QUARTERLY GROUNDWATER
MONITORING AND SAMPLLING
AT THE PROPERTY
LOCATED AT 5175 BROADWAY STREET
OAKLAND, CALIFORNIA
JUNE 4, 1999

PREPARED FOR: MR. MOHAMMAD MEHDIZADEH 678 LA CORSO DRIVE WALNUT CREEK, CALIFORNIA 94598

BY: ENVIRO SOIL TECH CONSULTANTS 131 TULLY ROAD SAN JOSE, CALIFORNIA 95111

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June 4, 1999

File No. 8-90-420-GI

Mr. Mohammad Mehdizadeh 678 La Corso Drive Walnut Creek, California 94598

SUBJECT: QUARTERLY GROUNDWATER MONITORING AND SAMPLING AT THE PROPERTY

Located at 5175 Broadway Street, in Oakland, California

Dear Mr. Mehdizadeh:

This report presents the results of quarterly groundwater monitoring and sampling conducted on May 17, 1999, by Enviro Soil Tech Consultants (ESTC), at the subject site located at 5175 Broadway Street, in Oakland, California (Figure 1).

The five monitoring wells (MW-1 through MW-3, STMW-4 and STMW-5) located on-site (Figure 2) were monitored for presence of floating product and/or distinctive odor and sampled for analyses.

This quarterly monitoring and sampling was conducted in accordance with STE's work plan dated October 5, 1994 and October 10, 1996 letter from Alameda County Health Department requesting immediate initiation of quarterly monitoring program.

If have any questions or require additional information, please feel free to contact our office at (408) 297-1500 at your convenience.

Sincerely,

ENVIRO SOIL TECH CONSULTANTS

GENERAL MANAGER

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

PURPOSE:

The purpose of this quarterly groundwater monitoring and sampling investigation was to determine the extent of subsurface contamination and direction of groundwater flow.

SITE DESCRIPTION:

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

BACKGROUND:

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 collected from the tank excavation area 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 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 compared to 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 Total Xylenes 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 hydrocarbon 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 Hydrocarbons as gasoline (TPHg) and Benzene, Toluene, Ethylbenzene and Total 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 on 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 STE's report dated March 10, 1992, June 1992, October 1992 and January 1993.

The last quarterly monitoring and sampling was conducted by STE on August 15, 1994, details in STE report dated September 20, 1994. STE prepared a work plan proposal for additional soil and groundwater investigation of the property dated October 5, 1994 but no further activity on the subject site was authorized by the owner. Hence, there was a discontinuation of quarterly monitoring and sampling activity from August 15, 1994 to November 7, 1996. The quarterly monitoring and sampling activity resumed on November 7, 1996.

SCOPE OF PRESENT WORK:

The scope of present work are as follow:

- 1) Measure the depth-to-groundwater and monitor the presence of dissolved petroleum hydrocarbons in the five on-site wells.
- 2) Collect groundwater samples from the monitoring wells for analyses of Total Petroleum Hydrocarbons as gasoline (TPHg), Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX) and Methyl Tertiary Butyl Ether (MTBE).
- Per new regulations, groundwater samples were also analyzed for petroleum hydrocarbons constituents adaptive Volatile Organic Compounds (VOC's) per EPA Method 8260B].
- 4) Update the database for water level/dissolved hydrocarbon level and groundwater field observation data.
- 5) Review analytical results and prepare a report.

CURRENT FIELD WORK:

On May 17, 1999, the five on-site wells were monitored, purged and sampled in accordance with ESTC's Standard Operating Procedures (SOP) (Appendix "C"), which comprise state and local guidelines.

GROUNDWATER MONITORING:

During field observation, ESTC staff detected light rainbow sheen and slight sewerage odors in monitoring well MW-1. Only slight sewerage odor was noted in monitoring well MW-2. Rainbow sheen and strong sewerage odors were noted in monitoring wells MW-3 and STMW-4. Rainbow sheen and strong petroleum odor were noted in monitoring well STMW-5. Table 1 summarizes the groundwater monitoring data and laboratory analytical results.

GROUNDWATER SAMPLING:

Following groundwater monitoring, the on-site wells were purged at least five well volumes and sampled. The water samples were collected in 40 millimeter glass vials and 1 liter amber bottles with teflon-lined caps, labeled and placed in an ice-cooled chest for transportation to Entech Analytical Labs, a State-Certified laboratory with appropriate chain-of-custody record.

GROUNDWATER FLOW DIRECTION:

Groundwater elevation data was used to determine the direction of groundwater flow. Groundwater flow was approximately in a westerly direction as of May 17,1999 (Figure 2).

LABORATORY RESULTS:

The groundwater samples were analyzed for TPHg, BTEX and MTBE. In addition, per new regulations, groundwater samples were also analyzed for petroleum hydrocarbons constituents [Volatile Organic Compounds (VOC's) per EPA Method 8260B].

Groundwater sample from monitoring well MW-1 detected low level of TPHg at 0.28 milligrams per liter (mg/L), Benzene at 0.0011 mg/L and Toluene at 0.0006 mg/L. Ethylbenzene and Total Xylenes concentrations are below laboratory detection limit in water sample from monitoring well MW-1. Groundwater sample from monitoring well MW-2 detected low levels of TPHg at 8.2 mg/L; BTEX at (0.43 mg/L; 0.073 mg/L; 0.14 mg/L and 0.1 mg/L). Water sample from monitoring well MW-3 detected low levels of TPHg at 72 mg/L and low levels of BTEX at (0.28 mg/L; 0.23 mg/L; 0.32 mg/L and 0.89 mg/L). Monitoring well STMW-4 detected low levels of TPHg at 13 mg/L and BTEX at (1.6 mg/L; 0.03 mg/L; 0.045 mg/L and 0.078 mg/L), respectively. Monitoring well STMW-5 detected low levels of TPHg at 2.8 mg/L; BTX at (0.067 mg/L; 0.0094 mg/L and 0.016 mg/L). Ethylbenzene concentration was below laboratory detection limit in water sample from monitoring well STMW-5... MTBE concentration was below laboratory detection limit in all monitoring wells except monitoring well STMW-5 which detected low level of MTBE at 0.03 mg/L. All five monitoring wells detected low levels of VOC's in the groundwater samples. Table 1 and Table 2 summarizes the groundwater samples analytical results.

RECOMMENDATIONS:

Since dissolved hydrocarbons continue to be present in the wells and some of the hydrocarbon constituents decreased and some have increased in the wells, ESTC recommends the continuation of monitoring and sampling of the five monitoring wells. In addition, ESTC recommends a meeting with ACEHD and the Regional Water Quality Control Board to discuss the results and obtain a sense of direction as to the additional investigation(s) necessary for the site.

A copy of this report should be sent to the Alameda County Health Care Services Agency (ACHCSA) and the California Regional Water Quality Control Board (CRWQCB).

LIMITATIONS:

This report and the associated work have 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 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.

The services that ESTC provided 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 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.

APPENDIX "A"

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to Water	GW Elev.	Well Observation	ТРНg	TPHd	В	Т	E	X	МТВЕ
4/30/89	MW-1 (97.71)	23	10	N/A	N/A	No sheen or odor	0.2	NA	0.018	0.005	0.002	0.012	NA
5/17/90				9.26	88.45	N/A	NA	NA	NA	NA	NA	NA	NA
9/26/90	·			9.92	87.79	No sheen/Mild petroleum odor	1,3	NA	0.055	0.031	0.12	0.1	NA
1/14/91				9.54	88.17	No sheen/Mild petroleum odor	3.1	NA	0.35	0.083	0.086	0.13	NA
7/03/91	(102.04) resurveyed			9.42	92.62	No sheen/Light petroleum odor	0.58	NA	0.032	0.041	0.04	0.055	NA
11/11/91				9.45	92.59	No sheen/Mild petroleum odor	0.33	NA	0.02	0.002	0.002	0.011	NA
3/04/92	(101.83) resurveyed			7.93	93.90	No sheen/Light petroleum odor	0.81	NA	0.011	0.005	0.01	0.023	NA
6/01/92				8.98	92.85	No sheen/Mild sewerage odor	2.2	NA	0.093	0.032	0.04	0.12	NA
9/28/92				9.29	92.54	No sheen/Mild sewerage odor	2.9	NA	0.024	0.0078	0.019	0.037	NA
1/1/1/93				7.56	94.27	No sheen/Light sewerage odor	1.7	NA	0.0057	0.006	0.011	0.028	NA
8/15/94				9.19	92.64	No sheen/Mild sewerage odor	2.0	NA	0.12	0.003	0.006	0.016	NA
11/07/96	(97.50) resurveyed			8.73	88.77	No sheen/Light sewerage odor	1.2	0.27	0.003	0.0011	0.0015	0.0038	ND
2/12/97				7.92	89.58	No sheen/Light sewerage odor	1.8	ND	0.013	0.0057	0.0048	0.017	ND

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to	GW Elev.	Well Observation	TPHg	TPHd	В	Т	E	X	МТВЕ
6/16/97	MW-1 (97.50)	23	10	9.04	88.46	No sheen/Very	0.33	ND	0.0027	ND	ND	0.0012	ND
9/30/97	(57.50)			7.56	00.04	light sewerage odor				<u> </u>	İ		
1/27/98				·	89.94	No sheen or odor	ND	ND	ND	ND	ND	ND	ND
4/24/98	 			7.96	89.54	No sheen or odor	ND	ND	ND	ND	ND	ND	ND
8/17/98				7.98	89.52	. Light rainbow sheen Light sewerage odor	ND	ND	ND	ND	ND	ND	ND
				8.98	88.52	No sheen Light sewerage odor	ND	ND	ND	ND	ND	ND	ND
11/16/98				8.90	88.90	No sheen Light sewerage odor	ND	ND	ND	ND	ND	ND	ND
1/28/99				8.64	88.86	Light rainbow sheen Slight sewerage odor	0.11	ND	ND	ND	ND	ND	ND
5/17/99				8.50	89.00	No sheen/Strong	0.28	NA	0.0011	0.0006	ND	ND	ND
4/30/89	MW-2 (97.78)	23	15	N/A	N/A	No sheen or odor	0.23	NA	0.039	0.018	0.005	0,023	NA
5/17/90				10,00	87.78	N/A	NA	NA					·
9/26/90				10.83	86.95				NA	NA	NA	NA	NA
1/14/91	+		١.			No sheen/Mild petroleum odor	0.85	NA	0.94	0.005	0.025	0.047	NA
	,			10.63	87.15	No sheen or odor	3.1	NA	0.35	0.083	0.086	0.13	NA
7/03/91	(102.02) resurveyed			10.08	91,94	No sheen/Light petroleum odor	1.59	NA	0.03	0.052	0.024	0.034	NA
11/11/91	·			10.21	91.8]	No sheen/Mild petroleum odor	0.96	NA	0.32	0.015	0.004	0.029	NA

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to Water	GW Elev.	Well Observation	ТРНд	TPHd	В	T	E	X	МТВЕ
3/04//92	MW-2 (101.67) resurveyed	23	15	8.70	92.97	No sheen/Light petroleum odor	1.5	NA	0.0095	0.0084	0.0098	0.022	NA
6/01/92 9/28/92				9.52	92.15	No sheen Mild sewerage odor	2.8	NA	0.084	0.041	0.059	0.095	NA
1/11/93		•		10.09	91.58	No sheen Mild sewerage odor	1.6	NA	0.047	0.02	0.047	0.097	NA.
8/15/94	(97.49)			8.52	93.15	No sheen Light sewerage odor	2.5	NA	0.0086	0.01	0.017	0.032	NA
11/07/96	resurveyed			9.91	91.76	No sheen/Light petroleum odor	6	NA	0.45	0.06	0.1	0.095	NA
2/12/97				10,02	87.47	No sheen/Very light sewerage odor	4.2	0.78	0.025	0.0049	0.0081	0.014	ND
6/16/97		<u> </u>		8.91	88.58	No sheen/Very light sewerage odor	1.8	5.7	0.016	0.0031	0.0034	0.0088	ND
9/30/97				9.75	87.74	No sheen/Very light sewerage odor	2.5	ND	0.022	0.0051	0.0078	0.011	ND
1/27/98	-			7.98	89.51	No sheen or odor	ND	ND	ND	ND	ND	ND	ND
4/24/98				8.38	89.11	No sheen or odor	ND	ND	ND	ND	ND	ND	ND
8/17/98				8.68	88.81	No sheen/Slight sewerage odor	2.1	1.4	0.018	0.0065	0.0048	0.021	ND
				9.74	87.75	No sheen or odor	2.9	ND	0.0051	0.0045	0.0058	0.017) III)
1/28/99				10.14	87.35	No sheen Light sewerage odor	1.4	ND	0.0021	0.0019	0.0038	0.0048	ND ND
1/26/99				8.92	88.57	No sheen Slight sewerage odor	1.6	ND	0.082	0.016	ND	0.04	0.059

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	В	Т	E	X	МТВЕ
5/17/99	MW-2 (97.49)	23	15	9.26	88.23	No sheen Mild sewerage odor	8.2	NA	0,43	0.073	0.14	0.1	ND
4/30/90	MW-3 (98.14)	27	20	N/A	N/A	No sheen Mild petroleum odor	56	NA	3.6	8.6	1.3	7.2	NA
5/17/90 9/26/90				12.42 13.50	85.72 84.64	N/A No sheen/Mild	NA 54	NA NA	NA	NA	NA	NA	NA
1/14/91				12.58	85.56	petroleum odor Light sheen/Strong	35		5.1	0.42	1.6	8	NA
7/03/91	(102.46)			12.08	90.38	petroleum odor Rainbow sheen	33	NA	2.6	6.6	1.5	5.7	NA
11/11/91	resurveyed			12.29	90.17	Strong petroleum odor Very light rainbow sheen	57	NA	4.12	4.3	1.4	4.8	NA
3/04/92	(102.18)			10.26	91.92	Mild petroleum odor Brown sheen	57	NA	3.9	8.4	2.1	14	NA
6/01/92	resurveyed (97.94)			11.40	90.78	Strong petroleum odor		NA •	0.72	0.87	0.81	3.1	NA
9/28/92	resurveyed			12.64	89.54	Rainbow sheen/Mild petroleum odor	50	NA	0.24	0.24	0.22	0.74	NA
1/11/93				10.10		Rainbow sheen spots Strong petroleum odor	64	NA	0.11	0.093	0.097	0.25	NA
8/15/94		-			92.08	Rainbow sheen/Mild petroleum odor	68	NA .	0.21	0.28	0.36	0.99	NA
				12.20	89.98	Brown sheen spots Mild petroleum odor	50	NA	0.87	1.2	1.3	3	NA

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to Water	GW Elev.	Well Observation	TPHg	ТРНа	В	Т	E	X	МТВЕ
11/07/96	MW-3 (97.94)	27	20	12.40	85.54	Very thin layer of brown sheen/Light petroleum odor	68	0.47	0.033	0.027	0.063	0.12	ND
2/12/97 6/16/97		- Verban,		10.23	87.71	Brown sheen spots Light petroleum odor	25	3.5	0.039	0.043	0.015	0.091	ND
9/30/97				11.79	86.15	Light brown sheen spots/Very light petroleum odor	9.7	ND	0.026	0.029	0.045	0.081	ND
:				9.40	88.54	No sheen or odor	6	1.6	0.043	0.036	0.012	0.11	ND
1/27/98				9.80	88.14	No sheen or odor	0.38	0.56	0.0057	0.0041	0.0017	0.0091	ND
8/17/98				9.90	88.04	Rainbow sheen Light sewerage odor	ND	0.68	ND	ND	ND	ND	ND
				11.46	86.48	No sheen or odor	16	ND	0.02	0.018	0.031	0.082	ND
11.16/98				12.40	85.54	Rainbow sheen Strong sewerage odor	68	ND	0.086	0.054	0.069	0.032	ND
1/28/99				10.72	87.22	Rainbow sheen Strong sewerage odor	33	ND	0.27	0.11	ND	0.77	0.17
5/12/99				10.54	87.40	Rainbow sheen Strong petro, odor	72	NA	0.28	0.23	0.32	0.89	ND
7/03/91	STMW-1 (103.58)	19.50	11.50	11.00	92.58	Light rainbow sheen Mild petroleum odor	3.1	NA	0.61	0.062	0.039	0.15	NA
11/11/91	STMW-4 (renamed)			11.08	92.50	Light rainbow sheen Strong pet. odor	3.6	NA	0.99	0.015	0.0026	0.18	NA

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to : Water :	GW Elev.	Well Observation	ТРНд	TPHd	В	Т	E	X	MTBE
3/04/92	STMW-4 (101.08)	19.50	11.50	9.44	93.64	Rainbow sheen spots Mild petroleum odor	5	NA	0.035	0.02	0.022	0.071	NA
6/01/92	(98.80) Resurveyed			10.32	92.76	No sheen Light petroleum odor	13	NA	0.14	0.045	0.063	0.21	NA
9/28/92			•	10.76	92.32	Brown sheen spots Mild petroleum odor	40	NA	0.035	0.02	0.048	0.11	NA
1/11/93				9.28	93.80	Brown sheen spots Mild petroleum odor	24	NA	0.026	0.088	0.092	0.28	NA
8/15/94				10.54	92.54	Light rainbow sheen spots/Light petroleum odor	9	NA	0,5	0.034	0.046	0.13	NA
11/07/96				10.37	88.43	Rainbow sheen spots Very light petroleum odor	13	0.18	0.04	0.0029	0.0078	0.019	ND
2/12/97				9.36	89.44	Rainbow sheen spots Very light petroleum odor	5.3	5.7	0.095	0.0053	0.0059	0.018	ND
6/16/97				10.40	88.40	No sheen/Very light sewerage odor	5.3	ND	0.037	0.0062	0.0017	0.011	ND
9/30/97				8.50	90.30	No sheen or odor	2.7	ND	0.042	0.0077	0.0057	0.026	ND
1/27/98				8.90	89.90	No sheen or odor	3	0.3	0.06	0.017	0.012	0.049	ND
4/24/98				9.50	89.30	Rainbow sheen Strong sewerage odor	ND	ND	ND	ПD	ND	ND	ND
8/17/98				10.36	88.44	Rainbow sheen Light petroleum odor	29	ND	0.036	0.024	0.059	0.16	ND

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	В	Т	E	X	МТВЕ
11/16/98	STMW-4 (98.80)	19.50	11.50	10.56	88.24	Rainbow sheen Strong sewerage odor	13	ND	0.026	0.021	0.02	0.041	NA
1/28/99				9.64	89.16	Rainbow sheen Strong sewerage odor	32	ND	0.66	0.016	0.016	0.15	ND
5/17/99				9.96	88.84	Rainbow sheen Strong petro. odor	13	NA	1.6	0.03	0.045	0.078.	ND
7/03/91	STMW-2 (101.99)	24	16	13.29	88,07	No sheen or odor	0.69	NA	0.099	0.081	0.019	0.098	NA
11/11/91	STMW-5 (renamed)			14.00	87.99	No sheen/Very light petroleum odor	0.41	NA	0.061	0.0024	0.0014	0.02	NA
3/04/92	(101.36) resurveyed			11.80	89.56	No sheen/Very light petroleum odor	0.46	NA	0.013	0.0065	0.011	0.018	NA
6/01/92				13.06	88,30	No sheen Mild petroleum odor	1.8	NA	0.027	0.02	0.021	0.043	NA
9/28/92				14.04	87.32	No sheen Mild sewerage odor	1.5	NA	0.014	0.0061	0.018	0.022	NA
1/11/93				11.61	89.75	No sheen Light sewerage odor	0.8	NA	0.0018	0.003	0.0031	0.0094	NA
8/15/94				13.85	87.51	No sheen Mild sewerage odor	3	NA	0.32	0.062	0.034	0.22	NA
11/07/96	(97.14) resurveyed			13.67	87.51	Rainbow sheen spots Very light pet, odor	1.2	0.33	0.011	0.0017	0.0044	0.013	ND
2/12/97				12.07	85.07	Rainbow sheen spots Very light pet. odor	1	3.7	0.011	0.0017	0.0017	0.0097	ND

Date	Well No./ Elevation	Depth of Well	Perf. Length	Depth to Water	GW Elev,	Well Observation	ТРНд	TPHd	В	Т	E	X	МТВЕ
6/19/97	STMW-5 (97.14)	24	16	13.33	83.81	No sheen/Very light sewerage odor	0.95	2.3	0.0074	0.001	0.001	0.0072	ND
9/30/97				11.24	85.90	No sheen Light sewerage odor	0.71	1.1	0.0058	0.004	0.001	0.001	ND
1/27/98	-			11.64	85.50	No sheen Light sewerage odor	0.34	1.1	0.002	0.0018	0.0016	0.0082	ND
4/24/98				11.84	85.30	Rainbow sheen Strong sewerage odor	3.3	ND	0.012	0.0094	0.0085	0.037	ND
8/17/98	· · · · · · · · · · · · · · · · · · ·			13.20	83.94	Rainbow sheen Light sewerage odor	5.3	ND	0.026	0.017	0.014	0.039	ND
11/16/98				13.74	83.40	Rainbow sheen Strong sewerage odor	ND	ND	ND	ND	ND	ND	ND
1/28/99				12.22	84.92	Rainbow sheen Strong sewerage odor	0.95	ND	0.15	0.0038	0.0014	0.014	0.011
5/17/99				12.58	84.56	Rainbow sheen Mild petroleum odor	2.8	NA	0.067	0.0094	ND	0.016	0.03

TPHd - Total Petroleum Hydrocarbons as diesel

BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes

GW Elev. - Groundwater Elevation

ND - Not Detected

N/A - Not Applicable

TPHg - Total Petroleum Hydrocarbons as gasoline

MTBE - Methyl Tertiary Butyl Ether

Perf. - Perforation

NA- Not Analyzed

Petro. - Petroleum

TABLE 2 GROUNDWATER SAMPLES ANALYZED FOR TOTAL LEAD (Pb) AND VOC'S IN MILLIGRAM PER LITER (mg/L)

	Sample Number *	Lead((Ph)/Results	25 V(9(E); (82(d))) Results - c-
11/07/98	MW-1	Not Detected	Not Analyzed
	MW-2	Not Detected	Not Analyzed
·	MW-3	Not Detected	Not Analyzed
	STMW-4	Not Detected	Not Analyzed
A Commence of the Commence of	STMW-5	Not Detected	Not Analyzed
2/12/97	MW-1	Not Detected	Not Analyzed
	MW-2	Not Detected	Not Analyzed
	MW-3	Not Detected	Not Analyzed
	STMW-4	Not Detected	Not Analyzed
	STMW-5	Not Detected	Not Analyzed
6/16/97	MW-1	Not Detected	Not Analyzed
	MW-2	Not Detected	Not Analyzed
	MW-3	Not Detected	Not Analyzed
	STMW-4	Not Detected	Not Analyzed
	STMW-5	Not Detected	Not Analyzed
9/30/97	MW-1	Not Detected	Not Detected
	MW-2	Not Detected	Not Detected
	MW-3	Not Detected	Not Detected
	STMW-4	Not Detected	Not Detected
	STMW-5	Not Detected	Not Detected
1/27/98	MW-1	Not Detected	Not Analyzed
	MW-2	Not Detected	Not Analyzed
	MW-3	Not Detected	Not Analyzed
	STMW-4	Not Detected	Not Analyzed
	STMW-5	Not Detected	Not Analyzed

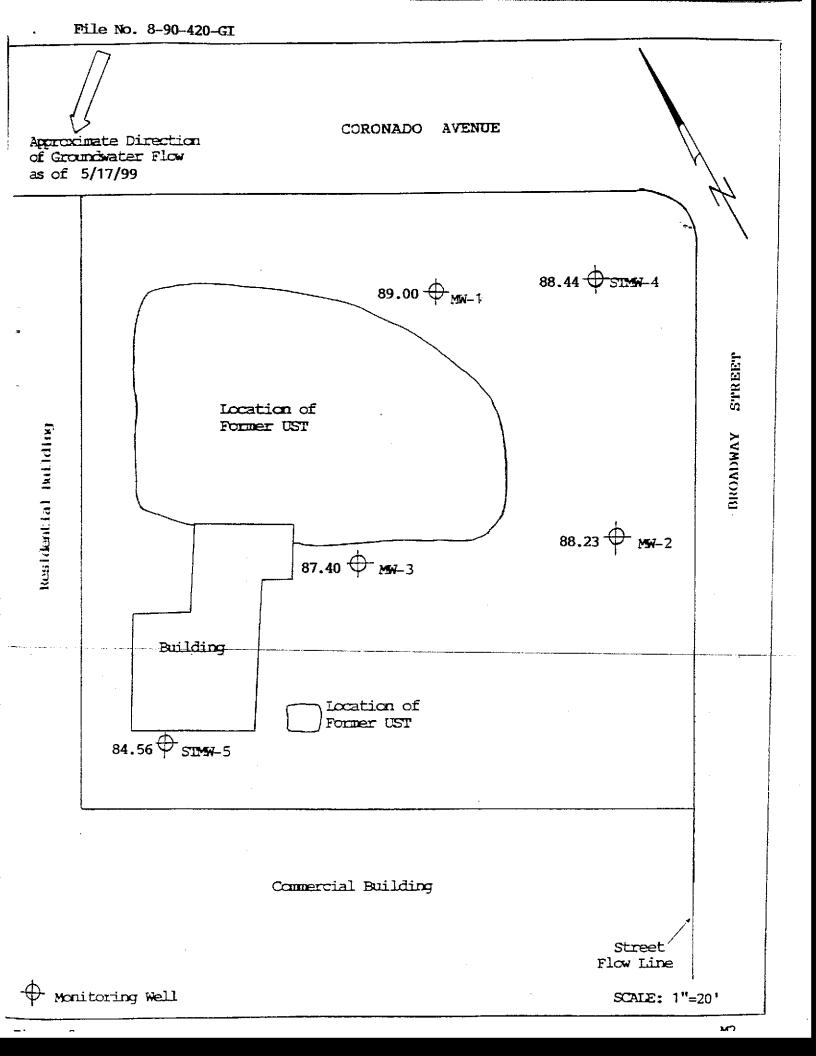
TABLE 2 CONT'D GROUNDWATER SAMPLES ANALYZED FOR TOTAL LEAD (Pb) AND VOC'S IN MILLIGRAM PER LITER (mg/L)

Daice	Sample Nording	asienen anatomino	JE - 1010 C-826011 1180	
4/24/98	MW-1	Not Detected	Not Analyzed	
	MW-2	Not Detected	Not Analyzed	<u> </u>
	MW-3	Not Detected	Not Analyzed	
#30 14 PENNS	STMW-4	Not Detected	Not Analyzed	
8/17/98	MW-1	Not Detected	Not Analyzed	eta nom a social en 194 lipologia des al escolo
	MW-2	Not Detected	Not Analyzed	
	MW-3	Not Detected	Not Analyzed	
	STMW-4	Not Detected	Not Analyzed	
	STMW-5	Not Detected	Not Analyzed	
11/16/98	MW-1	Not Detected	Not Analyzed	status til setti et errandia andre errandia.
	MW-2	Not Detected	Not Analyzed	
	MW-3	Not Detected	Not Analyzed	-
	STMW-4	Not Detected	Not Analyzed	
	STMW-5	Not Detected	Not Analyzed	
1/28/99	MW-1	-Not Analyzed	Not Analyzed	
	MW-2	Not Analyzed	Not Analyzed	
	MW-3	Not Analyzed	Not Analyzed	
	STMW-4	Not Analyzed	Not Analyzed	
	STMW-5	Not Analyzed	Not Analyzed	
5/17/99	MW-1	Not Analyzed	Diisopropyl Ether	0.12
	MW-2	Not Analyzed	Benzene	0.12
		1100 / Mai y Zea	Ethylbenzene	0.4 0.14
	MW-3	Not Analyzed	Benzene	
1		110t Anaryzeu	1,2,4-Trimethylbenzene	0.19 0.48
			1,3,5-Trimethylbenzene	0.48
			Xylenes (total)	0.29
	STMW-4	Not Analyzed	Benzene	1.6
	STMW-5	Not Analyzed	Benzene	
	311111 3	Hot Analyzed	Delixelle	0.088

APPENDIX "B"



Figure 1



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 of 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"

Enviro Soil Tech Consultants

131 Tully Road

San Jose, CA 95111

Attn: Frank Hamedi

Date: 5/28/99

Date Received: 5/19/99

Project: 8-90-420-GI

PO #:

Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Tracer Sample Time	270201						₹				
Sample ID	MW-1			MW-2			MW-3				
Sample Date	5/17/99			5/17/99			5/17/99				
Sample Time	9:00			11:20			13:40				
Lab #	G11486			G11487			G11488				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Results in µg/Liter:											
Analysis Date	5/24/99			5/20/99			5/20/99				
TPH-Gas	280	1.0	50	8,200	50	2500	72,000	50	2500	50	8015M
MTBE	ND	1.0	5.0	ND	50	250	ND	50	250	5.0	8020
Benzene	1.1	1.0	0.50	430	50	25	280	50	25	0.50	8020
Toluene	0.60	1.0	0.50	73	50	25	230	50	25	0.50	8020
Ethyl Benzene	ND	1.0	0.50	140	50	25	320	50	25	0.50	8020
Xylenes (total)	ND	1.0	0.50	100	50	25	890	50	25	0.50	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

Michelle L. Anderson, Lab Director

Enviro Soil Tech Consultants

131 Tully Road

San Jose, CA 95111

Attn: Frank Hamedi

Date: 5/28/99

Date Received: 5/19/99

Project: 8-90-420-G1

PO #:

Sampled By: Client

- Certified Analytical Report

Water Sample Analysis:

water Sample Ana	17313.						 	
Sample ID	STMW-4			STMW-5				
Sample Date	5/17/99			5/17/99				
Sample Time	15:30		•	17:00				
Lab #	G11489			G11490				
	Result	DF	DLR	Result	DF	DLR	PQL	Method
Results in µg/Liter:								
Analysis Date	5/20/99			5/21/99			<u> </u>	
TPH-Gas	13,000	50	2500	2,800	5.0	250	50	8015M
MTBE	ND	50	250	30	5.0	25	5.0	8020
Benzene	1,600	50	25	67	5.0	2.5	0.50	8020
Toluene	30	50	25	9.4	5.0	2.5	0.50	8020
Ethyl Benzene	45	50	25	ND	5.0	2.5	0.50	8020
Xvlenes (total)	78	50	25	16	5.0	2.5	0.50	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

Michelle L. Anderson, Lab Director

⁻ Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

May 28, 1999

Frank Hamedi Enviro Soil Tech Consultants 131 Tully Road San Jose, CA 95111

Subject:

5 Water Samples

Lab #'s:

G11486 through G11490

Project Name:

5175 Broadway Street, Oakland

Project Number:

8-90-420-GI

P.O. Number:

Method(s):

EPA 8260

Dear Frank Hamedi,

Chemical analysis on the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#I-2346). If you have any questions regarding procedures or results, please call me at 408-735-1550.

Sincerely,

Michelle L. Anderson

Lab Director

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

Sample Matrix: Water

Sample Date/Time: 5/17/99 9:00

Lab #: G11486 Client ID: MW-1 Date Reported: 5/28/99

Date Received: 5/19/99

Date Analyzed: 5/27/99

Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Acetone =	ND	20		Chloroform	ND	5	5
Acrylonitrile	ND	5		Chloromethane	ND	5	<u> </u>
Allyl Chloride	ND	5	5	2-Chlorotoluene	ND	5	<u>-</u> -
tert-Amyl Methyl Ether	ND	5	5	4-Chlorotoluene	ND	5	<u>_</u>
Benzene	ND	5		Dibromochloromethane	ND	5	5
Benzyl Chloride	ND	5	5	1,2-Dibromo-3-chloropropane	ND	5	- <u> </u>
Bromobenzene	ND	5		1,2-Dibromoethane	ND	5	5
Bromochloromethane	ND	5	5	Dibromomethane	ND	5	5
Bromodichloromethane	ND	5	5	cis-1,4-Dichloro-2-butene	ND	20	20
Bromoform	ND	5		trans-1,4-Dichloro-2-butene	ND	20	20
Bromomethane	ND	5	5	Dichlorodifluoromethane	ND	5	5
tert-Butanol	ND	20	20	1,2-Dichlorobenzene	ND	5	5.
2-Butanone (MEK)	ND	20		1,3-Dichlorobenzene	ND	5	5
tert-Butyl Ethyl Ether	ND	5	5	1,4-Dichlorobenzene	ND	5	5
n-Butylbenzene	ND	5	5	1,1-Dichloroethane	ND	5	5
sec-Butylbenzene	ND	5	5	1,2-Dichloroethane	ND	5	<u> </u>
tert-Butylbenzene	ND	5		1,1-Dichloroethene	ND	5	5
Carbon Disulfide	ND	5	5	cis-1,2-Dichloroethene	ND	5	5
Carbon Tetrachloride	ND	5		trans-1,2-Dichloroethene	ND	5	- 5
Chlorobenzene	ND	5		1,2-Dichloropropane	ND	5	- 5
Chloroethane	ND	5		1,3-Dichloropropane	ND	5	
2-Chloroethyl Vinyl Ether	ND	5		2,2-Dichloropropane	ND	5	5

Surrogate Recovery (%)
Dibromotluoromethane 126
Toluene-d8 92
4-Bromofluorobenzene 97

I. Results are reported in ug/Liter (ppb)

2. DLR= DF \times PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

9:00

Sample Matrix: Water

Sample Date/Time: 5/17/99

Lab #: G11486 Client ID: MW-1 Date Reported: 5/28/99

Date Received: 5/19/99

Date Analyzed: 5/27/99

Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5		Tetrachioroethene	ND	5	5
cis-1,3-Dichloropropene	ND	5	5	Toluene	ND	5	 5
trans-1,3-Dichloropropene	ND	5	5	1,2,3-Trichlorobenzene	ND	5	<u></u>
Diisopropyl Ether	120	5		1,2,4-Trichlorobenzene	ND	5	5
Ethyl Methacrylate	ND	5		1,2,3-Trichloropropane	ND	5	5
Ethylbenzene	ND	5		1,1,1-Trichloroethane	ND	5	5
Hexachlorobutadiene	ND	5		1,1,2-Trichloroethane	ND	5	
2-Hexanone	ND	20		Trichloroethene	ND	5	5
Iodomethane	ND	5	5	Trichlorofluoromethane	ND	5	5
Isopropylbenzene	ND	5		1,2,4-Trimethylbenzene	ND	5	
p-Isopropyltoluene	ND	5		1,3,5-Trimethylbenzene	ND	5	5
Methacrylonitrile	ND	5		Xylenes (total)	ND	5	5
Methyl Methacrylate	ND	5		Vinyl Chloride	ND	5	
4-Methyl-2-Pentanone (MIBK)	ND	20	20				
Methyl-tert-butyl Ether	ND	5	5			 	
Methylene Chloride	ND	5	5				
Naphthalene	ND	5	5				
Pentachloroethane	ND	5	5				
Propionitrile	ND	5	5		- 		
n-Propylbenzene	ND	- 5	5			-	
Styrene	ND	5	5		- 		
1,1,1,2-Tetrachloroethane	ND	5	5		-		
1,1,2,2-Tetrachloroethane	ND	5	5		···	- 	

Surrogate	Recovery (%)
Dibromofluoromethane	126
Toluene-d8	92
4-Bromofluorobenzene	97
•	

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

11:20

Sample Matrix: Water

Sample Date/Time: 5/17/99

Lab #: G11487 Client ID: MW-2 Date Reported: 5/28/99

Date Received: 5/19/99

Date Analyzed: 5/27/99

Dilution Factor: 20

Compound	Value	PQL	DLR	Сотроили	Value	PQL	DLR
Acetone	ND	20	400	Chloroform	ND	5	100
Acrylonitrile	ND	5	100	Chloromethane	ND	5	100
Allyl Chloride	ND	5	100	2-Chlorotoluene	ND	5	100
tert-Amyl Methyl Ether	ND	5	100	4-Chlorotoluene	ND	5	100
Benzene	400	5	100	Dibromochloromethane	ND	5	100
Benzyl Chloride	ND	5	100	1,2-Dibromo-3-chloropropane	ND	5	100
Bromobenzene	ND	5	100	1,2-Dibromoethane	ND	5	100
Bromochloromethane	ND	5	100	Dibromomethane	ND	5	100
Bromodichloromethane	ND	5	100	cis-1,4-Dichloro-2-butene	ND	20	400
Bromoform	ND	5	100	trans-1,4-Dichloro-2-butene	ND	20	400
Bromomethane	ND	5	100	Dichlorodifluoromethane	ND	5	100
tert-Butanol	ND	20	400	1,2-Dichlorobenzene	ND	5	100
2-Butanone (MEK)	ND	20	400	1,3-Dichlorobenzene	ND	5	100
tert-Butyl Ethyl Ether	ND	5	100	1,4-Dichlorobenzene	ND	5	100
n-Butylbenzene	ND	5	100	1,1-Dichloroethane	ND	5	100
sec-Butylbenzene	ND	5	100	1,2-Dichloroethane	ND	5	100
tert-Butylbenzene	ND	5	100	1,1-Dichloroethene	ND	5	100
Carbon Disulfide	ND	5	100	cis-1,2-Dichloroethene	ND	5	100
Carbon Tetrachloride	ND	5	100	trans-1,2-Dichloroethene	ND	5	100
Chlorobenzene	ND	5	100	1,2-Dichloropropane	ND	5	100
Chloroethane	ND	5	100	1,3-Dichloropropane	ND	5	100
2-Chloroethyl Vinyl Ether	ND	5		2,2-Dichloropropane	ND	5	100

Surrogate	Recovery (%)
Dibromofluoromethane	120
Toluene-d8	103
4-Bromofluorobenzene	88

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

11:20

Date Reported: 5/28/99

Sample Matrix: Water

Date Received: 5/19/99

Date Analyzed: 5/27/99

Sample Date/Time: 5/17/99 Lab #: G11487

Dilution Factor: 20

Client ID: MW-2

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	- 5	100	Tetrachloroethene	ND	5	100
cis-1,3-Dichloropropene	ND	5	100	Toluene	ND	5	100
trans-1,3-Dichloropropene	ND	5	100	1,2,3-Trichlorobenzene	ND	5	100
Diisopropyl Ether	ND	5	100	1,2,4-Trichlorobenzene	ND	5	100
Ethyl Methacrylate	ND	5	100	1,2,3-Trichloropropane	ND	5	100
Ethylbenzene	140	5	100	1,1,1-Trichloroethane	ND	5	100
Hexachlorobutadiene	ND	5	100	1,1,2-Trichloroethane	ND	5	100
2-Hexanone	ND	20	400	Trichloroethene	ND	5	100
Iodomethane	ND	5	100	Trichlorofluoromethane	ND	5	100
Isopropyibenzene	ND	5	001	1,2,4-Trimethylbenzene	ND	5	100
p-Isopropyltoluene	ND	5	100	1,3,5-Trimethylbenzene	ND	5	100
Methacrylonitrile	ND	5	100	Xylenes (total)	ND	5	100
Methyl Methacrylate	ND	5	100	Vinyl Chloride	ND	5	100
4-Methyl-2-Pentanone (MIBK)	ND	20	400				
Methyl-tert-butyl Ether	ND	5	100				
Methylene Chloride	ND	5	100				
Naphthalene	ND	5	100				
Pentachloroethane	ND	5	100				
Propionitrile	ND	5	100				
n-Propylbenzene	ND	5	100				
Styrene	ND	5	100				
1,1,1,2-Tetrachloroethane	ND	5	100				
1,1,2,2-Tetrachloroethane	ND	5	100	·			

Surrogate Recovery (%) Dibromofluoromethane 120 Toluene-d8 103 4-Bromofluorobenzene 88

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

Sample Matrix: Water

Sample Date/Time: 5/17/99 13:40

Lab #: G11488 Client ID: MW-3 Date Reported: 5/28/99

Date Received: 5/19/99

Date Analyzed: 5/27/99

Dilution Factor: 20

Compound	Value	PQL	DLR	Сотроила	Value	PQL	DLR
Acetone	ND	20		Chloroform	ND	5	100
Acrylonitrile	ND	5		Chloromethane	ND	5	100
Allyl Chloride	ND	5		2-Chlorotoluene	ND	5	
tert-Amyl Methyl Ether	ND	5		4-Chlorotoluene	ND		100
Benzene	190	5		Dibromochloromethane	ND	5	100
Benzyl Chloride	ND	5		1,2-Dibromo-3-chloropropane	ND	5	100
Bromobenzene	ND	5	100	1,2-Dibromoethane	ND ND	5	100
Bromochloromethane	ND	5		Dibromomethane	ND	5	100
Bromodichloromethane	ND	5		cis-1,4-Dichloro-2-butene		5	100
Bromoform	ND	5		trans-1,4-Dichloro-2-butene	ND ND	20	400
Bromomethane	ND	5		Dichlorodifluoromethane	ND	20	400
tert-Butanol	ND	20		1,2-Dichlorobenzene	ND	5	100
2-Butanone (MEK)	ND	20		1,3-Dichlorobenzene	ND	5	100
tert-Butyl Ethyl Ether	ND	5			ND	5	100
n-Butylbenzene	ND	5		1,4-Dichlorobenzene 1,1-Dichloroethane	ND	5	100
sec-Butylbenzene	ND	5			ND	5	100
tert-Butylbenzene	ND	5		1,2-Dichloroethane	ND	5	100
Carbon Disulfide	ND	5		1,1-Dichloroethene	ND	5	100
Carbon Tetrachloride	ND	5		cis-1,2-Dichloroethene	ND	5	100
Chlorobenzene	ND -			trans-1,2-Dichloroethene	ND	5	100
Chloroethane	ND ND	5	100	1,2-Dichloropropane	ND	5	-100
C-Chloroethyl Vinyl Ether		5	100]]	1,3-Dichloropropane	ND	5	100
Calotocthyl villyl Einer	ND	5	100[2	2,2-Dichloropropane	ND	5	100

Surrogate	Recovery (%
Dibromofluoromethane	123
Toluene-d8	96
4-Bromofluorobenzene	90

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

Sample Matrix: Water

Sample Date/Time: 5/17/99 13:40

Lab #: G11488 Client ID: MW-3 Date Reported: 5/28/99

Date Received: 5/19/99 Date Analyzed: 5/27/99

Dilution Factor: 20

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5		Tetrachloroethene -	ND	5	100
cis-1,3-Dichloropropene	ND	5	100	Toluene	ND	5	100
trans-1,3-Dichloropropene	ND	5	100	1,2,3-Trichlorobenzene	ND	5	100
Diisopropyl Ether	ND	5	100	1,2,4-Trichlorobenzene	ND	5	100
Ethyl Methacrylate	ND	5	100	1,2,3-Trichloropropane	ND	5	100
Ethylbenzene	ND	5	100	1,1,1-Trichloroethane	ND	5	100
Hexachlorobutadiene	ND	5	100	1,1,2-Trichloroethane	ND	5	100
2-Hexanone	ND	20	400	Trichloroethene	ND	5	100
Iodomethane	ND	5	100	Trichlorofluoromethane	ND	5	100
Isopropylbenzene	ND	5	100	1,2,4-Trimethylbenzene	480	5	100
p-Isopropyltoluene	ND	5	100	1,3,5-Trimethylbenzene	290	5	i00
Methacrylonitrile	ND	5	100	Xylenes (total)	590	5	100
Methyl Methacrylate	ND	5	100	Vinyl Chloride	ND	5	100
4-Methyl-2-Pentanone (MIBK)	ND	20	400				
Methyl-tert-butyl Ether	ND	5	100				
Methylene Chloride	ND	5	100				
Naphthalene	ND	5	100				
Pentachloroethane	ND	5	100				
Propionitrile	ND	5	100				
n-Propylbenzene	ND	5	100				
Styrene	ND	5	100				
1,1,1,2-Tetrachloroethane	ND	5	100				
1,1,2,2-Tetrachloroethane	ND	5	100				

Surrogate Recovery (%)
Dibromofluoromethane 123
Toluene-d8 96
4-Bromofluorobenzene 90

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

Sample Matrix: Water Sample Date/Time: 5/17/99 15:30

Lab#: G11489

Client ID: STMW-4

Date Reported: 5/28/99

Date Received: 5/19/99 Date Analyzed: 5/27/99

Dilution Factor: 50

	N/alma -	PQL	DLR	Compound	Value	PQL	DLR
Compound	Value	20		Chloroform	ND	5	250
Acetone	ND *			Chloromethane	ND	5	250
Acrylonitrile	ND			2-Chlorotoluene	ND	5	250
Allyl Chloride	ND	5		4-Chlorotoluene	ND	5	250
tert-Amyl Methyl Ether	ND	5	250	Dibromochloromethane	ND	5	250
Веплепе	1600	5			ND	5	250
Benzyl Chloride	ND	5		1,2-Dibromo-3-chloropropane	ND	5	250
Bromobenzene	ND	5		1,2-Dibromoethane	ND	5	250
Bromochloromethane	ND	5	250	Dibromomethane		20	1,000
Bromodichloromethane	ND	5	250	cis-1,4-Dichloro-2-butene	ND	20	1,000
Bromoform	ND	5	250	trans-1,4-Dichloro-2-butene	ND_		250
Bromomethane	ND	5	250	Dichlorodifluoromethane	ND	5	
	ND	20	1000	1,2-Dichlorobenzene	ND	5	250
tert-Butanol	ND	20	1000	1,3-Dichlorobenzene	ND	5	250
2-Butanone (MEK)	ND	5		1,4-Dichlorobenzene	ND	5	250
tert-Butyl Ethyl Ether		5		1,1-Dichloroethane	ND	5	250
n-Butylbenzene	ND	5		1,2-Dichloroethane	ND	5	
sec-Butylbenzene	ND			1,1-Dichioroethene	ND	5	250
tert-Butylbenzene	ND	5	250	cis-1,2-Dichloroethene	ND	5	250
Carbon Disulfide	ND	5		trans-1,2-Dichloroethene	ND	5	250
Carbon Tetrachloride	ND	5			ND	5	250
Chlorobenzene	ND ND	5		1,2-Dichloropropane	ND	5	250
Chloroethane	ND_	5		1,3-Dichloropropane	ND	5	+
2-Chloroethyl Vinyl Ether	ND	5	250	2,2-Dichloropropane	пли		

Dibromofluoromethane Toluene-d8	119 101 89
4-Bromofluorobenzene	07

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

Sample Matrix: Water

Sample Date/Time: 5/17/99 15:30

Lab #: G11489 Client ID: STMW-4

Date Reported: 5/28/99 Date Received: 5/19/99 Date Analyzed: 5/27/99

Dilution Factor: 50

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5	250	Tetrachloroethene	ND	5	250
cis-1,3-Dichloropropene	ND	5	250	Toluene	ND	5	250
trans-1,3-Dichloropropene	ND	5	250	1,2,3-Trichlorobenzene	ND	5	250
Diisopropyl Ether	ND	5	250	1,2,4-Trichlorobenzene	ND	5	250
Ethyl Methacrylate	ND	5		1,2,3-Trichloropropane	ND	5	250
Ethylbenzene	ND	5	250	1,1,1-Trichloroethane	ND	5	250
Hexachlorobutadiene	ND	5		1,1,2-Trichloroethane	ND	5	250
2-Hexanone	ND	20		Trichloroethene	ND	5	250
Iodomethane	ND	5	250	Trichlorofluoromethane	ND	5	250
Isopropylbenzene	ND	5		1,2,4-Trimethylbenzene	ND	5	250
p-Isopropyltoluene	ND	5	250	1,3,5-Trimethylbenzene	ND	5	250
Methacrylonitrile	ND	5	250	Xylenes (total)	ND	5	250
Methyl Methacrylate	ND	5	250	Vinyl Chloride	ND	5	250
4-Methyl-2-Pentanone (MIBK)	ND	20	1000				
Methyl-tert-butyl Ether	ND	5	250				
Methylene Chloride	ND	5	250				
Naphthalene	ND	5	250				
Pentachloroethane	ND	5	250				
Propionitrile	ND	5	250	·			
n-Propyibenzene	ND	5	250				
Styrene	ND	5	250				
1,1,1,2-Tetrachloroethane	ND	5	250				
1,1,2,2-Tetrachloroethane	ND	5	250				

Recovery (%) Surrogate 119

Dibromofluoromethane 101 Toluene-d8

4-Bromofluorobenzene 89 1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #1-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

Date Reported: 5/28/99

Sample Matrix: Water

Date Received: 5/19/99

Sample Date/Time: 5/17/99

Date Analyzed: 5/27/99

Lab #: G11490

Dilution Factor: 10

Client ID: STMW-5

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Acetone	ND	20	200	Chloroform	ND	5	50
Acrylonitrile	ND	5	50	Chloromethane	ND	5	50
Allyl Chloride	ND	5	50	2-Chlorotoluene	ND	5	50
tert-Amyl Methyl Ether	ND	5	50	4-Chlorotoluene	ND	5	50
Benzene	88	5	50	Dibromochloromethane	ND	5	50
Benzyl Chloride	ND	5	50	1,2-Dibromo-3-chloropropane	ND	5	50
Bromobenzene	ND	5	50	1,2-Dibromoethane	ND	5	50
Bromochloromethane	ND	5	50	Dibromomethane	ND	5	50
Bromodichloromethane	ND	5	50	cis-1,4-Dichloro-2-butene	ND	20	200
Bromoform	ND	5	50	trans-1,4-Dichloro-2-butene	ND	20	200
Bromomethane	ND	5	50	Dichlorodifluoromethane	ND	5	50
tert-Butanol	ND	20	200	1,2-Dichlorobenzene	ND	5	50
2-Butanone (MEK)	ND	20	200	1,3-Dichlorobenzene	ND	5[50
tert-Butyl Ethyl Ether	ND	5	50	1,4-Dichlorobenzene	ND	5	50
n-Butylbenzene	ND	5	50	1,1-Dichloroethane	ND	5	50
sec-Butylbenzene	ND	5	50	1,2-Dichloroethane	ND	5	50
tert-Butylbenzene	ND	5	50	1,1-Dichloroethene	ND	5	50
Carbon Disulfide	ND	3	50	cis-1,2-Dichloroethene	ND	5	50
Carbon Tetrachloride	ND	5	50	trans-1,2-Dichloroethene	ND	5	50
Chlorobenzene	ND	- 5	50	1,2-Dichloropropane	ND	5	50
Chloroethane	ND	5	50	1,3-Dichloropropane	ND	5	50
2-Chloroethyl Vinyl Ether	ND	5	50	2,2-Dichloropropane	ND	5	50

Surrogate	Recovery (%)
Dibromofluoromethane	121
Toluene-d8	102
4-Bromofluorobenzene	93

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Sample diluted due to high concentrations of non-target hydrocarbons

4. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

Certified Analytical Report Volatile Organic Compounds by EPA Method 8260B

Client: Enviro Soil Tech Consultant

Sample Matrix: Water

Sample Date/Time: 5/17/99 17:00

Lab #: G11490 Client ID: STMW-5 Date Reported: 5/28/99

Date Received: 5/19/99

Date Analyzed: 5/27/99

Dilution Factor: 10

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5		Tetrachloroethene	ND	5	50
cis-1,3-Dichloropropene	ND	5	50	Тоіцеле	ND	5	50
trans-1,3-Dichloropropene	ND	5	50	1,2,3-Trichlorobenzene	ND	5	50
Diisopropyl Ether	ND	5	50	1,2,4-Trichlorobenzene	ND	5	50
Ethyl Methacrylate	ND	5		1,2,3-Trichloropropane	ND	5	50
Ethylbenzene	ND	5	50	1,1,1-Trichloroethane	ND	5	50
Hexachlorobutadiene	ND	5	50	1,1,2-Trichloroethane	ND	5	50
2-Hexanone	ND	20		Trichloroethene	ND	5	50
Iodomethane	ND	5	50	Trichlorofluoromethane	ND	5	50
Isopropylbenzene	ND	5	50	1,2,4-Trimethylbenzene	ND	5	50
p-Isopropyltoluene	ND	5	50	1,3,5-Trimethylbenzene	ND	5	50
Methacrylonitrile	ND	5	50	Xylenes (total)	ND	5	50
Methyl Methacrylate	ND	5	50	Vinyl Chloride	ND	5	50
4-Methyl-2-Pentanone (MIBK)	ND	20	200				
Methyl-tert-butyl Ether	ND	5	50				
Methylene Chloride	ND	5	50				
Naphthalene	ND	5	50				
Pentachloroethane	ND	5	50				
Propionitrile	ND	5	50				
n-Propylbenzene	ND	- 5	50				
Styrene	ND	5	50				
1,1,1,2-Tetrachloroethane	ND	5	50				
1,1,2,2-Tetrachloroethane	ND	5	50				

Surrogate	Recovery (%)
Dibromofluoromethane	121
Toluene-d8	102
4-Bromofluorobenzene	93

1. Results are reported in ug/Liter (ppb)

2. DLR= DF x PQL

3. Sample diluted due to high concentrations of non-target hydrocarbons

4. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

ND: None Detected at or above DLR DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography Laboratory Control Sample

QC Batch #: GBG2990520

Matrix: Water Units: μg/Liter Date Analyzed: 05/20/99

Quality Control Sample: Blank Spike

ARAMETER	Method#	мв	SA	SR	SP	SP	SPD	SPD	RPD	• •	CLIMITS
		μg/Liter	μg/Liter	μg/Liter	μg/Liter	% R	μg/Liter	%R		RPD	%R
enzene	8020	< 0.50	4.5	ND	4.4	98	4.4	98	0.0	25	70-130
oluene	8020	<0.50	25.0	ND	24,0	96	24.0	96	0.0	25	70-130
hyl Benzene	8020	<0.50	4.5	ND	4.8	107	4.9	109	2.1	25	70-130
ylenes	8020	< 0.50	25.0	ND	25.4	102	25.8	103	1.6	25	70-130
asoline	8015	<50.0	500	ND	502	100	510	102	1.6	25	70-130
a-TFT(S.S.)-PID	8020		-	103%	99%	•	90%	•			65-135
a-TFT(S.S.)-FID	8015			100%	96%		89%				65-135

efinition of Terms:

па: Not Analyzed in QC batch

MB: Method Blank SA: Spike Added SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result SP (%R): Spike % Recovery SPD: Spike Duplicate Result

SPD (%R): Spike % Recovery

nc: Not Calculated

QUALITY CONTROL RESULTS SUMMARY

Volatile Organic Compounds Laboratory Control Sample

QC Batch #: WGCMS990524

Matrix: Water Units: µg/L

Date analyzed: 05/24/99

Spiked Sample: Blank Spike

O musi	 									
AMETER	Method #	SA μg/L	SR µg/L	SP μg/L	SP %R	SPD µg/L	SPD %R	RPD	RPD	QC LIMITS %R
ichloroethene	8240/8260	25	ND	27	106	28	110	3.7	25	50-150
l-tert-butyl ether	8240/8260	25	ND	29	115	30	120	4.1	25	50-150
ne	8240/8260	25	ND	25	99	26	104	4.7	25	50-150
proethene	8240/8260	25	ND	28	111	27	109	1.8	25	50-150
ıe	8240/8260	25	ND	25	101	26	103	2.0	25	50-150
benzene	8240/8260	25	ND	29	116	29	117	1.0	25	50-150
rates										
nofluoromethane	8240/8260		124%	133%		134%		,		65-135
chloroethane	8240/8260		121%	132%		135%	~			65-135
ıe -d8	8240/8260		98%	106%		103%				65-135
nofluorobenzene	8240/8260		89%	94%		94%				65-135

ition of Terms:

na: Not Analyzed in QC batch

SA: Spike Added SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

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