

File No. 8-90-420-GI

QUARTERLY GROUNDWATER SAMPLING
AND MONITORING AT THE PROPERTY
LOCATED AT 5175 BROADWAY STREET
OAKLAND, CALIFORNIA
SEPTEMBER 20, 1994

PREPARED FOR:
MR. MOHAMMAD MEHDIZADEH
150 RANDOM WAY
PLEASANT HILL, CALIFORNIA 94523

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

SOIL TECH ENGINEERING, INC.

LIST OF TABLES

TABLE 1 ... GROUNDWATER MONITORING DATA.

TABLE 2 ... GROUNDWATER ANALYTICAL RESULTS.

LIST OF FIGURES

FIGURE 1 ... SITE VICINITY MAP SHOWING 5175 BROADWAY STREET,
OAKLAND, CALIFORNIA.

FIGURE 2 ... SITE PLAN SHOWING LOCATIONS OF MONITORING WELLS,
DIRECTION OF GROUNDWATER FLOW AND CONTOUR LINES.

LIST OF APPENDICES

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

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

APPENDIX "C" ... STANDARD OPERATING PROCEDURES.

APPENDIX "D" ... ANALYTICAL TEST REPORT OF WATER SAMPLES AND
CHAIN-OF-CUSTODY RECORDS.

File No. 8-90-420-GI

TABLE OF CONTENTS

Page No.

LETTER OF TRANSMITTAL	1-2
SITE DESCRIPTION AND BACKGROUND	2
TANK REMOVAL AND SAMPLING	2-4
CURRENT FIELD WORK	4-5
LABORATORY ANALYSIS	5
LABORATORY RESULTS	5-6
SUMMARY	6
RECOMMENDATIONS	6-7
SCHEDULE	7
LIMITATIONS	7-8

APPENDIX "A"

TABLE 1 - GROUNDWATER MONITORING DATA	T1-T5
TABLE 2 - GROUNDWATER ANALYTICAL RESULTS	T6-T9

APPENDIX "B"

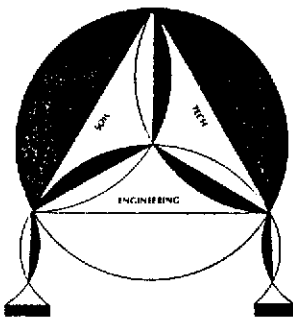
FIGURE 1 - VICINITY MAP	M1
FIGURE 2 - SITE PLAN	M2

APPENDIX "C"

GROUNDWATER SAMPLING	SOP1
----------------------	------

APPENDIX "C"

NORTH STATE ENVIRONMENT LABS REPORT AND CHAIN-OF-CUSTODY	
--	--



SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

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

September 20, 1994

File No. 8-90-420-GI

Mr. Mohammad Mehdizadeh
150 Random Way
Pleasant Hill, California 94523

SUBJECT: QUARTERLY GROUNDWATER SAMPLING
AND MONITORING AT THE PROPERTY
Located at 5175 Broadway Street, in
Oakland, California

Dear Mr. Mehdizadeh:

This report presents the results of the quarterly groundwater sampling performed on August 15, 1994, by Soil Tech Engineering, Inc. (STE), at the subject site located at 5175 Broadway Street, in Oakland, California (Figure 1).

The scope of work for this sampling was to:

- 1) Measured depth-to-groundwater and check for the presence of liquid-hydrocarbon thickness in the five on-site wells.
- 2) Collect groundwater samples from the on-site wells for analyses of Total Petroleum Hydrocarbons as gasoline (TPHg) and Hydrocarbon constituents, Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX).

- 3) Updated the database for water level/liquid-hydrocarbon level measurements and groundwater data.
- 4) Review analytical results and prepare a report.

SITE DESCRIPTION AND BACKGROUND:

The site is located at 5175 Broadway Street, in Oakland, California. The area in the vicinity of the site consist mainly of residential and light commercial (Figure 1).

TANK REMOVAL AND SAMPLING:

In January 1990, Tank Protect Engineering, Inc. (TPE), was retained to supervise the removal of underground fuel tanks and to conduct soil sampling, soil excavation, soil treatment and disposal. In addition, TPE installed three monitoring wells on-site.

Initial analytical results of soil samples taken after the tank removal showed moderate levels of Total Petroleum Hydrocarbons as Gasoline (TPHg) in two locations. The rest of the samples showed TPHg ranging from non-detected to less than 120 parts per million (ppm). Due to the presence of elevated levels of TPHg detected in the excavation, TPE installed three on-site monitoring wells (MW-1 to MW-3), as required by state and local regulatory agencies (Figure 2). TPE's preliminary groundwater assessment also indicated that the shallow groundwater had been impacted.

The Alameda County Health Department (ACHD) requested the property owner to conduct further investigation in order to define the extent of dissolved hydrocarbon contamination in the groundwater.

Soil Tech Engineering, Inc. (STE), was retained in September 1990 to conduct monitoring and sampling of the on-site monitoring wells. The objective of the quarterly groundwater sampling program was to monitor seasonal and long-term variations in the conditions of the shallow aquifer beneath the site and to assess the direction of the groundwater flow for further investigation.

STE sampled the three on-site groundwater monitoring wells (MW-1 to MW-3) on September 26, 1990, and January 14, 1991. The sampling was conducted in accordance with ACHD and California Regional Water Quality Control Board (CRWQCB) guidelines and STE's Standard Operating Procedures (SOP) included in Appendix "C".

The three on-site wells contained moderate to high levels of dissolved hydrocarbons. A comparison of the September 1990 sampling with TPE's analytical results of April 1990 showed an increase in dissolved hydrocarbons in wells MW-1 and MW-2. In well MW-3 (the down-gradient well), TPHg and Toluene levels decreased, whereas Benzene, Ethylbenzene and Total Xylenes increased slightly.

The analytical results for groundwater samples collected on January 14, 1991, showed an increase in TPH and BTEX levels in well MW-2 from those reported in September 1990. Well MW-1 also showed

a slight increase in TPH and Benzene, but showed a decrease in Toluene, Ethylbenzene and Xylene levels. Well MW-3 showed a substantial decrease in TPH and BTEX.

The Alameda County Health Department (ACHD) in a letter dated March 29, 1991, requested additional investigation to define the extent of dissolved hydrocarbons plume. STE installed two additional monitoring wells STMW-1 (STMW-4) and STMW-2 (STMW-5) on June 21, 1991. The July 3, 1991, water sampling results showed low levels of dissolved Total Petroleum Hydrocarbons as gasoline (TPHg) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) in all five wells. The presence of low levels of TPHg and BTEX in the up-gradient well, STMW-1 (STMW-4), (located in the east corner of the property) indicated a potential off-site source. Based on the water level data, the groundwater direction was west to southwest on July 3, 1991. The detail of this investigation is summarized in STE's report dated July 23, 1991. STE recommended a quarterly monitoring and sampling of five on-site wells for at least a year.

The second quarterly sampling was conducted in November 1991. The detail of the sampling is described in STE's report dated November 22, 1991. The quarterly monitoring and samplings conducted by STE are described in the STE's report dated March 10, 1992, June 1992, October 1992 and January 1993.

CURRENT FIELD WORK:

On August 15, 1994, the five on-site wells were monitored, purged and sampled in accordance with STE's Standard Operating

Procedures (SOP) (Appendix "C"), which follows state and local guidelines. During field observation, STE staff detected a mild petroleum odors in wells MW-2, MW-3 and STMW-4, and mild sewage odor in wells MW-1 and STMW-5. Brown sheen spots was noted in well MW-3, and light rainbow sheen spots was noted in well STMW-4. After appropriate purging, no sheen was detected in wells MW-3 and STMW-4. Table 1 summarizes the groundwater monitoring data.

Groundwater elevation raised approximately 1.5 to 2 feet in all wells. Based on water elevation data, the groundwater flow direction was toward west to southwesterly direction on August 15, 1994.

LABORATORY ANALYSIS:

The water samples, collected from the on-site wells, were placed in a cool ice chest and submitted to North State Environmental, a state-certified laboratory, with a chain-of-custody record.

The samples were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) per EPA Method 5030/8015 and for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) per EPA Method 602.

LABORATORY RESULTS:

Table 2 summarizes the water samples results taken by STE since September 1990. Low to moderate levels of TPHg were detected

in all five wells sampled during this quarter. The TPHg levels ranging from 2.0 parts per million (ppm) to 50 ppm. Low levels of BTEX were also found in all five wells.

SUMMARY:

A comparison of recent TPH and BTEX concentrations results with January 1993 results showed a decrease in TPHg levels in wells MW-3 and STMW-4 and a slight increase in wells MW-1, MW-2 and STMW-5. BTEX concentrations increased in wells MW-2, MW-3 and STMW-5. Wells MW-1 and STMW-4 showed an increase in Benzene and a decrease in Toluene, Ethylbenzene and Total Xylenes concentrations.

Recent results continued to detect low to moderate levels of dissolved hydrocarbon contamination on-site. The continuous presence of TPHg and BTEX levels appears to be due to residual soil contamination left in the ground and possible off-site source.

The presence of dissolved hydrocarbons in the up-gradient well STMW-4 since July 1991 indicates that a potential off-site source exist.

RECOMMENDATIONS:

Since dissolved hydrocarbons continue to be present in the wells and some of the hydrocarbons constituent decreased and some have increased in the wells, STE recommends the continuation of the

monitoring and sampling of the five monitoring wells. In addition, STE recommends a meeting with ACEDH and the Regional Water Quality Control Board to discuss the results and obtain a direction for what additional investigation is necessary for the site.

A copy of this report should be sent to the Alameda County Health Department and the California Regional Water Quality Control Board.

SCHEDULE:

The next monitoring and sampling of the wells will be scheduled in November 1994.

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. 8-90-420-GI

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

**TABLE 1
GROUNDWATER MONITORING DATA
IN FEET**

Date	Well No.	Water Elevation	Water Depth*	Product Thickness	Petroleum Odor
5/17/90**	MW-1	NA	9.26	Not Available	NA
	MW-2	NA	10.00	Not Available	NA
	MW-3	NA	12.42	Not Available	NA
9/26/90	MW-1	NA	9.92	Not Present	Mild
	MW-2	NA	10.83	Not Present	Mild
	MW-3	NA	13.50	Not Present	Mild
1/14/91	MW-1 (97.71)	89.01	9.54	Not Present	Mild
	MW-2 (97.78)	87.53	10.63	Not Present	None
	MW-3 (98.14)	86.20	12.58	Light Sheen	None

**TABLE 1 CONT'D
GROUNDWATER MONITORING DATA
IN FEET**

Date	Well No.	Water Elevation	Water Depth*	Product Thickness	Petroleum Odor
7/03/91	MW-1 (102.04)	92.50	9.417	Not Present	Mild
	MW-2 (102.02)	91.85	10.083	Not Present	Mild
	MW-3 (102.46)	90.00	12.083	Sheen	Strong
	STMW-1 (103.58)	92.39	11.00	Sheen	Mild
	STMW-2 (101.99)	87.72	13.917	Not Present	None
11/11/91	MW-1 (102.04)	92.59	9.45	Not Present	Mild
	MW-2 (102.02)	91.81	10.21	Not Present	Mild
	MW-3 (102.46)	90.17	12.29	Light Sheen	Mild
	STMW-4*** (103.58)	92.50	11.08	Light Sheen	Strong
	STMW-5**** (101.99)	87.99	14.00	Not Present	Mild

**TABLE 1 CONT'D
GROUNDWATER MONITORING DATA
IN FEET**

Date	Well No.	Water Elevation	Water Depth*	Product Thickness	Petroleum Odor
3/04/92	MW-1 (101.83)	93.90	7.93	Not Present	Mild
	MW-2 (101.67)	92.97	8.70	Not Present	Mild
	MW-3 (102.18)	91.92	10.26	Dark Brown Sheen	Strong
	STMW-4 (103.08)	93.64	9.44	Brown Sheen	Mild
	STMW-5 (101.36)	89.56	11.80	Not Present	V. Mild
6/02/92	MW-1 (101.83)	92.85	8.98	Not Present	Mild
	MW-2 (101.67)	92.15	9.52	Not Present	Mild
	MW-3 (102.18)	90.78	11.40	Light Sheen	Moderate
	STMW-4 (103.08)	92.76	10.32	Not Present	V. Mild
	STMW-5 (101.36)	88.30	13.06	Not Present	Mild

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA
IN FEET

Date	Well No.	Water Elevation	Water Depth*	Product Thickness	Odor
9/28/92	MW-1 (101.83)	92.54	9.29	Not Present	Mild
	MW-2 (101.67)	91.58	10.09	Not Present	Mild
	MW-3 (102.18)	89.54	12.64	Light Sheen	Strong
	STMW-4 (103.08)	92.32	10.76	Brown Sheen	Mild
	STMW-5 (101.36)	87.32	14.04	Not Present	Mild
1/11/93	MW-1 (101.83)	94.27	7.56	Not Present	Rotten Egg Odor
	MW-2 (101.67)	93.15	8.52	Not Present	Rotten Egg Odor
	MW-3 (102.18)	92.08	10.10	Light Rainbow Sheen	Mild Petroleum
	STMW-4 (103.08)	93.80	9.28	Brown Sheen	Mild Petroleum
	STMW-5 (101.36)	89.75	11.61	Not Present	Rotten Egg Odor

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA
IN FEET

Date	Well No.	Water Elevation	Water Depth*	Product Thickness	Odor
8/15/94	MW-1 (101.83)	92.64	9.19	Not Present	Mild Sewage
	MW-2 (101.67)	91.76	9.91	Not Present	Light Petroleum
	MW-3 (102.18)	89.98	12.20	Brown Sheen Spots	Mild Petroleum
	STMW-4 (103.08)	92.54	10.54	Light Rainbow Sheen Spots	Light Petroleum
	STMW-5 (101.36)	87.61	13.85	Not Present	Mild Sewage

- * - Below Ground Surface
- ** - Measured by TPE
- NA - Not Available
- *** - STMW-4 is the same well as STMW-1.
- **** - STMW-5 is the same well as STMW-2.

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
IN
PARTS PER MILLION (ppm)

Date	Well Number	TPHg	B	T	E	X
4/30/89*	MW-1	0.2	0.018	0.005	0.002	0.012
	MW-2	0.23	0.039	0.018	0.005	0.023
	MW-3	56	3.6	8.6	1.3	7.2
9/26/90	MW-1	1.3	0.055	0.031	0.12	0.1
	MW-2	0.85	0.94	0.005	0.025	0.047
	MW-3	54	5.1	0.42	1.6	8.0
1/14/91	MW-1	1.7	0.057	0.028	0.042	0.053
	MW-2	3.1	0.35	0.083	0.086	0.135
	MW-3	35	2.6	6.6	1.5	5.7
7/03/91	MW-1	0.58	0.032	0.041	0.04	0.055
	MW-2	1.59	0.03	0.052	0.024	0.034
	MW-3	33	4.12	4.3	1.4	4.8
	STMW-1**	3.1	0.61	0.062	0.039	0.15
	STMW-2**	0.69	0.099	0.081	0.019	0.098

TABLE 2 CONT'D
GROUNDWATER ANALYTICAL RESULTS
IN
PARTS PER MILLION (PPM)

Date	Well Number	TPHg	B	T	K	X
11/11/91	MW-1	0.33	0.02	0.002	0.002	0.011
	MW-2	0.96	0.32	0.015	0.004	0.029
	MW-3	57	3.9	8.4	2.1	14
	STMW-4***	3.6	0.99	0.025	0.003	0.18
	STMW-5****	0.41	0.061	0.002	0.001	0.02
3/04/92	MW-1	0.81	0.011	0.0051	0.0097	0.023
	MW-2	1.5	0.0095	0.0084	0.0098	0.022
	MW-3	57	0.72	0.87	0.81	3.1
	STMW-4***	5.0	0.035	0.02	0.022	0.071
	STMW-5****	0.46	0.013	0.0065	0.011	0.018
6/02/92	MW-1	2.2	0.093	0.032	0.04	0.12
	MW-2	2.8	0.084	0.041	0.059	0.095
	MW-3	50	0.24	0.24	0.22	0.74
	STMW-4***	13	0.14	0.045	0.063	0.21
	STMW-5****	1.86	0.027	0.02	0.021	0.043

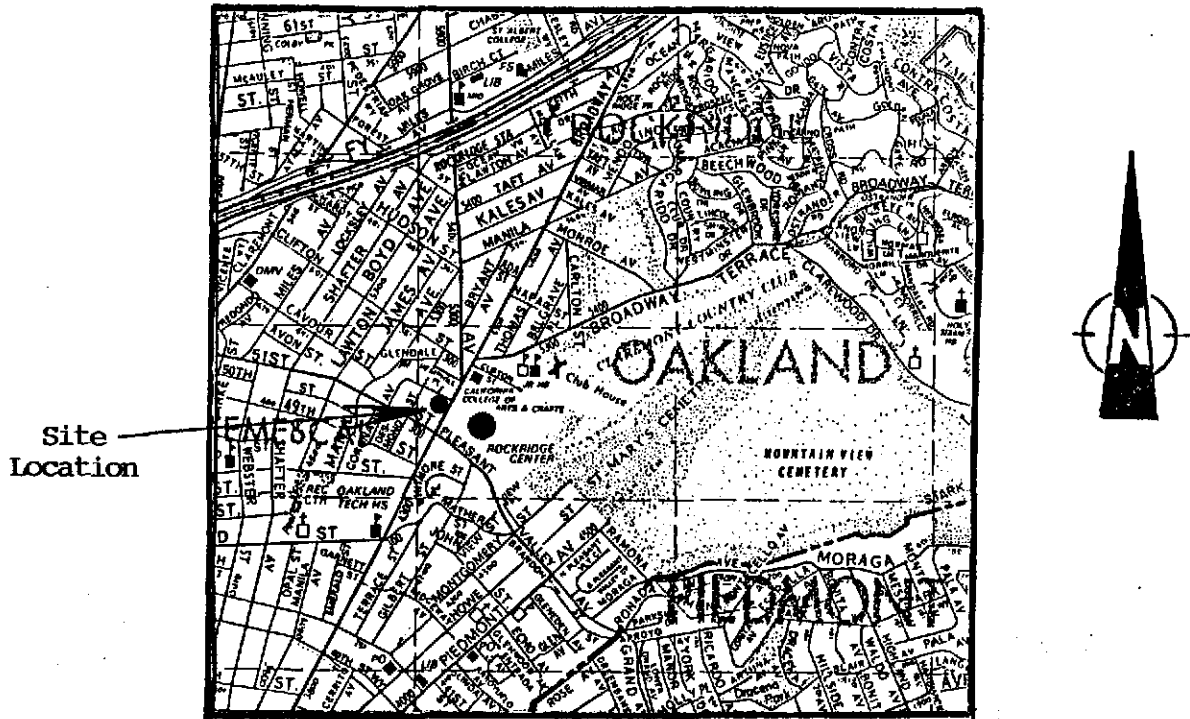
TABLE 2 CONT'D
 GROUNDWATER ANALYTICAL RESULTS
 IN
 PARTS PER MILLION (PPM)

Date	Well Number	TPHg	B	T	E	X
9/28/92	MW-1	2.9	0.024	0.0078	0.019	0.037
	MW-2	1.6	0.047	0.020	0.047	0.097
	MW-3	64	0.11	0.093	0.097	0.25
	STMW-4***	40	0.035	0.020	0.048	0.11
	STMW-5****	1.5	0.014	0.0061	0.018	0.022
1/11/93	MW-1	1.7	0.0057	0.006	0.011	0.028
	MW-2	2.5	0.0086	0.01	0.017	0.032
	MW-3	61	0.21	0.28	0.36	0.99
	STMW-4***	24	0.026	0.088	0.092	0.28
	STMW-5****	0.8	0.0018	0.003	0.0031	0.0094
8/15/94	MW-1	2.0	0.12	0.003	0.006	0.016
	MW-2	6.0	0.45	0.06	0.1	0.095

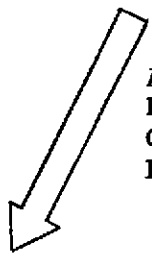
TABLE 2 CONT'D
 GROUNDWATER ANALYTICAL RESULTS
 IN
 PARTS PER MILLION (PPM)

Date	Well Number	TPHg	B	T	E	X
8/15/94	MW-3	50.0	0.87	1.2	1.3	3.0
	STMW-4	9.0	0.5	0.034	0.046	0.13
	STMW-5	3.0	0.32	0.062	0.034	0.22

- TPHg - Total Petroleum Hydrocarbons as gasoline
- BTEX - Benzene, Toluene, Ethylbenzene, Xylenes
- * - Analytical Results from TPE Site Assessment
- ** - Soil Tech Engineering, Inc., Monitoring Wells
- *** - STMW-4 is the same well as STMW-1.
- **** - STMW-5 is the same well as STMW-2.

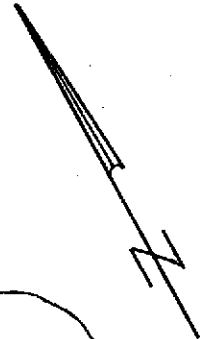


Thomas Brothers Map 1993 Edition
San Francisco, Alameda
and Contra Costa Counties

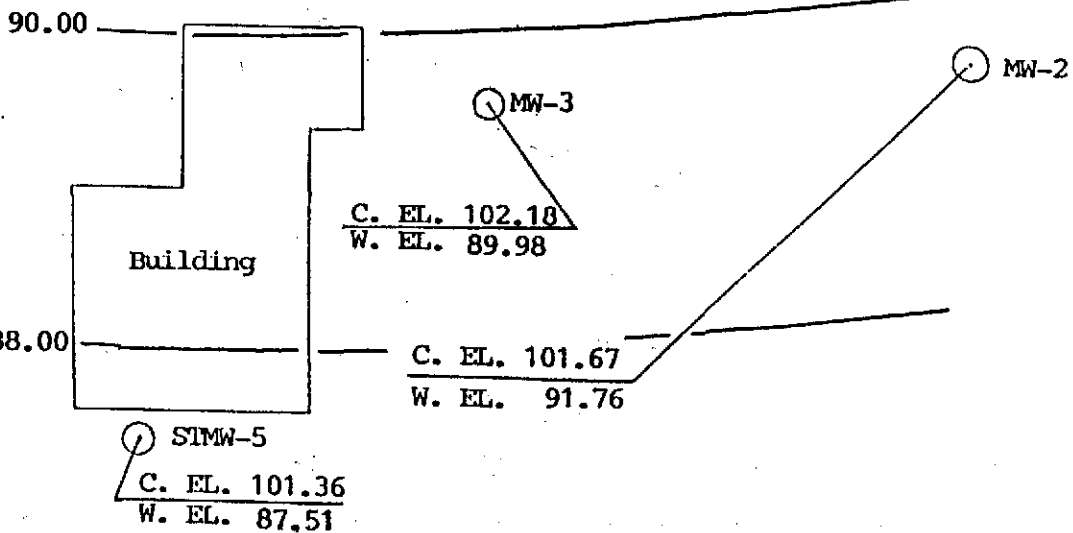
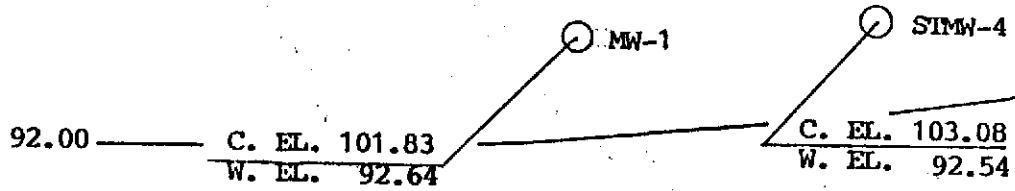


Approximate
Direction of
Groundwater
Flow as of
8/15/94

CORONADO AVENUE



BROADWAY STREET



Commercial Building

C. EL. Casing Elevation
W. EL. Water Elevation
○ Monitoring Well

Street
Flow Line
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.

PROJ. NO. 8-90-420-G NAME 5175 Broadway St. OAKLAND

SAMPLERS (Signature) N. Ameli

CON-TAINER

ANALYSES REQUESTED (2) TPHG/BTEXX

REMARKS

94-496

Table with columns: NO., DATE, TIME, SOIL, WATER, LOCATION, CON-TAINER, ANALYSES REQUESTED, REMARKS. Contains 5 rows of sampling data.

Relinquished by: (Signature) N. Ameli

Date / Time 8/17/94 11:05 AM

Received by: (Signature) [Signature]

Relinquished by: (Signature) [Signature]

Date / Time

Received by: (Signature)

Relinquished by: (Signature)

Date / Time

Received by: (Signature)

Relinquished by: (Signature)

Date / Time

Received by: (Signature)

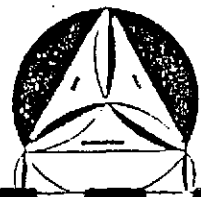
Relinquished by: (Signature)

Date / Time

Received for Laboratory by: (Signature) [Signature]

Date / Time 8/17/94 11:05 AM

Remarks COLD / UOA ACCY.



SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers