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GROUNDWATER MONITORING AND PROGRESS REPORT

Cavanaugh Motors Facility
1700 Park Street
Alameda, California

September 23, 1993

Prepared for

Mr. Dave Cavanaugh
Cavanaugh Motors
1700 Park Street
Alameda, California 94501

prepared by

TMC Environmental Inc.
13908 San Pablo Avenue, Suite 101
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Project Number 101090

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1700 PARK STREET, ALAMEDA, CALIFORNIA

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CERTIFICATION OF PROFESSIONAL SUPERVISION

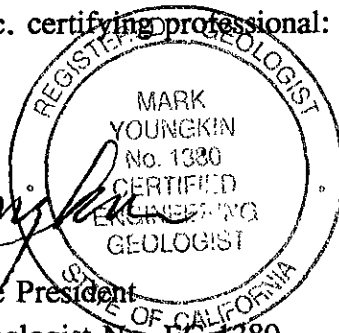
Quarterly Monitoring and Progress Report
Cavanaugh Motors
1700 Park Street
Alameda, California

TMC ENVIRONMENTAL, Inc. supervised the preparation of this Groundwater Monitoring and Progress Report, dated September 23, 1993, for the Cavanaugh Motors facility in the City of Alameda, Alameda County, California. Techniques and standards of care common to the consulting geologic profession in California, where used in the preparation of this report.

This document, signed and stamped with seal, follows section 7835 of the Geologist and Geophysicists Act, Business and Professions Code, State of California and the requirements of the California Regional Water Quality Control Board, San Francisco Bay Region.

TMC Environmental, Inc. certifying professional:


Mark T. Youngkin, Vice President
Certified Engineering Geologist No. EG-1380



License expires June 30, 1994.

GROUNDWATER MONITORING AND PROGRESS REPORT

1700 Park Street, Alameda California

1.0 SUMMARY OF FINDINGS

In December, 1989 and August, 1990, two underground storage tanks (a gasoline tank and a waste oil tank) were removed from separate locations on the site. In April, 1990, and January 1991, accessible contaminated soils were excavated from the tank locations. Approximately 120 cubic yards of contaminated soils were removed, and are now being treated on site.

Subsequently, six groundwater monitoring wells were installed at the site and are indicated in this report as MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6. Groundwater monitoring well MW-1 is located within the gasoline tank excavation. Monitoring well MW-2 is located up-gradient from the former gasoline tank and near the southern limits of the site. Monitoring well MW-4 is located in the western portion of the site, in the vicinity of the former gasoline tank. Groundwater monitoring well MW-6 is located within the limits of the former waste oil tank excavation. Monitoring Wells MW-3 and MW-5 are located in the down gradient direction from the former waste oil tank.

Per the authorization of Cavanaugh Motors, TMC ENVIRONMENTAL, Inc. (TMC) recovered groundwater samples from the above-indicated wells. This work was performed August 11, 1993. All samples were chemically analyzed for the target chemicals: total volatile hydrocarbons (TVH) as gasoline and benzene, toluene, ethylbenzene, and total xylene (BTEX). Additionally, groundwater samples from wells MW-3, MW-5, and MW-6 were tested for diesel, oil & grease and purgeable halocarbons (solvents). Samples from MW-1 continue to show the presence of gasoline and BTEX's. Samples from wells MW-1, MW-2, MW-3 and MW-4 continue to have gasoline and BTEX levels below detection limits. Detectable levels of Ethylbenzene were found in samples from MW-5 and MW-6. Samples from MW-6 continue to have detectable levels of Diesel/Kerosene and dichlorobenzene. The sample recovered from MW-5 had non-detectable levels of chlorobenzene. Concentrations of chlorobenzene in groundwater samples recovered from MW-5 continued to decline over the past two sampling episodes. Detectable levels of petroleum oil and grease were also found in MW-6 in the August, 1993 sampling.

Variations in gasoline and BTEX levels of MW-1 and diesel levels of MW-6 are likely due to fluctuating groundwater levels contacting residual soil contamination in the former tank pits.

Groundwater gradient and direction was estimated by measuring water levels at monitoring wells MW-2, MW-3 and MW-4. Recent groundwater data indicates groundwater flows in a north/northwest direction (North, 4° west), at an average horizontal gradient of 0.008 ft/ft. The nine quarterly groundwater measurement episodes indicate a range of flow direction from N31W to N20E and a range of horizontal gradient from 0.005 ft/ft to 0.014 ft/ft.

Groundwater elevation levels have declined approximately 1½ feet since the May, 1993 sampling episode, and dropped sufficiently to continue with vapor extraction at the site. The vapor extraction system was again started July 7, 1993. The system is being monitored daily as required by the Bay Area Air Quality Management District (BAAQMD). Monitoring data of the affluent air stream (in-coming air from the extraction wells to the system) reveal consistent petroleum soil-gas vapor levels of 400 to 500 ppm. Field instrumentation also suggests a lateral soil vapor extraction radius of approximately 30 to 40 feet from each active extraction well.

2.0 GENERAL SITE INFORMATION

2.1 SITE LOCATION

The Cavanaugh Motors property, called "site" in this report, is at the following address and description, see Plate 1, Site Vicinity Map:

1700 Park Street, City of Alameda
Alameda County, California
Appraisers parcel number: APN 70-192-21-1 and 24
Lots 1, 2, 3, portion of 4, 7 Block E of Alameda
Station Homestead Tract (Book 17 page 60)

The site is at the northeast corner of the intersection of Park Street and Buena Vista Avenue. The corner lot is approximately 150 feet by 200 feet in dimension.

2.2 RESPONSIBLE PARTY

The current property owner's are:

Lee and Dave Cavanaugh
1700 Park Street, Alameda, California 94501

Mr. Dave Cavanaugh is the owner contact, and can be reached at (510) 523-5246.

2.3 CONSULTANT OF RECORD

The consultant of record for this project is:

TMC Environmental Inc. (TMC)
13908 San Pablo Avenue, Suite 101
San Pablo, California 94806

The contact for TMC is Mr. Tom Edwards, president or Mr. Mark Youngkin, vice president. Mr. Edwards and Mr. Youngkin can be reached at (510) 232-8366.

2.4 SITE CONDITION

The site is presently being used for an automobile dealership. The property is in a commercial and residential neighborhood. Current activities include: a new car showroom, sales offices, parts storage and distribution, outside car storage, and vehicle repair shop. No underground storage facilities exist at site.

Foot and vehicle traffic is heavy in this neighborhood and site. The site contains a large building with paved parking areas and driveways. Access to the dealership is from both Park Street that borders the property on the northwest and Buena Vista Avenue that borders the property on the southwest. A gasoline station and automobile dealers occur across Park Street to the north. A motor vehicle repair shop bounds the site on the northeast. Adjacent to the site on the south is a residential neighborhood.

Six groundwater monitoring wells exist at the site. These are indicated in this report and on Plate 2, Site Map, as MW-1 MW-2, MW-3, MW-4, MW-5 and MW-6. These wells are constructed to monitor the shallow water bearing zone beneath the site. Additionally, four soil extraction wells exist on site, and are indicated as VW1, VW2, VW3 and VW4.

2.5 ENVIRONMENTAL SITE WORK

In December, 1989 and August, 1990, two underground storage tanks (gasoline and automotive waste oil) were removed from separate locations at the site. After the tanks were removed, soils found to be contaminated were removed. These materials are currently being treated on site. Site conditions prevented the complete removal of the contaminated soils. Approximately 120 cubic yards of contaminated soil were removed and stockpiled on site.

Subsequent to the tank removals and soil excavation, TMC performed a subsurface soils and groundwater investigation at the site. As part of the investigation, six groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6; see Plate 2, Site Map) were installed. Results of this work indicate that contamination associated with the former tanks is localized.

Detectable levels of gasoline were found in soils and groundwater in the vicinity of the former gasoline tank. Detectable levels of diesel/kerosene and dichlorobenzene were found in the vicinity of the former waste oil tank.

During the subsurface investigation, four vapor extraction wells (VW-1, VW-2, VW-3 and VW-4) were installed at the site. The purpose of the wells is to remediate the contaminated soils in the vicinity of the former gasoline tank. In February, 1993, TMC constructed a vapor extraction system. Initial pilot tests of the system revealed that elevated groundwater levels at the site (due to high rainfall) hampered the effectiveness of the system. The system was then shut off. Once the groundwater levels dropped, the system was again started; July 7, 1993.

2.6 GEOLOGY

The site is approximately one half mile west of the Oakland Estuary and Inner Harbor Waterway. San Francisco Bay is about one mile west of the site. The Inner Harbor Waterway connects San Leandro Bay and San Francisco Bay. As suggested by U.S. Geological Survey geological publications, the site is on the Alameda Bay Plain that has an alluvial fan environment. The Merritt Sand Formation is the main stratigraphic unit in the upper aquifer. This unit usually has unconsolidated beach sand and near shore deposits. Borings on the site have encountered unconsolidated sands and clayey sands. Lenses of clayey sand occur in the sand. It appears that groundwater in the Merritt Sand Formation is unconfined. Groundwater is approximately eight feet below surface grade (bsg) at the site during most of the year, but may rise to within five feet bsg during winter rainfall.

2.7 LEAD IMPLEMENTING AGENCY

The enforcing agency authorized by the Regional Water Quality Control Board (RWQCB) to oversee this site is:

Alameda County Health Care Services Agency
Department of Environmental Health
Division of Hazardous Materials
80 Swan Way, Room 200, Oakland, California 94621

The officer overseeing this case is: Ms. Juliet Shin. Ms. Shin can be called at (510) 271-4320.

TMC followed the guidelines by the enforcing agency and the Bay Area Regional Water Quality Control Board (RWQCB) in preparing this report. The investigation, reclamation, and reporting guidelines applicable to leaking underground fuel tanks, available through these agencies, apply to this discharge. These guidelines are available from the Alameda County Health Care Services Agency.

3.0 GROUNDWATER SAMPLING

On August 11, 1993, TMC recovered groundwater samples from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6. Samples were chemically analyzed for the target chemicals: total volatile hydrocarbons (TVH) as gasoline, benzene, toluene, ethylbenzene, and total xylene (BTEX). Groundwater samples from wells MW-3, MW-5, and MW-6 were additionally tested for diesel, oil & grease and purgeable halocarbons. The following tables summarize the chemical compounds detected. Table 1, Gasoline Results for Groundwater Samples, lists the gasoline results for groundwater samples.

TABLE 1 GASOLINE RESULTS FOR GROUNDWATER SAMPLES

<i>Date Sampled</i>	<i>Monitoring Well</i>	<i>TPH gas ug/L</i>	<i>Benzene ug/L</i>	<i>Toluene ug/L</i>	<i>Ethyl benzene ug/L</i>	<i>Xylenes ug/L</i>
<i>June 1990 Groundwater Sampling</i>						
6-08-90	MW-1	28,000.	6200.	7000.	630.	6100.
6-08-90	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
6-08-90	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	0.9
6-08-90	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	0.9
<i>December 1990 Groundwater Sampling</i>						
12-17-90	MW-1	7,200.	620.	250.	1200.	1400.
12-17-90	MW-2	ND < 50	1.1	ND < 0.5	2.3	2.1
12-17-90	MW-3	140	ND < 0.5	1.3	1.3	9.1
12-17-90	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	0.9
<i>July 1991 Groundwater Sampling</i>						
7-29-91	MW-1	21,000.	890.	1900.	320.	1700.
7-30-91	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	0.9
7-18-91	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	0.9
7-30-91	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	0.9
7-18-91	MW-5	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	0.9
7-18-91	MW-6	ND < 50	1.3	ND < 0.5	ND < 0.5	1.6
<i>December 1991 Groundwater Sampling</i>						

Date Sampled	Monitoring Well	TPH gas ug/L	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L
12-4-91	MW-1	4,300.	3.2	1.3	88.	630.
12-4-91	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
12-4-91	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
12-4-91	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
12-4-91	MW-5	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
12-4-91	MW-6	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
<i>April 1992 Groundwater Sampling</i>						
4-30-92	MW-1	16,000	910	2000	250	1400
4-29-92	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
4-29-92	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
4-29-92	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
4-30-92	MW-5	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
4-30-92	MW-6	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
<i>July 1992 Groundwater Sampling</i>						
7-28-92	MW-1	12,000	1200	2300	340	1800
7-27-92	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
7-27-92	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
7-27-92	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
7-27-92	MW-5	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
7-28-92	MW-6	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
<i>October 1992 Groundwater Sampling</i>						
10-19-92	MW-1	5,000	400	710	170	750
10-19-92	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
10-19-92	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
10-19-92	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
10-19-92	MW-5	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
10-19-92	MW-6	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
<i>February 1993 Groundwater Sampling</i>						
2-24-93	MW-1	8,800	780	1200	230	1000
2-24-93	MW-2	ND < 50	0.5	ND < 0.5	ND < 0.5	ND < 0.5

Date Sampled	Monitoring Well	TPH gas ug/L	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L
2-24-93	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
2-24-93	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
2-24-93	MW-5	ND < 50	ND < 0.5	1.8	ND < 0.5	ND < 0.5
2-24-93	MW-6	ND < 50	ND < 0.5	6.8	ND < 0.5	ND < 0.5
<i>May 1993 Groundwater Sampling</i>						
5-19-93	MW-1	24,000	2500	4700	560	3100
5-19-93	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
5-19-93	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
5-19-93	MW-4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
5-19-93	MW-5	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
5-19-93	MW-6	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
<i>August 1993 Groundwater Sampling</i>						
8-11-93	MW-1	13,000	1,200	2,100	350	2,000
8-11-93	MW-2	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
8-11-93	MW-3	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
8-11-93	MW-4	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
8-11-93	MW-5	ND < 50	ND < 0.5	ND < 0.5	0.8	ND < 0.5
8-11-93	MW-6	ND < 50	ND < 0.5	ND < 0.5	7.9	ND < 0.5

ND- Not detected below reporting limits

The results of the samples show that MW-1 (located in the backfill of the former gasoline tank) continues to have detectable levels of gasoline and BTEX's. Chart 1, MW-1 Quarterly Sampling Results for Gasoline and Benzene, and Chart 2, MW-1 Quarterly Sampling Results for BTEX, show fluctuating gasoline and BTEX concentrations over the past nine quarterly sampling episodes. All other wells continue to have non-detectable levels of gasoline. This latest sampling show wells MW-5 and MW-6 now have detectable levels of ethylbenzene. Samples from well MW-6 (located in the pit back fill of a former waste oil tank) continue to have detectable levels of Diesel; see Chart 3, MW-6 Quarterly Sampling Results for Diesel.

When compared to the previous May 19, 1993, sampling episode, the August 11, 1993, sample results show a decrease in gasoline, BTEX and diesel levels in wells MW-1 and MW-6, respectively. Seasonal variations in contaminant concentration is apparent, with the highest concentrations occurring during periods of wet weather or highest groundwater levels.. TMC believes the gasoline concentrations result from the contact of water in the tank pit with residual soil contamination along the building foundation.

Previous groundwater sampling show detectable levels of Chlorobenzene in monitoring wells MW-5 and MW-6. In the latest sampling (August 11, 1993) shows the continuing presence of Chlorobenzene in well MW-6, however, non-detectable levels where in MW-5; see Chart 4, MW-5 and MW-6 Quarterly Sampling Results for Chlorobenzene. Chlorobenzene was reported in soil samples recovered during a waste oil tank removal.

Table 2 presents the results of laboratory analyses for extractable petroleum hydrocarbons and purgeable halocarbons in water:

TABLE 2 DIESEL, OIL & GREASE AND GASOLINE RESULTS FOR WATER SAMPLES

<i>Date Sampled</i>	<i>Monitoring Well</i>	<i>Diesel ug/L</i>	<i>Kerosene ug/L</i>	<i>Oil & Grease mg/L</i>	<i>Chlorobenzene ug/L</i>
<i>July 1991 Groundwater Sampling</i>					
7-18-91	MW-3	NA	NA	ND<5	NA
7-18-91	MW-5	NA	NA	ND<5	NA
7-18-91	MW-6	NA	NA	ND<5	NA
<i>December 1991 Groundwater Sampling</i>					
12-4-91	MW-3	ND<50	ND<50	ND<5	ND<1.0
12-4-91	MW-5	ND<50	ND<50	ND<5	4.6
12-4-91	MW-6	1,400	ND<50	ND<5	33
<i>April 1992 Groundwater Sampling</i>					
4-29-92	MW-3	ND<50	ND<50	ND<5	ND<1.0
4-29-92	MW-5	ND<50	ND<50	ND<5	3
4-29-92	MW-6	670	ND<50	ND<5	7

Date Sampled	Monitoring Well	Diesel ug/L	Kerosene ug/L	Oil & Grease mg/L	Chlorobenzene ug/L
<i>July 1992 Groundwater Sampling</i>					
7-28-92	MW-3	ND < 50	ND < 50	ND < 5	ND < 1.0
7-28-92	MW-5	ND < 50	ND < 50	ND < 5	2
7-28-92	MW-6	1,700	ND < 50	ND < 5	17
<i>October 1992 Groundwater Sampling</i>					
10-19-92	MW-3	ND < 50	ND < 50	ND < 5	ND < 1.0
10-19-92	MW-5	ND < 50	ND < 50	ND < 5	2
10-19-92	MW-6	500	ND < 50	ND < 5	26
<i>February 1993 Groundwater Sampling</i>					
2-24-93	MW-3	ND < 50	ND < 50	ND < 5	ND < 1.0
2-24-93	MW-5	ND < 50	ND < 50	ND < 5	1
2-24-93	MW-6	ND < 50	170 +	ND < 5	6
<i>May 1993 Groundwater Sampling</i>					
5-19-93	MW-3	ND < 50	ND < 50	ND < 5	ND
5-19-93	MW-5	ND < 50	ND < 50	ND < 5	2
5-19-93	MW-6	670	ND < 50	ND < 5	4
<i>August 1993 Groundwater Sampling</i>					
8-11-93	MW-3	ND < 50	ND < 50	ND < 5	ND < 1
8-11-93	MW-5	ND < 50	ND < 50	ND < 5	ND < 1
8-11-93	MW-6	80	*	7.0	10

ND - NOT DETECTED BELOW REPORTING LIMITS

NA - NOT ANALYZED BY LABORATORY

+ - DOES NOT MATCH DIESEL STANDARD (POSSIBLE MOTOR OIL HYDROCARBONS)

* - KEROSENE RANGE NOT REPORTED DUE TO OVERLAP OF HYDROCARBON RANGES

4.0 GROUNDWATER MEASUREMENTS

Once the wells were uncapped, each was allowed to equilibrate with atmospheric pressure. The wells were periodically measured until two successive measurements of the water elevation in each well agreed within 0.01 of a foot. Groundwater levels were measured with an electronic sounder. Details of groundwater measuring are in Appendix A. By measuring the water levels in three groundwater monitoring wells,

MW-2, MW-3, and MW-4, TMC estimated the down gradient direction and horizontal gradient. The following table summarizes the groundwater measurements recorded for selected monitoring wells.

Table 3 summarizes groundwater level data collected over the nine sampling episodes.

TABLE 3 GROUNDWATER MEASUREMENTS FROM MONITORING WELLS

Date	Well Label	Water Level	Casing Elevation (msl)	Water Elevation (msl)
6-20-90	MW2	-7.16	16.73	9.57
6-20-90	MW3	-7.37	15.89	8.52
6-20-90	MW4	-7.60	16.39	8.79
9-13-90	MW2	-8.78	16.73	7.95
9-13-90	MW3	-8.70	15.89	7.19
9-13-90	MW4	-8.80	16.39	7.59
12-17-90	MW2	-8.78	16.73	7.95
12-17-90	MW3	-8.42	15.89	7.47
12-17-90	MW4	-8.61	16.39	7.78
12-4-91	MW2	-7.99	16.73	8.74
12-4-91	MW3	-8.18	15.89	7.71
12-4-91	MW4	-8.26	16.39	8.13
4-29-92	MW2	-6.05	16.73	10.68
4-29-92	MW3	-6.73	15.89	9.16
4-29-92	MW4	-6.81	16.39	9.58
8-29-92	MW1	-7.92	16.39	8.47
8-29-92	MW2	-7.82	16.73	8.91
8-29-92	MW3	-8.21	15.89	7.68
8-29-92	MW4	-8.14	16.39	8.25
8-29-92	MW5	-7.57	15.13	7.56
8-29-92	MW6	-8.00	15.98	7.98
10-19-92	MW1	-8.44	16.39	7.95
10-19-92	MW2	-8.37	16.73	8.36

<i>Date</i>	<i>Well Label</i>	<i>Water Level</i>	<i>Casing Elevation (msl)</i>	<i>Water Elevation (msl)</i>
10-19-92	MW3	-8.58	15.89	7.31
10-19-92	MW4	-8.53	16.39	7.86
10-19-92	MW5	-7.96	15.13	7.17
10-19-92	MW6	-8.44	15.98	7.54
2-24-93	MW1	-5.36	16.39	11.03
2-24-93	MW2	-5.42	16.73	11.31
2-24-93	MW3	-6.11	15.89	9.78
2-24-93	MW4	-6.30	16.39	10.09
2-24-93	MW5	-5.32	15.13	9.81
2-24-93	MW6	-5.40	15.98	10.58
5-19-93	MW-1	-6.35	16.39	10.04
5-19-93	MW-2	-6.35	16.73	10.38
5-19-93	MW-3	-7.14	15.89	8.75
5-19-93	MW-4	-7.09	16.39	9.30
5-19-93	MW-5	-6.38	15.13	8.77
5-19-93	MW-6	-6.57	15.98	9.41
8-11-93	MW-1	-8.06	16.39	8.33
8-11-93	MW-2	-8.09	16.73	8.64
8-11-93	MW-3	-8.45	15.89	7.44
8-11-93	MW-4	-8.31	16.39	8.08
8-11-93	MW-5	-7.68	15.13	7.45
8-11-93	MW-6	-8.16	15.98	7.82

Table 4 summarizes the estimated groundwater down gradient direction and horizontal gradient. TMC used a three point solution to estimate the direction and gradient. Groundwater level data from MW-1 and MW-6 were not used in the estimate because these wells are in the back fill of tank excavations. The shallow water-bearing unit beneath the site appears unconfined.

TABLE 4 GROUNDWATER GRADIENT AND DIRECTION

<i>Measurement Date</i>	<i>Down Gradient Direction</i>	<i>Horizontal Gradient</i>	<i>Average Water Level feet above msl</i>
6-20-90	North 26 degrees West	0.009 ft/ft	9.0
9-13-90	North 2 degrees East	0.005 ft/ft	7.9
12-17-90	North 19 degrees East	0.003 ft/ft	8.1
12-4-91	North 12 degrees West	0.008 ft/ft	8.5
4-29-92	North 20 degrees West	0.012 ft/ft	9.8
8-29-92	North 5 degrees West	0.009 ft/ft	8.1
10-19-92	North 2 degrees East	0.007 ft/ft	7.7
2-24-93	North 31 degrees West	0.014 ft/ft	10.4
5-19-93	North 7 degrees West	0.014 ft/ft	9.4
8-11-93	North 4 degrees West	0.008 ft/ft	7.96

The down gradient direction and the horizontal gradient vary between groundwater sampling measurement episodes. The variation is relatively low for measurements of this type. The changing groundwater gradient indicates the shallow water is sensitive to seasonal changes in rainfall.

A significant increase in groundwater elevations occurred likely due to the heavy seasonal rainfall in January and February, 1993. The most recent data indicate a North 4 degrees West flow direction at an average horizontal gradient of 0.008 ft/ft. The horizontal gradient is similar to the topographic slope of the lot. Nine groundwater measurements indicate a range of flow direction from N31W to N20E and a range of horizontal gradient from 0.005 to 0.014 ft/ft. Plate 3, Groundwater Gradient Map, illustrates the most recent (August, 1993) horizontal gradient measured across the site.

5.0 SOIL AND WATER SAMPLE DATA QUALITY

The quality assurance and quality control (QA/QC) review of the new sample data for this report indicates that the data is acceptable for the purpose and objectives of this project. TMC did not review data summarized from previous reports. The U.S.

Environmental Protection Agency (EPA) Test Methods for Evaluating Solid Waste (SW-846) and the California Department of Health Services (DOHS) Leaking Underground Fuel Tank (LUFT) Manual were used to evaluate the sampling data since the SW-846 and LUFT methodologies were primarily used to analyze the samples. The samples were analyzed by Curtis & Tompkins, Ltd. of Berkeley, California. The certified laboratory reports and chain-of-custody forms are presented in Appendix A.

A. QUALITY OF GROUNDWATER SAMPLES

During sampling, all monitoring wells were purged of at least 3 bore volumes of water, in accordance with EPA protocol. At the end of purging, the well water was clear in all wells. The deionized water equipment blank for the sampling reported no detectable compounds.

B. CHAIN OF CUSTODY DOCUMENTATION

Complete chain-of-custody forms were maintained for all samples from the time of their collection until their submission to the laboratory. No errors in chain-of-custody protocol were noted.

C. PURGEABLE HALOCARBONS

Based on the QC data reviewed, the results of analyses for halogenated volatile organic hydrocarbons by EPA SW-846 Method 8010 appear reasonably representative. Groundwater samples were analyzed within the EPA-specified maximum holding time. Surrogate spike recoveries were judged acceptable based on professional judgement. Matrix spike/matrix spike duplicate percent recoveries and relative percent differences (RPD's) were either within EPA-specified limits or were within limits set by professional judgment where no EPA limits exist.

D. TOTAL VOLATILE HYDROCARBONS WITH BTEX

Based on the QC data reviewed, total volatile hydrocarbons (TVH) as gasoline analysis by LUFT methods and benzene, toluene, ethylbenzene, and total xylenes (BTEX) analyses by EPA SW-846 Methods modified 5030/8020 appear reasonably representative. Samples were analyzed within the Regional Water Quality Control

Board specified 7 day maximum holding time for water samples. Matrix spike/matrix spike duplicate percent recoveries and relative percent differences (RPD's) were either within EPA-specified limits or were within limits set by professional judgment where no EPA limits exist.

E. EXTRACTABLE PETROLEUM HYDROCARBONS

Based on the QC data review, extractable petroleum hydrocarbons (TEH) analysis by LUFT methods appear reasonably representative. Samples were analyzed within the Regional Water Quality Control Board specified 14 day maximum holding time for water samples. Matrix spike/matrix spike duplicate percent recoveries and relative percent differences (RPD's) were either within EPA-specified limits or were within limits set by professional judgment where no EPA limits exist.

F. HYDROCARBON OIL & GREASE

Based on the QC data reviewed, the results of analyses for hydrocarbon oil & grease by gravimetric analysis, method SMWW 17:5520BF appear reasonably representative. Groundwater samples were analyzed within the EPA-specified maximum holding time. Surrogate spike recoveries were judged acceptable based on professional judgement. Matrix spike/matrix spike duplicate percent recoveries and relative percent differences (RPD's) were either within EPA-specified limits or were within limits set by professional judgment where no EPA limits exist. No hydrocarbon oil & grease was detected in the method blanks.

6.0 OPERATION OF SOIL VENTING SYSTEM

The soil venting system was constructed under permit from the Bay Area Air Resources Management District during February 1993. The system began operation on March 17, 1993. Two of the four existing soil vents are presently connected to the blower system. Elevated groundwater elevations (due to heavy seasonal rainfall) hampered operation of the system during the spring and early summer, 1993. As such, the system was shut off. Once the groundwater elevations dropped, the system was again turned on July 7, 1993.

7.0 SCHEDULE OF ACTIVITIES

The following activities are scheduled to be performed during the next quarter:

- Quarterly groundwater sampling and analysis with quarterly measurement of groundwater gradient and flow direction.
- Continued operation of the soil venting system.
- Continued treatment of the on-site soil stock pile.

8.0 LIMITATIONS

The procedures and opinions in this report agree with professional practice as provided in the guidelines of the California Regional Water Quality Control Board for addressing fuel leaks from underground tanks. This report is only part of the ongoing work required by the lead implementing agency at this site. The lab test results rely on limited data collected at the sampling location only. Budget constraints restrict the amount of testing allowed. The lab test results do not apply to the general site as a whole. Therefore, TMC Environmental Inc. cannot have complete knowledge of the underlying conditions. We provide the information in the resulting report to our client so he may make a more informed decision about site conditions. The professional opinion and judgement in the reports is subject to revisions in light of new information. We do not state or imply any guarantees or warranties that the subject property is or is not free of environmental impairment. Monitoring wells and soil venting wells are temporary sampling and remediation wells that eventually must be permitted and destroyed by a licensed driller at the clients expense.

CHART 1
MW1 QUARTERLY SAMPLING RESULTS FOR GASOLINE
CAVANAUGH MOTORS

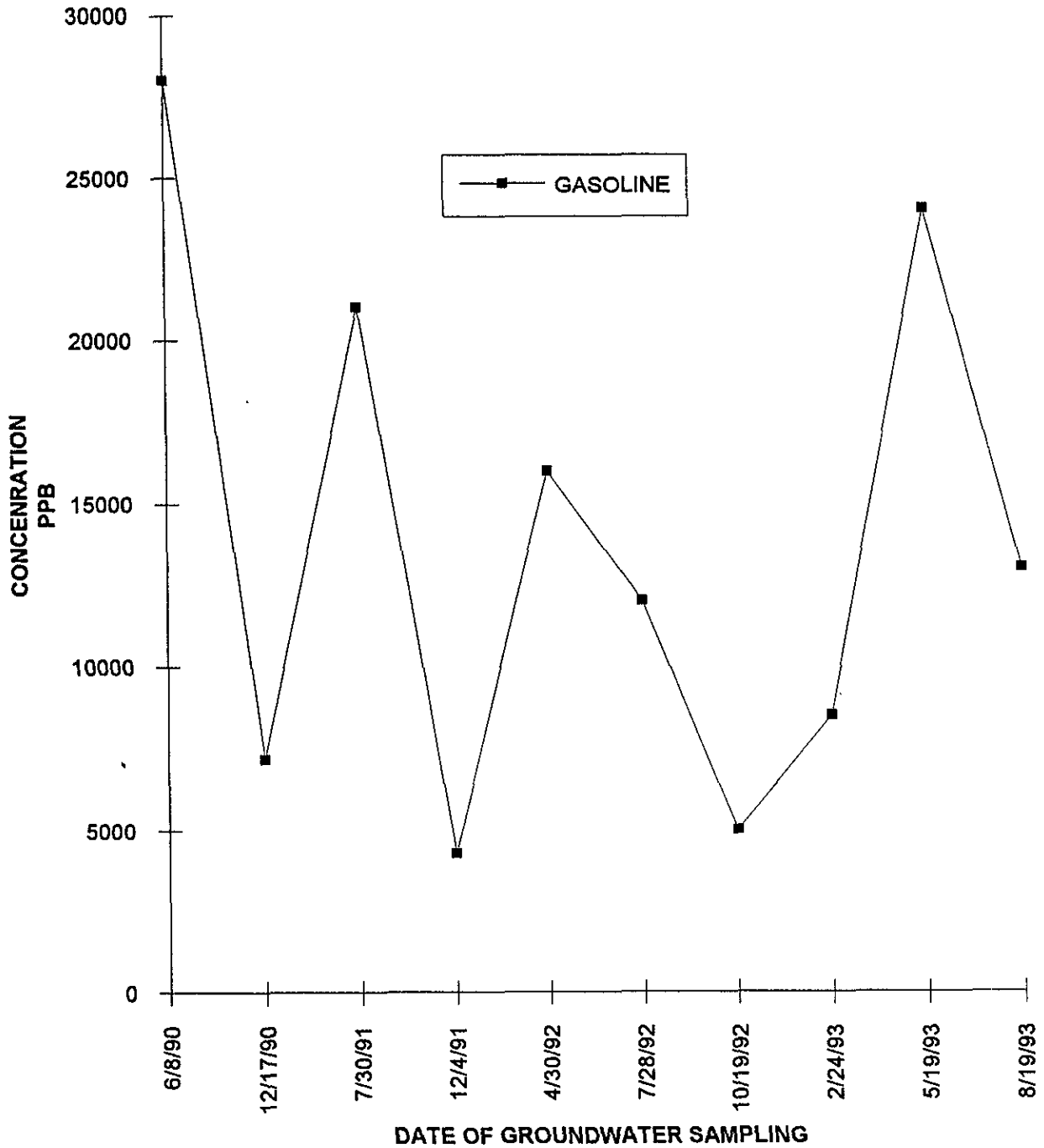


CHART 2
MW1 QUARTERLY SAMPLING RESULTS FOR BTEX

CAVANAUGH MOTORS

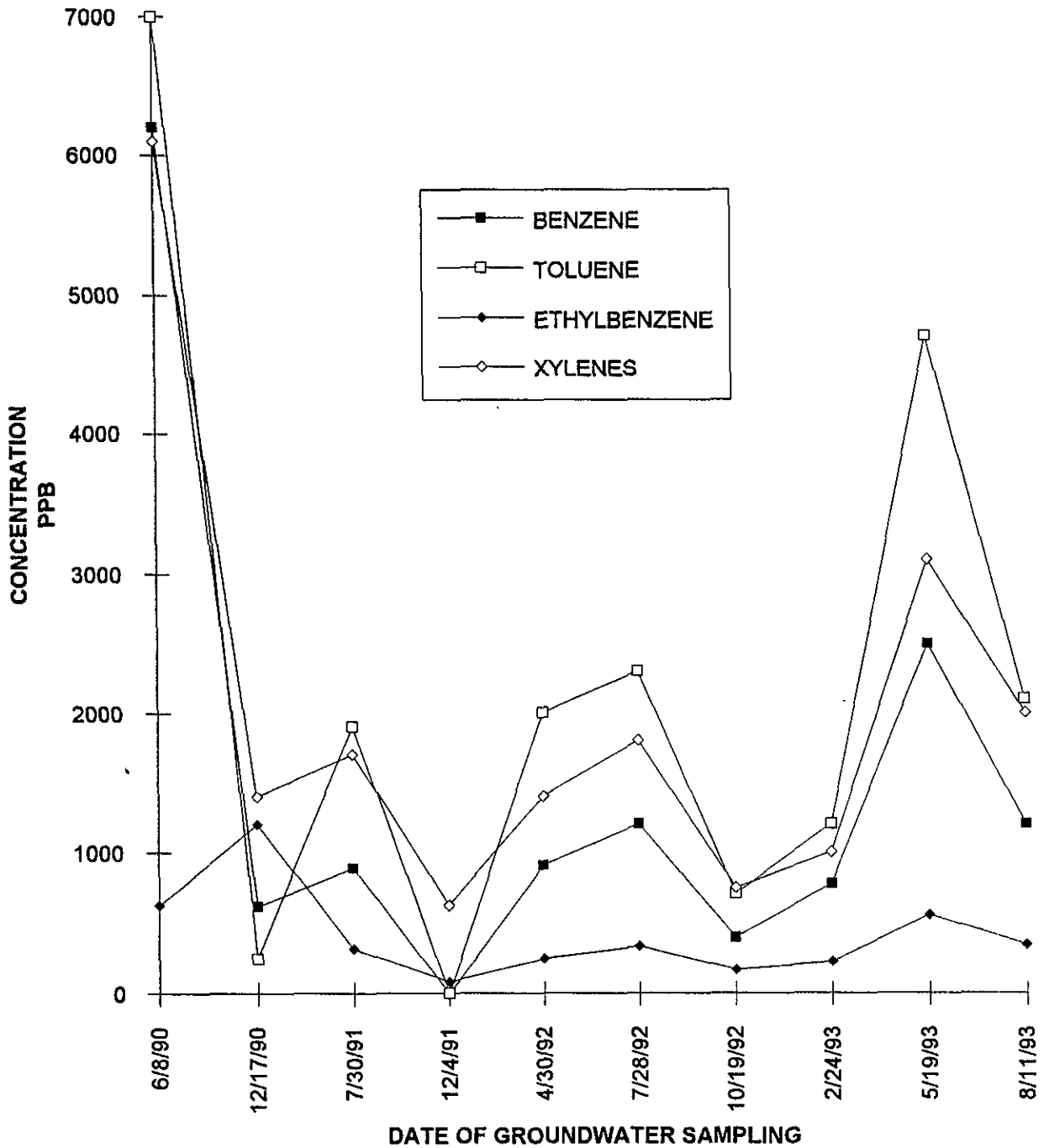


CHART 3
MW-6 QUARTERLY SAMPLING RESULTS FOR DIESEL
CAVANAUGH MOTORS

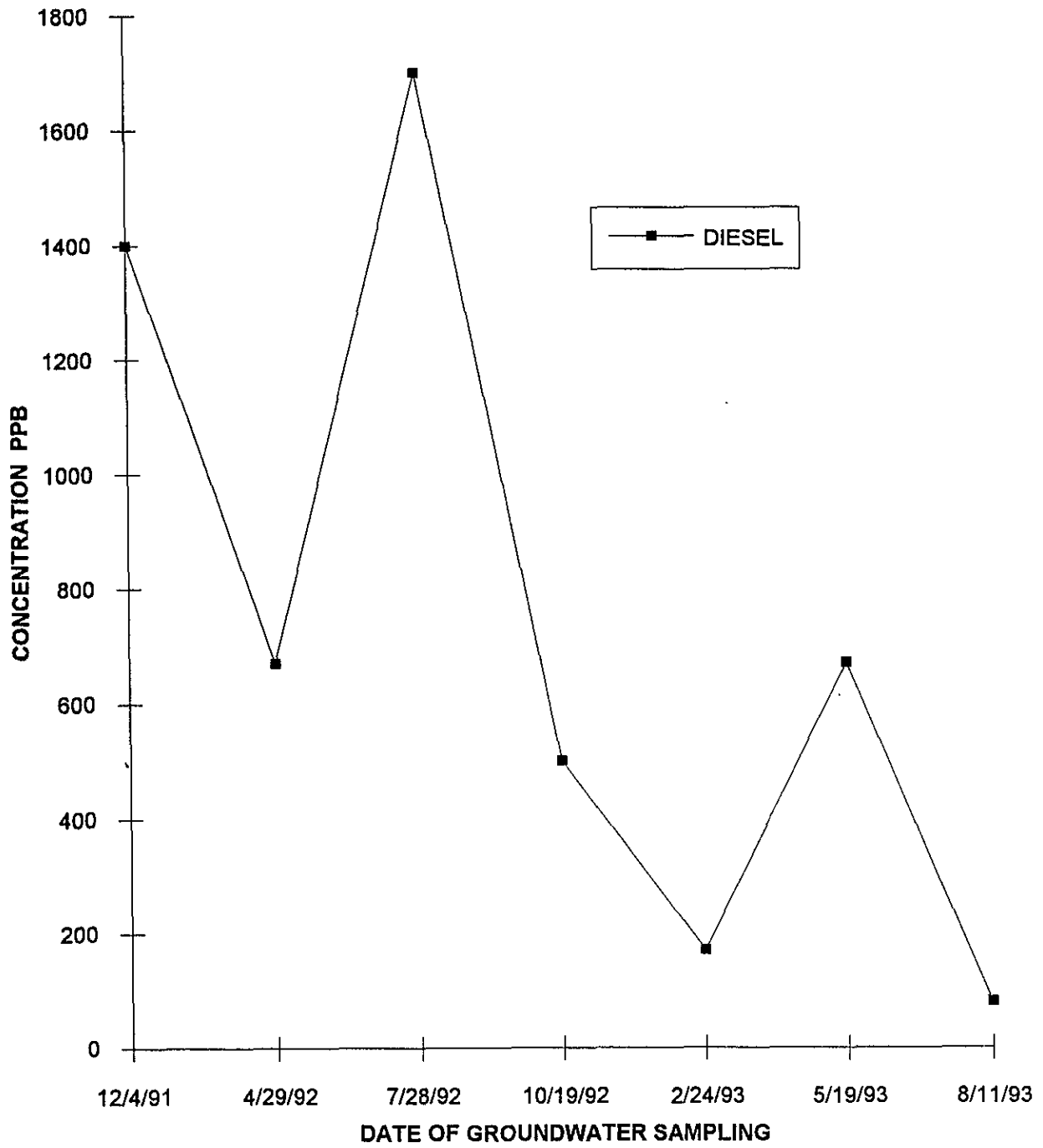
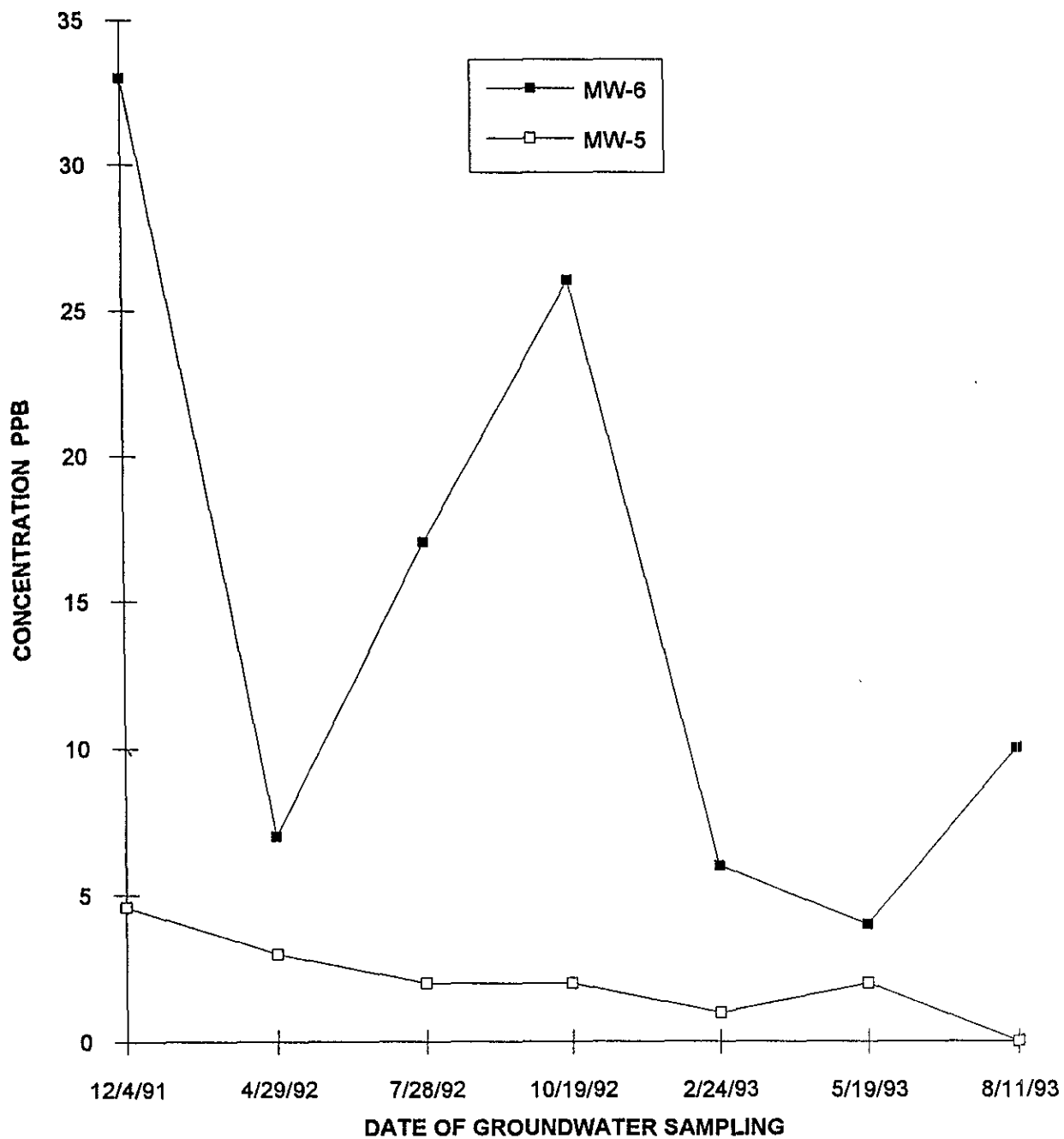
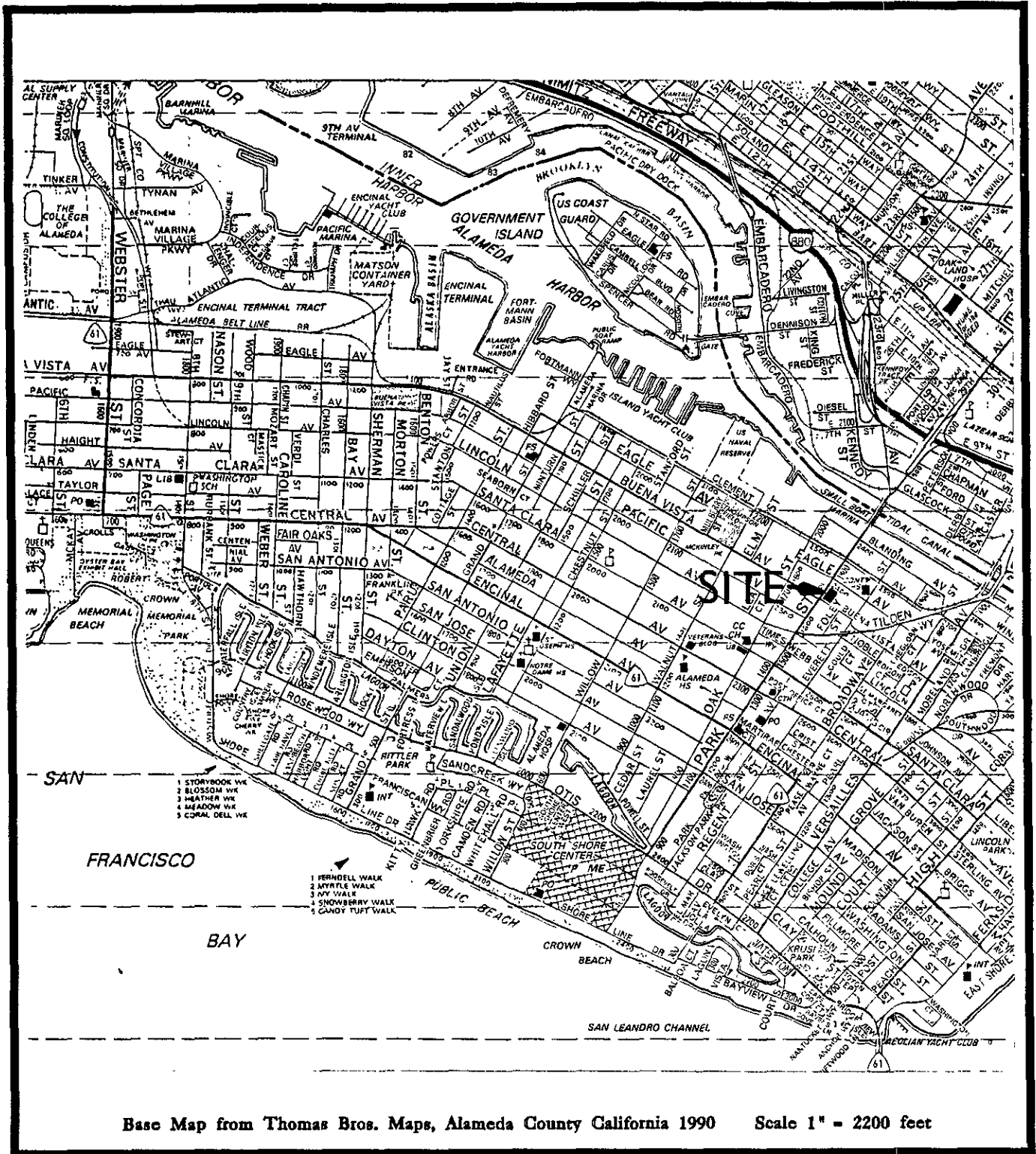


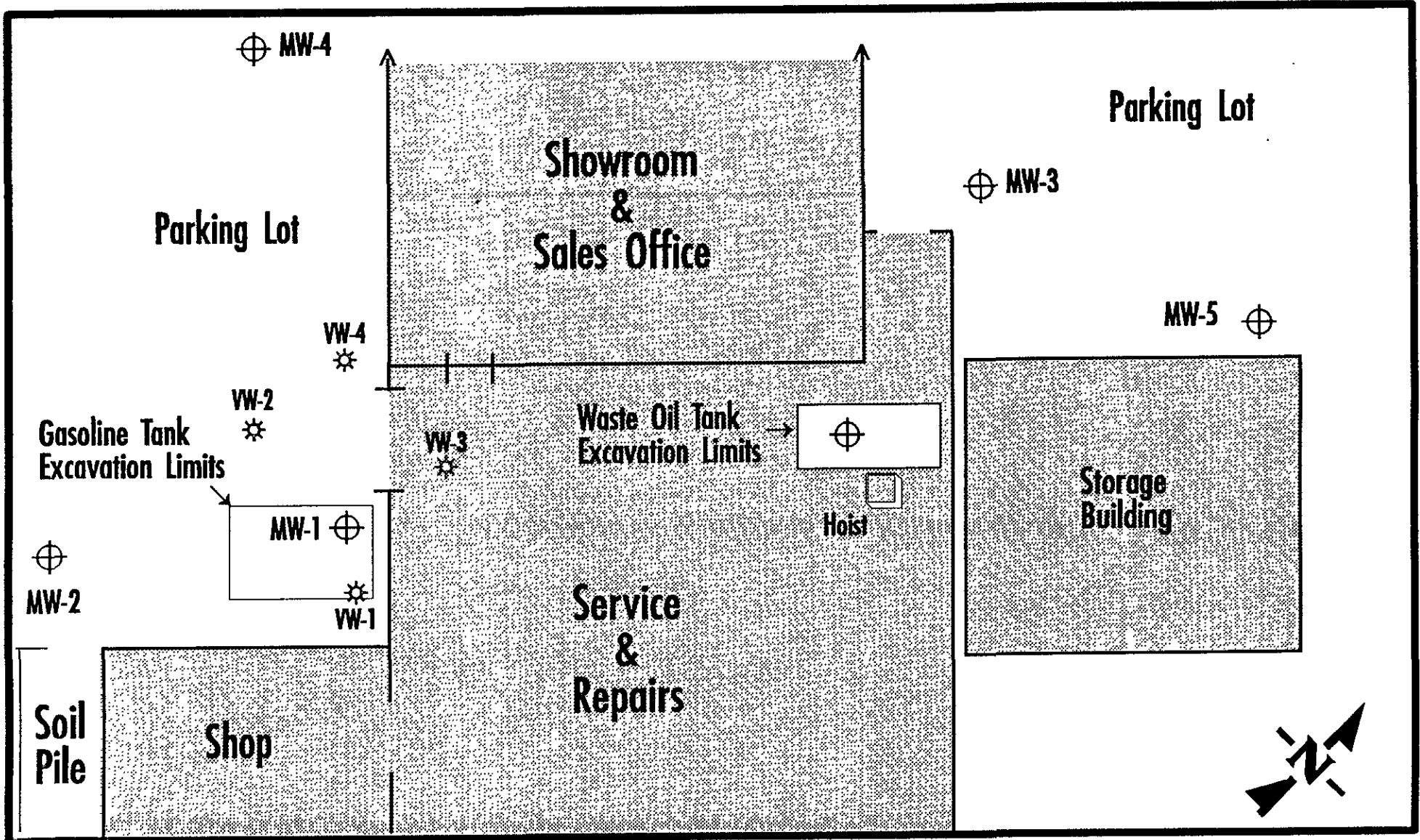
CHART 4
MW-5 AND MW-6 QUARTERLY SAMPLING
RESULTS FOR CHLOROBENZENE

CAVANAUGH MOTORS








<p>SITE VICINITY MAP</p> <p>Cavanaugh Motors</p> <p>1700 Park Street Alameda, California</p> <p>Project No. 109001 May 1992</p>	<p>PLATE</p> <p>1</p>
--	-------------------------------------



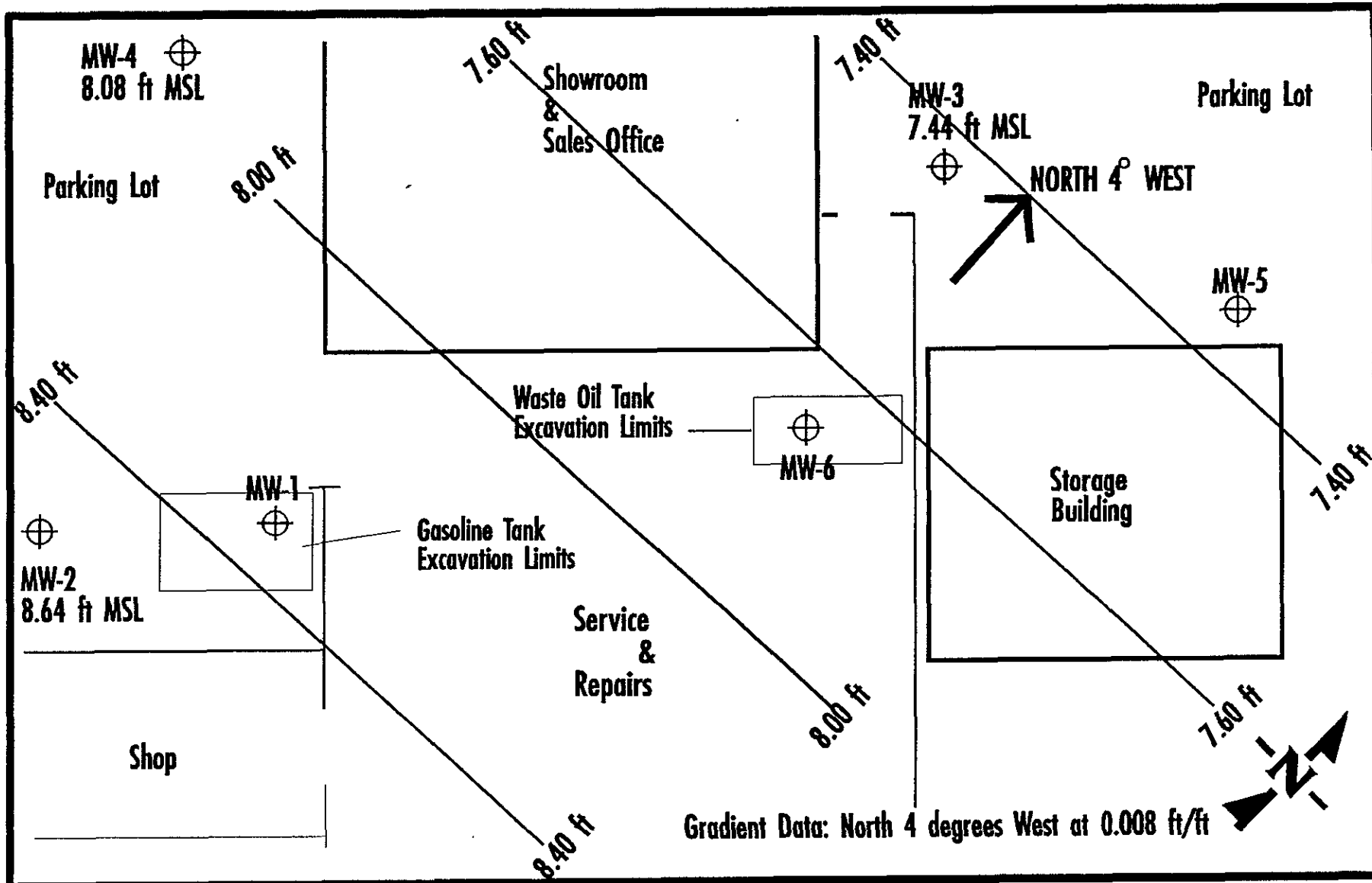
LEGEND

- MW-0  Monitoring Well
- VW-1  Vapor Extraction Well
-  Building Interiors

Project No. 101090
 September, 1993
 Scale 1 inch = 20 feet

SITE PLAN

Cavanaugh Motors
 1700 Park Street, Alameda California



MW-0
1.00 ft



Monitoring Well with
elevation of groundwater
in feet MSL.

LEGEND

Project No. 109001

August, 1993

Scale 1 inch = 20 feet

**GROUNDWATER GRADIENT
MAP**

Cavanaugh Motors

1700 Park Street, Alameda California

APPENDIX A
CERTIFIED ANALYTICAL REPORTS,
CHAIN-OF-CUSTODY AND ANALYSIS REQUEST FORMS,
WELL SAMPLING FORMS

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MWI	DATE COLLECTED: 8-11-93	JOB NUMBER: 101090
JOB NAME: CAVANAUGH MOTORS		SAMPLERS NAME: T. GHIGLIOTTO & M. EDWARDS
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.:

TIME MEASURED
DEPTH IN FEET
(Measure to 0.01')

14:00	14:13				
8.06	8.06				

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.25'	DEPTH TO WATER: 8.06'	DIAMETER: WELL DIAMETER: 4"
-----------------------------	-----------------------	-----------------------------

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 12.0705 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm : 0 (FLAME OUT)
--------------------------	--

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	14:21	77.8	0.84	BLACK	6.84
4	14:25	77.1	0.84	BLACK	6.75
8	14:29	77.1	0.85	CLEAR W/BLK SPECK	6.68
12	14:40	77.1	0.79	CLEAR	6.72
14	14:44	77.3	0.79	CLEAR W/BLK SPECK	6.74

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 14:54
SAMPLE TURBIDITY: 23.9 NTU	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW2	DATE COLLECTED: 8-11-93	JOB NUMBER: 101090
JOB NAME: CAVANAUGH MOTORS		SAMPLERS NAME: T. GHIGLIOTTO & M. EDWARDS
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: LOCK & CAP IN PLACE; BUT NEED REPLACING. DRY

TIME MEASURED
DEPTH IN FEET
(Measure to 0.01')

11:01	11:17				
8.09'	8.09'				

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.58'	DEPTH TO WATER: 8.09'	DIAMETER: WELL DIAMETER 4'
-----------------------------	-----------------------	----------------------------

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 12.6 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm : N/A
--------------------------	----------------------------------

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	11:21	73.1	0.49	CLEAR	7.81
4	11:25	73.8	0.44	CLEAR	7.66
8	11:28	73.1	0.43	CLEAR	7.58
12	11:32	72.8	0.43	CLEAR	7.56
13	11:33	72.6	0.42	CLEAR	7.58

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 11:45
SAMPLE TURBIDITY: 05.2 NTU	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW3	DATE COLLECTED: 8-11-93	JOB NUMBER: 101090
JOB NAME: CAVANAUGH MOTORS		SAMPLERS NAME: T. GHIGLIOTTO & M. EDWARDS
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.:

TIME MEASURED

12:34	12:43				
8.45	8.45				

**DEPTH IN FEET
(Measure to 0.01')**

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.54'	DEPTH TO WATER: 8.45'	DIAMETER: WELL DIAMETER: 4"
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PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 11.8 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm : 0
--------------------------	--------------------------------

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	12:45	75.8	0.46	CLEAR	6.57
4	12:49	73.2	0.44	CLEAR	6.55
8	12:52	73.1	0.43	CLEAR	6.49
12	12:55	72.9	0.43	CLEAR	6.47

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 13:10
SAMPLE TURBIDITY: 06.2 NTU	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW4	DATE COLLECTED: 8-11-93	JOB NUMBER: 101090
JOB NAME: CAVANAUGH MOTORS		SAMPLERS NAME: T. GHIGLIOTTO & M. EDWARDS
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: DRY, CAPPED & LOCKED BUT BOTH NEED REPLACEMENT.

TIME MEASURED
DEPTH IN FEET
(Measure to 0.01')

11:55	12:01				
8.31	8.31				

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.43'	DEPTH TO WATER: 8.31'	DIAMETER: WELL DIAMETER: 4"
-----------------------------	-----------------------	-----------------------------

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 11.7504 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm : 0
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WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	12:03	74.5	0.57	CLEAR	7.20
4	12:07	72.3	0.55	CLEAR	6.86
8	12:10	71.8	0.58	CLEAR	6.83
12	12:13	71.3	0.57	CLEAR	6.82

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 12:29
SAMPLE TURBIDITY: 08.1 NTU	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW5	DATE COLLECTED: 8-11-93	JOB NUMBER: 101090
JOB NAME: CAVANAUGH MOTORS		SAMPLERS NAME: T. GHIGLIOTTO & M. EDWARDS
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.:

TIME MEASURED
DEPTH IN FEET
(Measure to 0.01')

13:05	13:15				
7.68	7.68				

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 17.39'	DEPTH TO WATER: 7.68'	DIAMETER: 2"
-----------------------------	-----------------------	--------------

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 4.9521 GALLONS
 VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm : 0
--------------------------	--------------------------------

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	13:18	72.7	0.38	SLT. CLOUDY	7.10
1.5	13:20	71.8	0.37	SLT. CLOUDY	6.92
3	13:22	71.5	0.36	SLT. CLOUDY	6.91
5	13:25	71.3	0.37	SLT. CLOUDY	6.89

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 13:38
SAMPLE TURBIDITY: 92.0 NTU	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW6	DATE COLLECTED: 8-11-93	JOB NUMBER: 101090
JOB NAME: CAVANAUGH MOTORS		SAMPLERS NAME: T. GHIGLIOTTO & M. EDWARDS
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.:

TIME MEASURED

**DEPTH IN FEET
(Measure to 0.01')**

13:30	13:42				
8.16	8.16				

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 17.85'	DEPTH TO WATER: 8.16'	DIAMETER: 2'
-----------------------------	-----------------------	--------------

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 4.9419 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm : 0
--------------------------	--------------------------------

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	13:44	79.1	3.46	CLEAR	6.81
1.5	13:46	76.3	3.22	VERY CLOUDY	6.71
3	13:49	73.9	2.98	VERY CLOUDY	6.70
5	13:51	69.9	2.79	SLT. CLOUDY	6.68

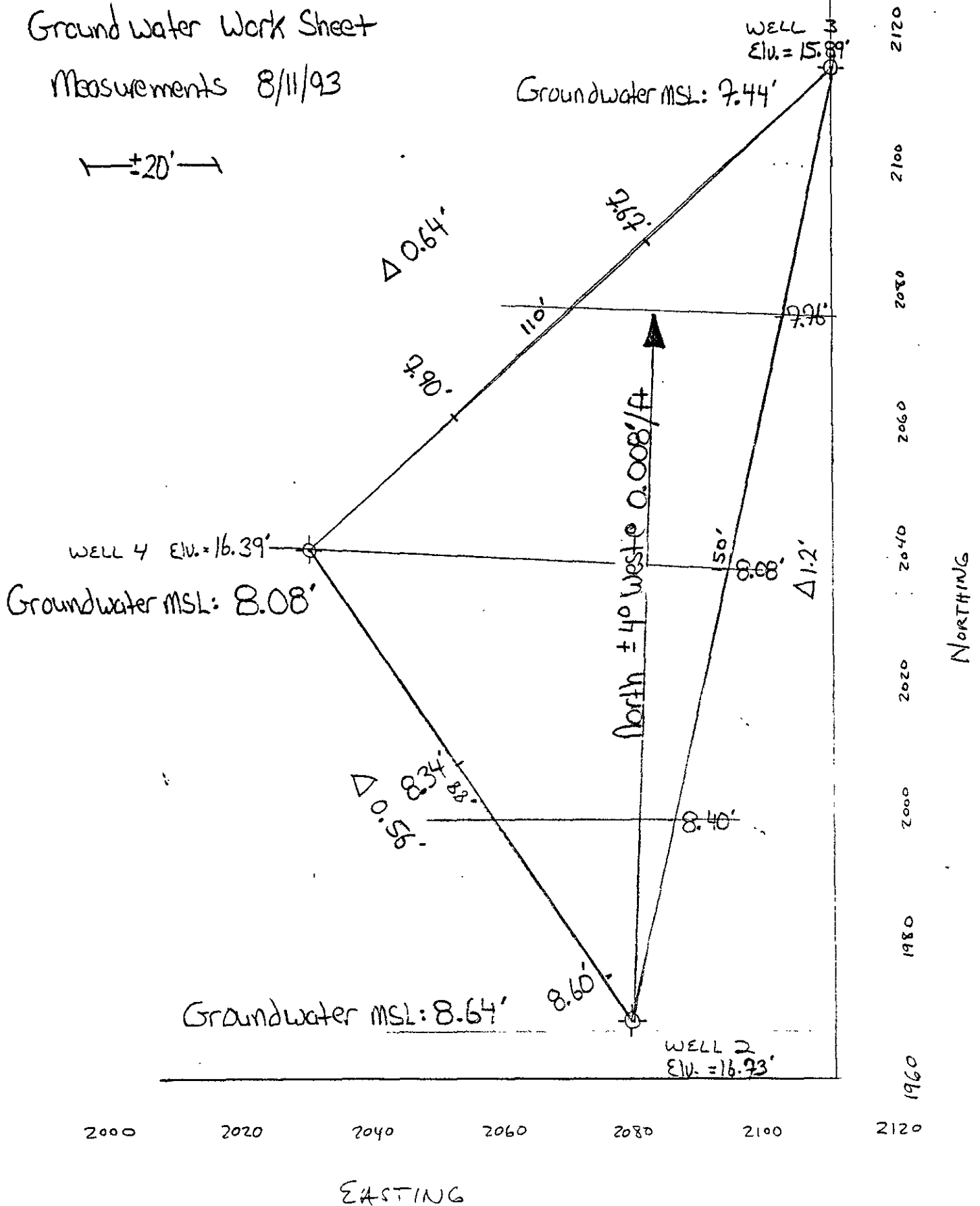
SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 14:05
SAMPLE TURBIDITY: 190.8 NTU	

Cavanaugh Motors # 101090
Alameda, CA

Groundwater Work Sheet

Measurements 8/11/93

±20'





Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

TMC Environmental, Inc.
13908 San Pablo Avenue
Suite 101
San Pablo, CA 94806

Date: 18-AUG-93
Lab Job Number: 111882
Project ID: 101090
Location: Cavanaugh Motors

Reviewed by:

Reviewed by:

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LABORATORY NUMBER: 111882-4
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 101090
 LOCATION: 1700 PARK ST. ALAMEDA CA
 SAMPLE ID: MW3

DATE SAMPLED: 08/11/93
 DATE RECEIVED: 08/11/93
 DATE ANALYZED: 08/16/93
 DATE REPORTED: 08/18/93

EPA 8010
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

103

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LABORATORY NUMBER: 111882-5
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 101090
 LOCATION: 1700 PARK ST. ALAMEDA CA
 SAMPLE ID: MW5

DATE SAMPLED: 08/11/93
 DATE RECEIVED: 08/11/93
 DATE ANALYZED: 08/16/93
 DATE REPORTED: 08/18/93

EPA 8010
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

116

LABORATORY NUMBER: 111882-6
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 101090
 LOCATION: 1700 PARK ST. ALAMEDA CA
 SAMPLE ID: MW6

DATE SAMPLED: 08/11/93
 DATE RECEIVED: 08/11/93
 DATE ANALYZED: 08/16/93
 DATE REPORTED: 08/18/93

EPA 8010
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	10	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

106

=====



LABORATORY NUMBER: 111882-METHOD BLANK
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA CA

DATE ANALYZED: 08/16/93
DATE REPORTED: 08/18/93

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

120



MS/MSD SUMMARY SHEET FOR EPA 8010

Laboratory Number: 111882
Client: TMC Environmental, Inc.
Analysis date: 08/17/93
Sample type: Water
Spike file: 228w022
Spike dup file: 228w023

8010 MS/MSD DATA (spiked at 20 ppb)

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	25.38	120 %	OK	61 - 145
Trichloroethene	24.71	122 %	NOT OK	71 - 120
Chlorobenzene	21.11	106 %	OK	75 - 130
SPIKE DUP COMPOUNDS				
1,1-Dichloroethene	25.01	118 %	OK	61 - 145
Trichloroethene	24.24	119 %	OK	71 - 120
Chlorobenzene	21.28	106 %	OK	75 - 130
SURROGATES				
Bromobenzene (MS)	110.12	110 %	OK	75 - 125
Bromobenzene (MSD)	109.82	110 %	OK	75 - 125
MATRIX RESULTS				
1,1-Dichloroethene	1.458			
Trichloroethene	0.343			
Chlorobenzene	0			

RPD DATA

8010 COMPOUNDS	SPIKE	SPIKE DUP	RPD	STATUS	LIMITS
1,1-Dichloroethene	25.38	25.01	1 %	OK	<= 14
Trichloroethene	24.71	24.24	2 %	OK	<= 14
Chlorobenzene	2.00	21.28	1 %	OK	<= 13

LABORATORY CONTROL SAMPLE SUMMARY SHEET FOR EPA 8010

Laboratory Number: 111882
Analysis date: 08/16/93
Sample type: Soil

LCS file: 228w004

LCS SPIKE DATA (spiked at 20 ppb)

8010 COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	28.06	140 %	OK	59 - 172
Chlorobenzene	25.89	129 %	OK	60 - 133
Trichloroethene	27.31	137 %	OK	62 - 137
SURROGATES				
Bromobenzene	107.08	107 %	OK	75 - 125



LABORATORY NUMBER: 111882
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA CA

DATE SAMPLED: 08/11/93
DATE RECEIVED: 08/11/93
DATE ANALYZED: 08/12/93
DATE REPORTED: 08/18/93

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
111882-1	MW2	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
111882-3	MW4	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
111882-4	MW3	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
111882-5	MW5	ND(50)	ND(0.5)	ND(0.5)	0.8	ND(0.5)
111882-6	MW6	ND(50)	ND(0.5)	ND(0.5)	7.9	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

=====
RPD, % <1
RECOVERY, % 101
=====



LABORATORY NUMBER: 111882
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA CA

DATE SAMPLED: 08/11/93
DATE RECEIVED: 08/11/93
DATE ANALYZED: 08/15/93
DATE REPORTED: 08/18/93

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
111882-7	MW1	13,000	1,200	2,100	350	2,000

QA/QC SUMMARY

=====
RPD, % 2
RECOVERY, % 93
=====



LABORATORY NUMBER: 111882
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA CA

DATE SAMPLED: 08/11/93
DATE RECEIVED: 08/11/93
DATE EXTRACTED: 08/16/93
DATE ANALYZED: 08/17/93
DATE REPORTED: 08/18/93

Extractable Petroleum Hydrocarbons in Aqueous Solutions
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
111882-4	MW3	ND	ND	50
111882-5	MW5	ND	ND	50
111882-6	MW6	**	80	50

ND = Not detected at or above reporting limit.

* Reporting limit applies to all analytes.

** Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY

RPD, %	3
RECOVERY, %	105



Client: TMC Environmental, Inc.

Laboratory Login Number: 111882

Project Name: Cavanaugh Motors
Project Number: 101090

Report Date: 18 August 93

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
111882-004	MW3	Water	11-AUG-93	11-AUG-93	17-AUG-93	ND	mg/L	5	TR	10241
111882-005	MW5	Water	11-AUG-93	11-AUG-93	17-AUG-93	ND	mg/L	5	TR	10241
111882-006	MW6	Water	11-AUG-93	11-AUG-93	17-AUG-93	7.0	mg/L	5	TR	10241

ND = Not Detected at or above Reporting Limit (RL).



Q C B a t c h R e p o r t

Client: TMC Environmental, Inc.
Project Name: Cavanaugh Motors
Project Number: 101090

Laboratory Login Number: 111882
Report Date: 18 August 93

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 10241

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	17-AUG-93

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	86%	SMWW 17:5520BF	17-AUG-93
BSD	88%	SMWW 17:5520BF	17-AUG-93

		Control Limits
Average Spike Recovery	87%	80% - 120%
Relative Percent Difference	2.1%	< 20%



TMC Environmental, Inc.
 13908 San Pablo Ave.
 Suite 101
 San Pablo, California
 (510) 232-8366

CHAIN OF CUSTODY RECORD
ANALYSIS REQUEST FORM
 FOR
ENVIRONMENTAL SAMPLING

JOB # 101290	JOB ADDRESS: 1700 PARK ST., Alameda CA	SAMPLER: Tom Chibliotto
LABORATORY NAME: CURTIS & TOMPKINS, LTD. 2323 FIFTH STREET, BERKELEY, CA 94710		

LAB ID NO.	SAMPLE LABEL	SOIL	WATER	DATE	TIME	TVH-GAS BTEX	TEH-DIESEL	D:10	LAB CASE	EPA	2010
111882-1	MW2		X	8/11/93	1145	X					
2	EQB-4		X	8/11/93	1158				HOID		
3	MW4		X	8/11/93	1229	X					
4	MW3		X	8/11/93	1310	X	X	X	X		
5	MW5		X	8/11/93	1338	X	X	X	X		
6	MW6		X	8/11/93	1405	X	X	X	X		
7	MW1		X	8/11/93	1454	X					

Relinquished By:

Recieved By:

(Print Name) Thomas Chibliotto	Date: 8/11/93	(Print Name)
(Signature) <i>[Signature]</i>	Time: 1623	(Signature)
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)
(Print Name)	Date: 8/11/93	(Print Name) TERA MORRISON
(Signature)	Time: 1623	(Signature) Tera Morrison

LABORATORY NOTES: 5 DAYS TURNAROUND TIME FOR ANALYSIS RESULTS
 PLEASE INCLUDE SAMPLE CONDITION REPORT WITH RESULTS

PLEASE FAX A COPY OF THE ANALYTICAL RESULTS TO THE FOLLOWING:
 TMC ENVIRONMENTAL, INC. AT (510) 232-5133