GROUND WATER MONITORING REPORT

Cavanaugh Motors Facility
1700 Park Street
Alameda, California

July 20, 1994

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

Groundwater Monitoring Report
Cavanaugh Motors
1700 Park Street
Alameda, California

TMC ENVIRONMENTAL, Inc. supervised the preparation of this Groundwater Monitoring Report, dated July 20, 1994, 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 Professionals Code, State of California and the requirements of the California Regional Water Quality Control Board, San Francisco Bay Region.

Michael Princevalle
Soil Scientist/Senior Project Manager

TMC Environmental, Inc. certifying professional:

Mark T. Youngkin, Vice President
Certified Engineering Geologist No. EG-1380
License expires June 30, 1996.

TABLE OF CONTENTS
GROUND WATER MONITORING REPORT
1700 PARK STREET, ALAMEDA, CALIFORNIA

TABLES

CHARTS

TABLE OF CONTENTS.....continued

PLATES

APPENDIX A

GROUND WATER MONITORING 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, approximately 120 cubic yards of accessible contaminated soils were excavated from the tank locations. Approximately 120 cubic yards of contaminated soils are 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 is 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 inside the existing auto repair shop. 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 ground water samples from the above-indicated wells. **TMC** performed this work May 26, 1994. All well samples were chemically analyzed for: total volatile hydrocarbons (TVH) as gasoline and benzene, toluene, ethylbenzene, and total xylene (BTEX). Additionally, ground water samples from wells MW-3, MW-5, and MW-6 were tested for diesel, oil & grease and purgeable halocarbons.

Samples from MW-1 continue to show the presence of gasoline and BTEX's. Samples from wells, MW-2, MW-3, MW-4, MW-5 and MW-6 continue to have gasoline and BTEX levels below detection limits. The MW-5 and MW-6 samples revealed detectable levels of Chlorobenzene. The sample from MW-3 showed non-detectable Chlorobenzene levels. All three wells (MW-3, MW-5 and MW-6) had non-detectable Diesel and Petroleum Oil & Grease levels.

Ground water gradient and direction was estimated by using water levels measurements from monitoring wells MW-2, MW-3, MW-4 and MW-5. Recent groundwater data indicates ground water flows in a north-north westerly direction, with a gradient of 0.01 feet/foot.

In March, 1993, **TMC** installed a soil vapor extraction system in the vicinity of the former gasoline tank. This system was installed to remediate gasoline-contaminted soils (associated with the former gasoline tank) remaining at the site. Due to relatively high ground water elevation levels at the site, the vapor extraction system was started July 7, 1993. Operation of the system continued until soil-vapor gasoline levels in the affluent air stream stabilized down to approximately 40 ppm. On January 24, 1994, the system was shut down.

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 contacts for **TMC** are Mr. Tom Edwards, President or Mr. Michael Princevalle, Senior Project Manager. Mr. Edwards and Mr. Princevalle 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 (one gasoline and one automotive waste oil) were removed from separate locations at the site. Soil samples recovered during the tank removal activities revealed the presence of petroleum materials. The soils found to be contaminated, and accessable, were excavated and stockpiled on site. Approximately 120 cubic yards of contaminated soil were removed and stockpiled on site. Site conditions prevented the complete removal of contaminated soils associated with the gasoline tank.

Subsequent to the tank removals and soil excavation, **TMC** performed a subsurface soils and ground water 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. 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. Results of this investigation work and the subsequent quarterly monitoring indicate ground water contamination associated with the former tanks is localized.

During the subsurface investigation work, four vapor extraction wells (VW-1, VW-2, VW-3 and VW-4) were installed at the site. The purpose of the extraction wells was 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. Its operation continued until soil - vapor readings declined and stabilized
to approximately 40 ppm. The system was shut down January 24, 1994.

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
1131 Harbor Bay Parkway, Alameda, California 94501

The officer overseeing this case is: Ms. Juliet Shin. Ms. Shin at can be called at (510) 337-2864.

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 May 26, 1994, **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

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**	**28000**	**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**	**7200**	**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**	**21000**	**890**	**1900**	**320**	**1700**

Date Sampled	*Monitoring Well*	*TPH gas ug/L*	*Benzene ug/L*	*Toluene ug/L*	*Ethyl benzene ug/L*	*Xylenes ug/L*
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**	**4300**	**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**	**16000**	**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**
July 1992 Groundwater Sampling						
7-28-92	**MW-1**	**12000**	**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**

Date Sampled	*Monitoring Well*	*TPH gas ug/L*	*Benzene ug/L*	*Toluene ug/L*	*Ethyl benzene ug/L*	*Xylenes ug/L*
October 1992 Groundwater Sampling						
10-19-92	**MW-1**	**5000**	**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 1993 Groundwater Sampling						
2-24-93	**MW-1**	**8800**	**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**
May 1993 Groundwater Sampling						
5-19-93	**MW-1**	**24000**	**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**
August 1993 Groundwater Sampling						
8-11-93	**MW-1**	**13000**	**1200**	**2100**	**350**	**2000**
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**

Date Sampled	*Monitoring Well*	*TPH gas ug/L*	*Benzene ug/L*	*Toluene ug/L*	*Ethyl benzene ug/L*	*Xylenes ug/L*
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**
February 1994 Groundwater Sampling						
2-2-94	**MW-1**	**7300**	**600**	**920**	**250**	**1,000**
2-2-94	**MW-2**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
2-2-94	**MW-3**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
2-2-94	**MW-4**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
2-2-94	**MW-5**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
2-2-94	**MW-6**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
May 1994 Groundwater Sampling						
5-26-94	**MW-1**	**15000**	**1200**	**2000**	**370**	**1500**
5-26-94	**MW-2**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
5-26-94	**MW-3**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
5-26-94	**MW-4**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
5-26-94	**MW-5**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**
5-26-94	**MW-6**	**ND< 50**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**	**ND< 0.5**

ND- Not detected below reporting limits

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 Chart 2, MW-1 Quarterly Sampling Results for BTEX, show fluctuating Gasoline and BTEX concentrations. All other wells continue to have non-detectable levels of Gasoline.

Table 2 presents results of laboratory analyses for extractable petroleum hydrocarbons (Diesel/Kerosene, Oil and Grease) and purgeable halocarbons (Chlorobenzene).

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

Date Sampled	*Monitoring Well*	*Diesel ug/L*	*Kerosene ug/L*	*Oil & Grease mg/L*	*Chlorobenzene ug/L*
July 1991 Groundwater Sampling					
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**
December 1991 Groundwater Sampling					
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**
April 1992 Groundwater Sampling					
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**
July 1992 Groundwater Sampling					
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**
October 1992 Groundwater Sampling					
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**
February 1993 Groundwater Sampling					
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**

Date Sampled	*Monitoring Well*	*Diesel ug/L*	*Kerosene ug/L*	*Oil & Grease mg/L*	*Chlorobenzene ug/L*
May 1993 Groundwater Sampling					
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**
August 1993 Groundwater Sampling					
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**
February 1994 Groundwater Sampling					
2-2-94	**MW-3**	**ND< 50**	**ND< 50**	**ND< 05**	**ND< 1**
2-2-94	**MW-5**	**ND< 50**	**ND< 50**	**ND< 5**	**ND< 1**
2-2-94	**MW-6**	**ND< 50**	**220**	**ND< 5**	**3**
May 1994 Groundwater Sampling					
5-24-94	**MW-3**	**ND< 50**	**N/A**	**ND< 5**	**ND< 0.4**
5-24-94	**MW-5**	**ND< 50**	**N/A**	**ND< 5**	**0.6**
5-24-94	**MW-6**	**ND< 50**	**N/A**	**ND< 5**	**5.5**

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

Samples from well MW-6 (located in the pit back fill of a former waste oil tank) revealed non-detectable levels of Kerosene or Diesel; see Chart 3, MW-6 Quarterly Sampling Results for Diesel/Kerosene.

When compared to the February, 1994, sampling, MW-1 showed an increase in Gasoline and BTEX levels. The Gasoline and BTEX levels of the other wells (MW-2, MW-3, MW-4, MW-5 and MW-6) continue to be below detection limits.

Samples from Monitoring Wells MW-3, MW-5 and MW-6 continue to show non-detectable levels of Oil and Grease. The Diesel levels of MW-6 are now below detection limits, with wells MW-3 and MW-5 continuing to have non-detectable levels.

Chlorobenzene was reported in soil samples recovered during the waste oil tank removal. Previous groundwater sampling show detectable levels of Chlorobenzene in monitoring wells MW-5 and MW-6. In this latest sampling (May 26, 1994) results show the continuing presence of Chlorobenzene in these two wells; see Chart 4, MW-5 and MW-6 Quarterly Sampling Results for Chlorobenzene.

4.0 GROUND WATER 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. Ground water levels were measured with an electronic sounder. Details of groundwater measuring are in Appendix A. By measuring the water levels in three ground water monitoring wells, MW-2, MW-3, and MW-4, TMC estimated the down gradient direction and horizontal gradient. Table 3 summarizes groundwater level data collected over the eleven 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**

Date	*Well Label*	*Water Level*	*Casing Elevation (msl)*	*Water Elevation (msl)*
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
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

Date	*Well Label*	*Water Level*	*Casing Elevation (msl)*	*Water Elevation (msl)*
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
2-2-94	MW-1	-7.43	16.39	8.96
2-2-94	MW-2	-7.48	16.73	9.25
2-2-94	MW-3	-7.69	15.89	8.20
2-2-94	MW-4	-7.83	16.39	8.56
2-2-94	MW-5	-6.98	15.13	8.15
2-2-94	MW-6	-7.40	15.98	8.58
5-26-94	MW-1	-6.95	16.39	9.44
5-26-94	MW-2	-6.97	16.73	9.76
5-26-94	MW-3	-7.39	15.89	8.50
5-26-94	MW-4	-7.44	16.39	8.95
5-26-94	MW-5	-6.72	15.13	8.41
5-26-94	MW-6	-7.01	15.98	8.97

Table 4 summarizes the estimated ground water down flow direction and horizontal gradient. **TMC** used a three point solution to estimate the direction and gradient. Ground water 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. Data indicates the shallow water-bearing unit beneath the site appears unconfined.

TABLE 4 GROUNDWATER GRADIENT AND DIRECTION

Measurement Date	*Down Gradient Direction*	*Horizontal Gradient*	*Average Water Level feet above msl*
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**
2-24-94	**North 12 degrees West**	**0.008 ft/ft**	**8.69**
5-26-94	**North 10 degrees West**	**0.01 ft/ft**	**8.91**

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 10 degrees West flow direction at an average horizontal gradient of 0.01 ft/ft. The horizontal gradient is similar to the topographic slope of the lot. An average of the ten groundwater measurement episodes indicate a range of flow direction from N31W to N20°E, and a range of horizontal gradient from 0.005 to 0.014 ft/ft. Plate 3, Groundwater Gradient Map, illustrates the most recent (May, 1994) horizontal gradient measured across the site.

5.0 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. **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 AMER of Sunnyvale, 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 SOIL REMEDIATED VERIFICATION SAMPLING

To verify remediation of gasoline-contaminated soils at the site (associated with a former gasoline tank), **TMC** will recover soil samples from soils previously found to be contaminated.

Using standard drilling equipment, soil samples will be recovered from boreholes and submitted to a laboratory for chemical analysis. **TMC** will use this data to determine if the soils were adequately remediated. **TMC** submitted a Work Plan to the Alameda County Health Care Services Agency, Department of Environmental Health for their review and comment of the proposed work.

7.0 SCHEDULE OF ACTIVITIES

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

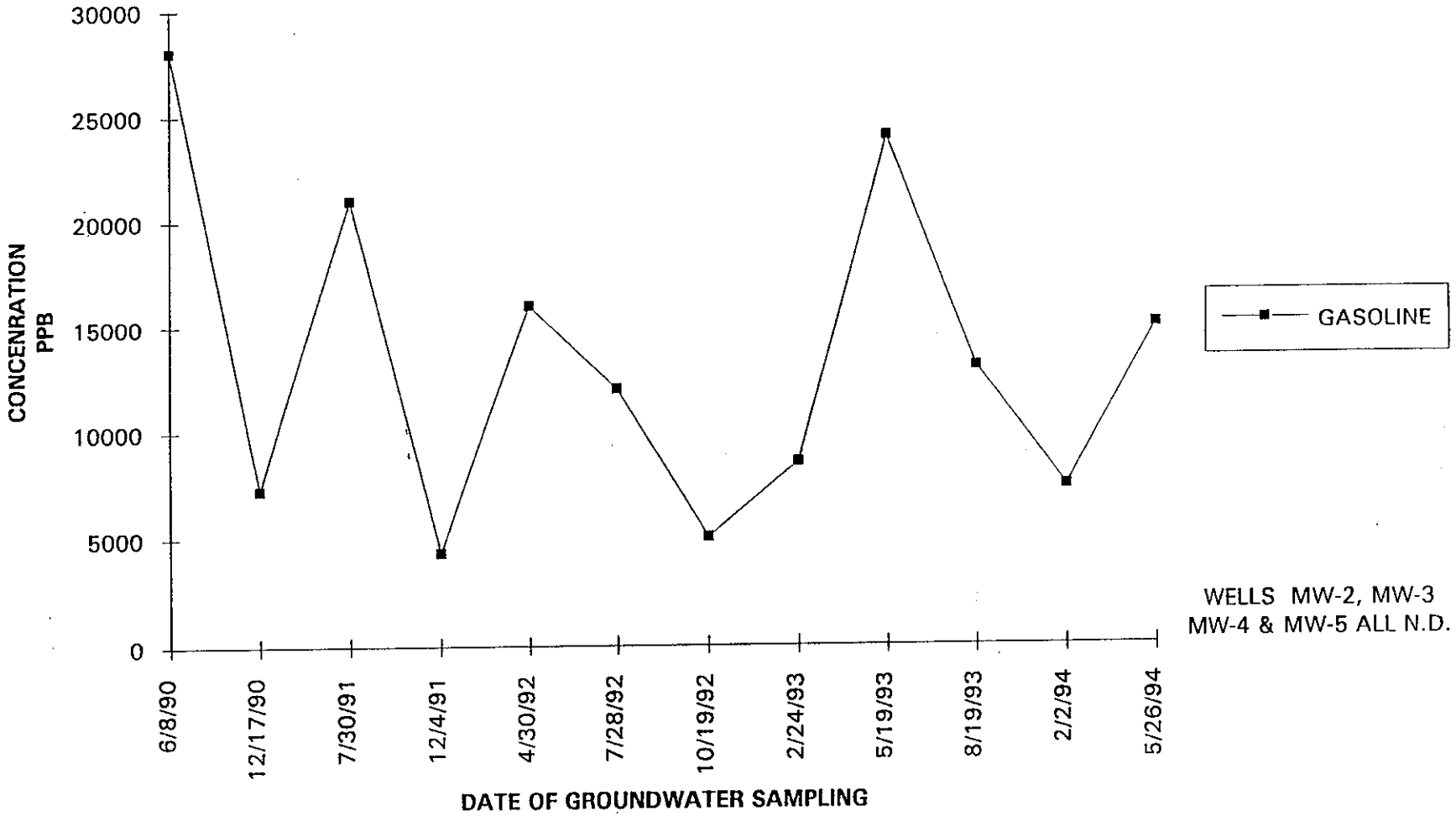
- Quarterly groundwater sampling and analysis with quarterly measurement of groundwater gradient and flow direction.
- Perform the verification sampling for the Gasoline remediation.
- Destroy monitoring well MW-1 (located within the former tank pit) and install another well approximately 10-feet down gradient from the tank pit.

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

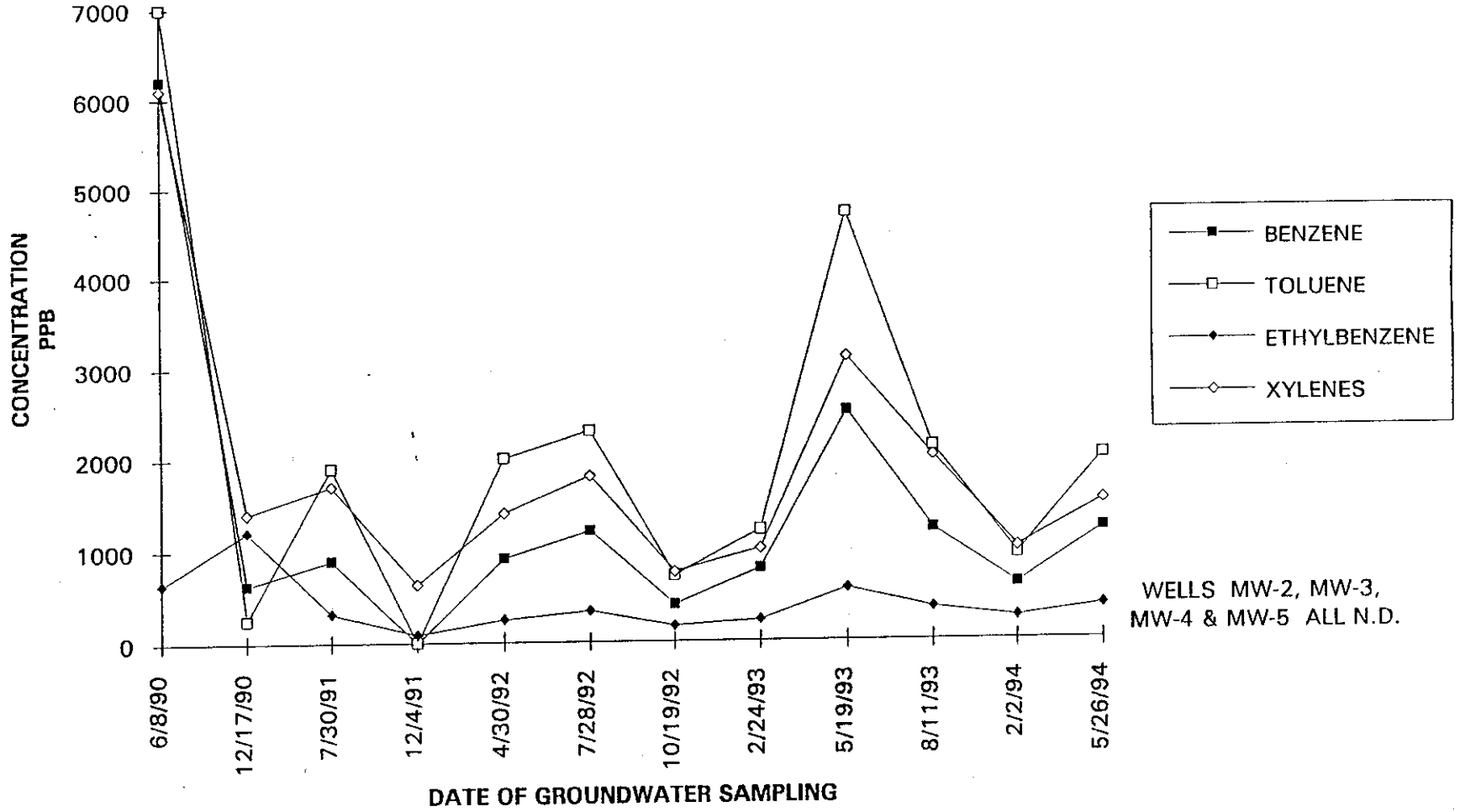
CAVANAUGH MOTORS



TMC ENVIRONMENTAL, INC.

CHART 2
MW1 QUARTERLY SAMPLING RESULTS FOR BTEX

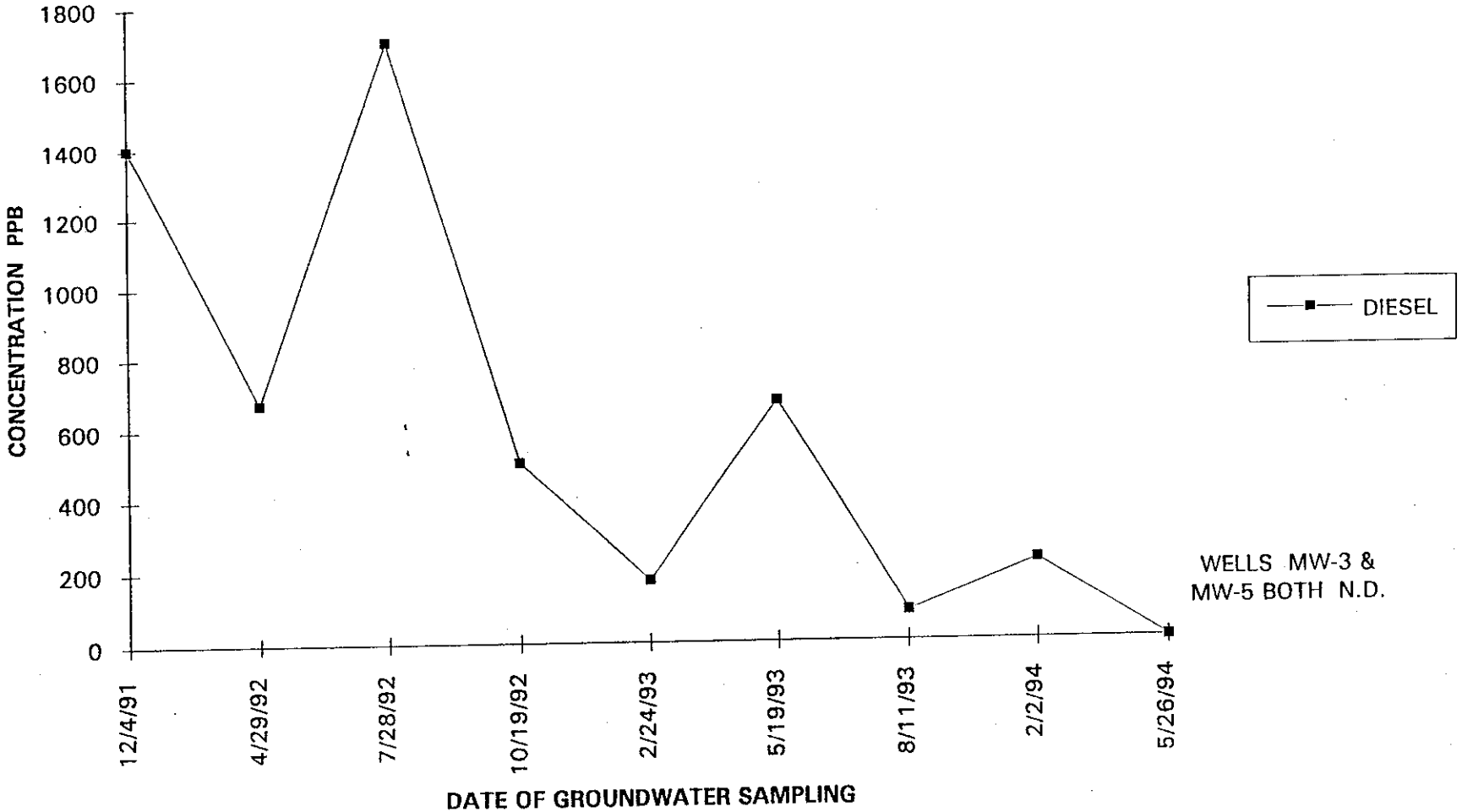
CAVANAUGH MOTORS



TMC ENVIRONMENTAL, INC.

CHART 3
MW-6 QUARTERLY SAMPLING RESULTS FOR DIESEL

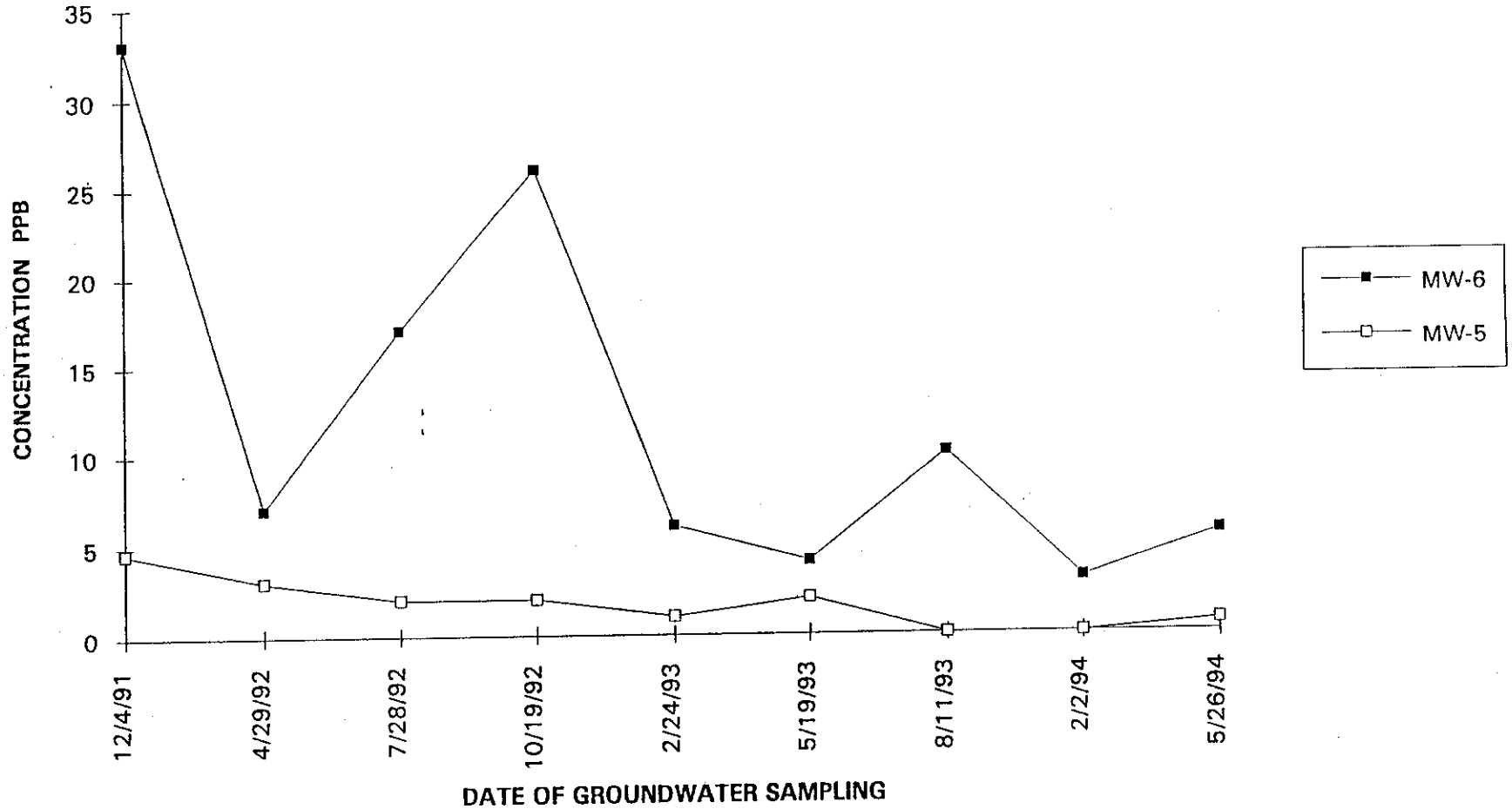
CAVANAUGH MOTORS

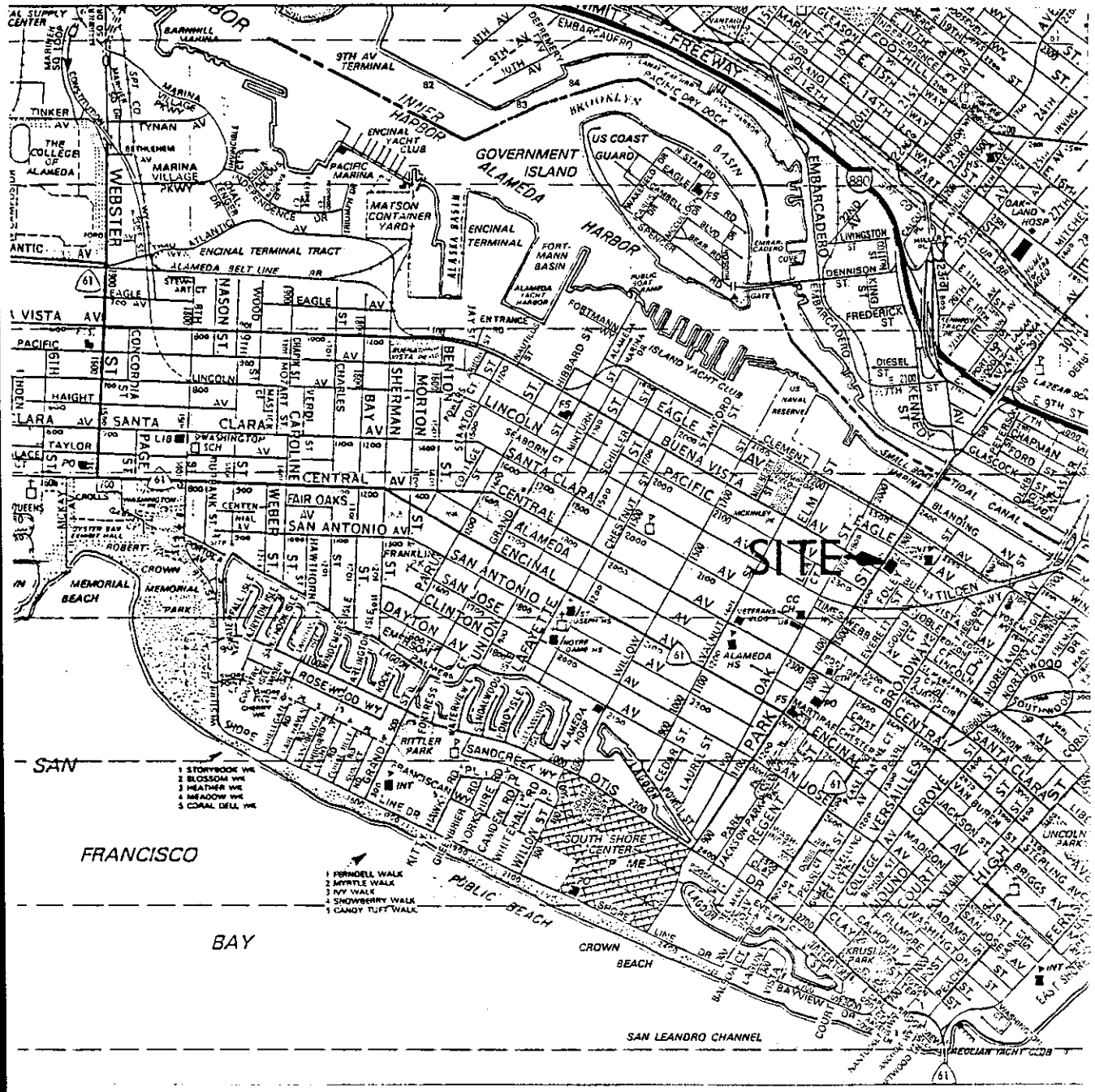


TMC ENVIRONMENTAL, INC.

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

CAVANAUGH MOTORS





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

TMC
Environmental, Inc.

SITE VICINITY MAP

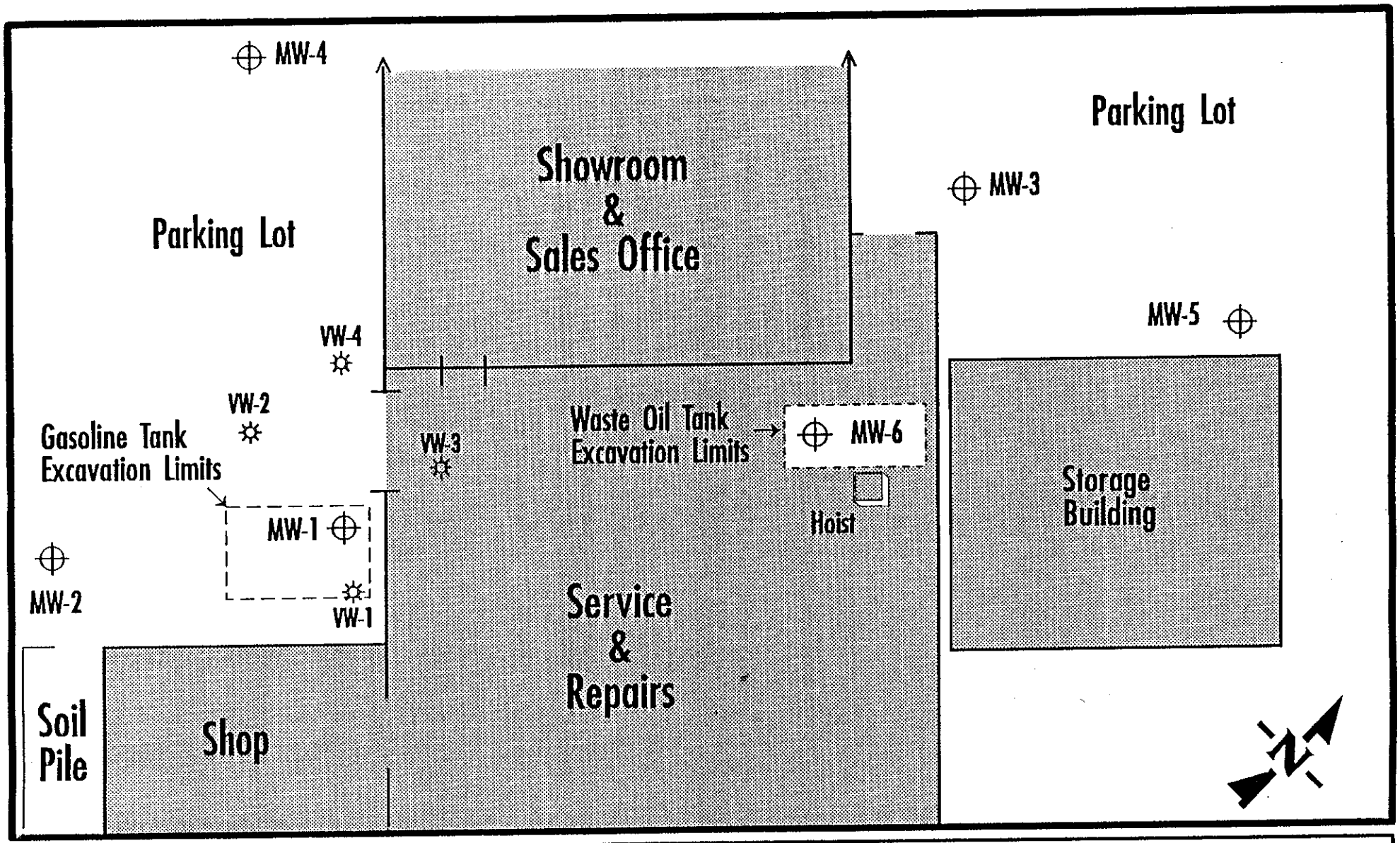
Cavanaugh Motors

1700 Park Street
Alameda, California

Project No. 109001 May 1992

PLATE

1



LEGEND

MW-0 Monitoring Well

VW-1 Vapor Extraction Well

Building Interiors

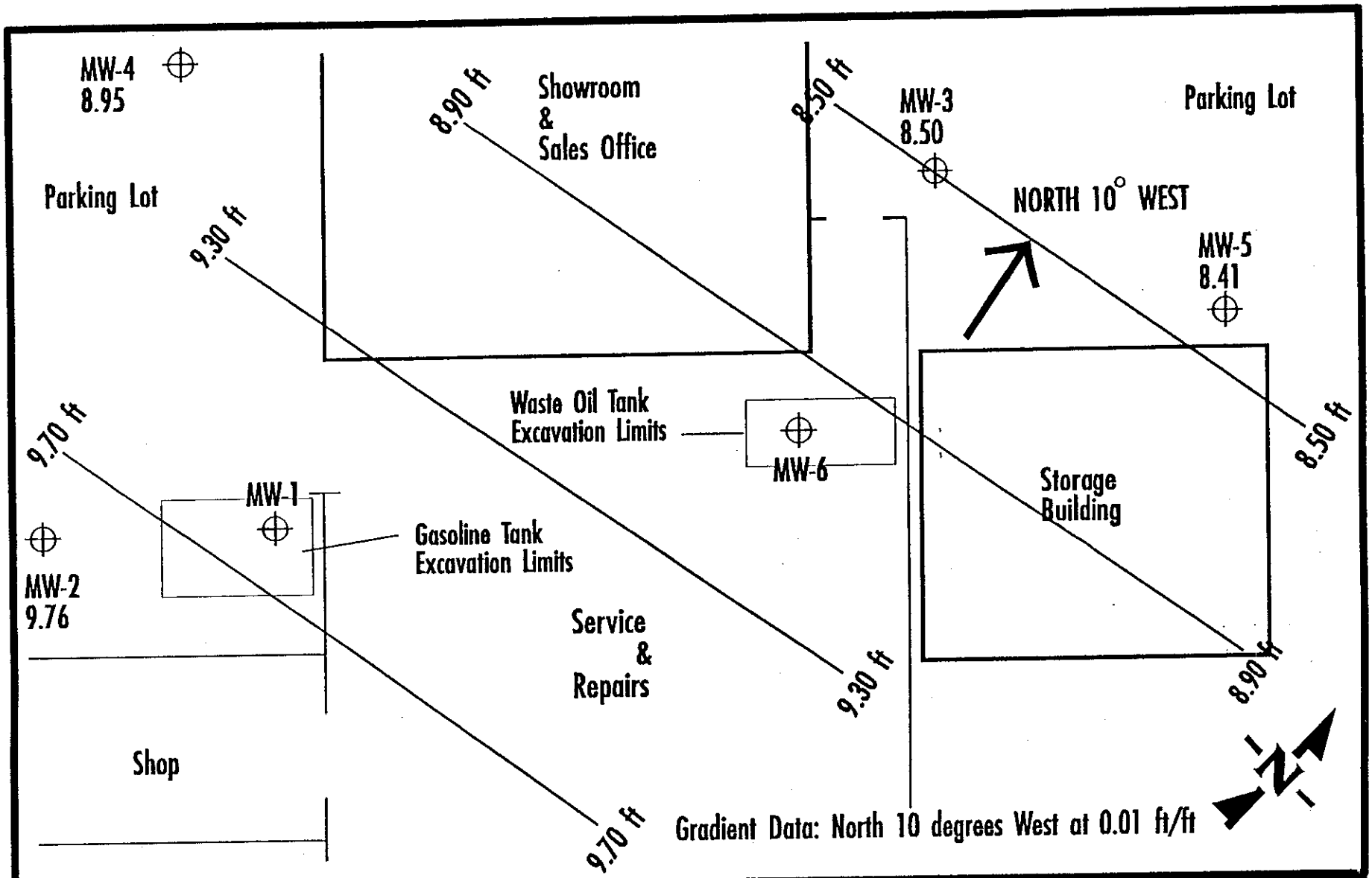
Project No. 101090
July, 1994
Scale 1 inch = 20 feet

SITE PLAN

Cavanaugh Motors

1700 Park Street, Alameda California

PLATE 2



LEGEND

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

Project No. 101090
May 26, 1994
Scale 1 inch = 20 feet

GROUNDWATER GRADIENT MAP

Cavanaugh Motors

1700 Park Street, Alameda California

SAN RAMON, CALIFORNIA

PLATE 3

APPENDIX A

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

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8015M

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
MATRIX: WATER
PROJECT MANAGER: Tom Ghigliotto
PROJECT: 1700 Park Street, Alameda, #101090

DATE SAMPLED: 05-26-94
DATE RECEIVED: 05-27-94
DATE REPORTED: 06-06-94
AMER ID: E231

Client I.D.	AMER I.D.	8015M/ TPH-DIESEL	DF
MW-3	E4052727	ND	1
MW-5	E4052728	ND	1
MW-6	E4052730	ND	1
Units		ug/l	
Detection Limits (DL)		50ug/l	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.

Reviewed By

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8015M

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
MATRIX: WATER
PROJECT MANAGER: Tom Ghigliotto
PROJECT: 1700 Park Street, Alameda, #101090

DATE SAMPLED: 05-26-94
DATE RECEIVED: 05-27-94
DATE REPORTED: 06-06-94
AMER ID: E231

Client I.D.	AMER I.D.	8015M/ TPH-GASOLINE	DF
MW-2	E4052725	ND	1
MW-4	E4052726	ND	1
MW-3	E4052727	ND	1
MW-5	E4052728	ND	1
EQB-6	E4052729	ND	1
MW-6	E4052730	ND	1
MW-1	E4052731	**15000**	1
Units		ug/l	
Detection Limits (DL)		50ug/l	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.

Reviewed By

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8020

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
MATRIX: WATER
PROJECT MANAGER: Tom Ghigliotto
PROJECT: 1700 Park Street, Alameda, #101090

DATE SAMPLED: 05-26-94
DATE RECEIVED: 05-27-94
DATE REPORTED: 06-06-94
AMER ID: E231

Client I.D.	AMER I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylene	DF
MW-2	E4052725	ND	ND	ND	ND	1
MW-4	E4052726	ND	ND	ND	ND	1
MW-3	E4052727	ND	ND	ND	ND	1
MW-5	E4052728	ND	ND	ND	ND	1
EQB-6	E4052729	ND	ND	ND	ND	1
MW-6	E4052730	ND	ND	ND	ND	1
MW-1	E4052731	**1200**	**2000**	**370**	**1500**	1
Units		ug/l	ug/l	ug/l	ug/l	
Detection Limits (DL)		0.5ug/l	0.5ug/l	0.5ug/l	1.0ug/l	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.

Reviewed By

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
5520 F (TOG)

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
MATRIX: WATER
PROJECT MANAGER: Tom Ghigliotto
PROJECT: 1700 Park Street, Alameda, #101090

DATE SAMPLED: 05-26-94
DATE RECEIVED: 05-27-94
DATE REPORTED: 06-06-94
AMER ID: E231

Client I.D.	AMER I.D.	5520F TOG	DF
MW-3	E4052727	ND	1
MW-5	E4052728	ND	1
MW-6	E4052730	ND	1
Units		mg/kg	
Detection Limits (DL)		5.0mg/kg	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.

Reported by:

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHODS 601

Client: TMC Environmental, Inc.
Proj. Manager: Tom Ghigliotto
Matrix: WATER
Sample Name: MW-3 (E4052727)
PROJECT: 1700 Park Street, #101090

Date Sampled: 05-26-94
Date Received: 05-27-94
Date Reported: 06-06-94
Lab. Report #: E231

ANALYTES	RESULTS ug/l	MDL ug/l	ANALYTES	RESULTS ug/l	MDL ug/l
Bromodichloromethane	ND	0.8	trans-1,2-Dichloroethene	ND	0.4
Bromoform	ND	0.8	1,2-Dichloropropane	ND	0.4
Bromomethane	ND	1.2	cis-1,3-Dichloropropene	ND	0.8
Carbon tetrachloride	ND	0.4	trans-1,3-Dichloropropene	ND	0.8
Chlorobenzene	ND	0.4	Methylene Chloride	ND	2.0
Chloroethane	ND	0.5	1,1,2,2-Tetrachloroethane	ND	0.4
2-Chloroethylvinyl ether	ND	0.4	tetrachloroethene	ND	0.4
Chloroform	ND	0.4	1,1,1-Trichloroethane	ND	0.4
Chloromethane	ND	1.2	1,1,2-Trichloroethane	ND	0.5
Dibromochloromethane	ND	0.8	Trichloroethene	ND	0.4
1,2-Dichlorobenzene	ND	0.8	Trichlorofluoromethane	ND	0.8
1,3-Dichlorobenzene	ND	0.4	Vinyl Chloride	ND	0.5
1,4-Dichlorobenzene	ND	0.4			
Dichlorobenzene	ND	1.2	Benzene	NR	0.5
1,1-Dichloroethane	ND	0.4	Toluene	NR	0.5
1,2-Dichloroethane	ND	0.8	Ethyl benzene	NR	0.5
1,1-Dichloroethene	ND	0.4	Total Xylene	NR	0.5

NOTES
NR-Analysis not requested
COC-Chain of Custody
ND- Analytes not detected at, or above the stated detection limit.
ppb- ug/l for waters; ug/kg for soils
DL- Detection Limit Factor
SDL- Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific analyte.
MDL- Method Detection Limit
PROCEDURES:
This analysis was performed in using EPA Method 8010, EPA Method 8020, and EPA Method 5030.
CERTIFICATION:
California Department of Health Services ELAP Certificate #1909

Reported by:

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHODS 601

Client: TMC Environmental, Inc.
Proj. Manager: Tom Ghigliotto
Matrix: WATER
Sample Name: MW-5 (E4052728)
PROJECT: 1700 Park Street, #101090

Date Sampled: 05-26-94
Date Received: 05-27-94
Date Reported: 06-06-94
Lab. Report #: E231

ANALYTES	RESULTS ug/l	MDL ug/l	ANALYTES	RESULTS ug/l	MDL ug/l
Bromodichloromethane	ND	0.8	trans-1,2-Dichloroethene	ND	0.4
Bromoform	ND	0.8	1,2-Dichloropropane	ND	0.4
Bromomethane	ND	1.2	cis-1,3-Dichloropropene	ND	0.8
Carbon tetrachloride	ND	0.4	trans-1,3-Dichloropropene	ND	0.8
Chlorobenzene	**0.6**	0.4	Methylene Chloride	ND	2.0
Chloroethane	ND	0.5	1,1,2,2-Tetrachloroethane	ND	0.4
2-Chloroethylvinyl ether	ND	0.4	tetrachloroethene	ND	0.4
Chloroform	ND	0.4	1,1,1-Trichloroethane	ND	0.4
Chloromethane	ND	1.2	1,1,2-Trichloroethane	ND	0.5
Dibromochloromethane	ND	0.8	Trichloroethene	ND	0.4
1,2-Dichlorobenzene	ND	0.8	Trichlorofluoromethane	ND	0.8
1,3-Dichlorobenzene	ND	0.4	Vinyl Chloride	ND	0.5
1,4-Dichlorobenzene	ND	0.4			
Dichlorobenzene	ND	1.2	Benzene	NR	0.5
1,1-Dichloroethane	ND	0.4	Toluene	NR	0.5
1,2-Dichloroethane	ND	0.8	Ethyl benzene	NR	0.5
1,1-Dichloroethene	ND	0.4	Total Xylene	NR	0.5

NOTES
NR-Analysis not requested
COC-Chain of Custody
ND- Analytes not detected at, or above the stated detection limit.
ppb- ug/l for waters; ug/kg for soils
DL- Detection Limit Factor
SDL- Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific analyte.
MDL- Method Detection Limit
PROCEDURES:
This analysis was performed in using EPA Method 8010, EPA Method 8020, and EPA Method 5030.
CERTIFICATION:
California Department of Health Services ELAP Certificate #1909

Reported by:

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHODS 601

Client: TMC Environmental, Inc.
Proj. Manager: Tom Ghigliotto
Matrix: WATER
Sample Name: MW-6 (E4052730)
PROJECT: 1700 Park Street, #101090

Date Sampled: 05-26-94
Date Received: 05-27-94
Date Reported: 06-06-94
Lab. Report #: E231

ANALYTES	RESULTS ug/l	MDL ug/l	ANALYTES	RESULTS ug/l	MDL ug/l
Bromodichloromethane	ND	0.8	trans-1,2-Dichloroethene	ND	0.4
Bromoform	ND	0.8	1,2-Dichloropropane	ND	0.4
Bromomethane	ND	1.2	cis-1,3-Dichloropropene	ND	0.8
Carbon tetrachloride	ND	0.4	trans-1,3-Dichloropropene	ND	0.8
Chlorobenzene	5.5	0.4	Methylene Chloride	ND	2.0
Chloroethane	ND	0.5	1,1,2,2-Tetrachloroethane	ND	0.4
2-Chloroethylvinyl ether	ND	0.4	tetrachloroethene	ND	0.4
Chloroform	ND	0.4	1,1,1-Trichloroethane	ND	0.4
Chloromethane	ND	1.2	1,1,2-Trichloroethane	ND	0.5
Dibromochloromethane	ND	0.8	Trichloroethene	ND	0.4
1,2-Dichlorobenzene	ND	0.8	Trichlorofluoromethane	ND	0.8
1,3-Dichlorobenzene	ND	0.4	Vinyl Chloride	ND	0.5
1,4-Dichlorobenzene	ND	0.4			
Dichlorobenzene	ND	1.2	Benzene	NR	0.5
1,1-Dichloroethane	ND	0.4	Toluene	NR	0.5
1,2-Dichloroethane	ND	0.8	Ethyl benzene	NR	0.5
1,1-Dichloroethene	ND	0.4	Total Xylene	NR	0.5

NOTES
NR-Analysis not requested
COC-Chain of Custody
ND- Analytes not detected at, or above the stated detection limit.
ppb- ug/l for waters; ug/kg for soils
DL- Detection Limit Factor
SDL- Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific analyte.
MDL- Method Detection Limit
PROCEDURES:
This analysis was performed in using EPA Method 8010, EPA Method 8020, and EPA Method 5030.
CERTIFICATION:
California Department of Health Services ELAP Certificate #1909

Reported by:

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

EPA 601/8010 TEST QA/QC TABLE

AMER WORKORDER: E231

AMER I.D. Number: E4052727-MSP
TMC Project: #101090
Ext/Prep. Method: EPA 5030, DHS TPH
Date: 06/06/94
Analyst: LC

Analytical Method: EPA M. 601/8010
Analysis date: 06/06/94
Analyst: LC
Matrix: Water
Unit: ug/l

Analyte	Sample Result	Spike Level	MS Result	MS %R	MSD Result	MSD %R	AVE. %R	LCL %R	UCL %R	RPD %	UCL %RPD
1,1-dichloroehthene	0.00	20.00	22.05	110	21.41	107	109	61	145	3	14
Trichloroethene	0.00	20.00	18.19	91	17.23	86	89	71	120	5	14
Chlorobenzene	0.00	20.00	17.79	89	16.94	85	87	75	130	5	13

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

EPA M. 8015/8020 TEST QA/QC TABLE

AMER WORKORDER: E231

AMER I.D. Number: E4052727-MSP
TMC Project: 101090
Ext/Prep. Method: EPA 5030, DHS TPH
Date: 06/02/94
Analyst: KK/LC

Analytical Method: EPA M. 8015/8020
Analysis date: 06/02/94
Analyst: KK/LC
Matrix: Water
Unit: ug/l

Analyte	Sample Result	Spike Level	Matrix Spike Result	Ms Recovery %	Matrix Spike Dul. Result	MSD Recovery %	Average Recovery %R	LCL %R	UCL %R	RPD %	UCL %RPD
Benzene	0.00	20.00	20.38	102	19.89	99	101	76	127	2	11
Toluene	0.00	20.00	19.40	97	19.40	97	97	76	125	0	13
Chlorobenzene	0.00	20.00	18.87	94	19.40	97	96	75	130	3	13
TPH-Gasoline	0.00	500.00	419.00	84	432.00	86	85	70	130	3	30
TPH-Diesel	0.00	1000.00	877.00	88	774.00	77	83	70	130	12	30

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

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 St. Alameda, CA	Tom Chigliotto
LABORATORY NAME: A.M.E.R.		

LAB ID NO.	SAMPLE LABEL	SOIL	WATER	DATE	TIME	TVH-GAS	TEH-DIESEL	BTXE	EPA 8010	Oil & Grease
	MW2		X	5/26/94	1115	X		X		
	MW4		X	5/26/94	1145	X		X		
	MW3		X	5/26/94	1229	X	X	X	X	X
	MW5		X	5/26/94	1310	X	X	X	X	X
	EQB-6		X	5/26/94	1425	X		X		
	MW6		X	5/26/94	1455	X	X	X	X	X
	MW1		X	5/26/94	1540	X		X		

Relinquished By: **Recieved By:**

(Print Name) Tom Chigliotto	Date: 5/27/94	(Print Name)
(Signature) Tom Chigliotto	Time: 1315	(Signature) Tom Kuppen
(Print Name)	Date: 5-27-94	(Print Name) KAGHAN KIANIAN
(Signature) Tom Kuppen 390	Time: 1450	(Signature)
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)

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

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW1	DATE COLLECTED: 5-26-94	JOB NUMBER: 101090
JOB NAME: Cavanaugh Motors	SAMPLERS NAME: T. Ghigliotto & M. Edwards	
LOCATION: 1700 Park Street, Alameda, California		

WELL HEAD COND.:

TIME MEASURED	9:53	10:25	11:22	14:20	15:00	
DEPTH IN FEET (Measure to 0.01')	6.94	6.95	6.95	6.95	6.95	

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.27	DEPTH TO WATER: 6.95	DIAMETER: 4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 14.05 **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	15:10	70.2	1.07	Clear/Cloudy	7.03
5	15:15	68.5	0.99	Clear	6.95
10	15:20	68.4	0.86	Clear	6.89
14	15:25	68.2	0.85	Clear	6.89

SAMPLING METHOD: Disposable Bailer	TIME COLLECTED: 15:40
SAMPLE TURBIDITY: 18.7	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW2	DATE COLLECTED: 5-26-94	JOB NUMBER: 101090
JOB NAME: Cavanaugh Motors	SAMPLERS NAME: T. Ghigliotto & M. Edwards	
LOCATION: 1700 Park Street, Alameda, California		

WELL HEAD COND.:

TIME MEASURED	9:15	9:45	10:25			
DEPTH IN FEET (Measure to 0.01')	6.97	6.97	6.97			

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.55	**DEPTH TO WATER:** 6.97	**DIAMETER:** 4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 14.7 **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	10:50	67.5	0.41	Clear	6.75
5	10:55	66.4	0.42	Clear	6.96
10	10:59	65.8	0.39	Clear	6.99
15	11:04	65.6	0.38	Clear	7.00

SAMPLING METHOD: Disposable Bailer	**TIME COLLECTED:** 11:15
SAMPLE TURBIDITY: 03.9	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW3	DATE COLLECTED: 5-26-94	JOB NUMBER: 101090
JOB NAME: Cavanaugh Motors	SAMPLERS NAME: T. Ghigliotto & M. Edwards	
LOCATION: 1700 Park Street, Alameda, California		

WELL HEAD COND.:

TIME MEASURED	9:26	10:08	10:53	11:50		
DEPTH IN FEET (Measure to 0.01')	7.37	7.38	7.39	7.39		

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 14.52	DEPTH TO WATER: 7.39	DIAMETER: 4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 13.9 **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	12:03	66.3	0.42	Clear	6.76
5	12:08	65.2	0.40	Clear	6.70
10	12:13	65.6	0.39	Clear	6.64
14	12:17	65.4	0.38	Clear	6.64

SAMPLING METHOD: Disposable Bailer	TIME COLLECTED: 12:29
SAMPLE TURBIDITY: 08.2	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW4	DATE COLLECTED: 5-26-94	JOB NUMBER: 101090
JOB NAME: Cavanaugh Motors	SAMPLERS NAME: T. Ghigliotto & M. Edwards	
LOCATION: 1700 Park Street, Alameda, California		

WELL HEAD COND.:

TIME MEASURED	9:20	10:01	10:51	11:10		
DEPTH IN FEET (Measure to 0.01')	7.42	7.45	7.44	7.44		

WELL - PURGING RECORD

TOTAL DEPTH OF WELL: 14.44	**DEPTH TO WATER:** 7.44	**DIAMETER:** 4"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 13.4 **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	11:20	65.1	0.46	Clear	6.85
5	11:26	65.5	0.46	Clear	6.90
10	11:31	65.3	0.48	Clear	6.91
14	11:34	65.6	0.46	Clear	6.92
		Well Dewatered			
		@ 15 gallons			

SAMPLING METHOD: Disposable Bailer	**TIME COLLECTED:** 11:45
SAMPLE TURBIDITY: 08.6	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW5	DATE COLLECTED: 5-26-94	JOB NUMBER: 101090
JOB NAME: Cavanaugh Motors	SAMPLERS NAME: T. Ghigliotto & M. Edwards	
LOCATION: 1700 Park Street, Alameda, California		

WELL HEAD COND.:

TIME MEASURED	9:30	10:12	11:01	12:15		
DEPTH IN FEET (Measure to 0.01')	6.66	6.66	6.72	6.72		

WELL PURGING RECORD

TOTAL DEPTH OF WELL: 19.18	DEPTH TO WATER: 6.72	DIAMETER: 2"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 6.4 **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	12:40	69.2	0.39	Clear	6.67
2	12:45	68.3	0.39	Cloudy	6.76
4	12:48	68.0	0.37	Slightly Cloudy	6.74
7	12:51	67.6	0.36	Slt. Cloudy/Clear	6.73

SAMPLING METHOD: Disposable Bailer	TIME COLLECTED: 13:10
SAMPLE TURBIDITY: 188.3	

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL: MW6	DATE COLLECTED: 5-26-94	JOB NUMBER: 101090
JOB NAME: Cavanaugh Motors	SAMPLERS NAME: T. Ghigliotto & M. Edwards	
LOCATION: 1700 Park Street, Alameda, California		

WELL HEAD COND.:

TIME MEASURED	9:40	10:20	11:15	13:10	14:10	
DEPTH IN FEET (Measure to 0.01')	7.01	7.01	7.01	7.01	7.01	

WELL - PURGING RECORD

TOTAL DEPTH OF WELL: 19.05	**DEPTH TO WATER:** 7.01	**DIAMETER:** 2"

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 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	14:30	56.9	1.73	Clear	7.15
2	14:36	55.6	1.77	Very Cloudy	7.03
4	14:38	56.3	2.07	Very Cloudy	6.97
6	14:41	56.0	2.05	Cloudy	7.00
7	14:43	55.8	2.08	Slightly Cloudy	6.98

SAMPLING METHOD: Disposable Bailer	**TIME COLLECTED:** 14:55
SAMPLE TURBIDITY: 18.4	