

File No. 10-93-570-ST

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Alameda County
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**SEMI-ANNUAL GROUNDWATER
MONITORING AND SAMPLING
AT THE PROPERTY
LOCATED AT 525 98th AVENUE,
OAKLAND, CALIFORNIA
DECEMBER 20, 1996**

**PREPARED FOR:
MR. NISSAN SAIDIAN
5733 MEDALLIAN COURT
CASTRO VALLEY, CA 94509**

**BY:
SOIL TECH ENGINEERING, INC.
1761 JUNCTION AVENUE
SAN JOSE, CALIFORNIA 95112**

SOIL TECH ENGINEERING, INC.

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T1

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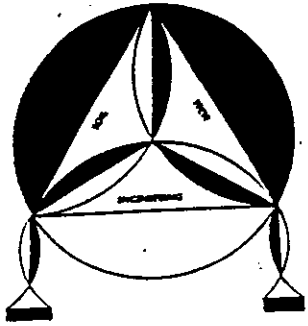
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SOP1

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CHAIN-OF-CUSTODY DOCUMENTATION**



SOIL TECH ENGINEERING
Environmental and Geological Engineers

1761 JUNCTION AVENUE, SAN JOSE, CA 95112

(408) 441-1881

December 20, 1996

File No. 10-93-570-ST

Mr. Nissan Saidian
5733 Medallian Court
Castro Valley, CA 94552

**SUBJECT: SEMI-ANNUAL GROUNDWATER MONITORING
AND SAMPLING AT THE PROPERTY Located at
525 98th Avenue, in Oakland, California**

Dear Mr. Saidian:

This report presents the results of semi-annual groundwater monitoring and sampling conducted by Soil Tech Engineering, Inc. (STE), on December 17, 1996, at the subject site (Figure 1).

SITE DESCRIPTION:

The site is located at 525 98th Avenue, on the northwest side of 98th Avenue between Maddux Drive and Edes Avenue in Oakland, California. It was formerly used as a gasoline service station. When the current owner purchased the property in May 1986, it was not in operation as a service station.

SOIL TECH ENGINEERING, INC.

BACKGROUND:

In December 1993, Alpha Geo Services, Inc. (AGS) removed a 550 gallon waste oil tank, a 4,000 gallon and a 6,000 gallon gasoline tank. The three tanks were properly manifested and transported by Erickson, Inc. to their facility in Richmond. In addition, the fuel product lines and pump islands were excavated. STE was retained by Mr. Nissan Saidian, the current owner of the property, to conduct soil sampling below the former USTs and fuel product lines. Seven soil samples were collected, four from the gasoline tank excavation at approximately 12 feet below grade and three from the waste oil tank excavation at approximately 2 and 3 feet below grade. All sampling was conducted under the supervision of Alameda County Health Department inspector Ms. Eva Chu. Elevated levels of Total Petroleum Hydrocarbons as gasoline (TPHg) ranging from 230 mg/Kg to 12,000 mg/Kg, and BTEX were detected in the soil samples collected from the gasoline UST excavation. The details of the soil sampling activity is described in STE's report dated January 5, 1996.

Since TPHg and BTEX concentrations were detected in soil samples collected from beneath the removed tanks, Alameda County Health Care Services Agency (ACHCSA) requested additional investigation to determine the extent of soil and groundwater contamination in a letter dated January 14, 1994.

STE was retained by Mr. Saidian to conduct an additional investigation as requested by ACHCSA. A work plan, dated April 27, 1994, was prepared describing the scope of work which included drilling and installation of three shallow monitoring wells (STMW-1 to STMW-3), well development, soil and water sampling, laboratory analysis and preparation of a technical report. The drilling and installation of three monitoring wells (STMW-1 to STMW-3) was conducted in March 1995. Soil sample results from the borings detected low levels of TPHg and BTEX in four out of twelve soil samples.

Low levels of TPHg and BTEX were also detected in the water samples. The details of this additional investigation is described in STE's report dated April 19, 1995.

On January 22 and 29, 1996, STE conducted remedial excavation activity and soil sampling at the subject property on the request of Alameda County Department of Environmental Health – Hazardous Material Division (ACDEH – HMD). The details of this activity is described in STE's May 1, 1996 report.

Quarterly groundwater monitoring and sampling was conducted by STE at the subject site. The last monitoring and sampling event occurred on April 25, 1996, the details of which is summarized in STE's report dated May 6, 1996.

SCOPE OF PRESENT WORK:

The scope of present work comprises:

- Monitoring on-site wells STMW-1, STMW-2 and STMW-3 for presence of sheen/odor and measuring the depth-to-water
- Purging each monitoring well prior to sampling
- Sampling monitoring wells STMW-1, STMW-2 and STMW-3 for laboratory analysis
- Submitting water samples to a state-certified laboratory for analysis of Total Petroleum Hydrocarbons as diesel and gasoline (TPHd and TPHg), Benzene, Toluene, Ethyl Benzene, Total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE) and Total Oil & Grease (TOG)
- Reviewing results and preparing a report of the investigation

FIELD ACTIVITIES:

GROUNDWATER MONITORING:

On December 17, 1996, STE's staff monitored the three on-site wells (STMW-1, STMW-2 and STMW-3) to measure the water depth and check for presence of sheen and/or odor. No sheen or odor was observed in monitoring wells STMW-2 and STMW-3 while rainbow sheen spots and light sewage odor was noted in STMW-1. The water table depths ranged from 8.42 feet to 9.42 feet below ground surface. Table 1 summarizes the depth to groundwater measurements and well observations made.

GROUNDWATER SAMPLING:

Following groundwater monitoring, the wells were purged at least five well volumes and sampled in accordance with STE's Standard Operation Procedures (SOP1 -- see Appendix "C"), which comprises State and Local guidelines for sampling of monitoring wells.

The water samples were placed in a cool ice chest and submitted to Priority Environmental Labs, a state-certified laboratory, accompanied by appropriate chain-of-custody.

The water samples from wells STMW-1, STMW-2 and STMW-3 were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) per EPA Methods 5030/8015, Total Petroleum Hydrocarbons as diesel (TPHd) per EPA Method 3510/8015, Benzene, Toluene, Ethyl Benzene, Total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE) per EPA Method 602 and Total Oil & Grease (TOG) per EPA Method 5520 C & F.

GROUNDWATER FLOW:

Water elevation data was used to determine groundwater flow direction. Table 1 summarizes the groundwater elevations. The groundwater flow beneath the site was in a northeasterly direction as of December 17, 1996 (Figure 2).

ANALYTICAL RESULTS:

Monitoring well STMW-3 detected TPHg, TPHd and BTEX below laboratory detection limit. STMW-1 detected TPHg at 580 mg/L and low to moderate levels of BTEX while TPHd concentration was below laboratory detection limits. STMW-2 detected TPHg at 0.24 mg/L, low levels of Benzene, Total Xylene and TOG while TPHd, Toluene, Ethyl Benzene and TOG concentrations were below laboratory detection limits. MTBE concentrations were below laboratory detection limit in all three monitoring wells.

The laboratory results are summarized in Table 1, and the laboratory analytical results with chain-of-custody is enclosed with this report (see Appendix "D").

SUMMARY:

No sheen or odor was observed in monitoring wells STMW-2 and STMW-3. Rainbow sheen spots and light sewage odor was noted in monitoring well STMW-1. Monitoring well STMW-1 detected high levels of TPHg and low to moderate levels of BTEX and TOG while TPHd concentration was below laboratory detection limit. STMW-2 detected moderate levels of TPHg and very low to low levels of TPHd, BTEX and TOG. STMW-3 detected TPHg, TPHd, BTEX and TOG below laboratory detection

limit. MTBE concentrations were below laboratory detection limit in all three monitoring wells.

A comparison of the recent groundwater analytical results with the May 1996 sampling shows a considerably reduced level of TPHd, and slightly reduced level of TOG in all three monitoring wells. Slightly reduced level of TPHg is noted in STMW-1 and a slight elevation in TPHg level in STMW-2. Benzene levels are slightly reduced in STMW-1, and slightly elevated in STMW-2. STMW-3 show a consistency in the concentration levels of TPHg and BTEX being below laboratory detection limit.

RECOMMENDATIONS:

STE recommends the continuation of semi-annual groundwater monitoring and sampling at the subject site. In addition, initiation of a supplemental investigation as requested by Alameda County Health Care Services Agency (ACHCSA) in order to delineate dissolved hydrocarbon contamination and migration control is recommended.

NO!

A copy of this report should be forwarded to Alameda County Health Care Services Agency (ACHCSA) and California Regional Water Quality Control Board – San Francisco Bay Region (RWQCB -- SFBR).

LIMITATIONS:

This report and the associated work has been provided in accordance with the general principles and practices currently employed in the environmental consulting profession. The contents of this report reflect the conditions of the site at this particular time. The findings of this report are based on:

1. The observations of field personnel.
2. The results of laboratory analyses performed by a state-certified laboratory.

It is possible that variations in soil and groundwater could exist beyond the points explored in this investigation. Also, changes in groundwater conditions of a property can occur with the passage of time due to variations in rainfall, temperature, regional water usage and other natural processes or the works of man on this property or adjacent properties.

This report is issued with the understanding that it is the responsibility of this owner or his/her representative to ensure that the information and recommendations contained herein are called to the attention of the Local Environmental Agency.

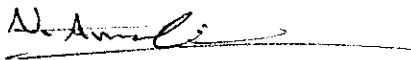
Services performed by STE have been in accordance with generally accepted environmental professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. This report is not meant to represent a legal opinion. No other warranty, express or implied is made.

File No. 10-93-570-ST

If you have any questions or require additional information, please contact our office at (408) 441-1881 at your convenience.

Sincerely,

SOIL TECH ENGINEERING, INC.



NOORI AMELI
PROJECT ENGINEER



LAWRENCE KOO, P. E.
C. E. #34928



FRANK HAMEDI-FARD
GENERAL MANAGER

SOIL TECH ENGINEERING, INC.

**TABLE 1
GROUNDWATER MONITORING DATA (feet) AND
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHd	TPHg	B	T	E	X	MTBE	TOG
04/10/95	STMW-1 (99.51)	20	4.5	9.69	89.82	V. l. rainbow sh. sp. Light pet. odor	0.067	13.0	0.0059	0.0069	0.15	0.25	NA	NA
07/25/95				10.39	89.12	No sheen No. odor	ND	45.0	0.011	0.029	0.02	0.16	NA	NA
10/24/95				10.71	88.80	No sheen L. sewage odor	ND	7.8	0.0036	0.0015	0.02	0.031	NA	0.9
01/22/96				8.21	91.30	Rainbow sh. sp. L. pet. odor	0.49	23.0	0.023	0.022	0.1	0.23	NA	1.7
04/25/96				9.85	89.66	No sheen V. l. pet. odor	0.69	6.0	0.0016	0.0009	0.022	0.023	NA	3.9
12/17/96				9.42	90.09	Rainbow sh. sp. L. sewage odor	ND	5.8	0.0013	0.0007	0.0046	0.014	ND	0.0007

TPHd - Total Petroleum Hydrocarbons as Diesel
TPHg - Total Petroleum Hydrocarbons as Gasoline
B - Benzene **T** - Toluene
E - Ethyl Benzene **X** - Total Xylenes
ND - Not Detected
NA - Not Analyzed
GW Elev. - Groundwater Elevation
MTBE - Methyl Tertiary Butyl Ether
TOG - Total Oil & Grease
Pet. - Petroleum
Perf. - Perforation
V. - Very **L.** - Light
sh. sp. - sheen spots **pet.** - petroleum

**TABLE 1
GROUNDWATER MONITORING DATA (feet) AND
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHd	TPHg	B	T	E	X	MTBE	TOG
04/10/95	STMW-2 (98.95)	20	5	9.16	89.79	No sheen No odor	0.054	ND	ND	ND	ND	ND	NA	NA
07/25/95				9.87	89.08	No sheen No odor	ND	ND	ND	ND	ND	ND	NA	NA
10/24/95				10.19	88.76	No sheen No odor	ND	ND	ND	ND	ND	ND	NA	ND
01/22/96				7.74	91.21	No sheen No odor	0.25	0.082	0.0007	ND	ND	0.0023	NA	0.6
04/25/96				9.33	89.62	No sheen No odor	0.4	0.13	ND	ND	0.0006	0.001	NA	0.6
12/17/96				8.91	90.04	No sheen No odor	ND	0.24	0.0006	ND	ND	0.0006	ND	ND

TPHd - Total Petroleum Hydrocarbons as Diesel
TPHg - Total Petroleum Hydrocarbons as Gasoline
B - Benzene **T** - Toluene
E - Ethyl Benzene **X** - Total Xylenes
ND - Not Detected
NA - Not Analyzed
GW Elev. - Groundwater Elevation
MTBE - Methyl Tertiary Butyl Ether
TOG - Total Oil & Grease
Perf. - Perforation

**TABLE 1
GROUNDWATER MONITORING DATA (feet) AND
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHd	TPHg	B	T	E	X	MTBE	TOG
04/10/95	STMW-3 (98.54)	20	5	8.68	89.86	No sheen No odor	ND	ND	ND	ND	ND	ND	NA	15
07/25/95				9.40	89.14	No sheen No odor	ND	ND	ND	ND	ND	ND	NA	ND
10/24/95				9.73	88.81	No sheen No odor	ND	ND	ND	ND	ND	ND	NA	ND
01/22/96				7.19	91.35	No sheen No odor	ND	ND	ND	ND	ND	ND	NA	ND
04/25/96				8.85	89.69	No sheen No odor	0.15	ND	ND	ND	ND	ND	NA	0.5
12/17/96				8.42	90.12	No sheen No odor	ND	ND	ND	ND	ND	ND	ND	ND

TPHd - Total Petroleum Hydrocarbons as Diesel
TPHg - Total Petroleum Hydrocarbons as Gasoline
B - Benzene **T** - Toluene
E - Ethyl Benzene **X** - Total Xylenes
ND - Not Detected
NA - Not Analyzed
GW Elev. - Groundwater Elevation
MTBE - Methyl Tertiary Butyl Ether
TOG - Total Oil & Grease
Perf. - Perforation

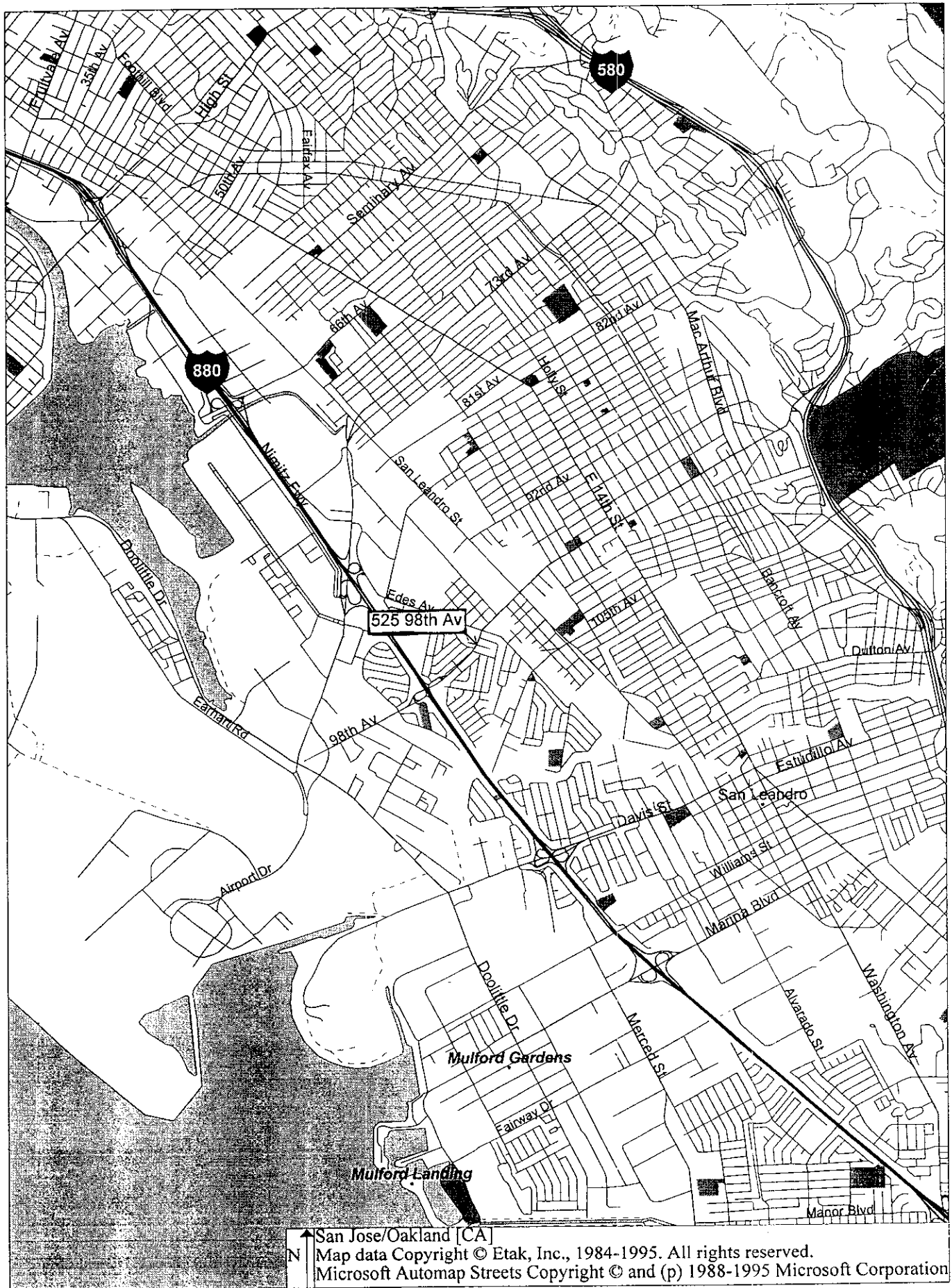
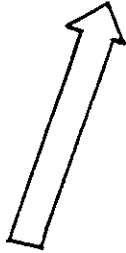


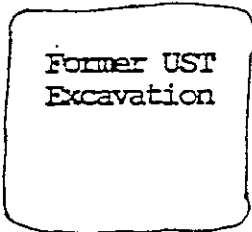
Figure 1

EDES AVE.



Approximate Groundwater
Flow Direction
as of 12/17/96

⊕ SIMW-2

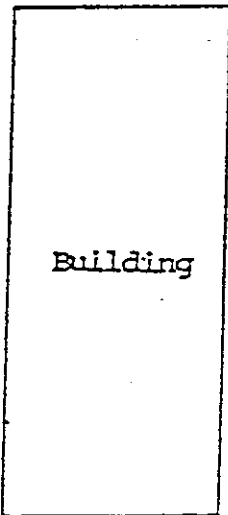


Former UST
Excavation

SIMW-1 ⊕



Former UST
Excavation



Building

SIMW-3
⊕

98TH AVE.



⊕ Monitoring Well



MADDUX DR.

SCALE: 1"=20'

Figure 2

GROUNDWATER SAMPLING

Prior to collection of groundwater samples, all of the sampling equipment (i.e. bailer, cables, bladder pump, discharge lines and etc.) was cleaned by pumping TSP water solution followed by distilled water.

Prior to purging, the well "Water Sampling Field Survey Forms" were filled out (depth to water and total depth of water column were measured and recorded). The well was then bailed or pumped to remove four to ten well volumes or until the discharged water temperature, conductivity and pH stabilized. "Stabilized" is defined as three consecutive readings within 15% of one another.

The groundwater sample was collected when the water level in the well recovered to 80% of its static level.

Forty milliliter (ml.), glass volatile organic analysis (VOA) vials with Teflon septa were used as sample containers. The groundwater sample was decanted into each VOA vial in such a manner that there was a meniscus at the top. The cap was quickly placed over the top of the vial and securely tightened. The VOA vial was then inverted and tapped to see if air bubbles were present. If none were present, the sample was labeled and refrigerated for delivery under chain-of-custody to the laboratory. The label information would include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

SOP1



PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

December 20, 1996

PEL # 9612037

SOIL TECH ENGINEERING

Attn: Noori Ameli

Re: Three water samples for Gasoline/BTEX with MTBE, Diesel, and Oil & Grease analyses.

Project name: 525 98th Ave., - Oakland
Project number: 10-93-570-ST

Date sampled: Dec 17, 1996
Date extracted: Dec 17-19, 1996

Date submitted: Dec 17, 1996
Date analyzed: Dec 17-19, 1996

RESULTS:

SAMPLE I.D.	MTBE (ug/L)	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylene (ug/L)	Oil & Grease (mg/L)
STMW-1	N.D.	5800	N.D.	1.3	0.7	4.6	14	0.7
STMW-2	N.D.	240	N.D.	0.6	N.D.	N.D.	0.6	N.D.
STMW-3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	---	104.4%	82.4%	97.7%	104.7%	88.9%	100.4%	---
Detection limit	0.5	50	50	0.5	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 602	8015	3510 / 8015	602	602	602	602	5520 C & F

David Duong
Laboratory Director

