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**GROUNDWATER MONITORING
REPORT**

1700 Park Street
Alameda, California

503-342-6606

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

Project Number 101090
October 28, 1992

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

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.

1.4 SITE CONDITION

The site is presently being used for an automobile dealership. The site 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.

1.5 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.

1.6 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 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.

2.0 GROUNDWATER SAMPLING

TMC had the ground water from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 tested for the target fuel 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 also 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	TVH gas ug/L	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L
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
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
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
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
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
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

Date Sampled	Monitoring Well	TVH gas ug/L	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L
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
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

ND- Not detected below reporting limits

The only well to have detectable levels of gasoline and BTEX is well MW1. This well is in the backfill of the former tank pit. Chart 1, MW1 Quarterly Sampling Results for Gasoline and Chart 2, MW1 Quarterly Sampling Results for BTEX, show the results of laboratory analysis for well MW1. These charts show a gradual 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

ND- NOT DETECTED BELOW REPORTING LIMITS

NA- NOT ANALYZED BY LABORATORY

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 tank removal soil samples. Chart 3, MW-6 Quarterly Sampling Results for Diesel & Chlorobenzene, show the result of sampling for well mw-6. Chart 3 is shown on Plate 5.

3.0 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 at the surface of the groundwater. The shallow water-bearing sand beneath the site appears unconfined. By measuring the water levels at three groundwater monitoring wells, we estimated the down gradient direction. 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

<i>Date</i>	<i>Well Number</i>	<i>Water Level</i>	<i>Casing Elevation</i>	<i>Water Elevation</i>
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

<i>Date</i>	<i>Well Number</i>	<i>Water Level</i>	<i>Casing Elevation</i>	<i>Water Elevation</i>
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

The following table summarizes the estimated down gradient direction and horizontal gradient. We used a three point solution to estimate the direction and gradient. We avoided using well MW1 in the estimate because it is in the back fill of the tank excavation.

TABLE 4. GROUNDWATER FLOW DIRECTIONS AND GRADIENTS

<i>Date</i>	<i>Down Gradient Direcnon</i>	<i>Horizontal Gradient</i>	<i>Average Water Level feet above msl</i>
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

The down gradient direction and the horizontal gradient vary between measurements. The changing groundwater flow direction may suggest the shallow water layer is sensitive to seasonal changes or incomplete stabilization of the wells was achieved in

the past. The most recent data indicate a North 2 degrees East flow direction at an average horizontal gradient of 0.007 ft/ft. The horizontal gradient is similar to the topographic slope of the lot. Seven groundwater measurements indicate a range of flow direction from N26W to N20E and a range of horizontal gradient from 0.005 to 0.012 ft/ft. Plate 6, Groundwater Gradient Map illustrates the horizontal gradient measured across the site.

4.0 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. 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 4 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 of low quality and 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. The compound chlorobenzene was again detected in wells MW-5 and MW-6.

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.

5.0 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. Analysis of water from well MW-6 for organic lead.
- Construction and operation of the soil venting system is scheduled to begin on December 1, 1992.
- Treatment and disposal of on site stock pile is to begin on December 1, 1992.

6.0 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.

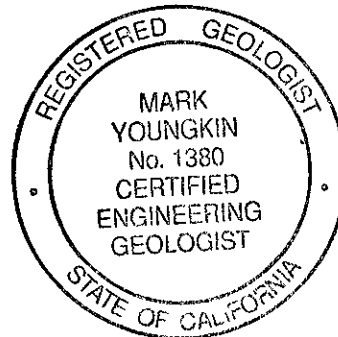
7.0 CERTIFICATION

TMC Environmental Inc. supervised the preparation of the Groundwater Monitoring Report dated October 28, 1992 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.

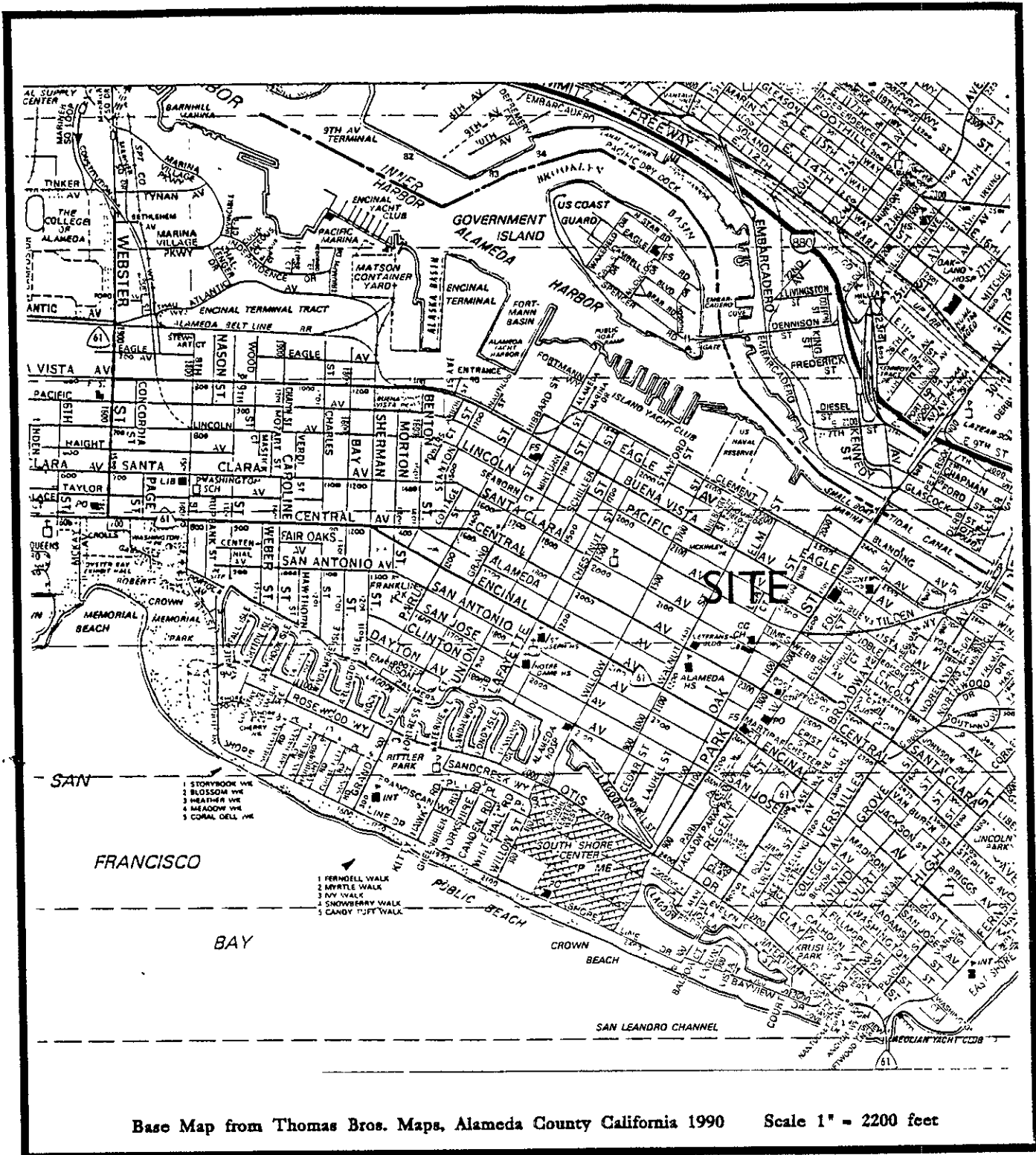
TMC Environmental, Inc. certifying professional:

Mark T. Youngkin

Mark T. Youngkin, vice president
Certified Engineering Geologist No. EG-1380
License expires June 30, 1994.



Dated Nov. 2, 1992



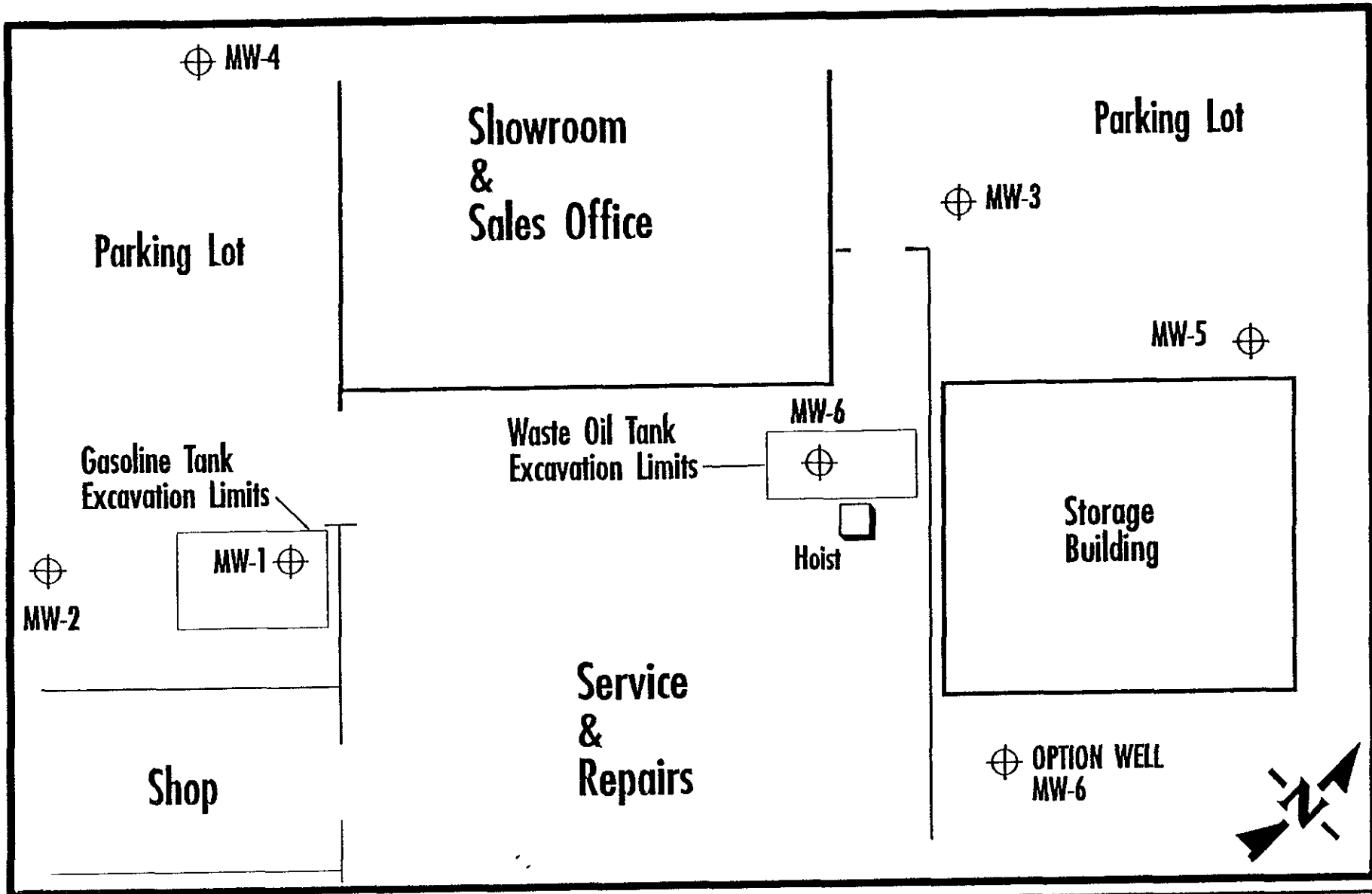
SITE VICINITY MAP

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

CHART 1
MW-1 QUARTERLY SAMPLING RESULTS FOR GASOLINE

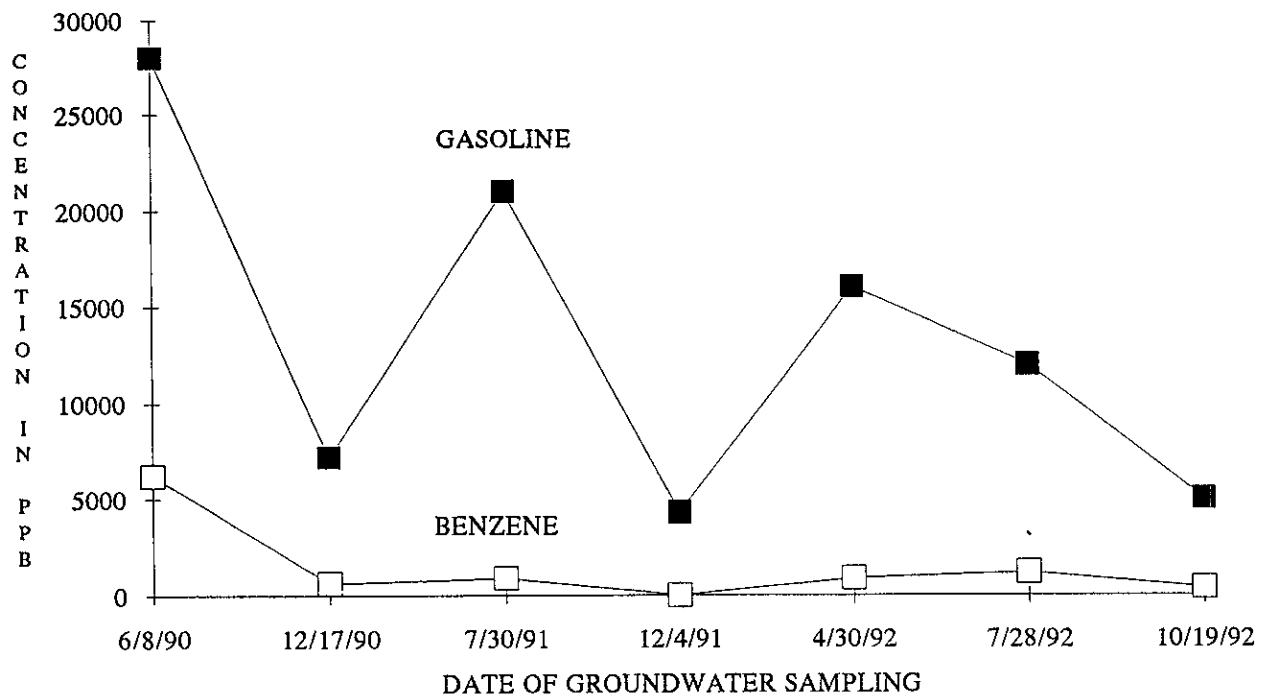


CHART 2

MW1 QUARTERLY SAMPLING RESULTS FOR BTEX

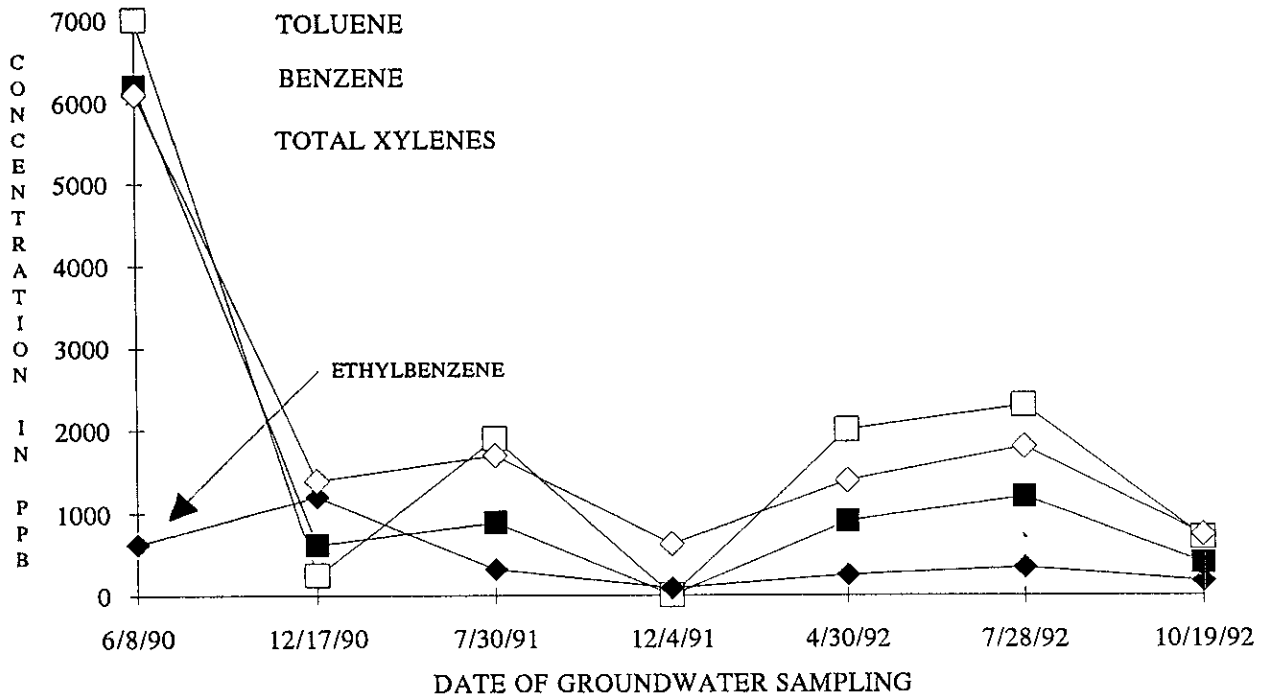
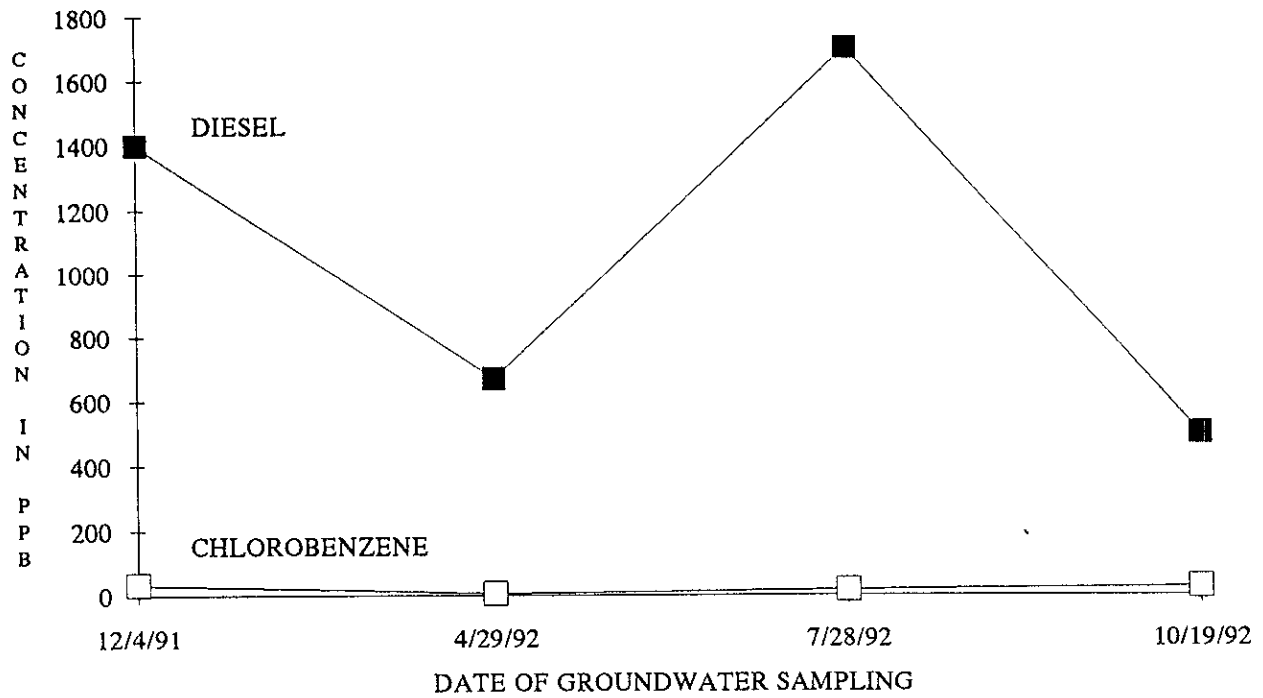
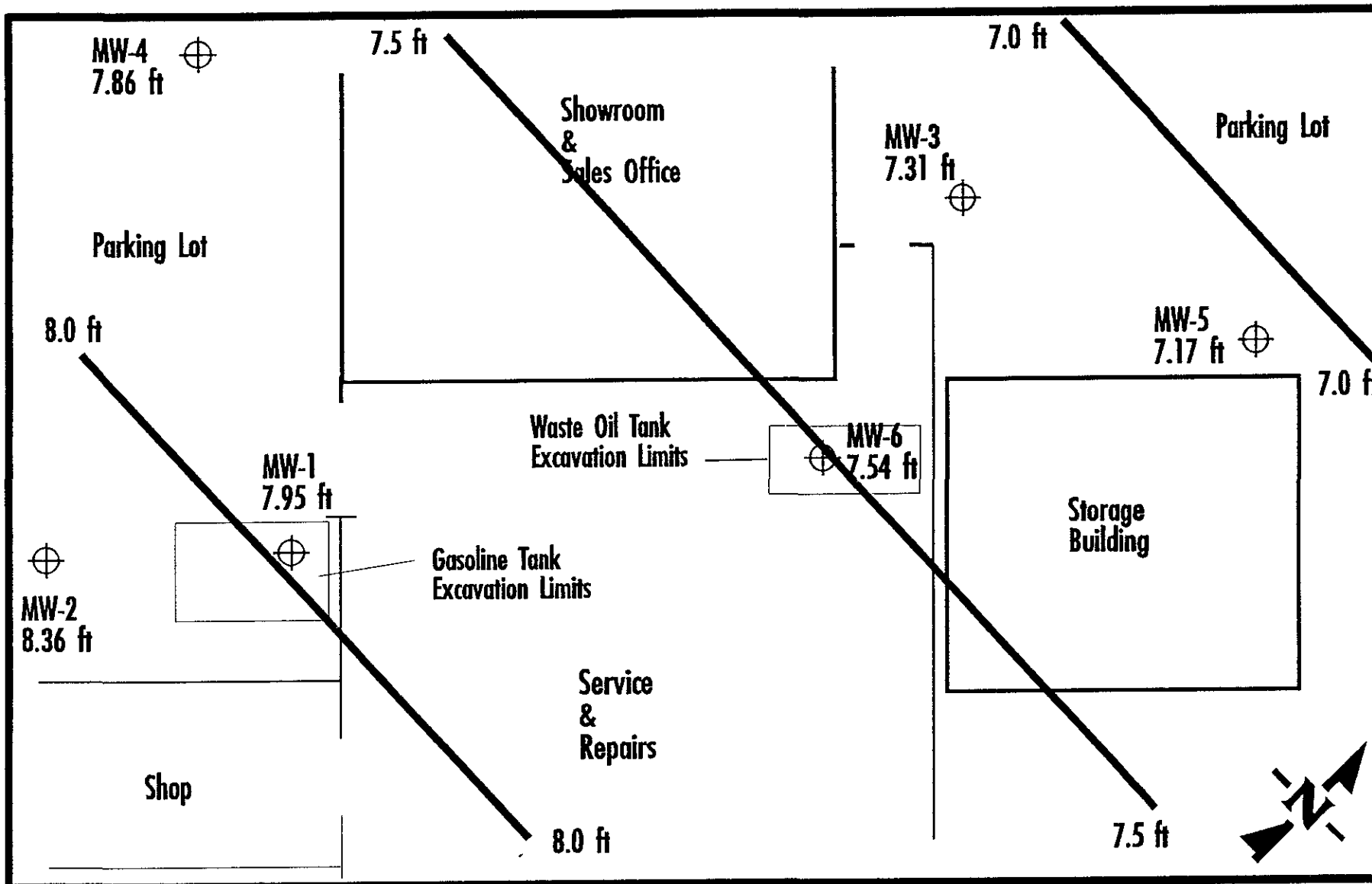


CHART 3
MW-6 QUARTERLY SAMPLING RESULTS FOR DIESEL & CHLOROBENZENE





LEGEND

MW-0
1.00 ft



Monitoring Well with
elevation of groundwater
in feet

Project No. 109001
October, 1992
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



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

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

DATE RECEIVED: 10/19/92
DATE REPORTED: 10/26/92

LABORATORY NUMBER: 109015

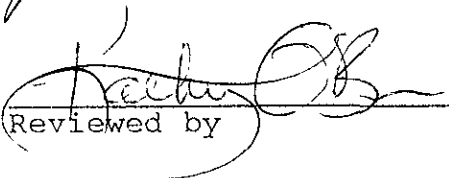
CLIENT: TMC ENVIRONMENTAL, INC.

PROJECT ID: 109001

LOCATION: CAVANAUGH MOTORS

RESULTS: SEE ATTACHED


Reviewed by


Reviewed by

This report may be reproduced only in its entirety.

LABORATORY NUMBER: 109015
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 109001
 LOCATION: CAVANAUGH MOTORS

DATE SAMPLED: 10/19/92
 DATE RECEIVED: 10/19/92
 DATE ANALYZED: 10/22-23/92
 DATE REPORTED: 10/26/92

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)
109015-1	MW2	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
109015-2	MW4	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
109015-4	MW3	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
109015-5	MW5	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
109015-6	MW6	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
109015-7	MW1	5,000	400	710	170	750

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

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	108



LABORATORY NUMBER: 109015
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 109001
LOCATION: CAVANAUGH MOTORS

DATE SAMPLED: 10/19/92
DATE RECEIVED: 10/19/92
DATE EXTRACTED: 10/20/92
DATE ANALYZED: 10/22/92
DATE REPORTED: 10/26/92

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)
109015-4	MW3	ND	ND	50
109015-5	MW5	ND	ND	50
109015-6	MW6	ND	500	50

ND = Not detected at or above reporting limit.

* Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	109

LABORATORY NUMBER: 109015-4
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 109001
 LOCATION: CAVANAUGH MOTORS
 SAMPLE ID: MW3

DATE SAMPLED: 10/19/92
 DATE RECEIVED: 10/19/92
 DATE ANALYZED: 10/21/92
 DATE REPORTED: 10/26/92

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, %	99
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LABORATORY NUMBER: 109015-5
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 109001
LOCATION: CAVANAUGH MOTORS
SAMPLE ID: MW5

DATE SAMPLED: 10/19/92
DATE RECEIVED: 10/19/92
DATE ANALYZED: 10/21/92
DATE REPORTED: 10/26/92

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	2	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, %	99
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LABORATORY NUMBER: 109015-6
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 109001
 LOCATION: CAVANAUGH MOTORS
 SAMPLE ID: MW6

DATE SAMPLED: 10/19/92
 DATE RECEIVED: 10/19/92
 DATE ANALYZED: 10/21/92
 DATE REPORTED: 10/26/92

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	26	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
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LABORATORY NUMBER: 109015
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 109001
 LOCATION: CAVANAUGH MOTORS
 SAMPLE ID: METHOD BLANK

DATE ANALYZED: 10/21/92
 DATE REPORTED: 10/26/92

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, %

99



8010/8020 Laboratory Control Sample Report

Date Analyzed: 21-OCT-92
Matrix: WATER
Batch No: 295 921363

LCS Datafile: 295W003.raw
Operator: MBP
GC ID: GC12

EPA METHOD 8010: HALOGENATED VOLATILE ORGANICS

	Instrdrg	SpikeAmt	% Rec	Limits
Trichloroethene	19.58	20	98 %	71-120%
1,1-Dichloroethene	18.405	20	92 %	61-145%
Chlorobenzene	18.515	20	93 %	75-130%
Surrogate Recovery Bromobenzene	97.103	100	97 %	75-125%

EPA METHOD 8020: AROMATIC VOLATILE ORGANICS

Benzene	19.508	20	98 %	76-127%
Chlorobenzene	19.32	20	97 %	75-130%
Toluene	19.768	20	99 %	76-125%
Surrogate Recovery Bromobenzene	99.842	100	100 %	75-125%

Column: Rtx 502.2
Limits based on 3/90 SOW

Results within Specifications - PASS

Curtis & Tompkins, Ltd

8010 MS/MSD Report

Matrix Sample Number: 109015-006
 Matrix Sample File: 295W011.raw
 Matrix: WATER
 Batch No: 295 921379 921380 921376

Date Analyzed: 22-OCT-92
 Spike File: 295W014.raw
 Spike Dup File: 295W015.raw
 Analyst: MBP

	Instrdg	SpikeAmt	% Rec	Limits
<u>MS RESULTS</u>				
1,1-Dichloroethene	18.757	20	94 %	61-145%
Trichloroethene	19.335	20	97 %	71-120%
Chlorobenzene	44.012	20	89 %	75-130%
Surrogate Recoveries				
Bromobenzene	98.884	100	99 %	75-125%
<u>MSD RESULTS</u>				
1,1-Dichloroethene	20.146	20	101 %	61-145%
Trichloroethene	20.456	20	102 %	71-120%
Chlorobenzene	46.628	20	102 %	75-130%
Surrogate Recoveries				
Bromobenzene	96.394	100	96 %	75-125%
<u>MATRIX RESULTS</u>				
1,1-Dichloroethene	0			
Trichloroethene	0			
Chlorobenzene	26.269			
<u>RPD DATA</u>				
1,1-Dichloroethene	7 %			< 14%
Trichloroethene	6 %			< 14%
Chlorobenzene	6 %			< 13%

Column: Rtx 502.2
 Limits based on 2/88 SOW

Results within Specifications - PASS



Client: TMC Environmental, Inc.

Laboratory Login Number: 109015

Project Name: Cavanaugh Motors

Report Date: 26 October 92

Project Number: 101090

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
109015-004	MW3	Water	19-OCT-92	19-OCT-92	23-OCT-92	ND	mg/L	5	TR	7174
109015-005	MW5	Water	19-OCT-92	19-OCT-92	23-OCT-92	ND	mg/L	5	TR	7174
109015-006	MW6	Water	19-OCT-92	19-OCT-92	23-OCT-92	ND	mg/L	5	TR	7174

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: 109015
 Report Date: 26 October 92

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 7174

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	23-OCT-92

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	94%	SMWW 17:5520BF	23-OCT-92
BSD	93%	SMWW 17:5520BF	23-OCT-92

		Control Limits
Average Spike Recovery	93%	80% - 120%
Relative Percent Difference	1.5%	< 20%



TMC ENVIRONMENTAL, INC.
 13908 San Pablo Avenue, Suite 101
 San Pablo, California 94806
 (415) 232-8366 / FAX 232-5133

CHAIN OF CUSTODY RECORD
 ANALYSIS REQUEST FORM

Project No. 101090 Project Name: CAVANAUGH MOTORS Project Contact: MARK YOUNGKIN Page 1 of 1
 Project Address: 1700 PARK STREET, ALAMEDA, CAL. Turnaround Time: 5 days
 Sampler: Tom Chigliotto Laboratory Name: CURTIS & TOMPKINS Lab No: 159

LAB ID NO.	DATE	TIME	SOIL	WATER	SAMPLE LABEL	TPH-GAS BTEX	TPH-DIESEL	ORGANIC LEAD	Oil Grease EPA 2010	REMARKS ADDITIONAL ANALYSIS
109015-1	10/19/92	1230		X	MW 2	X				
-2	10/19/92	1305		X	MW 4	X				
3	10/19/92	1325		X	EQB-3	X	X			Hold
-4	10/19/92	1350		X	MW 3	X	X	X	X	
-5	10/19/92	1435		X	MW 5	X	X	X	X	
-6	10/19/92	1520		X	MW 6	X	X	X	X	
-7	10/19/92	1610		X	MW 1	X				

Relinquished By: (Signature) <i>James Chigliotto</i>	Date: 10/19/90 Time: 1625	Received By: (Signature)	Date:
Relinquished By: (Signature)	Date:	Received By: (Signature)	Date:
Relinquished By: (Signature)	Date:	Received By: (Signature) <i>[Signature]</i>	Date: 10-19-92 Time: 1625

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-1	DATE COLLECTED: 10-19-92	JOB NUMBER: 10-1090
JOB NAME: CAVANAUGH MOTORS		LOCATION: 1700 PARK STREET, ALAMEDA, CA
SAMPLERS NAME: TOM GHIGLIOTTO		WELL HEAD COND.: DRY, LOCKED

WATER LEVEL MEASUREMENTS:

TIME WELL ALLOWED TO STABILIZE:

TIME MEASURED
DEPTH IN FEET
(Measure to 0-01')

1158	1500	1515	
8.44	8.44	8.44	

TOTAL TIME:

AVG. WATER LEVEL:

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.20	DEPTH TO WATER: 8.44	DIAMETER: 4
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PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = **14.8 GAL.**
 VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP
VAPOR READING, ppm: 0 PPM

WELL PURGING PARAMETERS

GALLON TIME TEMPRATURE CONDUCTIVIT TURBIDITY pH

0	3:18	72.9	0.40	CLOUDY	7.10
4	3:22	75.0	0.41	SLT CLOUDY	6.49
8	3:24	75.6	0.42	CLEAR	6.56
12	3:28	75.5	0.42	SLT CLOUDY	6.35
14	3:31	75.7	0.41	CLEAR	6.31
15	3:35	75.7	0.41	CLEAR	6.31
				SAMPLE 06.3	
				BLACK SPECKS	
				THROUGHOUT	
				PURGING	

SAMPLING METHOD: DISPOSABLE BAILERS	TIME COLLECTED: 1610
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RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-2	DATE COLLECTED: 10-19-92	JOB NUMBER: 10-1090
JOB NAME: CAVANAUGH MOTORS		LOCATION: 1700 PARK STREET, ALAMEDA, CA
SAMPLERS NAME: TOM GHIGLIOTTO'		WELL HEAD COND.: WET IN BOX, LOCKED

WATER LEVEL MEASUREMENTS:

TIME WELL ALLOWED TO STABILIZE:

TIME MEASURED
DEPTH IN FEET
(Measure to 0-01')

1145	1205		
8.37	8.37		

TOTAL TIME:

AVG. WATER LEVEL:

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.56	DEPTH TO WATER: 8.37	DIAMETER: 4
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PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = **16.0** GAL.
 VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: **HONDA PUMP**

VAPOR READING, ppm: **0PPM**

WELL PURGING PARAMETERS

GALLON	TIME	TEMPRATURE	CONDUCTIVIT	TURBIDITY	pH
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0	12:14	77.2	0.18	CLEAR	5.68
4	12:16	73.8	0.17	CLEAR	5.78
8	12:18	72.8	0.17	CLEAR	5.86
12	12:20	72.8	0.17	CLEAR	5.94
15	12:22	72.8	0.17	CLEAR	5.95
16	12:24	72.8	0.17	CLEAR	5.94
				SAMPLE 06.2	

SAMPLING METHOD: **DISPOSABLE BAILER**

TIME COLLECTED: **12:30**

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-3	DATE COLLECTED: 10-19-92	JOB NUMBER: 10-1090
JOB NAME: CAVANAUGH MOTORS		LOCATION: 1700 PARK STREET, ALAMEDA, CA
SAMPLERS NAME: TOM GHIGLIOTTO		WELL HEAD COND. : DRY, LOCKED

WATER LEVEL MEASUREMENTS:

TIME WELL ALLOWED TO STABILIZE:

TIME MEASURED	1147	13:10			TOTAL TIME:
DEPTH IN FEET (Measure to 0-01')	8.59	8.58			AVG. WATER LEVEL:

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.54	DEPTH TO WATER: 8.58	DIAMETER: 4
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PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = **15.0** GAL.
 VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP
VAPOR READING, ppm : 4 PPM

WELL PURGING PARAMETERS

GALLON	TIME	TEMPRATURE	CONDUCTIVIT	TURBIDITY	pH
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0	1:15	73.1	0.21	CLEAR	6.58
4	1:19	71.0	0.20	CLEAR	6.37
8	1:23	72.0	0.21	CLEAR	6.30
12	1:27	71.1	0.20	CLEAR	6.24
14	1:28	70.7	0.19	CLEAR	6.24
15	1:30	71.6	0.20	CLEAR	6.24
				SAMPLE 07.5	

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 1350
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RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW-4	DATE COLLECTED: 10-19-92	JOB NUMBER: 10-1090
JOB NAME: CAVANAUGH MOTORS		LOCATION: 1700 PARK STREET, ALAMEDA, CA
SAMPLERS NAME: TOM GHIGLIOTTO		WELL HEAD COND.: DRY, LOCKED

WATER LEVEL MEASUREMENTS:

TIME WELL ALLOWED TO STABILIZE:

TIME MEASURED
DEPTH IN FEET
(Measure to 0-01')

1159	1240		
8.53	8.53		

TOTAL TIME:

AVG. WATER LEVEL:

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.42	DEPTH TO WATER: 8.53	DIAMETER: 4
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PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = **15.3 GAL.**
 VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP
VAPOR READING, ppm : 0 PPM

WELL PURGING PARAMETERS

GALLON	TIME	TEMPRATURE	CONDUCTIVIT	TURBIDITY	pH
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0	1242	76.1	0.27	CLEAR	6.50
4	1244	76.4	0.24	CLEAR	6.48
8	1246	74.7	0.26	SLT CLOUDY	6.47
12	1248	73.5	0.25	CLEAR	6.48
14	1250	73.5	0.25	CLEAR	6.47
16	1253	73.6	0.25	SAMPLE 18.4	6.47

SAMPLING METHOD: DISPOSABLE BAILER	TIME COLLECTED: 1305
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