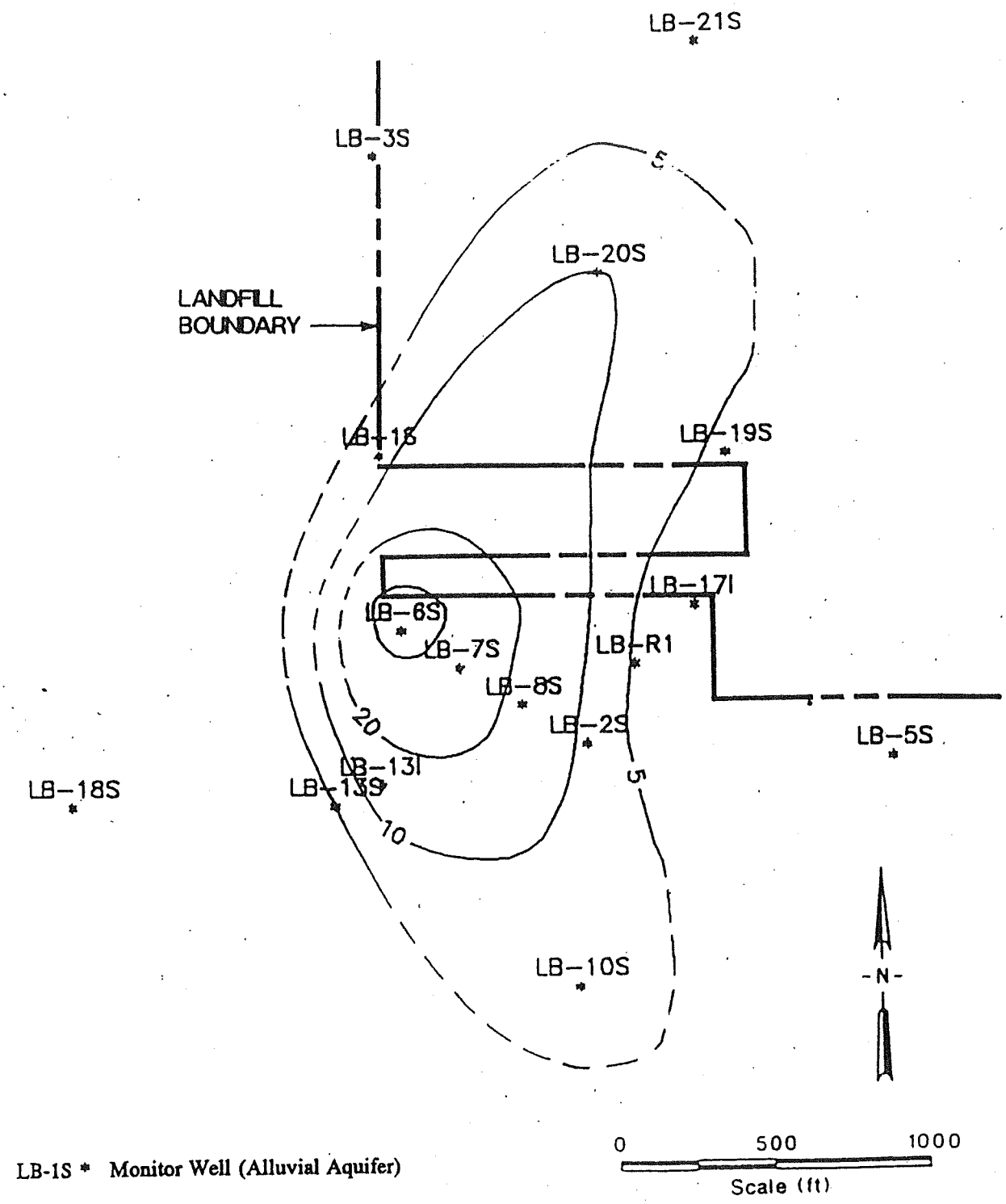
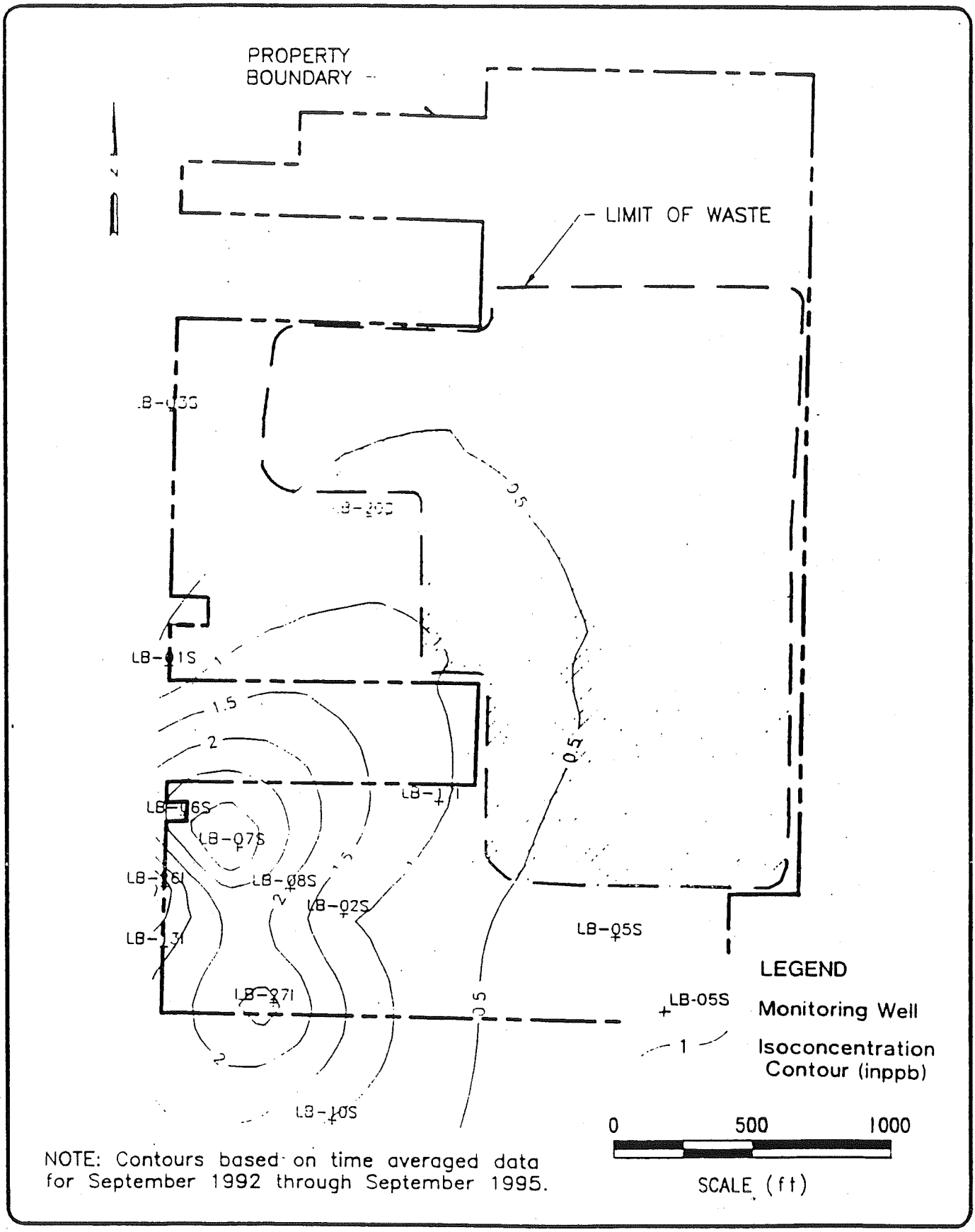


Figure 3 !
LEICHNER LANDFILL
TOTAL VOC CONCENTRATION
AVERGED VALUES-ALLUVIAL AQUIFER



NOTE: Contours based on time averaged data for September 1992 through September 1995.

EMCON

DATE 1/96
DWN. MDC
REV.
APPR.
PROJECT NO.
40182-005.022

Figure 4
LEICHNER LANDFILL
Post-Remedial Action Total VOC Concentration Averaged Values - Alluvial Aquifer 1992 - 1995

EXHIBIT C

RESTRICTIVE COVENANT

The property that is the subject of this Restrictive Covenant is the subject of remedial action under Chapter 70.105D RCW. The work done to clean up the property (hereafter the "Cleanup Action") is described in the Consent Decree entered in State of Washington v. Leichner Brothers Land Reclamation Corporation, Clark County Superior Court No. _____, and in exhibits to the Consent Decree. This Restrictive Covenant is required by the State of Washington Department of Ecology pursuant to WAC 173-340-440 because contaminants will be left in place on the property. This Restrictive Covenant is necessary to assure the continued protection of human health and the environment and the integrity of the Cleanup Action.

The undersigned, Leichner Brothers Land Reclamation Corporation, is the fee owner of real property in the County of Clark, State of Washington (legal description attached), hereafter referred to as the "Property." The Property encompasses both surface and subsurface estates. Leichner Brothers Land Reclamation Corporation makes the following declarations as to limitations, restrictions, and uses to which the Property may be put, and specifies that such declarations shall constitute covenants to run with the land, as provided by law, and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property.

Section 1. No groundwater may be taken for domestic purposes from any well on the Property.

Section 2. Any activity on the Property that may interfere with the Cleanup Action is prohibited. Any activity on the Property that may result in the release of a hazardous substance that was contained as a part of the Cleanup Action is prohibited, unless allowed under the terms of an NPDES or state waste discharge permit.

Section 3. The owner of the Property must give written notice to the Department of Ecology, or to a successor agency, of the owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property may be consummated by the owner without adequate and complete provision for the continued operation, maintenance, and monitoring of the Cleanup Action.

Section 4. The owner of the Property must notify and obtain approval from the Department of Ecology, or from a successor agency, prior to any use of the Property that is inconsistent with the terms of this Restrictive covenant. The Department of Ecology or its successor agency may approve such a use only after public notice and opportunity for comment, and only if the proposed use will not threaten human health or the environment.

Section 5. The owner of the Property shall allow authorized representatives of the Department of Ecology, or of a successor agency, the right to enter the Property in accordance with the terms set forth in Section IX of the Consent Decree for the purposes of evaluating compliance with the terms of the Consent Decree and the Cleanup Action Plan, to take samples, to inspect Cleanup Action taken at the Property, and to inspect records that are related to the Cleanup Action.

Section 6. The owner of the Property and the owner's assigns and successors in interest reserve the right under WAC 173-340-440 to record an instrument providing that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only with the consent of the Department of Ecology, or of a successor agency. The Department of Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment, and only if all of Leichner Brothers Land Reclamation Corporation's obligations under the Consent Decree have been satisfactorily completed.

_____

Name
Title
Leichner Brothers Land Reclamation Corporation

_____

Date

9209150093

9207200144

SW 92-69

RE-RECORDED TO CORRECT LEGAL DESCRIPTION

EXHIBIT D

OPTION AGREEMENT

OPTION AGREEMENT dated as of the 26 day of May, 1989 between Leichner Brothers Land Reclamation Corporation, a Washington corporation (the "Company") and Clark County, a political subdivision of the State of Washington (the "County").

RECITALS

A. The Company owns a sanitary landfill "Landfill" and other property located in the vicinity of Northeast 94th Avenue and 86th Street, which is in the unincorporated portion of the County (the "Property").

B. The Company, the County, and the City of Vancouver have entered into a Disposal Agreement pursuant to which the Company has agreed to grant the County the option to purchase a portion of such Landfill.

AGREEMENTS

In consideration of the mutual covenants and promises contained herein, the parties hereto hereby agree as follows:

1. Grant of Option. The Company hereby grants the County the option to purchase all or a portion of the Property for a purchase price of one dollar ($1.00) (the "Option Price") in accordance with the terms and provisions of this Agreement.

2. Property. Attached hereto as Exhibit A is a legal description and survey for the property subject to this Option. The parties acknowledge and agree that the description shall be modified by mutual agreement of the parties upon completion of the closure of the Leichner Landfill to include that property actually comprising the active face of the landfill and including the detention facilities and the property acquired from Aune Koski.

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3. Exercise of Option. The County shall exercise its option by written notice of exercise to the Company, together with the Option Price both received by the Company within the time period commencing on the date that the Southwest Washington Health District issues a certificate of completion of post-closure pursuant to WAC 173-304-407(7)(c) finding that the Landfill is stabilized with little or no settlement, gas production or leachate generation, and terminating one year later.

4. Transfer of Property. Within ten (10) days of receipt of exercise of this option and the Option Price, the Company shall transfer the Option Property to the County by a quitclaim deed.

5. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Washington.

EXECUTED as of the day and year first above written.

LEICHNER BROTHERS LAND RECLAMATION CORPORATION

By: _____
Title: PRESIDENT

CLARK COUNTY

By: _____
Title: Chair

Approved as to form
Richard A. Jaramillo
Deputy Prosecuting Attorney

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STATE OF WASHINGTON)
: ss.
County of Clark)

I certify that Craig Leichner appeared personally before me and that I know or have satisfactory evidence that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the President of Leichner Brothers Land Reclamation Corporation to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

DATED this 25 day of May, 1989.

NOTARY PUBLIC FOR WASHINGTON
My Commission Expires: 12/1/91

STATE OF WASHINGTON)
: ss.
County of Clark)

I certify that Bruce Kistler appeared personally before me and that I know or have satisfactory evidence that she signed this instrument, on oath stated that she was authorized to execute the instrument and acknowledged it as the Chairman of the Board - Commissioners of Clark County to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

DATED this 5th day of July, 1989.

JONI B. McANALLY
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
OCTOBER 5, 1994

NOTARY PUBLIC FOR WASHINGTON
My Commission Expires: 10-5-94

(01153000.not)

OLSON
ENGINEERING INC.

LEGAL DESCRIPTION FOR LEICHNER
Road Easement Over Land Fill

November 29, 1988

An 60.00 foot easement for access and utilities in the James McAllister Donation Land Claim in the Southwest quarter of Section 33, Township 3 North, Range 2 East and the Northwest quarter of Section 4, Township 2 North, Range 2 East of the Willamette Meridian in Clark County, Washington being 30 feet on each side of the following described centerline:

COMMENCING at the Southwest corner of said McAllister D.L.C.;

THENCE North 02° 09' 58" East along the West line of said McAllister D.L.C. 2188.63 feet to a point which bears North 87° 10' 13" West from a 1/2" iron rod set by Olson Engineering Inc. in 1988;

THENCE South 87° 10' 13" East 20.00 feet to said 1/2" iron rod;

THENCE South 87° 10' 13" East 160.01 feet to a 1/2" iron rod set by Olson Engineering Inc. in 1988;

THENCE South 02° 09' 58" West 105.01 feet to a 1/2" iron rod set by Olson Engineering Inc. in 1988;

THENCE South 87° 10' 13" East 210.05 feet to a 1/2" iron rod set by Olson Engineering Inc. in 1988;

THENCE South 87° 51' 35" East 756.61 feet to a 1/2" iron rod set by Olson Engineering Inc. in 1988;

THENCE North 02° 21' 36" East along the East line of that tract described in Exhibit_____ as Recorded in that Boundary Agreement recorded in Clark County Auditor's File _____, 380.79 feet, more or less, to the Northeast corner thereof;

THENCE South 87° 38' 24" East 40.88 feet to the TRUE POINT OF BEGINNING of said centerline easement;

THENCE South 01° 58' 36" West 337.66 to a 112.00 foot radius curve to the right;

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THENCE along said 112.00 foot radius curve to the right 71.20 feet;

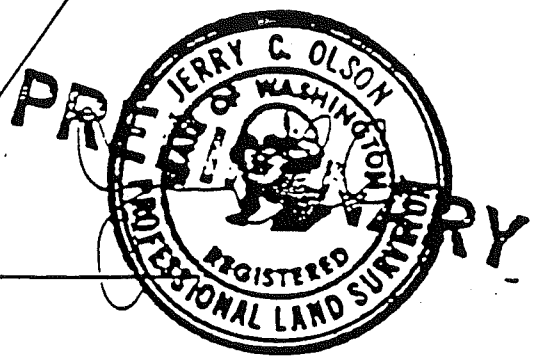
THENCE South 38° 23' 58" West 145.23 feet to a 112.00 foot radius curve to the left;

THENCE along said 112.00 foot radius curve to the left 67.84 feet;

THENCE South 03° 41' 36" West 334.98 feet to a 81.16 foot radius curve to the right;

THENCE along said 81.16 foot radius curve to the right 96.69 feet;

THENCE South 71° 56' 50" West 100.00 feet to the End Of Said Easement.



PRELIMINARY

11/30/88

OLSON ENGINEERING, INC

LEGAL DESCRIPTION FOR LEICHNER BROTHERS
Land Fill to Transfer to County

December 5, 1988

A parcel of property in Section 4, Township 2 North, Range 2 East and Section 33, Township 3 North, Range 2 East of the Willamette Meridian in the James McAllister Donation Land Claim and in a portion of Newton Addition recorded in Book A of Plats at Page 60 of Clark County records, described as follows:

BEGINNING at the Southwest corner of the McAllister D.L.C.;

THENCE South 02° 10' 22" West along the centerline of N.E. 94th Avenue 466.21 feet to the South line of the North half of lot 5 of said Newton Addition;

THENCE South 88° 16' 06" East along the South lines of the North half of Lot 5, North half of Lot 4, North half lot 3, North half of Lot 2, and the Northwest quarter of Lot 1 of said Newton Addition 2196.67 feet to the Southeast corner of the Northwest quarter of Lot 1 of said Newton Addition;

THENCE North 01° 43' 50" East along the East line of the Northwest quarter of said Lot 1 of Newton Addition 474.11 feet to the South line of the McAllister D.L.C.;

THENCE South 88° 29' 04" East along the South line of said D.L.C. 227.44 feet to the Southeast corner thereof;

THENCE North 01° 59' 43" East along the East line of said D.L.C. 492.81 feet to the Northwest corner of the Napoleon McGilvery D.L.C.;

THENCE North 02° 07' 55" East along the East line of said McAllister D.L.C. 1698.33 feet;

THENCE North 87° 52' 05" West 48.47 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 05° 40' 25" West 37.37 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 28° 28' 05" West 41.83 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 43° 15' 59" West 52.90 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 68° 47' 29" West 46.58 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 89° 04' 51" West 99.87 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 00° 00' 24" East 106.08 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 86° 10' 54" West 107.89 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 89° 03' 07" West 150.73 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 88° 22' 33" West 198.80 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 89° 30' 03" West 50.91 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 87° 56' 15" West 196.06 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 75° 26' 45" West 30.55 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 87° 53' 45" West 20.26 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 72° 27' 01" West 52.91 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 88° 51' 39" West 54.74 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 88° 51' 39" West 54.45 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 00° 49' 51" West 167.05 feet to a 1/2" iron rod set by Olson Engineering;

THENCE North 88° 47' 08" West 100.64 feet to a point on the East line of that tract described in Exhibit_____ of the Boundary Agreement recorded in Clark County Auditor's File_____;

THENCE South 02° 21' 26" West along said East line 132.00 feet to the Southeast corner of that tract described in said Exhibit;

THENCE North 87° 51' 35" West along the South line of that tract described in said Exhibit 732.15 feet;

THENCE South 07° 18' 23" West 580.41 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 88° 29' 24" East 111.86 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 76° 57' 08" East 205.44 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 89° 23' 23" East 317.09 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 00° 10' 35" East 292.10 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 85° 55' 15" West 149.19 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 02° 40' 38" West 364.07 feet to a 1/2" iron rod set by Olson Engineering;

THENCE South 88° 02' 47" East 328.78 feet towards a 1/2" iron rod set by Olson Engineering to a point that bears North 02° 07' 55" East from the Northeast corner of that property conveyed to Felix and Bonnie Fleischer by deed recorded in Clark County Auditor's File No. 8403160018;

THENCE South 02° 07' 55" West 34.69 feet to the Northeast corner of said Fleischer tract;

THENCE South 02° 07' 55" West along the East line of said Fleischer tract 249.37 feet;

THENCE continuing along the East line of said Fleischer tract South 01° 59' 43" West 127.18 feet to the Southeast corner thereof;

THENCE North 88° 29' 04" West along the South line of said Fleischer tract 1182.85 feet to the West line of the McAllister D.L.C. and the Southwest corner of said Fleischer tract;

THENCE South 02° 09' 58" West along the West line of said D.L.C. 60.00 feet to the North line of that tract conveyed to Neil D. McPherson by deed recorded under Auditor's File #8703170208 of Clark County records;

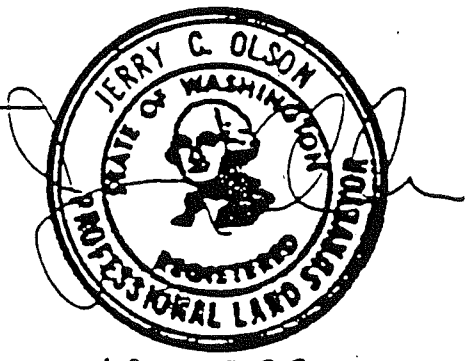
THENCE South 88° 29' 04" East along said North line 90.01 feet to the East line of said McPherson tract;

THENCE South 02° 09' 58" West along said East line 80.01 feet to the South line of said McPherson tract;

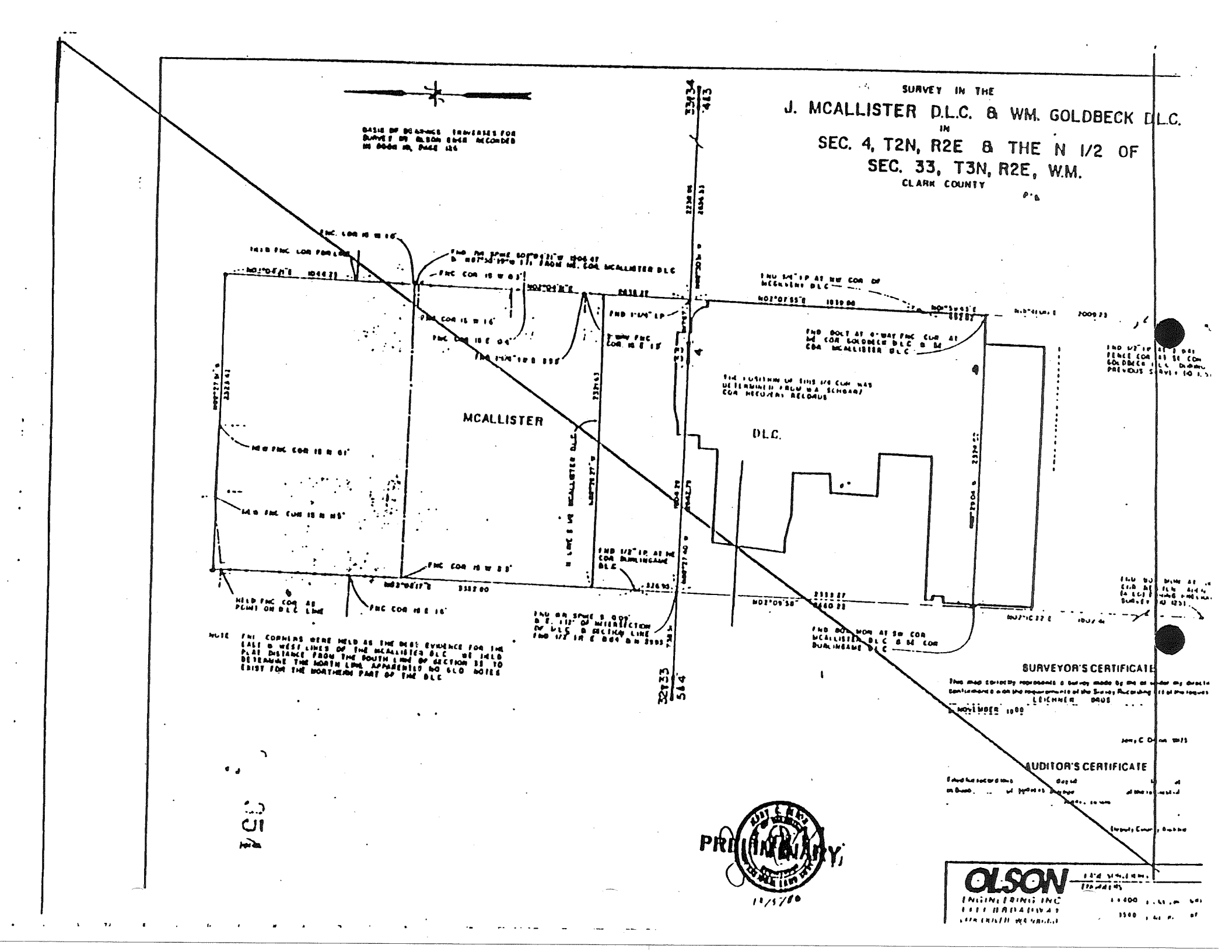
THENCE North 88° 29' 04" West along the South line of said McPherson tract 90.01 feet to the West line of said McAllister D.L.C;

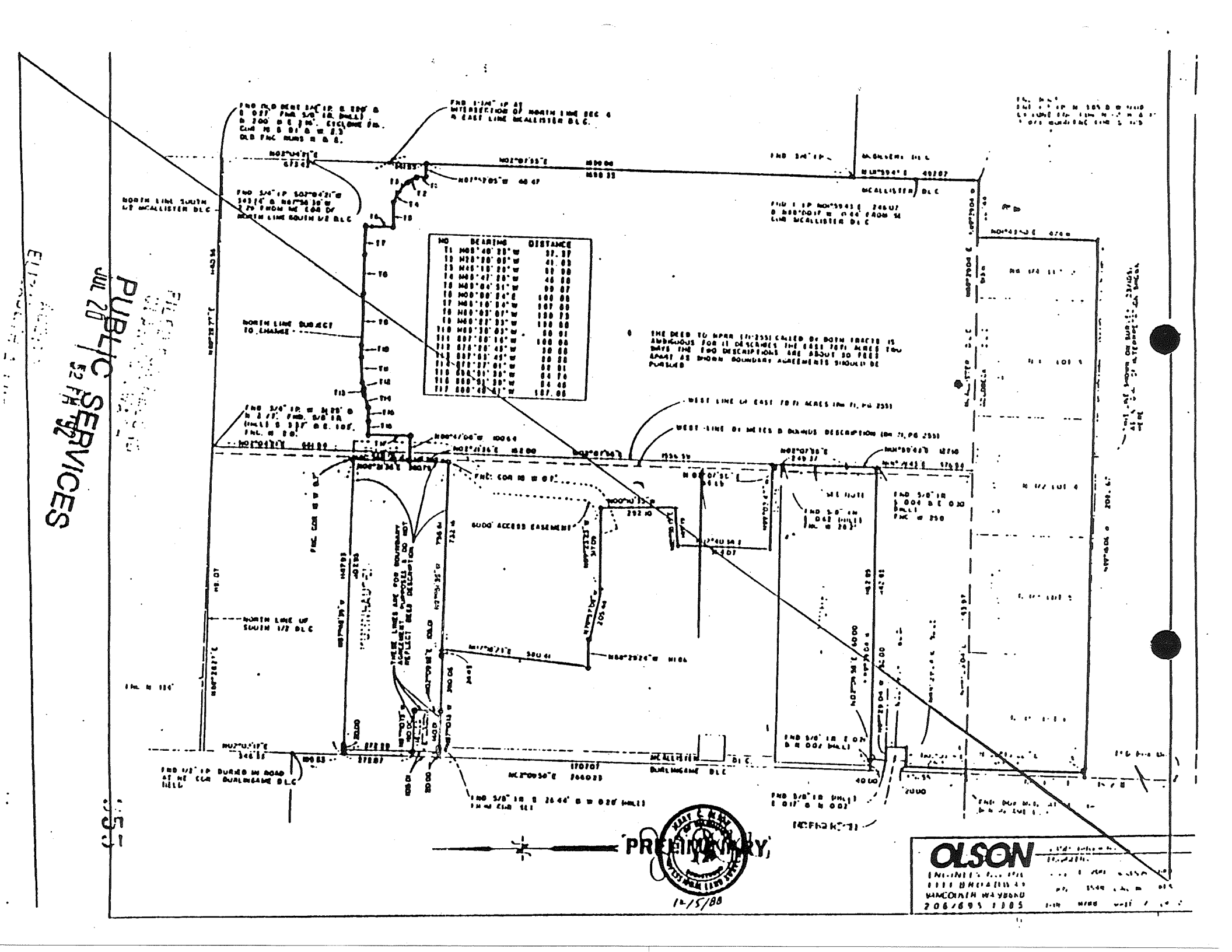
THENCE South 02° 09' 58" West along said West line 236.55 feet to the POINT OF BEGINNING.

EXCEPT any portion thereof lying in N.E. 94th Avenue.



12/5/88


SURVEY IN THE
J. MCALLISTER D.L.C. & WM. GOLDBECK D.L.C.
IN
SEC. 4, T2N, R2E & THE N 1/2 OF
SEC. 33, T3N, R2E, W.M.
CLARK COUNTY
MCALLISTER
D.L.C.
SURVEYOR'S CERTIFICATE
AUDITOR'S CERTIFICATE
PRELIMINARY
OLSON
ENGINEERING INC


PUBLIC SERVICES
JUL 20
PRELIMINARY
12/5/88
OLSON
ENGINEERS
WAUCONDA WASHBURN
206/695 1385

LEGAL DESCRIPTION FOR LEICHNER
Landfill Transfer to Clark County

October 27, 1992

A parcel of property in the James McAllister and in the William Goldbeck Donation Land Claim and in a portion of the Newton Addition as recorded in Book A of Plats at page 60 of Clark County records. in the North half of Section 4, Township 2 North, Range 2 East and in the South half of Section 33, Township 3 North, Range 2 East of the Willamette Meridian described as follows:

COMMENCING at the Southwest corner of said McAllister Donation Land Claim:

THENCE North 02° 09' 58" East along the West line of said McAllister Donation Land Claim 753.11 feet to the North line of that tract conveyed to Felix F. Fleischer by deed recorded under Auditor's File # 8403160018 of Clark County records;

THENCE South 88° 29' 04" East along said North line 850.15 feet to the TRUE POINT OF BEGINNING;

THENCE North 04° 03' 55" East 157.74 feet:

THENCE North 05° 00' 52" West 62.39 feet:

THENCE North 09° 23' 06" East 45.95 feet;

THENCE North 21° 38' 11" East 73.95 feet:

THENCE North 03° 53' 37" West 95.70 feet:

THENCE South 88° 55' 24" East 95.97 feet:

THENCE North 04° 57' 43" East 277.44 feet;

THENCE North 89° 23' 23" West 301.36 feet;

THENCE North 76° 57' 08" West 205.44 feet:

THENCE North 88° 29' 24" West 111.86 feet:

THENCE North 07° 18' 23" East 580.41 feet to the South line of the Kuhnhausen parcel as described in Exhibit D of the boundary line agreement recorded under Auditor's File # 9108090261 of Clark County records;

THENCE South 87° 51' 35" East along said South line 732.16 feet to the East line of said Kuhnhausen parcel;

9/16/93

[illegible] • ENGINEERS
[illegible] • VANCOUVER, WASHINGTON 98660
[illegible] • FAX [illegible] • [illegible]

THENCE North 02° 21' 36" East along said East line 380.79 feet to the Northeast corner of said Kuhnhausen parcel:

THENCE North 02° 21' 36" East 103.27 feet:

THENCE North 89° 50' 17" East 263.64 feet:

THENCE South 79° 14' 48" East 288.86 feet:

THENCE South 87° 14' 12" East 133.24 feet:

THENCE South 85° 56' 14" East 199.37 feet:

THENCE North 45° 17' 17" East 77.77 feet:

THENCE North 89° 42' 20" East 238.67 feet to the East line of said McAllister Donation Land Claim:

THENCE South 02° 04' 21" West along said East line 231.02 feet:

THENCE South 02° 07' 55" West along said East line 1839.88 feet to the Northwest corner of the Napoleon McGilvery Donation Land Claim:

THENCE South 01° 59' 43" West along said East line 492.82 feet to the Southeast corner of said McAllister Donation Land Claim:

THENCE North 88° 29' 04" West along the South line of said McAllister Donation Land Claim 227.44 feet to the Northeast corner of the Northwest quarter of Lot 1 of the Newton Addition:

THENCE South 01° 43' 50" West along the East line of said Northwest quarter 473.72 feet to that line established by boundary agreement as recorded under Auditor's File # 9108090260 of Clark County records:

THENCE North 88° 16' 04" West along said boundary agreement line 981.21 feet:

THENCE South 01° 43' 50" West along said boundary agreement line 0.41 feet to the South line of the North half of Lot 3 of said Newton Addition:

THENCE North 88° 16' 06" West along said South line and the South lines of the North half of Lot 4 and the North half of Lot 5 of said Newton Addition 1119.46 feet to the centerline of NE 94th Ave:

THENCE North 02° 10' 22" East along said centerline 466.22 feet to the Southwest corner of the McAllister Donation Land Claim:

THENCE North 02° 09' 58" East along the West line of said McAllister Donation Land Claim 236.55 feet to the Southwest corner of that tract conveyed to Arvid E Koski by deed recorded under Auditor's File # G 18438 of Clark County records:

THENCE South 88° 29' 04" East along the South line of said Koski tract 90.00 feet to the Southeast corner thereof:

THENCE North 02° 09′ 58″ East along the East line of said Koski tract 80.01 feet to the Northeast corner thereof;

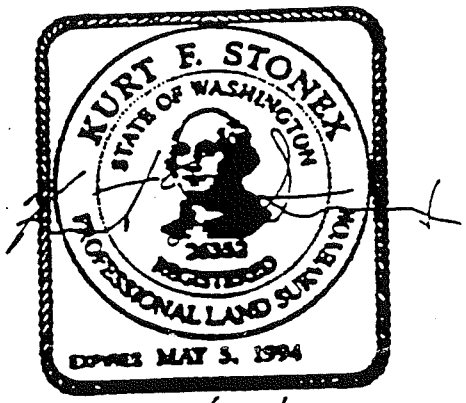
THENCE North 88° 29′ 04″ West along the North line of said Koski tract 90.00 feet to the West line of said McAllister Donation Land Claim;

THENCE North 02° 09′ 58″ East along said West line 60.00 feet to the South line of said Fleischer tract;

THENCE South 88° 29′ 04″ East along said South line 1157.05 feet to a fence line;

THENCE North 01° 43′ 14″ East along said fence line 376.53 feet to the North line of said Fleisher tract;

THENCE North 88° 29′ 04″ West along said North line 303.98 feet to the TRUE POINT OF BEGINNING.



8/11/93

EXHIBIT F

PUBLIC PARTICIPATION PLAN
LEICHNER BROTHERS LANDFILL
REMEDIAL ACTION
VANCOUVER, WASHINGTON

Washington Department of Ecology
Southwest Regional Office
Toxics Cleanup Program
Olympia, Washington

January 1996

I. INTRODUCTION AND OVERVIEW OF PUBLIC PARTICIPATION PLAN

The Washington Department of Ecology is committed to providing public participation opportunities during the investigation and cleanup of this hazardous waste site. The public participation plan is intended to promote public understanding of Ecology's responsibilities, planning activities, and remedial activities at hazardous waste sites. It also provides an opportunity for Ecology to learn, from the public, information that will enable Ecology to develop a comprehensive cleanup plan that is protective of both human health and the environment. This public participation plan is an amended version of the May 1993 public participation plan.

A. This public participation plan for the Leichner Brothers Landfill hazardous waste cleanup site covers activities in the implementation of a consent decree for remedial action. It has been tailored to the needs of the public based on the stage and nature of the cleanup, the level of public concern, and the risks posed by the site.

B. The Leichner Brothers Landfill has been a municipal solid waste landfill (100 acres) since approximately 1940. It is owned and operated by Leichner Brothers Land Reclamation Corporation (LBLRC). Until the mid-1960's, waste received at the landfill was burned. Since then, waste received at the landfill has been compacted and covered with soil. The landfill accepted municipal solid waste from the cities and towns in Clark County as well as from the unincorporated areas of the county. The landfill stopped receiving waste at the end of 1991 and was closed in November 1992.

Beginning in 1987, Ecology and LBLRC entered into a series of agreed orders to investigate contamination at the Leichner Brothers Landfill. A remedial investigation and feasibility study (RI/FS) was completed in April 1988. In April 1989, Ecology issued an order to LBLRC requiring further investigation and remediation of contaminated ground water. An amendment to this order, in June 1989, required a report on the on-going hydrogeology and treatability studies. In a second amendment to the April 1989 order, Ecology required further investigations, which are summarized in the October 1991 Remedial Investigation Amendment. Based on the technical information submitted by LBLRC, Ecology developed a draft cleanup action plan in early 1992, after which time, Ecology and LBLRC negotiated a consent decree that described the additional remedial actions that would be conducted at the landfill. The proposed consent decree and cleanup action plan went through a 30-day public comment period in July 1992. However, due to some legal uncertainties between LBLRC, the City of Vancouver and Clark County about cleanup costs, the 1992 consent decree was never finalized in court. Ecology proceeded with the agreed order so that cleanup could continue. This agreed order specified most of the same remedial actions proposed in the July 1992 consent decree.

The following reports have been completed by LBLRC:

Leichner Landfill Remedial Investigation Report, February 1988
Feasibility Study for the Leichner Landfill, April 1988
Leichner Brothers Landfill Master Operations Plan, February 1989
Interim Report Hydrogeologic Characterization and Pilot Treatment System, November 1989
Technical Memorandum for Ground Water Treatment Alternatives, March 1990
Technical Memorandum of Ground Water Modeling, May 1990
Ground Water Treatment Bench-Scale Studies Report, July 1990
Ground Water Treatment Pilot-Scale Study Experimental Plan, October 1990
Ground Water Treatment Pilot-Scale Study Report, September 1991
Remedial Investigation Report Amendment, October 1991
Leichner Landfill Domestic Well Canvass Work Plan, 1993
Leichner Landfill Domestic Well Canvass, 1993
Construction Report, Leichner Brothers Landfill Closure, 1993
Operation and Maintenance Manual for Leichner Brothers Landfill, Volume I: Landfill Gas Extraction System, 1995
Operation and Maintenance Manual for Leichner Brothers Landfill, Volume II: Storm Water System and Final Cover System, 1996

A number of remedial actions have been completed at the landfill. An engineered composite cap cover system was constructed over the landfill. In addition, a landfill gas control/recovery system was installed, a stormwater control system was implemented, a domestic well survey undertaken, and an alternate water supply provided.

Ecology will oversee the project and has responsibility for public participation. LBLRC assisted Ecology in preparing this public participation plan.

C. This public participation plan outlines public participation activities to be conducted for the phases covered by this plan. This plan will be reviewed at each phase of cleanup, and amended or rewritten as appropriate.

The purpose of the public participation effort and of this plan is to ensure that the affected public and governmental agencies are kept informed as the remedial action proceeds, and that each has an opportunity to contribute information regarding the site, and to comment on the cleanup activities.

D. This plan is divided into the following sections:

II. Site Description
  A. Land Use
  B. Technical Aspects

III. Community Background

A. Community Profile
B. Key Community Concerns

IV. Public Participation Activities

V. Appendices:
A. Site Map
B. Time Line
C. Site Mailing List
D. Update(s) to Public Participation Plan
E. Glossary

II. SITE DESCRIPTION

A. Land Use

Currently, the site is bordered to the west, north, and east by residential development. LBLRC owns approximately 30 acres to the south of the landfill. The property and surrounding area are currently zoned single family residential - 7500 square feet per lot (R 1-7-5), with a small area east of Northeast 90th Street and 94th Avenue zoned light manufacturing. Historically, the surrounding area was primarily farm/agricultural land. However, over the years, it has become urbanized through the creation of medium to large residential lots. The surrounding area is within the urban growth boundary and residential development is expected to continue in this area.

B. Technical Aspects

The geology in the vicinity of the landfill consists of alluvium (sand and gravel) to a depth of 70 to 100 feet, and the upper section of the Troutdale Formation, which consists of sand and gravel cemented in a matrix of silt. Water-bearing zones, or aquifers, are present in both the alluvium and the Troutdale Formation. Ground water flow in the aquifers is toward the south and southwest. The two aquifers appear to be locally interconnected southwest of the landfill.

Ground water quality in the alluvial aquifer, and to a lesser degree the Troutdale aquifer, has been impacted by the landfill. The alluvial aquifer displays elevated levels of constituents typical of municipal solid waste landfills including ammonia, iron, manganese, chloride, calcium, and specific conductance, as well as low levels of volatile organic compounds (VOCs). The Troutdale aquifer displays elevated levels of inorganic water quality parameters, including chloride, calcium, sulfate, and specific conductance. Low concentrations of VOCs (below drinking water standards and below MTCA cleanup levels) were detected in some domestic supply wells completed

in the Troutdale aquifer. These wells are located about 3000 feet southwest of the Leichner Landfill property and it is unclear from these data alone that the VOCs are from the landfill.

When Ecology initially considered the selection of a remedial action for this site in 1992, contaminant levels and technical considerations resulted in Ecology selecting ground water extraction and treatment as the remedial action. Since then, conditions at the landfill have changed. Capping the landfill has minimized the lateral and vertical migration of leachate by reducing the volume of leachate generated. Ground water contaminant concentrations have decreased to the point that an extraction and treatment system is no longer justified. Ongoing ground water monitoring is required, as is long-term maintenance of the cover system, the gas control system, and the storm water management system.

Leichner has agreed to apply for a post-closure permit from the Southwest Washington Health District. When the permit is in place, the Health District will supervise the monitoring and maintenance activities and the landfill with Ecology oversight.

III. COMMUNITY BACKGROUND

A. Community Profile

Clark County's population is about 245,000. The property served as the only municipal landfill permitted within Clark County. The landfill closed on December 31, 1991 and the community now exports its solid waste to the Finley Buttes Landfill in Morrow County, Oregon.

The community is fairly concentrated near the urbanized areas, including Vancouver and the cities of Camas and Washougal. The property lies north of these urbanized areas, near Orchards. However, the urbanization has sprawled and residential housing borders three sides of the landfill.

B. Key Community Concerns

The key community concern is protection of drinking water quality. An alternate water supply has been provided to many of the homes in the area and all new homes in the vicinity will be connected to the municipal water system. The domestic well survey performed in 1993 investigated the impact of the landfill on nearby domestic wells.

IV. PUBLIC PARTICIPATION ACTIVITIES

The public participation plan for the Leichner Brothers Landfill will consist of the following activities:

A. A 30-day public comment period on the consent decree was held beginning January 24, 1996 and ending February 23, 1996.

B. The potentially affected vicinity, which includes all properties around the perimeter of the site and any persons who may be directly affected by the site, as set forth in Appendix C, have been notified by mail.

The above have been identified as owning or leasing property immediately adjacent to the site. Those on the initial mailing list (refer to Appendix C) shall receive all site mailings. Anyone who requests to be placed on the site mailing list shall receive all future site mailings.

C. The public may review the agreed order and the recent fact sheet at the following locations:

Patty Hill
Washington Department of Ecology
Southwest Regional Office - Central Files
510 Desmond Drive/P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6365

Fort Vancouver Regional Library
1007 East Mill Plain Boulevard
Vancouver, WA 98663-3599
(360) 695-1566

Clark County Public Utilities
1408 Franklin Street
Vancouver, WA 98660-2879
(360) 699-2375

Southwest Washington Health District
2000 Fort Vancouver Way
Vancouver, WA 98663-3505
(360) 696-8428

These documents are available for review during the public comment period. Anyone requesting a copy of these documents will be provided them by Ecology.

D. All comments received will be retained in the Ecology Southwest Regional Office site files. Responses to comments received on documents circulated for public comment will be compiled in a "responsiveness summary" that will be sent to those who submit written comments and to the designated information

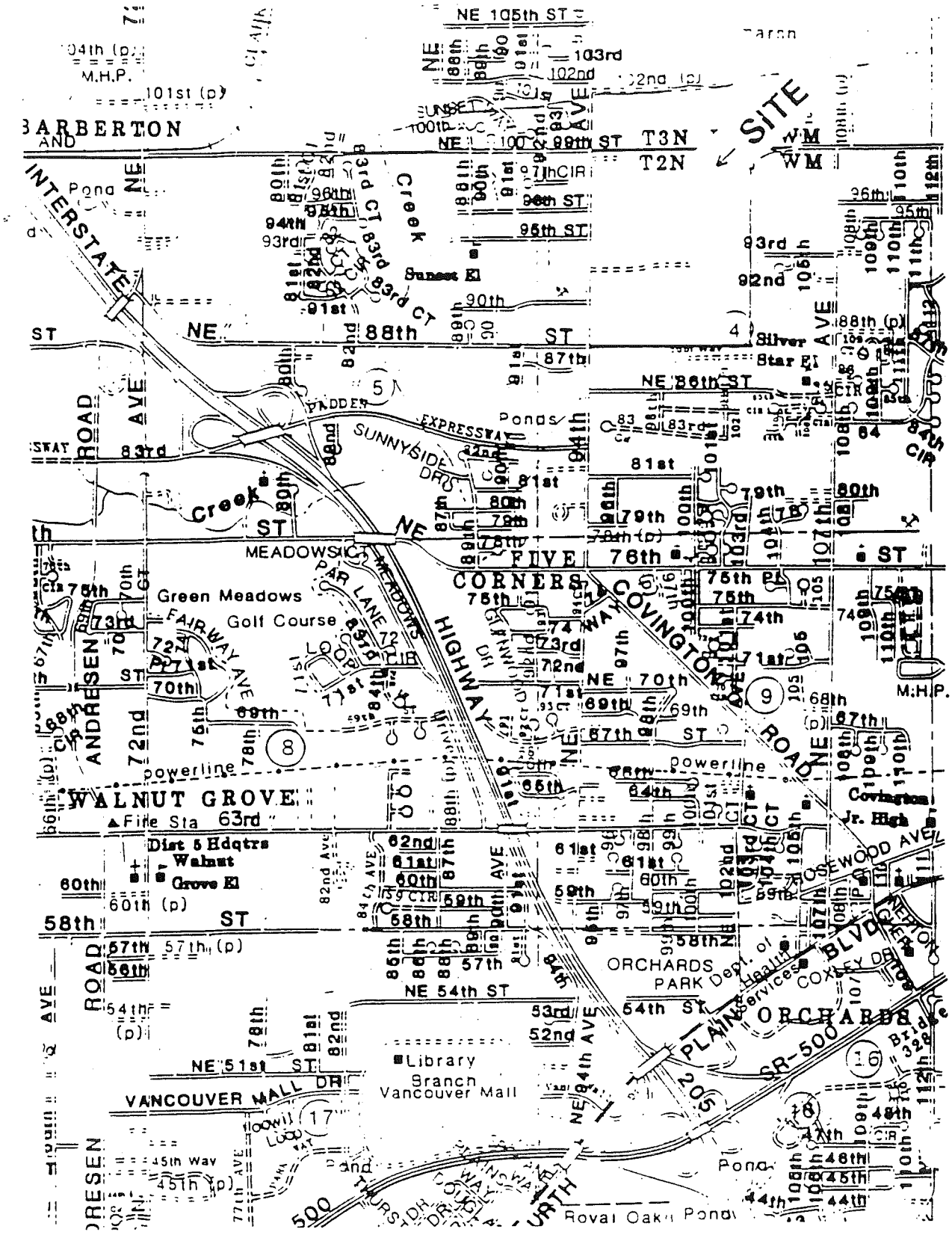
repositories. Notice of availability will be published in the Ecology Site Register.

E. If there is a need for additional public participation activities, the public shall be notified through a legal notice in the Vancouver Columbian, and this public participation plan will be updated and delivered to the information repositories listed above.

F. Public notice announcements regarding the site will be placed in the Ecology Site Register for each comment period. Notice was listed in the January 30, 1996 Site Register.

PUBLIC PARTICIPATION PLAN - APPENDIX A

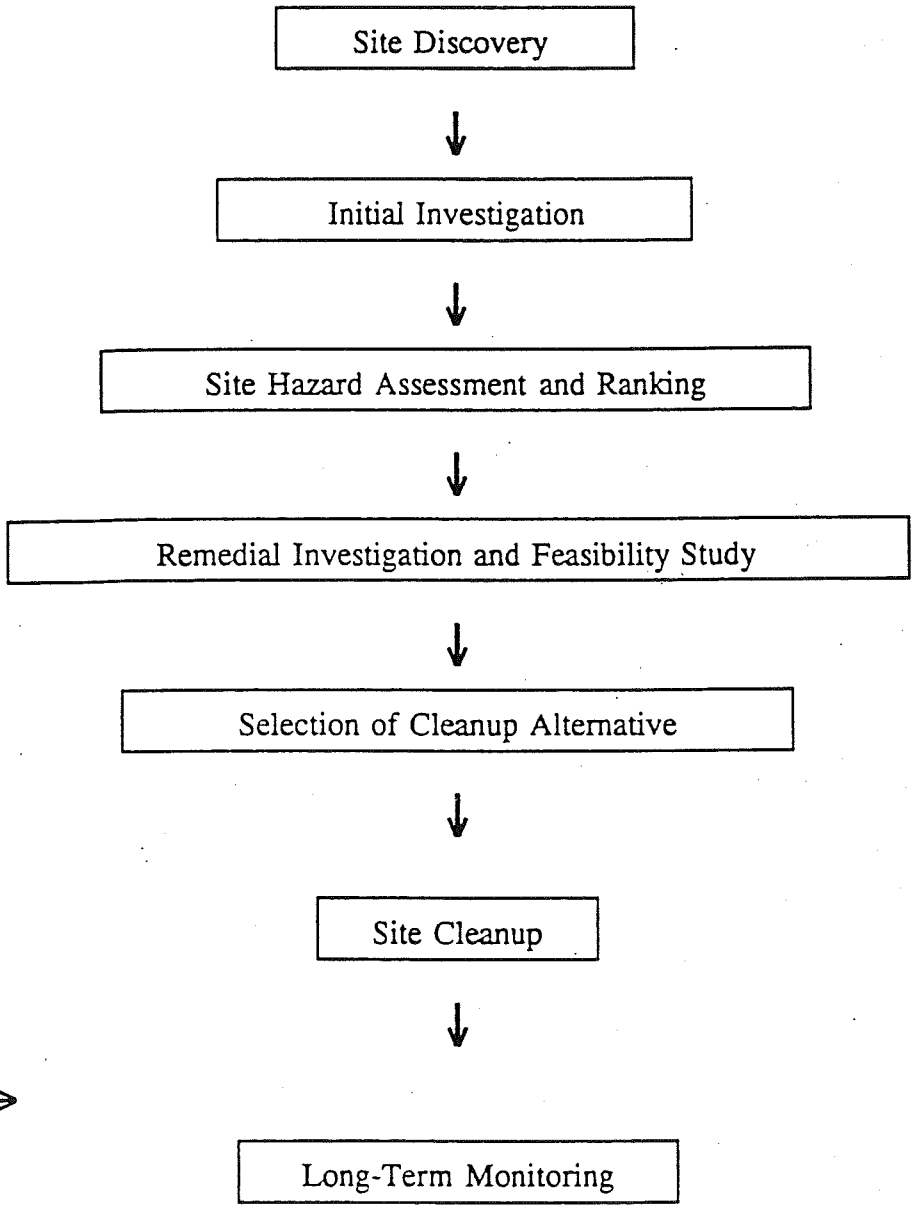
SITE MAP



PUBLIC PARTICIPATION PLAN - APPENDIX B

TIME LINE

Each of these steps take varying amounts of time ranging from less than one year to several years, depending on the complexity of the site.



PUBLIC PARTICIPATION PLAN - APPENDIX C

SITE MAILING LIST

- Site owners, operators (Leichner Brothers Land Reclamation Corporation)
- Potentially affected vicinity (including, but not limited to, adjacent property owners; see Section IV, B)
- Silver Star and Sunset Elementary Schools
- Nearby daycares
- City of Vancouver elected officials (mayor, city council, city commissioners, etc. in c/o city clerk's office)
- Clark County elected officials (county commissioners, etc. in c/o county clerk's office)
- Vancouver Fire District
- Southwest Washington Health District, Gary Bickett
- Port of Vancouver
- Vancouver Columbian, environmental reporter
- Local radio stations
- State legislators for Vancouver area
- Other interested citizens (Washington Environmental Council, local environmental groups, neighborhood associations, citizens' groups, anyone requesting to be placed on the site mailing list, etc.)
- Southwest Regional Citizens' Advisory Committee members
- WA Dept. of Health - Office of Toxic Substances
- Information repositories (see Section IV, C)
- Ecology Toxics Cleanup Program section heads
- Ecology Toxics Cleanup Program public participation staff (HQ and other regions)
- Ecology Toxics Cleanup Program PIO
- Ecology SWRO Regional Director/SWRO section heads
- Ecology Industrial Section (Paul Skyllingstad)
- Assistant Attorney General for the site, Tanya Barnett
- Ecology site manager, Rebecca Lawson
- PLP's, attorney(s), consultant(s)

PUBLIC PARTICIPATION PLAN - APPENDIX D

GLOSSARY

Agreed order: A legal document, issued by Ecology, which formalizes an agreement between Ecology and the potentially liable persons for the actions needed at a site. An agreed order may be used for all remedial actions except for non-routine cleanup actions and interim actions that constitute a substantial majority of a cleanup action likely to be selected. Since an agreed order is not a settlement, an agreed order shall not provide for mixed funding, a covenant not to sue, or protection from claims for contribution. An agreed order means that the potentially liable person agrees to perform remedial actions at the site in accordance with the provisions of the agreed order and that Ecology will not take additional enforcement action against the potentially liable person to require those remedial actions specified in the agreed order so long as the potentially liable person complies with the provisions of the order. Agreed orders are subject to public comment. If an order substantially changes, an additional public comment period is provided.

Applicable state and federal laws: All legally applicable requirements and those requirements that Ecology determines are relevant and appropriate requirements.

Area background: The concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

Carcinogen: Any substance or agent that produces or tends to produce cancer in humans.

Chronic toxicity: The ability of a hazardous substance to cause injury or death to an organism resulting from repeated or constant exposure to the hazardous substance over an extended period of time.

Cleanup: The implementation of a cleanup action or interim action.

Cleanup action: Any remedial action, except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with cleanup levels; utilizes permanent solutions to the maximum extent practicable; and includes adequate monitoring to ensure the effectiveness of the cleanup action.

Cleanup action plan: A document which selects the cleanup action and specifies cleanup standards and other requirements for a particular site. The cleanup action plan, which follows the remedial investigation/feasibility study report, is subject to a public comment period. After completion of a comment period on the draft cleanup action plan, Ecology issues a final cleanup action plan.

Cleanup level: The concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure conditions.

Cleanup process: The process for identifying, investigating, and cleaning up hazardous waste sites.

Consent decree: A legal document, approved and issued by a court, which formalizes an agreement reached between Ecology and potentially liable persons on the actions needed at a site. A consent decree is subject to public comment and a public meeting is required. If a consent decree substantially changes, an additional comment period is provided. After satisfying the public comment and meeting requirements, Ecology files the consent decree with the appropriate superior court or federal court having jurisdiction over the matter.

Containment: A container, vessel, barrier, or structure, whether natural or constructed, which confines a hazardous substance within a defined boundary and prevents or minimizes its release into the environment.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels.

Enforcement order: A legal document, issued by Ecology, requiring remedial action. Failure to comply with an enforcement order may result in substantial liability for costs and penalties. An enforcement order is subject to public comment. If an enforcement order is substantially changed, an additional comment period is provided.

Environment: Any plant, animal, natural resource, surface water (including underlying sediments), ground water, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air within the state of Washington.

Exposure: Subjection of an organism to the action, influence, or effect of a hazardous substance (chemical agent) or physical agent.

Exposure pathway: The path a hazardous substance takes or could take from a source to an exposed organism. An exposure pathway describes the mechanism (e.g., inhalation, ingestion, injection, absorption through skin or eyes) by which an individual or population is exposed or has the potential to be exposed to hazardous substances at or originating from a site.

Facility: Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly-owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed or, or placed, or otherwise come to be located.

Feasibility study (FS): Provides identification and analysis of site cleanup alternatives, and is usually completed within a year. The entire RI/FS process takes about two years and is followed by the cleanup action plan. Remedial action evaluating sufficient site information to enable the selection of a cleanup action plan.

Free product: A hazardous substance that is present as a nonaqueous phase liquid (that is, liquid not dissolved in water).

Ground water: Water in a saturated zone beneath the surface of land or below a surface water.

Hazardous site list: A list of ranked sites that require further remedial action. These sites are published in the Ecology Site Register.

Hazardous substance: Any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) *[any discarded, useless, unwanted, or abandoned substances including, but not limited to, certain pesticides, or any residues or containers of such substances which are disposed of in such quantity or concentration as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes: (a) have short-lived, toxic properties that may cause death, injury, or illness or have mutagenic, teratogenic, or carcinogenic properties; or (b) are corrosive, explosive, flammable, or may generate pressure through decomposition or other means.]* and (6) *[any dangerous waste which (a) will persist in a hazardous form for several years or more at a disposal site and which in its persistent form presents a significant environmental hazardous and may be concentrated by living organisms through a food chain or may affect the genetic makeup of man or wildlife; and is highly toxic to man or wildlife; (b) if disposed of at a disposal site in such quantities as would present an extreme hazard to man or the environment.]*, or any dangerous or extremely dangerous waste as designated by rule under Chapter 70.105 RCW; any hazardous substance as defined in RCW 70.105.010 (14) *[any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste as described in rules adopted under this chapter.]* or any hazardous substance as defined by rule under Chapter 70.105 RCW; petroleum products.

Hazardous waste site: Any facility where there has been a confirmation of a release or threatened release of a hazardous substance that requires remedial action.

Independent cleanup action: Any remedial action conducted without Ecology oversight or approval, and not under an order or decree.

Initial investigation: An investigation to determine that a release or threatened release may have occurred that warrants further action.

Interim action: Any remedial action that partially addresses the cleanup of a site. It is an action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous

substance at a facility; an action that corrects a problem that may become substantially worse or cost substantially more to address if the action is delayed; an action needed to provide for completion of a site hazard assessment, state remedial investigation/feasibility study, or design of a cleanup action.

Method detection limit (MDL): minimum concentration of a compound that can be measured and reported with 99 percent confidence that the value is greater than zero.

Mixed funding: Any funding, either in the form of a loan or a contribution, provided to potentially liable persons from the state toxics control account.

Model Toxics Control Act (MTCA): Refers to RCW 70.105D. It was approved by voters at the November 1988 general election and known as Initiative 97. The implementing regulation is WAC 173-340.

Natural background: The concentration of hazardous substance consistently present in the environment which has not been influenced by localized human activities.

National Priorities List (NPL): EPA's list of hazardous waste sites identified for possible long-term remedial response with funding from the federal Superfund trust fund. There are currently 41 sites in Washington State officially designated as final NPL sites and 4 sites pending federal Superfund designation.

Owner or operator: Any person with any ownership interest in the facility or who exercises any control over the facility; or in the case of an abandoned facility, any person who had owned or operated or exercised control over the facility any time before its abandonment.

Potentially liable person (PLP): Any person whom Ecology finds, based on credible evidence, to be liable under authority of RCW 70.105D.040.

Practical quantitation limit (PQL): lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using Ecology-approved methods.

Public notice: At a minimum, adequate notice mailed to all persons who have made a timely request of Ecology and to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the local (city or county) newspaper of largest circulation; and opportunity for interested persons to comment.

Public participation plan: A plan prepared under the authority of WAC 173-340-600 to encourage coordinated and effective public involvement tailored to the public's needs at a particular site.

Recovery by-products: Any hazardous substance, water, sludge, or other materials collected in the free product removal process in response to a release from an underground storage tank.

Release: Any intentional or unintentional entry of any hazardous substance into the environment, including, but not limited to, the abandonment or disposal of containers of hazardous substances.

Remedial action: Any action to identify, eliminate, or minimize any threat posed by hazardous substances to human health or the environment, including any investigative and monitoring activities of any release or threatened release of a hazardous substance, and any health assessments or health effects studies conducted in order to determine the risk or potential risk to human health.

Remedial investigation (RI): Any remedial action which provides information on the extent and magnitude of contamination at a site. This usually takes 12 to 18 months and is followed by the feasibility study. The purpose of the remedial investigation/feasibility study is to collect and develop sufficient site information enabling the selection of a cleanup action.

Responsiveness summary: A compilation of all questions and comments to a document open for public comment and their respective answers/replies by Ecology. The responsiveness summary is mailed, at a minimum, to those who provided comments and its availability is published in the Ecology Site Register.

Risk: The probability that a hazardous substance, when released into the environment, will cause an adverse effect in exposed humans or other living organisms.

Sensitive environment: An area of particular environmental value, where a release could pose a greater threat than in other areas including: wetlands; critical habitat for endangered or threatened species; national or state wildlife refuge; critical habitat, breeding or feeding area for fish or shellfish; wild or scenic river; rookery; riparian area; big game winter range.

Site: The same as facility (see above).

Site characterization report: A written report describing the site and nature of a release from an underground storage tank, as described in WAC 173-340-450 (4)(b).

Site hazard assessment (SHA): An assessment to gather information about a site to confirm whether a release has occurred and to enable Ecology to evaluate the relative potential hazard posed by the release. If further action is needed, an RI/FS is undertaken. 173-340-320.

Site Register: Ecology publication issued every two weeks listing major activities conducted statewide related to the study and cleanup of hazardous waste sites under the Model Toxics Control Act. To receive this publication, please call (206) 438-3081.

Surface water: Lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the state of Washington or under the jurisdiction of the state of Washington.

SWRO: Ecology Southwest Regional Office in Tumwater.

TCP: Ecology Toxics Cleanup Program.

Underground storage tank (UST): An underground storage tank and connected underground piping as defined in the rules adopted under Chapter 90.76 RCW.

Washington Ranking Method (WARM): Method used to rank sites placed on the hazardous sites list. A report describing this method is available from Ecology.