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November 5, 1993

JN 93299E

G & M Investments
510 Rainier Avenue South
Seattle, Washington 98144

Attention: Michael K. Mastro

REPORT: Subsurface Exploration and Testing
Garden Plaza and Fifth and Park Property
North Sixth Street at Park Avenue
Renton, Washington

Dear Mr. Mastro:

Geotech Consultants, Inc. has completed drilling, installation of groundwater monitoring wells, and laboratory analysis of soil and groundwater samples from the subject site. This report, prepared in accordance with our proposal dated August 20, 1993, summarizes our approach to the project along with results and conclusions.

Work conducted on the property by Earth Consultants, Inc. (ECI), Rittenhouse-Zeman and Associates (RZA), and Landau Consultants in 1988-1989 indicated petroleum hydrocarbons and vinyl chloride were present in the soils and groundwater at levels above the current Method A cleanup guidelines published in the Model Toxics Control Act (MTCA, Chapter 173-340 WAC). Our current project involvement was directed at verifying the presence of these contaminants on the site.

Results of our recent field sampling and laboratory analyses confirm the presence of various contaminants at three distinct locations on the site. The specific contaminants and locations are summarized below. Refer to Plate 2, Site Exploration Plan for orientation.

1) Diesel-range petroleum hydrocarbons were discovered in groundwater at the location of monitoring well MW-4. The levels were elevated above the current Method A cleanup guidelines.

2) Heavy-oil-range petroleum hydrocarbons in excess of the MTCA cleanup level were discovered in soils at the location of boring B-2.

3) Vinyl chloride in groundwater resampled from Landau's monitoring well LMW-2D was reported above the cleanup guidelines. Vinyl chloride was not detected in the monitoring wells installed by our firm to test for vinyl chloride.

This report provides greater detail regarding the findings of this study. Regarding further action on the site, it would be premature at this time to formulate a remediation strategy, as the full areal extent of the contamination is not yet known. Recommendations are provided at the end of the report.

We appreciate the opportunity to be of service on this project and trust that the information provided here will be of value in your site management efforts. We look forward to continuing to provide service on this project. If you have any questions, please do not hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.

James R. Finley, Jr., P.E.
Principal

TABLE OF CONTENTS

"REPORT: Subsurface Exploration and Testing"
Prepared for G & M Investments
(JN 93299E)

	Page
PROJECT DESCRIPTION	2
Project Background	2
Current Phase of Work	5
METHODOLOGY/SCOPE OF WORK	5
Review of Previous Reports	5
Drilling and Sampling	5
Monitoring Well Installation	6
Groundwater Sampling	6
Water Table Survey	7
Laboratory Analysis	8
FINDINGS	8
Surface	8
Observations During Drilling	9
Water Level Survey	10
Laboratory Analysis	11
CONCLUSIONS/RECOMMENDATIONS	11
Soil	11
Groundwater	12
LIMITATIONS	14

TABLES

Table A - Results of Lab Testing
Table B - Water Level Survey

PLATES

Plate 1	Vicinity Map
Plate 2	Site Exploration Plan
Plates 3 - 9	Boring Logs
Plate 10	Typical Monitoring Well Design

APPENDIX A - Laboratory Reports with Chain of Custody Forms

PROJECT DESCRIPTION

The site is located at the southeast corner of Park Avenue North and North Sixth Street, and encompasses two office buildings and a parking garage. Immediately east of the site, across Garden Plaza is a U.S. Environmental Protection Agency (EPA) Superfund site known as PACCAR (Pacific Car and Foundry). The Vicinity Map, Plate 1, illustrates the general location of the site.

Project Background

Environmental studies on the site have been conducted previously by Landau and Associates, Inc., Rittenhouse-Zeman and Associates (RZA), and Earth Consultants Inc. (ECI). These studies were conducted in 1988 and in the spring and summer of 1989.

The following information has been compiled from review of available reports completed for the site:

* The site has had a complex development history over the last 50 years.
  - Site was mostly vacant or agricultural land in 1936.
  - A Shell heating oil distributor existed at the northwest corner of the site in 1943. From 1950-1967 the heating oil distribution was operated by Sunset Coal and Oil.
  - The Renton Boilerworks site occupied the east-central portion of the property from 1960-1970, and was replaced with a towing company lot until 1988.
  - Pacific Northwest Bell (PNB) operated in a maintenance building circa 1968, on the northeast portion of the site.

- The Fifth and Park Building was constructed in 1979.

- The PNB building was razed and the Garden Plaza building and garage were constructed in 1988.

* Earth Consultants, Inc. completed work on the site in 1988, and encountered petroleum contamination on the property.

  - A soil sample collected and analyzed from the center of the Garden Plaza building area contained 1,200 parts per million (ppm) total petroleum hydrocarbons (TPH).

  - A water sample collected from the northwest corner of the Garden Plaza building area contained 20 ppm diesel in 1988.

  - The ECI report concluded that the contamination they encountered in 1988 "represents isolated, relatively small volume spills which are limited in extent."

* Personnel currently employed with Geotech Consultants, Inc., worked for ECI in 1988, and were assigned to this project while pilings were installed for the Garden Plaza Building. Fred Cole, senior environmental geologist recalls the location of underground storage tanks on the property as follows:

  - Two 10,000-gallon capacity diesel tanks were removed from a location to the immediate south of the front entrance steps to the Garden Plaza building.

  - A fuel oil tank with a capacity of approximately 500 gallons was discovered along the south side of the Garden Plaza building, as illustrated on Plate 2.

- A heating oil tank with a capacity of approximately 1,000 gallons was discovered along the east side of the parking garage.

* RZA completed an environmental evaluation of the Fifth and Park Building in 1989. The RZA evaluation involved drilling nine soil borings around the building and installing one groundwater monitoring well.

  - A groundwater sample from the monitoring well (RMW-1, see Plate 2) contained 13 ppm TPH.

  - Two soil samples from one RZA boring at the north side of the Fifth and Park building, near the monitoring well RMW-1, indicated TPH at 4,700 and 1,300 ppm.

* Landau collected and analyzed groundwater from a series of wells they installed on the site in 1989.

  - Results of analysis on a water sample from LMW-2D (see Plate 2) revealed 45 parts per billion (ppb) vinyl chloride. Subsequent analysis in 1992 revealed 89 ppb vinyl chloride.

  - Total petroleum hydrocarbons (TPH) in a groundwater sample from LMW-6 were measured at 56 ppm.

The PACCAR site to the east of the property has been designated a Superfund site with the WDOE as the lead agency. Review of a report prepared by Hart Crowser in 1988 suggests that vinyl chloride was a common contaminant detected on the neighboring PACCAR site. The measured direction of groundwater was found to be to the west in general. Further, the extent of off-site contaminant migration from the PACCAR site has not been determined.

In summary, petroleum hydrocarbon contamination was discovered in soil and groundwater at various locations in the northwest quarter of the property. Additionally, vinyl chloride was discovered in groundwater at the northeast corner of the property.

Current Phase of Work

Utilizing the information summarized above along with the locations of the various explorations completed in the past, our exploration program was directed at verifying the previously detected contamination and, to a lesser degree, more clearly defining the areal extent of contaminant-affected areas.

METHODOLOGY/SCOPE OF WORK

Our scope of work for the project included the following tasks:

Review of Previous Reports

This task included a review and summary of past work completed on the subject property by other workers. This task was completed prior to our field work and was used to guide our placement of exploratory locations.

Drilling and Sampling

On October 6 and 7, 1993, an environmental engineer from our firm visited the site and directed the drilling of seven borings at the locations shown on Plate 2, Site Exploration Plan.

Three borings (B-1, B-2, and B-6) were drilled to test for vinyl chlorides. Borings B-1 and B-2 were placed along the eastern property line, while Boring B-6 was placed in the north-central portion of the property. Four additional borings (B-3, B-4, B-5, and B-7) were completed in the northwest portion of the site to explore for petroleum hydrocarbons.

Equipment employed for the drilling consisted of a truck-mounted rig, equipped with 4-inch-inner-diameter hollow stem augers. The soils were sampled with a standard penetration sampler driven 18 inches at 5-foot intervals using a 140-pound hammer in general accordance with ASTM Method D-1586.

Samples were transferred from the sampler directly to sterilized glass jars with teflon-sealed lids furnished by the laboratory. Samples were stored in an iced chest at the site and taken to the laboratory in this conditions in an effort to preserve sample integrity by minimizing excessive dissipation of volatile fraction hydrocarbons. Each jar was labeled as to boring number, sample depth, field personnel, etc. EPA-recommended sample management protocol including maintenance of chain-of-custody documentation was observed at each stage of the project.

During drilling a field log was made by the project environmental engineer for each boring. Information recorded versus corresponding depth included soil classification (Unified Soil Classification System), color, texture, moisture, seepage zones, odors, iridescent sheens, etc.

Monitoring Well Installation

At the completion of each soil boring a groundwater monitoring well was installed in each of the seven borings. Monitoring well design and construction methods conformed to requirements and specifications outlined in WAC 173-360. As illustrated schematically on Plate 10 appended to this report, the well screen in each of the installations was positioned so as to span the maximum and minimum range of the anticipated seasonal groundwater fluctuation, thus facilitating representative sampling of water at any time during the year. The annulus of each well casing was sand packed 2 to 3 feet above well screens; a bentonite seal was placed above the sand and carried to within 2 feet of the ground surface to prevent infiltration of surface contamination along the well casing. A non-shrinking cement grout was used to stabilize the upper section of each well. A protective casing with provisions for locking access to the well head was also provided.

Groundwater Sampling

Prior to sampling, a piston lift-type portable pump was used to purge each well by removing a minimum of three well volumes of water. This procedure was intended to assure that

samples obtained from the wells would be representative of ambient groundwater conditions in the surrounding water-bearing strata.

Following developmental purge pumping, a sterilized stainless steel bailer was used to extract a groundwater sample from each of the wells. Samples were poured into labeled glassware furnished by the laboratory. Samples were stored in an iced chest on site and transported to the lab in this condition. As with the soil samples, chain of custody documentation was observed at each stage of the project.

Water Level Survey

Information regarding direction of groundwater movement and hydraulic gradient is frequently useful in assessing risk or evaluating possible alternative sources of water-borne contaminants.

To determine relative water levels in each of the wells, our field hydrogeologic staff used the following procedure:

* Self-leveling level was used to determine the elevation of a measuring point or "MP" on the top of each PVC well casing to an accuracy of 0.01 foot, a standard specified for such work by the U.S. Geological Survey. A survey reference point was set at Landau well LMW-2D at 27.21 feet.

* A steel tape was used to sound the depth to groundwater from the measuring point (MP) in each well to an accuracy of 0.01 foot. To calculate the elevation of the water table in each well, the depth to water from the MP was subtracted from the elevation of the MP.

* Through interpolation of plotted relative water table elevations for each well on a scale map, approximate contours of equal elevation on the water table were obtained. As groundwater is known to flow from areas of higher potential toward areas of lower potential along lines "normal" (right angles) to such contours, the direction of flow and approximate gradient was deduced by this method.

Laboratory Analysis

Based upon previously detected contaminants on the property, the following set of analyses were conducted on selected soil and groundwater samples:

WTPH-HCID for Petroleum Hydrocarbons

In accordance with published Washington Department of Ecology (WDOE) documents including Publications 90-52 (Guidance for Site Checks and Site Assessments) and 91-30 (Guidance for Remediation of Releases from USTs), all soil and water samples were initially analyzed by the hydrocarbon identification test (WTPH-HCID). This analysis will identify the type of hydrocarbons, if any, that are present in the sample. Detection limits for soil are 20 ppm for gasoline, 50 ppm for diesel, and 100 ppm for heavy oil. In water samples, detection limits are 0.2 ppm for gas, 0.5 ppm for diesel, and 1.0 ppm for the oil range.

The HCID test is a qualitative test. Based upon the results of the analysis by HCID, further analysis may be warranted and the proper test may be selected for quantification. For this study, it was necessary to further analyze for total petroleum hydrocarbons by EPA Method 418.1, as well as analyzing for diesel constituents by WTPH-Diesel.

Volatile Organic Compounds

Based upon results of previous workers on the site, a volatile organic analysis (VOA) was conducted in accordance with EPA Method 8240 on selected soil and water samples. Additionally, we resampled Landau monitoring well LMW-2D and tested the water sample for volatile organic compounds (VOCs).

FINDINGS

Surface

The subject property is a large rectangular parcel of land comprising one city block in Renton, Washington. The site is bounded on the north by North 6th Street, on the east by

Garden Avenue North, on the south by North 5th Street, and on the west by Park Avenue North. The general location of the site is illustrated in the Vicinity Map, Plate 1.

The site is developed with the seven-story Garden Plaza office building, the three-story Fifth and Park building, and a three-story parking garage. Land use in the general vicinity of the property is zoned industrial to the north and east, and business and residential to the south and west. More specifically, the site is bordered as follows:

NORTH: The Boeing Commercial Airplane Division--Renton Facility (BCA-Renton) owns the property to the north of the site, across North 6th Street. The property is undeveloped and utilized as a parking lot.

EAST: Garden Avenue North defines the eastern border of the site. The Pacific Car and Foundry (PACCAR) Superfund site is located on the east side of Garden Avenue North.

SOUTH: North 5th Street lies along the southern border of the site. Older single-family residences line the south side of North 5th Street.

WEST: Park Avenue North marks the western property line. Little Tokyo restaurant, an automotive repair shop and single-family residences are located on the west side of Park Avenue North.

Topographically, the site is relatively flat, with slight local relief limited to building fill and landscape berms.

Observations during Drilling

As previously noted, in an effort to verify existing conditions in specific areas of the site, seven borings were drilled at the locations noted on Plate 2. Please refer to the individual boring logs appended as Plates 3 through 9 for specific conditions encountered at each location.

Soil

In general, subsurface conditions beneath the subject site consist of alternating layers of loose silty sand and sandy silt, with lenses of clayey silt noted in some borings.

Soil samples were collected at 5-foot intervals in each boring, unless otherwise noted on the individual boring logs. Each sample was subjected to headspace analysis using field screening techniques to assess potential hydrocarbon vapor concentrations in soil. Hydrocarbon concentrations are recorded on the boring logs next to each sample.

A petroleum hydrocarbon odor was noted during drilling of Boring B-4. Petroleum odors were not noted while drilling other borings.

Groundwater

Groundwater was encountered between 7 and 12 feet during drilling of the seven borings, depending on the location. Monitoring wells were installed in all of the borings. The depth to groundwater was measured in each of the wells, and the results are reflected in the Water Level Survey, Table B.

A petroleum sheen was noted on saturated soil samples extracted from Boring B-4, and also along the wet inner rod assembly upon withdrawal of the sampler. During groundwater sampling of monitoring well MW-4 (location B-4), a characteristic petroleum odor was noted in the purge water and in the sample water.

Water Level Survey

As described earlier in the report, a precision water level survey was completed at the site using all seven existing wells and the Landau well LMW-2D. As noted in Table B, and on the individual boring logs, groundwater was encountered between 5 and 14 feet. The results of the water table survey presented in Table B suggest that the direction of shallow-seated groundwater flow beneath the subject site at the time of our field study was generally from the east toward the west.

Laboratory Analysis

Table A provides a summary of the results of laboratory analysis on soil and groundwater samples selected for testing.

As noted in Table A, soil collected from boring B-2 revealed "heavy oil" petroleum hydrocarbons. Additional analysis by EPA Method 418.1 found 420 parts per million (ppm) total petroleum hydrocarbons (TPH) at a depth of 10 feet, decreasing to 48 ppm at a depth of 15 feet.

Diesel was detected in groundwater from monitoring well MW-4 at 38 ppm. Additionally, vinyl chloride remains in groundwater at the location of Landau well LMW-2D.

CONCLUSIONS/RECOMMENDATIONS

Soil

The results presented in Table A suggest that residual concentrations of petroleum hydrocarbons in the heavy-oil range exist at the location of boring B-2. At 10 feet in depth, the level of contamination was 420 ppm, which exceeds the current cleanup guideline of 200 ppm established in the Model Toxics Control Act (MTCA, Chapter 173-340 WAC).

It is possible that the discovery of heavy oil in soil at the location of Boring B-2 is a small, localized event. The location of Boring B-2 is very near the parking garage development area. The lower floor of the parking garage is approximately 8 feet beneath the elevation of Boring B-2.

It is important to note that the heavy oil contamination noted in soils at 10 feet was not detected in groundwater at this location. In the current use of the site and surrounding area, it does not appear that the affected region is a hazard to human health or the environment.

Groundwater

Diesel

Petroleum hydrocarbon contamination in the diesel range exists at the location of monitoring well MW-4 (B-4). Levels were analyzed at 38 ppm, which is well above the MTCA standard of 1 ppm.

Diesel fuel is not presently stored or used on the site. As derived from the Project Background section of this report, numerous past potential sources of the residual diesel contamination exist. The full extent of the groundwater-affected regions is not currently known. Further, it is not known whether a region of soil remains somewhere hydrologically upgradient which may be a continuing source of groundwater contamination.

Additional exploration in the area of monitoring well MW-4 would be necessary to more clearly define the areal extent of the diesel contamination.

Total Petroleum Hydrocarbons (TPH)

Groundwater from Landau well LMW-6 was found to contain 56 ppm TPH in 1989. We were unable to access this well for our study. In view of the fact that we were unable to resample LMW-6, uncertainty remains at this location, and we consider this location to be potentially contaminated with TPH in groundwater at this time. Future sampling of this well could serve to clarify the condition of groundwater at this location.

Vinyl Chloride

Our explorations for this study did not encounter vinyl chloride contamination. However, resampling of Landau well LMW-2D revealed levels of vinyl chloride at 7.5 ppb, which is above the MTCA Method A regulatory cleanup level of 0.2 ppb.

It is highly probable that the vinyl chloride contamination initially detected by Landau and Associates in 1989 at LMW-2D, and still present in 1993, is attributable to off-site migration from the PACCAR Superfund site located to the east. Supporting data for this hypothesis include the following:

1) The measured direction of groundwater flow in the area, according to a Hart Crowser water level survey in 1989, as well as our own water level survey, is generally from the east to the west (southwest in some areas). More importantly, this means that groundwater flows <u>from</u> the PACCAR site <u>toward</u> the subject property.

2) The Landau well LMW-2D is located along the upgradient side of the site property, meaning that it is less likely that on-site development would have contributed to the elevated levels of vinyl chloride detected.

3) Finally, as summarized in a Hart Crowser report in 1986, "common volatile compounds detected (on the PACCAR site) include benzene and <u>vinyl chloride</u>."

At this time, it would be premature to formulate a plan of action for remediation of the affected areas. Additional exploration would need to be completed before a competent remediation strategy could be drafted. This may be accomplished by drilling a series of exploratory borings around the location of Boring B-4 (MW-4) in an effort to define the areal extent of diesel-impacted groundwater. Additionally, it may be prudent to place two borings at the location of Boring B-2, one to the north and one to the south, to confirm the presumed limited extent of the heavy-oil-affected soil at this location.

We also recommend that all available reports completed for this property be collected into one central file for review. This should include all documents completed by Earth Consultants, Inc., Rittenhouse-Zeman and Associates and Landau Associates, along with any other work. Review of these documents, along with selected additional exploration, as mentioned above, would aid greatly in defining the extent of contamination, along with potential sources of the contamination. In this regard, such review could potentially save the client time and money by incorporating all data compiled for this site into a future remediation strategy.

LIMITATIONS

This report has been prepared for the exclusive use of Mike Mastro, G & M Investments, and their representatives, for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions of our proposal dated August 20, 1993. No other warranty, expressed or implied, is made.

If new information is developed in future site work which may include excavations, borings, studies, etc., Geotech Consultants, Inc. must be retained to reevaluate the conclusions of this report and to provide amendments as required. We accept no responsibility or liability for independent interpretations or opinions formulated by reviewers of this document.

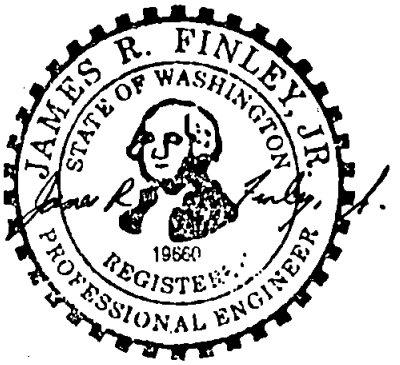
We appreciate the opportunity to be of service on this project and trust that the information provided here will be of value in management and planning efforts. If you have any questions or if we may be of further service, please do not hesitate to contact us.

Respectfully Submitted,

GEOTECH CONSULTANTS, INC.

Sean P. O'Brien

Sean P. O'Brien
Environmental Engineer



EXPIRES 8/17/95

James R. Finley, Jr., P.E.
Principal

REFERENCES

(1) Hart Crowser, Inc., December 5, 1986. Site Assessment Soil and Groundwater Quality, PACCAR Facility, Renton, Washington. Prepared for PACCAR Defense Systems, J-1639-02.

(2) Rittenhouse-Zeman and Associates, 1989. Environmental Evaluation Boeing Building 7-13, 500 Park Avenue North, Renton, Washington.

(3) Landau Associates, Inc., July 24, 1989. Final Report - Property Assessments; E and H Properties (Renton), Prepared for Boeing Environmental Affairs.

TABLE A - LABORATORY RESULTS

Sample No.	Medium	Depth	Analysis	Results/Comments
93299-B1-2	soil	10	WTPH-HCID	< 20 ppm gas < 50 ppm diesel < 100 ppm oil range
93299-B2-2	soil	10	WTPH-HCID EPA 418.1	Oil-range hydrocarbons 420 ppm TPH
93299-B2-3	soil	15	EPA 418.1	48 ppm TPH
93299-B3-1	soil	5	WTPH-HCID	ND gas, diesel, and oil
93299-B4-2	soil	10	WTPH-Diesel	< 25 ppm diesel
93299-B4-3	soil	15	WTPH-HCID	ND gas, diesel, and oil
93299-B5-3	soil	15	WTPH-HCID	ND gas, diesel, and oil
93299-B6-2	soil	10	EPA 8240	ND Volatile Organic Compounds (VOCs)
93299-B6-3	soil	15	EPA 418.1	< 25 ppm TPH
93299-B7-2	soil	10	WTPH-HCID	ND gas, diesel, and oil
93299-MW1	water	6.54	WTPH-HCID EPA 8240	ND gas, diesel, and oil ND all VOCs
93299-MW2	water	6.57	WTPH-HCID EPA 8240	ND gas, diesel, and oil ND all VOCs
93299-MW3	water	5.19	WTPH-HCID	ND gas, diesel, and oil
93299-MW4	water	10.73	WTPH-HCID WTPH-Diesel	diesel detected 35 ppm diesel

TABLE A (Continued)

Sample No.	Medium	Depth	Analysis	Results/Comments
93299-MW5	water	9.33	WTPH-HCID	ND gas, diesel, and oil
93299-MW6	water	14.04	WTPH-HCID EPA 8240	ND gas, diesel, and oil ND all VOCs
93299-MW7	water	8.29	WTPH-HCID	ND gas, diesel, and oil
LMW-2D	water	6.59	EPA 8240	7.5 ppb vinyl chloride

Notes:

1) Ppm denotes concentrations in parts per million
2) Ppb denotes concentrations in parts per billion
3) ND denotes non-detectable levels of analyte
4) VOCs (Volatile Organic Compounds) may be referenced in Appendix A - Laboratory Reports.

TABLE B - WATER LEVEL SURVEY

Well No.	Elevation of "MP"	Depth to Water	Elevation of Water
LMW-2D	27.21	6.59	20.62
MW-1	27.61	6.54	21.07
MW-2	27.86	6.57	21.29
MW-3	24.71	5.19	19.52
MW-4	29.36	10.73	18.63
MW-5	27.96	9.33	18.63
MW-6	32.68	14.04	18.64
MW-7	27.70	8.29	19.41

Notes:

1) Elevations and depths are in feet and refer to the City of Renton NGVD datum (8th and Park survey reference point).

2) Depth to water was measured from the north side of well casing.

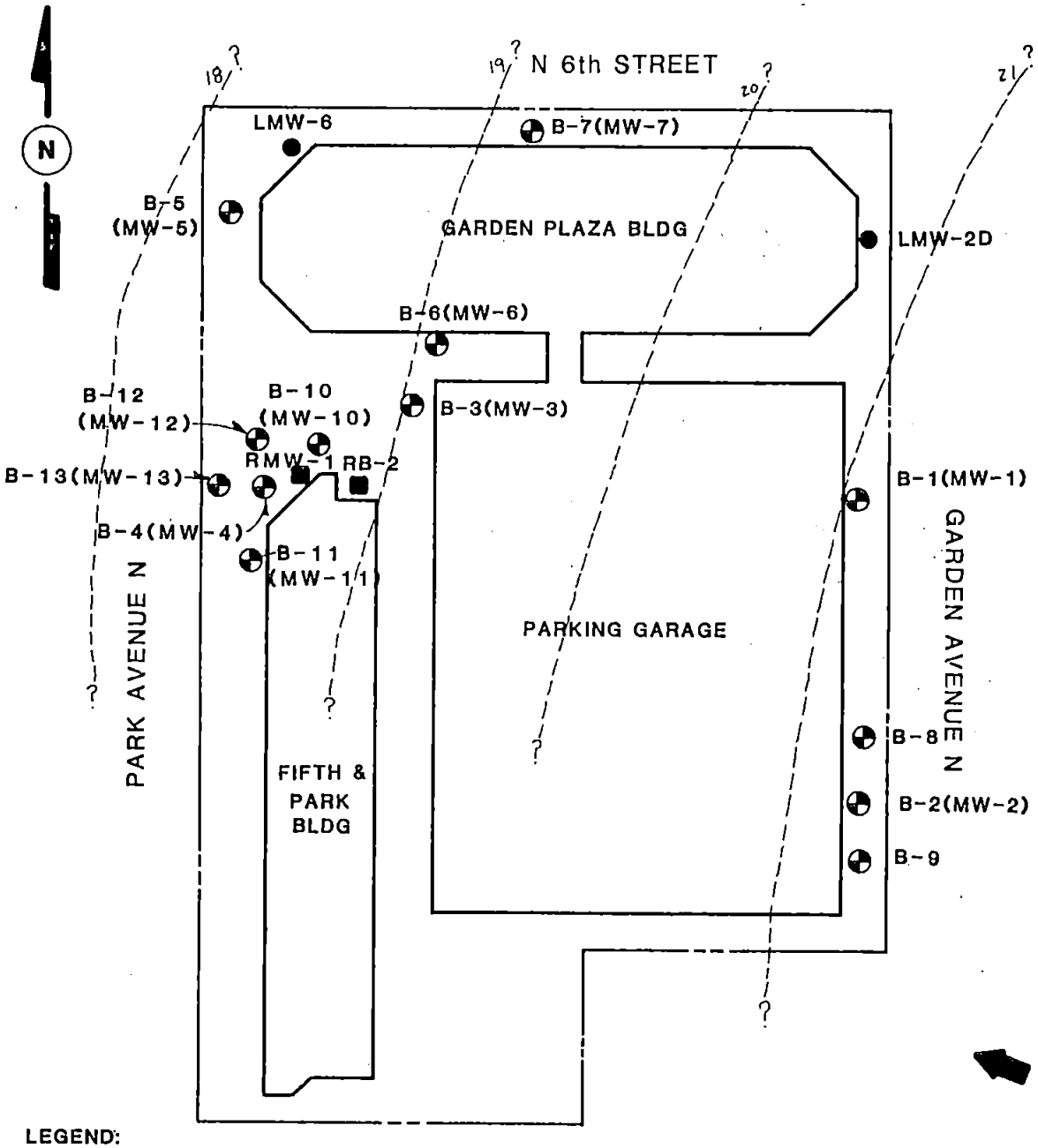


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VICINITY MAP

PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No.:	Date:	Logged By:	Plate:
93299E	NOV 1993		1



LEGEND:

- EXPLORATION LOCATIONS BY RZA (1989)
- EXPLORATION LOCATIONS BY LANDAU (1989)
- BORING/MONITORING WELLS BY GEOTECH CONSULTANTS OCT 1993 -FEB 1994
- MEASURED DIRECTION OF GROUNDWATER MOVEMENT BELOW SITE
- APPROXIMATE GROUNDWATER CONTOUR ELEVATION LINES

0 100 200

SCALE IN FEET

GEOTECH CONSULTANTS

SITE EXPLORATION PLAN

PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No.:	Date:		Plate:
93299E	NOV 1993		2

BORING 1 (Mo[illegible]oring Well 1)

Moisture Content (%)	Sample	Blows per Foot	USCS	Description
				TOPSOIL in planter area over
				Tan, silty SAND, moist
	1	5	SM	-becomes tannish brown, very loose (HC < 10 ppm)
				-becomes gray
	2	7	ML	Gray, sandy SILT lens (HC < 10 ppm)
				Gray, silty SAND, medium grained, wet, loose
	3	5	SM	(HC < 10 ppm)
	4	3	ML	Gray, clayey SILT, wet (saturated), soft, low to meduim plasticity (HC < 10 ppm)
	5	10	SM	Gray, coarse SAND with silt, wet (saturated), loose (HC < 10 ppm)
	6	9	SM	(HC < 10 ppm)
			PT	Dark brown PEAT
	7	9	SM	Gray, silty SAND, wet, loose (HC < 10 ppm)

Test boring was terminated at 36.5 feet below grade on 10-6-93 and completed as a monitoring well.

Groundwater was encountered at approximately 6.5 feet during drilling

Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

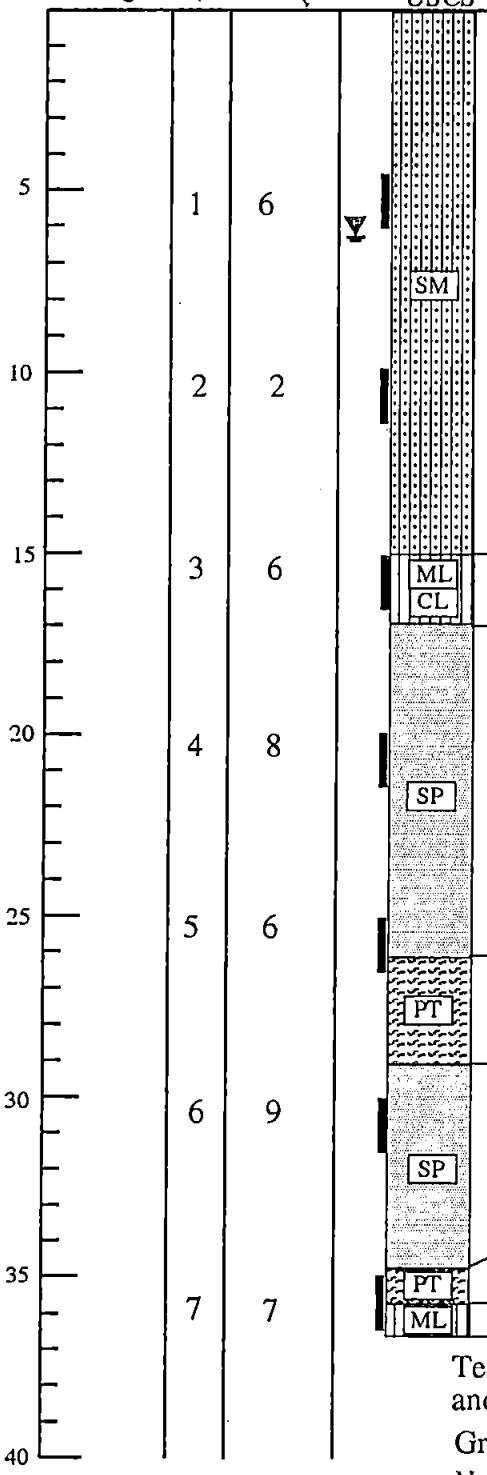
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TEST BORING LOG

RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	3

BORING 2 (Monitoring Well 2)



Description

TOPSOIL over-
Tannish brown, silty SAND

-becomes gray, fine to medium grained, moist, loose
(HC < 10 ppm)

-becomes coarse

Gray, clayey SILT, wet (saturated), medium stiff

Gray, coarse SAND with a trace of silt, wet, loose

(HC < 10ppm)

(HC < 10 ppm)

Dark brown PEAT

Gray, coarse SAND with a trace of silt, wet (saturated), loose
(HC < 10 ppm)

Dark brown PEAT (HC < 10 ppm)

Gray, sandy SILT

Test boring was terminated at 36.5 feet below grade on 10-6-93 and completed as a monitoring well.

Groundwater was encountered at approximately 6.5 feet during drilling

Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

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TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	4

BORING 3 (Monitoring Well 3)

Moisture Content (%)	Sample	Blows per Foot	USCS	Description
			FILL	Asphalt surface over- Sandy GRAVEL with cobbles (FILL) Construction debris noted.
	1	5	SM	Gray, silty, fine grained SAND, moist, very loose (HC < 10ppm)
	2	4	ML CL	Gray, clayey SILT (HC < 10 ppm)
	3	13	SM	Gray, medium grained SAND with a trace of silt, wet (saturated), loose (HC < 10ppm)
	4	5		(HC < 10 ppm)

Test boring was terminated at 21.5 feet below grade on 10-6-93 and completed as a monitoring well.

Groundwater was encountered at approximately 5 feet during drilling

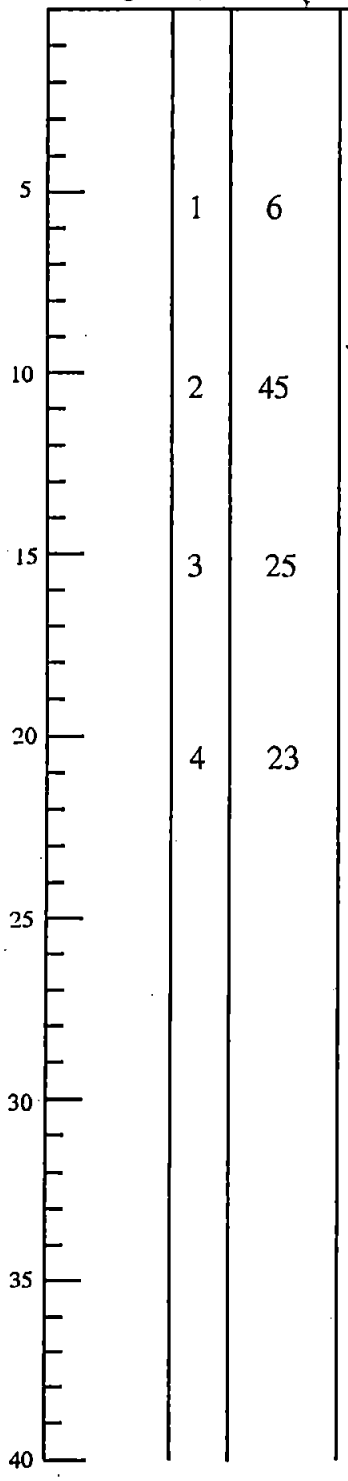
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	5

BORING 4 (Monitoring Well 4)



USCS	Description
FILL	Grass landscape area over- Brown, silty, sandy GRAVEL (FILL) (construction debris noted:metal, nails)
SM	Gray, silty SAND, moist to wet, loose (HC < 10 ppm)
ML	Brown, sandy SILT with gravel, moist (Hydrocarbon odor noted)
	Gray, medium to coarse SAND with a trace of silt, wet (saturated), medium dense
SM	

Test boring was terminated at 21.5 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 10.5 feet during drilling

Petroleum odor noted in soil below 8 feet. Petroleum sheen noted in water in sampler and on inner rod assembly at time of withdrawal.

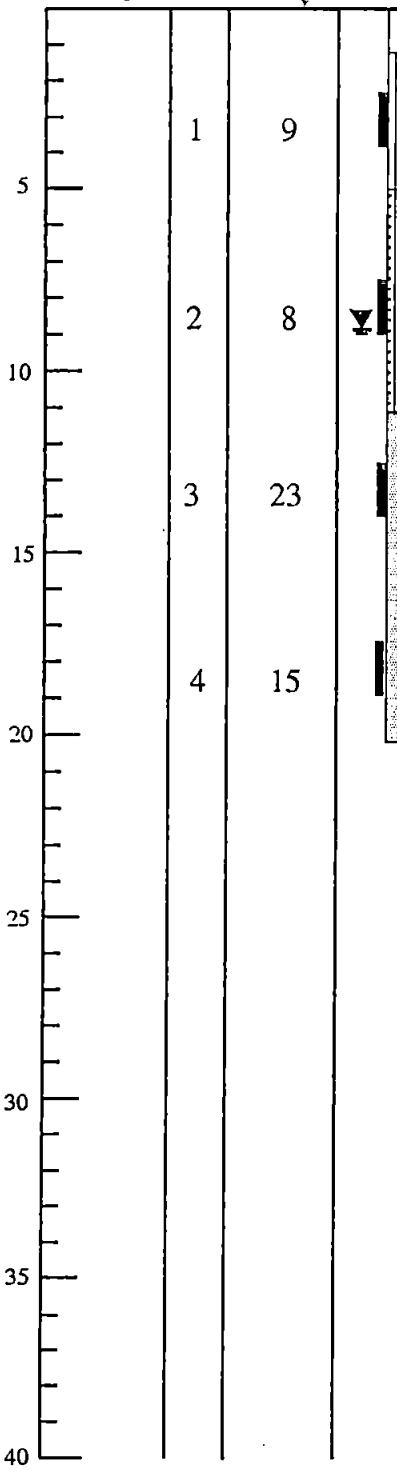
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	6

BORING 5 (Monitoring Well 5)



USCS	Description
	Concrete sidewalk over- Sand & gravel
ML	Brown, sandy SILT with occasional gravel, moist, loose (HC < 10 ppm)
SM	Brown, silty SAND, moist to wet, loose (HC < 10 ppm)
SP	Gray, coarse SAND, with occasional gravel, wet, medium dense (HC < 10 ppm)
	(HC < 10 ppm)

Test boring was terminated at 20 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 9.5 feet during drilling

Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	7

BORING 6 (Monitoring Well 6)

Moisture Content (%)	Sample	Blows per Foot	USCS	Description
				TOPSOIL in planter area
			SP	Brown SAND with gravel
	1	4	ML	Gray, sandy SILT, moist, soft (HC < 10 ppm)
	2	6	SM	Tan, fine grained SAND with some silt, moist, loose (HC < 10ppm)
	3	16	SP	Gray with rust, coarse grained SAND with a trace of silt and gravel, wet, medium dense (HC < 10 ppm)
			ML CL	Gray, clayey SILT, wet (HC < 10 ppm)
	4	6	SM	Gray, silty SAND, wet, very loose

5 10 15 20 25 30 35 40

Test boring was terminated at 25 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 14 feet during drilling

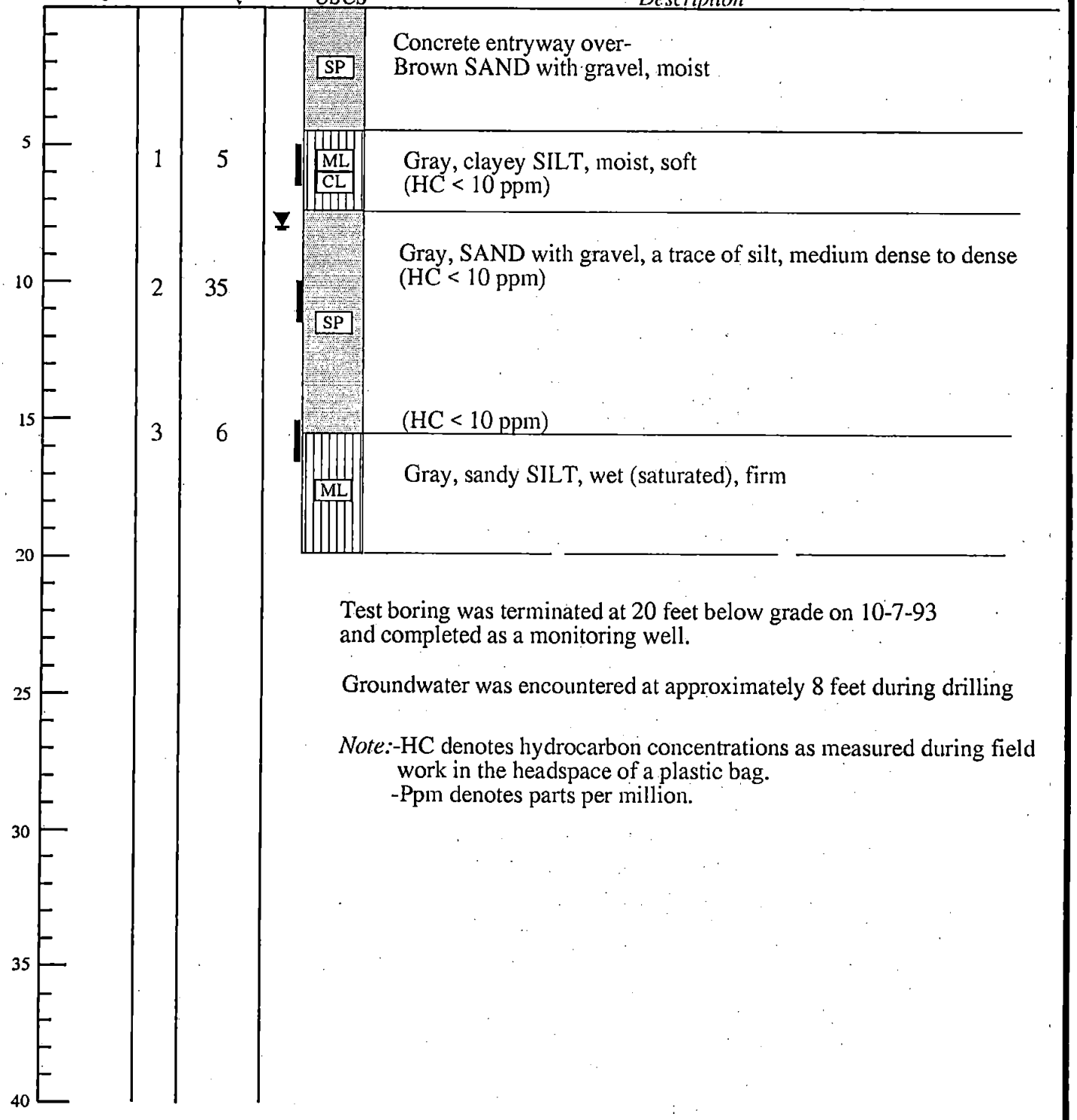
Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	8

BORING 7 (Monitoring Well 7)



Test boring was terminated at 20 feet below grade on 10-7-93 and completed as a monitoring well.

Groundwater was encountered at approximately 8 feet during drilling

Note:-HC denotes hydrocarbon concentrations as measured during field work in the headspace of a plastic bag.
-Ppm denotes parts per million.

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
PARK AVENUE N AT N 6th STREET
RENTON, WA

Job No:	Date:	Logged by:	Plate:
93299E	NOV 1993	SPO	9

APPENDIX A

Reports of Laboratory Results

Chain of Custody Documentation Forms

Date of Report: October 14, 1993
Samples Submitted: October 11, 1993
Lab Traveler: 10-020
Project: 93299E

Matrix: Soil
Date Extracted: October 11, 1993
Date Analyzed: October 11, 1993

WTPH-HCID

Sample Number	GC Characterization	o-terphenyl Surrogate Recovery
93299-B1-2	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	96%
93299-B2-2	Oil range hydrocarbons	104%
93299-B3-1	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	94%
93299-B4-3	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	94%
93299-B5-3	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	94%
93299-B7-2	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	93%

Quality Assurance

Method Blank	<20 ppm Gasoline range hydrocarbons <50 ppm Diesel range hydrocarbons <100 ppm Oil range hydrocarbons	93%

Date of Report: October 14, 1993
Samples Submitted: October 11, 1993
Lab Traveler: 10-020
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 13, 1993
Date Analyzed: October 14, 1993

WTPH 418.1

Sample Number	Dilution Factor	Total Petroleum Hydrocarbons
93299-B2-2	5	**420**

QUALITY ASSURANCE

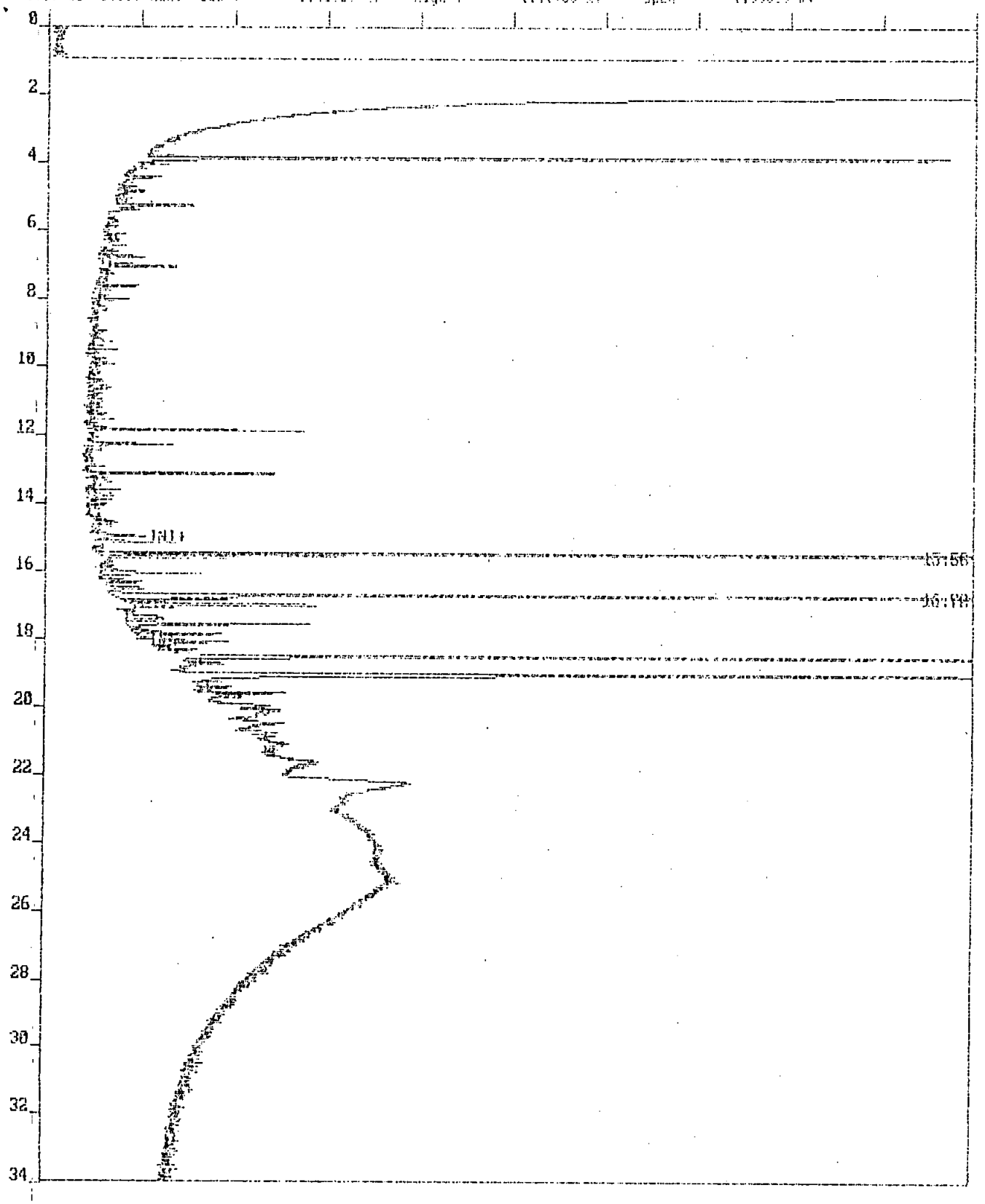
	Dilution Factor	Total Petroleum Hydrocarbons
Method Blank	5	<25
Sample: 10-025-4	5	359
Duplicate	5	354
RPD		1.3%

Date of Report: October 14, 1993
Samples Submitted: October 11, 1993
Lab Traveler: 10-020
Project: 93299E

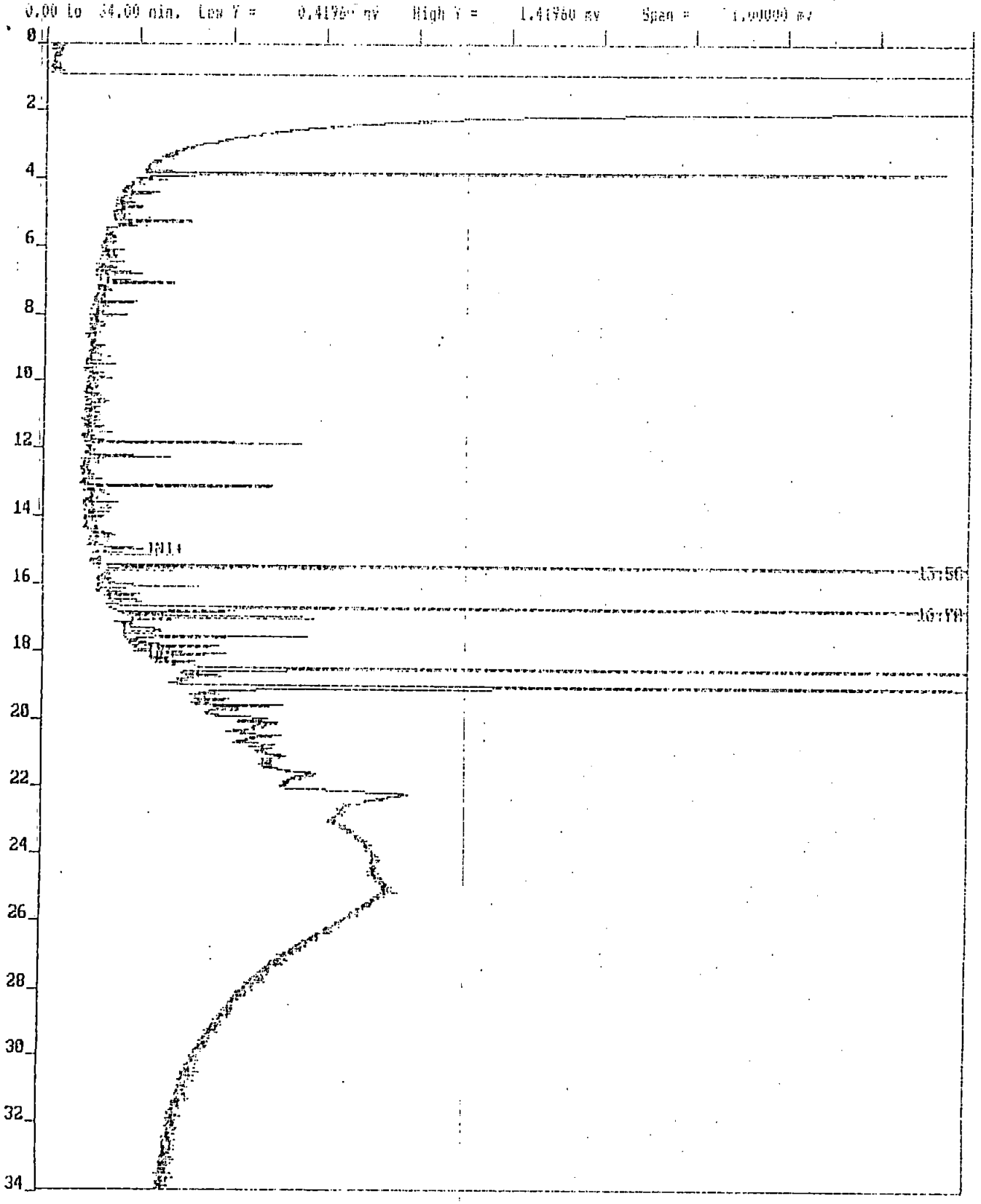
Date Analyzed: October 13,1993

RESULTS OF DRY WEIGHT

Sample Number	Moisture
93299-B2-2	13%



Chem-Matrix Corporation


File=C:\CP\MAIN\1011B.12R Sample name=10 -3 Acid Date sampled= 10-1-1993 Time= :
0.00 to 34.00 min. Low Y = 0.41960 nV High Y = 1.41960 nV Span = 1.00000 nV
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
1014
15:56
16:28

COMPANY Geotech

PROJECT # 93299 E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER # JTC

OnSite Environmental Inc.
2659 152nd Ave. NE, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND?

10-020

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA (8240)		DRY WEIGHT	Comments
					Analysis Required								
-1	93299 - B1-2	10-6	Soil	1	✓					✓ (BTEX)			
-2	- B1-4			1	✓ (BTEX)					✓			
-3	- B2-2			1	✓				X			X	X 418.1 requested by Sean O'Brien 10-12-93 JC
-4	- B2-4			1	✓ (BTEX)					✓			
-5	- B3-1	10-6		1	✓								
-6	- B4-3	10-7		1	✓								
-7	- B5-3			1	✓								
-8	- B6-2			1	✓ (BTEX)					✓			
-9	- B7-2			1	✓								

Submitted Sean P O'Brien Date 10-11-93 Received by [signature] Date 10/11/93

Firm Geotech Time 2:15 Firm On Site Environmental Time 2:15

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

Date of Report: October 14, 1993
Samples Submitted: October 12, 1993
Lab Traveler: 10-023
Project: 93299E

Matrix: Water
Date Extracted: October 13, 1993
Date Analyzed: October 13, 1993

TPH-HCID

Sample Number	GC Characterization	o-terphenyl Surrogate Recovery
93299-MW 1	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	89%
93299-MW 2	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	80%
93299-MW 3	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	86%
93299-MW 4	Diesel range hydrocarbons	F
93299-MW 5	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	79%
93299-MW 6	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	90%
93299-MW 7	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	89%
Quality Assurance		
Method Blank	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	89%

F-Surrogate recovery data not available due to the high concentration in the sample.

Date of Report: October 14, 1993
Samples Submitted: October 12, 1993
Lab Traveler: 10-023
Project: 93299E

Matrix: Water
Units: mg/L (ppm)
Date Extracted: October 13, 1993
Date Analyzed: October 13, 1993

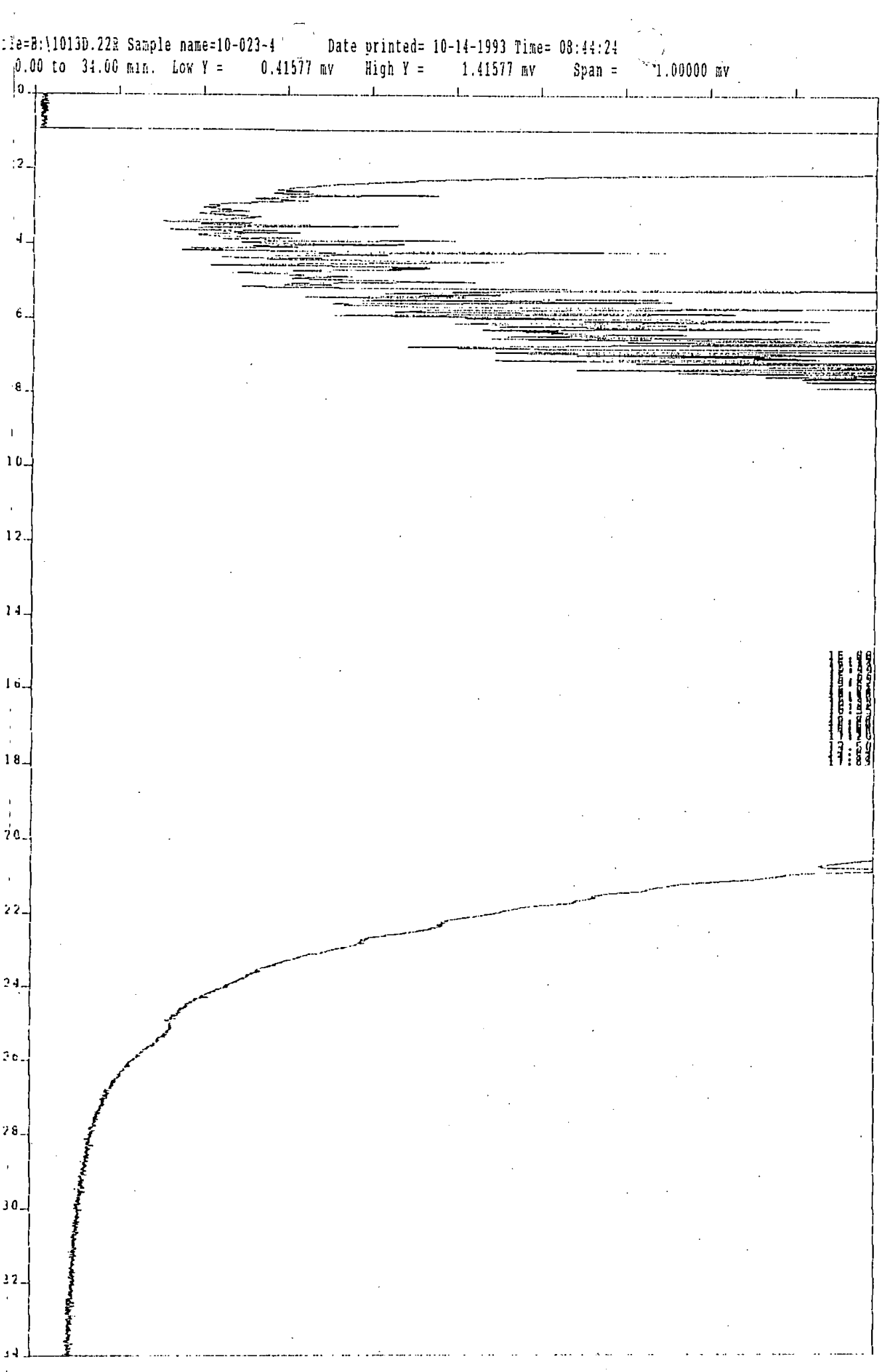
WTPH-D

Sample Number	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
93299-MW4	.02	35	F

QUALITY ASSURANCE

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	.02	<.5	89%
Sample: 10-023-1	.02	<.5	89%
Duplicate	.02	<.5	84%
RPD		0%	

F-Surrogate recovery data not available due to the high concentration in the sample.


File=B:\1013D.22R Sample name=10-023-4 Date printed= 10-14-1993 Time= 08:44:24
0.00 to 34.00 min. Low Y = 0.41577 mv High Y = 1.41577 mv Span = 1.00000 mv
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

method: Help

COMPANY Geotech

PROJECT # 93299 E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER # JC

OnSite Environmental Inc.
2859 152nd Ave. NE, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND? Normal

10-023

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA (8240) (esp. Vinyl Chloride)	DRY WEIGHT	Comments
-1	93299- MW 1	10-12-93	water	4 1 liter Voas	✓					✓		Please advise
-2	- MW 2				✓			⊗		✓		me with HCID
-3	- MW 3				✓							results, so that
-4	- MW 4 *				✓			⊗				we may proceed
-5	- MW 5				✓							w/ proper quantification
-6	- MW 6				✓					✓		analysis -
-7	- MW 7				✓							TNT,
												Sean
												⊗ Diesel analysis requested on 93299-MW4 by Sean O'Brien 10-14-93 JC

Submitted Sean P. O'Brien Date 10-12-93 Received by B Winkler Date 10/13/93

Firm Geotech Consultants, Inc. Time 3:40 pm Firm OSE Time 3:40 pm

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 14, 1993
Date Analyzed: October 14, 1993

WTPH-D

Sample Number	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
93299-B4-2	1	<25	69%

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 14, 1993
Date Analyzed: October 14, 1993

WTPH-D
QUALITY ASSURANCE

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Method Blank	1	<25	95%
Sample: 10-027-3	1	<25	90%
Duplicate	1	<25	85%
RPD		0%	

	Dilution Factor	TPH	o-terphenyl Surrogate Recovery
Spiked @ 99.4 ppm			
Spike Blank	1	84.4	113%
Percent Recovery		84%	
Spike Blank Duplicate	1	77.7	101%
Percent Recovery		78%	
RPD		8.3%	

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: October 15, 1993
Date Analyzed: October 15, 1993

WTPH 418.1

Sample Number	Dilution Factor	Total Petroleum Hydrocarbons
93299-B2-3	5	**48**

WTPH 418.1

QUALITY ASSURANCE

	Dilution Factor	Total Petroleum Hydrocarbons
Method Blank	5	<25
Sample: 93299-B2-3	5	48
Duplicate	5	38
RPD		23%

Date of Report: October 19, 1993
Samples Submitted: October 14, 1993
Lab Traveler: 10-028
Project: 93299E

Date Analyzed: October 14, 1993

RESULTS OF DRY WEIGHT

Sample Number	Moisture
93299-B4-2	19%
93299-B2-3	34%

COMPANY Geotech

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

PM JC

OnSite Environmental Inc.
14924 NE 31st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER # 10-028

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1			DRY WEIGHT	Comments
						Analysis Required								
-1	93299-B4-2	10-7		Soil	1				✓				X	
-2	93299-B2-3	10-6		Soil	1					✓			X	

Submitted Sean P. O'Brien Date 10-14-93 Received by [illegible] Date 10/14/93

Firm Geotech Consultants, Inc. Time 11:25 Firm OSE Time 11:25

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E

Lab No. 35458
October 19, 1993

Lab Sample No. 35458-3 Client ID: 93299-B6-2

Volatile Organics Per EPA Method 8240
Date Extracted: 10-15-93
Date Analyzed: 10-15-93

Compound	Concentration ug/kg	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	13	5.0	B1
Acetone	18	25	B1, J
Carbon Disulfide	ND	5.0	
1,1-Dichloroethene	ND	5.0	
1,1-Dichloroethane	ND	5.0	
1,2-Dichloroethene (Total)	ND	5.0	
Chloroform	ND	5.0	
1,2-Dichloroethane	ND	5.0	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5.0	
Carbon Tetrachloride	ND	5.0	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5.0	
1,2-Dichloropropane	ND	5.0	
Cis-1,3-Dichloropropene	ND	5.0	
Trichloroethene	ND	5.0	
Dibromochloromethane	ND	5.0	
1,1,2-Trichloroethane	ND	5.0	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E

Lab No. 35458
October 19, 1993

Lab Sample No. 35458-3 Client ID: 93299-B6-2

8240 Continued . . .

Compound	Concentration ug/kg	PQL	Flag
Benzene	ND	5.0	
Trans-1,3-Dichloropropene	ND	5.0	
Bromoform	ND	5.0	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5.0	
Tetrachloroethene	ND	5.0	
1,1,2,2-Tetrachloroethane	ND	5.0	
Toluene	2.2	5.0	J
Chlorobenzene	ND	5.0	
Ethyl Benzene	ND	5.0	
Styrene	ND	5.0	
Total Xylenes	ND	5.0	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	105		88 - 110	81 - 117
Bromofluorobenzene	93		86 - 115	74 - 121
1,2-Dichloroethane-D4	102		76 - 114	70 - 121

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT
VOLATILE ORGANICS PER EPA METHOD 8240

Client: On - Site Environmental
Lab No: 35428qc
Units: ug/kg
Date: October 19, 1993
Blank No: Z3768

Date Extracted: 10-15-93
Date Analyzed: 10-15-93

METHOD BLANK

Compound	Result	PQL	Flags
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	1.5	5	J
Acetone	1.3	25	J
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

VOLATILE ORGANICS PER EPA METHOD 8240

Client: On - Site Environmental
Lab No: 35428qc
Date: October 19, 1993
Blank No: Z3768

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	98		88 - 110	81 - 117
Bromofluorobenzene	100		86 - 115	74 - 121
1,2-Dichloroethane-D4	94		76 - 114	70 - 121

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: On - Site Environmental Date: October 21, 1993

Report On: Analysis of Water Lab No.: 35498
Page 1 of 6

IDENTIFICATION:
Samples Received on 10-13-93
Project: 93299E

ANALYSIS:

Lab Sample No. 35498-1 Client ID: 93299-MW1

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-19-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	ND	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

...and is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 2 of 6
Lab No. 35498
October 21, 1993

Lab Sample No. 35498-1 Client ID: 93299-MW1

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	105		88 - 110	81 - 117
Bromofluorobenzene	93		86 - 115	74 - 121
1,2-Dichloroethane-D4	101		76 - 114	70 - 121

Continued . . .

report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 3 of 6
Lab No. 35498
October 21, 1993

Lab Sample No. 35498-2 Client ID: 93299-MW2

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-19-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	ND	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

...is for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 4 of 6
Lab No. 35498
October 21, 1993

Lab Sample No. 35498-2 Client ID: 93299-MW2

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Control Limits Soil
Toluene - D8	104		88 - 110	81 - 117
Bromofluorobenzene	92		86 - 115	74 - 121
1,2-Dichloroethane-D4	102		76 - 114	70 - 121

Continued . . .

. . . . . for the use of the person or company to whom it is addressed . . . . . no responsibility only for the due performance of analysis in accordance with . . . . .

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E

Lab No. 35498
October 21, 1993

Lab Sample No. 35498-3 Client ID: 93299-MW6

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-19-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
Vinyl Chloride	ND	10	
Chloroethane	ND	10	
Methylene Chloride	ND	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

ry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 6 of 6
Lab No. 35498
October 21, 1993

Lab Sample No. 35498-3 Client ID: 93299-MW6

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Control Limits Soil
Toluene - D8	104		88 - 110	81 - 117
Bromofluorobenzene	95		86 - 115	74 - 121
1,2-Dichloroethane-D4	100		76 - 114	70 - 121

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: On - Site Environmental

Date: October 23, 1993

Report On: Analysis of Water

Lab No.: 35671
Page 1 of 2

IDENTIFICATION:
Sample Received on 10-21-93
Project: 93299E

ANALYSIS:

Lab Sample No. 35671-1

Client ID: 93299-LMW2D

Volatile Organics Per EPA Method 8240
Date Analyzed: 10-22-93

Compound	Concentration ug/L	PQL	Flag
Chloromethane	ND	10	
Bromomethane	ND	10	
* Vinyl Chloride	7.5	10	J
Chloroethane	ND	10	
Methylene Chloride	6.3	5	
Acetone	ND	25	
Carbon Disulfide	ND	5	
1,1-Dichloroethene	ND	5	
1,1-Dichloroethane	ND	5	
1,2-Dichloroethene (Total)	ND	5	
Chloroform	ND	5	
1,2-Dichloroethane	ND	5	
2-Butanone	ND	25	
1,1,1-Trichloroethane	ND	5	
Carbon Tetrachloride	ND	5	
Vinyl Acetate	ND	25	
Bromodichloromethane	ND	5	
1,2-Dichloropropane	ND	5	
Cis-1,3-Dichloropropene	ND	5	
Trichloroethene	ND	5	
Dibromochloromethane	ND	5	
1,1,2-Trichloroethane	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . .

report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with ... by acceptable practice. In no event shall Sound Analytical ...

SOUND ANALYTICAL SERVICES, INC.

On - Site Environmental
Project: 93299E
Page 2 of 2
Lab No. 35671
October 23, 1993

Lab Sample No. 35671-1 Client ID: 93299-LMW2D

8240 Continued . . .

Compound	Concentration ug/L	PQL	Flag
Benzene	ND	5	
Trans-1,3-Dichloropropene	ND	5	
Bromoform	ND	5	
4-Methyl-2-Pentanone	ND	25	
2-Hexanone	ND	5	
Tetrachloroethene	ND	5	
1,1,2,2-Tetrachloroethane	ND	5	
Toluene	ND	5	
Chlorobenzene	ND	5	
Ethyl Benzene	ND	5	
Styrene	ND	5	
Total Xylenes	ND	5	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	101		88 - 110	81 - 117
Bromofluorobenzene	91		86 - 115	74 - 121
1,2-Dichloroethane-D4	102		76 - 114	70 - 121

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

DATA QUALIFIER FLAGS

ND: Indicates that the analyte was analyzed for but was not detected. The associated numerical value is the practical quantitation limit, corrected for sample dilution.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

C: The identification of this analyte was confirmed by GC/MS.

B1: This analyte was also detected in the associated method blank. The reported sample results have been adjusted for moisture, final extract volume, and/or dilutions performed during extract preparation. The analyte concentration was evaluated prior to sample preparation adjustments, and was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was also detected in the associated method blank. However, the analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

E: The concentration of this analyte exceeded the instrument calibration range.

D: The reported result for this analyte is calculated based on a secondary dilution factor.

A: This TIC is a suspected aldol-condensation product.

M: Quantitation Limits are elevated due to matrix interferences.

S: The calibration quality control criteria for this compound were not met. The reported concentration should be considered an estimated quantity.

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product. Further testing is suggested for identification.

X3: Identification and quantification of peaks was complicated by matrix interference; GC/MS confirmation is recommended.

X4: RPD for duplicates outside QC limits. Sample was re-analyzed with similar results. Sample matrix is nonhomogeneous.

X4a: RPD for duplicates outside QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike was diluted out during analysis.

X6: Recovery of matrix spike outside QC limits. Sample was re-analyzed with similar results.

X7: Recovery of matrix spike outside QC limits. Matrix interference is indicated by blank spike recovery data.

X7a: Recovery and/or RPD values for MS/MSD outside QC limits due to high contaminant levels.

X8: Surrogate was diluted out during analysis.

X9: Surrogate recovery outside QC limits due to matrix composition.

X10: Surrogate recovery outside QC limits due to high contaminant levels.

COMPANY Geotech

PROJECT # 93299 E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER # JTC

OnSite Environmental Inc.
2859 152nd Ave. NE, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND?

10-020

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA (8240)		DRY WEIGHT	Comments
					Analysis Required								
-1	93299 - B1 - 2	10-6	Soil	1	√					(8240)			
-2	- B1 - 4			1	(8240)					√			
-3	- B2 - 2			1	√				(X)			(X)	(X) 418.1 requested by Sean O'Brien 10-12-93 JC
-4	- B2 - 4			1	(8240)					√			
-5	- B3 - 1	10-6		1	√								
-6	- B4 - 3	10-7		1	√								
-7	- B5 - 3			1	√								
-8	- B6 - 2			1	(8240)					√			
-9	- B7 - 2			1	√								

Submitted Sean O'Brien Date 10-11-92 Received by [signature] Date 10/11/93

Firm Geotech Time 2:15 Firm OnSite Environmental Time 2:15

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

COMPANY Geotech

PROJECT # 93299 E

PROJECT NAME 93299

MANAGER Sean O'Brien

TRAVELER #

OnSite Environmental Inc.
2859 152nd Ave. NE, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

REQUESTED TURNAROUND?

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA (8240) (esp. Vinyl Chloride)		DRY WEIGHT	Comments
	Judi to Sean												
	93299- MW1 diesel 0.5 diesel gas 0.2 gas 1.0 water	10-12-93	water	1 liter 4 Voas	✓					✓			Please advise
	- MW2				✓					✓			me with HCID
	- MW3				✓								results, so that
	- MW4 gas 0.2 waste <1.0 diesel HiT 35ppm				✓								we may proceed
	- MW5				✓								w/ proper quantification
	- MW6				✓					✓			analysis -
	- MW7				✓								TNT, Sean

Submitted Sean P. O'Brien Date 10-12-93 Received by B Winkler Date 10/13/93

Firm Geotech Consultants, Inc. Time 3:40 pm Firm OSE Time 3:40 pm

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

COMPANY Geotech

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

PM _____

OnSite Environmental Inc.
14924 NE 31st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER #

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1			DRY WEIGHT	Comments
						Analysis Required								
														RESULTS: 10-18-93
	93299-B4-2	10-7		Soil	1				✓					~~Judi to Sean~~ Diesel → <25 ppm
	93299-B2-3	10-6		Soil	1					✓			→ 48 ppm	

Submitted Sean P. O'Brien Date 10-14-93 Received by B Modla Date 10/14/93

Firm Geotech Consultants, Inc. Time 11:25 Firm OSE Time 11:25

Submitted _____ Date _____ Received by _____ Date _____

Firm _____ Time _____ Firm _____ Time _____

COMPANY Geotech

PROJECT # 93299E

PROJECT NAME 93299

MANAGER Sean O'Brien

PM

OnSite Environmental Inc.

14524 NE 31st CIRCLE, REDMOND, WA 98052
PHONE (206) 883-3881 FAX (206) 885-4603

REQUESTED TURNAROUND?

TRAVELER #

Dash	Sample Number	Date Sampled	Time Sampled	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D	WTPH-418.1	VOA vinyl chloride only (8240)	DRY WEIGHT	Comments
	93299-LMW2D	10-20-93	—	Water	~~1~~ 3 Vows						X		RUSH ANALYSIS!!
		—											

Submitted Sean P. O'Brien Date 10-20-93 Received by [signature] Date 10/20/93

Firm Geotech Consultants, Inc. Time 4:20pm Firm OnSite Environmental Time 4:35

Submitted Ted Cole Date 10-20-93 Received by _____ Date _____

Firm Geotech Consultants Inc Time 11:35 Firm _____ Time _____