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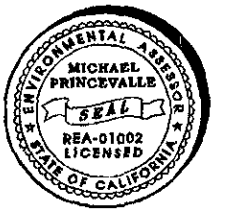
GROUNDWATER MONITORING AND PROGRESS REPORT

1700 Park Street
Alameda, California

MANAGEMENT AND CONSULTING



California Registered Environmental Assessors
California Certified Engineering Geologist
Oregon Registered Engineering Geologist
Oregon Registered UST Soil Cleanup Supervisors

"An Environmental Management Company"

GROUNDWATER MONITORING REPORT

Cavanaugh Motors Facility
1700 Park Street
Alameda, California

April 10, 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
San Pablo, California 94806
Project Number 101090

CERTIFICATION OF PROFESSIONAL SUPERVISION

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

TMC Environmental Inc. supervised the preparation of the Groundwater Monitoring and Progress Report dated April 10, 1993 for the Cavanaugh Motors facility in the City of Alameda, Alameda County, California using techniques and standards of care common to the consulting geologic profession in California.

This document, signed and stamped with seal, follows section 7835 of the Geologist and Geophysicists Act, Business and Professionals 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

REGISTERED GEOLOGIST
MARK
YOUNGKIN
No. 1380
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Mark T. Youngkin, vice president
Certified Engineering Geologist No. EG 1380

License expires June 30, 1994.

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GROUNDWATER MONITORING AND PROGRESS REPORT
1700 Park Street, Alameda California

1. SUMMARY OF FINDINGS

Two underground storage tanks, a gasoline tank and a waste oil tank, were removed from separate locations on the site. Wells MW-1, MW-2, and MW-4 are in the vicinity of the former gasoline tank. Wells MW-3, MW-5, and MW-6 are in the vicinity of the former waste oil tank. On February 24, 1993, TMC tested the ground water from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 for the target chemicals: total volatile hydrocarbons (TVH) as gasoline and benzene, toluene, ethylbenzene, and total xylene (BTEX). The groundwater from wells MW-3, MW-5, and MW-6 were tested for diesel, oil & grease and purgeable halocarbons. The only well on-site to have detectable levels of gasoline and BTEX is well MW1. This well is in the backfill of the former gasoline tank pit. Seasonal variations in gasoline concentration are apparent with the highest concentrations during periods of wet weather. We believe the gasoline concentrations result from the contact of water in the tank pit with residual soil contamination along the building foundation. Concentrations of diesel are reported from well MW-6 which is in the tank pit of the former waste oil tank. We believe the diesel results from contact of groundwater in the tank pit with residual soil contamination along the building foundation. Chlorobenzene was reported from wells MW-5 and MW-6. Chlorobenzene was reported in the original waste oil tank removal soil samples. Concentrations of the detected chemicals continue to decline in value. The first water containing soil layer consists mostly of fine to medium grained sand. The sand contains a clayey sand lens from 5-7 feet below grade at the surface of the groundwater. The shallow water-bearing sand beneath the site is unconfined. By measuring the water levels at three groundwater monitoring wells, MW-2, MW-3, and MW-4, we estimated the down gradient direction. The down gradient direction and the horizontal gradient vary between measurements correlating with seasonal changes in groundwater elevation. The most recent data indicate a North 31 degrees West flow direction at an average horizontal gradient of 0.014 ft/ft. The horizontal gradient is similar to the topographic slope of the lot during periods of low water elevation. During periods of rainfall, the increases. Eight 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. 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. Elevated groundwater elevations due to the recent heavy seasonal rainfall is hampering full operation of the system. Groundwater elevations are from 2-3 feet above previous levels.

2. GENERAL SITE INFORMATION

2.1 SITE LOCATION

The Cavanaugh Motors property, called the site in this report, is at the following address and description:

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.

2.2 RESPONSIBLE PARTY

The current property owner is:

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

Mr. Dave Cavanaugh is the owner contact. He 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 with hydraulic hoists. 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 east. Adjacent to the site on the south is a residential neighborhood.

2.5 GEOLOGY

The site is less than 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. Ground water is about eight feet below surface grade (bsg) at the site during most of the year, but rises to five feet bsg during winter rainfall.

2.6 LEAD IMPLEMENTING AGENCY

As stated in a letter to Mr. Dave Cavanaugh dated January 31, 1990 from the Alameda County Health Care Services Agency; the 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 at 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 workplan. 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. GROUNDWATER SAMPLING

TMC tested the ground water from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 for the target chemicals: total volatile hydrocarbons (TVH) as gasoline and benzene, toluene, ethylbenzene, and total xylene (BTEX). The groundwater from wells MW-3, MW-5, and MW-6 were tested for diesel, oil & grease and purgeable halocarbons. The following tables summarize the chemical compounds detected. The first table lists the gasoline results for groundwater samples:

TABLE 1. GASOLINE RESULTS FOR GROUNDWATER SAMPLES

Date Sampled	*Monitoring Well*	*TPH gas ug/L*	*Benzene ug/L*	*Toluene ug/L*	*Ethyl benzene ug/L*	*Xylenes ug/L*
June 1990 Groundwater Sampling						
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
December 1990 Groundwater Sampling						
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
July 1991 Groundwater Sampling						
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
December 1991 Groundwater Sampling						
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
April 1992 Groundwater Sampling						
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

Date Sampled	*Monitoring Well*	*TPH gas ug/L*	*Benzene ug/L*	*Toluene ug/L*	*Ethyl benzene ug/L*	*Xylenes ug/L*
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
July 1992 Groundwater Sampling						
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
October 1992 Groundwater Sampling						
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
February 24, 1993 Groundwater Sampling						
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
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

ND- Not detected below reporting limits

The only well onsite to have detectable concentrations of gasoline and BTEX is well MW1. This well is in the backfill of the former tank pit. Chart 1 (Plate 3), MW1 Quarterly Sampling Results for Gasoline and Chart 2 (Plate 4), MW1 Quarterly Sampling Results for BTEX, show the results of laboratory analysis for well MW1. These charts show a decline in gasoline concentration with time. BTEX concentrations dropped after the initial sampling interval then stabilized with a slight increase in concentration during the last sampling intervals. Seasonal variations in gasoline concentration are apparent with the highest concentrations during periods of wet weather. We believe the gasoline concentrations result from the contact of water in the tank pit with residual soil contamination along the building foundation.

The following table presents the results of laboratory analyses for extractable petroleum hydrocarbons and purgeable halocarbons in water:

TABLE 2. DIESEL AND OIL RESULTS FOR WATER SAMPLES

Date Sampled	*Monitoring Well*	*Diesel ug/L*	*Kerosene ug/L*	*Oil & Grease mg/L*	*Chlorobenzene ug/L*
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
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
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.
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
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

Date Sampled	*Monitoring Well*	*Diesel ug/L*	*Kerosene ug/L*	*Oil & Grease mg/L*	*Chlorobenzene ug/L*
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

ND- NOT DETECTED BELOW REPORTING LIMITS, NA- NOT ANALYZED BY LABORATORY, + - DOES NOT MATCH DIESEL STANDARD (POSSIBLE MOTOR OIL HYDROCARBONS)

Concentrations of diesel are reported from well MW-6. We believe the diesel results from contact of groundwater in the tank pit with residual soil contamination along the building foundation. Chlorobenzene was reported from wells MW-5 and MW-6. Chlorobenzene was reported in the original waste oil tank removal soil samples. Diesel and chlorobenzene have decreased steadily. Chart 3 (Plate 5) Quarterly Sampling Results for Diesel and Chlorobenzene, shows the results of groundwater sampling.

4. GROUNDWATER MEASUREMENTS

The first water containing soil layer consists mostly of fine to medium grained sand. The sand contains a clayey sand lens from 5-7 feet below grade. The shallow water-bearing sand beneath the site appears unconfined. By measuring the water levels at three groundwater monitoring wells, MW-2, MW-3, and MW-4, we estimated the down gradient direction and horizontal gradient. Large vertical gradients are not expected at this site.

The wells were all allowed to equilibrate with atmospheric pressure. The wells were measured in rotation until two successive measurements of the water elevation agreed within 0.01 of a foot. The following table summarizes the groundwater measurements recorded for selected monitoring wells.

TABLE 3. GROUNDWATER MEASUREMENTS FROM MONITORING WELLS

Date	*Well Label*	*Water Level*	*Casing Elevation*	*Water Elevation*
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
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

Date	*Well Label*	*Water Level*	*Casing Elevation*	*Water Elevation*
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

The following table summarizes the estimated groundwater down gradient direction and horizontal gradient. We used a three point solution to estimate the direction and gradient. We avoided using well MW11 and MW-6 in the estimate because these wells are in the back fill of the tank excavation.

TABLE 4. GROUNDWATER GRADIENT AND DIRECTION

Measurement Date	*Down Gradient Direction*	*Horizontal Gradient*	*Average Water Level feet above msl*
June 20, 1990	North 26 degrees West	0.009 ft/ft	9.0
September 13, 1990	North 2 degrees East	0.005 ft/ft	7.9
December 17, 1990	North 19 degrees East	0.003 ft/ft	8.1
December 4, 1991	North 12 degrees West	0.008 ft/ft	8.5
April 29, 1992	North 20 degrees West	0.012 ft/ft	9.8
August 29, 1992	North 5 degrees West	0.009 ft/ft	8.1
October 19, 1992	North 2 degrees East	0.007 ft/ft	7.7
February 24, 1993	North ? degrees East	0.00? ft/ft	10.4

The down gradient direction and the horizontal gradient vary between measurements. 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 drastic increase in groundwater elevations occurred due to the heavy seasonal rainfall in January and February, 1993. The most recent data indicate a North 31 degrees West flow direction at an average horizontal gradient of 0.014 ft/ft. The horizontal gradient is similar to the topographic slope of the lot. Eight 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 6, Groundwater Gradient Map illustrates the most recent horizontal gradient measured across the site.

5. SOIL AND WATER SAMPLE DATA QUALITY

The quality assurance and quality control (QA/AC) review of the new sample data for this report indicates that the data is acceptable for the purpose and objectives of this project. We 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. Conductivity measurements for five of the six wells on site indicate a total dissolved solids content corresponding to about 300-600 mg/L. Well MW-6 shows anomalous conductivity results at about 3600 mg/L. A laboratory analysis using EPA method 160.1 for total dissolved solids was performed on a water sample collected from well MW-6 on July 18, 1991. The results of the analysis indicate 5,000 mg/L for the water from well MW-6. We believe that the base rock used to back fill the waste oil tank excavation was salty. Therefore, the anomalous total dissolved solids content of well MW-6 is due to back fill salt content. This condition should not effect the usefulness of the well for water quality measurements.

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 was 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. 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 the recent heavy seasonal rainfall is hampering full operation of the system. Groundwater elevations are from 2-3 feet above previous levels.

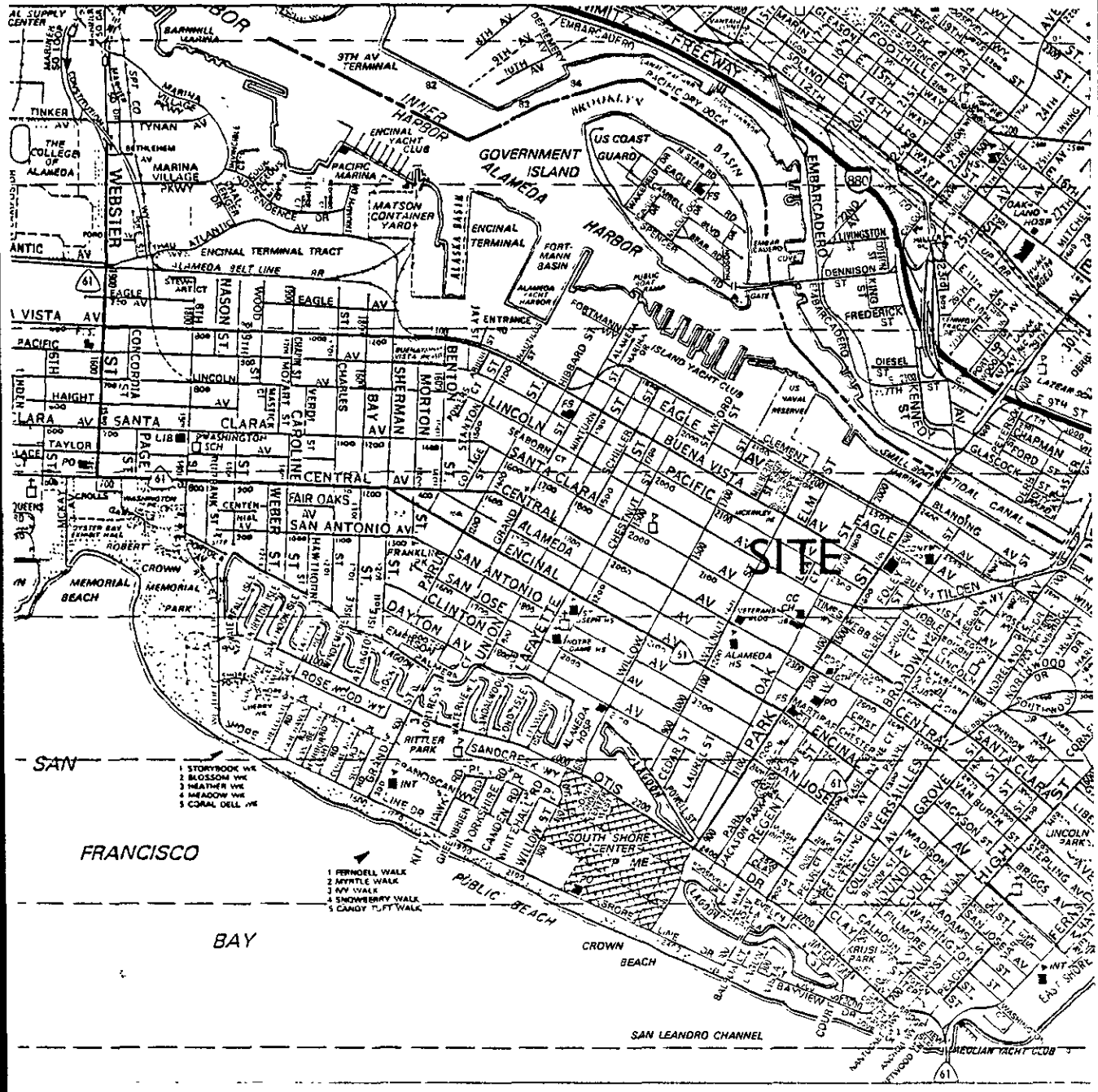
7. SCHEDULE OF ACTIVITIES

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.
- Treatment and disposal of on site stock pile.

8. 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.



Base Map from Thomas Bros. Maps, Alameda County California 1990 Scale 1" = 2200 feet

TMC
Environmental, Inc.

SITE VICINITY MAP

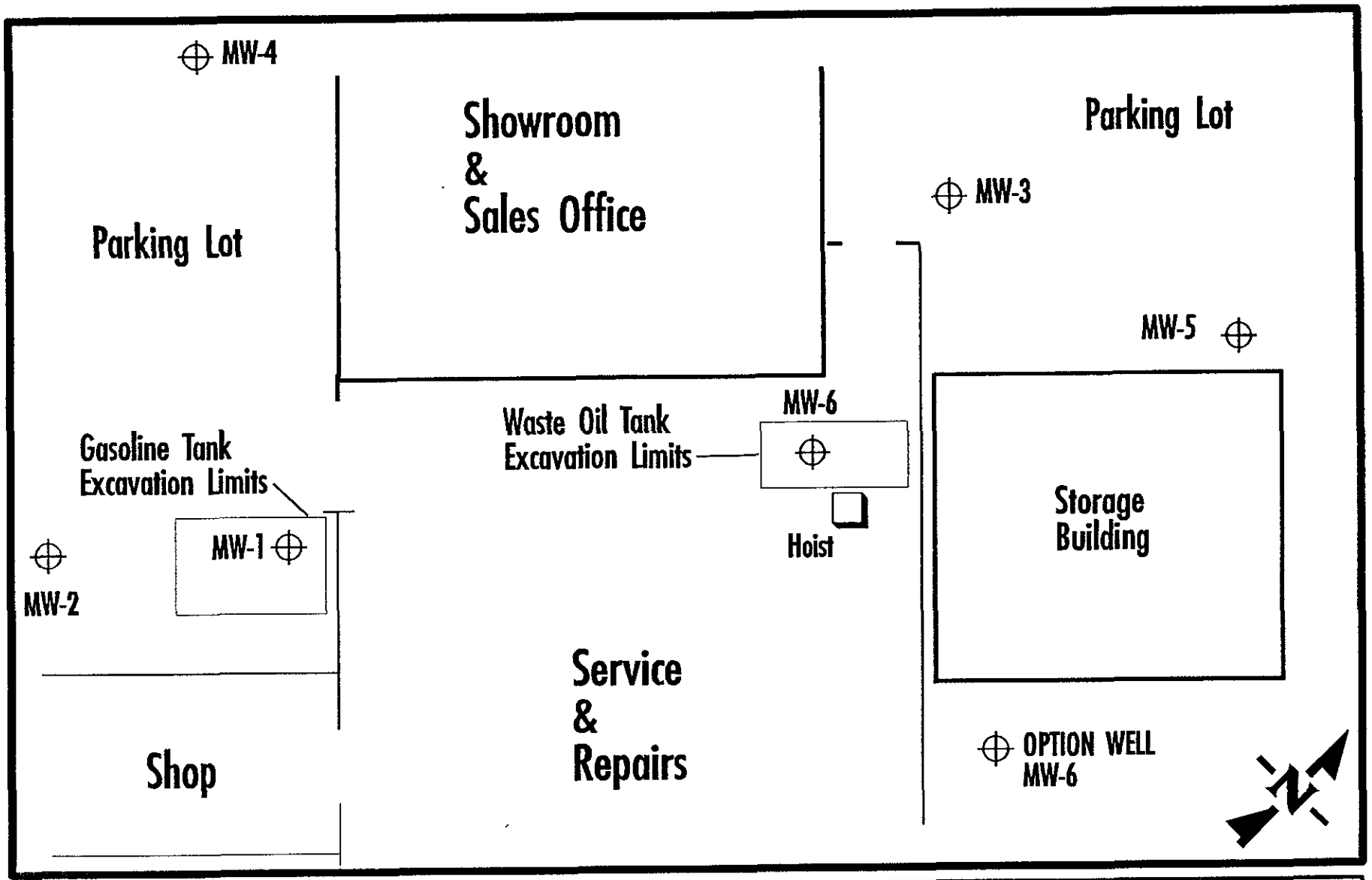
Cavanaugh Motors

1700 Park Street
Alameda, California

Project No. 109001 May 1992

PLATE

1



LEGEND

MW-0 ⊕ Monitoring Well

Project No. 109001
August, 1992
Scale 1 inch = 20 feet

SITE PLAN

Cavanaugh Motors

1700 Park Street, Alameda California

TMC ENVIRONMENTAL INC. SAN PABLO, CALIFORNIA

PLATE 2

CHART 1
MW1 QUARTERLY SAMPLING RESULTS FOR GASOLINE

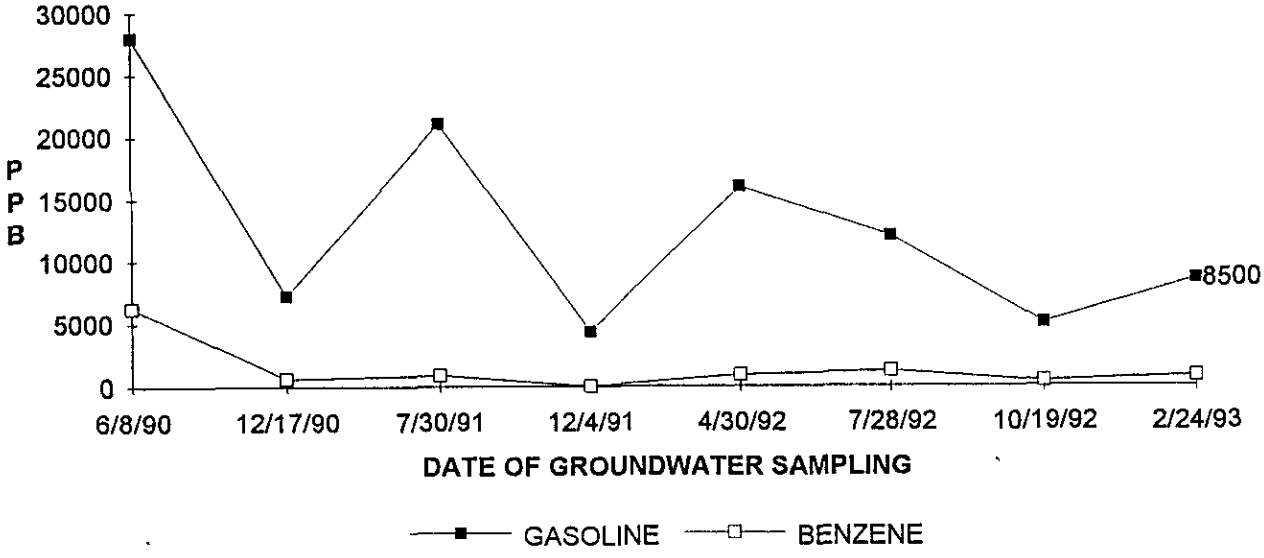


CHART2
MW1 QUARTERLY SAMPLING RESULTS FOR BTEX

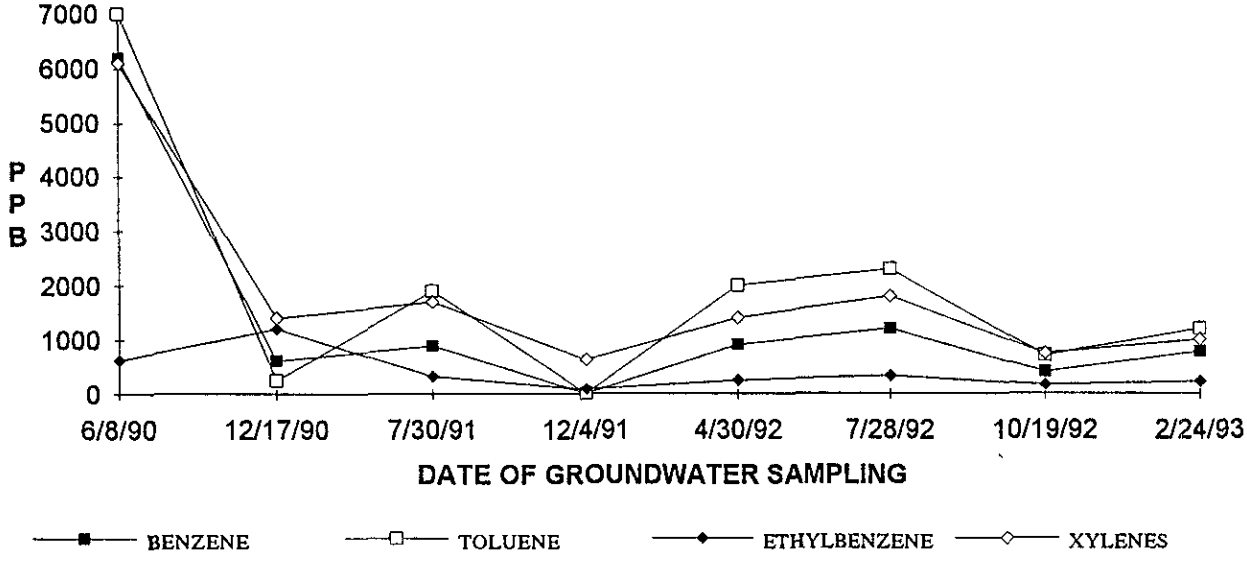
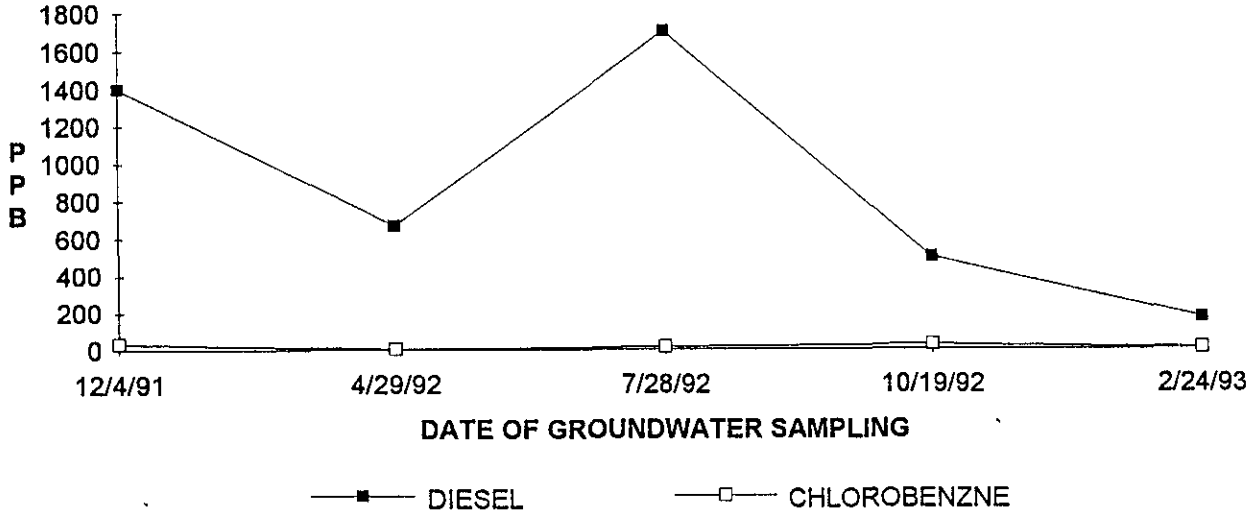
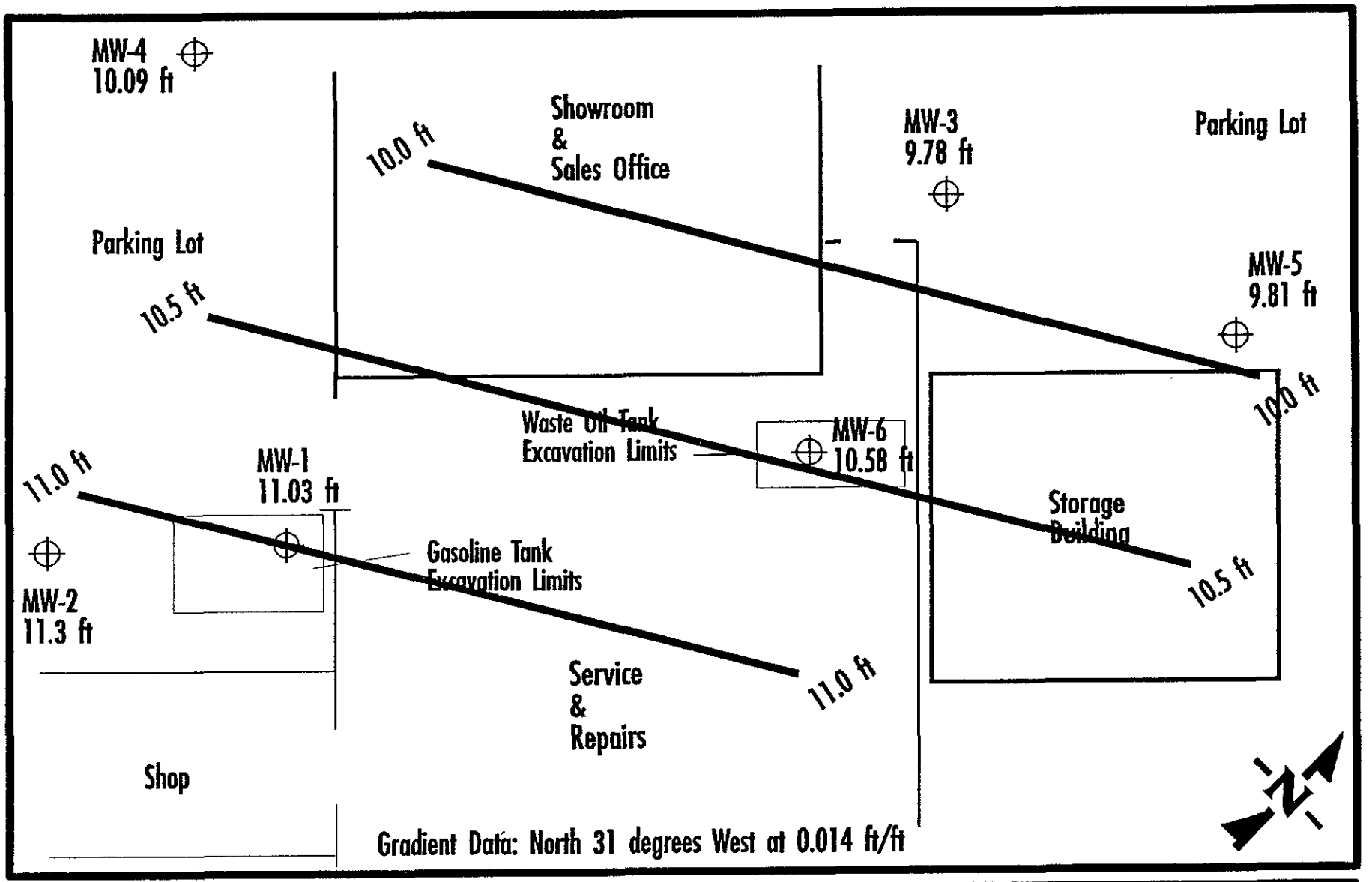


CHART 3
MW-6 QUARTERLY SAMPLING RESULTS FOR DIESEL & CHLOROBENZENE





LEGEND

MW-0
1.00 ft
⊕ Monitoring Well with elevation of groundwater in feet

Project No. 109001
February, 1993
Scale 1 inch = 20 feet

GROUNDWATER GRADIENT MAP

Cavanaugh Motors

1700 Park Street, Alameda California

TMC ENVIRONMENTAL INC. SAN PABLO, CALIFORNIA

PLATE 6

APPENDIX A

CERTIFIED ANALYTICAL REPORTS,

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST FORMS,

WELL SAMPLING FORMS

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

DATE RECEIVED: 02/25/93
DATE REPORTED: 03/04/93

LABORATORY NUMBER: 110158

CLIENT: TMC ENVIRONMENTAL, INC.

PROJECT ID: 101090

LOCATION: 1700 PARK STREET, ALAMEDA

RESULTS: SEE ATTACHED

Reviewed by

Reviewed by

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110158
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK STREET, ALAMEDA

DATE SAMPLED: 02/24/93
DATE RECEIVED: 02/25/93
DATE ANALYZED: 03/01-02/93
DATE REPORTED: 03/04/93

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)
110158-2	MW-2	ND(50)	0.5	ND(0.5)	ND(0.5)	ND(0.5)
110158-3	MW-4	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
110158-4	MW-3	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
110158-5	MW-5	ND(50)	ND(0.5)	ND(0.5)	1.8	ND(0.5)
110158-6	MW-6	ND(50)	ND(0.5)	ND(0.5)	6.8	ND(0.5)

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

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	106

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110158
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK STREET, ALAMEDA

DATE SAMPLED: 02/24/93
DATE RECEIVED: 02/25/93
DATE ANALYZED: 03/03/93
DATE REPORTED: 03/04/93

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)
110158-7	MW-1	8,800	780	1,200	230	1,000

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

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	113

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110158
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK STREET, ALAMEDA
SAMPLE ID: METHOD BLANK

DATE ANALYZED: 03/01/93
DATE REPORTED: 03/04/93

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
2-Chloroethylvinyl ether	ND	2
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, %	101

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110158-6
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK STREET, ALAMEDA
SAMPLE ID: MW-6

DATE SAMPLED: 02/24/93
DATE RECEIVED: 02/25/93
DATE ANALYZED: 03/01/93
DATE REPORTED: 03/04/93

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
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	6	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, %	98

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110158-4
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK STREET, ALAMEDA
SAMPLE ID: MW-3

DATE SAMPLED: 02/24/93
DATE RECEIVED: 02/25/93
DATE ANALYZED: 03/01/93
DATE REPORTED: 03/04/93

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
2-Chloroethylvinyl ether	ND	2
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, %	105

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110158-5
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK STREET, ALAMEDA
SAMPLE ID: MW-5

DATE SAMPLED: 02/24/93
DATE RECEIVED: 02/25/93
DATE ANALYZED: 03/01/93
DATE REPORTED: 03/04/93

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
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	1	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, %	101

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110158
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK STREET, ALAMEDA

DATE SAMPLED: 02/24/93
DATE RECEIVED: 02/25/93
DATE EXTRACTED: 03/01/93
DATE ANALYZED: 03/01/93
DATE REPORTED: 03/04/93

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)
110158-4	MW-3	ND	ND	50
110158-5	MW-5	ND	ND	50
110158-6	MW-6	ND	170+	50

+ Does not match standard.

ND = Not detected at or above reporting limit.

* Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	9
RECOVERY, %	101

Curtis & Tompkins, Ltd.

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

Client: TMC Environmental, Inc.
Project Name: 1700 Park St, Alameda
Project Number: 101090

Laboratory Login Number: 110158
Report Date: 04 March 93

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) **QC Batch Number: 8473**

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	01-MAR-93

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	91%	SMWW 17:5520BF	01-MAR-93
BSD	88%	SMWW 17:5520BF	01-MAR-93

		Control Limits
Average Spike Recovery	89%	80% - 120%
Relative Percent Difference	2.7%	< 20%

Curtis & Tompkins, Ltd.

Client: TMC Environmental, Inc.

Laboratory Login Number: 110158

Project Name: 1700 Park St, Alameda
Project Number: 101090

Report Date: 04 March 93

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) **METHOD:** SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
110158-004	MW-3	Water	24-FEB-93	25-FEB-93	01-MAR-93	ND	mg/L	5	TR	8473
110158-005	MW-5	Water	24-FEB-93	25-FEB-93	01-MAR-93	ND	mg/L	5	TR	8473
110158-006	MW-6	Water	24-FEB-93	25-FEB-93	01-MAR-93	ND	mg/L	5	TR	8473

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

Curtis & Tompkins, Ltd

Curtis & Tompkins, Ltd.

8010/8020 Laboratory Control Sample Report

Date Analyzed: 01-MAR-93
Matrix: WATER
Batch No: 60 930760

LCS Datafile: 060W005.raw
Operator: CW
GC ID: GC12

EPA METHOD 8010: HALOGENATED VOLATILE ORGANICS

	Instrdg	SpikeAmt	% Rec	Limits
Trichloroethene	22.77	20	114 %	71-120%
1,1-Dichloroethene	20.89	20	104 %	61-145%
Chlorobenzene	21.115	20	106 %	75-130%
Surrogate Recovery Bromobenzene	96.264	100	96 %	75-125%

EPA METHOD 8020: AROMATIC VOLATILE ORGANICS

Benzene	20.482	20	102 %	76-127%
Chlorobenzene	20.723	20	104 %	75-130%
Toluene	21.061	20	105 %	76-125%
Surrogate Recovery Bromobenzene	100.386	100	100 %	75-125%

Column: Rtx 502.2
Limits based on 3/90 SOW

Results within Specifications - PASS

Curtis & Tompkins, Ltd

Curtis & Tompkins, Ltd.

8010 MS/MSD Report

Matrix Sample Number: 110156-004
Matrix Sample File: 060W010.raw
Matrix: WATER
Batch No: 60 930772 930773 930769

Date Analyzed: 01-MAR-93
Spike File: 060W013.raw
Spike Dup File: 060W014.raw
Analyst: CW

	Instrdg	SpikeAmt	% Rec	Limits
MS RESULTS				
1,1-Dichloroethene	21.618	20	107 %	61-145%
Trichloroethene	22.001	20	110 %	71-120%
Chlorobenzene	20.144	20	101 %	75-130%
Surrogate Recovery				
Bromobenzene	95.403	100	95 %	75-125%
MSD RESULTS				
1,1-Dichloroethene	22.752	20	112 %	61-145%
Trichloroethene	23.172	20	116 %	71-120%
Chlorobenzene	21.57	20	108 %	75-130%
Surrogate Recovery				
Bromobenzene	103.037	100	103 %	75-125%
MATRIX RESULTS				
1,1-Dichloroethene	.283			
Trichloroethene	.041			
Chlorobenzene	0			
RPD DATA				
1,1-Dichloroethene	5 %			< 14%
Trichloroethene	5 %			< 14%
Chlorobenzene	7 %			< 13%

Column: Rtx 502.2
Limits based on 3/90 SOW CLP

Results within Specifications - PASS

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 #	JOB ADDRESS:	SAMPLER:
101090	1700 PARK STREET, ALAMEDA	Tom Ghiglietto/Marc Edwards

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	OIL & GREASE	TPH 8010	
101058-1	EQB-2		X	2/24/93	1025			HOLD		3-VOAs 1-LITER
-2	MW-2		X	2/24/93	1035	X				
-3	MW-4		X	2/24/93	1152	X				
-4	MW-3		X	2/24/93	1245	X	X	X	X	
-5	MW-5		X	2/24/93	1339	X	X	X	X	
-6	MW-6		X	2/24/93	1441	X	X	X	X	
-7	MW-1		X	2/24/93		X				

Relinquished By:		Recieved By:
(Print Name) Thomas Ghiglietto	Date: 2/25/93	(Print Name)
(Signature) Thomas Ghiglietto	Time: 820am	(Signature)
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)
(Print Name)	Date:	(Print Name) Lourinda Brouwer
(Signature)	Time:	(Signature)

LABORATORY NOTES: _____ 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

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-1	DATE COLLECTED: 02-24-93	JOB NUMBER: 10-1090
JOB NAME:CAVANAUGH MOTORS	SAMPLERS NAME:T GHIGLIOTTO, M EDWARDS	
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: CAPPED, LOCKED

WATER LEVEL MEASUREMENTS:

TIME MEASURED	0940	1448	1456			
DEPTH IN FEET (Measure to 0.01')	5.38	5.36	5.36			

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.28	DEPTH TO WATER:5.38	DIAMETER:4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 17.1264 **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 : >1000

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	1459	68.7	2.18	CLEAR	17.41
5	1508	68.5	2.29	CLEAR	17.22
10	1512	68.5	2.70	CLEAR	17.23
15	1517	68.7	2.81	CLEAR	17.29
17.5	1521	68.9	2.80	CLEAR	17.28

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 1547
SAMPLE TURBIDITY: 11.3	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-2	DATE COLLECTED: 02-24-93	JOB NUMBER: 10-1090
JOB NAME:CAVANAUGH MOTORS	SAMPLERS NAME:T GHIGLIOTTO, M EDWARDS	
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: CAPPED, LOCKED WITH WATER IN BOX

WATER LEVEL MEASUREMENTS:

TIME MEASURED	915	943	950			
DEPTH IN FEET (Measure to 0.01')	5.42	5.42	5.42			

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.58	DEPTH TO WATER: 5.42	DIAMETER: 4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 17.8 **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 : O PPM

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	1007	56.2	4.66	CLEAR	10.10
6	1012	59.2	4.68	CLEAR	8.94
12	1015	60.9	5.02	CLEAR	8.69
17	1018	60.8	4.86	CLEAR	8.50
18	1019	60.9	4.83	CLEAR	8.48

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 1055
SAMPLE TURBIDITY: 4.1	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-3	DATE COLLECTED: 02-24-93	JOB NUMBER: 10-1090
JOB NAME:CAVANAUGH MOTORS	SAMPLERS NAME:T GHIGLIOTTO, M EDWARDS	
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: CAPPED, LOCKED

WATER LEVEL MEASUREMENTS:

TIME MEASURED	0929	1159	1205			
DEPTH IN FEET (Measure to 0.01')	6.10	6.11	6.11			

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.54	DEPTH TO WATER: 6.11	DIAMETER: 4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 16.4085 **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 : O PPM

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	1213	53.4	0.72	CLEAR	9.33
5	1217	57.0	0.74	CLEAR	8.96
10	1221	58.4	0.74	CLEAR	8.89
15	1224	59.1	0.71	CLEAR	8.82
17	1226	59.0	0.71	CLEAR	8.54

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 1245
SAMPLE TURBIDITY: 5.0	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-4	DATE COLLECTED: 02-24-93	JOB NUMBER: 10-1090
JOB NAME:CAVANAUGH MOTORS	SAMPLERS NAME:T GHIGLIOTTO, M EDWARDS	
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: CAPPED, LOCKED

WATER LEVEL MEASUREMENTS:

TIME MEASURED	926	1045	1055			
DEPTH IN FEET (Measure to 0.01')	6.30	6.30	6.30			

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.44	DEPTH TO WATER: 6.30	DIAMETER:4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 15.8730 **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 : O PPM

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	1115	55.7	.57	CLEAR	8.57
5	1119	59.6	.73	CLEAR	8.33
10	1123	60.9	.82	CLEAR	8.04
15	1127	60.9	.79	CLEAR	7.98
16	1129	60.9	.78	CLEAR	7.97

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 1152
SAMPLE TURBIDITY: 8.30	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-5	DATE COLLECTED: 02-24-93	JOB NUMBER: 10-1090
JOB NAME:CAVANAUGH MOTORS	SAMPLERS NAME:T GHIGLIOTTO, M EDWARDS	
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: CAPPED, LOCKED - WELL CAP REPLACED WITH NEW AMERICAN LOCK - MORRISON

WATER LEVEL MEASUREMENTS:

TIME MEASURED	0929	1252	1258			
DEPTH IN FEET (Measure to 0.01')	5.20	5.32	5.32			

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 18.49	**DEPTH TO WATER:** 5.32	**DIAMETER:** 2"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 6.7167 **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 :** 60PPM

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	1308	64.1	0.61	CLEAR	10.65
2	1310	58.6	0.62	CLOUDY	9.51
4	1313	58.8	0.62	SLT CLOUDY	8.89
6	1315	58.6	0.63	CLEAR	8.68
7	1316	58.7	0.62	CLEAR	8.61

SAMPLING METHOD: DISPOSABLE BAILER	**TIME COLLECTED:** 1339
SAMPLE TURBIDITY: 86.1	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-6	DATE COLLECTED: 02-24-93	JOB NUMBER: 10-1090
JOB NAME:CAVANAUGH MOTORS	SAMPLERS NAME:T GHIGLIOTTO, M EDWARDS	
LOCATION: 1700 PARK STREET, ALAMEDA, CALIFORNIA		

WELL HEAD COND.: CAPPED, LOCKED

WATER LEVEL MEASUREMENTS:

TIME MEASURED	0936	1346	1352			
DEPTH IN FEET (Measure to 0.01')	5.40	5.40	5.40			

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 18.90	DEPTH TO WATER: 5.40	DIAMETER: 2"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 6.8850 **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 :220

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY x 1000	VISUAL TURBIDITY	pH
0	1408	61.0	4.01	CLEAR	8.47
2	1413	63.5	4.57	CLOUDY	8.10
4	1414	62.9	5.03	SLT CLOUDY	8.03
6	1416	63.5	5.57	CLEAR	8.02
7	1417	63.8	5.57	CLEAR	8.00

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 1441
SAMPLE TURBIDITY: 10.5	