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QUARTERLY GROUNDWATER MONITORING AND SAMPLING AT THE PROPERTY LOCATED AT 2740 98th AVENUE, OAKLAND, CALIFORNIA DECEMBER 26, 1996

> PREPARED FOR: MR. KIYOUMARS GHOFRANI 2740 98th AVENUE OAKLAND, CA 94605

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

LIST OF TABLES

TABLE 1	GROUNDWATER MONITORING DATA
	AND ANALYTICAL RESULTS

TABLE 2 SUMMARY OF WATER SAMPLES ANALYTICAL RESULTS FOR VOCs AND FIVE HEAVY METALS

LIST OF FIGURES

FIGURE 1	SITE VICINITY MAP SHOWING 2740 98TH AVENUE,
	OAKLAND, CALIFORNIA.

FIGURE 2 SITE PLAN SHOWING LOCATIONS OF MONITORING WELLS AND BUILDING(S)

LIST OF APPENDICES

APPENDIX "A" ... TABLE 1 AND TABLE 2

APPENDIX "B" ... FIGURE 1 AND FIGURE 2

APPENDIX "C" ... STANDARD OPERATION PROCEDURES

APPENDIX "D" ... LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

TABLE OF CONTENTS	Page Number
LETTER OF SUBMITTAL	1-9
BACKGROUND	2-5
SCOPE OF PRESENT WORK	5-6
FIELD ACTIVITIES	6-7
GROUNDWATER MONITORING	6
GROUNDWATER SAMPLING	6
GROUNDWATER FLOW	6-7
ANALYTICAL RESULTS	7
SUMMARY	7-8
LIMITATIONS	8-9

File No. 7-93-556-SI	
APPENDIX "A"	
TABLE 1 - GROUNDWATER MONITORING DATA	
AND ANALYTICAL RESULTS	T1
TABLE 2 - SUMMARY OF WATER SAMPLES ANALYSIS	
FOR VOCs AND FIVE HEAVY METALS	T2
APPENDIX "B"	
FIGURE 1 - VICINITY MAP	M1
FIGURE 2 - SITE PLAN	M2
APPENDIX "C"	
DRILLING AND SOIL SAMPLING PROCEDURE	SOP1
MONITORING WELL INSTALLATION	SOP2
WELL DEVELOPMENT	SOP3
GROUNDWATER SAMPLING	SOP4
ADDENNIY "IN"	

SOIL TECH ENGINEERING, INC.

PRIORITY ENVIRONMENTAL LABS REPORT AND

CHAIN-OF-CUSTODY DOCUMENTATION

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

L'AWRENCE KOO, P. E.

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December, 1996

File No. 7-93-556-SI

Mr. Kiyoumars Ghofrani Freeway Station and Service 2740 98th Avenue Oakland, California 94605

SUBJECT:

QUARTERLY GROUNDWATER MONITORING AND

SAMPLING AT THE PROPERTY Located at 2740 98th Avenue,

in Oakland, California

Dear Mr. Ghofrani:

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

There are six monitoring wells (STMW-1 through STMW-6) and an existing water well with a 7-inch metal casing (W-4) on-site. The location of the wells are shown in Figure 2. This quarterly monitoring and sampling was conducted in accordance with STE's Standard Operation Procedures (SOP) and Alameda County Health Services Agency (ACHSA) guidelines.

BACKGROUND:

There are four underground storage tanks located on the subject property. A Phase I Environmental Site Assessment for the subject site was conducted by Northwest Envirocon, Inc. (NE) of Sacramento. Details of the said site assessment is described in a report, dated July 22, 1992, prepared by Northwest Envirocon, Inc. According to NE's report, the building on-site is 26 years old. It has probably been used as an automobile service station since 1966. Based on information obtained from NE's report, there are two 10,000 gallon tanks and one 5,000 gallon tank used for the storage of gasoline, and one 500 gallon tank used for the storage of waste oil.

According to the same report, the three gasoline storage tanks were installed in July of 1975 and are constructed of fiberglass. The reason new fiberglass tanks were installed is not known. The waste oil tank is constructed of metal. An installation date for this tank could not be confirmed. These tanks are tested yearly for tightness by American River Testing of Sacramento. Tightness refers to a precision test which determines the integrity of the tank. This test is required annually by the State of California.

According to NE's report, in May of 1989, there was an accidental spill of an unknown quantity of waste oil during removal of waste oil by Evergreen Environmental Services. The waste oil drained into the exposed soil, leached onto/into a collection pipe that emptied into Stanley Avenue and drained down Stanley Avenue approximately fifty feet. In response to this spill, the following actions were taken: The waste oil was removed by U.S. Waste Oil Group, and three top soil samples were sent to Brown and Caldwell Laboratories for Total Oil & Grease (TOG) analysis. Three grab soil samples were taken at the Stanley Street fence line and were composited into one sample. Composite soil result showed TOG concentration to be 170 milligrams per kilogram (mg/Kg). No further remediation was performed for this spill.

On June 18, 1993, E&G Construction removed the product pipe-line and conducted soil sampling in the pipeline trenches. Eight soil samples were collected from a depth of approximately 3.5 feet below grade, under the supervision of Alameda County Health Department inspector, Mr. Ron Owcarz. Five of the shallow soil samples detected elevated levels of Total Petroleum Hydrocarbons as gasoline (TPHg) ranging from 310 mg/Kg to a maximum of 2,900 mg/Kg. E&G construction excavated additional soil from three locations (1, 4 & 5) where TPHg levels were 550 mg/Kg, 1,900 mg/Kg and 2,900 mg/Kg, respectively, to a depth of approximately 12 to 13 feet below grade. Three confirmation soil samples (A-1, B-1 and C-1) were collected on July 1 and 2, 1993. Two of the three soil samples detected no TPHg, and one sample detected TPHg level of 15 mg/Kg. The lateral extent of TPHg contamination or impact to groundwater was not evaluated at that time.

Alameda County Health Care Services Agency (ACHCSA) requested a preliminary site assessment in a letter, dated September 1, 1993. However, in a letter dated October 5, 1993, ACHCSA agreed to conduct 4 exploratory soil borings in the vicinity of the contaminated areas and to collect one grab water sample to assess whether the ground-water has been impacted.

Soil Tech Engineering, Inc. (STE) was retained to conduct a preliminary site assessment near the product lines excavation area. In March 1994, four soil borings were drilled near the product line area. Groundwater was encountered between 6 to 12 feet below grade. A total of ten soil samples were collected from the four borings, and one water sample was collected from boring 1. The water samples detected low to moderate elevated levels of Total Petroleum Hydrocarbons as gasoline (TPHg) and BTEX. Five out of ten soil samples also detected low to elevated levels of TPHg. The details of the soil investigation is described in STE's report dated April 21, 1994, titled "Preliminary Site Assessment at Freeway Station and Service Property".

Since elevated concentrations of TPHg and Benzene were detected in the groundwater samples collected from boring 1, further investigation was requested by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated July 8, 1994.

STE was retained by Mr. Ghofrani to conduct further investigation as requested by ACHCSA. A work plan, dated December 5, 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. Drilling and installation of three wells (STMW-1 to STMW-3) was conducted in February 1995. Soil results from the borings detected TPHg and BTEX below laboratory detection limit. Levels of TPHg and BTEX were also below laboratory detection limit in the water samples. STE's report dated March 8, 1995 describes the details of the environmental site assessment.

On January 31, 1996, STE's staff monitored the four on-site wells to measure water depth and check for the presence of sheen and/or odor. There was no water in wells STMW-2 and STMW-3. No sheen or odor was noted in the other two wells (STMW-1 and W-4). Table 1 summarizes the depth to groundwater measurements and observations made.

Following groundwater monitoring, the on-site wells were purged at least five well volumes and sampled in accordance with STE's Standard Operation Procedures (see Appendix "C"), which contain State and Local guidelines for sampling monitoring wells. The samples were submitted to a California State-Certified laboratory for analyses, accompanied by appropriate chain-of-custody.

Groundwater elevation data were used to determine groundwater flow direction. Table 1 summarizes the groundwater elevations. The groundwater gradient beneath the site appears to be disrupted by a branch of the Hayward fault that may traverse the site. The groundwater surface elevation appears to be anomalously high in well STMW-1 and anomalously low in well STMW-3.

Using initial data from three wells (STMW-1 to STMW-3), the gradient appears to be steep to the east. However, the existing well W-4 at southeast of dry well STMW-2 and east of dry well STMW-3 has groundwater elevation higher than both wells STMW-2 and STMW-3 on January 31, 1996.

Total Petroleum Hydrocarbons as gasoline (TPHg) and BTEX were below laboratory detection limit in monitoring wells STMW-1 and MW-4. No sheen or odor was noted in monitoring wells STMW-1 and MW-4. TPHg and BTEX concentrations were below laboratory detection limit in the two monitoring wells. Monitoring wells STMW-2 and STMW-3 were not sampled because the wells were dry.

SCOPE OF PRESENT WORK:

- Measure depth-to-water table and monitor for presence of any sheen and/or odor for the 6 onsite monitoring wells STMW-1 to STMW-6 and water well W-4
- Purge each well prior to sampling
- Sample monitoring wells STMW-1 through STMW-6 and water well W-4 for laboratory analyses
- Submit all seven water samples to a State-Certified laboratory for analyses of Total Petroleum
 Hydrocarbons as gasoline (TPHg), Benzene, Toluene, Ethyl Benzene and Total Xylenes
 (BTEX). In addition, one water sample (STMW-6) submitted for analysis of Total Petroleum
 Hydrocarbons as diesel (TPHd), Volatile Organic Compounds (VOCs) and five heavy metals

Review results and prepare a report of the investigation

FIELD ACTIVITIES:

GROUNDWATER MONITORING:

On December 17, 1996, STE's staff monitored the seven on-site wells to measure water depth and check for the presence of sheen and/or odor. There was no water in wells STMW-2 and STMW-3. No sheen or odor was noted in the remaining five wells, STMW-1, STMW-4, STMW-5, STMW-6 and W-4. The depth to groundwater ranged from 3.99 feet to 24.0 feet below the well casing. Table 1 summarizes the depth-to-groundwater measurements and observation made.

GROUNDWATER SAMPLING:

Following groundwater monitoring, the on-site wells were purged at least five well volumes and sampled in accordance with STE's Standard Operation Procedures (see Appendix "C"), which contain State and Local guidelines for sampling monitoring wells. The samples were submitted to a California State-Certified laboratory for analyses, accompanied by appropriate chain-of-custody.

GROUNDWATER FLOW:

Groundwater elevation data were used to determine groundwater flow direction. Table 1 summarizes the groundwater elevations. The groundwater gradient beneath the site appears to be disrupted by a branch of the Hayward fault that may traverse the site. The groundwater surface elevation appears to be anomalously high in well STMW-1 and W-4 and anomalously low in well STMW-4. Using initial data from three wells (STMW-1 to STMW-3), the gradient appears to be steep to the east. However, the existing well W-4 at southeast of dry well STMW-2 and east of dry

well STMW-3 has groundwater elevation higher than both wells STMW-2 and STMW-3 on December 17, 1996.

ANALYTICAL RESULTS:

Low level of Total Petroleum Hydrocarbons as gasoline (TPHg) at 2.3 mg/L and very low levels of BTEX were detected in STMW-4 while the remaining four water samples (STMW-1, STMW-5, STMW-6 and W-4) detected TPHg and BTEX below laboratory detection limit. Total Oil & Grease (TOG), Volatile Organic Compounds (VOC's) and five heavy metals were below laboratory detection limit in STMW-6.

MTBE was below laboratory detection limit in all five sampled wells.

SUMMARY:

No sheen or odor were noted in the 6 on-site monitoring wells (STMW-1 through STMW-6) and 1 water well (W-4). TPHg and BTEX concentrations ranged from low levels to levels below laboratory detection limit in the 7 wells.

Monitoring wells STMW-2 and STMW-3 were not sampled because they were dry.

STE recommends installation of an additional two (2) monitoring wells on-site down-gradient of STMW-4 in order to characterize and further delineate subsurface hydrocarbon contamination. This recommendation is based on the results of STE's additional subsurface investigation at the subject site (please refer to report with same title dated October 3, 1996), the contaminant plume mode, the anomaly of groundwater elevations at the site (noted during STE's current and previous few quarterly groundwater monitoring activities.

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 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 reports 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 the 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 the 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.

APPENDIX "A"

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	ТРНд	В	T	E	Х	МТВЕ	TOG
02/23/95	STMW-1 (101.33)	20	5	6.77	94.56	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
07/26/95				13.87	87.46	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
10/19/95				16.35	84.98	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
01/31/96				5.43	95.90	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
09/09/96				18.89	82.44	No sheen or odor	ND	ND	ND	ND	ND	ND	NA
12/17/96				7.33	94.0	No sheen or odor	ND	ND	ND	ND	ND	ND	NA
		re program to a co		i (175 1.4.)					ga 1 15 - 1				1.1.1.1
02/23/95	STMW-2 (98.89)	20	5	17.19	81.70	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
07/26/95				18.39	80.50	No sheen or odor	ND	ND	ND	ND	ND	NA _	NA
10/19/95				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
01/31/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
09/09/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
12/17/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene E - Ethylbenzene

X - Total Xylenes

ND - Not Detected

NA- Not Analyzed

N/A - Not Applicable

GW Elev. - Groundwater Elevation

MTBE - Methyl Tertiary Butyl Ether

TOG - Total Oil & Grease

Perf. - Perforation

TABLE 1 CONT'D 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	ТРНд	В	Т	E	X	MTBE	TOG
02/23/95	STMW-3 (98.99)	20	5	Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
07/26/95	(20,32)			Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
10/19/95				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
01/31/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
09/09/96		-		Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
17/12/96				Dry	N/A	N/A	NA	NA	NA	NA	NA	NA	NA
													- 1
02/23/95	W-4 (90.50)	19	Unknown	6.72	83.78	Rainbow sheen spots No odor	NA	NA	NA	NA	NA	NA	NA
07/26/95	(>0,007			15.51	74.99	No sheen or odor	0.072	ND	0.0006	0.0007	0.0021	NA	NA
10/19/95				18.03	72.47	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
01/31/96	<u> </u>			1.98	88.52	No sheen or odor	ND	ND	ND	ND	ND	NA	NA
09/09/96				16.42	74.08	No sheen or odor	ND	ND	ND	ND	ND	ND	NA
12/17/96				3.99	86.51	No sheen or odor	ND	ND	ND	ND	ND	ND	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene ND - Not Detected

E - Ethylbenzene

X - Total Xylenes

NA- Not Analyzed

N/A - Not Applicable

GW Elev. - Groundwater Elevation

MTBE - Methyl Tertiary Butyl Ether

TOG - Total Oil & Grease

Perf. - Perforation

TABLE 1 CONT'D 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	В	T	E	X	MTBE	TOG
09/09/96	STMW-4 (98.01)	40	20	25.89	72.12	No sheen or odor	NA	19	0.016	0.030	0.044	0.19	ND	NA
12/17/96	(30101)			24.00	74.01	No sheen or odor	NA	2.3	0.0007	0.0011	0.0011	0.0023	ND	NA
					Bourseys of		Harry File				- 54 BATE 4			- 112 ·
09/09/96	STMW-5 (97.81)	37	15	22.89	74.92	No sheen or odor	NA	0.58	0.0023	0.0022	0.018	0.013	ND	NA
12/17/96				22.45	75.36	No sheen or odor	NA.	ND	ND	ND	ND	ND	ND	NA
		 					Geografie		Mar II ear		The Control		1. 1.	<u> </u>
09/09/96	STMW-6 (91.33)	25	5	17.16	74.17	No sheen or odor	ND	ND	ND	ND	ND	ND	ND	1.7
12/17/96	, , , , , , , , , , , , , , , , , , , ,			16.78	74.55	No sheen or odor	ND	ND	ND	ND	ND	ND	ND	ND

TPHg - Total Petroleum Hydrocarbons as Gasoline

TPHd - Total Petroleum Hydrocarbons as Diesel

B - Benzene T - Toluene E

E - Ethylbenzene

X - Total Xylenes

ND - Not Detected

NA- Not Analyzed

GW Elev. - Groundwater Elevation

MTBE - Methyl Tertiary Butyl Ether

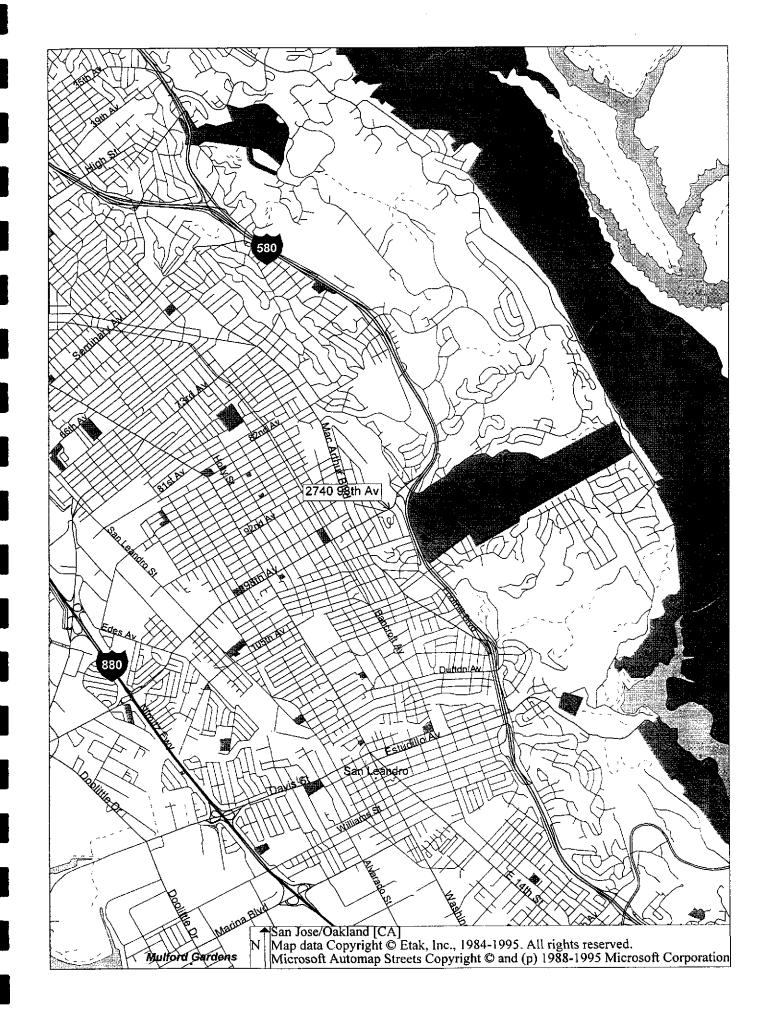
Perf. - Perforation

TOG - Total Oil & Grease

TABLE 2 SUMMARY OF WATER SAMPLE ANALYSIS RESULTS FOR VOCs AND FIVE HEAVY METALS IN mg/L

Date	Sample I.D.	VOCs	Cadmium	Chromium	Lead	Nickel	Zinc
12/17/96	STMW-6	ND	ND	ND	ND	ND	ND

VOCs - Volatile Organic Compounds ND - Non Detected



APPENDIX "C"

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.

APPENDIX "D"



PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

December 20, 1996

PEL # 9612038

SOIL TECH ENGINEERING

Attn: Noori Ameli

Re: Five water samples for Gasoline/BTEX with MTBE, Diesel, and Oil

& Grease analyses.

Project name: 2740 98th Ave., - Oakland

Project number: 7-93-556-ST

Date sampled: Dec 17, 1996

Date extracted: Dec 18-20, 1996

Date submitted: Dec 17, 1996 Date analyzed: Dec 18-20, 1996

RESULTS:

SAMPLE	MTBE	Gasoline	Diesel	Benzene	Toluene	Ethyl Benzene	Total Xylene	Oil & Grease
I.D.	(ug/L) (ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(mg/L)
STMW-1	N.D.	N.D.		N.D.	N.D.	N.D.	N.D.	
STMW-4 STMW-5	N.D.			0.7 N.D.	1.1 N.D.	1.1 N.D.	2.3 N.D.	
STMW-6 W-4	N.D.		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.	и.р.
Spiked Recove	ery	104.4%	82.4%	97.7%	104.7%	88.9%	100.4%	
Detecti limit	lon 0.5	50	50	0.5	0.5	0.5	0.5	0.5
Method Analy	of /sis 60	5030 / 2 8015	3510 / 8015	602	602	602	602	5520 C & F

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663



PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

December 20, 1996

PEL # 9612038

SOIL TECH ENGINEERING

Attn: Noori Ameli

Re: One water sample for Cadmium, Chromium, Lead, Nickel, and

Zinc analyses.

Project name: 2740 98th Ave., - Oakland

Project number: 7-93-556-ST

Date sampled: Dec 17, 1996

Date extracted: Dec 17-20, 1996

Date submitted: Dec 17, 1996 Date analyzed: Dec 17-20, 1996

RESULTS:

SAMPLE I.D.	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Nickel (mg/L)	Zinc (mg/L)
STMW-6	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Detection limit	0.10	0.10	0.10	0.50	0.50
Method of Analysis	7130	7190	7420	7520	7950

David Duong Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663



PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

December 20, 1996

PEL # 9612038

SOIL TECH ENGINEERING

Attn: Noori Ameli

Project name: 2740 98th Ave. -Oakland

Project number: 7-93-556-ST

Sample I.D.: STMW-6

Date Sampled: Dec 17, 1996

Method of Analysis: EPA 601

Date Submitted: Dec 17, 1996

Date Analyzed: Dec 18-20, 1996

Detection limit: 0.5 ug/L

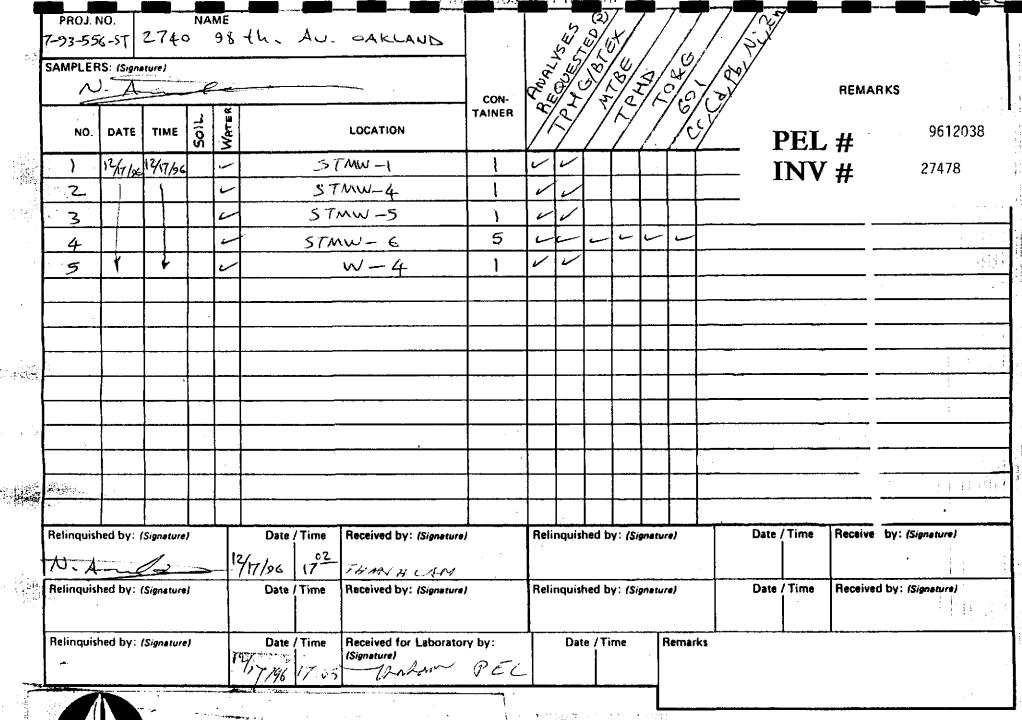
SPIKE RECOVERY CONCENTRATION COMPOUND NAME (왕) (ug/L) N.D. Chloromethane N.D. Vinyl Chloride N.D. Bromomethane Chloroethane N.D. Trichlorofluoromethane N.D. 1,1-Dichloroethene N.D. Methylene Chloride N.D. 102.6 1,2-Dichloroethene (TOTAL) N.D. 1,1-Dichloroethane N.D. 105.5 Chloroform N.D. 1,1,1-Trichloroethane N.D. Carbon Tetrachloride N.D. 1,2-Dichloroethane N.D. 99.8 Trichloroethene N.D. N.D. 1,2-Dichloropropane 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. 77.1 N.D. Tetrachloroethene Dibromochloromethane N.D. Chlorobenzene N.D. N.D. Bromoform 1,1,2,2-Tetrachloroethane N.D. 1,3-Dichlorobenzene N.D. 1,4-Dichlorobenzene N.D.

David Duong Laboratory Director

1,2-Dichlorobenzene

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

N.D.





Environmental and Geotechnical Engineers