



500 MARKET PLACE TOWER, 2025 FIRST AVENUE, SEATTLE, WASHINGTON 98121  
(206) 728-0744 FAX: (206) 727-3350

April 10, 1996

Ms. Elaine P. Atkinson  
Environmental Scientist  
Washington Department of Ecology  
3190 160th Avenue SE  
Bellevue, Washington 98008-5452

Additional Information for Review  
Independent Remedial Action Report  
Former North Seattle Chrysler Plymouth  
Seattle, Washington  
Ecology Reference No. N-17-5338-000  
D&M Job No. 16940-091-005

Dear Ms. Atkinson:

On behalf of Chrysler Realty Corporation (CRC), Dames & Moore is providing additional information that was requested in your meeting with Dames & Moore on January 24, 1996 at the above referenced facility. This letter supplements the information for the facility that was previously submitted to Ecology in the following reports:

"Hydraulic Lift Removal and Independent Remedial Action, 13711 Aurora Avenue North, Former North Seattle Chrysler Plymouth, Seattle, Washington" dated September 11, 1995.

and

"Hydraulic Lift Removal and Independent Remedial Action, Former North Seattle Chrysler Plymouth, 13733 Aurora Avenue North, Seattle, Washington" dated September 9, 1996.

Individual reports were prepared since the subject facility occupies two adjacent properties: one previously owned by CRC (13733 Aurora Avenue North) and one previously leased by CRC (13711 Aurora Avenue North). The supplemental information is presented below for each property.

#### 13711 AURORA AVENUE NORTH PROPERTY

Six former underground storage tanks (USTs) were located at the 13711 Aurora Avenue North property. Two 20,000 gallon UST used for storing fuel oil were associated with a fuel oil loading rack located on

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the northern portion of this parcel. Four smaller USTs (capacity unknown) were located north of the former service station building currently used as a vehicle washing and detailing shop. The locations of the former USTs are shown on the City of Seattle Building Department site plan (attached). Field screening of soil samples collected during UST removal was conducted by Earth Consultants, Inc. (ECI) in 1988 and a subsequent soil investigation was conducted in the vicinity of the former fuel oil USTs by ECI. These investigations are summarized in Section 3.0 of the Site Characterization report dated April 25, 1995 prepared by Northwest Geotech, Inc. (NGI) which was previously submitted to Ecology. ECI's report documenting the UST removal is attached and the report of subsequent investigation was previously submitted to Ecology in Appendix C of the Environmental Site Assessment report dated April March 31, 1995 prepared by NGI. The location of the former USTs are shown relative to NGI's soil boring locations on the attached NGI Boring Plan. A brief summary of pertinent previous results is summarized below:

- Earth Consultants, Inc. UST Removal, August 1988

One soil sample from the base of each UST excavation was analyzed for total petroleum hydrocarbons using thin layer chromatography (TLC), a field screening method. TPH was either not detected or was detected at approximately 50 mg/kg beneath each of the four USTs associated with the former gasoline station. Total petroleum hydrocarbon (TPH) concentrations of 2,500 mg/kg were detected using TLC in two samples collected from the western side of each 20,000-gallon fuel oil UST excavation. TPH concentrations of 50 mg/kg or less were reported for the samples at the base of the former fuel oil USTs.

The UST removal report by ECI entitled "Underground Storage Tank Site Closure, Calderon Project, Seattle, Washington" dated September 9, 1988 is attached for your review.

- Earth Consultants, Inc. Supplemental Soil Sampling, September 1988

To further evaluate the results of the TLC field screening, ECI completed two soil borings at the western end of each of the former 20,000 gallon USTs. Soil samples were collected at 5, 10, and 15 feet below ground surface in each of the borings. Soil samples were submitted to a fixed laboratory for analysis by EPA method TPH-418.1. TPH concentrations detected ranged from 74.5 mg/kg to 90.1 mg/kg.

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The results of ECI's supplemental soil sampling and hydrocarbon analysis in the vicinity of the USTs is presented in Appendix C of the Environmental Site Assessment report prepared by NGI which was previously submitted to Ecology.

- Northwest Geotech, Inc. Soil Sampling, February, 1995

NGI completed soil borings B-1, B-10 and B-32 in former location of the four USTs located at the former service station. Field screening with a photoionization detector (PID) detected field evidence of elevated organic vapors at depths of 25 to 45 feet below ground surface (bgs) in B-1 and at depths of 18 to 30 feet in B-32. Field evidence of hydrocarbons or elevated organic vapors were not detected in the soil encountered in B-10 to the total depth explored of 38 feet below ground surface. Soil samples collected at depths of 22.5, 37.5, and 47.5 feet bgs in B-1, at a depth of 35 feet bgs in B-10, and at depths of 20 and 25 feet bgs in B-32 were analyzed for TPH as gasoline using Washington method WTPH-G. TPH as gasoline was not detected in the soil samples from these borings with the exception of the sample from B-1 at 37.5 feet bgs where 9 mg/kg of TPH was detected. This detection is well below the established cleanup level for the site of 600 mg/kg of TPH as gasoline.

NGI completed soil boring B-3 in the vicinity of the former 20,000 gallon USTs. Field evidence of hydrocarbons was not detected in the soil encountered to the total depth explored of 30 feet below ground surface. The soil sample collected from B-3 at 10 feet bgs was analyzed for TPH using Washington method WTPH-HCID and TPH as gasoline, diesel or oil was not detected.

The results of the soil investigation in the vicinity of the USTs are presented in the Site Characterization report prepared by NGI dated April 25, 1995 which was previously submitted to Ecology.

Based on the results of soil sampling, field screening and laboratory analysis conducted to date, soil containing TPH at concentrations exceeding the cleanup levels established for the site (600 mg/kg for gasoline and 800 mg/kg for diesel and oil) is not present in the vicinity of the former USTs. In our professional opinion, further investigation, monitoring, or remedial action in this area are not warranted.

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### **13733 AURORA AVENUE NORTH PROPERTY**

Two issues were raised regarding the 13733 Aurora Avenue North property: potential further characterization of the trench drains and the potential need to attach a restrictive covenant to the deed on the property. Additional information pertaining to these two topics is presented below.

#### **Trench Drain Characterization**

A visual assessment of the trench drains was conducted by Dames & Moore when the trench drains were dry. No evidence of cracks or voids was observed. No evidence of potential releases to soil from the trench drain discharge pipe connections in the eastern portion of the shop was found during the site investigation (including borings B-26, B-28, B-29, B-36) conducted by Dames & Moore and NGI. TPH affected soil beneath the trench drain in the western portion of the shop was removed except for a maximum of one cubic yard of soil which was left in place beneath the drain. Hence, in our professional opinion, further investigation, monitoring, or remedial action in the vicinity of the trench drains are not warranted.

#### **Potential Restrictive Covenant**

Soil containing concentrations of TPH as oil range hydrocarbons exceeding the cleanup levels were successfully removed except for several limited areas beneath structural walls and footings in Areas A and B and localized soil beneath the drain in Area J. Based on confirmatory soil samples collected from the excavation in Area A and the site characterization borings B-19 and B-18, we estimate approximately 10 to 14 cubic yards of soil with TPH concentrations greater than the established site cleanup level of 800 mg/kg for TPH as oil are present in Area A and 1 to 3 cubic yards of soil with TPH concentrations greater than 800 mg/kg are present in Area B. Based on soil samples collected from beneath the trench drain in Area J (J7-HA3 and J9-HA3), less than 1 cubic yard of soil was left in place beneath the drain. Hence an estimated total of approximately 12 to 18 cubic yards of TPH impacted soil remains on the property. As discussed in our meeting, it is our opinion that this limited amount of soil does not warrant an attachment of a covenant to the deed for the 13733 Aurora Avenue North property for the following reasons:

- Natural biodegradation processes will likely reduce the TPH concentrations over time.

# DAMES & MOORE

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- The remaining TPH-impacted soil does not pose a threat to human health or the environment since there is a low to remote potential for significant future migration of the residual TPH and the soil is covered with concrete and the dealership building.
- To encounter the residual TPH, the building would have to be demolished. Considering the total costs for building demolition and property re-development, the cost for excavation and remediation of less than 20 cubic yards of soil associated with demolition would be relatively minimal and should not be a significant financial concern to the future owners.
- It is unlikely that the building will be demolished in the foreseeable future since it is currently used as an active automobile dealership which was recently under went significant remodeling and expansion by the current owner.

♦ ♦ ♦

We trust our reports and this additional information are sufficient for you to determine that the IRAP criteria for "No Further Action" has been met. Please contact us at (206) 728-0744 should you require additional information or wish to discuss this information or our reports.

Sincerely,

**Dames & Moore, Inc.**



Julie K. Harvey  
Project Manager

**Attachments:**

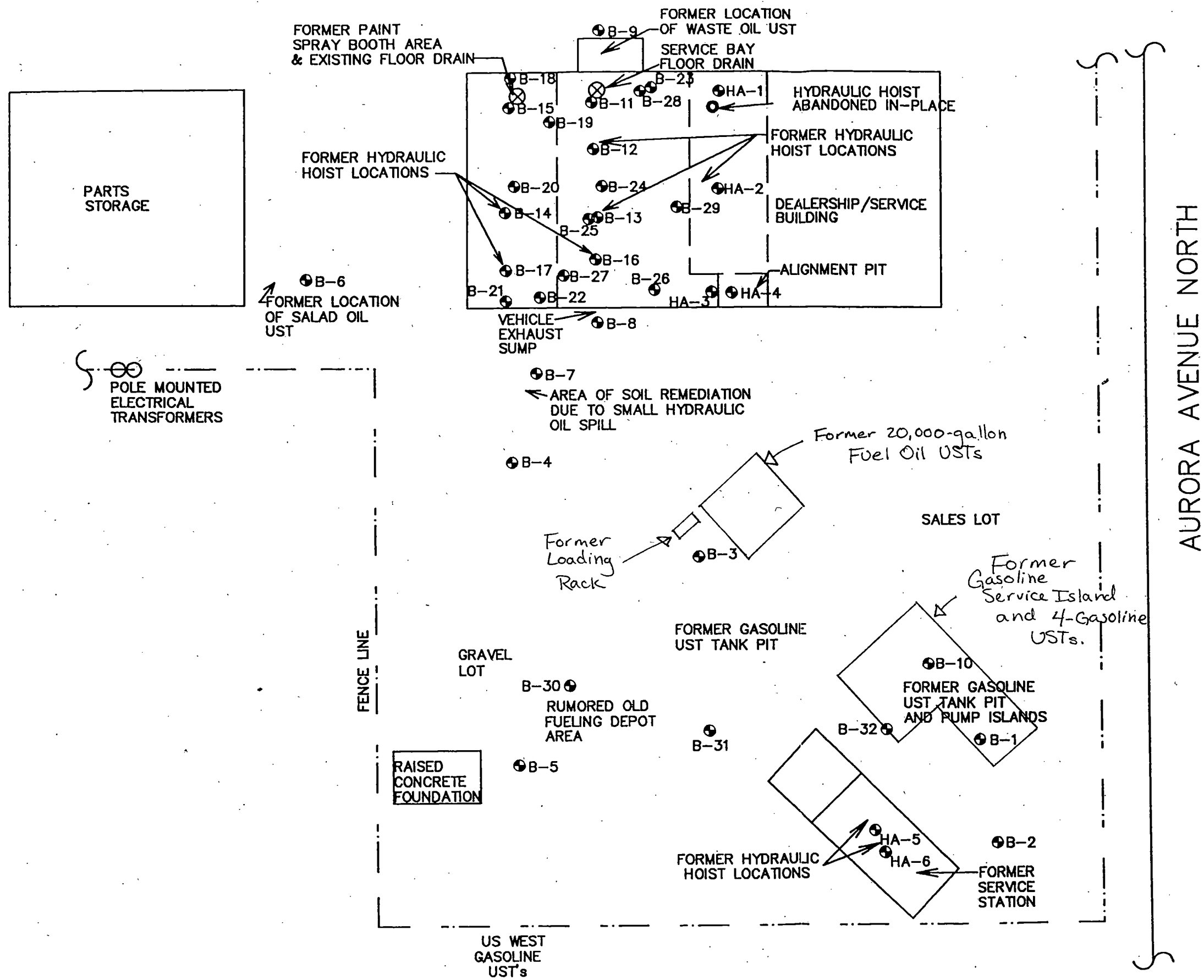
Site Plan and NGI Boring Plan  
ECI Report dated September 9, 1988.

cc:



Jim Brake, D&M (w/o Attachments)

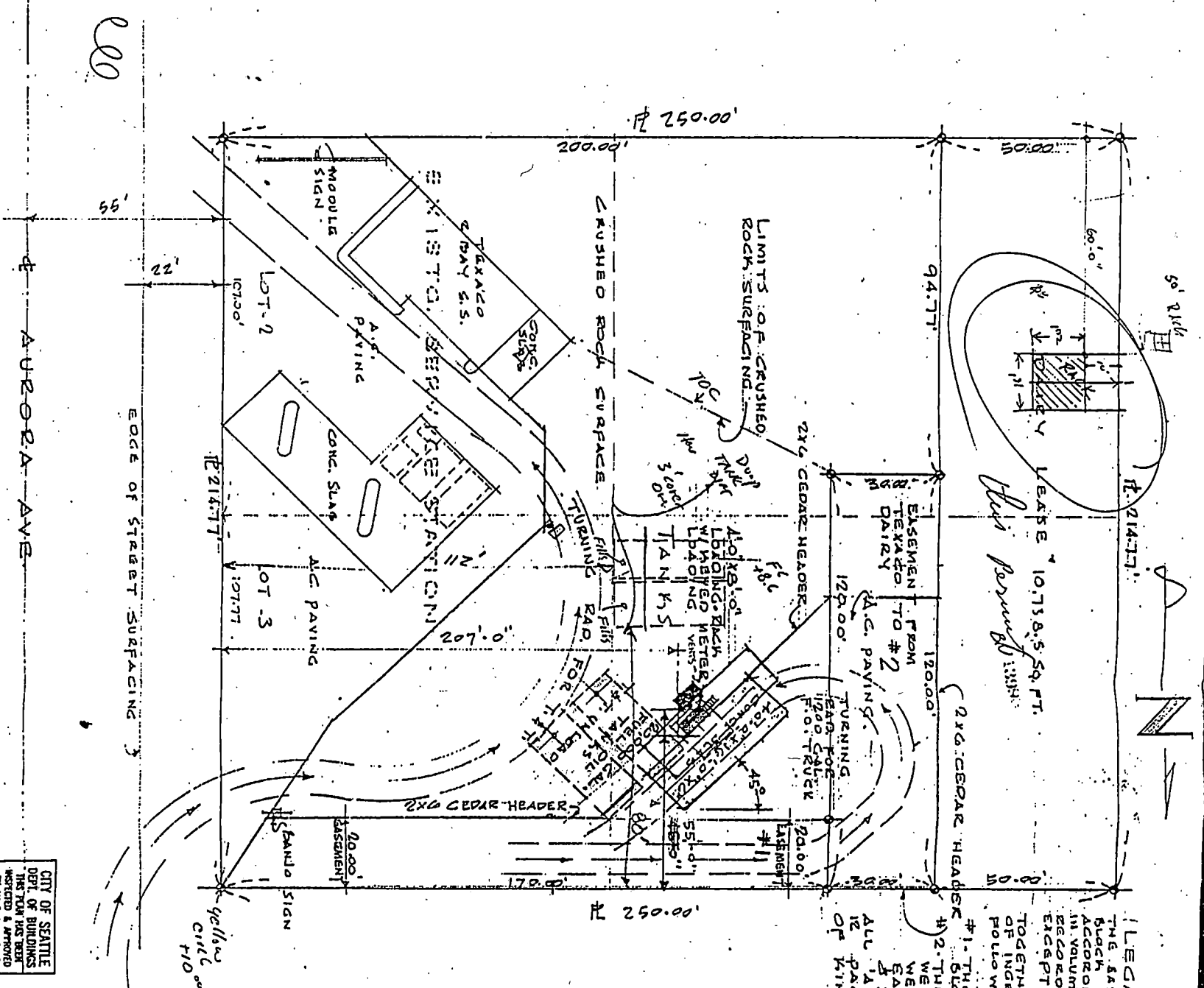
## ATTACHMENTS



N  
 APPROXIMATE SCALE  
 1" = 40'

BORING PLAN	
FORMER NORTH SEATTLE CHRYSLER PLYMOUTH	
PROJECT NO. 641.1.1	FIGURE NO. 4

Scale 1" = 40'  
Source: Seattle  
Building Department























ILLEGAL DESCRIPTION

THE EASTERLY 725.00' OF LOT 3 & 3  
Block 2, Allendale Addition  
According to Plat thereof recorded  
in Volume 12, Page 95 of Plats,  
Records of King County, Washington  
except the Easterly 250.00' thereof  
together with the mutual right  
of ingress & egress over the  
following described properties:

#1. The Northerly 20.00' of Lot 3  
Block 2, Allendale Addition  
#2. The Northerly 120.00' of the  
Westerly 30.00' of the  
Westerly 725.00' of the  
Easterly 725.00' of Lot 2,  
Block 2, Allendale Addition  
#3. Recorded in Volume  
Page 96 of Plats, Records  
of King County, Washington.

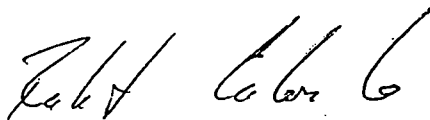
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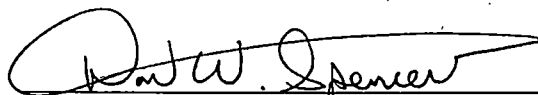


## ATTACHMENTS

PREPARED BY:



Robert Colombo  
Senior Environmental Geologist



Don W. Spencer, M.Sc.  
Vice-President  
Director of Environmental Services

A REPORT PREPARED FOR  
MORRIS PIHA GROUP

UNDERGROUND STORAGE TANK  
SITE CLOSURE  
CALDERON PROJECT  
SEATTLE, WASHINGTON

E-4046

September 9, 1988

Earth Consultants, Inc.  
Environmental Services Division  
1805 - 136th Place Northeast  
Suite 101  
Bellevue, Washington 98005  
(206) 643-3780

September 9, 1988

E-4046

Morris Piha Group  
Bank of California Building, 2725  
Bank of California Center  
Seattle, Washington 98164

Attention: Mr. Morris Piha

Subject: Analytical Results of Soil Sampling  
And Site Closure  
Calderon Project  
137th Street North and Aurora Avenue North  
Seattle, Washington

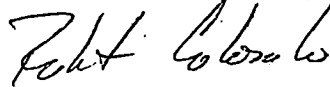
Dear Mr. Piha:

Enclosed are the results of the hydrocarbon testing of soil in the immediate vicinity of the underground storage tanks (UST's) and the observation/documentation of the removal of six UST's located at the Calderon Project, Seattle, Washington.

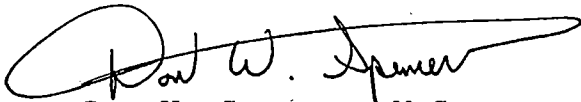
We appreciate the opportunity to provide you with our professional services on this project. In the meantime, if you should have any questions concerning this closure report, or if we can be of further assistance, please do not hesitate to call us.

Respectfully,

EARTH CONSULTANTS, INC.



Robert Colombo, B.S.  
Senior Environmental Geologist



Don W. Spencer, M.Sc.  
Vice President  
Director - Environmental Services

RC/DWS/k\*

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Plate 1 - Vicinity Map

Plate 2 - Soil Sampling Location Plan

Table A - Analytical Results, Petroleum Hydrocarbons

Table B - Analytical Results, Purgeable Aromatic Compounds

UNDERGROUND STORAGE TANK SITE CLOSURE  
CALDERON PROJECT  
SEATTLE, WASHINGTON

E-4046

**Executive Summary:** Earth Consultants, Inc. (ECI) Environmental Services Division has completed the observation/documentation of the removal of six Underground Storage Tanks (UST's) and site closure at the Calderon Project, Seattle, Washington. The closure consisted of the removal of six UST's and associated piping and dispensers. Soils were sampled and analyzed after removal of each UST for petroleum hydrocarbons in accordance with current Washington State Department of Ecology (WDOE) and Federal Environmental Protection Agency's (EPA's) guidelines. Acceptable concentrations of residual petroleum hydrocarbons in soil were reported in the vicinity of the tank cluster which contained the four small tanks. Unacceptable concentrations of petroleum contamination were recorded in the west end of the tank cluster which contained the two 20,000 gallon UST's. Residual hydrocarbon concentrations in soils in this area were found to be substantially above maximum concentrations permitted by WDOE Guidelines. As a result, further action is required at this site.

METHODOLOGY/SCOPE OF WORK

Earth Consultants, Inc. (ECI) has completed the Underground Storage Tank (UST) site closure at the above referenced location, herein referred to as the "site". This report provides a general project overview, outlines our scope of services, and describes our findings and conclusions.

Based upon conversations and initial planning with Mr. Morris Piha, and following a preliminary site visit, ECI provided environmental consulting services to accomplish the site UST closure. The scope of work was to provide accurate information regarding the condition of the soils in the immediate vicinity of the UST's and to observe the removal and disposal of each UST in accordance with applicable rules and regulations.

Soil Sampling

Eight soil samples were retrieved from the base of the excavation in close proximity to the UST's as illustrated in the Soil Sampling Location Plan, Plate 2.

Samples were transferred to sterilized glass jars with teflon lids furnished by the project laboratory. Samples were stored in iced chests at the site and taken to the lab in this condition in an effort to preserve sample integrity. Each jar was clearly labeled as to tank number, sample number, geologist, etc. EPA recommended protocols for sample management including chain of custody were maintained at each stage of the project.

Following documentation of receipt of samples establishing chain of custody, the project analytical laboratory analyzed samples for potential petroleum-derived hydrocarbons (C-4 to C-22) using Thin Layer Chromatography (TLC).

#### Thin Layer Chromatography

Thin layer chromatography (TLC) is a cost effective, rapid screening method for assessing concentrations of petroleum hydrocarbons in soil and water. With this method, petroleum hydrocarbon contaminants are extracted from the sample using hexane. Silica gel coated plates are spotted with the extracts along with solutions of petroleum hydrocarbons of known concentrations and composition. Following elution of the plate in hexane, the plates are dried, stained with iodine, and visualized in ultraviolet light with a wavelength of 254 nanometers. Detection limits are on the order of 50 ppm for soils and 5 ppm for water.

### RESULTS OF STUDY

#### Surface

At the time of our participation in closure operations, development on the site included a single concrete and block building. The surface in the vicinity of the tank cluster which contained Tanks # 3, 4, 5 and 6 is paved with concrete above the underground storage tanks with the remainder of the lot paved with asphalt. The area in the vicinity of Tanks # 1 and 2 is undeveloped. Surrounding business include a variety of wholesale and used car dealerships.

#### Subsurface

In general, below the pavement at the site, the tanks were contained in a matrix of silty, medium to fine sand with gravel. The base of each tank hold area rests upon consolidated glacial till. Native soils were not noted to be discolored by petroleum hydrocarbons, nor were strong odors detected in the tank excavation.

A brief review of published geologic information for the area suggests that the site locality is underlain by the Vashon till, a dense, heterogenous mixture of silt, sand, and gravel. The significance of the presence of till in projects of this nature lies in its relatively low vertical hydraulic conductivity when compared to other materials such as homogenous sands and gravels. The lower vertical hydraulic conductivity of the till can serve to attenuate to some extent the potential downward migration of water-borne hydrocarbon compounds thus reducing exposure of deeper aquifers to contamination.

#### Groundwater

Groundwater was not encountered during excavation of the UST's at this site.

#### Hydrocarbon Testing

The results presented in Table A, appended to this report suggest that the hydrocarbon concentrations in soil samples collected at this site in the vicinity of tanks #3, 4, 5 and 6 exhibit detected concentrations of petroleum hydrocarbons at 50 ppm or less. These detected concentrations are substantially below the 200 part per million (ppm) maximum currently permitted by the Washington State Department of Ecology (WDOE).

Petroleum hydrocarbon were detected at 2,500 ppm in the vicinity of the western portion of the tank hold which had hosted the two 20,000 gallon UST's. These test results are in excess of current maximum allowable concentrations permitted by the WDOE.

#### UNDERGROUND STORAGE TANK REMOVAL OBSERVATIONS

Six bare steel underground storage tanks were removed under the monitoring of ECI personnel on August 16, 1988. The condition of the tanks appeared to be below current industry standards with respect to installation procedures including proper burial depth and the design of proper retention. In addition, each underground storage tank was of bare steel construction without protective exterior coating(s) and was not cathodically protected. The construction crew removed each tank, intact, after receiving a certificate of inertness from the Seattle Fire Department.

### CONCLUSIONS

All detected trace concentrations of hydrocarbons in the vicinity of the four smaller UST's are, as noted earlier, substantially below existing state and federal regulatory thresholds of concern. On the basis of the data developed thus far, no remediation or further study would be required in this area.

With respect to the area which had hosted the two 20,000-gallon UST's, it is evident from the analysis presented in Table A, that the western portion of the tank hold area has detected concentrations of petroleum hydrocarbons of 2,500 ppm. This concentration is in excess of the existing state and federal threshold of 200 ppm. Enhanced evaluation of the detected concentrations of petroleum hydrocarbons by EPA Method 8020, suggests that the hydrocarbons are of a weathered source or were originally light grade fuel oils. Detected concentrations of Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) are substantially below existing state and federal regulatory thresholds of concern as demonstrated when compared to Table B.

The observed concentrations of petroleum hydrocarbons on the west side of the 20,000 gallon UST hold may be attributed to an isolated incident related to poor housekeeping of the liquid transfer equipment. Spillage may have occurred during filling operations of the UST's and additional seepage of product from defective pipe joints and aging pump seals may have contributed to the detected concentrations of petroleum hydrocarbons in this area of the tank hold. During the excavation of the two 20,000 gallon UST's, ECI did not observe free product in the tank excavation or other physical properties which would suggest that the area had been impacted from a release in excess of the 25 gallon maximum as permitted under current federal law. As stated earlier, each tank was removed from the subsurface intact.

The closure of the site has been conducted in general accordance with recommendation presented in the American Petroleum Institute Bulletin # 1604 which, in the absence of state and federal regulations, serves as the industry standard prescribed by the federal EPA and the WDOE.



### RECOMMENDATIONS

Interpretation of the data developed thus far suggests that residual hydrocarbon concentrations in soil in the immediate vicinity of the cluster of four smaller tanks (less than 50 ppm) were substantially below the maximum allowable concentration of 200 ppm recommended in current Washington Department of Ecology (WDOE) guidelines. As such, the former excavation which held the four smaller tanks may be considered closed.

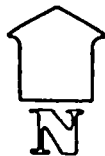
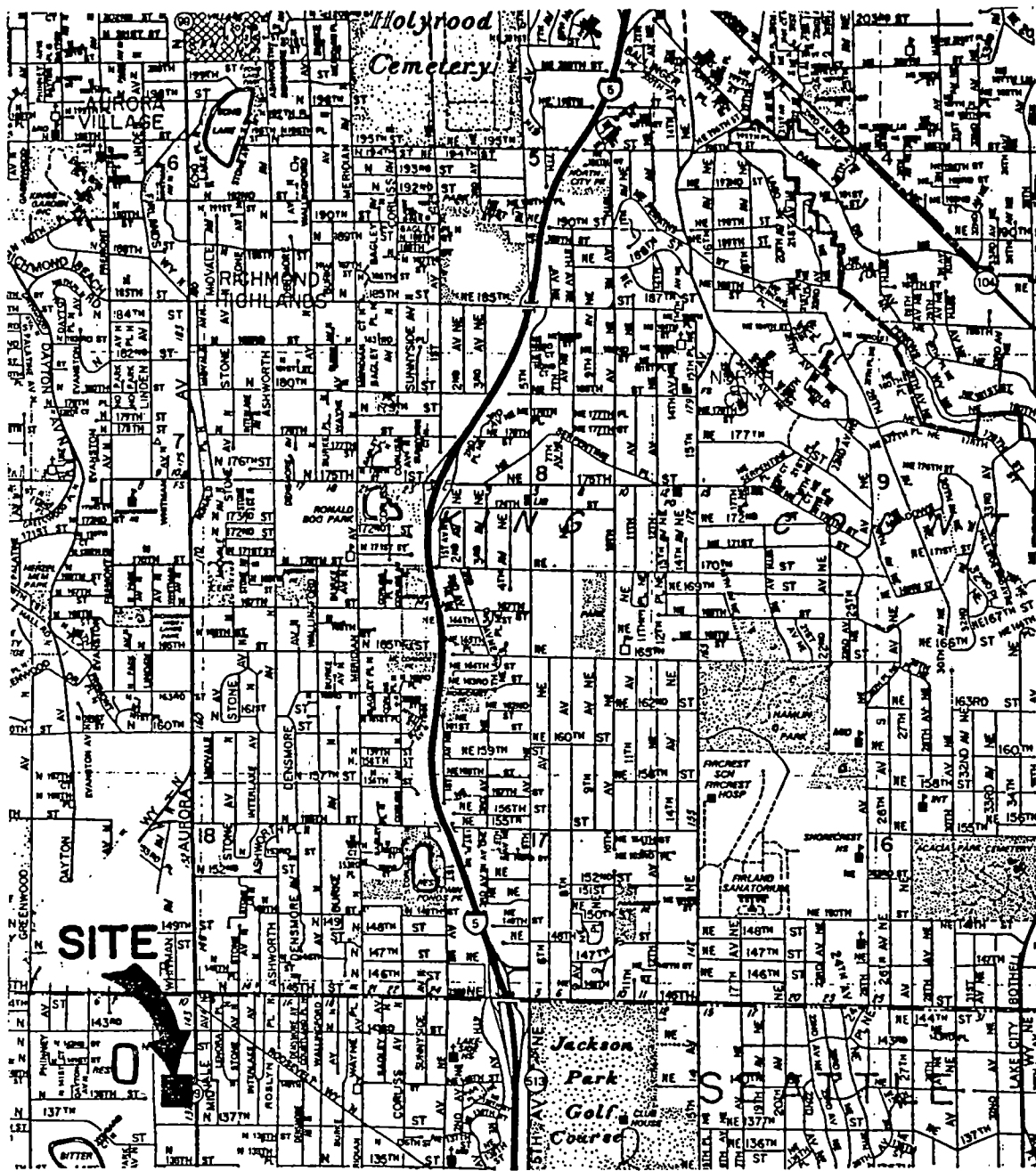
With respect to the additional excavation locality which contained two-20,000 gallon UST's, interpretation of the attached data suggests that isolated locations on the west side of the excavation contained hydrocarbon concentrations which exceeded the WDOE guidelines. We do not suspect that the elevated concentrations noted in samples SMP #7 and SMP #8 (see attached site plan) are reflective of a large spill as no similar concentrations were observed in samples SMP #1 and SMP #6 at the opposite end of the cluster.

In terms of recommendations, it may be beneficial to confirm the tentative conclusions offered in the preceding paragraph through supplemental drilling, soil sampling and analysis in the vicinity of T-1 and T-2 (see attached site plan). ECI will be pleased to provide a cost and technical proposal for this work upon request.

### LIMITATIONS

This report has been prepared for specific application to this project in a manner consistent with that level of care and skill ordinarily exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal dated August 10, 1988. This report is for the exclusive use of the Morris Piha Group and their representatives. No other warranty, expressed or implied, is made.

If new information is developed in future site work, which may include excavations, borings, studies, etc., ECI should be requested to reevaluate the conclusions of this report, and to provide written amendments, as required.



Reference :  
King County / Map 2  
By Thomas Brothers Maps  
Dated 1988



**Earth  
Consultants Inc.**  
Geotechnical Engineering and Geology

Vicinity Map  
Calderon Project  
Seattle, Washington

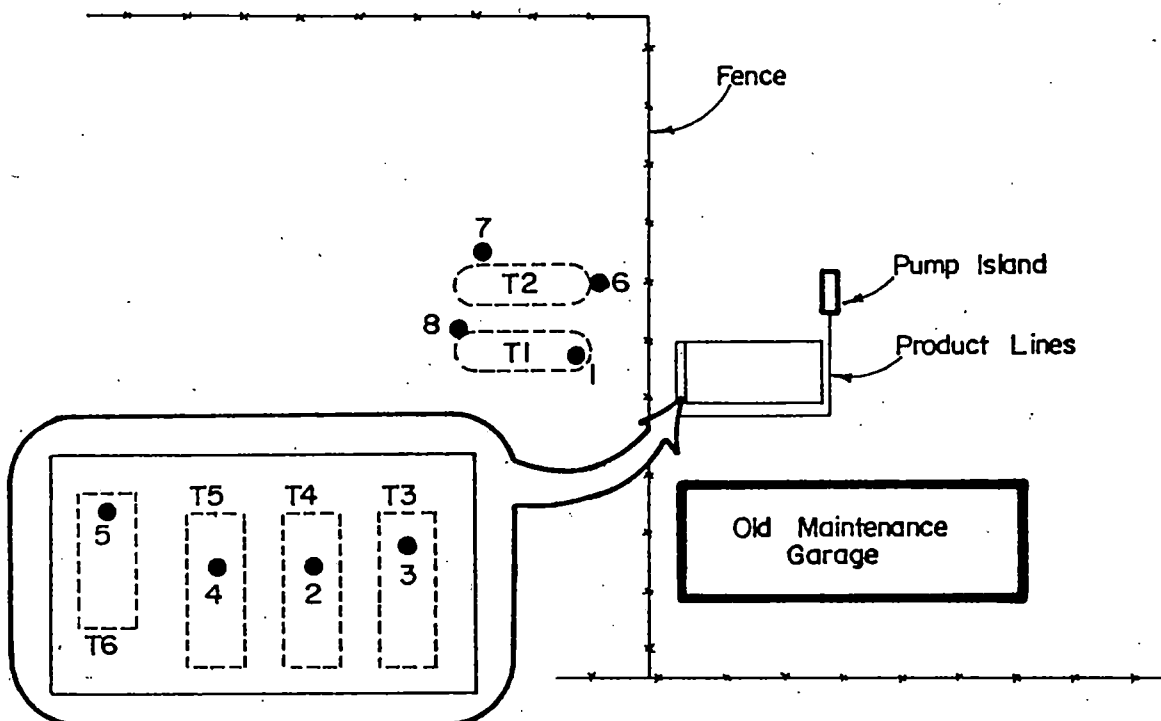
Proj. No. 4046

Date Aug. '88

Plate 1

Show Room

AURORA AVENUE N.



**LEGEND**

● | Approximate Location of Soil Sample

□ T-1 Approximate Location of Existing Storage Tanks

□ Approximate Location of Existing Building



Approximate Scale  
0 25 50 100ft.



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Site Plan  
Calderon Project  
Seattle, Washington

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Plate 2

TABLE A

Analytical Results -- Total Petroleum Hydrocarbons

Soils

E-4046

Sample Location	Total Petroleum Hydrocarbon (ppm)
T-1, SMP#1	50.
T-1, SMP#8	2,500. -
T-2, SMP#6	<50.
T-2, SMP#7	2,500. -
T-3, SMP#3	<50.
T-4, SMP#2	50.
T-5, SMP#4	<50.
T-6, SMP#5	<50.

Quality Assurance

Method Blank	<50.
T-1, SMP#1 (Duplicate)	50.
T-1, SMP#1, (Matrix Spike) Spiked @ 500 ppm	
Percent Recovery	90.%

Analytical Methodology: Thin Layer Chromatography

TABLE B

Analytical Results -- Purgeable Aromatic Compounds

E-4046

Boring	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylene (ppb)
T-1, SMP#8	<1	3	<1	7
T-2, SMP#7	<1	2	<1	7
Quality Assurance				
Method Blank	<1	<1	<1	<1
T-1, SMP#8 (Duplicate)	<1	3	<1	7
T-1, SMP#8 (Matrix Spike) Spiked @ 100 ppb				
% Recovery	130%	79%	53%	53%/120%

Analytical Methodology: EPA Method 8020 (soil) using gas chromatography.