

File No. 8-93-558-ST

QUARTERLY GROUNDWATER MONITORING  
AND SAMPLING AT THE PROPERTY  
LOCATED AT 2951 HIGH STREET  
OAKLAND, CALIFORNIA  
AUGUST 31, 1995

PREPARED FOR:  
MR. MOHAMMAD A. MASHHOON  
ZIMA CENTER CORPORATION  
2951 HIGH STREET  
OAKLAND, CALIFORNIA 94619

BY:  
SOIL TECH ENGINEERING, INC.  
298 BROKAW ROAD  
SANTA CLARA, CALIFORNIA 95050

SOIL TECH ENGINEERING, INC.

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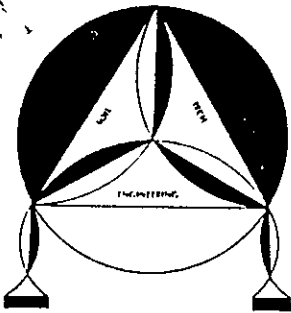
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# SOIL TECH ENGINEERING

*Soil, Foundation and Geological Engineers*

298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 496-0265 OR (408) 496-0266

August 31, 1995

File No. 8-93-558-ST

Mr. Mohammad A. Mashhoon  
Zima Center Corporation  
2951 High Street  
Oakland, California 94619

**SUBJECT:** QUARTERLY GROUNDWATER MONITORING  
AND SAMPLING FOR THE PROPERTY  
Located at 2951 High Street, in  
Oakland, California

Dear Mr. Mashhoon:

This report presents the results of quarterly groundwater monitoring and sampling conducted by Soil Tech Engineering, Inc. (STE), on August 23, 1995, at the subject site (Figure 1).

#### **SITE DESCRIPTION:**

The site is located at the intersection of Penniman Avenue and High Street, in Oakland, California. The site is currently used as a mini market and gasoline service station.

#### **BACKGROUND:**

In September 1993, Alpha Geo Services removed one 300 gallon waste oil tank which was properly manifested and transported to H&H Environmental Services Company in San Francisco. Soil Tech

Engineering, Inc. (STE) was retained by Zima Center Corporation to conduct soil sampling below the former waste oil tank area. Two soil samples were collected, one from tank excavation at approximately 9 feet below grade, and the other from the excavated stockpiled soil. All sampling was conducted under the supervision of Alameda County Health Department inspector Mr. Barney Chan. Soil samples from the waste oil tank excavation did detect moderate levels of Total Petroleum Hydrocarbons and very low levels of Trichloroethane and Tetrachloroethane. The detail of the soil sampling is described in the STE's report dated September 30, 1993.

In October 1993, STE excavated grossly contaminated soil from the former waste oil tank area and conducted additional soil sampling. The detail of the soil excavation is described in the STE's report dated December 15, 1993.

In February 15 and 16, 1993, STE conducted a preliminary site assessment of contaminated soil and groundwater by drilling three soil borings and converted the borings into monitoring wells (STMW-1, STMW-2 and STMW-3). The three monitoring wells were installed in the vicinity of the former tanks excavation area. Groundwater was first encountered at depth of 14 feet below grade in well STMW-1; 10 feet below grade in well STMW-2 and 17 feet below grade in well STMW-3 during drilling operation. STE recommended quarterly monitoring for at least one year to further assess the site, per State and Local Regulatory Agencies' requirements.

The detail of preliminary site investigation is described in STE's report entitled "Preliminary Site Assessment for the Property" dated March 8, 1995.

**SCOPE OF PRESENT WORK:**

The scope of present work consist of:

- Monitor wells STMW-1, STMW-2 and STMW-3 and existing well MW-4 for presence of any free floating product (FFP) and measured the depth-to-water table.
- Purge the monitoring wells prior to sampling.
- Sample monitoring wells STMW-1, STMW-2 and STMW-3.
- Submit water sample to a state-certified laboratory for chemical analyses of Total Petroleum Hydrocarbons as diesel and gasoline (TPHd and TPHg), Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Total Oil & Grease (TOG), Cadmium, Chromium, Lead, Nickel, Zinc and Volatile Organic Compounds (VOC's) per EPA Method 8010.
- Review results and prepared a report of the investigation.

**CURRENT FIELD WORK:**

**GROUNDWATER MONITORING:**

On August 23, 1995, STE staff monitored three monitoring wells (STMW-1, STMW-2 and STMW-3) and one existing well MW-4 for ground-

water depth and checked for the presence of FFP and/or petroleum odor. No FFP or odor were detected in monitoring wells STMW-1 and STMW-3. Very light sewerage odor was detected in monitoring well STMW-2. Rainbow sheen spots and light petroleum odor were detected in well MW-4. The shallow groundwater table depths ranged from 8.33 to 8.69 feet below ground surface. Table 1 summarizes the depth of groundwater measurements and the field observations made.

**GROUNDWATER SAMPLING:**

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

Water samples were decanted into clean VOA vials and were sealed with Teflon lined screw caps, labeled and placed in a cool ice chest and submitted to Priority Environmental Labs, a state-certified laboratory with a chain-of-custody.

**GROUNDWATER FLOW:**

Water elevation data were used to determine groundwater flow direction. Table 1 summarizes the groundwater elevations. The groundwater flow direction beneath the site was in a southerly direction as of August 23, 1995 (Figure 2).



**ANALYTICAL RESULTS:**

Water samples from monitoring wells STMW-1 and STMW-3 detected Total Petroleum Hydrocarbons as diesel and gasoline (TPHd and TPHg), Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX) and Total Oil & Grease (TOG) below laboratory detection limits. Monitoring well STMW-2 detected Benzene at 0.015 milligrams per liter (mg/L); Toluene at 0.006 mg/L; Ethylbenzene at 0.01 mg/L, and Total Xylenes at 0.015 mg/L. TPHd, TPHg and TOG were not detected in monitoring well STMW-2. Volatile Organic Compounds (VOC's) were not detected in any of the three monitoring wells. Metals were below laboratory detection limit in all three monitoring wells.

The groundwater analytical results are summarized in Table 1. Copy of the analytical results and chain-of-custody documentation are attached in Appendix "D".

**SUMMARY:**

This quarterly monitoring detected no FFP or odor in wells STMW-1 and STMW-3, except very light sewerage odor was detected in well STMW-2. Rainbow sheen spots and light petroleum odor were detected in well MW-4. TPHd, TPHg, BTEX, TOG and VOC's were below laboratory detection limits in wells STMW-1 and STMW-3. TPHd, TPHg, TOG and VOC's were below laboratory detection limits in well STMW-2. Low levels of BTEX were detected in monitoring well STMW-2.

**RECOMMENDATION:**

STE recommends the continuation of quarterly monitoring and sampling of the on-site wells for one more quarter. The proposed program will be re-evaluated at the end of fourth quarter. In addition, initiating a further investigation as required by ACHCSA to define the extent of the dissolved hydrocarbons plume.

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

**LIMITATIONS:**

This report was prepared in accordance with the currently accepted standards for environmental investigations. The contents of this report reflect the conditions of the subject site at this particular time. No other warranties, expressed or implied, as to the professional advice provided are made.

The findings of this report are based on the results of the independent laboratory analyses and are valid at the present date and conditions. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man, on this property or adjacent properties.

File No. 8-93-558-ST

If you have any questions or require additional information,  
please feel free to contact our office at your convenience.

Sincerely,

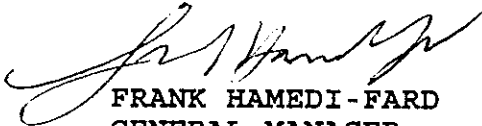
SOIL TECH ENGINEERING, INC.



NOORI AMELI  
PROJECT ENGINEER



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



FRANK HAMEDI-FARD  
GENERAL MANAGER

SOIL TECH ENGINEERING, INC.

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File No. 8-93-558-ST

A P P E N D I X "A"

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TABLE 1  
GROUNDWATER MONITORING DATA  
MEASUREMENT IN FEET

Date	Well No./ Elevation	Depth-to- Water	Groundwater Elevation	Sheen	Odor
2/23/95	STMW-1 (97.62)	5.89	91.73	None	None
	STMW-2 (97.87)	6.81	91.06	None	None
	STMW-3 (97.03)	4.21	92.82	None	None
	MW-4 (96.77)	6.90	89.87	Rainbow	Strong Petroleum
5/26/95	STMW-1 (97.62)	5.20	92.42	None	None
	STMW-2 (97.87)	4.90	92.97	Rainbow	Light Sewerage
	STMW-3 (97.03)	6.44	90.59	None	None
	MW-4 (96.77)	6.18	90.59	Rainbow	Light Petroleum

TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA  
MEASUREMENT IN FEET

Date	Well No./ Elevation	Depth-to- Water	Groundwater Elevation	Sheen	Odor
8/23/95	STMW-1 (97.62)	8.67	88.95	None	None
	STMW-2 (97.87)	8.33	89.54	None	Very Light Sewerage
	STMW-3 (97.03)	8.69	88.34	None	None
	MW-4 (96.77)	8.55	88.22	Rainbow	Light Petroleum

TABLE 2  
GROUNDWATER SAMPLES RESULTS  
IN  
MILLIGRAMS PER LITER (mg/L)

1. TPHd, TPHg, BTEX and TOG Results

Date	Sample No.	TPHd	TPHg	B	T	E	X	TOG
2/23/95	STMW-1	0.28	ND	ND	ND	ND	ND	0.6
	STMW-2	0.47	3.3	0.0096	0.013	0.008	0.028	18
	STMW-3	ND	ND	ND	ND	ND	ND	ND
5/26/95	STMW-1	ND	ND	ND	ND	ND	ND	ND
	STMW-2	ND	4.6	0.039	0.018	0.021	0.039	ND
	STMW-3	ND	ND	ND	ND	ND	ND	ND
8/23/95	STMW-1	ND	ND	ND	ND	ND	ND	ND
	STMW-2	ND	ND	0.015	0.006	0.01	0.015	ND
	STMW-3	ND	ND	ND	ND	ND	ND	ND

TABLE 2 CONT'D  
GROUNDWATER SAMPLES RESULTS  
IN  
MILLIGRAMS PER LITER (mg/L)

## 2. EPA 8010, Cadmium, Chromium, Lead, Nickel and Zinc Results

Date	Sample No.	EPA 8010	Cd	Cr	Pb	Ni	Zn
2/23/95	STMW-1	ND	ND	ND	ND	ND	ND
	STMW-2	ND	ND	ND	ND	ND	ND
	STMW-3	ND	ND	ND	ND	ND	ND
5/26/95	STMW-1	ND	ND	ND	ND	0.36	ND
	STMW-2	ND	ND	ND	ND	0.33	ND
	STMW-3	ND	ND	ND	ND	ND	ND
8/23/95	STMW-1	ND	ND	ND	ND	ND	ND
	STMW-2	ND	ND	ND	ND	ND	ND
	STMW-3	ND	ND	ND	ND	ND	ND

EPA 8010 - Chlorinated Hydrocarbons  
 TPHd - Total Petroleum Hydrocarbons as diesel  
 TPHg - Total Petroleum Hydrocarbons as gasoline  
 BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes  
 Cd - Cadmium  
 Cr - Chromium  
 Pb - Lead  
 Ni - Nickel  
 Zn - Zinc  
 ND - Not Detected (Below Laboratory Detection Limit)

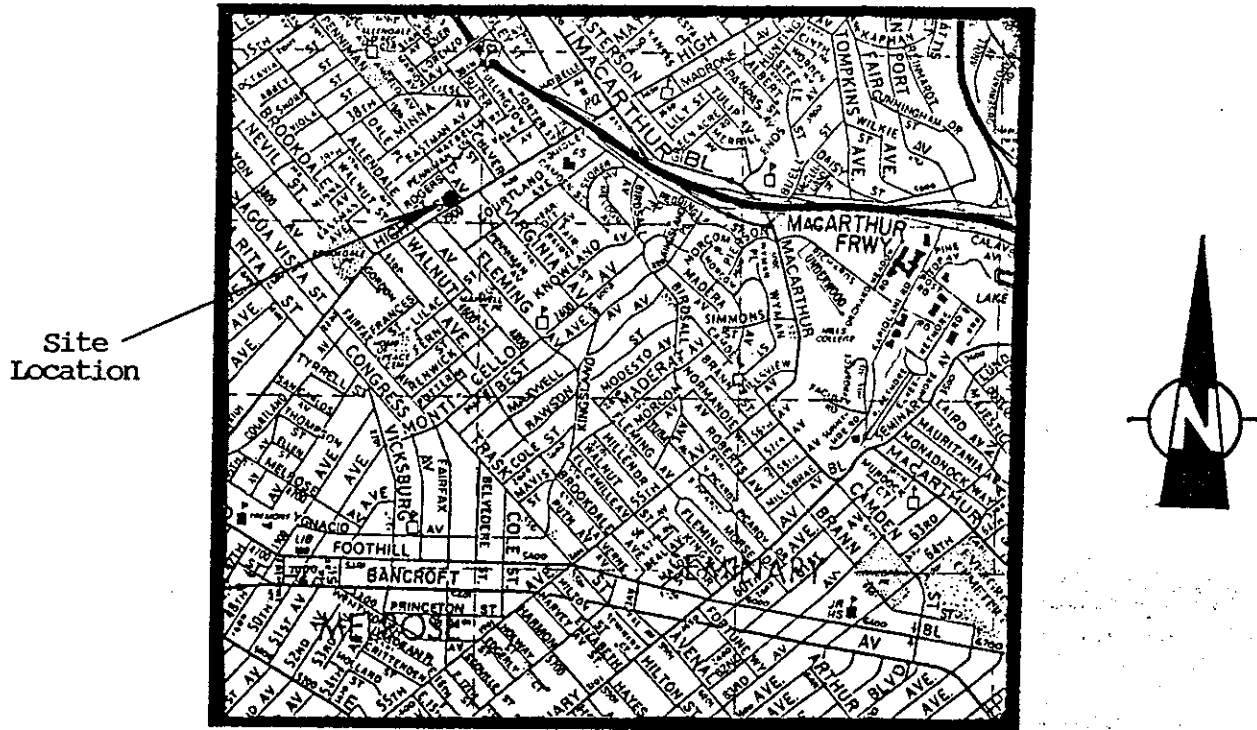


File No. 8-93-558-ST

A P P E N D I X "B"

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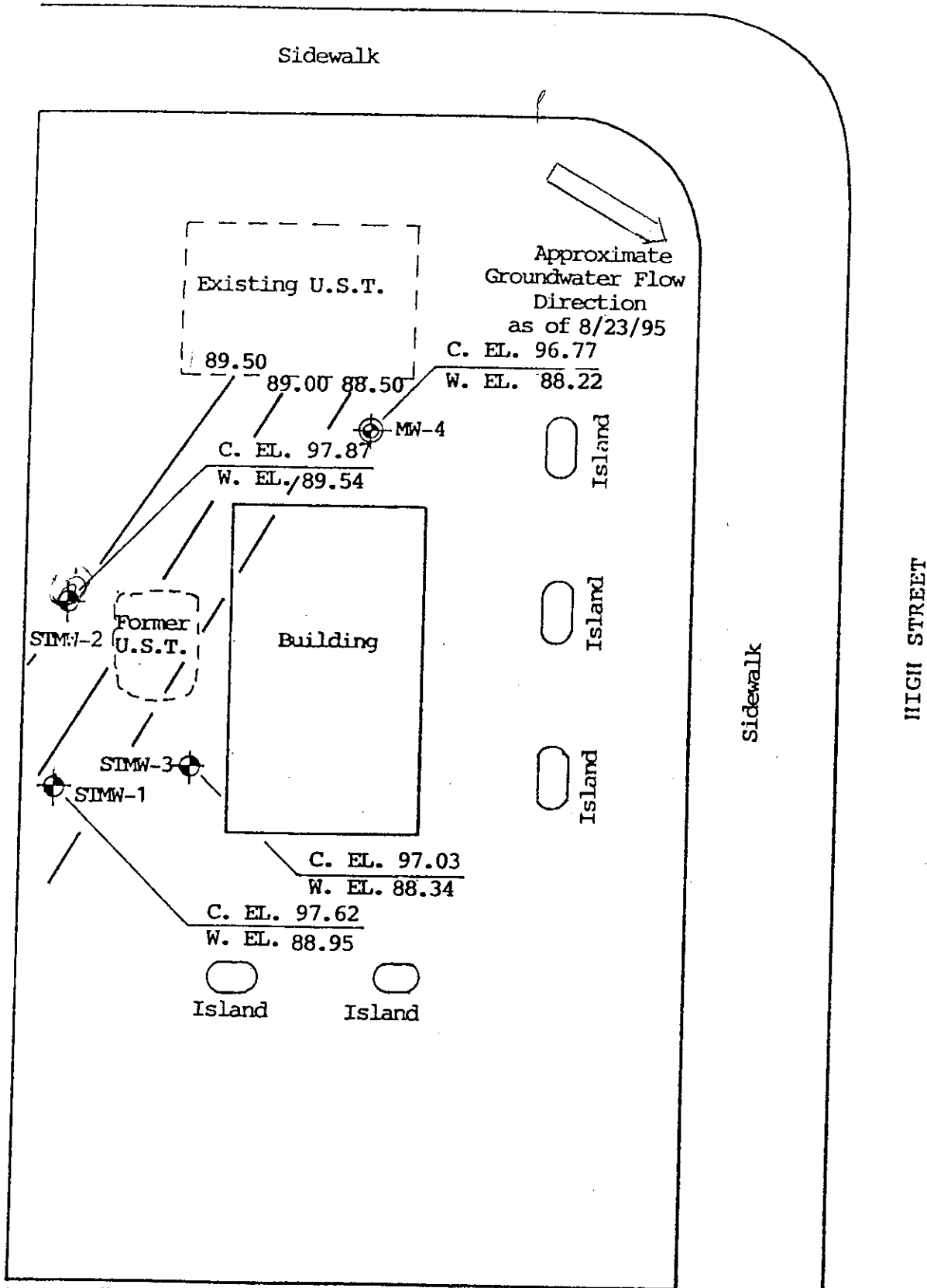
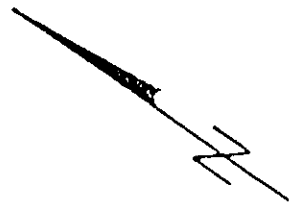
Thomas Brothers Map 1993 Edition  
San Francisco, Alameda  
and Contra Costa Counties



Page 12 C2

Figure 1

PENNIMAN AVENUE

Sidewalk



 Existing 4" Monitoring Well      C. EL. Casing Elevation  
 Monitoring Well                      W. EL. Water Elevation

SCALE: 1"=20'

Figure 2

File No. 8-93-558-ST

A P P E N D I X "C"

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### 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.

File No. 8-93-558-ST

A P P E N D I X "D"

SOIL TECH ENGINEERING, INC.

SOIL TECH ENGINEERING, INC.



# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

August 25, 1995

PEL # 9508083

SOIL TECH ENGINEERING, INC.

Attn: Noori Ameli

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

Project name: 2951 Hight St., - Oakland, CA.

Project number: 8-93-558-ST

Date sampled: Aug 23, 1995

Date submitted: Aug 24, 1995

Date extracted: Aug 24-25, 1995

Date analyzed: Aug 24-25, 1995

## RESULTS:

SAMPLE I.D.	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.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-2	N.D.	N.D.	15	6	10	15	N.D.
STMW-3	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.
Spiked Recovery	109.4%	83.2%	105.7%	97.0%	97.9%	91.1%	---
Detection limit	50	50	0.5	0.5	0.5	0.5	10
Method of Analysis	5030 / 8015	3510 / 8015	602	602	602	602	5520 C & F

David Duong  
Laboratory Director



# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

August 24, 1995

PEL # 9508083

SOIL TECH ENGINEERING, INC.

Attn: Noori Ameli

Project name: 2951 Hight St., -Oakland

Project number: 8-93-558-ST

Sample I.D.: STMW-1

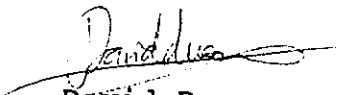
Date Sampled: Aug 23, 1995  
Date Analyzed: Aug 24, 1995

Date Submitted: Aug 24, 1995

Method of Analysis: EPA 601

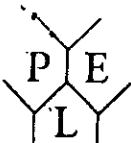
Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION ( ug/L )	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	81.2
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	-----
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	94.3
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	88.6
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	N.D.	-----
1,2-Dichloropropane	N.D.	97.0
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	-----
Tetrachloroethene	N.D.	100.9
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	86.1

  
David Duong

Laboratory Director





# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

August 24, 1995

PEL # 9508083

SOIL TECH ENGINEERING, INC.

Attn: Noori Ameli

Project name: 2951 Hight St., -Oakland

Project number: 8-93-558-ST

Sample I.D.: STMW-2

Date Sampled: Aug 23, 1995

Date Submitted: Aug 24, 1995

Date Analyzed: Aug 24, 1995

Method of Analysis: EPA 601

Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION ( ug/L )	SPIKE RECOVERY ( % )
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	81.2
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	-----
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	94.3
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	88.6
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	N.D.	97.0
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	-----
Tetrachloroethene	N.D.	100.9
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	86.1

David Duong  
Laboratory Director



# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

August 24, 1995

PEL # 9508083

SOIL TECH ENGINEERING, INC.

Attn: Noori Ameli

Project name: 2951 Hight St., -Oakland

Project number: 8-93-558-ST

Sample I.D.: STMW-3

Date Sampled: Aug 23, 1995

Date Submitted: Aug 24, 1995

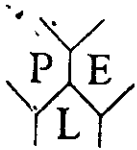
Date Analyzed: Aug 24, 1995

Method of Analysis: EPA 601

Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION ( ug/L )	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	81.2
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	-----
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	-----
1,1-Dichloroethane	N.D.	94.3
Chloroform	N.D.	-----
1,1,1-Trichloroethane	N.D.	88.6
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	N.D.	-----
1,2-Dichloropropane	N.D.	97.0
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	-----
Tetrachloroethene	N.D.	-----
Dibromochloromethane	N.D.	100.9
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	86.1

David Duong  
Laboratory Director



# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

August 25, 1995

PEL # 9508083

SOIL TECH ENGINEERING, INC.

Attn: Noori Ameli

Re: Three water samples for Cadmium, Chromium, Lead, Nickel, and Zinc analyses.

Project name: 2951 Hight St., - Oakland, CA.  
Project number: 8-93-558-ST

Date sampled: Aug 23, 1995  
Date extracted: Aug 24-25, 1995

Date submitted: Aug 24, 1995  
Date analyzed: Aug 24-25, 1995

## RESULTS:

SAMPLE I.D.	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Nickel (mg/L)	Zinc (mg/L)
STMW-1	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-2	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-3	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Detection limit	0.01	0.01	0.01	0.05	0.05
Method of Analysis	7130	7190	7420	7520	7950

David Duong  
Laboratory Director



