Chevron U.S.A. Inc.
2410 Camino Ramon, San Ramon, California • Phone (415) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

90 FEB 35 AM 11:54

Marketing Operations

D. Moller
Manager, Operations
S. L. Patterson
Area Manager, Operations
C. G. Trimbach
Manager, Engineering

March 6, 1990

Mr. Rafat Shahid
Alameda County
Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Re: Chevron Service Station #9-0019
210 Grand Ave/Montecito
Oakland, CA 94610

Dear Mr. Shahid:

Enclosed we are forwarding the Quarterly Groundwater Sampling report dated February 22, 1990, conducted by our consultant, Western Geologic Resources, Inc., for the above referenced site.

Chevron is still in the process of securing encroachment permits to install additional offsite monitoring wells to complete definition of hydrocarbon contamination below the site. This has been a lengthy process due to the City of Oakland's permit requirements. We do expect approval soon. When recieved, Chevron will proceed with the installation of the wells. A formal report of findings will be forwarded to your office.

I declare under penalty of perjury that the information contained in the attached report is true and correct, and that any recommended actions are appropriate under the circumstances, to the best of my knowledge.

If you have any questions or comments please do not hesitate to call me at (415) 842 - 9625.

Very truly yours,
C. G. Trimbach

By _____
John Randall

JMR/jmr
Enclosure

cc: Mr. Lester Feldman
RWQCB-Bay Area
1800 Harrison Street
Suite # 700
Oakland, CA 94612

WESTERN GEOLOGIC RESOURCES, INC.

2169 E. FRANCISCO BOULEVARD, SUITE B
SAN RAFAEL, CALIFORNIA 94901
415/457-7595 FAX: 415/457-8521

22 February 1990

KLD MAR 2'90

John Randall
Chevron USA
2410 Camino Ramon
San Ramon, CA 94583

Re: Quarterly Groundwater Monitoring
Sampled December 1989
Chevron Service Station #90019
Oakland, California
WGR Job #1-101.03

Dear Mr. Randall:

This letter report presents the results of the quarterly groundwater sampling performed by Western Geologic Resources, Inc. (WGR) at the subject site, located at 210 Grand Avenue in Oakland, California (Figure 1).

As requested, the following work was performed:

1) Take depth-to-water and well-casing volume measurements in all monitor wells on-site, and produce a potentiometric surface map based on the water-level measurements;

2) Collect groundwater samples from the wells for analyses of total petroleum hydrocarbons (TPH) by EPA Method 8015, aromatic hydrocarbons including benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020, and halocarbons by EPA Method 601;

3) Produce concentration maps of TPH and benzene in shallow groundwater based on the analytic results;

4) Update the database for groundwater analytic data and water-level measurements; and,

5) Review the field and laboratory results and prepare a report of this investigation.

SITE LOCATION

Lake Merritt is located approximately 200 feet (ft) to the southwest of the site, across Grand Avenue (Figure 1). Lakeside Park (City of Oakland) is adjacent to the site on the south and west. Residential property lies to the north, and commercial property lies to the east.

BACKGROUND

In February and March 1989, WGR conducted a soil vapor survey (SVS) at the site. The highest concentrations of total volatile hydrocarbons (TVH) were detected in points installed at 5 ft and between 13 to 15 ft below grade, located in the vicinity of the underground fuel-storage tanks and pump islands on the south half of the site. Lower concentrations of TVH were detected on the north part of the site behind the service station building. Based on the results of the SVS, WGR drilled soil borings B-1 through B-5 in March 1989 and completed them as 4-inch diameter monitor wells MW-1 through MW-5. Wells were screened in the shallow groundwater zone from 6 ft to 16.5 ft below grade.

Soil samples collected during the drilling of borings B-1 through B-5 contained TPH at concentrations ranging from 6 parts-per-million (ppm) to 390 ppm, with the highest concentration detected in a sample from boring B-5 located 10 ft south of the product lines. BTEX compounds were detected in soil samples collected from four of the five borings. The depths of the samples that contained BTEX compounds ranged from 5 ft to 16.5 ft below grade, and the highest concentrations were found in the soil sample collected from 5 ft below grade in boring B-2 located east of the pump island. Concentrations of BTEX compounds in soil samples collected from boring B-1 were below the respective limits of detection.

TPH concentrations, reported as gasoline, in groundwater samples collected from wells MW-1 through MW-5 ranged from not-detected in the groundwater samples collected from wells MW-2 and MW-3, to 20,000 parts-per-billion (ppb) in the groundwater sample collected from well MW-5. The highest concentration for the BTEX compounds in groundwater was also detected in the sample

collected from well MW-5. Petroleum-based oil and grease compounds was below the detection limit of 3 ppm in groundwater for the five wells.

Measurements of static groundwater levels made on 14 March 1989 indicated that the direction of groundwater flow was to the south, with wells MW-1 and MW-2 located the most upgradient and well MW-5 the most downgradient.

Quarterly groundwater sampling has been conducted since March 1989. Historic data for analytic results and groundwater elevations are presented in Tables 1 and 2, respectively.

GROUNDWATER SAMPLING

On 8 December 1989, groundwater samples were collected from wells MW-1 through MW-5 by WGR environmental technicians, according to the WGR standard operating procedure included as Attachment A. Approximately 56 gallons of water were evacuated from the wells prior to sampling and temporarily stored on-site in holding tanks. Groundwater samples and a laboratory-supplied travel blank consisting of deionized water were sent under chain-of-custody for analysis to GTEL Environmental Laboratories, Inc. (GTEL) in Concord, California.

ANALYTIC RESULTS

Analytic results are presented in Table 1. Laboratory analytic reports, chain-of-custody form and quality assurance/quality control (QA/QC) documents are presented as Attachments B, C and D, respectively.

Concentrations of TPH in groundwater are presented on Figure 3. TPH, characterized as gasoline, were detected in groundwater samples collected from wells MW-4 and MW-5 at concentrations

of 150 ppb and 20,000 ppb, respectively. TPH was not detected in samples from wells MW-1 through MW-3.

BTEX compounds were also detected in groundwater samples from wells MW-4 and MW-5, with the highest concentrations detected in samples from well MW-5. Concentrations of benzene in groundwater are presented in Figure 4. Benzene was detected at 4,600 ppb in well MW-5 with lower concentrations of toluene, ethylbenzene and total xylenes also present. BTEX were not detected in samples from wells MW-1 through MW-3. 1,2-Dichloroethane (1,2-DCA) was detected in the groundwater samples from wells MW-3, MW-4, and MW-5 at concentrations of up to 27 ppb.

GROUNDWATER FLOW

Based on depth-to-water measurements taken prior to groundwater sampling on 8 December 1989 (Table 2), groundwater flow is estimated to be converging on the site from the northeast at a gradient of about 6.3% and from the southwest at a gradient of about 12.0%, and leaving the site either to the north-northwest or to the south-southeast (Figure 2). Sample calculation A shows how the gradient was derived.[1] Hydrographs are presented in Attachment E.

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1 SAMPLE CALCULATION A: GROUNDWATER GRADIENT CALCULATION

From Figure 2; reference line a-a'

$$\text{Gradient} = \frac{h}{l} = \frac{3.0\ \text{ft}}{48\ \text{ft}} = 0.063$$

or 6.3%

h = 2.0 ft - (-1.0 ft) = 3.0 ft
l = 48 ft (distance along a-a')

TRENDS

The analytic results of groundwater samples collected on 8 December 1989 show the distribution of hydrocarbon concentrations across the site to be similar to those previously reported for samples collected on 14 September 1989.

The highest concentration of TPH was again detected in the groundwater sample collected from well MW-5, located just southwest of the southernmost pump island and south of the underground fuel storage tanks. TPH and BTEX concentrations in the groundwater sample collected from well MW-5 remained essentially unchanged.

TPH concentration in the groundwater sample collected from well MW-4 continued to decline, from 540 ppb in September 1989 to 150 ppb in December 1989. BTEX concentration in the groundwater sample collected from well MW-4 also continued to decline, with benzene declining from 220 ppb to 18 ppb. TPH and BTEX concentrations in groundwater samples from wells MW-1, MW-2, and MW-3 remained below the respective detection limits.

1,1,1-Trichloroethane (TCA), detected for the first time in trace concentration in the groundwater sample from well MW-1 in September 1989, was not detected in any of the samples collected in December 1989. Concentrations of 1,2-DCA in the December samples are similar to those previously reported from wells MW-3, MW-4 and MW-5, ranging from 1.3 ppb to 27 ppb.

The surface of shallow groundwater remained at approximately the same level in wells MW-1 and MW-4, but dropped almost 3 ft in wells MW-2, MW-3, and MW-5, compared to the last measurements taken in September 1989. The estimated groundwater flow direction converges on the site from the northeast and southwest, and leaves the site either to the north-northwest similar to June and September 1989, or to the south-southeast, similar to March 1989.

SUMMARY

Overall, concentrations of TPH, BTEX, and halocarbons in groundwater samples collected in December 1989 were the same or lower than those reported in September 1989, with the exception of slightly increased concentrations of most analytes in the sample from well MW-5, which contained the highest concentrations of TPH and BTEX found in the wells: 4,600 ppb benzene and 20,000 ppb TPH, and 27 ppb 1,2-DCA. Samples from wells MW-1, MW-2, and MW-3 were below detection limits for all compounds except for 1.3 ppb of 1,2-DCA in the sample from MW-3. The sample from MW-4 contained benzene, 1,2-DCA, and TPH at concentrations of 18 ppb, 1.9 ppb, and 150 ppb, respectively.

The estimated direction of groundwater flow converges on the site from the northeast and southwest and flows off the site either to the north-northwest or to the south-southeast.

Western Geologic Resources is pleased to provide geologic and environmental consulting services to Chevron and we trust that this report will meet your needs. Please call Tom Echols at (415) 457-7595 if you have any questions.

Sincerely,
Western Geologic Resources, Inc.

Thomas J. Echols
Project Geologist

Kathleen A. Isaacson
Senior Geologist

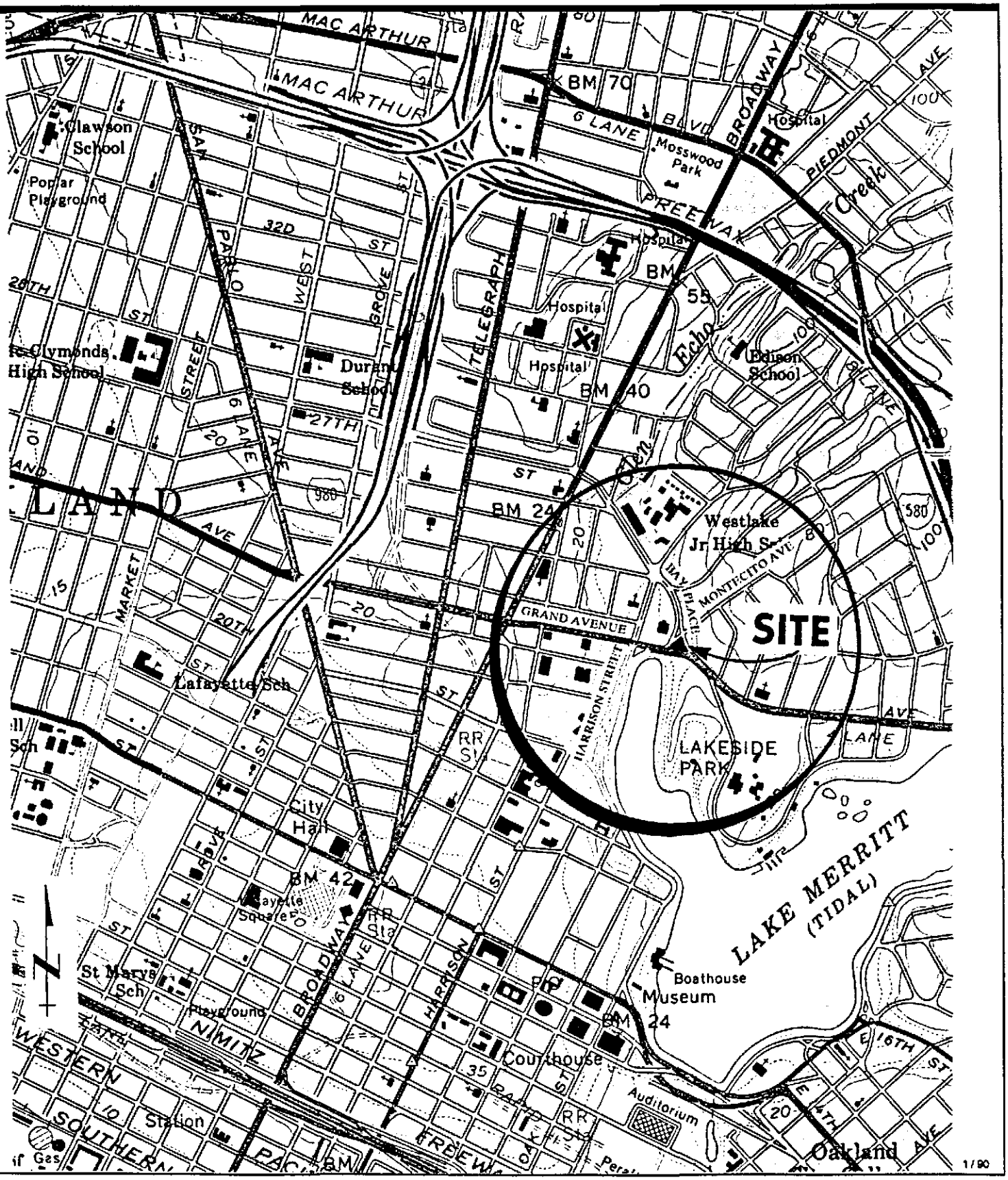
TJE:rem

101L1JA0.WP

FIGURES

TABLES

ATTACHMENTS



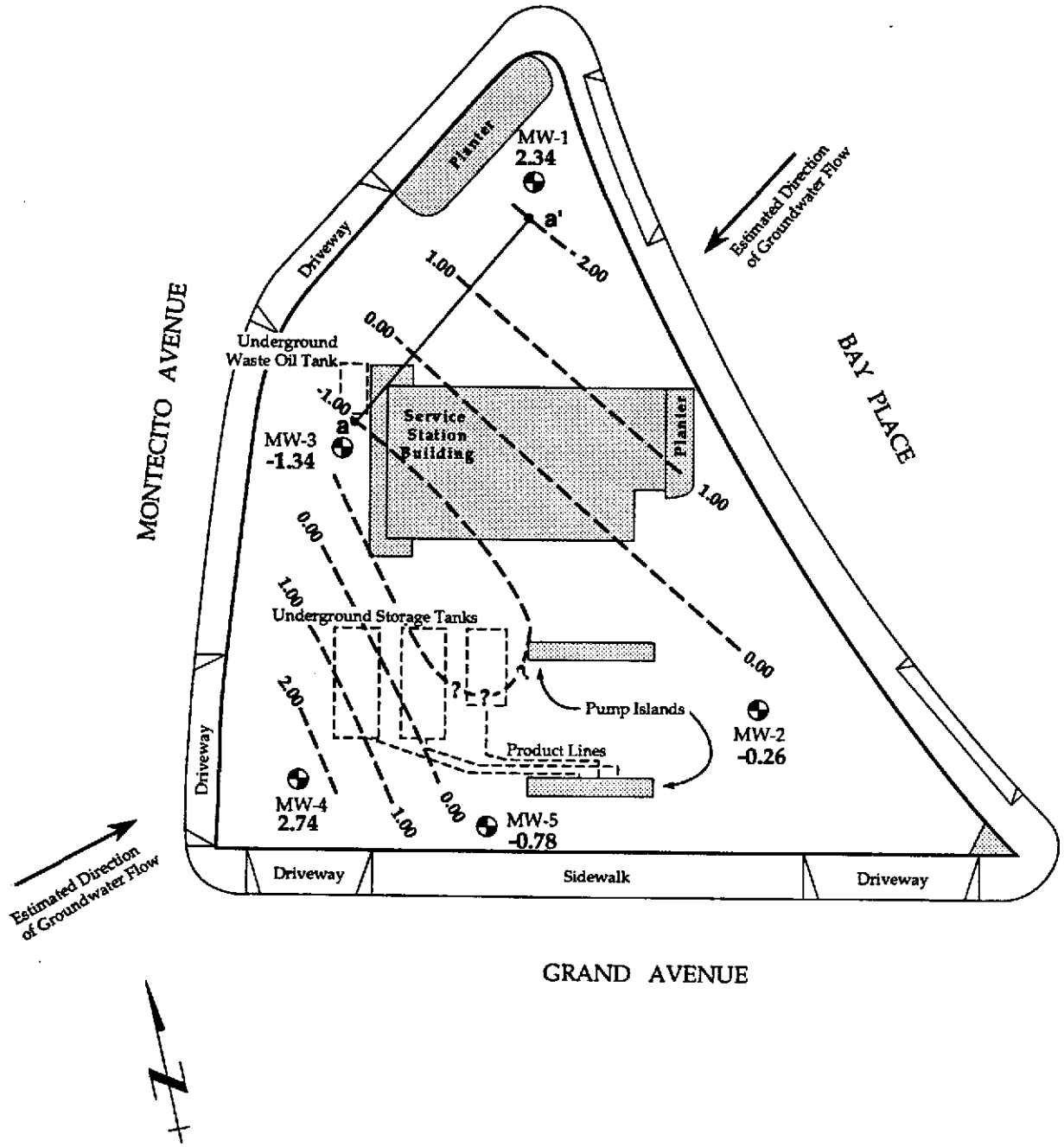
NOT TO SCALE

Site Location Map
Chevron Service Station #90019,
Oakland, California

FIGURE
1

WESTERN GEOLOGIC RESOURCES, INC.

1-101.03



LEGEND

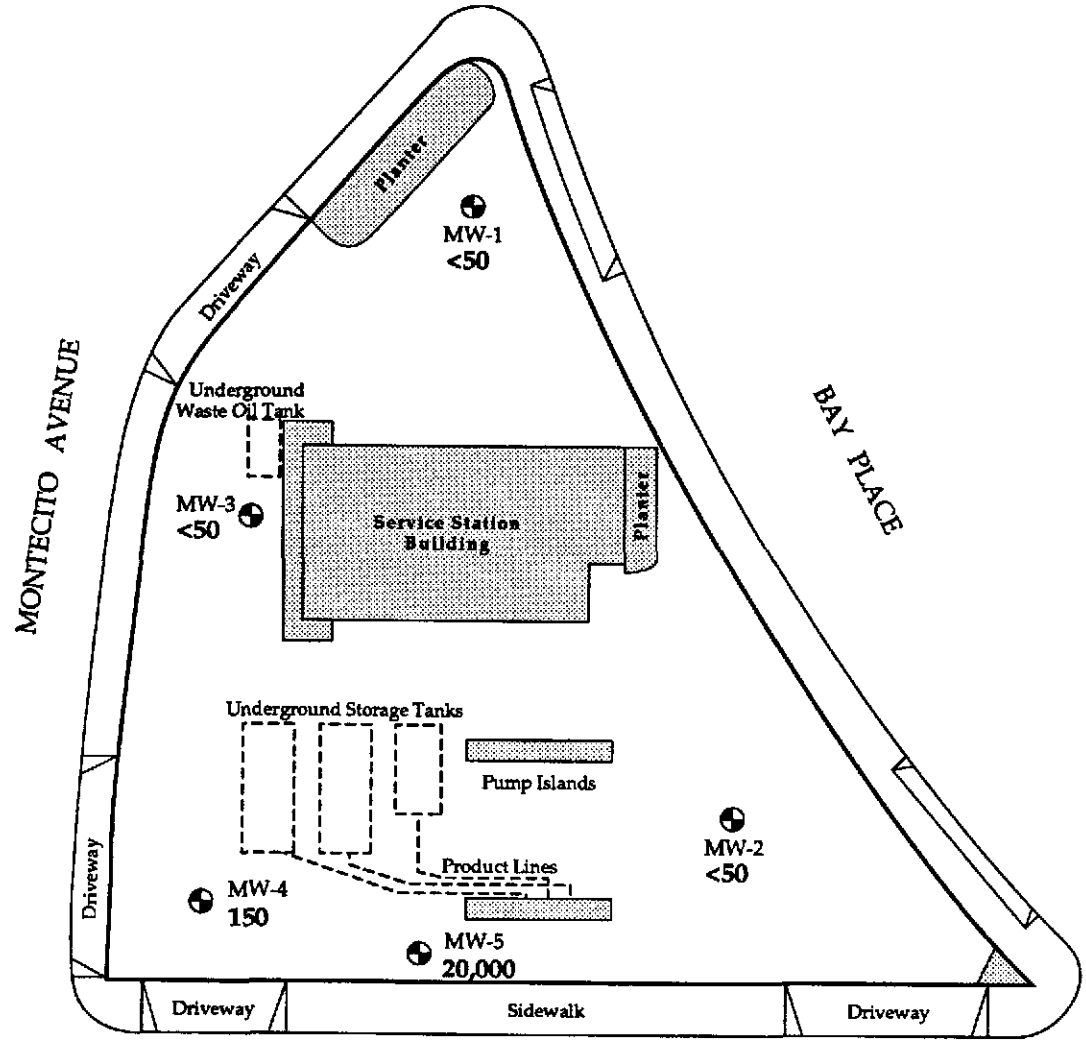
MW-1 2.34	Monitor Well Location and groundwater elevation, feet above mean sea level
2.0 — — -	Groundwater elevation contour, feet above mean sea level, dashed where inferred,
a a'	Reference line for gradient calculation

Potentiometric Surface of Shallow Groundwater,
8 December 1989,
Chevron Service Station #90019,
Oakland, California

FIGURE
2

WESTERN GEOLOGIC RESOURCES, INC.

1-101.03



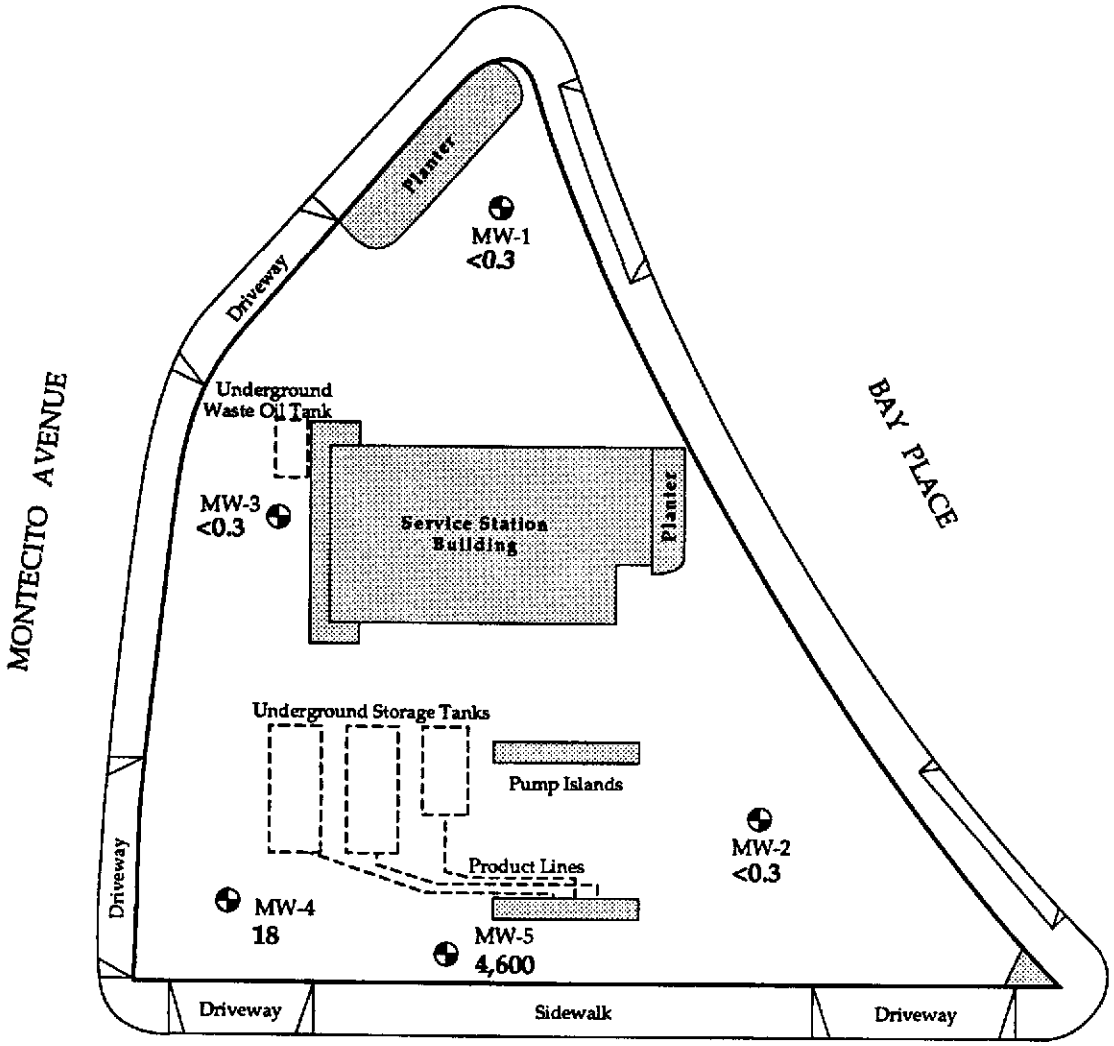
LEGEND

MW-1 <50 — Monitor Well Location and TPH in ppb (parts per billion)

Concentration of Total Petroleum Hydrocarbons (TPH) in Shallow Groundwater, 8 December 1989
Chevron Service Station #90019
Oakland, California

FIGURE 3

WESTERN GEOLOGIC RESOURCES, INC. 1-101.03



1/90

LEGEND

MW-1 <0.3 — Monitor Well Location and Benzene in ppb (parts per billion)

Concentration of Benzene in Shallow Groundwater,
8 December 1989
Chevron Service Station #90019,
Oakland, California

FIGURE 4

WESTERN GEOLOGIC RESOURCES, INC.

1-101.03

TABLE 1 - ANALYTIC RESULTS: GROUNDWATER
Chevron SS #90019, Oakland, CA
WGR Project # 1-101.03

WELL ID#	DATE	BENZENE	TOLUENE	ETHYLBENZ	XYLENES	CHLORO.	1,2-DCA	f113	TCA	TPPH/TPH	O & G	LAB	EPA/CS METHOD
		<------------------------------------ppb							--------------->		<--ppm-->		
MW-1	14 Mar 89	<0.2	<0.2	3.2	1.7	1.0	<0.2	<20.0	<0.2	600	<3.0	CCAS	8260/503E
MW-1	09 Jun 89	<0.1	<0.5	<0.1	<0.2	<0.5	<0.1	<20.0	<0.1	<50	---	CCAS	8260
MW-1	14 Sep 89	<0.2	<1.0	<0.2	<0.4	<1.0	<0.2	<1.0	0.7	<50	---	CCAS	8260
MW-1	8 Dec 89	<0.3	<0.3	<0.3	<0.6	<0.5	<0.5	---	<0.5	<50	---	GTEL	8015/8020/601
MW-2	14 Mar 89	6.7	7.1	0.5	4.6	<1.0	0.7	<20.0	<0.2	<100	<3.0	CCAS	8260/503E
MW-2	09 Jun 89	<0.2	<1.0	<0.2	<0.4	<1.0	<0.2	<20.0	<0.2	<100	---	CCAS	8260
MW-2	14 Sep 89	<0.2	<1.0	<0.2	<0.4	<1.0	<0.2	<1.0	<0.2	<50	---	CCAS	8260
MW-2	8 Dec 89	<0.3	<0.3	<0.3	<0.6	<0.5	<0.5	---	<0.5	<50	---	GTEL	8015/8020/601
MW-3	14 Mar 89	2.1	0.8	<0.2	2.0	<1.0	3.0	<20.0	<0.2	<100	<3.0	CCAS	8260/503E
MW-3	09 Jun 89	<0.5	<1.0	<0.2	<0.4	<1.0	3.3	<20.0	<0.2	<100	---	CCAS	8260
MW-3	14 Sep 89	<0.2	<1.0	<0.2	<0.4	<1.0	2.2	<1.0	<0.2	<50	---	CCAS	8260
MW-3	8 Dec 89	<0.3	<0.3	<0.3	<0.6	<0.5	1.3	---	<0.5	< 50	---	GTEL	8015/8020/601
MW-4	14 Mar 89	810.0	200.0	30.0	130.0	<20.0	<5.0	<20.0	<5.0	3000	<3.0	CCAS	8260/503E
MW-4	09 Jun 89	440.0	13.0	22.0	40.0	<20.0	<5.0	60.0	<5.0	900	---	CCAS	8260
MW-4	14 Sep 89	220.0	2.0	6.1	9.3	<1.0	2.3	<1.0	<0.2	540	---	CCAS	8260
MW-4	8 Dec 89	18	<0.3	1.0	<0.6	<0.5	1.9	---	<0.5	150	---	GTEL	8015/8020/601
MW-5	14 Mar 89	6600.0	1600.0	270.0	1100.0	<100.0	<20.0	<20.0	<20.0	20000	<3.0	CCAS	8260/503E
MW-5	09 Jun 89	>2800.0*	270.0	240.0	640.0	<20.0	28.0	<20.0	<5.0	15000	---	CCAS	8260
MW-5D	09 Jun 89	5100.0	300.0	240.0	700.0	<200.0	<50.0	<20.0	<50.0	12000	---	CCAS	8260
MW-5	14 Sep 89	>730.0*	>320.0*	>290.0	440.0	<10.0	<2.0	<20.0	<2.0	15000	---	CCAS	8260
MW-5D	14 Sep 89	3300	450	490	730	<100	<20	<100	<20	15000	---	CCAS	8260
MW-5T	14 Sep 89	3100	550	400	690	<50	<10	<50	<10	16000	---	CCAS	8260
MW-5	8 Dec 89	4600	640	390	1300	<0.5	27	---	<0.5	20,000	---	GTEL	8015/8020/601

TABLE 1 (continued)

WELL ID#	DATE	BENZENE	TOLUENE	ETHYLBENZ	XYLENES	CHLORO.	1,2-DCA	f113	TCA	TPPH/TPH	O & G	LAB	EPA/CS METHOD
		<-------ppb------->									<--ppm-->		
TB	8 Dec 89	<0.1	<0.2	<0.1	<0.2	<0.5	<0.1	---	<0.1	<100	---	CCAS	8260
TB	09 Jun 89	<0.5	<0.5	<0.1	<0.2	<0.5	<0.1	<20.0	<0.1	<50	---	CCAS	8260
TB	14 Sep 89	<0.1	<0.5	<0.1	<0.2	<0.5	<0.1	<0.5	<0.1	<50	---	CCAS	8260
TB	8 Dec 89	<0.3	<0.3	<0.3	<0.6	4.4	<0.5	---	1.9	<50	---	GTEL	8015/8020/601

Notes:

ETHYLBENZ = Ethylbenzene
CHLORO. = Chloroform
1,2-DCA = 1,2-Dichloroethane
TPPH(G) = Total Purgeable Petroleum Hydrocarbons characterized as gasoline
TPH = Total Petroleum Hydrocarbons as Gasoline
O & G = Oil and Grease reported in parts-per-million
TB = Travel Blank
f113 = Trichlorotrifluoroethane
* = Saturated Column
MW-#D = Duplicate Analysis
MW-#T = Triplicate Analysis
TCA = 1,1,1-Trichloroethane
CCAS = Central Cost Analytic Services, San Luis Obispo, CA
GTEL = GTEL Environmental Laboratories, Inc., Concord, CA

TABLE 2 - GROUNDWATER ELEVATIONS
Chevron SS #90019, Oakland, CA
WGR Project # 1-101.03

MONITORING WELLS

Well ID #	Date	Elev.	DTW	Elev.-W
MW-1	14 Mar 89	9.63	6.74	2.89
MW-1	8 Jun 89	9.63	7.14	2.49
MW-1	14 Sep 89	9.63	7.21	2.42
MW-1	8 Dec 89	9.63	7.29	2.34
MW-2	14 Mar 89	8.99	6.08	2.91
MW-2	8 Jun 89	8.99	5.22	3.77
MW-2	14 Sep 89	8.99	5.95	3.04
MW-2	8 Dec 89	8.99	9.25	-0.26
MW-3	14 Mar 89	8.18	6.02	2.16
MW-3	8 Jun 89	8.18	5.88	2.30
MW-3	14 Sep 89	8.18	6.30	1.88
MW-3	8 Dec 89	8.18	9.52	-1.34
MW-4	14 Mar 89	7.60	5.52	2.08
MW-4	8 Jun 89	7.60	4.19	3.41
MW-4	14 Sep 89	7.60	4.80	2.80
MW-4	8 Dec 89	7.60	4.86	2.74
MW-5	14 Mar 89	8.35	6.98	1.37
MW-5	8 Jun 89	8.35	4.73	3.62
MW-5	14 Sep 89	8.35	5.37	2.98
MW-5	8 Dec 89	8.35	9.13	-0.78

Notes:

DTW = Depth To Water
Elev. = Top-Of-Casing Elevation
Elev.-W = Elevation Of Water

STANDARD OPERATING PROCEDURES
RE: GROUNDWATER PURGING AND SAMPLING
SOP-4

Prior to water sampling, each well is purged by evacuating a minimum of three well-casing volumes of groundwater or until the discharge water temperature, conductivity, and Ph stabilize. The groundwater sample should be taken when the water level in the well recovers to 80% of its static level.

The sampling equipment used consists of either a teflon bailer or a stainless steel bladder pump with a teflon bladder. If the sampling system is dedicated to the well, then the bailer is made of teflon, but the bladder pump is PVC with a polypropylene bladder. Forty milliliter (ml) glass volatile-organic-analysis (VOA) vials, with teflon septa, are used as sample containers.

The groundwater sample is decanted into each VOA vial in such a manner that there is a meniscus at the top of the vial. The cap is quickly placed over the top of the vial and securely tightened. The VOA vial is then inverted and tapped to see if air bubbles are present. If none are present, the sample is labeled and refrigerated for delivery under chain-of-custody to the laboratory. Label information should include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

For quality control purposes, a duplicate water sample is collected from each well. This sample is put on hold at the laboratory. A trip blank is prepared at the laboratory and placed in the transport cooler. It remains with the cooler and is analyzed by the laboratory along with the groundwater samples. A field blank is prepared in the field when sampling equipment is not dedicated. The field blank is prepared after a pump or bailer has been steam-cleaned, prior to use in a second well, and is analyzed along with the other samples. The field blank demonstrates the quality of in-field cleaning procedures to prevent cross-contamination.

To minimize the potential for cross-contamination between wells, all the well-development and water-sampling equipment that is not dedicated to a well is steam-cleaned between each well. As a second precautionary measure, wells will be sampled in order of least to highest concentrations as established by previous analyses.

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 from inside California
(800) 423-7143 from outside California

Project Number: SFB-175-0204.72
Consultant Project Number 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912260
Report Issue Date: December 18, 1989

KATHLEEN ISAACSON
WESTERN GEOLOGIC RESOURCES
2169 E. FRANCISCO BLVD.
SAN RAFAEL, CA 94901

DEAR MS. ISAACSON,

Attached please find the analytical results for the samples received by GTEL on December 11, 1989.

GTEL maintains a formal quality assurance program to ensure the integrity of the analytical results. All quality assurance criteria were achieved during the analysis unless otherwise noted in the footnotes to the analytical report.

The specific analytical methods used and cited in this report are approved by state and federal regulatory agencies. GTEL is certified for the analysis reported herein by the California State Department of Health Services under certificate number 194.

If you have any questions regarding this analysis, or if we may service any additional analytical needs, please give us a call.

Sincerely,

GTEL Environmental Laboratories, Inc.

Emma P. Popek
Laboratory Director

Project Number: SFB-175-0204.72
Consultant Project Number 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912260
Report Issue Date: December 18, 1989

Table 1

ANALYTICAL RESULTS

Purgeable Halocarbons in Water
EPA Method 601

Date Sampled		12/08/89	12/08/89	12/08/89	12/08/89
Date Analyzed		12/12/89	12/12/89	12/12/89	12/12/89
Client Identification		12089-01AD	12089-02AD	12089-03AD	12089-04AD
GTEL Sample Number		01	02	03	04
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	<0.5	<0.5	1.3	1.9
1,1,1-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912260
Report Issue Date: December 18, 1989

Table 1

ANALYTICAL RESULTS

Purgeable Halocarbons in Water
EPA Method 601

	Date Sampled	12/08/89	12/08/89
	Date Analyzed	12/12/89	12/12/89
	Client Identification	12089-05AD	TRAVEL BLANK
	GTEL Sample Number	05	06
Analyte	Detection Limit, ug/L	Concentration, ug/L	
Chloromethane	0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5
Vinyl chloride	1.0	<1.0	<1.0
Chloroethane	0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	<0.2	<0.2
1,1-Dichloroethane	0.5	<0.5	<0.5
trans-1,2-Dichloroethene	0.5	<0.5	<0.5
Chloroform	0.5	<0.5	4.4
1,2-Dichloroethane	0.5	27	<0.5
1,1,1-Trichloroethane TCA	0.5	<0.5	1.9
Carbon tetrachloride	0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	5,1	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5
Trichloroethene	0.5	0.62	<0.5
Dibromochloromethane	0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1.0	<1.0	<1.0
Bromoform	0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 from inside California
(800) 423-7143 from outside California

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

KATHLEEN ISAACSON
WESTERN GEOLOGIC RESOURCES
2169 E. FRANCISCO BLVD.
FRESNO, CA 94901

DEAR MS. ISAACSON

Attached please find the analytical results for the samples received by GTEL on December 11, 1989.

GTEL maintains a formal quality assurance program to ensure the integrity of the analytical results. All quality assurance criteria were achieved during the analysis unless otherwise noted in the footnotes to the analytical report.

The specific analytical methods used and cited in this report are approved by state and federal regulatory agencies. GTEL is certified for the analysis reported herein by the California State Department of Health Services under certificate number 194.

If you have any questions regarding this analysis, or if we may service any additional analytical needs, please give us a call.

Sincerely,

GTEL Environmental Laboratories, Inc.

Emma P. Popek
Laboratory Director

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

Table 1

ANALYTICAL RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015[1]

GTEL Sample Number		01	02	03	04
Client Identification		12089-01AD	12089-02AD	12089-03AD	12089-04AD
Date Sampled		12/08/89	12/08/89	12/08/89	12/08/89
Date Analyzed		12/12/89	12/12/89	12/12/89	12/12/89
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	18
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	1.0
Xylene (total)	0.6	<0.6	<0.6	<0.6	<0.6
TPH as Gasoline	50	<50	<50	<50	150

GTEL Sample Number		05	06
Client Identification		12089-05AD	TRAVEL BLANK
Date Sampled		12/08/89	12/08/89
Date Analyzed		12/12/89	12/12/89
Analyte	Detection Limit, ug/L	Concentration, ug/L	
Benzene	0.3	4600	<0.3
Toluene	0.3	640	<0.3
Ethylbenzene	0.3	390	<0.3
Xylene (total)	0.6	1300	<0.6
TPH as Gasoline	50	20000	<50

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

SFB-175.0204.72 C912260 **Chain-of-Custody Record**

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 90019 Grand Ave.
Consultant Release Number
Consultant Project Number
Consultant Name WGR
Address 2169 Francisco Blvd, San Rafael CA
Fax Number
Project Contact (Name) Kathleen Isaacson
(Phone) 800-229-7054

Chevron Contact (Name) John Randall
(Phone)
Laboratory Name GTEL
Contract Number 2450060
Samples Collected by (Name) Mike Parsons, Tom Eckels
Collection Date 12-8-89
Signature [signature]

Analyses To Be Performed

Sample Number	Lab Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	EPA 601			Remarks
12089-01A-D	01	4	W			HCl/none	X	X			X				X			4 voas/well (2) voas EPA 602/8015 (2) voas EPA 601 PRG
12089-02A-D	02	4	W			↓	↓	↓			↓				↓			Questions please call
12089-03A-D	03	4	W			↓	↓	↓			↓				↓			
12089-04A-D	04	4	W			↓	↓	↓			↓				↓			
12089-05A-D	05	4	W			↓	↓	↓			↓				↓			
Travel Blank	06	2	W			↓	↓	↓			↓				↓			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
[signature]	WGR	12/8/89 1400				NORMAL
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	24 Hrs 48 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) Kathy Blaia		Date/Time 12-11-89 3:15	5 Days (10 Days)

White / Project File Canary / Sampler Pink / Lab

Project Number: SFB-175-0204.72
Consultant Project Number 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912260
Report Issue Date: December 18, 1989

QA Conformance Summary

Purgeable Halocarbons in Water
EPA Method 601

1.0 Blanks

Zero of 29 target compounds found in Reagent blank as shown in Table 2.

2.0 Independent QC Check Sample

The control limits were met for 8 out of 8 QC check compounds as shown in Table 3.

3.0 Surrogate Compound Recoveries

Percent recovery limits were met for the surrogate compound (Bromofluorobenzene) for 9 of 10 samples as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for 2 of 3 compounds in the MS as shown in Table 5.

5.0 Reagent Water Spike (WS) and Reagent Water Spike Duplicate (WSD) Precision

Relative percent difference (RPD) criteria was met for 3 of 3 compounds in the WS and WSD as shown in Table 6.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were no exceptional conditions requiring dilution of samples.

Project Number: SFB-175-0204.72
Consultant Project Number 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912260
Report Issue Date: December 18, 1989

Table 2

REAGENT BLANK DATA

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 12/12/89

Analyte	Observed Result, ug/L
Chloromethane	ND
Bromomethane	ND
Dichlorodifluoromethane	ND
Vinyl chloride	ND
Chloroethane	ND
Methylene chloride	ND
Trichlorofluoromethane	ND
1,1-Dichloroethene	ND
1,1-Dichloroethane	ND
trans-1,2-Dichloroethene	ND
Chloroform	ND
1,2-Dichloroethane	ND
1,1,1-Trichloroethane	ND
Carbon tetrachloride	ND
Bromodichloromethane	ND
1,2-Dichloropropane	ND
trans-1,3-Dichloropropene	ND
Trichloroethene	ND
Dibromochloromethane	ND
1,1,2-Trichloroethane	ND
cis-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND
Bromoform	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Chlorobenzene	ND
1,3-Dichlorobenzene	ND
1,2-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND

ND = Not Detected above the Statistical Detection Limit

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 11/27/89

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %[1]
Trichlorofluoromethane	100	88	88	85 - 115
1,1-Dichloroethylene	100	95	95	85 - 115
t-1,2-Dichloroethylene	100	103	103	85 - 115
1,1-Dichloroethane	100	99	99	85 - 115
1,1,1-Trichloroethane	100	104	104	85 - 115
Trichloroethylene	100	94	94	85 - 115
Bromodichloromethane	100	95	95	85 - 115
Chlorobenzene	100	91	91	85 - 115

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Halocarbons in Water
EPA Method 601

Analyte	Lot Number	Source
Trichlorofluoromethane	LA21173	PURGEABLE A SUPELCO
1,1-Dichloroethylene	LA21173	PURGEABLE A SUPELCO
t-1,2-Dichloroethylene	LA20674	PURGEABLE B SUPELCO
1,1-Dichloroethane	LA21173	PURGEABLE A SUPELCO
1,1,1-Trichloroethane	LA20674	PURGEABLE B SUPELCO
Trichloroethylene	LA21173	PURGEABLE A SUPELCO
Bromodichloromethane	LA20674	PURGEABLE B SUPELCO
Chlorobenzene	LA21173	PURGEABLE A SUPELCO

Table 4

SURROGATE COMPOUND RECOVERY

Bromofluorobenzene

Purgeable Halocarbons in Water
EPA Method 601

Acceptability Limits[1]: 67 - 134 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	50	50	100
01	50	48	96
02	50	50	100
03	100	87	87
04	50	48	96
05	50	52	104
06	50	37	74
MS	100	80	80
WS	50	70	140
WSD	50	61	122

MS = Matrix Spike
WS = Reagent Water Spike
WSD = Reagent Water Spike Duplicate
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912260
Report Issue Date: December 18, 1989

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 12/14/89
Sample Spiked: C912262-03
Client ID: 12089-03A-B
Units: ug/L

Analyte	Sample Result	MS Result	Concentration Added	MS, % Recovery	Acceptability Limits, %[1]
1,1-Dichloroethene	ND	38.1	50	76	62 - 129
Chlorobenzene	ND	37.8	50	76	75 - 115
Trichloroethene	ND	37.5	50	75	78 - 119

ND = Not Detected above the statistical detection limit
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912260
Report Issue Date: December 18, 1989

Table 6

REAGENT WATER SPIKE (WS) AND REAGENT WATER SPIKE DUPLICATE (WSD) RESULTS
AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 12/13/89 Units: ug/L

Analyte	Concentration Added	WS Result	WSD Result	WS, % Recovery	WSD, % Recovery
1,1 Dichloroethene	75	76.4	74.5	102	99
Chlorobenzene	75	81.4	70.5	109	94
Trichloroethene	75	85.1	79.4	113	106

Analyte	RPD, %	Maximum RPD, %	Acceptability Limits % Recovery[1]
1,1 Dichloroethene	3	30	86-116
Chlorobenzene	14	30	56-132
Trichloroethene	7	30	86-117

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

GTEL ENVIRONMENTAL LABORATORIES, INC

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

QA Conformance Summary

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

1.0 Blanks

Five of 5 target compounds were below detection limits in the reagent blank as shown in Table 2.

2.0 Independent QC Check Sample

The control limits were met for 4 of 4 QC check compounds as shown in Table 3.

3.0 Surrogate Compound Recoveries

Percent recovery limits were met for the surrogate compound (naphthalene) for all samples as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for 4 of 4 compounds in the MS as shown in Table 5.

5.0 Reagent Water Spike (WS) and Reagent Water Spike (WSD) Duplicate Precision

Relative percent difference (RPD) criteria was met for 4 of 4 analytes in the WS and WSD as shown in Table 6.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 Sample 05 was diluted due to high level of contamination.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

Table 2

REAGENT BLANK DATA

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 12/12/89

Analyte	Concentration, ug/L
Benzene	<0.3
Toluene	<0.3
Ethylbenzene	<0.3
Xylene (total)	<0.6
Gasoline	<50

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 12/11/89

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Benzene	50	53	106	85 - 115
Toluene	50	52	104	85 - 115
Ethylbenzene	50	52	104	85 - 115
Xylene (total)	150	156	104	85 - 115

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Analyte	Lot Number	Source
Benzene	LA18104	SUPELCO
Toluene	LA18104	SUPELCO
Ethylbenzene	LA18104	SUPELCO
Xylene (total)	LA18104	SUPELCO

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

Table 4

SURROGATE COMPOUND RECOVERY

Naphthalene

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Acceptability Limits[1]: 73 - 129 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	200	177	88
01	200	182	91
02	200	177	88
03	200	176	88
04	200	190	95
05	200	206	103
06	200	179	90
MS	200	178	89
WS	200	163	82
WSD	200	177	88

MS = Matrix Spike
WS = Reagent Water Spike
WSD = Reagent Water Spike Duplicate
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 12/12/89
Sample Spiked: 01
Client ID: 12089-01/AD
Units: ug/L

Analyte	Sample Result	Concentration Added	Concentration Recovered	MS Result	MS, % Recovery	Acceptability Limits[1], %
Benzene	<0.3	25	23	23	92	73 - 119
Toluene	<0.3	25	23	23	92	72 - 118
Ethylbenzene	<0.3	25	22	22	88	78 - 115
Xylene (total)	<0.6	75	68	68	91	84 - 116

<# = Not detected at the indicated detection limit.
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-101-05
Contract Number: N46CWC0244-9-X
Facility Number: 90019
Work Order Number: C912259
Report Issue Date: December 18, 1989

Table 6

REAGENT WATER SPIKE AND REAGENT WATER SPIKE DUPLICATE RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 12/12/89 Units: ug/L

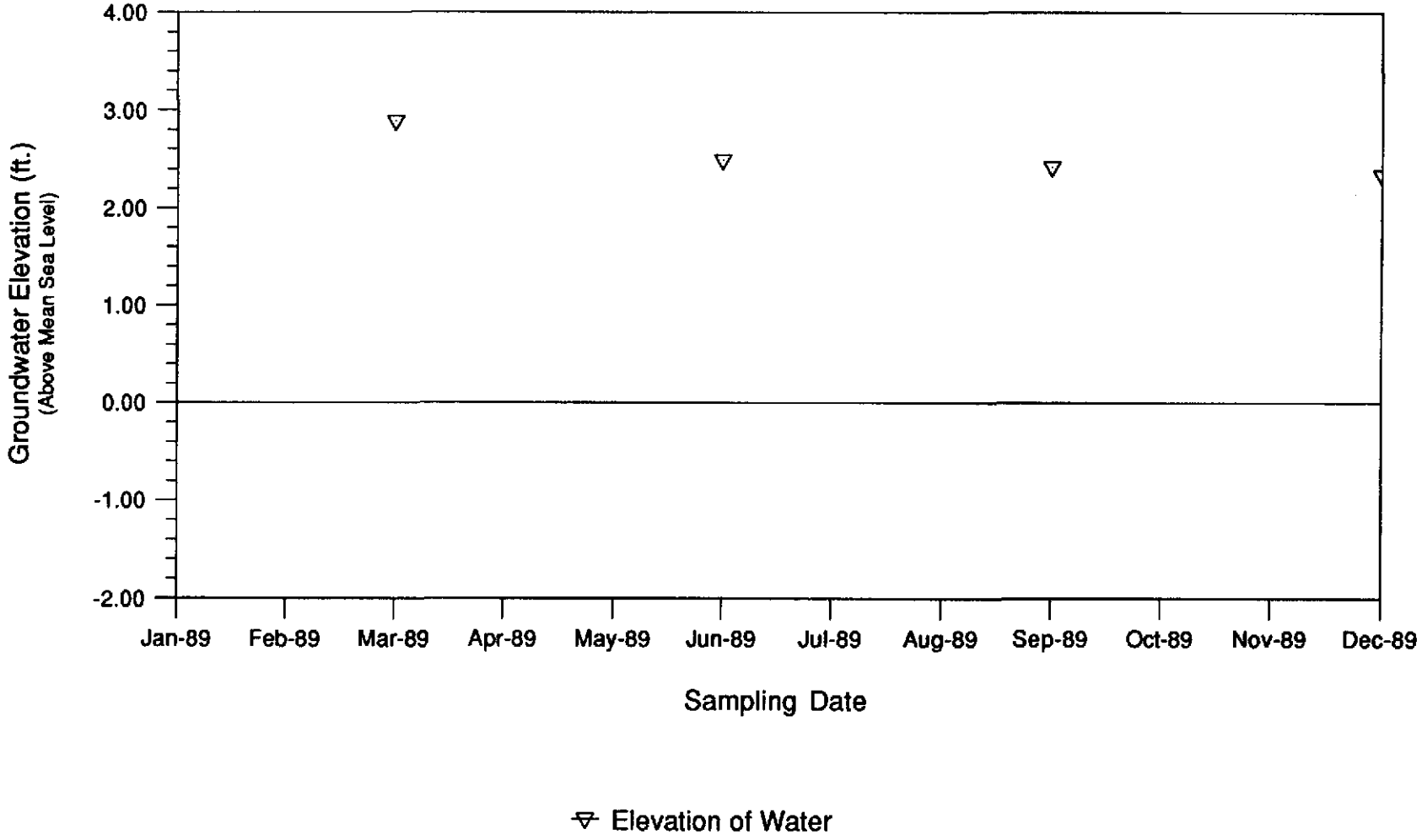
Analyte	Concentration Added	WS Result	WS, % Recovery	WSD Result	WSD, % Recovery
Benzene	25	25	100	25	100
Toluene	25	24	96	24	96
Ethylbenzene	25	24	96	24	96
Xylene (total)	75	73	97	72	96

Analyte	RPD, %	Acceptability Limits	
		Maximum RPD, %	% Recovery[1]
Benzene	0	30	85 - 131
Toluene	0	30	82 - 124
Ethylbenzene	0	30	81 - 121
Xylene (total)	1	30	87 - 125

1 = Acceptability limits are derived form the 99% confidence interval of all samples during the previous quarter.

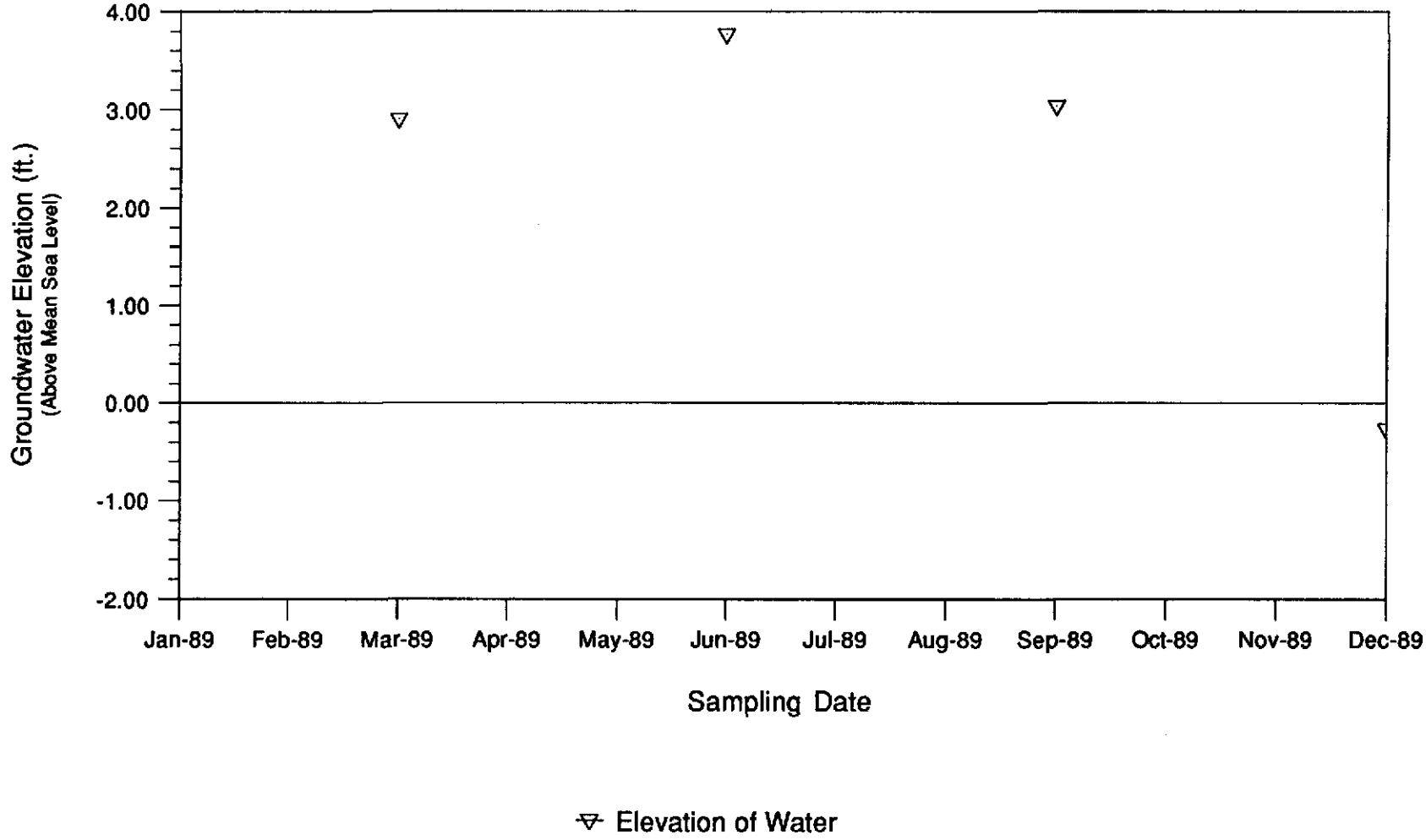
GROUNDWATER MONITOR WELL MW-1

Chevron Service Station #90019 Oakland, California



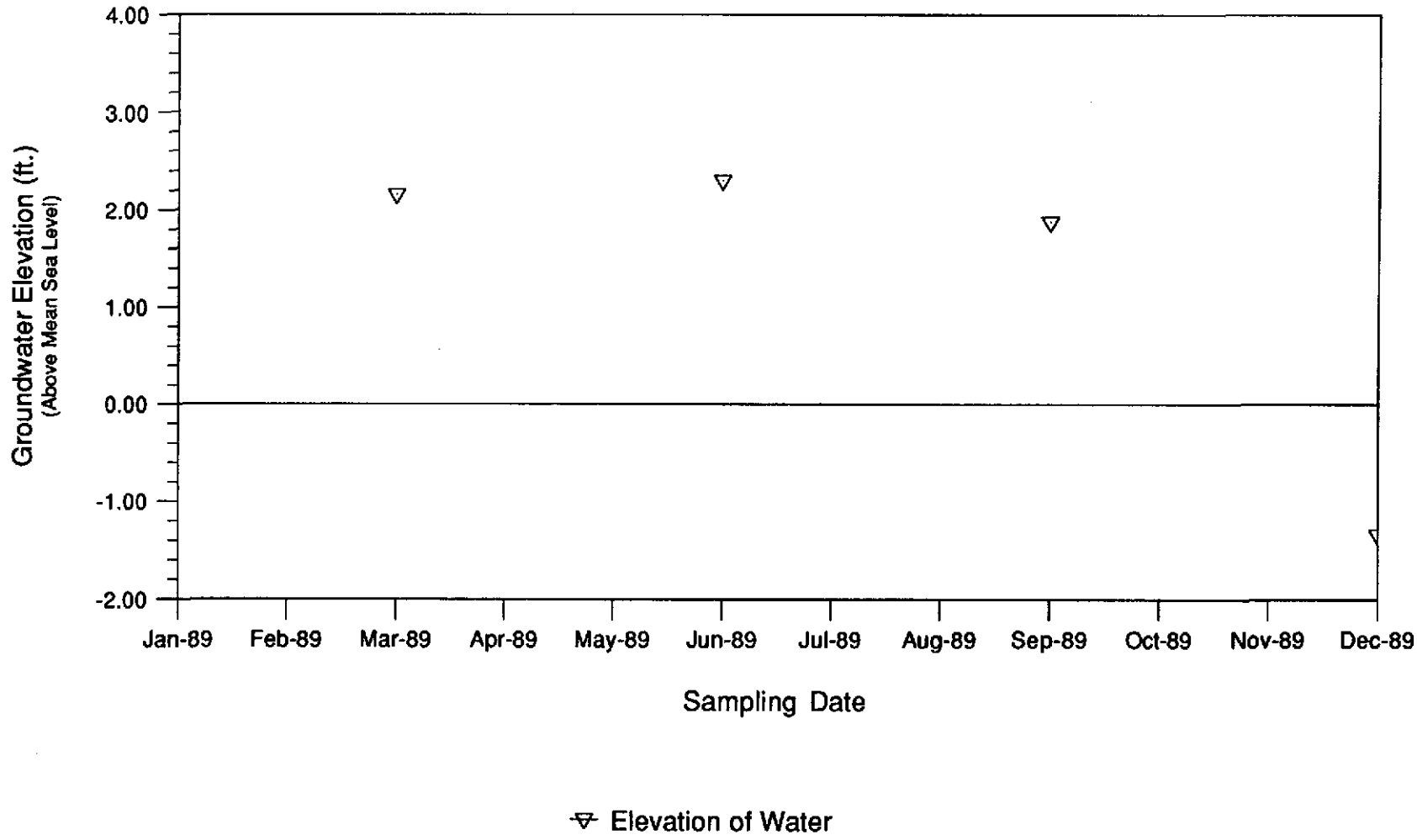
GROUNDWATER MONITOR WELL MW-2

Chevron Service Station #90019 Oakland, California



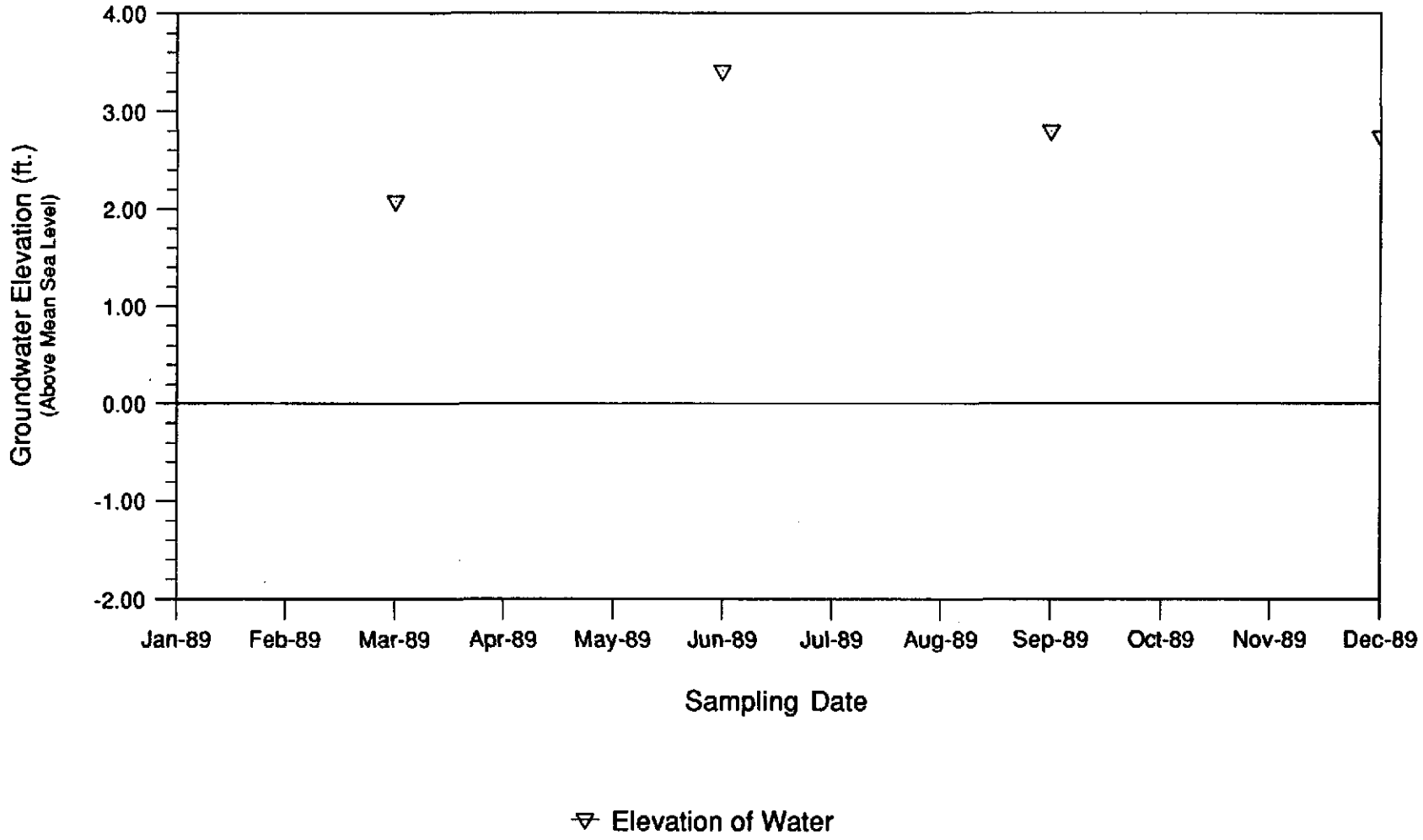
GROUNDWATER MONITOR WELL MW-3

Chevron Service Station #90019 Oakland, California



GROUNDWATER MONITOR WELL MW-4

Chevron Service Station #90019 Oakland, California



GROUNDWATER MONITOR WELL MW-5

Chevron Service Station #90019 Oakland, California