

ALCO
HAZMAT

94 MAR 22 PM 12:57

**GROUNDWATER MONITORING
AND PROGRESS REPORT**

Cavanaugh Motors Facility
1700 Park Street
Alameda, California

March 18, 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

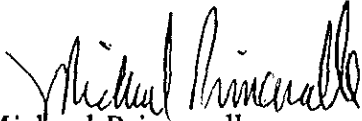
Project Number 101090

CERTIFICATION OF PROFESSIONAL SUPERVISION

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

TMC ENVIRONMENTAL, Inc. supervised the preparation of this Groundwater Monitoring and Progress Report, dated March 18, 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/Project Manager

TMC Environmental, Inc. certifying professional:



Mark T. Youngkin, Vice President
Certified Engineering Geologist No. EG-1480
License expires June 30, 1994.

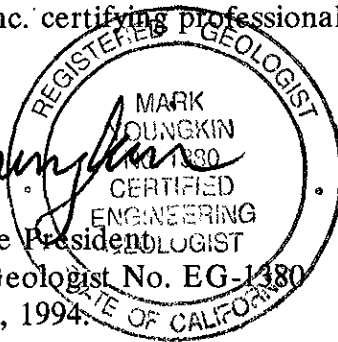


TABLE OF CONTENTS
GROUNDWATER MONITORING AND PROGRESS REPORT
1700 PARK STREET, ALAMEDA, CALIFORNIA

TITLE PAGE

CERTIFICATION OF PROFESSIONAL SUPERVISION

TABLE OF CONTENTS

| | |
|---|----|
| 1.0 SUMMARY OF FINDINGS | 1 |
| 2.0 GENERAL SITE INFORMATION | 2 |
| 2.1 SITE LOCATION | 2 |
| 2.2 RESPONSIBLE PARTY | 2 |
| 2.3 CONSULTANT OF RECORD | 3 |
| 2.4 SITE CONDITION | 3 |
| 2.5 ENVIRONMENTAL SITE WORK | 3 |
| 2.6 GEOLOGY | 4 |
| 2.7 LEAD IMPLEMENTING AGENCY | 4 |
| 3.0 GROUNDWATER SAMPLING | 5 |
| 4.0 GROUND WATER MEASUREMENTS | 10 |
| 5.0 SOIL AND WATER SAMPLE DATA QUALITY | 14 |
| 6.0 VAPOR EXTRACTION/SOIL REMEDIATION | 15 |
| 7.0 SOIL REMEDIATED VERIFICATION SAMPLING | 16 |
| 8.0 SCHEDULE OF ACTIVITIES | 16 |
| 9.0 LIMITATIONS | 16 |

TABLES

| | |
|---------|---|
| TABLE 1 | GASOLINE RESULTS FOR GROUNDWATER SAMPLES |
| TABLE 2 | DIESEL, OIL & GREASE AND GASOLINE RESULTS FOR WATER SAMPLES |
| TABLE 3 | GROUNDWATER MEASUREMENTS FROM MONITORING WELLS |
| TABLE 4 | GROUNDWATER GRADIENT AND DIRECTION |

CHARTS

| | |
|---------|--|
| CHART 1 | MW1 QUARTERLY SAMPLING RESULTS FOR GASOLINE AND BENZENE |
| CHART 2 | MW1 QUARTERLY SAMPLING RESULTS FOR BTEX |
| CHART 3 | MW-6 QUARTERLY SAMPLING RESULTS FOR DIESEL/KEROSENE |
| CHART 4 | MW-5 AND MW-6 QUARTERLY SAMPLING RESULTS FOR CHLOROBENZENE |
| CHART 5 | SUMMARY OF VAPOR VALUES FROM SOIL VAPOR EXTRACTION SYSTEM |

PLATES

PLATE 1 SITE VICINITY MAP
PLATE 2 SITE MAP
PLATE 3 GROUNDWATER GRADIENT MAP

APPENDIX

CERTIFIED ANALYTICAL REPORTS, CHAIN-OF-CUSTODY FORMS,
WELL SAMPLING FORMS

GROUNDWATER MONITORING AND PROGRESS REPORT

1700 Park Street, Alameda California

1.0 SUMMARY OF FINDINGS

In December, 1989 and August, 1990, two underground storage tanks (a gasoline tank and a waste oil tank) were removed from separate locations on the site. In April, 1990, and January 1991, accessible contaminated soils were excavated from the tank locations. Approximately 120 cubic yards of contaminated soils were removed, and are 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 February 2, 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. Samples from MW-6 continue to have detectable levels of Diesel/Kerosene and dichlorobenzene. Samples from MW-3 and MW-5 continue to have Diesel/Kerosene and Purgeable Halocarbons levels below detection limits. Non-detectable levels of oil and grease were found in MW-3, MW-5 and MW-6.

Ground water gradient and direction was estimated by using water levels measurements from monitoring wells MW-2, MW-3 and MW-4. Recent groundwater data indicates ground water flows in a north/northwest direction (North, 12° west), at an average horizontal gradient of 0.008 ft/ft. The eleven

quarterly ground water measurement episodes indicate a range of flow direction from N31W to N20E and a range of horizontal gradient from 0.005 ft/ft to 0.014 ft/ft. Ground water elevation levels rose approximately 3/4-foot since the August, 1993 sampling episode.

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-contaminated 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.

Handwritten notes:
- Verify that
- See if that
- are/monitoring
- Soil vapor samples
- will be used
- to verify
- soil concentrations
- 17

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. Mark Youngkin, vice president. Mr. Edwards and Mr. Youngkin can be reached at (510) 232-8366.

2.4 SITE CONDITION

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

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

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

2.5 ENVIRONMENTAL SITE WORK

In December, 1989 and August, 1990, two underground storage tanks (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 accessible, 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 work and 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 is to remediate the contaminated soils in the vicinity of the former gasoline tank. In February, 1993, TMC constructed a vapor extraction system. Initial pilot tests of the system revealed that elevated groundwater levels at the site (due to high rainfall) hampered the effectiveness of the system. The system was then shut off. Once the groundwater levels dropped, the system was again started; July 7, 1993. 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
 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 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 February 2, 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 |
|---|-----------------|--------------|--------------|--------------|--------------------|--------------|
| <i>June 1990 Groundwater Sampling</i> | | | | | | |
| 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 |
| <i>December 1990 Groundwater Sampling</i> | | | | | | |
| 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 |

| <i>Date Sampled</i> | <i>Monitoring Well</i> | <i>TPH gas ug/L</i> | <i>Benzene ug/L</i> | <i>Toluene ug/L</i> | <i>Ethyl benzene ug/L</i> | <i>Xylenes ug/L</i> |
|---|------------------------|---------------------|---------------------|---------------------|---------------------------|---------------------|
| 12-17-90 | MW-3 | 140 | ND< 0.5 | 1.3 | 1.3 | 9.1 |
| 12-17-90 | MW-4 | ND< 50 | ND< 0.5 | ND< 0.5 | ND< 0.5 | 0.9 |
| <i>July 1991 Groundwater Sampling</i> | | | | | | |
| 7-29-91 | MW-1 | 21000 | 890 | 1900 | 320 | 1700 |
| 7-30-91 | MW-2 | ND< 50 | ND< 0.5 | ND< 0.5 | ND< 0.5 | 0.9 |
| 7-18-91 | MW-3 | ND< 50 | ND< 0.5 | ND< 0.5 | ND< 0.5 | 0.9 |
| 7-30-91 | MW-4 | ND< 50 | ND< 0.5 | ND< 0.5 | ND< 0.5 | 0.9 |
| 7-18-91 | MW-5 | ND< 50 | ND< 0.5 | ND< 0.5 | ND< 0.5 | 0.9 |
| 7-18-91 | MW-6 | ND< 50 | 1.3 | ND< 0.5 | ND< 0.5 | 1.6 |
| <i>December 1991 Groundwater Sampling</i> | | | | | | |
| 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 |
| <i>April 1992 Groundwater Sampling</i> | | | | | | |
| 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 |
| <i>July 1992 Groundwater Sampling</i> | | | | | | |
| 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 |

| Date Sampled | Monitoring Well | TPH 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 |
| <i>October 1992 Groundwater Sampling</i> | | | | | | |
| 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 |
| <i>February 1993 Groundwater Sampling</i> | | | | | | |
| 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 |
| <i>May 1993 Groundwater Sampling</i> | | | | | | |
| 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 |

| Date Sampled | Monitoring Well | TPH gas ug/L | Benzene ug/L | Toluene ug/L | Ethyl benzene ug/L | Xylenes ug/L |
|---|-----------------|--------------|--------------|--------------|--------------------|--------------|
| <i>August 1993 Groundwater Sampling</i> | | | | | | |
| 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 |
| 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 |
| <i>February 1994 Groundwater Sampling</i> | | | | | | |
| 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 |

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 over the eleven sampling episodes. 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 |
|---|-----------------|-------------|---------------|-------------------|--------------------|
| <i>July 1991 Groundwater Sampling</i> | | | | | |
| 7-18-91 | MW-3 | NA | NA | ND< 5 | NA |
| 7-18-91 | MW-5 | NA | NA | ND< 5 | NA |
| 7-18-91 | MW-6 | NA | NA | ND< 5 | NA |
| <i>December 1991 Groundwater Sampling</i> | | | | | |
| 12-4-91 | MW-3 | ND< 50 | ND< 50 | ND< 5 | ND< 1.0 |
| 12-4-91 | MW-5 | ND< 50 | ND< 50 | ND< 5 | 4.6 |
| 12-4-91 | MW-6 | 1,400 | ND< 50 | ND< 5 | 33 |
| <i>April 1992 Groundwater Sampling</i> | | | | | |
| 4-29-92 | MW-3 | ND< 50 | ND< 50 | ND< 5 | ND< 1.0 |
| 4-29-92 | MW-5 | ND< 50 | ND< 50 | ND< 5 | 3 |
| 4-29-92 | MW-6 | 670 | ND< 50 | ND< 5 | 7 |
| <i>July 1992 Groundwater Sampling</i> | | | | | |
| 7-28-92 | MW-3 | ND< 50 | ND< 50 | ND< 5 | ND< 1.0 |
| 7-28-92 | MW-5 | ND< 50 | ND< 50 | ND< 5 | 2 |
| 7-28-92 | MW-6 | 1,700 | ND< 50 | ND< 5 | 17 |
| <i>October 1992 Groundwater Sampling</i> | | | | | |
| 10-19-92 | MW-3 | ND< 50 | ND< 50 | ND< 5 | ND< 1.0 |
| 10-19-92 | MW-5 | ND< 50 | ND< 50 | ND< 5 | 2 |
| 10-19-92 | MW-6 | 500 | ND< 50 | ND< 5 | 26 |
| <i>February 1993 Groundwater Sampling</i> | | | | | |
| 2-24-93 | MW-3 | ND< 50 | ND< 50 | ND< 5 | ND< 1.0 |
| 2-24-93 | MW-5 | ND< 50 | ND< 50 | ND< 5 | 1 |
| 2-24-93 | MW-6 | ND< 50 | 170 + | ND< 5 | 6 |

| Date Sampled | Monitoring Well | Diesel ug/L | Kerosene ug/L | Oil & Grease mg/L | Chlorobenzene ug/L |
|---|-----------------|-------------|---------------|-------------------|--------------------|
| <i>May 1993 Groundwater Sampling</i> | | | | | |
| 5-19-93 | MW-3 | ND< 50 | ND< 50 | ND< 5 | ND |
| 5-19-93 | MW-5 | ND< 50 | ND< 50 | ND< 5 | 2 |
| 5-19-93 | MW-6 | 670 | ND< 50 | ND< 5 | 4 |
| <i>August 1993 Groundwater Sampling</i> | | | | | |
| 8-11-93 | MW-3 | ND< 50 | ND< 50 | ND< 5 | ND< 1 |
| 8-11-93 | MW-5 | ND< 50 | ND< 50 | ND< 5 | ND< 1 |
| 8-11-93 | MW-6 | 80 | * | 7.0 | 10 |
| <i>February 1994 Groundwater Sampling</i> | | | | | |
| 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 |

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) continue to have detectable levels of Kerosene or Diesel; see Chart 3, MW-6 Quarterly Sampling Results for Diesel/Kerosene.

When compared to a previous May 19, 1993, sampling episode, the February 2, 1994, sample results show a continued decrease in Gasoline and BTEX in MW-1. MW-6 showed an increase in Kerosene levels, but Diesel levels are now below detection limits. Seasonal variations in contaminant concentration is apparent, with the highest concentrations occurring during periods of wet weather or highest groundwater levels. TMC believes this fluctuation of Gasoline concentrations resulted from the contact of water in the tank pit with residual soil contamination along the building foundation.

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 (February 2, 1994) the results show continuing presence of Chlorobenzene in well MW-6, with non-detectable levels in MW-5; 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

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

| <i>Date</i> | <i>Well Label</i> | <i>Water Level</i> | <i>Casing Elevation (msl)</i> | <i>Water Elevation (msl)</i> |
|-------------|-------------------|--------------------|-----------------------------------|----------------------------------|
| 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 |

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

| <i>Measurement Date</i> | <i>Down Gradient Direction</i> | <i>Horizontal Gradient</i> | <i>Average Water Level feet above msl</i> |
|-------------------------|--------------------------------|----------------------------|---|
| 6-20-90 | North 26 degrees West | 0.009 ft/ft | 9.0 |
| 9-13-90 | North 2 degrees East | 0.005 ft/ft | 7.9 |
| 12-17-90 | North 19 degrees East | 0.003 ft/ft | 8.1 |
| 12-4-91 | North 12 degrees West | 0.008 ft/ft | 8.5 |
| 4-29-92 | North 20 degrees West | 0.012 ft/ft | 9.8 |
| 8-29-92 | North 5 degrees West | 0.009 ft/ft | 8.1 |
| 10-19-92 | North 2 degrees East | 0.007 ft/ft | 7.7 |
| 2-24-93 | North 31 degrees West | 0.014 ft/ft | 10.4 |
| 5-19-93 | North 7 degrees West | 0.014 ft/ft | 9.4 |
| 8-11-93 | North 4 degrees West | 0.008 ft/ft | 7.96 |
| 2-24-94 | North 12 degrees West | 0.008 ft/ft | 8.69 |

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 12 degrees West flow direction at an average horizontal gradient of 0.008 ft/ft. The horizontal gradient is similar to the topographic slope of the lot. 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 (February, 1994) horizontal gradient measured across the site.

5.0 SOIL AND WATER SAMPLE DATA QUALITY

The quality assurance and quality control (QA/QC) review of the new sample data for this report indicates that the data is acceptable for the purpose and objectives of this project. TMC did not review data summarized from previous reports. The U.S. Environmental Protection Agency (EPA) Test Methods for Evaluating Solid Waste (SW-846) and the California Department of Health Services (DOHS) Leaking Underground Fuel Tank (LUFT) Manual were used to evaluate the sampling data since the SW-846 and LUFT methodologies were primarily used to analyze the samples. The samples were analyzed by Curtis & Tompkins, Ltd. of Berkeley, California. The certified laboratory reports and chain-of-custody forms are presented in Appendix A.

A. QUALITY OF GROUNDWATER SAMPLES

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

B. CHAIN OF CUSTODY DOCUMENTATION

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

C. PURGEABLE HALOCARBONS

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

D. TOTAL VOLATILE HYDROCARBONS WITH BTEX

Based on the QC data reviewed, total volatile hydrocarbons (TVH) as gasoline analysis by LUFT methods and benzene, toluene, ethylbenzene, and total xylenes (BTEX) analyses by EPA SW-846 Methods modified 5030/8020 appear reasonably representative. Samples were analyzed within the Regional Water Quality Control Board specified 7 day maximum holding time for water samples. Matrix spike/matrix spike duplicate percent

recoveries and relative percent differences (RPD's) were either within EPA-specified limits or were within limits set by professional judgment where no EPA limits exist.

E. EXTRACTABLE PETROLEUM HYDROCARBONS

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

F. HYDROCARBON OIL & GREASE

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

6.0 VAPOR EXTRACTION/SOIL REMEDIATION

As indicated above in this report, TMC permitted, installed, and operated a vapor extraction system to remediate gasoline-contaminated soils in the vicinity of a former gasoline tank. TMC installed the system in February, 1993. TMC installed four vapor extraction wells (indicated on Plate 2) during installation of the ground water monitoring wells. Initial pilot tests of the system revealed that ground water elevations were high and covering the well screen of the vapor wells, causing the system to be ineffective. Ground water elevations at the site subsequently dropped sufficiently to allow for effective use of the system. The system was restarted in July, 1994. The system operated when ground water levels at the site were low, exposing gasoline-contaminated subsurface soils. Operation of the system continued until affluent vapors (coming from the wells into the system) dropped and stabilized down to approximately 40 ppm. The highest affluent levels occurred during September and October, 1993; see Chart 5, Summary of Vapor Values from Soil Vapor Extraction System. The petroleum vapors were measured with a Sensidyne FID. The system was shut down January 24, 1994. TMC calculates that approximately 1,000 pounds of hydrocarbons were removed from the soil.

7.0 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 will first submit a Work Plan to the Alameda County Health Care Services Agency, Department of Environmental Health for their review and comment of the proposed work.

Work Plan

8.0 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.
- Disposal of the on-site soil stock pile. *From what?*
- Submit a Work Plan for the collection of soil samples to verify remediation of the gasoline-contaminated soils.
- Upon authorization, perform the verification sampling and chemical analysis.

9.0 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 sam-

pling and remediation wells that eventually must be permitted and destroyed by a licensed driller at the clients expense.

CHART 1 MW1 QUARTERLY SAMPLING RESULTS FOR GASOLINE

CAVANAUGH MOTORS

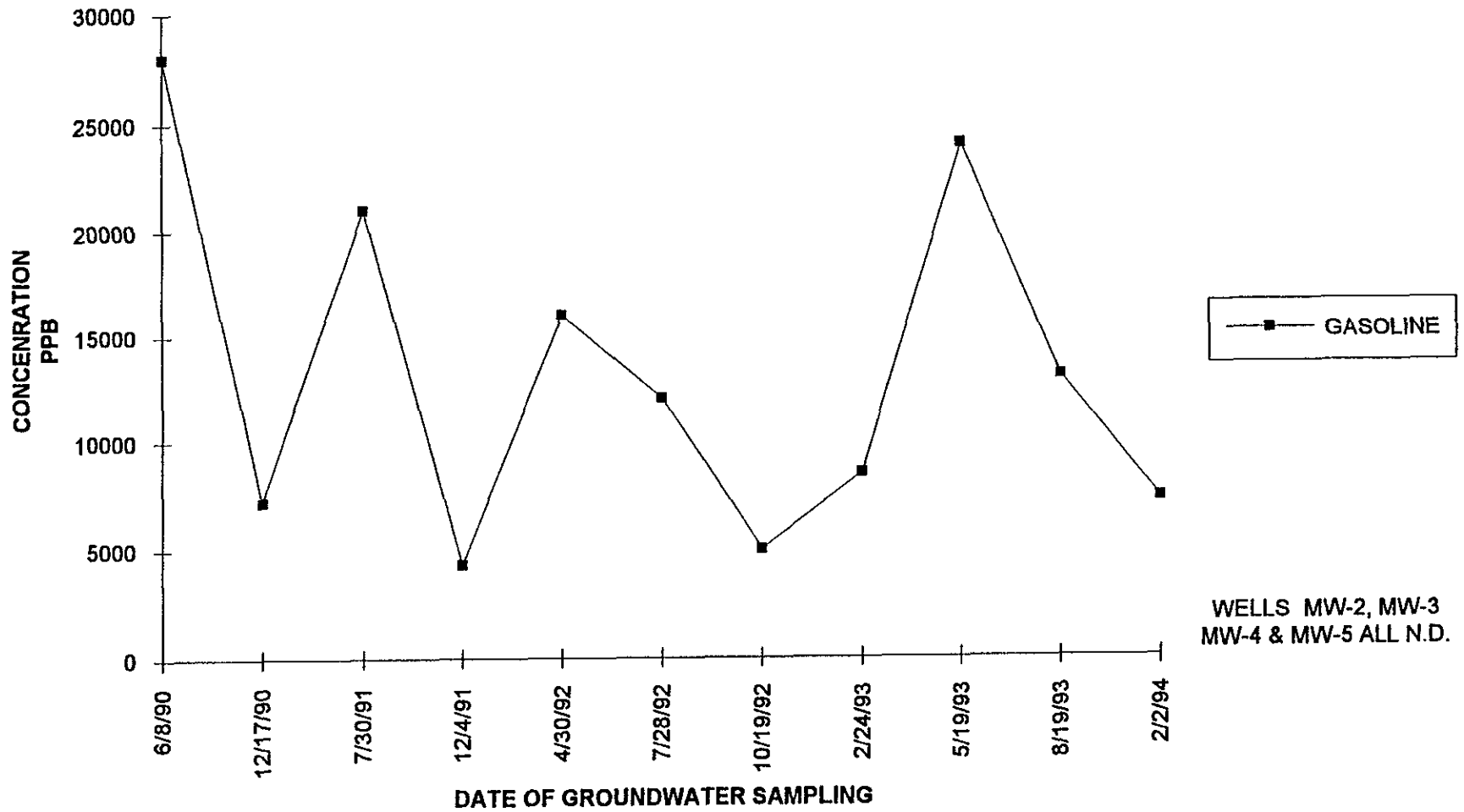


CHART 2
MW1 QUARTERLY SAMPLING RESULTS FOR BTEX
 CAVANAUGH MOTORS

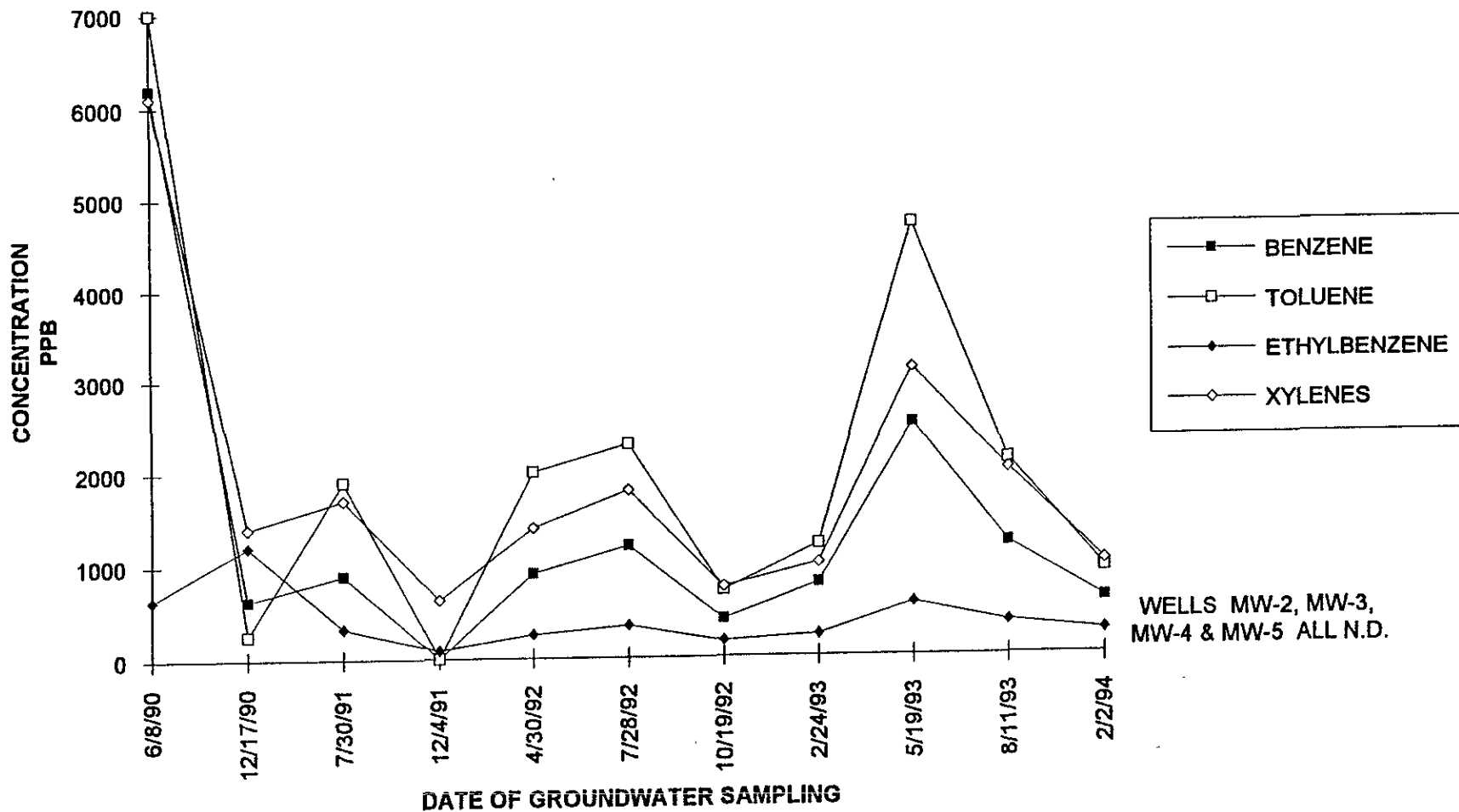


CHART 3
MW-6 QUARTERLY SAMPLING RESULTS FOR DIESEL AND KEROSENE
CAVANAUGH MOTORS

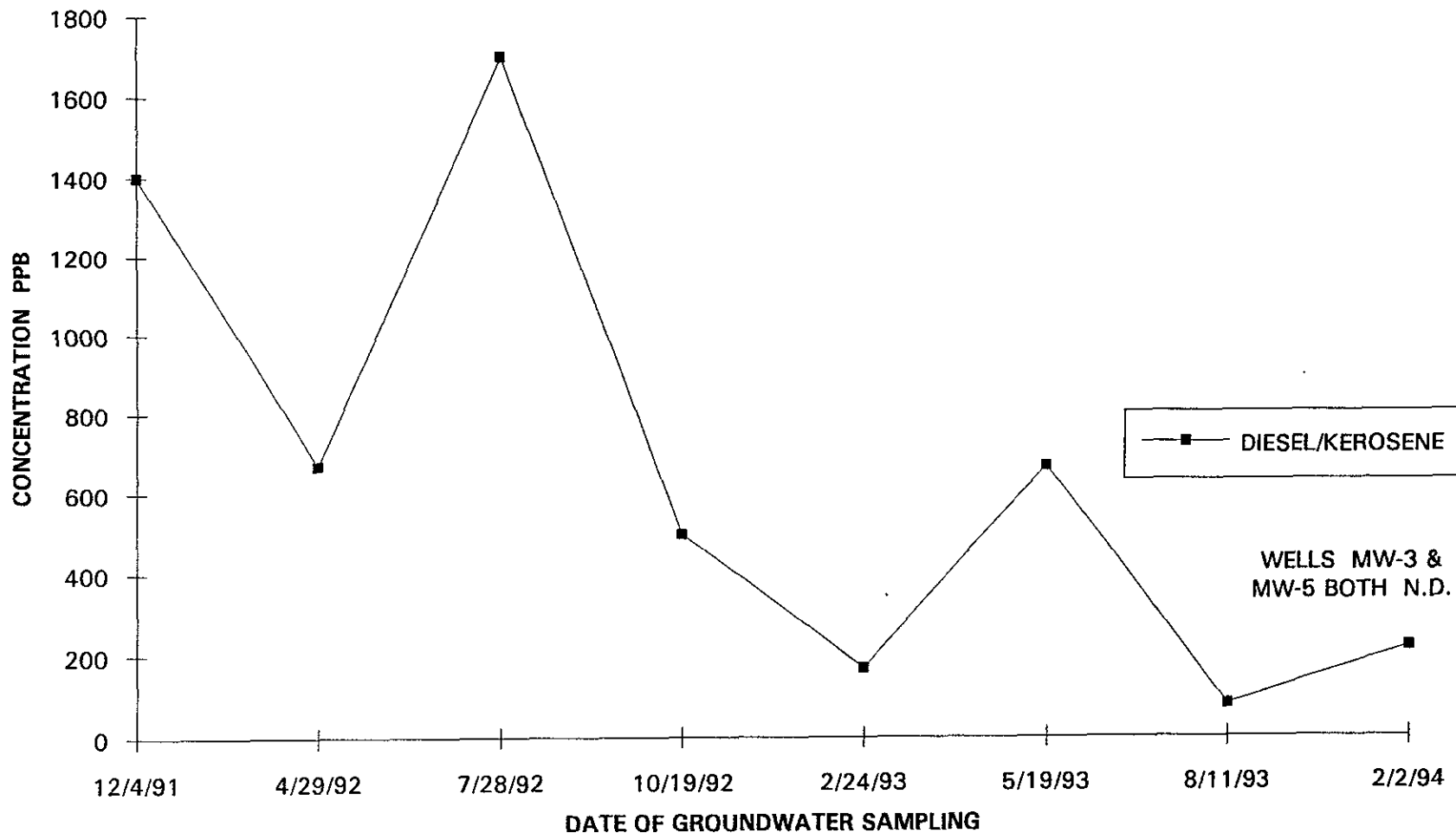


CHART 4
MW-5 AND MW-6 QUARTERLY SAMPLING
RESULTS FOR CHLOROBENZENE

CAVANAUGH MOTORS

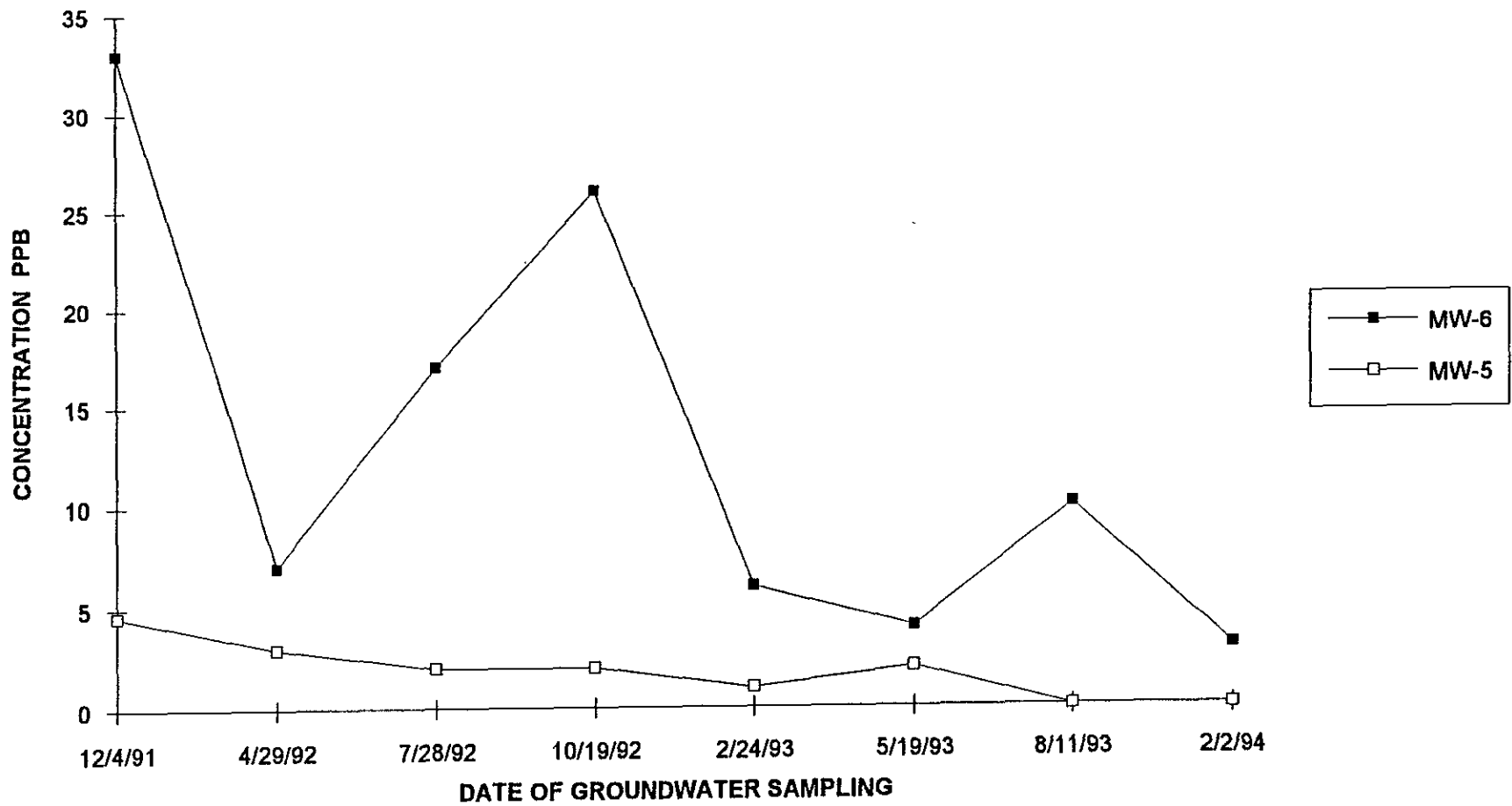
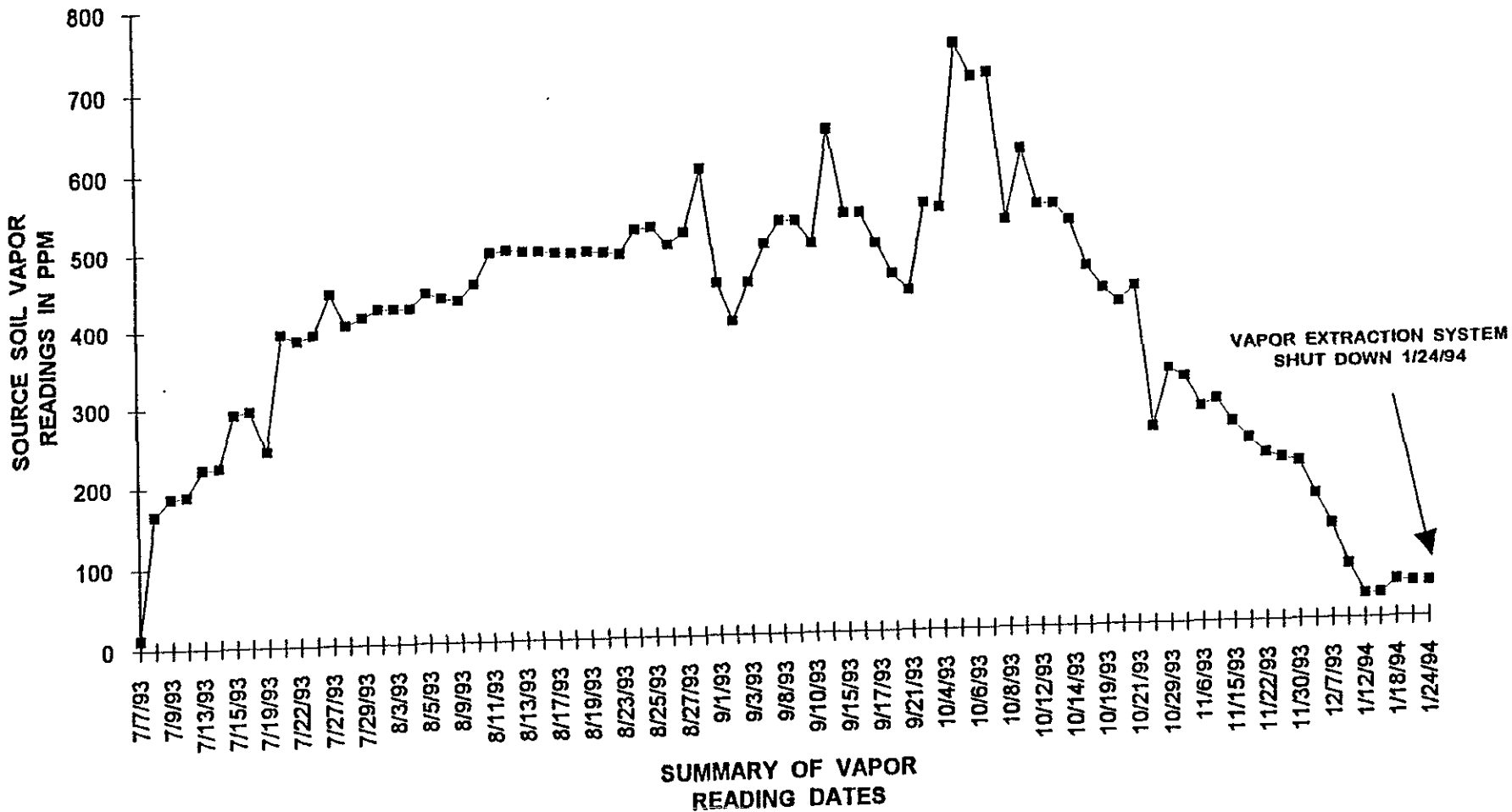
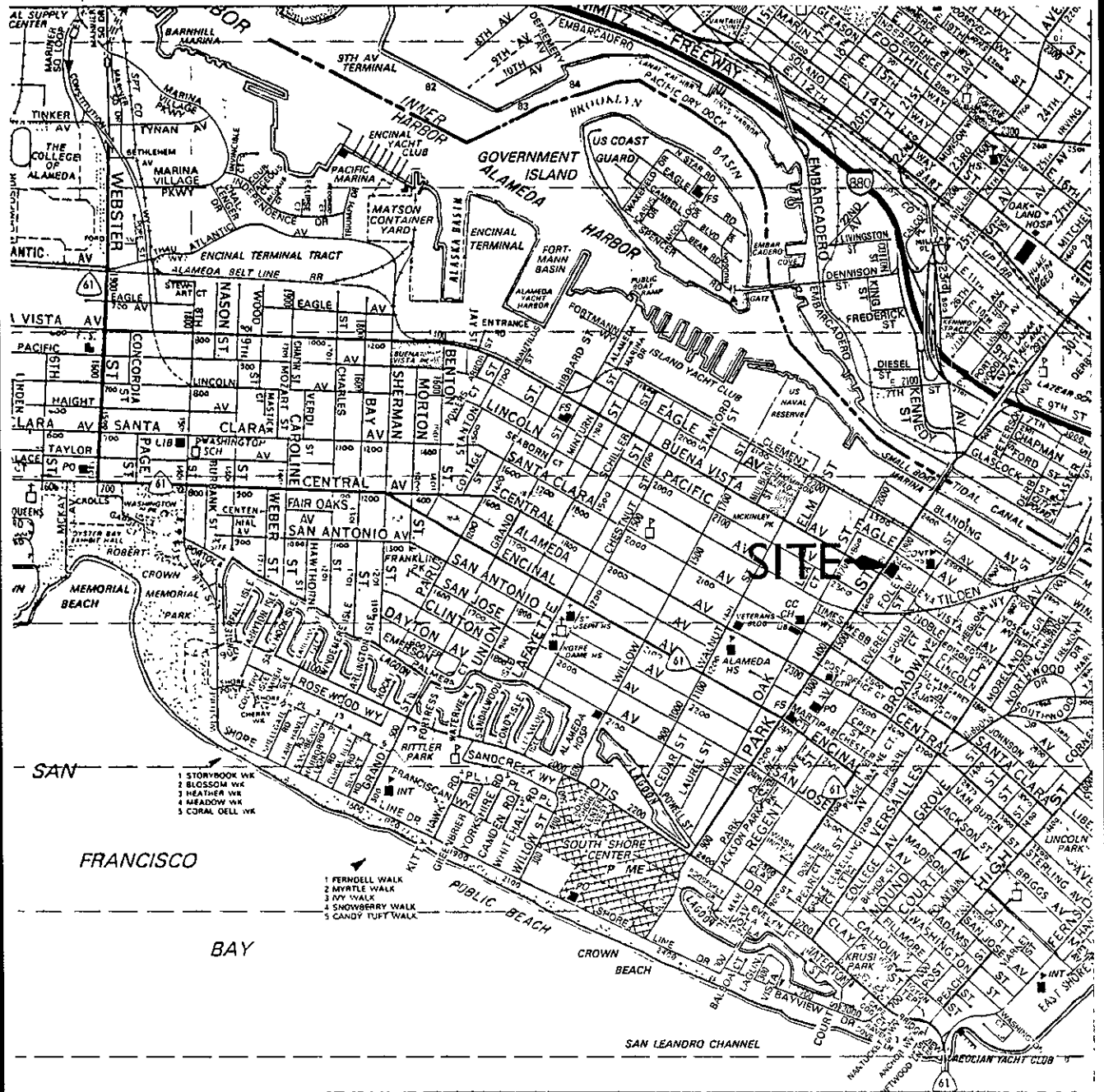


CHART 5; SUMMARY OF VAPOR VALUES FROM SOIL VAPOR EXTRACTION SYSTEM

CAVANAUGH MOTORS





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



SITE VICINITY MAP

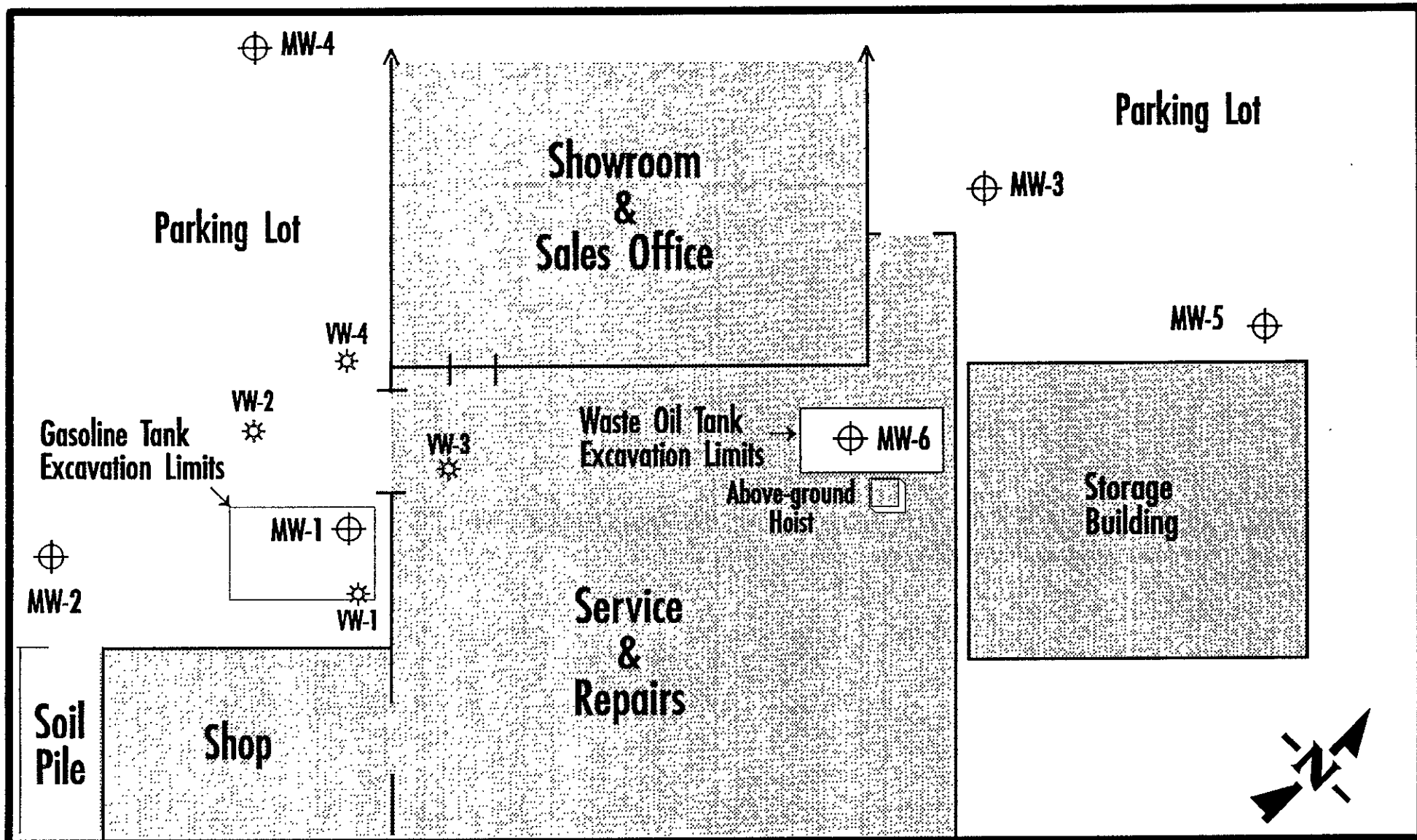
Cavanaugh Motors

1700 Park Street
Alameda, California

Project No. 109001 May 1992

PLATE

1

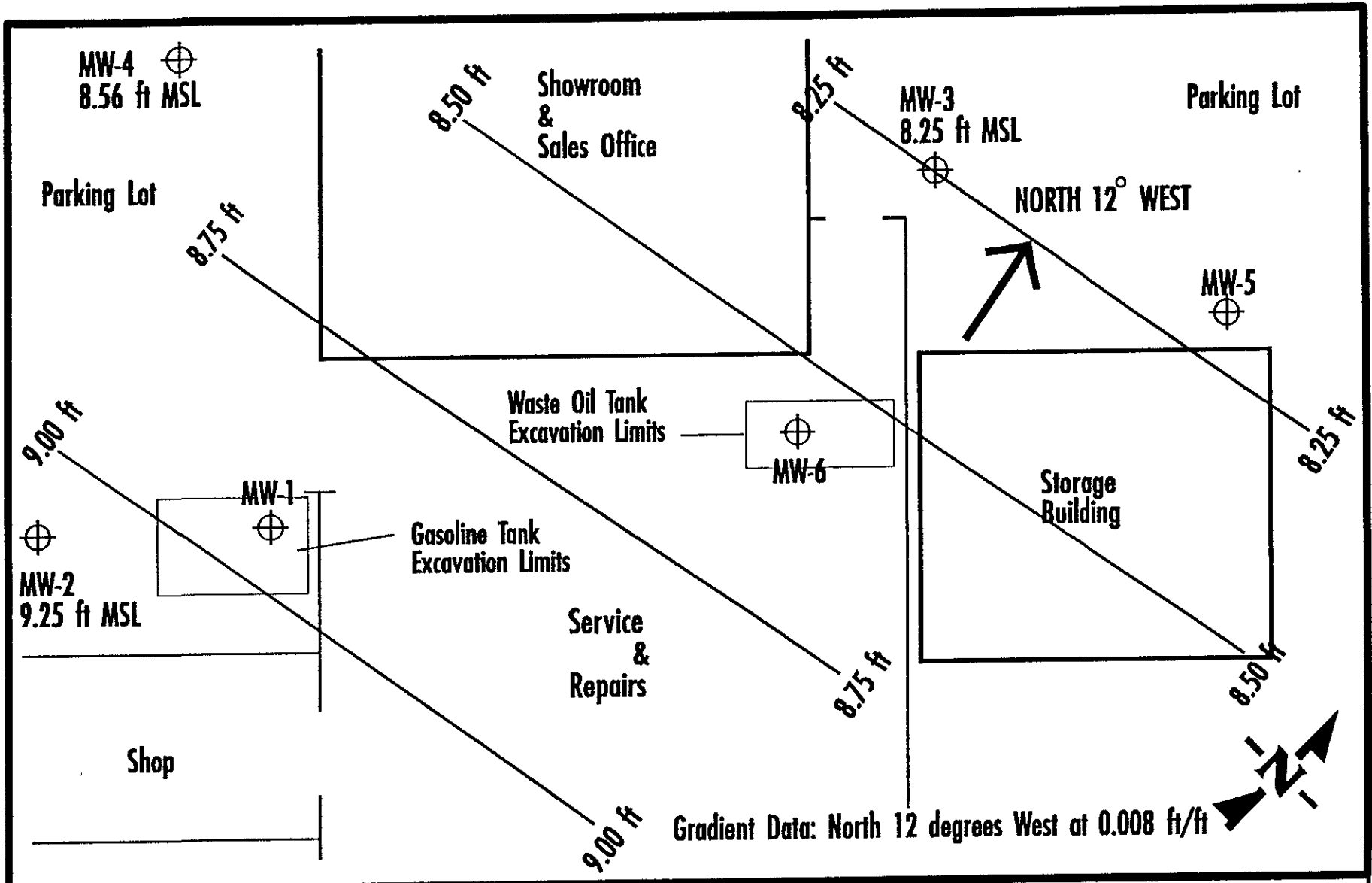


| LEGEND | |
|---------------|-----------------------|
| MW-0 | Monitoring Well |
| VW-1 | Vapor Extraction Well |
| | Building Interiors |

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

SITE PLAN

Cavanaugh Motors
 1700 Park Street, Alameda California



LEGEND

MW-0
1.00 ft

⊕ Monitoring Well with elevation of groundwater in feet MSL.

Project No. 101090
February 2, 1994
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

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

Prepared for:

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

Date: 08-MAR-94
Lab Job Number: 114211
Project ID: 101090
Location: Cavanaugh Motors

Reviewed by:

Mary Plessner

Reviewed by:

Kathy O'Brien

This package may be reproduced only in its entirety.



Client: TMC Environmental, Inc.

Laboratory Login Number: 114211

Project Name: Cavanaugh Motors

Report Date: 08 March 94

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 |
|------------|-----------|--------|-----------|-----------|-----------|--------|-------|----|---------|----------|
| 114211-004 | MW3 | Water | 02-FEB-94 | 02-FEB-94 | 08-FEB-94 | ND | mg/L | 5 | TR | 12684 |
| 114211-005 | MW5 | Water | 02-FEB-94 | 02-FEB-94 | 08-FEB-94 | ND | mg/L | 5 | TR | 12684 |
| 114211-006 | MW6 | Water | 02-FEB-94 | 02-FEB-94 | 08-FEB-94 | ND | mg/L | 5 | TR | 12684 |

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: 114211
Report Date: 08 March 94

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 12684

Blank Results

| Sample ID | Result | MDL | Units | Method | Date Analyzed |
|-----------|--------|-----|-------|----------------|---------------|
| BLANK | ND | 5 | mg/L | SMWW 17:5520BF | 08-FEB-94 |

Spike/Duplicate Results

| Sample ID | Recovery | Method | Date Analyzed |
|-----------|----------|----------------|---------------|
| BS | 89% | SMWW 17:5520BF | 08-FEB-94 |
| BSD | 86% | SMWW 17:5520BF | 08-FEB-94 |

| | | Control Limits |
|-----------------------------|------|----------------|
| Average Spike Recovery | 88% | 80% - 120% |
| Relative Percent Difference | 4.0% | < 20% |

LABORATORY NUMBER: 114211-4
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 101090
 LOCATION: 1700 PARK ST. ALAMEDA, CA
 SAMPLE ID: MW3

DATE SAMPLED: 02/02/94
 DATE RECEIVED: 02/02/94
 DATE ANALYZED: 02/07/94
 DATE REPORTED: 02/10/94

EPA 8010
 Purgeable Halocarbons in Water

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

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

110

=====

LABORATORY NUMBER: 114211-5
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 101090
 LOCATION: 1700 PARK ST. ALAMEDA, CA
 SAMPLE ID: MW5

DATE SAMPLED: 02/02/94
 DATE RECEIVED: 02/02/94
 DATE ANALYZED: 02/08/94
 DATE REPORTED: 02/10/94

EPA 8010
 Purgeable Halocarbons in Water

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

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

108



LABORATORY NUMBER: 114211-6
 CLIENT: TMC ENVIRONMENTAL, INC.
 PROJECT ID: 101090
 LOCATION: 1700 PARK ST. ALAMEDA, CA
 SAMPLE ID: MW6

DATE SAMPLED: 02/02/94
 DATE RECEIVED: 02/02/9
 DATE ANALYZED: 02/08/9
 DATE REPORTED: 02/10/9

EPA 8010
 Purgeable Halocarbons in Water

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

=====



LABORATORY NUMBER: 114211-METHOD BLANK
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA, CA

DATE ANALYZED: 02/07/9
DATE REPORTED: 02/10/9

EPA 8010
Purgeable Halocarbons in Water

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

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

105



LABORATORY NUMBER: 114211
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA, CA

DATE SAMPLED: 02/02/94
DATE RECEIVED: 02/02/94
DATE ANALYZED: 02/06/94
DATE REPORTED: 02/10/94

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) |
|----------|-----------|------------------------------|-------------------|-------------------|----------------------------|----------------------------|
| 114211-2 | MW2 | ND(50) | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) |
| 114211-3 | MW4 | ND(50) | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) |
| 114211-4 | MW3 | ND(50) | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) |
| 114211-5 | MW5 | ND(50) | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) |
| 114211-6 | MW6 | ND(50) | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) |

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

QA/QC SUMMARY

```

=====
RPD, %                                1
RECOVERY, %                            93
=====

```



LABORATORY NUMBER: 114211
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA, CA

DATE SAMPLED: 02/02/94
DATE RECEIVED: 02/02/94
DATE ANALYZED: 02/09/94
DATE REPORTED: 02/10/94

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) |
|----------|-----------|------------------------------|-------------------|-------------------|----------------------------|----------------------------|
| 114211-7 | MW1 | 7300 | 600 | 920 | 250 | 1,000 |

QA/QC SUMMARY

RPD, % <1
RECOVERY, % 109



MS/MSD SUMMARY SHEET FOR EPA 8010

Laboratory Number: 114211
 Client: TMC Environmental
 Analysis date: 02/06/94
 Sample type: Water
 Sample spiked: 114166-002
 Spike file: 038e010
 Spike dup file: 038e011

8010 MS/MSD DATA (spiked at 20 ppb)

| SPIKE COMPOUNDS | READING | RECOVERY | STATUS | LIMITS |
|---------------------|---------|----------|--------|----------|
| 1,1-Dichloroethene | 13.76 | 69 % | OK | 61 - 145 |
| Trichloroethene | 80.87 | 61 % | NOT OK | 71 - 120 |
| Chlorobenzene | 20.12 | 101 % | OK | 75 - 130 |
| SPIKE DUP COMPOUNDS | | | | |
| 1,1-Dichloroethene | 14.13 | 71 % | OK | 61 - 145 |
| Trichloroethene | 84.12 | 78 % | OK | 71 - 120 |
| Chlorobenzene | 20.29 | 101 % | OK | 75 - 130 |
| SURROGATES | | | | |
| Bromobenzene (MS) | 106.83 | 107 % | OK | 75 - 125 |
| Bromobenzene (MSD) | 106.98 | 107 % | OK | 75 - 125 |
| MATRIX RESULTS | | | | |
| 1,1-Dichloroethene | 0 | | | |
| Trichloroethene | 68.6 | | | |
| Chlorobenzene | 0 | | | |

RPD DATA

| 8010 COMPOUNDS | SPIKE | SPIKE DUP | RPD | STATUS | LIMITS |
|------------------|-------|-----------|-----|--------|--------|
| 1,1-Dichloroethe | 13.76 | 14.13 | 3 % | OK | <= 14 |
| Trichloroethene | 80.87 | 84.12 | 4 % | OK | <= 14 |
| Chlorobenzene | 20.12 | 20.29 | 1 % | OK | <= 13 |



LCS SUMMARY SHEET FOR EPA 8010

Laboratory Number: 114211
Client: TMC Environmental
Analysis date: 02/06/94
Sample type: Water
LCS spike file: 038e003

8010 LCS DATA (spiked at 20 ppb)

| SPIKE COMPOUNDS | READING | RECOVERY | STATUS | LIMITS |
|--------------------|---------|----------|--------|----------|
| 1,1-Dichloroethene | 16.35 | 82 % | OK | 61 - 145 |
| Trichloroethene | 22.21 | 111 % | OK | 71 - 120 |
| Chlorobenzene | 22.21 | 111 % | OK | 75 - 130 |
| SURROGATES | | | | |
| Bromobenzene (LCS) | 105.53 | 106 % | OK | 75 - 125 |



LABORATORY NUMBER: 114211
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA, CA

DATE SAMPLED: 02/02/94
DATE RECEIVED: 02/02/94
DATE EXTRACTED: 02/04/94
DATE ANALYZED: 02/05,06/94
DATE REPORTED: 02/10/94

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) |
|----------|-----------|-----------------------------|---------------------------|------------------------------|
| 114211-4 | MW3 | ND | ND | 50 |
| 114211-6 | MW6 | ND | 220 | 50 |

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

QA/QC SUMMARY:

=====
RPD, % 2
RECOVERY, % 85
=====



LABORATORY NUMBER: 114211
CLIENT: TMC ENVIRONMENTAL, INC.
PROJECT ID: 101090
LOCATION: 1700 PARK ST. ALAMEDA, CA

DATE SAMPLED: 02/02/94
DATE RECEIVED: 02/02/94
DATE EXTRACTED: 02/08/94
DATE ANALYZED: 02/08/94
DATE REPORTED: 02/10/94

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) |
|----------|-----------|-----------------------------|---------------------------|------------------------------|
| 114211-5 | MW5 | ND | ND | 50 |

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

QA/QC SUMMARY:

| | |
|-------------|----|
| RPD, % | 4 |
| RECOVERY, % | 87 |



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 # 170090 | JOB ADDRESS: 1700 Park St. Dameda CA | SAMPLER: Tom Ghigliotto |
| LABORATORY NAME: CURTIS & TOMPKINS, LTD. 2323 FIFTH STREET, BERKELEY, CA 94710 | | |

| LAB ID NO. | SAMPLE LABEL | SOIL | WATER | DATE | TIME | TVH-GAS/ BYE | TEH-DIESEL | BTEX-8020 | X GPA-8010 | X Cofforase |
|------------|--------------|------|-------|--------|------|-----------------|------------|-----------|---------------|----------------|
| | EQR-2 | | X | 2/2/94 | 1050 | | | Hold | | |
| | MW 2 | | X | 2/2/94 | 1100 | X | | | | |
| | MW 4 | | X | 2/2/94 | 1148 | X | | | | |
| | MW 3 | | X | 2/2/94 | 1233 | X | X | | X | X |
| | MW 5 | | X | 2/2/94 | 1310 | X | X | | X | X |
| | MW 6 | | X | 2/2/94 | 1420 | X | X | | X | X |
| | MW 1 | | X | 2/2/94 | 1500 | X | | | | |

Special Instructions:

Relinquished By:

Recieved By:

| | | |
|-----------------------------------|--------------|---------------------------------|
| (Print Name) Tom Ghigliotto | Date: 2/2/94 | (Print Name) Mary Plesses |
| (Signature) <i>Tom Ghigliotto</i> | Time: 1540 | (Signature) <i>Mary Plesses</i> |
| (Print Name) | Date: | (Print Name) |
| (Signature) | Time: | (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: 2-2-94 | JOB NUMBER: 101090 |
| JOB NAME: Cavanaugh Motors | | SAMPLERS NAME: Tom Ghigliotto |
| LOCATION: 1700 Park Street, Alameda, California | | |

WELL HEAD COND.: Secured; dry

TIME MEASURED
DEPTH IN FEET
(Measure to 0.01')

| | | | | | |
|-------|-------|-------|--|--|--|
| 10:13 | 12:30 | 14:00 | | | |
| 7.44 | 7.43 | 7.43 | | | |

WELL PURGING RECORD

| | | |
|----------------------------|----------------------|-------------|
| TOTAL DEPTH OF WELL: 14.26 | DEPTH TO WATER: 7.43 | DIAMETER: 4 |
|----------------------------|----------------------|-------------|

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 13.299 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 | 14:15 | 60.6 | 1.02 | Clear | 7.06 |
| 5 | 14:18 | 60.5 | 1.05 | Clear | 6.93 |
| 10 | 14:25 | 60.6 | 1.09 | Clear | 6.95 |
| 15 | 14:30 | 60.6 | 1.08 | Clear | 6.93 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | |
|------------------------------------|-----------------------|
| SAMPLING METHOD: Disposable Bailer | TIME COLLECTED: 15:00 |
| SAMPLE TURBIDITY: 09.5 | |

RECORD OF WATER SAMPLE COLLECTION

| | | |
|---|------------------------|-------------------------------|
| WELL LABEL: MW2 | DATE COLLECTED: 2-2-94 | JOB NUMBER: 101090 |
| JOB NAME: Cavanaugh Motors | | SAMPLERS NAME: Tom Ghigliotto |
| LOCATION: 1700 Park Street, Alameda, California | | |

WELL HEAD COND.: Water in box; secured

TIME MEASURED
DEPTH IN FEET
(Measure to 0.01')

| | | | | | |
|------|-------|--|--|--|--|
| 9:45 | 10:21 | | | | |
| 7.48 | 7.48 | | | | |

WELL PURGING RECORD

| | | |
|----------------------------|----------------------|-------------|
| TOTAL DEPTH OF WELL: 14.56 | DEPTH TO WATER: 7.48 | DIAMETER: 4 |
|----------------------------|----------------------|-------------|

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 13.8 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

| | |
|--------------------------|--------------------------------|
| PURGE METHOD: Honda Pump | OVA-FID VAPOR READING, ppm : 0 |
|--------------------------|--------------------------------|

WELL PURGING PARAMETERS

| GALLONS | TIME | TEMPERATURE <i>degrees F</i> | CONDUCTIVITY <i>x 1000</i> | VISUAL TURBIDITY | pH |
|---------|-------|---------------------------------|-------------------------------|---------------------|------|
| 0 | 10:28 | 59.6 | 1.83 | Clear | 7.43 |
| 4 | 10:32 | 61.0 | 0.49 | Clear | 7.26 |
| 8 | 10:34 | 61.8 | 0.51 | Clear | 7.19 |
| 12 | 10:37 | 61.6 | 0.49 | Clear | 7.17 |
| 14 | 10:40 | 61.8 | 0.48 | Clear | 7.16 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | |
|------------------------------------|-----------------------|
| SAMPLING METHOD: Disposable Bailer | TIME COLLECTED: 11:00 |
| SAMPLE TURBIDITY: 09.8 | |

RECORD OF WATER SAMPLE COLLECTION

| | | |
|---|------------------------|-------------------------------|
| WELL LABEL: MW3 | DATE COLLECTED: 2-2-94 | JOB NUMBER: 101090 |
| JOB NAME: Cavanaugh Motors | | SAMPLERS NAME: Tom Ghigliotto |
| LOCATION: 1700 Park Street, Alameda, California | | |

WELL HEAD COND.:

TIME MEASURED
DEPTH IN FEET
(Measure to 0.01')

| | | | | | |
|-------|-------|-------|--|--|--|
| 10:01 | 11:04 | 12:01 | | | |
| 7.71 | 7.69 | 7.69 | | | |

WELL PURGING RECORD

| | | |
|----------------------------|----------------------|--------------|
| TOTAL DEPTH OF WELL: 14.54 | DEPTH TO WATER: 7.69 | DIAMETER: 4" |
|----------------------------|----------------------|--------------|

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 13.3 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 : |
|--------------------------|------------------------------|

WELL PURGING PARAMETERS

| GALLONS | TIME | TEMPERATURE degrees F | CONDUCTIVITY x 1000 | VISUAL TURBIDITY | pH |
|---------|-------|--------------------------|------------------------|-----------------------|------|
| 0 | 12:08 | 58.8 | 0.46 | Clear | 6.81 |
| 4.5 | 12:12 | 60.2 | 0.45 | Clr. w/sand particles | 6.76 |
| 9 | 12:15 | 60.6 | 0.47 | Clear | 6.72 |
| 14 | 12:18 | 60.8 | 0.46 | Clear | 6.73 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | |
|------------------------------------|-----------------------|
| SAMPLING METHOD: Disposable Bailer | TIME COLLECTED: 12:33 |
| SAMPLE TURBIDITY: 08.1 | |

RECORD OF WATER SAMPLE COLLECTION

| | | |
|---|------------------------|-------------------------------|
| WELL LABEL: MW4 | DATE COLLECTED: 2-2-94 | JOB NUMBER: 101090 |
| JOB NAME: Cavanaugh Motors | | SAMPLERS NAME: Tom Ghigliotto |
| LOCATION: 1700 Park Street, Alameda, California | | |

WELL HEAD COND.:

| | | | | | | |
|-------------------------------------|-------|-------|--|--|--|--|
| TIME MEASURED | 09:54 | 11:10 | | | | |
| DEPTH IN FEET (Measure to 0.01') | 7.83 | 7.83 | | | | |

WELL PURGING RECORD

| | | |
|----------------------------|----------------------|--------------|
| TOTAL DEPTH OF WELL: 14.42 | DEPTH TO WATER: 7.83 | DIAMETER: 4" |
|----------------------------|----------------------|--------------|

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 12.8 GALLONS
 VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

| | |
|--------------------------|--------------------------------|
| PURGE METHOD: Honda Pump | OVA-FID VAPOR READING, ppm : 0 |
|--------------------------|--------------------------------|

WELL PURGING PARAMETERS

| GALLONS | TIME | TEMPERATURE degrees F | CONDUCTIVITY x 1000 | VISUAL TURBIDITY | pH |
|---------|-------|--------------------------|------------------------|---------------------|------|
| 0 | 11:20 | 60.7 | 0.56 | Clear | 7.17 |
| 4 | 11:24 | 60.9 | 0.54 | Clear | 7.01 |
| 8 | 11:28 | 61.3 | 0.55 | Clear | 6.98 |
| 12 | 11:31 | 61.5 | 0.57 | Clear | 6.96 |
| 13 | 11:33 | 61.3 | 0.56 | Clear | 6.95 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | |
|------------------------------------|-----------------------|
| SAMPLING METHOD: Disposable Bailer | TIME COLLECTED: 11:48 |
| SAMPLE TURBIDITY: 10.3 | |

RECORD OF WATER SAMPLE COLLECTION

| | | |
|---|------------------------|-------------------------------|
| WELL LABEL: MW5 | DATE COLLECTED: 2-2-94 | JOB NUMBER: 101090 |
| JOB NAME: Cavanaugh Motors | | SAMPLERS NAME: Tom Ghigliotto |
| LOCATION: 1700 Park Street, Alameda, California | | |

WELL HEAD COND.:

| | | | | | | |
|---|-------|-------|-------|--|--|--|
| TIME MEASURED | 10:08 | 12:01 | 12:41 | | | |
| DEPTH IN FEET (Measure to 0.01') | 7.13 | 6.98 | 6.98 | | | |

WELL PURGING RECORD

| | | |
|----------------------------|----------------------|-------------|
| TOTAL DEPTH OF WELL: 17.78 | DEPTH TO WATER: 6.98 | DIAMETER: 2 |
|----------------------------|----------------------|-------------|

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 5.5 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 | 12:50 | 59.8 | 0.46 | Very Turbid | 6.65 |
| 2 | 12:52 | 60.3 | 0.45 | Turbid | 6.63 |
| 4 | 12:54 | 60.5 | 0.44 | Cloudy | 6.63 |
| 6 | 12:57 | 60.3 | 0.45 | Slightly cloudy | 6.62 |
| 10 gal. | To clear | 60.5 | 0.46 | Clear | 6.63 |
| | 13:00 | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | |
|------------------------------------|-----------------------|
| SAMPLING METHOD: Disposable Bailer | TIME COLLECTED: 13:10 |
| SAMPLE TURBIDITY: 74.7 | |

RECORD OF WATER SAMPLE COLLECTION

| | | |
|---|------------------------|-------------------------------|
| WELL LABEL: MW6 | DATE COLLECTED: 2-2-94 | JOB NUMBER: 101090 |
| JOB NAME: Cavanaugh Motors | | SAMPLERS NAME: Tom Ghigliotto |
| LOCATION: 1700 Park Street, Alameda, California | | |

WELL HEAD COND.:

| | | | | | | |
|---|-------|-------|-------|--|--|--|
| TIME MEASURED | 10:10 | 12:20 | 13:30 | | | |
| DEPTH IN FEET (Measure to 0.01') | 7.42 | 7.40 | 7.40 | | | |

WELL PURGING RECORD

| | | |
|----------------------------|----------------------|--------------|
| TOTAL DEPTH OF WELL: 17.84 | DEPTH TO WATER: 7.40 | DIAMETER: 2' |
|----------------------------|----------------------|--------------|

PURGE VOLUME = TOTAL DEPTH - WATER DEPTH X VOLUME FACTOR X 3 VOLUMES = 5.3 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 : |
|--------------------------|------------------------------|

WELL PURGING PARAMETERS

| GALLONS | TIME | TEMPERATURE degrees F | CONDUCTIVITY x 1000 | VISUAL TURBIDITY | pH |
|---------|-------|--------------------------|------------------------|---------------------|------|
| 0 | 13:50 | 60.2 | 1.77 | Dark grey/cloudy | 6.97 |
| 2 | 13:52 | 60.8 | 1.04 | Cloudy | 6.97 |
| 4 | 13:54 | 61.2 | 0.95 | Cloudy | 6.97 |
| 6 | 13:56 | 61.4 | 0.96 | Cloudy | 6.96 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

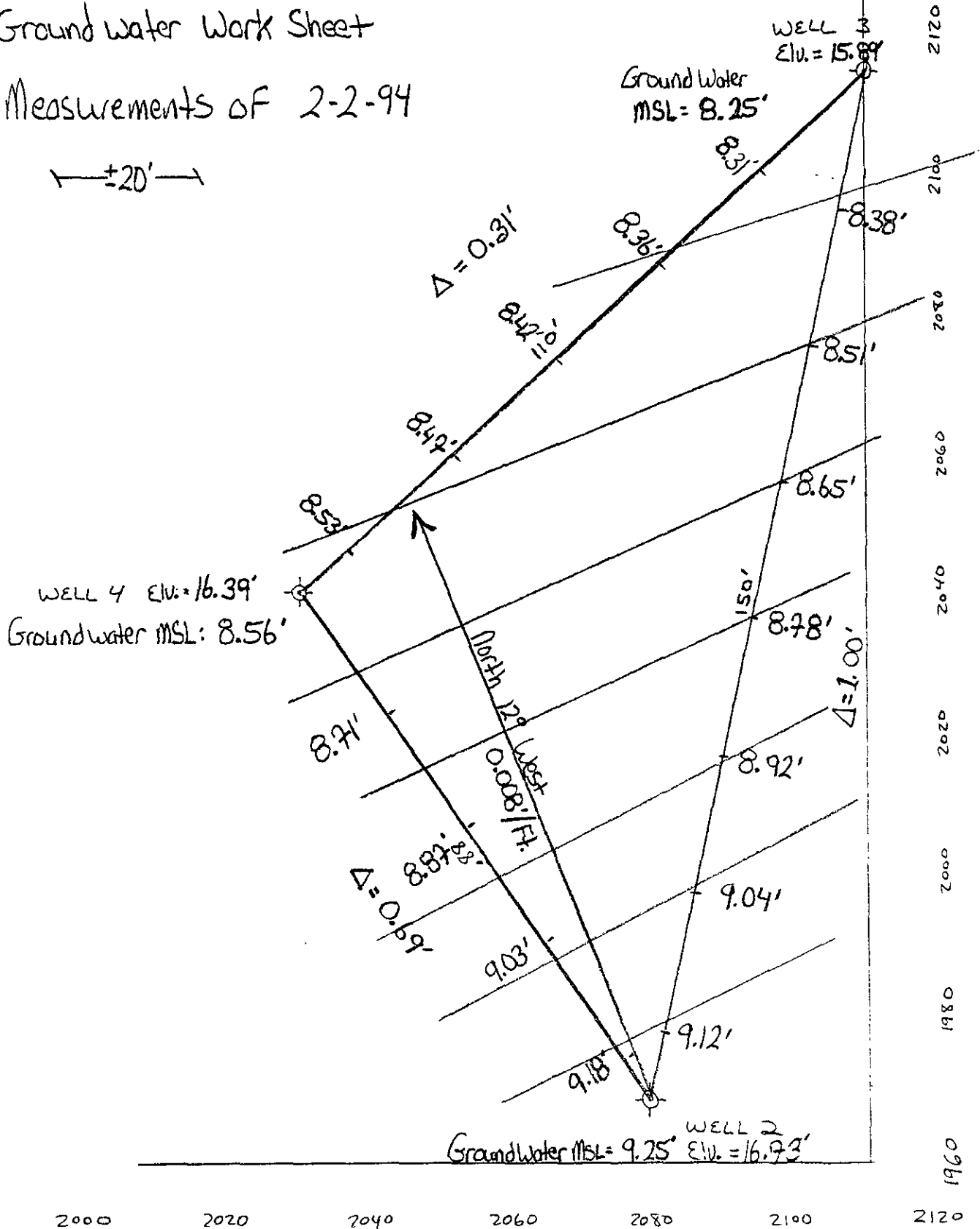
| | |
|------------------------------------|-----------------------|
| SAMPLING METHOD: Disposable Bailer | TIME COLLECTED: 14:20 |
| SAMPLE TURBIDITY: 34.4 | |

Cavanaugh Motors # 101090
Alameda, CA

Groundwater Work Sheet

Measurements of 2-2-94

±20'



Northing

2000 2020 2040 2060 2080 2100 2120

Easting