Chevron U.S.A. Inc.
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Manager, Engineering

March 12, 1990

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

Re: Chevron Service Station #9-1924
4904 Southfront Roak
Livermore, CA

Dear Mr. Shahid:

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

Start up of the groundwater pump and treat system has been held pending completion of State Health Department TTU permitting. We expect completion of this permitting soon.

Chevron will continue to sample this site on a quarterly basis.

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

JMR/jmr
Enclosure

By John Randall

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

QUARTERLY MONITORING REPORT

Chevron Service Station #91924
4904 Southfront Road
Livermore, CA

Prepared For

Chevron USA
2410 Camino Ramon
San Ramon, CA

January 1990

WESTERN GEOLOGIC RESOURCES, INC.

2169 E. FRANCISCO BOULEVARD, SUITE B
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QUARTERLY MONITORING REPORT

Chevron Service Station #91924
4904 Southfront Road
Livermore, CA

Prepared For

Chevron USA
2410 Camino Ramon
San Ramon, CA

Prepared by

Western Geologic Resources, Inc
2169 East Francisco Boulevard
San Rafael, California

January 1990

Kenneth R. Leonard
Ken Leonard
Staff Geologist

Scott J. Weber
Project Geologist

Kathleen A. Isaacson
Senior Geologist

CONTENTS

FIGURES

TABLES

APPENDICES

EXECUTIVE SUMMARY

The results of the 13 October 1989 groundwater sampling conducted by WGR at Chevron service station #91924 in Livermore, California, indicated detectable concentrations of total petroleum hydrocarbons (TPH) and aromatic hydrocarbons in groundwater from five of the eight on-site wells and five of the ten off-site wells. The highest concentrations of TPH and aromatic hydrocarbons were detected in a grab sample collected from well C-14, located along Southfront Road, which contained 86,000 parts-per-billion (ppb) TPH, 12,000 ppb benzene, 16,000 ppb toluene, 1,600 ppb ethylbenzene, and 13,000 ppb total xylenes. The estimated groundwater flow direction on 12 October 1989 was to the west at a gradient of about 1.8%.

In general, TPH and aromatic hydrocarbon concentrations are similar to those reported in the previous sampling in June 1989. The highest concentrations of TPH and aromatic hydrocarbons in groundwater collected from on-site were detected in water samples from wells C-6 and C-7, located downgradient of the former underground storage tanks. Groundwater samples from well C-6 contained 3,500 ppb TPH, 32 ppb benzene, 81 ppb toluene, 100 ppb ethylbenzene, and 530 ppb total xylenes. Samples from well C-7 contained 3,900 ppb TPH, 1,300 ppb benzene, 160 ppb ethylbenzene, and 150 ppb total xylenes. Lower concentrations of fuel hydrocarbons were found in groundwater from on-site wells C-1, C-2 and C-5. TPH and aromatic hydrocarbons were below the detection limits in groundwater from on-site wells C-3, C-13 and C-15.

Groundwater samples collected from monitor well C-17, located on the Mobil service station property, contained 17,000 ppb TPH, 48 ppb toluene, 230 ppb ethylbenzene and 480 ppb total xylenes. TPH and aromatic hydrocarbons were below the detection limits in samples from off-site wells C-8, C-10, C-11, C-12 or C-18.

1 INTRODUCTION

This report presents the results of quarterly groundwater sampling conducted on 12 and 13 October 1989 by Western Geologic Resources, Inc. (WGR) at Chevron Service Station #91924, located at 4904 Southfront Road in Livermore, California (Figure 1).

The scope of work for this project was to:

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

2. Collect groundwater samples from all the wells for analysis of total petroleum hydrocarbons TPH and volatile organic compounds by EPA Methods 8015/8240 and oil and grease by Standard Method 503E;

3. Produce distribution maps for TPH and benzene concentrations in the shallow groundwater, update hydrographs and construct chemical concentration graphs of benzene over time for all monitor wells;

4. Update the database for liquid-level measurements and for groundwater chemistry data; and

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

2 BACKGROUND

Eight groundwater monitor wells are located on the Chevron site (C-1 through C-3, C-5 through C-7, C-13 and C-15), and ten wells are located off-site. The off-site wells are along Southfront Road (C-8, C-9, C-14 and C-16), along First Street (C-18), and on the Mobil service station property west-southwest of the site (C-10 through C-12, C-17 and C-19). Well C-4 was destroyed when the underground tanks were excavated (Figure 2).

Groundwater Technology, Inc. (GTI) of Concord, California collected groundwater measurements from all available wells in March 1986, and March, May and June 1988. Depth-to-water measurements taken in March 1986 indicated groundwater levels approximately 1.62 feet (ft) lower than those measured in March 1988. Liquid hydrocarbons were detected at a thickness of 0.01 ft in monitor well C-6 in June 1988, and a trace of liquid hydrocarbons were noted in well C-17 in March 1988.

Groundwater samples were collected by GTI on 15 March and 10 May 1988 and analyzed for total fuel hydrocarbons (TFH) and aromatic hydrocarbons. TFH were detected in samples from all of the wells sampled except for monitor well C-12, located at the Mobil service station across the street from the subject site, and monitor well C-15, located behind the Chevron station building, in the northernmost corner of the site. The highest concentration of TFH reported was 120,000 parts-per-billion (ppb), detected in groundwater from monitor well C-14, located along Southfront Road, midway between the Chevron site and the Mobil service station. Samples from well C-14 also contained the highest concentrations of benzene and toluene, at 13,000 ppb and 29,000 ppb, respectively. The highest concentrations of both TPH and aromatic hydrocarbons for the on-site wells were detected in groundwater samples from monitor well C-6 which contained 86,000 ppb TFH, 1,400 ppb benzene, 10,000 ppb toluene, 19,000 ppb total xylenes, and 3,000 ppb ethylbenzene. This is consistent with the location of well C-6, approximately 15 ft west of the former underground storage tanks in an estimated downgradient direction. Groundwater samples collected from well C-13, located approximately 15 ft east and in an estimated upgradient direction of the former underground tanks, contained 250 ppb TFH, 2 ppb benzene, 3 ppb total xylenes, and 9 ppb ethylbenzene. Samples collected from the remaining on-site

monitor wells ranged from 1,600 ppb to 27,000 ppb TFH, 82 ppb to 3,900 ppb benzene, 7 ppb to 1,900 ppb toluene, 36 ppb to 2,100 ppb total xylenes, and 30 ppb to 1,200 ppb ethylbenzene.

On 2 August 1989, WGR installed dedicated pump systems in all of the wells, with the exception of wells C-11 and C-14, which have relatively low well-casing volumes. Each dedicated pump system consists of an ISCO bladder pump with connecting polyethylene air and water hoses extending to the top of the well casing. Dedicated teflon bailers were installed in wells C-11 and C-14. WGR has taken quarterly groundwater-level measurements since July 1988, and collected groundwater samples since October 1988. Liquid hydrocarbons were not observed in the wells during these samplings. Historic liquid-level data and analytical results are presented in Tables 1 and 2, respectively.

3 GROUNDWATER SAMPLING

All of the on-site and off-site wells were sampled by WGR environmental technicians with the dedicated sampling systems on 12 and 13 October 1989, according to the WGR standard operating procedure included in Appendix A. There was only enough water present in well MW-14 to collect a grab sample for fuel hydrocarbon analysis. Approximately 135 gallons of water, purged from the wells, was collected and temporarily stored on-site in 55-gallon drums pending analytic results.

The groundwater samples and laboratory-supplied travel blanks, consisting of deionized water, were sent under chain-of-custody to Superior Analytical Laboratory, Inc. (SAL) of San Francisco, California. The chain-of-custody forms are included in Appendix B.

4 ANALYTIC RESULTS

Analytic results are presented in Table 2 and laboratory reports are included in Appendix C. The highest concentrations of TPH and aromatic hydrocarbons reported in the current analysis were detected in a grab sample from monitor well C-14, located off-site in an estimated downgradient direction from the former underground storage tanks. The grab sample contained TPH, characterized as gasoline, at 86,000 ppb, as well as 12,000 ppb benzene, 16,000 ppb toluene, 13,000 ppb total xylenes, 1,600 ppb ethylbenzene and 930 ppb acetone. Because the groundwater collected was a grab sample, and not collected according to the usual sampling protocol, the analytic data for well C-14 has been excluded from the following section. There was insufficient groundwater collected from well MW-14 to test for oil and grease.

4.1 ON-SITE WELLS

Figure 2 is a distribution map of TPH in the shallow groundwater for 12 and 13 October 1989. The highest concentrations of TPH in groundwater samples from the on-site wells were 3,500 ppb and 3,900 ppb, detected in samples from monitor wells C-6 and C-7, respectively. Both of these wells are located within 15 ft of the former underground storage tanks in an estimated downgradient direction. Wells C-3, C-13 and C-15, located in an estimated upgradient or cross gradient direction to the former underground storage tanks, were below detection limits for TPH. Groundwater from the remaining on-site monitor wells contained between 620 ppb to 1,600 ppb TPH.

Figure 3 is a distribution map of benzene in the shallow groundwater for 12 and 13 October 1989. Graphs with concentrations of benzene over time in groundwater from selected wells are included as Appendix D. Benzene was detected in groundwater samples from wells C-1, C-6 and C-7 at 64 ppb, 32 ppb and 1,300 ppb, respectively. Concentrations of toluene in groundwater were found to be below the detection limit of 5 ppb (50 ppb for the sample from well C-7) except for the sample collected from monitor well C-6, which contained 81 ppb toluene. Total xylenes and ethylbenzene were detected in

sample from wells C-1, C-2, C-6 and C-7. Total xylenes ranged from 10 ppb in the sample from well C-2, to 530 ppb in the sample from well C-6. Ethylbenzene concentrations ranged from 17 ppb (well C-2) to 100 ppb (well C-7). Groundwater collected from monitor well C-5 contained 10 ppb ethylbenzene but was below the detection limit of 5 ppb for all other volatile organic compounds analyzed. Groundwater samples collected from monitor wells C-3, C-13 and C-15 were below detection limits for all aromatic compounds analyzed. 1,2-Dichloroethane (1,2-DCA) was not detected in any of the water samples collected from the on-site wells. Carbon disulfide (CDS) was detected in the groundwater sample from well C-1 at 5 ppb. Oil and grease were not present above the 5 ppm detection limit in any of the groundwater samples from the on-site wells.

4.2 OFF-SITE WELLS

TPH, characterized as gasoline, were detected in the groundwater from wells C-9 and C-16, at 1,300 ppb, and 1,000 ppb, respectively. These wells are located on Southfront Road in an estimated downgradient direction relative to the former underground storage tanks. The groundwater samples from wells C-17 and C-19, located on the Mobil service station property, also contained TPH characterized as gasoline, at 17,000 ppb and 540 ppb, respectively. TPH were not detected in the groundwater samples from off-site wells C-8, C-10, C-11, C-12 and C-18.

Benzene was detected in the groundwater from off-site wells C-9 and C-16 at 7 ppb and 20 ppb, respectively. Toluene, xylenes and ethylbenzene concentrations were detected in groundwater samples from off-site wells C-9 and C-16, located along Southfront Road, and also from well C-17, located on the Mobil station property. Toluene was detected at a concentration of 48 ppb in the sample from well C-17. Total xylenes were found in samples from wells C-9 and C-17 at 50 ppb and 480 ppb, respectively. Ethylbenzene was found in samples from wells C-9, C-16 and C-17 at 16 ppb, 7 ppb and 230 ppb, respectively. Aromatic hydrocarbons were not detected in the groundwater samples from wells C-8, C-10, C-11, C-12, C-18 and C-19.

1,2-DCA and CDS were only detected in the groundwater samples from off-site well C-19 at 13 ppb each. Oil and grease were not present above the detection limit of 5 ppm in any of the groundwater samples collected from the off-site wells.

5 ANALYTICAL TRENDS

5.1 ON-SITE WELLS

Concentrations of fuel hydrocarbons in the groundwater have remained similar for on-site wells C-1, C-2, and C-5 through C-7 since the last sampling period, though current concentrations are somewhat lower than reported in earlier (March and October 1988) sampling periods. Low concentrations of fuel hydrocarbons present in previous sampling periods were not detected in the samples from wells C-3 and C-13 above the detection limits of 500 ppb for TPH and 5 ppb for aromatic hydrocarbons. CDS, not tested for prior to the current analysis, was detected at 5 ppb in the water sample from well MW-1. Fuel hydrocarbons have never been detected in groundwater samples from well C-15. Oil and grease remained below the detection limit of 5 ppm in the current analysis.

5.2 OFF-SITE WELLS

Concentrations of fuel hydrocarbons have remained similar for off-site wells C-9, C-14, C-16, C-17 and C-19, though concentrations were somewhat higher in earlier (March and October 1988) sampling periods. Fuel hydrocarbons, present in previous samplings, were not detected in the groundwater samples from well C-8. Low concentrations of fuel hydrocarbons present in previous sampling periods were not detected in the samples from wells C-10 and C-11 above the detection limits of 500 ppb for TPH and 5 ppb for aromatic hydrocarbons. Fuel hydrocarbons have never been detected in the water samples from wells C-12 and C-18. CDS, first analyzed in October 1989, was detected in the water sample from well C-19 at 13 ppb. Oil and grease, which were detected in the June analysis at 4 ppm in samples from wells C-10 and C-11, were below the detection limit of 5ppm for all off-site wells in the current analysis.

6 GROUNDWATER FLOW

Figure 4 shows the potentiometric surface of the shallow groundwater on 12 October 1989. Table 1 presents groundwater elevation data. Estimated groundwater flow direction is to the west at a gradient of about 1.9%. Sample calculation A shows how the gradient was derived.[1] Hydrographs showing groundwater fluctuations over time are included in Appendix E.

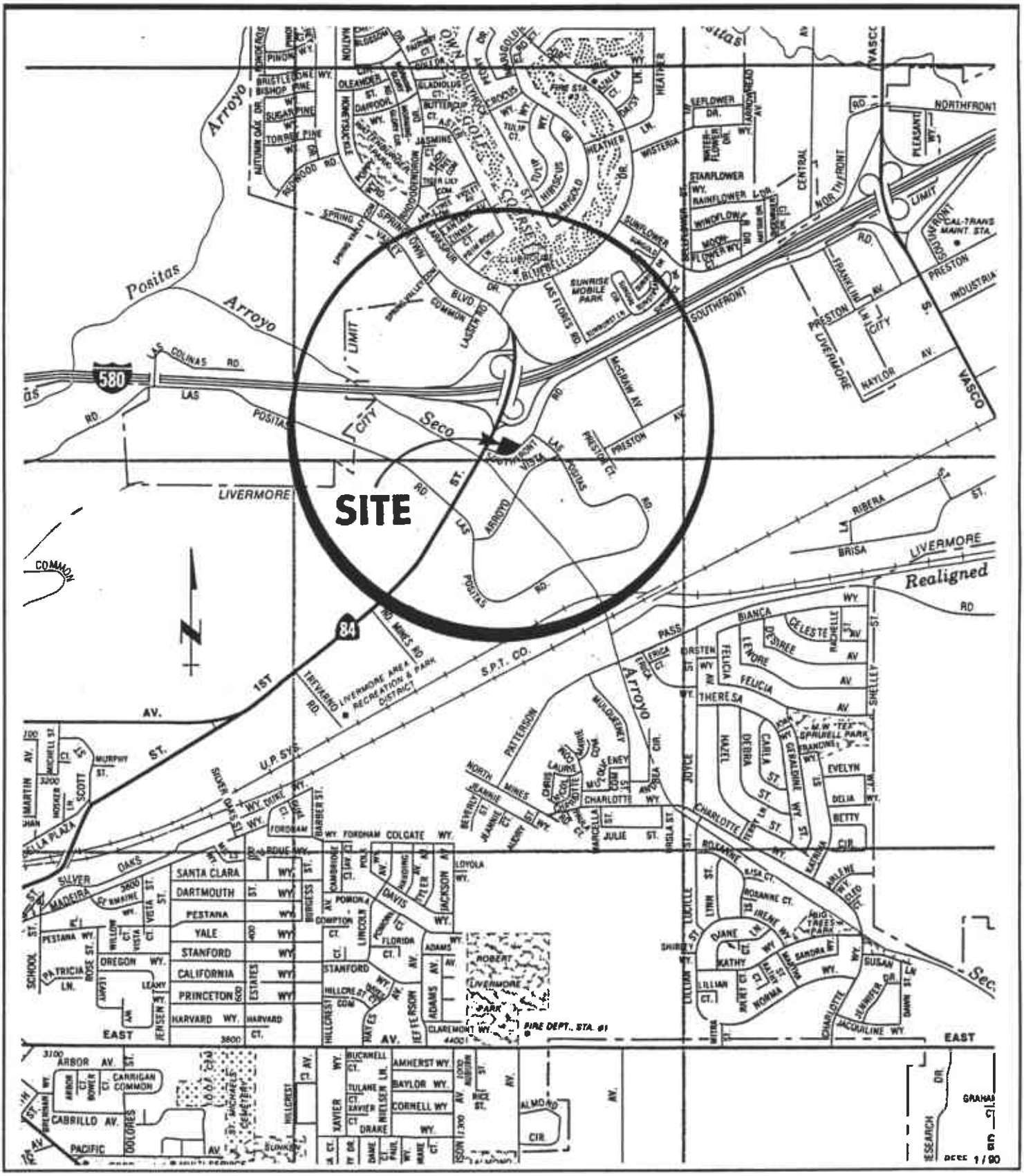
---

1 SAMPLE CALCULATION A: GROUNDWATER GRADIENT CALCULATION

From Figure 4; reference line a-a'

$$\text{Gradient} = \frac{h}{l} = \frac{1 \text{ foot}}{54 \text{ ft}} \quad 0.019 \times 100 = 1.9\%$$

h = 506.0 ft - 505.0 ft = 1 foot
l = 54 ft (distance along a-a')



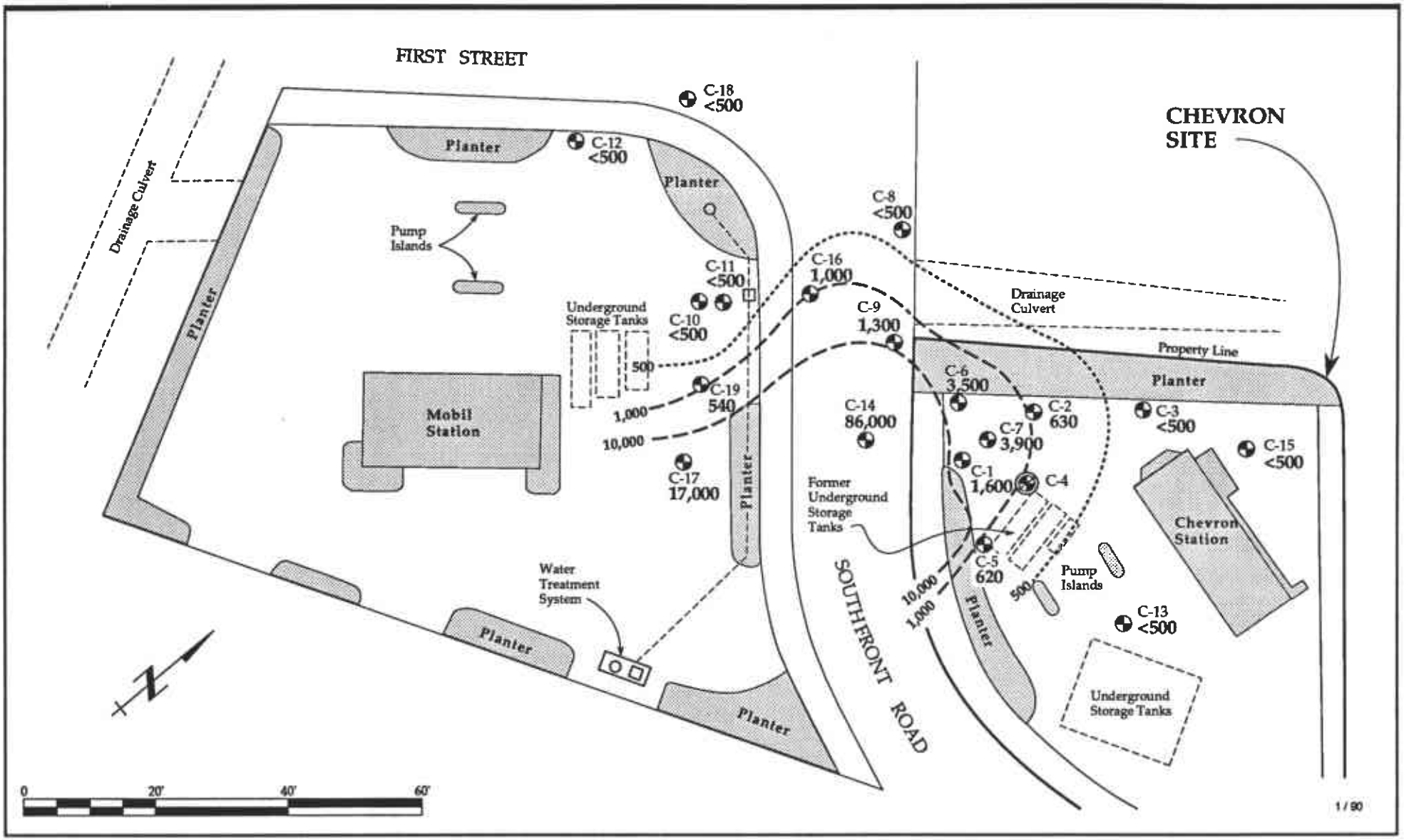
NOT TO SCALE

Site Location Map
Chevron Service Station #91924, Livermore, California

FIGURE
1

WESTERN GEOLOGIC RESOURCES, INC.

1-024.01



LEGEND

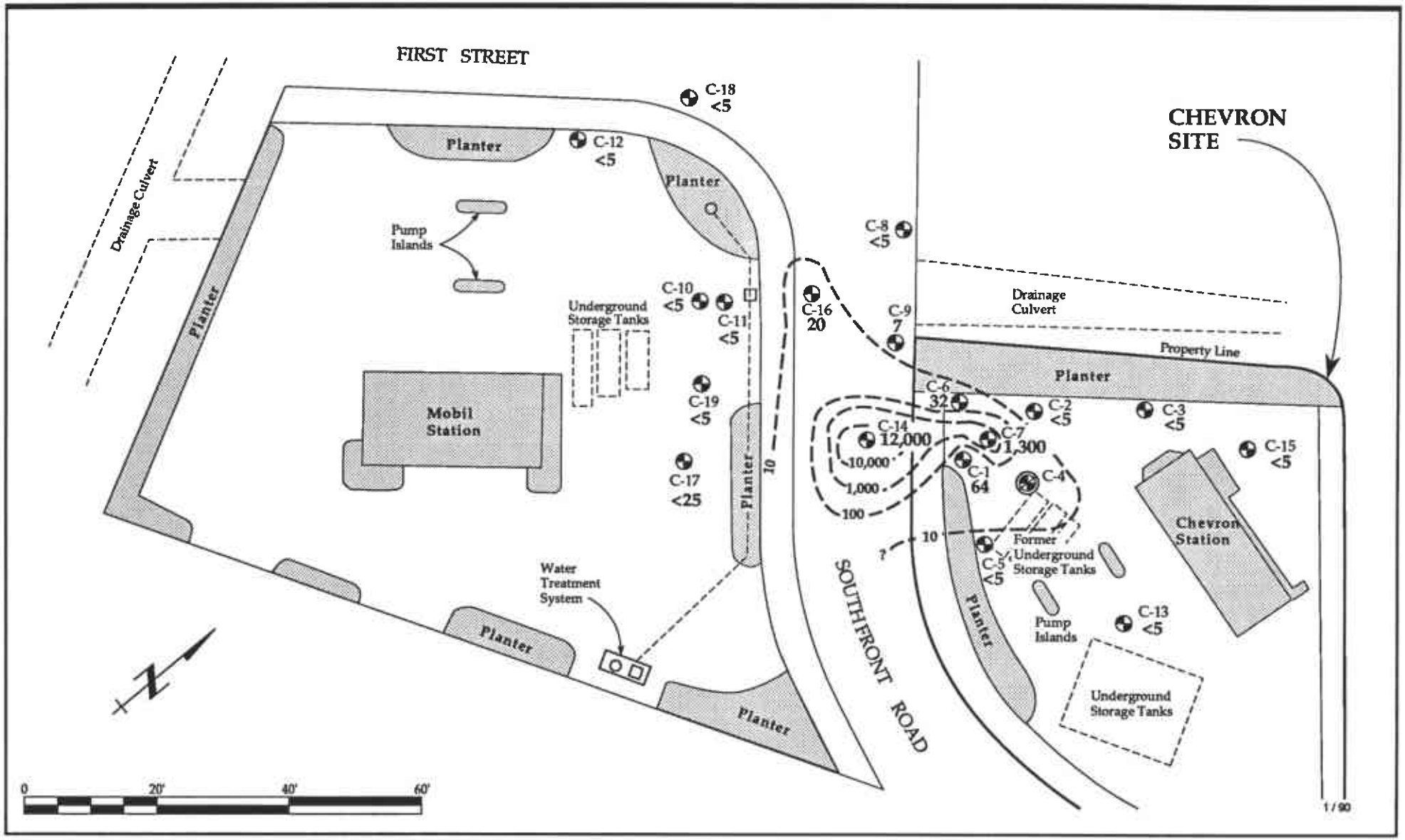
C-1 1,600	Monitor Well Location and groundwater elevation, feet above mean sea level
C-4	Destroyed Monitor Well Location
10,000	Groundwater elevation contour, feet above mean sea level, dashed where inferred
500	Intermediate Contour

Distribution of Total Petroleum Hydrocarbons
in Shallow Groundwater, 12 and 13 October 1989
Chevron Service Station #91924, Livermore, California

FIGURE 2

WESTERN GEOLOGIC RESOURCES, INC.

1-024.01



LEGEND

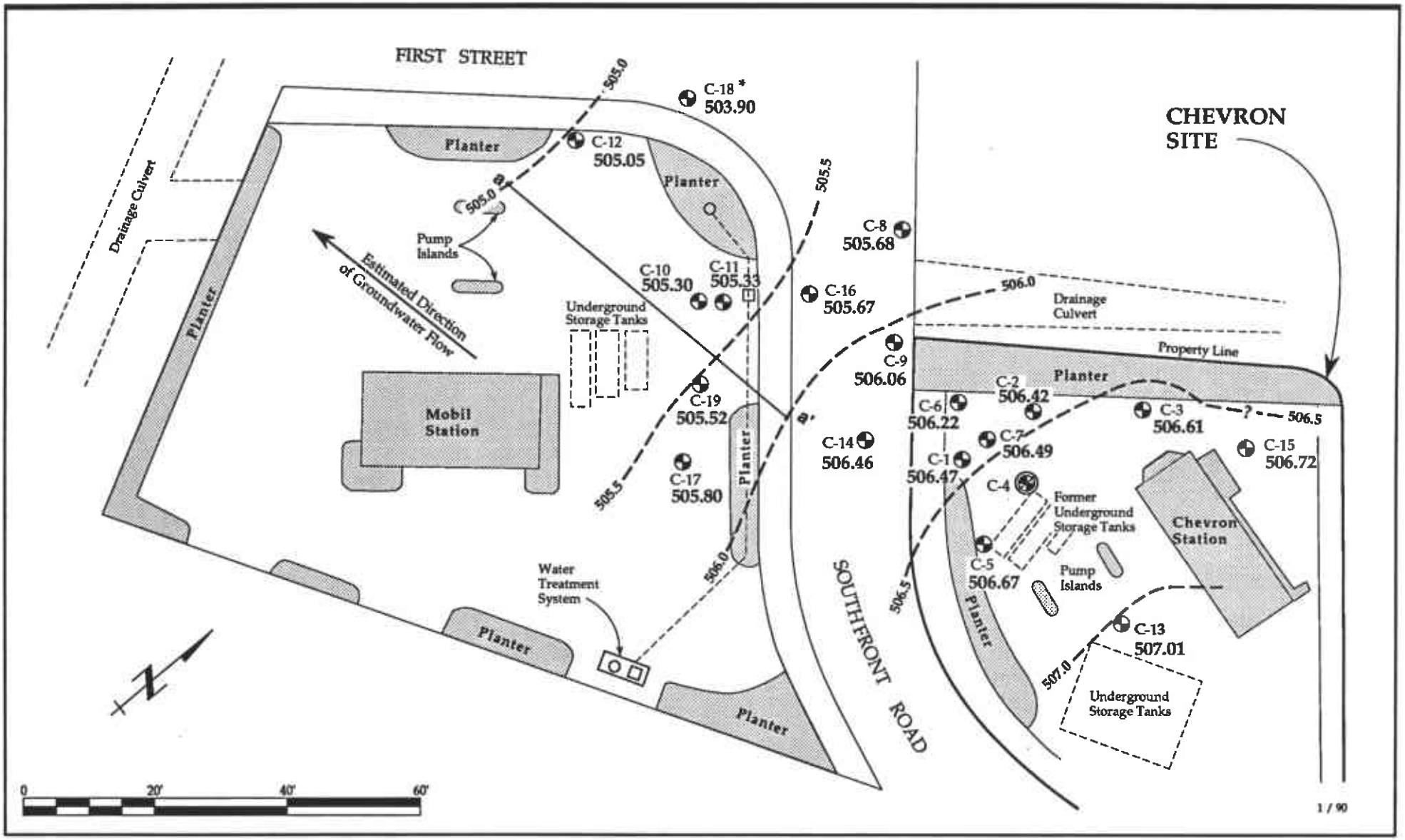
C-1 64	Monitor Well Location and groundwater elevation, feet above mean sea level
C-4	Destroyed Monitor Well Location
100 ——— ?	Groundwater elevation contour, feet above mean sea level, dashed where inferred, queried where uncertain

Distribution of Benzene
in Shallow Groundwater, 12 and 13 October 1989
Chevron Service Station #91924,
Livermore, California

FIGURE 3

WESTERN GEOLOGIC RESOURCES, INC.

1-024.01



LEGEND		
C-1 506.47	Monitor Well Location and groundwater elevation, feet above mean sea level
C-18*	Anamolous groundwater elevation
C-4	Destroyed Monitor Well Location
505.0 — — — ?	Groundwater elevation contour,feet above mean sea level, dashed where inferred, queried where uncertain
a ——— a'	Reference Line for gradient calculation

Potentiometric Surface
of Shallow Groundwater, 12 October 1989,
Chevron Service Station #91924, Livermore, California

FIGURE
4

WESTERN GEOLOGIC RESOURCES, INC.

1-024.01

TABLE 1. Liquid Level and Top-of-Casing Elevations
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
		<-----------------------		feet			----------------------->
			ONSITE WELLS				
C - 1	28 Mar 86	520.39	---	11.75	---	---	508.64
C - 1	15 Mar 88	520.39	---	13.50	---	---	506.89
C - 1	10 May 88	520.39	---	13.65	---	---	506.74
C - 1	10 Jun 88	520.39	---	14.72	---	---	505.67
C - 1	25 Jul 88	520.39	---	13.50	---	---	506.89
C - 1	13 Oct 88	520.39	---	13.50	---	---	506.89
C - 1	1 Jan 89	520.39	---	12.89	---	---	507.50
C - 1	10 Apr 89	520.39	---	13.65	---	---	506.74
C - 1	26 Jun 89	520.39	---	13.94	---	---	506.45
C - 1	12 Oct 89	520.39	---	13.92	---	---	506.47
C - 2	28 Mar 86	520.76	---	11.98	---	---	508.78
C - 2	15 Mar 88	520.76	---	13.77	---	---	506.99
C - 2	10 May 88	520.76	---	14.03	---	---	506.73
C - 2	10 Jun 88	520.76	---	15.12	---	---	505.64
C - 2	25 Jul 88	520.76	---	13.86	---	---	506.90
C - 2	13 Oct 88	520.76	---	14.11	---	---	506.65
C - 2	1 Jan 89	520.76	---	12.83	---	---	507.93
C - 2	10 Apr 89	520.76	---	14.04	---	---	506.72
C - 2	26 Jun 89	520.76	---	14.34	---	---	506.42
C - 2	12 Oct 89	520.76	---	13.92	---	---	506.42
C - 3	28 Mar 86	521.31	---	12.24	---	---	509.07
C - 3	15 Mar 88	521.31	---	14.21	---	---	507.10
C - 3	10 May 88	521.31	---	14.43	---	---	506.88
C - 3	10 Jun 88	521.31	---	15.53	---	---	505.78
C - 3	25 Jul 88	521.31	---	14.22	---	---	507.09
C - 3	13 Oct 88	521.31	---	14.10	---	---	507.21
C - 3	1 Jan 89	521.31	---	12.70	---	---	508.61
C - 3	10 Apr 89	521.31	---	14.36	---	---	506.95
C - 3	26 Jun 89	521.31	---	14.74	---	---	506.57
C - 3	12 Oct 89	521.31	---	14.70	---	---	506.61
C - 5	28 Mar 86	520.82	---	12.00	---	---	508.82
C - 5	15 Mar 88	520.82	---	13.75	---	---	507.07
C - 5	10 May 88	520.82	---	13.92	---	---	506.90
C - 5	10 Jun 88	520.82	---	14.98	---	---	505.84
C - 5	25 Jul 88	520.82	---	13.72	---	---	507.10
C - 5	13 Oct 88	520.82	---	13.84	---	---	506.98
C - 5	1 Jan 89	520.82	---	13.41	---	---	507.41
C - 5	10 Apr 89	520.82	---	13.88	---	---	506.94
C - 5	26 Jun 89	520.82	---	14.14	---	---	506.68
C - 5	12 Oct 89	520.82	---	14.15	---	---	506.67

TABLE 1. Liquid Level and Top-of-Casing Elevations
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
		<----------feet---------->					
C - 6	28 Mar 86	519.62	---	11.12	---	---	508.50
C - 6	15 Mar 88	519.62	---	12.93	---	---	506.69
C - 6	10 May 88	519.62	---	13.03	---	---	506.59
C - 6	10 Jun 88	519.62	14.10	14.11	0.01	---	505.51
C - 6	25 Jul 88	519.62	---	12.95	---	---	506.67
C - 6	13 Oct 88	519.62	---	13.14	---	---	506.48
C - 6	1 Jan 89	519.62	---	12.14	---	---	507.48
C - 6	10 Apr 89	519.62	---	12.98	---	---	506.64
C - 6	26 Jun 89	519.62	---	13.39	---	---	506.23
C - 6	12 Oct 89	519.62	---	13.40	---	---	506.22
C - 7	28 Mar 86	520.30	---	11.67	---	---	508.63
C - 7	15 Mar 88	520.30	---	13.48	---	---	506.82
C - 7	10 May 88	520.30	---	13.60	---	---	506.70
C - 7	10 Jun 88	520.30	---	14.68	---	---	505.62
C - 7	25 Jul 88	520.30	---	13.43	---	---	506.87
C - 7	13 Oct 88	520.30	---	13.61	---	---	506.69
C - 7	1 Jan 89	520.30	---	12.66	---	---	507.64
C - 7	10 Apr 89	520.30	---	13.60	---	---	506.70
C - 7	26 Jun 89	520.30	---	13.88	---	---	506.42
C - 7	12 Oct 89	520.30	---	13.81	---	---	506.49
C -13	28 Mar 86	522.24	---	12.95	---	---	509.29
C -13	15 Mar 88	522.24	---	14.82	---	---	507.42
C -13	10 May 88	522.24	---	15.03	---	---	507.21
C -13	10 Jun 88	522.24	---	16.10	---	---	506.14
C -13	25 Jul 88	522.24	---	14.73	---	---	507.51
C -13	13 Oct 88	522.24	---	14.91	---	---	507.33
C -13	1 Jan 89	522.24	---	14.10	---	---	508.14
C -13	10 Apr 89	522.24	---	14.99	---	---	507.25
C -13	26 Jun 89	522.24	---	15.16	---	---	507.08
C -13	12 Oct 89	522.24	---	15.23	---	---	507.01
C -15	28 Mar 86	522.41	---	13.14	---	---	509.27
C -15	15 Mar 88	522.41	---	15.13	---	---	507.28
C -15	10 May 88	522.41	---	15.40	---	---	507.01
C -15	10 Jun 88	522.41	---	16.49	---	---	505.92
C -15	25 Jul 88	522.41	---	15.17	---	---	507.24
C -15	13 Oct 88	522.41	---	15.33	---	---	507.08
C -15	1 Jan 89	522.41	---	13.70	---	---	508.71
C -15	10 Apr 89	522.41	---	15.34	---	---	507.07
C -15	26 Jun 89	522.41	---	15.72	---	---	506.69
C -15	12 Oct 89	522.41	---	15.69	---	---	506.72

TABLE 1. Liquid Level and Top-of-Casing Elevations
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
		<----------	----------	---feet---	----------	----------	---------->
				FIRST STREET WELLS			
C -18	28 Mar 86	518.96	---	---	---	---	---
C -18	15 Mar 88	518.96	---	---	---	---	---
C -18	10 May 88	518.96	---	---	---	---	---
C -18	10 Jun 88	518.96	---	14.89	---	---	504.07
C -18	25 Jul 88	518.96	---	13.79	---	---	505.17
C -18	13 Oct 88	518.96	---	13.86	---	---	505.10
C -18	1 Jan 89	518.96	---	13.94	---	---	505.02
C -18	10 Apr 89	518.96	---	14.86	---	---	504.10
C -18	26 Jun 89	518.96	---	14.02	---	---	504.94
C -18	12 Oct 89	518.96	---	15.06	---	---	503.90
				SOUTHFRONT ROAD WELLS			
C - 8	28 Mar 86	519.74	---	11.78	---	---	507.96
C - 8	15 Mar 88	519.74	---	13.63	---	---	506.11
C - 8	10 May 88	519.74	---	13.74	---	---	506.00
C - 8	10 Jun 88	519.74	---	14.89	---	---	504.85
C - 8	25 Jul 88	519.74	---	13.65	---	---	506.09
C - 8	13 Oct 88	519.74	---	13.78	---	---	505.96
C - 8	1 Jan 89	519.74	---	12.68	---	---	507.06
C - 8	10 Apr 89	519.74	---	13.77	---	---	505.97
C - 8	26 Jun 89	519.74	---	14.03	---	---	505.71
C - 8	12 Oct 89	519.74	---	14.06	---	---	505.68
C - 9	28 Mar 86	519.52	---	11.24	---	---	508.28
C - 9	15 Mar 88	519.52	---	12.92	---	---	506.60
C - 9	10 May 88	519.52	---	13.12	---	---	506.40
C - 9	10 Jun 88	519.52	---	14.16	---	---	505.36
C - 9	25 Jul 88	519.52	---	13.00	---	---	506.52
C - 9	13 Oct 88	519.52	---	13.13	---	---	506.39
C - 9	1 Jan 89	519.52	---	12.19	---	---	507.33
C - 9	10 Apr 89	519.52	---	13.11	---	---	506.41
C - 9	26 Jun 89	519.52	---	13.40	---	---	506.12
C - 9	12 Oct 89	519.52	---	13.46	---	---	506.06
C -14	28 Mar 86	520.08	---	---	---	---	---
C -14	15 Mar 88	520.08	---	---	---	---	---
C -14	10 May 88	520.08	---	13.39	---	---	506.69
C -14	10 Jun 88	520.08	---	14.65	---	---	505.43
C -14	25 Jul 88	520.08	---	13.47	---	---	506.61
C -14	13 Oct 88	520.08	---	13.58	---	---	506.50
C -14	1 Jan 89	520.08	---	13.00	---	---	507.08
C -14	10 Apr 89	520.08	---	13.47	---	---	506.61
C -14	26 Jun 89	520.08	---	13.80	---	---	506.28
C -14	12 Oct 89	520.08	---	13.62	---	---	506.46

TABLE 1. Liquid Level and Top-of-Casing Elevations
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
		<-----feet----->					
C -16	28 Mar 86	519.68	---	---	---	---	---
C -16	15 Mar 88	519.68	---	---	---	---	---
C -16	10 May 88	519.68	---	13.78	---	---	505.90
C -16	10 Jun 88	519.68	---	14.88	---	---	504.80
C -16	25 Jul 88	519.68	---	13.69	---	---	505.99
C -16	13 Oct 88	519.68	---	13.80	---	---	505.88
C -16	1 Jan 89	519.68	---	13.45	---	---	506.23
C -16	10 Apr 89	519.68	---	13.78	---	---	505.90
C -16	26 Jun 89	519.68	---	14.02	---	---	505.66
C -16	12 Oct 89	519.68	---	14.01	---	---	505.67
			MOBIL STATION WELLS				
C -10	28 Mar 86	520.41	---	Dry	---	---	---
C -10	15 Mar 88	520.41	---	14.86	---	---	505.55
C -10	10 May 88	520.41	---	14.90	---	---	505.51
C -10	10 Jun 88	520.41	---	15.94	---	---	504.47
C -10	25 Jul 88	520.41	---	14.85	---	---	505.56
C -10	13 Oct 88	520.41	---	14.90	---	---	505.51
C -10	1 Jan 89	520.41	---	14.83	---	---	505.58
C -10	10 Apr 89	520.41	---	14.90	---	---	505.51
C -10	26 Jun 89	520.41	---	15.12	---	---	505.29
C -10	12 Oct 89	520.41	---	15.11	---	---	505.30
C -11	28 Mar 86	520.04	---	13.82	---	---	506.22
C -11	15 Mar 88	520.04	---	14.49	---	---	505.55
C -11	10 May 88	520.04	---	14.31	---	---	505.73
C -11	10 Jun 88	520.04	---	15.47	---	---	504.57
C -11	25 Jul 88	520.04	---	13.60	---	---	506.44
C -11	13 Oct 88	520.04	---	14.53	---	---	505.51
C -11	1 Jan 89	520.04	---	14.10	---	---	505.94
C -11	10 Apr 89	520.04	---	14.36	---	---	505.68
C -11	26 Jun 89	520.04	---	14.58	---	---	505.46
C -11	12 Oct 89	520.04	---	14.71	---	---	505.33
C -12	28 Mar 86	519.82	---	13.61	---	---	506.21
C -12	15 Mar 88	519.82	---	14.55	---	---	505.27
C -12	10 May 88	519.82	---	14.57	---	---	505.25
C -12	10 Jun 88	519.82	---	15.63	---	---	504.19
C -12	25 Jul 88	519.82	---	14.51	---	---	505.31
C -12	13 Oct 88	519.82	---	14.60	---	---	505.22
C -12	13 Jan 89	519.82	---	14.62	---	---	505.20
C -12	10 Apr 89	519.82	---	14.61	---	---	505.21
C -12	26 Jun 89	519.82	---	14.75	---	---	505.07
C -12	12 Oct 89	519.82	---	14.77	---	---	505.05

TABLE 1. Liquid Level and Top-of-Casing Elevations
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
		<-----feet----->					
C -17	28 Mar 86	520.82	---	13.48	---	---	507.34
C -17	15 Mar 88	520.82	---	14.76	Trace	---	506.06
C -17	10 May 88	520.82	---	14.77	---	---	506.05
C -17	10 Jun 88	520.82	---	15.84	---	---	504.98
C -17	25 Jul 88	520.82	---	14.63	---	---	506.19
C -17	13 Oct 88	520.82	---	14.83	---	---	505.99
C -17	1 Jan 89	520.82	---	14.78	---	---	506.04
C -17	10 Apr 89	520.82	---	14.83	---	---	506.06
C -17	26 Jun 89	520.82	---	15.03	---	---	505.79
C -17	12 Oct 89	520.82	---	15.02	---	---	505.80
C -19	28 Mar 86	520.99	---	---	---	---	---
C -19	15 Mar 88	520.99	---	---	---	---	---
C -19	10 May 88	520.99	---	15.23	---	---	505.76
C -19	10 Jun 88	520.99	---	16.58	---	---	504.41
C -19	25 Jul 88	520.99	---	15.19	---	---	505.80
C -19	13 Oct 88	520.99	---	15.27	---	---	505.72
C -19	1 Jan 89	520.99	---	15.20	---	---	505.79
C -19	10 Apr 89	520.99	---	15.24	---	---	505.75
C -19	26 Jun 89	520.99	---	15.44	---	---	505.55
C -19	12 Oct 89	520.99	---	15.47	---	---	505.52
RW	10 May 88	518.54	---	13.01	---	---	505.53
RW	10 Jun 88	518.54	---	14.01	---	---	504.53

Notes:
TOC = Top Of Casing Elevation
DTLH = Depth To Liquid Hydrocarbon
DTW = Depth To Water
LHT = Liquid Hydrocarbon Thickness
Elev.-LH = Elevation Of Liquid Hydrocarbon
Elev.-W = Elevation Of Water
RW = Recovery Well

TABLE 2. Analytic Results for Groundwater Samples
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Well	Date	LAB	O & G	FC	TFH	TPH	TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	CDS
			ppm		<-----ppb----->								
								Onsite Wells					
C - 1	15 Mar 88	GTEL	---	---	27000	---	---	770	87	610	2100	---	---
C - 1	13 Oct 88	BC	---	Gas	3200	---	---	220	11	62	130	---	---
C - 1	12 Jan 89	SAL	---	Gas	---	4000	---	820	43	490	260	---	---
C - 1	10 Apr 89	CCAS	<3.0	Gas	---	---	4000	100	<5	70	50	<5	---
C - 1D	10 Apr 89	CCAS	---	Gas	---	---	4000	100	<5	60	50	<5	---
C - 1	26 Jun 89	CCAS	<3.0	Gas	---	---	600	97	20	60	50	3	---
C - 1D	26 Jun 89	CCAS	---	Gas	---	---	570	86	15	44	35	1.7	---
C - 1	13 Oct 89	SAL	<5	Gas	---	1600	---	64	<5	51	48	<5	5
C - 2	15 Mar 88	GTEL	---	---	22000	---	---	3900	1900	1200	1200	---	---
C - 2	13 Oct 88	BC	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C - 2	12 Jan 89	SAL	---	---	---	1000	---	25	3	83	59	---	---
C - 2	10 Apr 89	CCAS	<3.0	Gas	---	---	600	2.5	<0.2	15	12	<0.2	---
C - 2D	10 Apr 89	CCAS	---	---	---	---	<10000	<10	<10	11	11	<10	---
C - 2	26 Jun 89	CCAS	<3.0	Gas	---	---	640	5.3	8	18	14	<0.5	---
C - 2D	26 Jun 89	CCAS	---	Gas	---	---	750	3.7	0.6	13	8.2	2	---
C - 2	13 Oct 89	SAL	<5	Gas	---	630	---	<5	<5	17	10	<5	<5
C - 3	15 Mar 88	GTEL	---	---	2100	---	---	86	8	30	36	---	---
C - 3	13 Oct 88	BC	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C - 3	12 Jan 89	SAL	---	---	---	<1000.0	---	7	2	8	11	---	---
C - 3	10 Apr 89	CCAS	<3.0	Gas	---	---	200	2.1	<0.2	4.4	2.6	1.4	---
C - 3	26 Jun 89	CCAS	<3.0	Gas	---	---	260	1.1	0.7	4.9	1.6	1.5	---
C - 3	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5
C - 5	15 Mar 88	GTEL	---	---	1600	---	---	82	7	77	95	---	---
C - 5	13 Oct 88	BC	---	Gas	2500	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C - 5	12 Jan 89	SAL	---	---	---	<1000.0	---	42	3	44	52	---	---
C - 5	10 Apr 89	CCAS	<3.0	Gas	---	---	180	2.6	<0.2	6.2	5.5	1.4	---
C - 5	26 Jun 89	CCAS	<3.0	Gas	---	---	420	7.6	0.8	40	56	1.5	---

TABLE 2. Analytic Results for Groundwater Samples
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Well	Date	LAB	O & G	FC	TFH	TPH	TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	CDS
			ppm		<-------------------------------------ppb------------------------------------->								
C - 5	13 Oct 89	SAL	<5	Gas	---	620	---	<5	<5	10	<5	<5	<5
C - 6	15 Mar 88	GTEL	---	---	46000	---	---	870	4600	1500	8200	---	---
C - 6	10 May 88	GTEL	---	---	86000	---	---	1400	10000	3000	19000	---	---
C - 6	13 Oct 88	BC	---	Gas	5300	---	---	300	600	260	1600	---	---
C - 6	12 Jan 89	SAL	---	Gas	---	5000	---	260	110	270	720	---	---
C - 6	12 Apr 89	CCAS	4.0	Gas	---	---	5000	90	190	190	680	<20	---
C - 6	26 Jun 89	CCAS	<3.0	Gas	---	---	3600	77	250	140	610	<5.0	---
C - 6	13 Oct 89	SAL	<5	Gas	---	3500	---	32	81	100	530	<50	<50
C - 7	15 Mar 88	GTEL	---	---	8000	---	---	98	69	120	120	---	---
C - 7	13 Oct 88	BC	---	Gas	16000	---	---	4400	220	1000	3000	---	---
C - 7	12 Jan 89	SAL	---	Gas	---	8000	---	950	47	670	640	---	---
C - 7	12 Apr 89	CCAS	<3.0	Gas	---	---	6000	1100	30	760	370	<20	---
C - 7	26 Jun 89	CCAS	<3.0	Gas	---	---	6000	1300	50	600	340	<10	---
C - 7	13 Oct 89	SAL	<5	Gas	---	3900	---	1300	<50	160	150	<50	<50
C -13	15 Mar 88	GTEL	---	---	250	---	---	2	<0.5	9	3	---	---
C -13	13 Oct 88	BC	---	---	<1000.0	---	---	1.9	<0.5	<0.5	<0.5	---	---
C -13	12 Jan 89	SAL	---	---	---	<1000	---	<0.3	0.6	4	<0.3	---	---
C -13	10 Apr 89	CCAS	<3.0	---	---	---	<100	<0.2	<0.2	8	<0.4	<0.2	---
C -13	26 Jun 89	CCAS	<3.0	---	---	---	<50	0.3	<2.0	<2.0	<2.0	<0.2	---
C -13	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5
C -15	15 Mar 88	GTEL	---	---	<1.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C -15	13 Oct 88	BC	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C -15	12 Jan 89	SAL	---	---	---	<1000	---	<0.3	<0.3	<0.3	<0.3	---	---
C -15	10 Apr 89	CCAS	<3.0	---	---	---	<100	<0.2	<0.2	<0.2	<0.4	<0.2	---
C -15	26 Jun 89	CCAS	<3.0	---	---	---	<50	<0.2	<2.0	<2.0	<2.0	<0.2	---
C -15	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5

TABLE 2. Analytic Results for Groundwater Samples
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Well	Date	LAB	O & G	FC	TFH	TPH	TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	CDS
			ppm		<-----ppb----->								
								Southfront Road Wells					
C - 8	15 Mar 88	GTEL	---	---	7500	---	---	360	25	10	<0.5	---	---
C - 8	13 Oct 88	BC	---	---	<1000.0	---	---	6	5.3	<0.5	<0.5	---	---
C - 8	12 Jan 89	SAL	---	---	---	<1000	---	37	4	1	5	---	---
C - 8	12 Apr 89	CCAS	12.0	Gas	---	---	3000	13	<5	<5	<5	5	---
C - 8	26 Jun 89	CCAS	<3.0	Gas	---	---	780	14	6	<2.0	6	4	---
C - 8	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5
C - 9	15 Mar 88	GTEL	---	---	29000	---	---	540	560	580	3900	---	---
C - 9	13 Oct 88	BC	---	Gas	2200	---	---	57	8	20	150	---	---
C - 9	12 Jan 89	SAL	---	Gas	---	2000	---	39	12	51	46	---	---
C - 9	11 Apr 89	CCAS	<3.0	Gas	---	---	6000	16	20	55	240	2.1	---
C - 9D	11 Apr 89	CCAS	---	Gas	---	---	6000	14	25	45	290	<5.0	---
C - 9	26 Jun 89	CCAS	<3.0	Gas	---	---	9300	37	63	140	690	<5.0	---
C - 9	13 Oct 89	SAL	<5	Gas	---	1300	---	7	<5	26	50	<5	<5
C -14	10 May 88	GTEL	---	---	120000	---	---	13000	29000	2700	18	---	---
C -14	13 Oct 88	---	---	---	NS	NS	---	NS	NS	NS	NS	---	---
C -14	12 Jan 89	---	---	---	NS	NS	---	NS	NS	NS	NS	---	---
C -14	12 Apr 89	---	NS	---	NS	NS	---	NS	NS	NS	NS	NS	---
C -14	26 Jun 89	CCAS	---	Gas	---	---	140000	14000	25000	3400	26000	30	---
C -14*	13 Oct 89	SAL	---	Gas	---	86000	---	12000	16000	1600	13000	<250	<250
C -16	10 May 88	GTEL	---	---	4500	---	---	1000	73	140	180	---	---
C -16	13 Oct 88	BC	---	Gas	1600	---	---	16	5.5	<1.0	16	---	---
C -16	12 Jan 89	SAL	---	Gas	---	1000	---	360	11	78	51	---	---
C -16	11 Apr 89	CCAS	<3.0	Gas	---	---	1500	130	4	21	19	8	---
C -16	26 Jun 89	CCAS	<3.0	Gas	---	---	1300	170	8	37	43	<1.0	---
C -16	13 Oct 89	SAL	<5	Gas	---	1000	---	20	<5	7	<5	<5	<5

* Also contained 930 ppb acetone.

TABLE 2. Analytic Results for Groundwater Samples
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Well	Date	LAB	O & G	FC	TFH	TPH	TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	CDS
			ppm		<------				ppb				------>
								First Street Wells					
C -18	13 Oct 88	BC	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C -18	12 Jan 89	SAL	---	---	---	<1000.0	---	<0.3	<0.3	<0.3	<0.3	---	---
C -18	11 Apr 89	CCAS	<3.0	---	---	---	<200	<0.2	<0.2	<0.2	<0.4	3.6	---
C -18	26 Jun 89	CCAS	<3.0	---	---	---	<50	<0.2	<2.0	<2.0	<2.0	3.1	---
C -18	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5
								Mobil Station Wells					
C -10	15 Mar 88	GTEL	---	---	90	---	---	7	<0.5	<0.5	<0.5	---	---
C -10	13 Oct 88	BC	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C -10	12 Jan 89	SAL	---	---	---	<1000	---	<0.3	<0.3	<0.3	<0.3	---	---
C -10	11 Apr 89	CCAS	<3.0	---	---	---	<300	4.8	<0.5	<0.5	<1	6.1	---
C -10	26 Jun 89	CCAS	4.0	---	---	---	<100	0.7	<0.5	<0.5	1.5	<0.5	---
C -10	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5
C -11	14 Oct 88	BC	---	Gas	1.9	---	---	240	33	4.7	67	---	---
C -11	12 Jan 89	SAL	---	---	---	<1000.0	---	<0.3	0.8	<0.3	<0.3	---	---
C -11	12 Apr 89	CCAS	<3.0	---	---	---	<50	4.3	<1	<1	<1	<1	---
C -11	26 Jun 89	CCAS	4.0	---	---	---	<50	2	<2.0	<2.0	<2.0	<0.2	---
C -11	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5
C -12	15 Mar 88	GTEL	---	---	<1.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C -12	13 Oct 88	BC	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C -12	12 Jan 89	SAL	---	---	---	<1000.0	---	<0.3	<0.3	<0.3	<0.3	---	---
C -12	11 Apr 89	CCAS	<3.0	---	---	---	<100	<0.2	<0.2	<0.2	<0.4	<0.2	---
C -12	26 Jun 89	CCAS	<3.0	---	---	---	<50	<0.2	<2.0	<2.0	<2.0	<0.2	---
C -12	13 Oct 89	SAL	<5	---	---	<500	---	<5	<5	<5	<5	<5	<5
C -17	13 Oct 88	BC	---	Gas	270,000	---	---	18	900	760	5500	---	---
C -17	12 Jan 89	SAL	---	Gas	---	190,000	---	<15	490	2100	6700	---	---
C -17	11 Apr 89	CCAS	6.0	Gas	---	---	27,000	30	150	320	1000	<10	---

1-024.01/T2DE9

TABLE 2. Analytic Results for Groundwater Samples
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Well	Date	LAB	O & G ppm	FC	TFH	TPH	TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	CDS
					<----	----	----	----	ppb	----	----	----	---->
C -17	26 Jun 89	CCAS	<3.0	Gas	---	---	20,000	50	390	660	2000	<10	---
C -17D	26 Jun 89	CCAS	---	Gas	---	---	27,000	40	420	740	2200	<10	---
C -17	13 Oct 89	SAL	<5	Gas	---	17000	---	<25	48	230	480	<25	<25
C -19	10 May 88	GTEL	---	---	18	---	---	1400	360	350	1300	---	---
C -19	13 Oct 88	BC	---	---	<1000.0	---	---	8.3	4.7	4.4	<0.5	---	---
C -19	12 Jan 89	SAL	---	---	---	<1000	---	5	4	<0.3	<0.3	---	---
C -19	11 Apr 89	CCAS	<3.0	---	---	---	<1000	1.8	<2	<2	<4	13	---
C -19D	11 Apr 89	CCAS	---	Gas	---	---	500	1.2	<0.2	0.6	0.6	14	---
C -19	26 Jun 89	CCAS	<3.0	Gas	---	---	500	2.5	<5.0	<5.0	<5.0	26	---
C -19	13 Oct 89	SAL	<5	Gas	---	540	---	<5	<5	<5	<5	13	13
TB	12 Jan 89	SAL	---	---	---	---	---	<0.3	<0.3	<0.3	<0.3	---	---
TB	12 Apr 89	CCAS	---	---	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	---
TB	26 Jun 89	CCAS	---	---	---	---	<50	<0.1	<1.0	<1.0	<1.0	<0.1	---
TB	13 Oct 89	SAL	---	---	---	<500	---	<5	<5	<5	<5	<5	<5

Notes:
FC = Fuel characterization
E-Benzene = Ethylbenzene
TFH = Total Fuel Hydrocarbons
TPH = Total Petroleum Hydrocarbons
TPPH = Total Purgeable Petroleum Hydrocarbons
1,2 DCA = 1,2-Dichloroethane
CDS = Carbon disulfide
O&G = Oil and Grease
ppb = Parts per billion
ppm = Parts-per-million
NS = Not sampled because of poor recovery
TB = Travel Blank

GTEL = GTEL Environmental Laboratories
BC = Brown and Caldwell Laboratories
SAL = Superior Analytical Laboratories
CCAS = Central Coast Analytical Services

1-024.01/T2DE9

TABLE 2. Analytic Results for Groundwater Samples
Chevron Service Station # 91924
4904 Southfront Road
Livermore, California

Well	Date	LAB	O & G	FC	TFH	TPH	TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	CDS
			ppm		<--------			ppb					-------->

D = Duplicate Analysis

APPENDIX A

STANDARD OPERATING PROCEDURES

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.

APPENDIX B

CHAIN-OF-CUSTODY FORMS

10209

Sampler Copy

CHAIN OF CUSTODY

WESTERN GEOLOGIC RESOURCES, INC.
2169 E. Francisco Boulevard, Suite B
San Rafael, California 94901
415/457-7595 Fax: 415/457-8521

800 - 229 - 7084

CHEVRON RELEASE # 253240

General Remarks
(1) For each well: 2 voas for EPA 624, 2 for 8015
(2) MW4 Destroyed 1 glass bottle for O&G
Any questions please call us!

Laboratory	Superior Analytical	Log No.	
Address	1385 Fairfax Suite D S.F. CA		
Project No.	1-024.01	Project Name	Livermore
Project Mgr / Contact	Lee Otis		
Sampler(s)	Mike Parkinson / Mark Frye		

Lab Sample Number	Date Sampled	Sample Type See expl 1	Container Type See expl 2	Preservative	Sample Description	Number of Containers	EPA 624	EPA 8015	503 O&G				Turn Around Required See expl 3	Remarks
10209-1	10/12	GW	V/G	NaHSO4/H2SO4	MW1 A,B,C,D,E	5	X	X	X				N	Voas pres. w/NaHSO4 O&G pres. w/H2SO4
2	↓	GW	V/G	"	MW2 A,B,C,D,E	5	X	X	X					
3	10/13				MW3 A,B,C,D,E									
4	10/12				MW5 A,B,C,D,E									
5					MW6 A,B,C,D,E									
6					MW7 A,B,C,D,E									
7					MW8 A,B,C,D,E									
8					MW9 A,B,C,D,E									
9					MW10 A,B,C,D,E									
10	↓				MW11 A,B,C,D,E									
11	10/13	↓	↓	↓	MW12 A,B,C,D,E	↓	↓	↓	↓				↓	

Sample Relinquished By	Date / Time	Received By	Date / Time
Mike Parkinson	10/13 13:00		10/13/94 1300

Explanation

1 SO--Soil, NA--Nonaqueous, GW--Groundwater, SL--Sludge, PE--Petroleum, VP--Vapor, AQ--Aqueous, OT--Other

2 T--Brass Tube, P--Plastic Bottle, V--VOA Bottle, B--Bag, G--Glass Bottle, OT--Other

3 N--Normal (2wks), W--1 Wk, R--24 hr Rush, H--Hold

#10209

Sampler Copy

CHAIN OF CUSTODY

CHEVRON RELEASE #: 2532410

Any questions please call!

WESTERN GEOLOGIC RESOURCES, INC.
2169 E. Francisco Boulevard, Suite B
San Rafael, California 94901
415/457-7595 Fax: 415/457-8521

General Remarks For each well: 2 voas for EPA 624 } $NaHSO_4$
2 voas for EPA 8015 }
1 glass bottle 503E O&G → H_2SO_4

* grab sample, not enough H_2O for O&G MW 14E

Laboratory Superior Analytical | Log No.

Address 1385 Fourth St. Suite D S.F. CA

Project No. 1-1024.01 | Project Name Livermore | Project Mgr / Contact Lee Otis

Sampler(s) Mark Frye

Lab Sample Number	Date Sampled	Sample Type See expl 1	Container Type See expl 2	Preservative	Sample Description	Number of Containers	EPA 624	EPA 8015	503E O&G					Remarks
12	10/12	GW	V/G	$NaHSO_4$ / H_2SO_4	MW13 A,B,C,D,E	5	X	X	X					
13	↓	↓	↓	↓	MW14 A,B,C,D*	↓	↓	↓	↓					
14	↓	↓	↓	↓	MW15 A,B,C,D,E	↓	↓	↓	↓					
15	10/13	↓	↓	↓	MW16 A,B,C,D,E	↓	↓	↓	↓					
16	↓	↓	↓	↓	MW17 A,B,C,D,E	↓	↓	↓	↓					
17	↓	↓	↓	↓	MW18 A,B,C,D,E	↓	↓	↓	↓					
18	↓	↓	↓	↓	MW19 A,B,C,D,E	↓	↓	↓	↓					
19		AQ	V		Travel blanks	2	X	X						

Analyses Requested

Turn Around Required See expl 3

Sample Relinquished By	Date / Time	Received By	Date / Time
Mike Parkinson	10/13 1300	[signature]	10/13/93 1300

Explanation

1 SO--Soil, NA--Nonaqueous, GW--Groundwater, SL--Sludge, PE--Petroleum, VP--Vapor, AQ--Aqueous, OT--Other

2 T--Brass Tube, P--Plastic Bottle, V--VOA Bottle, B--Bag, G--Glass Bottle, OT--Other

3 N--Normal (2wks), W--1 Wk, R--24 hr Rush, H--Hold

APPENDIX C

LABORATORY REPORTS AND QUALITY ASSURANCE REPORTS

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 80172
CLIENT: Western Geological Resources
CLIENT JOB NO.: 1-024-.01

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/23/89

ANALYSIS FOR TOTAL OIL AND GREASE
by Method 503E

LAB #	Sample Identification	Concentration (mg/L) Oil & Grease
1	MW-1	ND<5
2	MW-2	ND<5
3	MW-3	ND<5
4	MW-5	ND<5
5	MW-6	ND<5
6	MW-7	ND<5
7	MW-8	ND<5
8	MW-9	ND<5
9	MW-10	ND<5
10	MW-11	ND<5
11	MW-12	ND<5
12	MW-13	ND<5
14	MW-15	ND<5
15	MW-16	ND<5
16	MW-17	ND<5
17	MW-18	ND<5
18	MW-19	ND<5

mg/L - parts per million (ppm)

Method Detection Limit for Oil and Grease in Soil: 20mg/kg
Method Detection Limit for Oil and Grease in Water: 5mg/L

QAQC Summary: Duplicate RPD : 0%

Edward B. Morales
Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10209 DATE RECEIVED: 10/13/89
CLIENT: Western Geologic Resources DATE REPORTED: 10/25/89
CLIENT JOB NO.: 1-024.01

ANALYSIS FOR TOTAL PERTROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (ug/l) Gasoline Range
1	MW-1	1600
2	MW-2	630
3	MW-3	ND<500
4	MW-5	620
5	MW-6	3500
6	MW-7	3900
7	MW-8	ND<500
8	MW-9	1300
9	MW-10	ND<500
10	MW-11	ND<500
11	MW-12	ND<500
12	MW-13	ND<500
13	MW-14	86000
14	MW-15	ND<500
15	MW-16	1000
16	MW-17	17000
17	MW-18	ND<500
18	MW-19	540
19	Travel Blank	ND<500

ug/L - parts per billion (ppb)
Minimum Detection Limit for Gasoline in Water: 1mg/L
QAQC Summary:
Daily Standard run at 2mg/L: RPD Gasoline = <15%
MS/MSD Average Recovery = 91%: Duplicate RPD = 3%

Richard Srna, Ph.D.

Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-1
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-1

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	64
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	51
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	48
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	103%	76-114	81-117
Toluene-d8.....	99%	88-110	81-140
Bromofluorobenzene.....	105%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-2
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-2

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	17
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	10
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	112%	76-114	81-117
Toluene-d8.....	98%	88-110	81-140
Bromofluorobenzene.....	106%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-3
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-3

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	109%	76-114	81-117
Toluene-d8.....	100%	88-110	81-140
Bromofluorobenzene.....	99%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-4
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-5

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	10
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	112%	76-114	81-117
Toluene-d8.....	97%	88-110	81-140
Bromofluorobenzene.....	100%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-5
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-6

Compound	ug/l	Compound	ug/l
Chloromethane	ND<100	Cis-1,3-Dichloropropene	ND<50
Bromomethane	ND<100	Trichloroethene	ND<50
Vinyl Chloride	ND<100	Dibromochloromethane	ND<50
Chloroethane	ND<100	1,1,2-Trichloroethane	ND<50
Methylene Chloride	ND<100	Benzene	32
Acetone	ND<100	Trans-1,3-Dichloropropene	ND<50
Carbon disulfide	ND<50	2-Chloroethyl vinyl ether	ND<50
Trichlorofluoromethane	ND<50	Bromoform	ND<50
1,1-Dichloroethene	ND<50	4-Methyl-2-Pentanone	ND<100
1,1-Dichloroethane	ND<50	2-Hexanone	ND<100
1,2-Dichloroethene (total)	ND<50	Tetrachloroethene	ND<50
Chloroform	ND<50	1,1,2,2-Tetrachloroethane	ND<50
1,2-Dichloroethane	ND<50	Toluene	81
2-Butanone	ND<200	Chlorobenzene	ND<50
1,1,1-Trichloroethane	ND<50	Ethylbenzene	100
Carbon Tetrachloride	ND<50	Styrene	ND<50
Vinyl Acetate	ND<100	Total Xylenes	530
Bromodichloromethane	ND<50	1,3-Dichlorobenzene	ND<50
1,2-Dichloropropane	ND<50	1,2&1,4-Dichlorobenzenes	ND<50

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	109%	76-114	81-117
Toluene-d8.....	98%	88-110	81-140
Bromofluorobenzene.....	97%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-6
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-7

Compound	ug/l	Compound	ug/l
Chloromethane	ND<100	Cis-1,3-Dichloropropene	ND<50
Bromomethane	ND<100	Trichloroethene	ND<50
Vinyl Chloride	ND<100	Dibromochloromethane	ND<50
Chloroethane	ND<100	1,1,2-Trichloroethane	ND<50
Methylene Chloride	ND<100	Benzene	1300
Acetone	ND<100	Trans-1,3-Dichloropropene	ND<50
Carbon disulfide	ND<50	2-Chloroethyl vinyl ether	ND<50
Trichlorofluoromethane	ND<50	Bromoform	ND<50
1,1-Dichloroethene	ND<50	4-Methyl-2-Pentanone	ND<100
1,1-Dichloroethane	ND<50	2-Hexanone	ND<100
1,2-Dichloroethene (total)	ND<50	Tetrachloroethene	ND<50
Chloroform	ND<50	1,1,2,2-Tetrachloroethane	ND<50
1,2-Dichloroethane	ND<50	Toluene	ND<50
2-Butanone	ND<200	Chlorobenzene	ND<50
1,1,1-Trichloroethane	ND<50	Ethylbenzene	160
Carbon Tetrachloride	ND<50	Styrene	ND<50
Vinyl Acetate	ND<100	Total Xylenes	150
Bromodichloromethane	ND<50	1,3-Dichlorobenzene	ND<50
1,2-Dichloropropane	ND<50	1,2&1,4-Dichlorobenzenes	ND<50

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	116%	76-114	81-117
Toluene-d8.....	98%	88-110	81-140
Bromofluorobenzene.....	98%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-7
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-8

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	111%	76-114	81-117
Toluene-d8.....	93%	88-110	81-140
Bromofluorobenzene.....	100%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-8
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-9

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	7
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	26
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	50
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	111%	76-114	81-117
Toluene-d8.....	96%	88-110	81-140
Bromofluorobenzene.....	103%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.
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CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-9
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-10

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	114%	76-114	81-117
Toluene-d8.....	100%	88-110	81-140
Bromofluorobenzene.....	99%	86-115	74-121

comments:

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CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-10
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
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JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-11

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	107%	76-114	81-117
Toluene-d8.....	101%	88-110	81-140
Bromofluorobenzene.....	102%	86-115	74-121

comments:

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-11
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-12

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	106%	76-114	81-117
Toluene-d8.....	98%	88-110	81-140
Bromofluorobenzene.....	97%	86-115	74-121

comments:

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-12
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-13

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	109%	76-114	81-117
Toluene-d8.....	99%	88-110	81-140
Bromofluorobenzene.....	97%	86-115	74-121

comments:

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CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-13
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
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JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-14

Compound	ug/l	Compound	ug/l
Chloromethane	ND<500	Cis-1,3-Dichloropropene	ND<250
Bromomethane	ND<500	Trichloroethene	ND<250
Vinyl Chloride	ND<500	Dibromochloromethane	ND<250
Chloroethane	ND<500	1,1,2-Trichloroethane	ND<250
Methylene Chloride	ND<500	Benzene	12000
Acetone	930	Trans-1,3-Dichloropropene	ND<250
Carbon disulfide	ND<250	2-Chloroethyl vinyl ether	ND<250
Trichlorofluoromethane	ND<250	Bromoform	ND<250
1,1-Dichloroethene	ND<250	4-Methyl-2-Pentanone	ND<500
1,1-Dichloroethane	ND<250	2-Hexanone	ND<500
1,2-Dichloroethene (total)	ND<250	Tetrachloroethene	ND<250
Chloroform	ND<250	1,1,2,2-Tetrachloroethane	ND<250
1,2-Dichloroethane	ND<250	Toluene	16000
2-Butanone	ND<1000	Chlorobenzene	ND<250
1,1,1-Trichloroethane	ND<250	Ethylbenzene	1600
Carbon Tetrachloride	ND<250	Styrene	ND<250
Vinyl Acetate	ND<500	Total Xylenes	13000
Bromodichloromethane	ND<250	1,3-Dichlorobenzene	ND<250
1,2-Dichloropropane	ND<250	1,2&1,4-Dichlorobenzenes	ND<250

ug/kg = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	113%	76-114	81-117
Toluene-d8.....	96%	88-110	81-140
Bromofluorobenzene.....	98%	86-115	74-121

comments:

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CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-14
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-15

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	116%	76-114	81-117
Toluene-d8.....	97%	88-110	81-140
Bromofluorobenzene.....	97%	86-115	74-121

comments:

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CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-15
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-16

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	20
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	7
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	108%	76-114	81-117
Toluene-d8.....	97%	88-110	81-140
Bromofluorobenzene.....	100%	86-115	74-121

comments:

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-16
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-17

Compound	ug/l	Compound	ug/l
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<25
Bromomethane	ND<50	Trichloroethene	ND<25
Vinyl Chloride	ND<50	Dibromochloromethane	ND<25
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<25
Methylene Chloride	ND<50	Benzene	ND<25
Acetone	ND<50	Trans-1,3-Dichloropropene	ND<25
Carbon disulfide	ND<25	2-Chloroethyl vinyl ether	ND<25
Trichlorofluoromethane	ND<25	Bromoform	ND<25
1,1-Dichloroethene	ND<25	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<25	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<25	Tetrachloroethene	ND<25
Chloroform	ND<25	1,1,2,2-Tetrachloroethane	ND<25
1,2-Dichloroethane	ND<25	Toluene	48
2-Butanone	ND<100	Chlorobenzene	ND<25
1,1,1-Trichloroethane	ND<25	Ethylbenzene	230
Carbon Tetrachloride	ND<25	Styrene	ND<25
Vinyl Acetate	ND<50	Total Xylenes	480
Bromodichloromethane	ND<25	1,3-Dichlorobenzene	ND<25
1,2-Dichloropropane	ND<25	1,2&1,4-Dichlorobenzenes	ND<25

ug/kg = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	110%	76-114	81-117
Toluene-d8.....	98%	88-110	81-140
Bromofluorobenzene.....	102%	86-115	74-121

comments:

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-17
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-18

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	114%	76-114	81-117
Toluene-d8.....	98%	88-110	81-140
Bromofluorobenzene.....	100%	86-115	74-121

comments:

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1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO. 10209-18
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-19

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	13	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	13	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	106%	76-114	81-117
Toluene-d8.....	100%	88-110	81-140
Bromofluorobenzene.....	102%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 10209-19
CLIENT: Western Geologic Resources

DATE RECEIVED: 10/13/89
DATE REPORTED: 10/25/89
JOB NO. 1-024.01

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: Travel Blank

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<5
Bromomethane	ND<10	Trichloroethene	ND<5
Vinyl Chloride	ND<10	Dibromochloromethane	ND<5
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<5
Methylene Chloride	ND<10	Benzene	ND<5
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<5
Carbon disulfide	ND<5	2-Chloroethyl vinyl ether	ND<5
Trichlorofluoromethane	ND<5	Bromoform	ND<5
1,1-Dichloroethene	ND<5	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<5	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<5	Tetrachloroethene	ND<5
Chloroform	ND<5	1,1,2,2-Tetrachloroethane	ND<5
1,2-Dichloroethane	ND<5	Toluene	ND<5
2-Butanone	ND<20	Chlorobenzene	ND<5
1,1,1-Trichloroethane	ND<5	Ethylbenzene	ND<5
Carbon Tetrachloride	ND<5	Styrene	ND<5
Vinyl Acetate	ND<10	Total Xylenes	ND<5
Bromodichloromethane	ND<5	1,3-Dichlorobenzene	ND<5
1,2-Dichloropropane	ND<5	1,2&1,4-Dichlorobenzenes	ND<5

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	113%	76-114	81-117
Toluene-d8.....	101%	88-110	81-140
Bromofluorobenzene.....	99%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

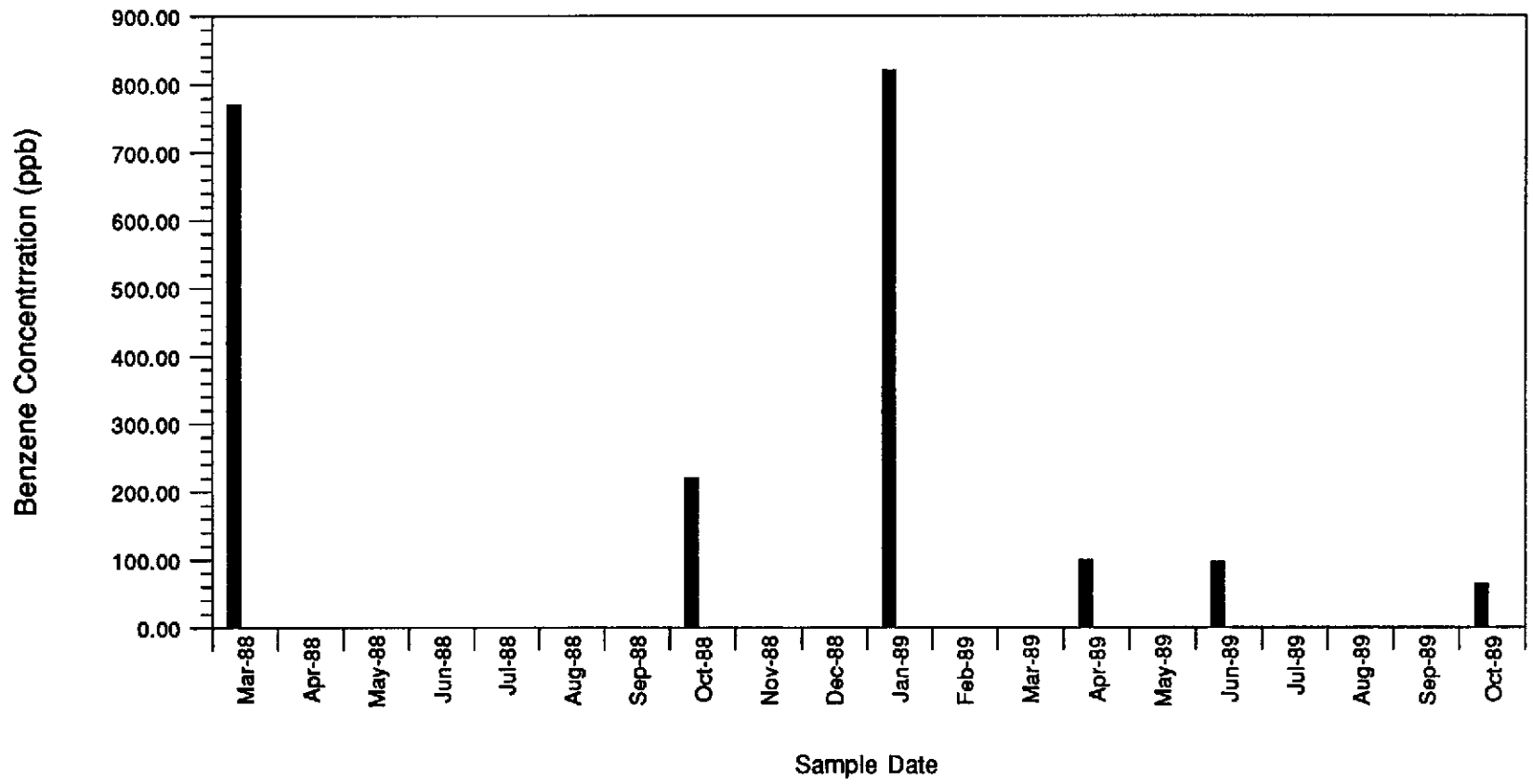
OUTSTANDING QUALITY AND SERVICE

APPENDIX D

BENZENE CONCENTRATIONS OVER TIME IN SELECTED MONITOR WELLS

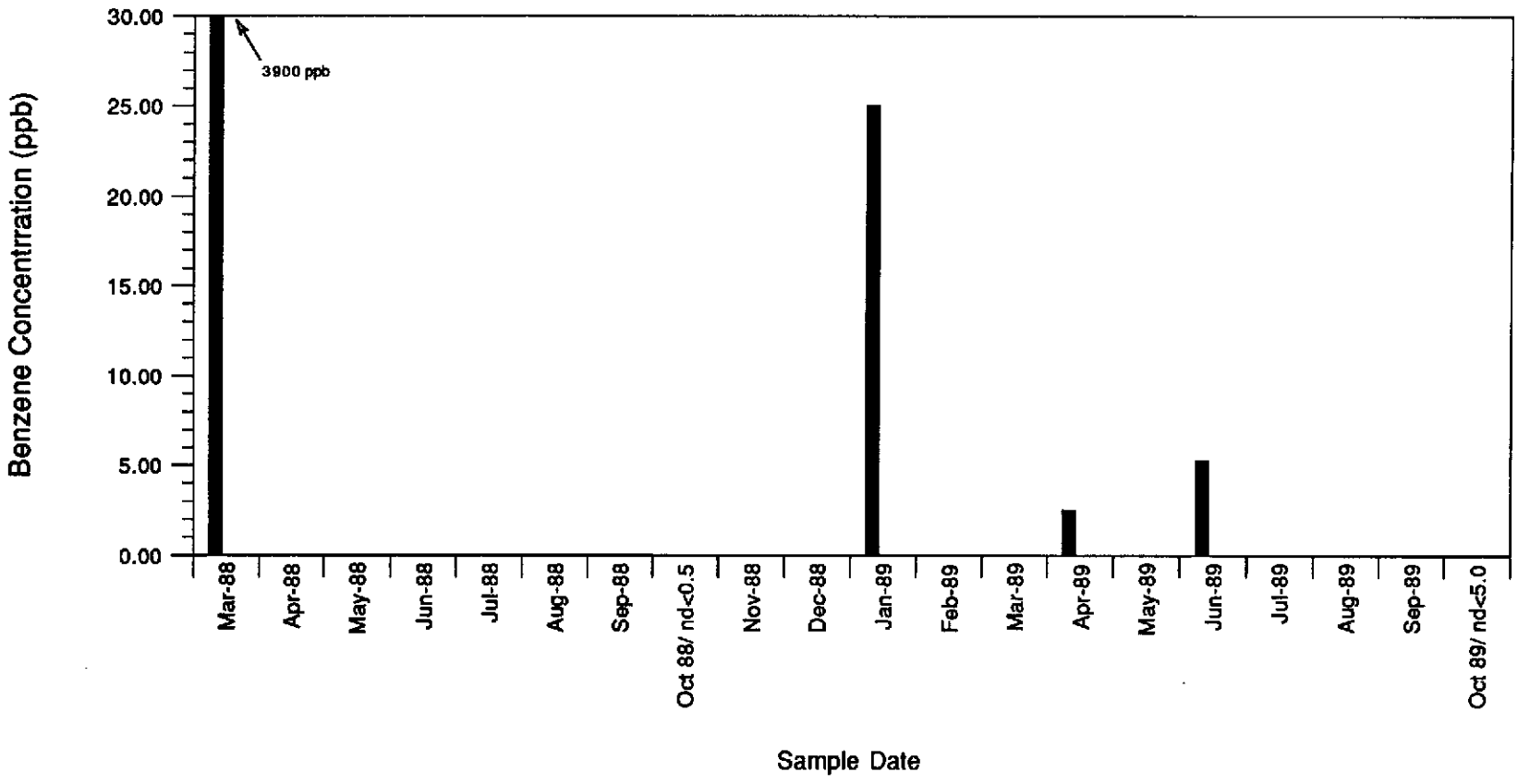
GROUNDWATER MONITOR WELL C-1

Chevron Service Station #91924 Livermore, California



GROUNDWATER MONITOR WELL C-2

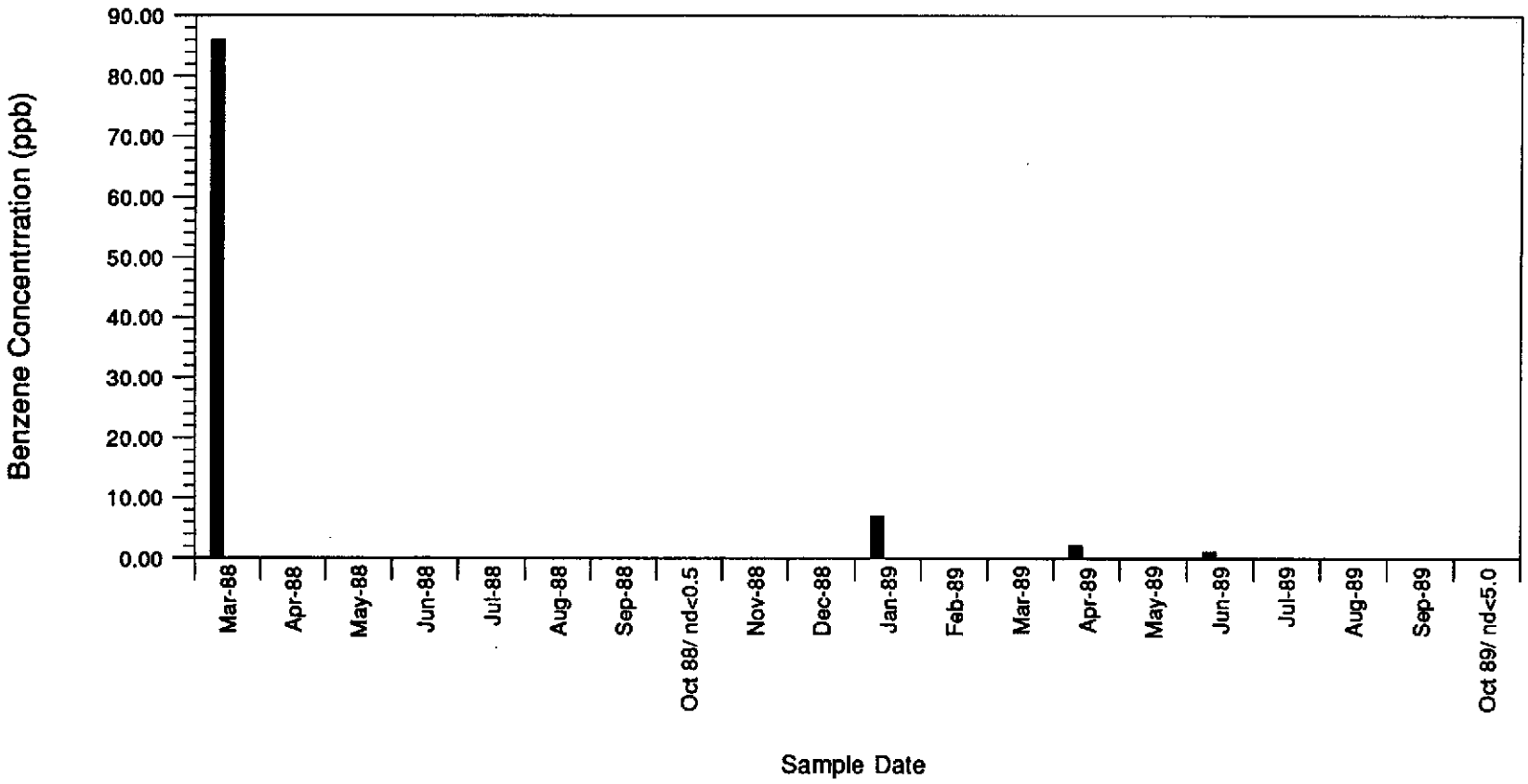
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

GROUNDWATER MONITOR WELL C-3

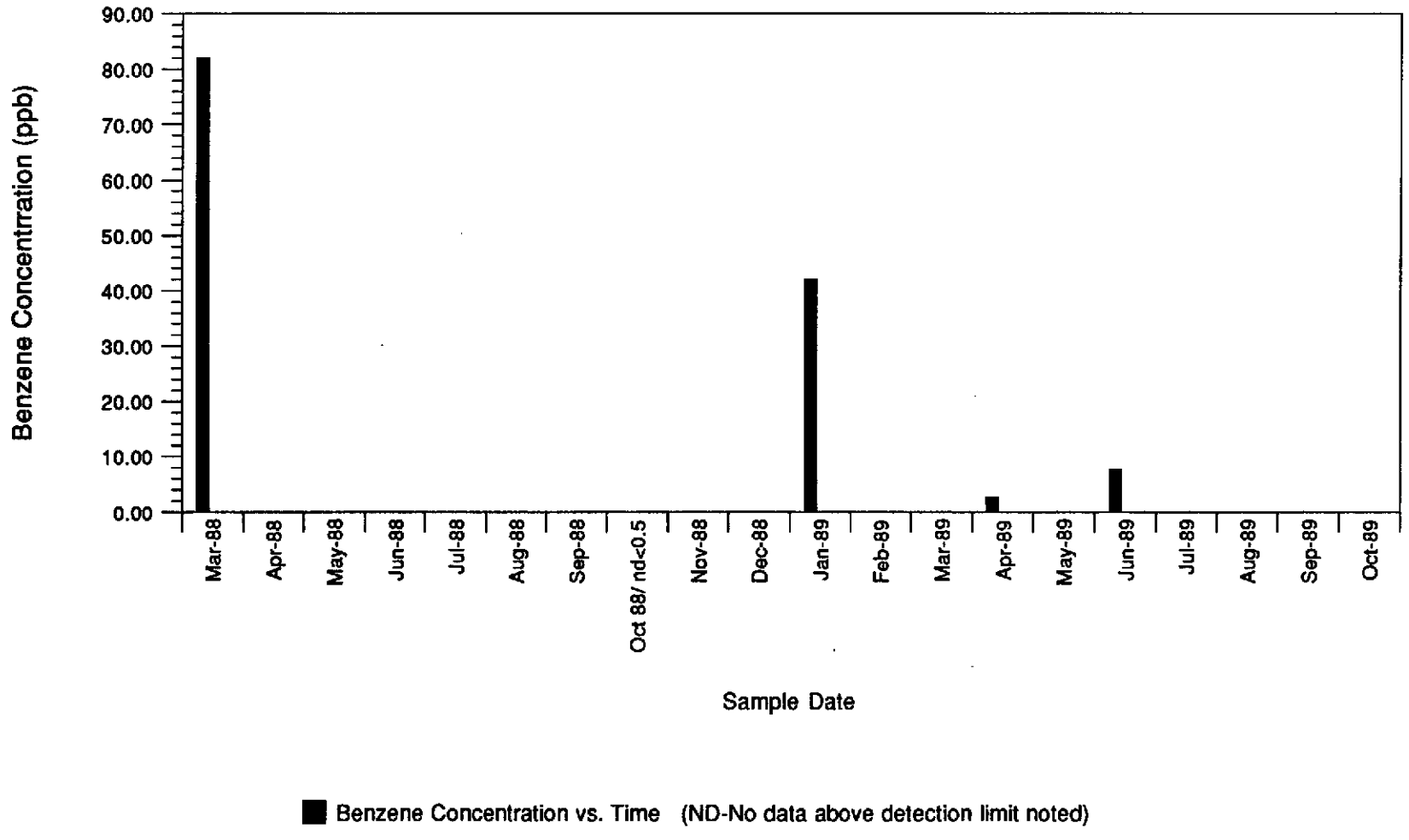
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

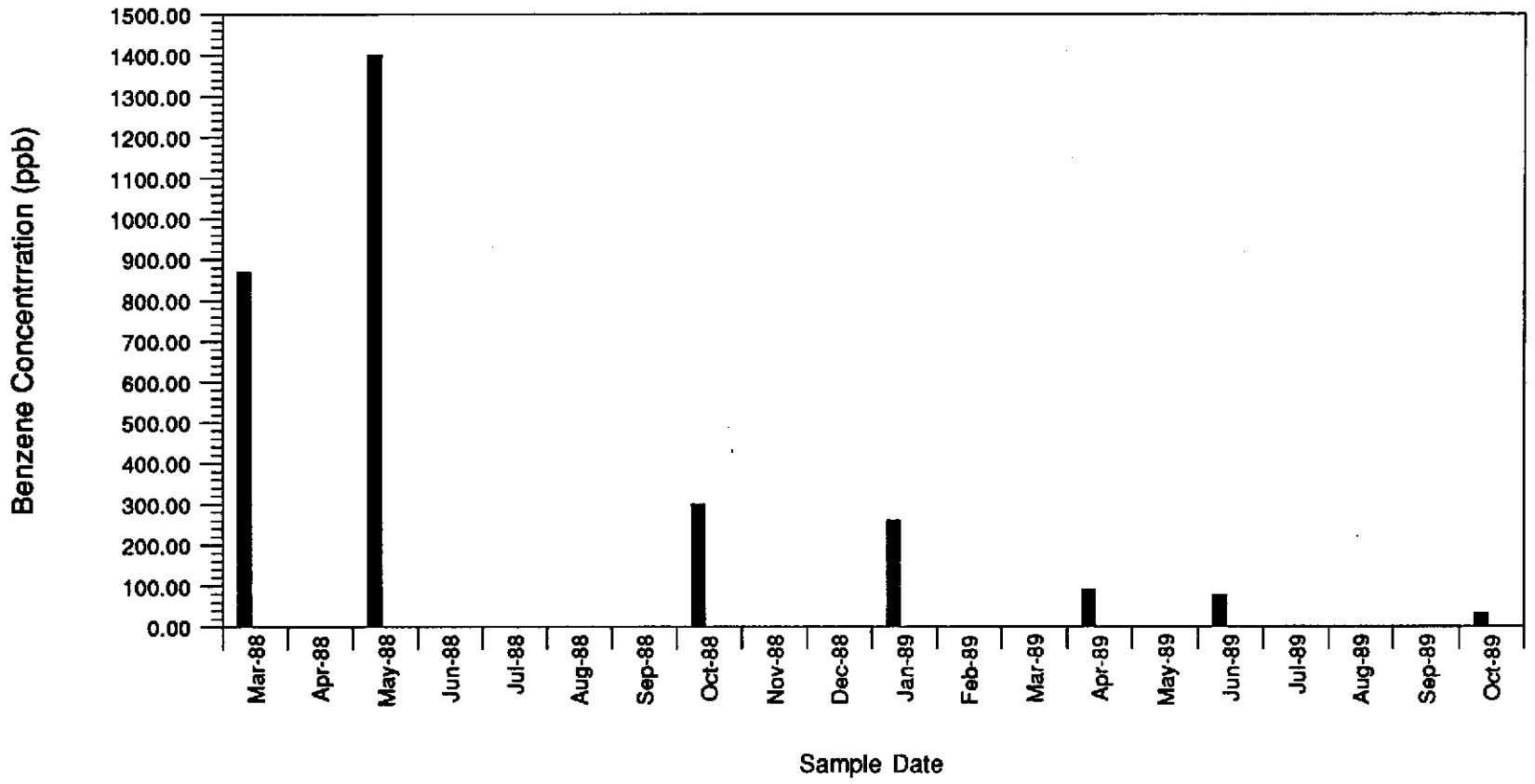
GROUNDWATER MONITOR WELL C-5

Chevron Service Station #91924 Livermore, California



GROUNDWATER MONITOR WELL C-6

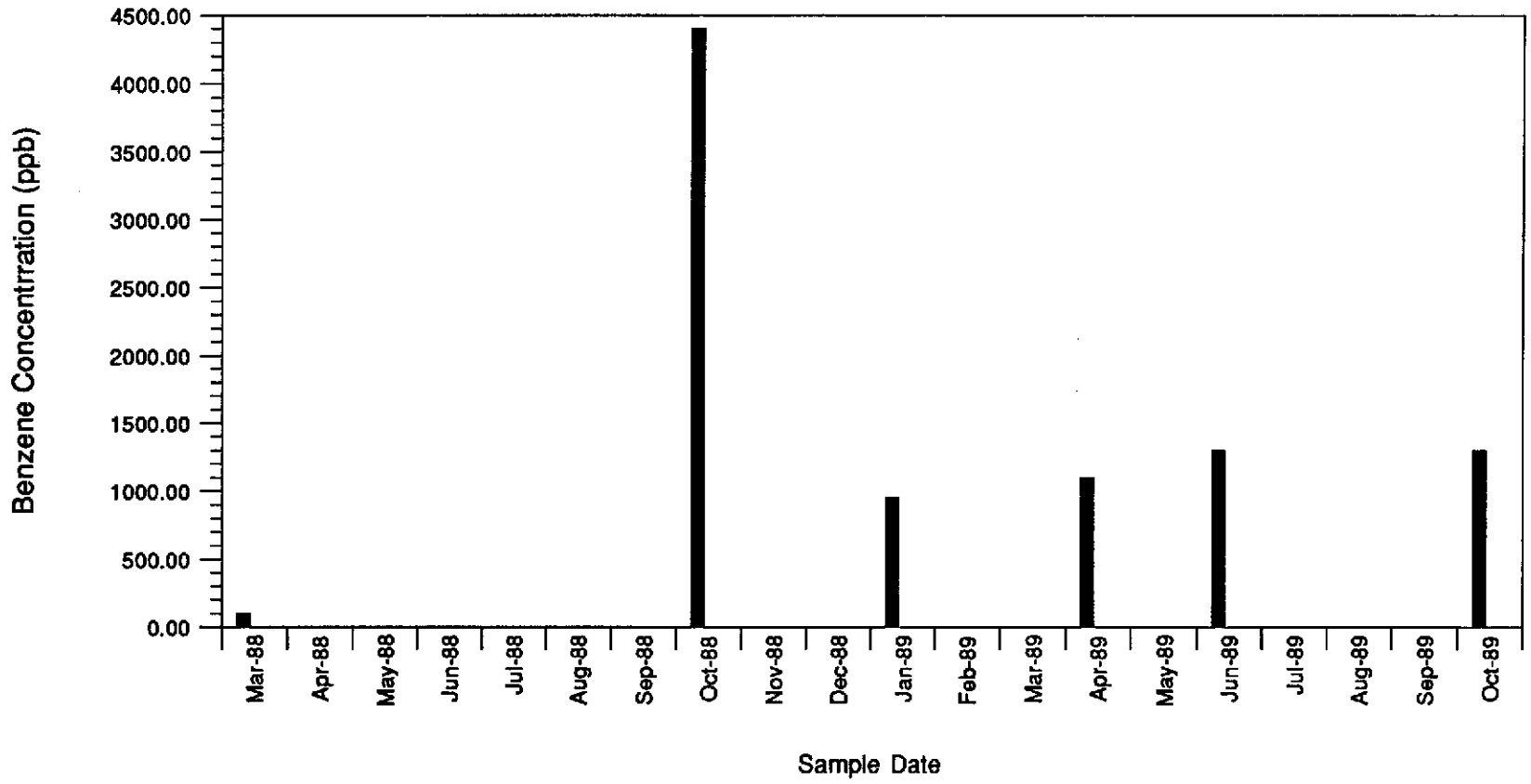
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

GROUNDWATER MONITOR WELL C-7

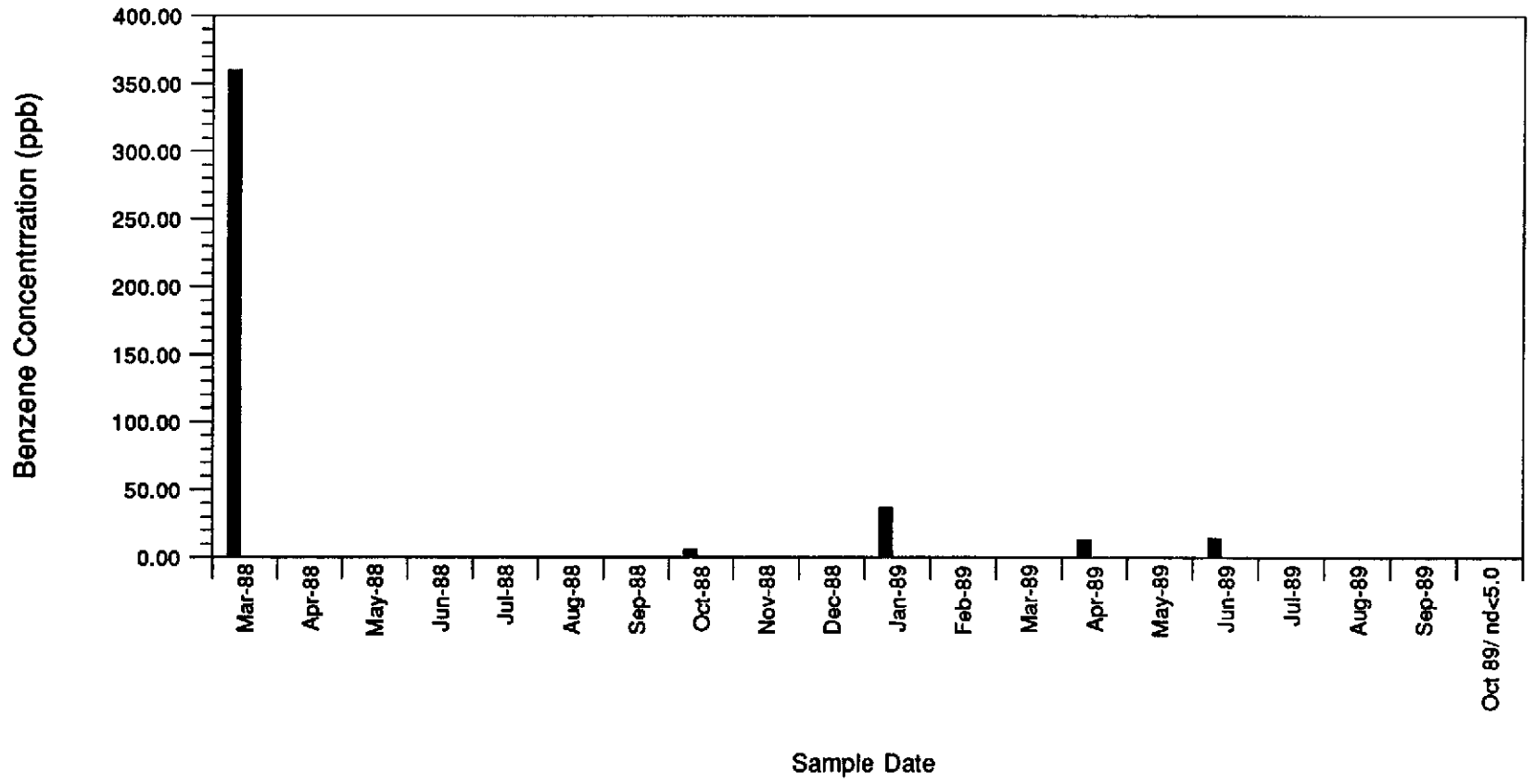
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

GROUNDWATER MONITOR WELL C-8

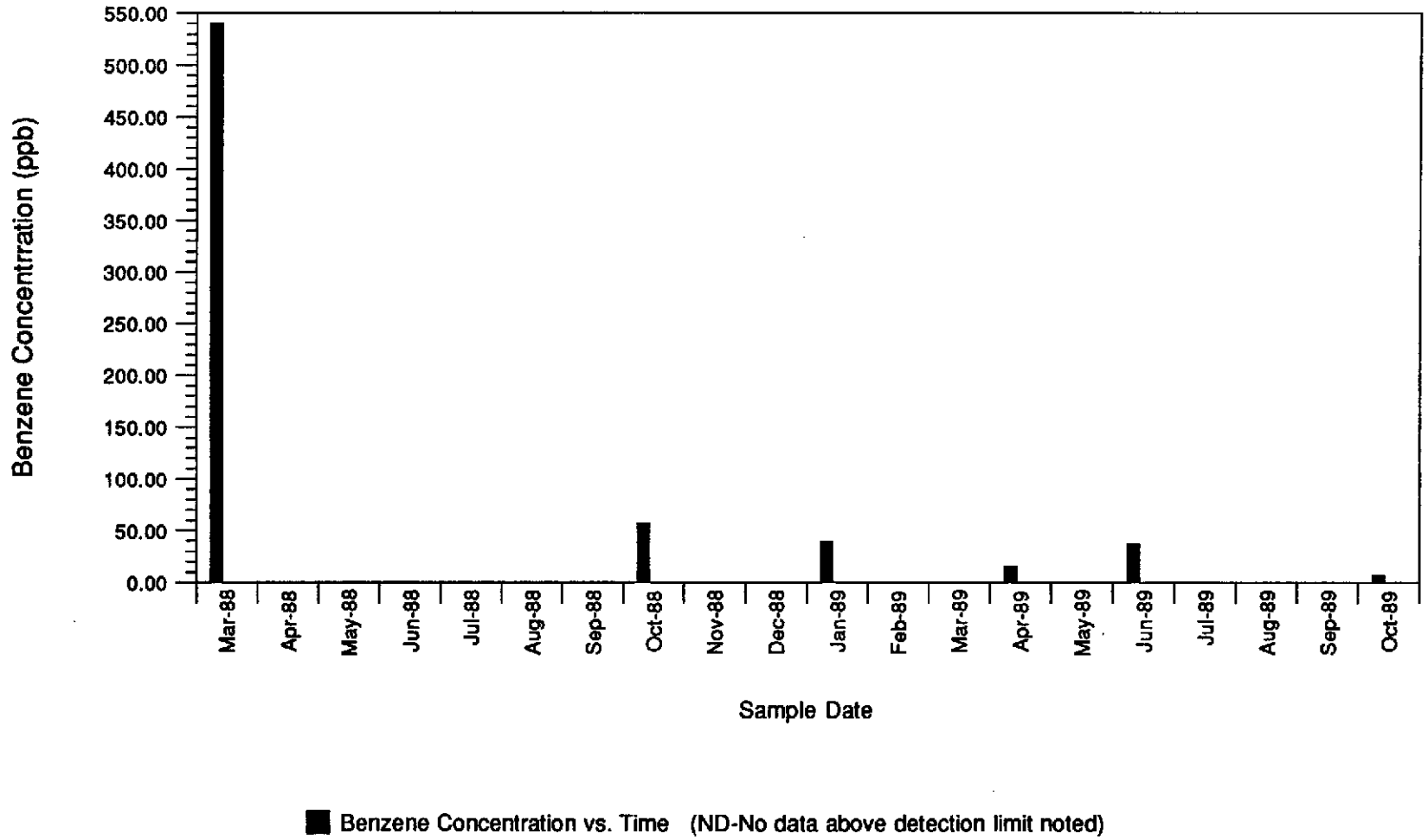
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

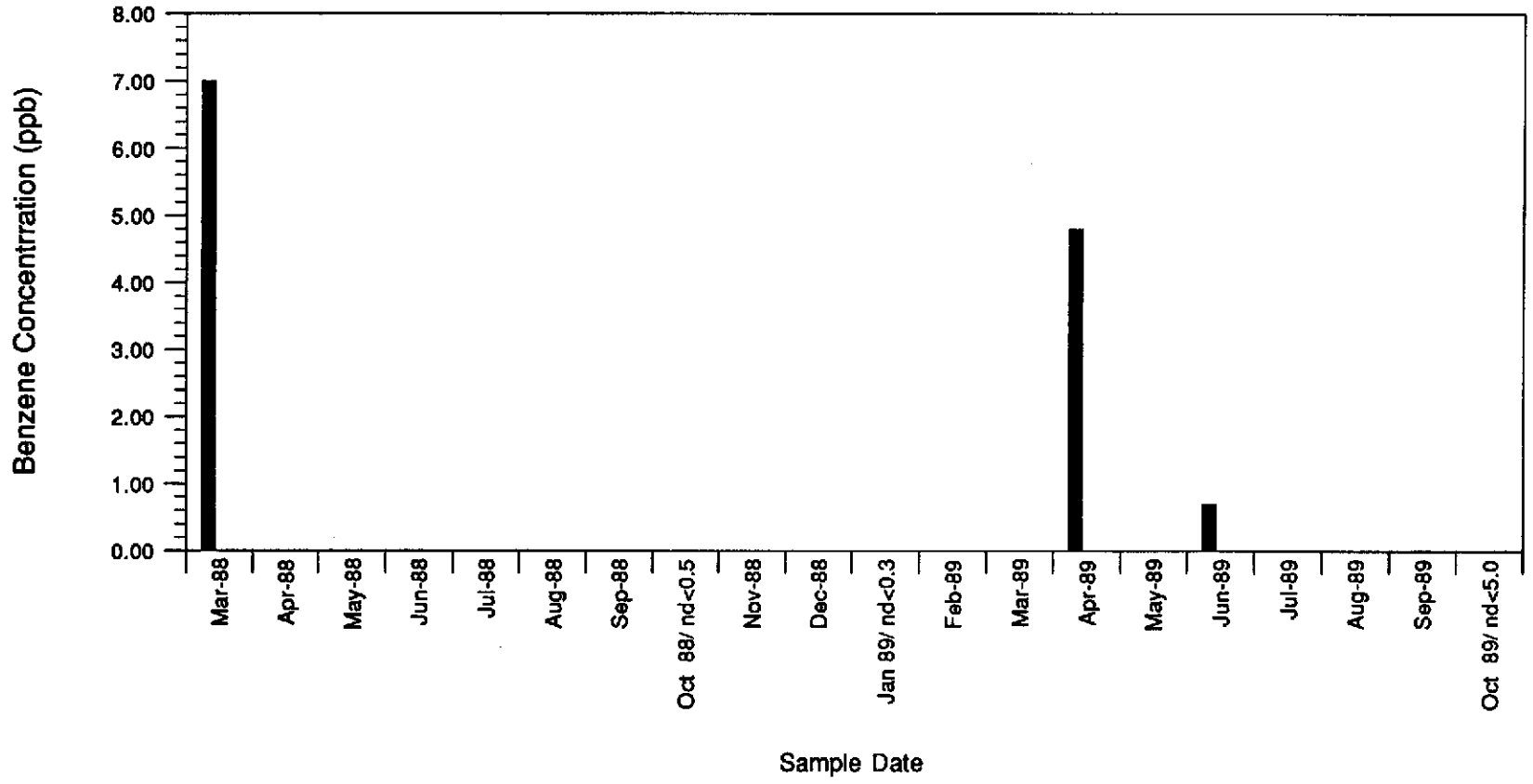
GROUNDWATER MONITOR WELL C-9

Chevron Service Station #91924 Livermore, California



GROUNDWATER MONITOR WELL C-10

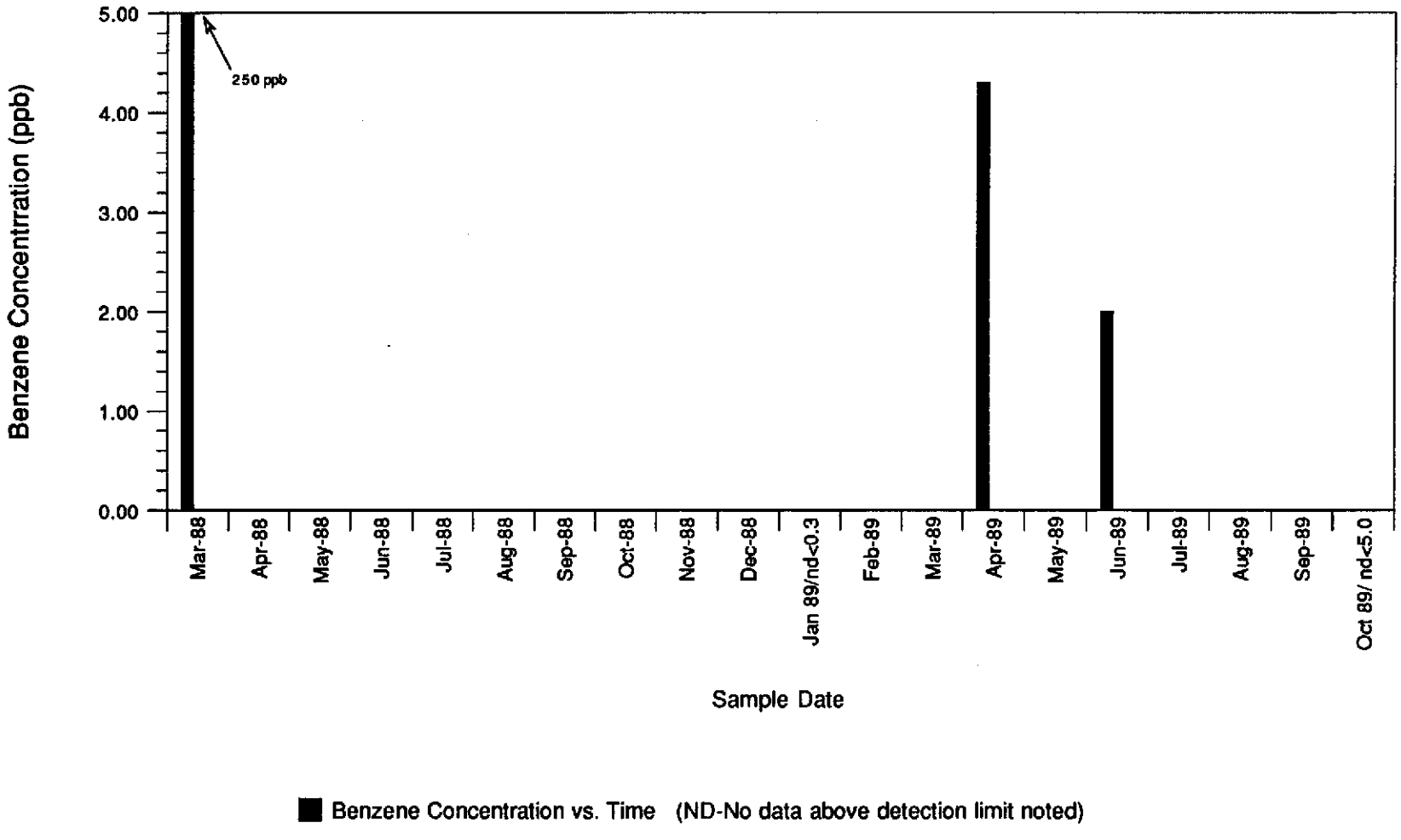
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

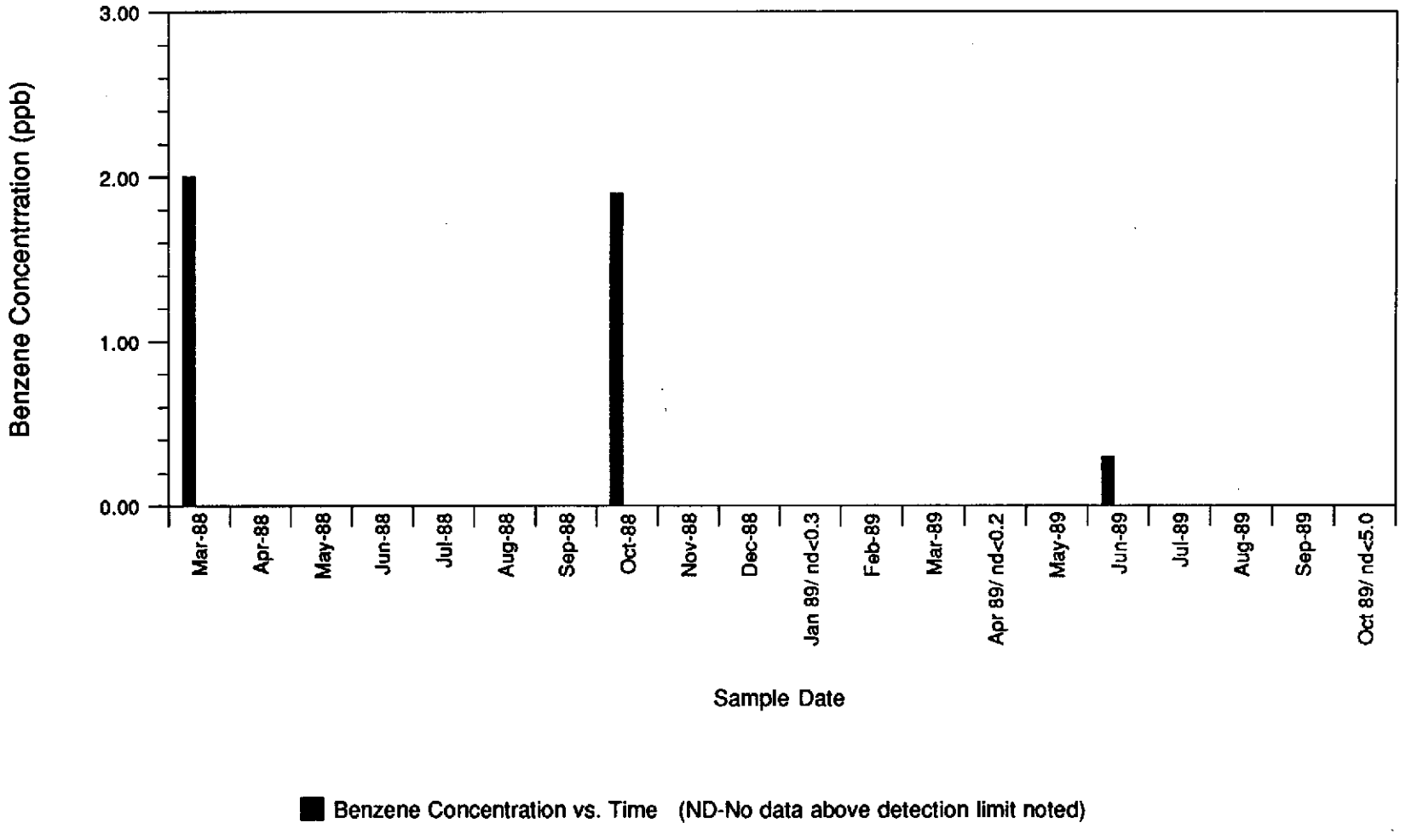
GROUNDWATER MONITOR WELL C-11

Chevron Service Station #91924 Livermore, California



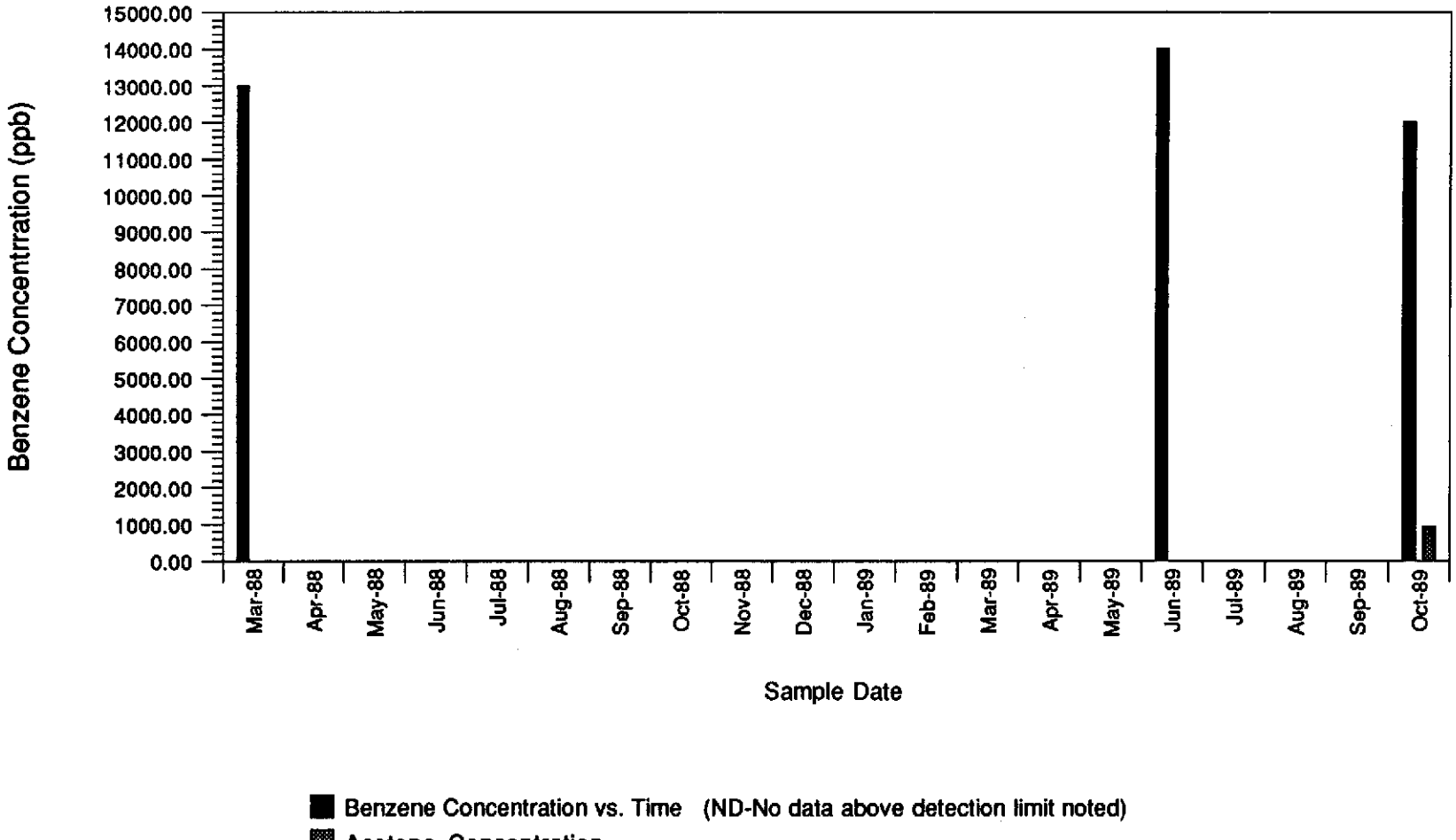
GROUNDWATER MONITOR WELL C-13

Chevron Service Station #91924 Livermore, California



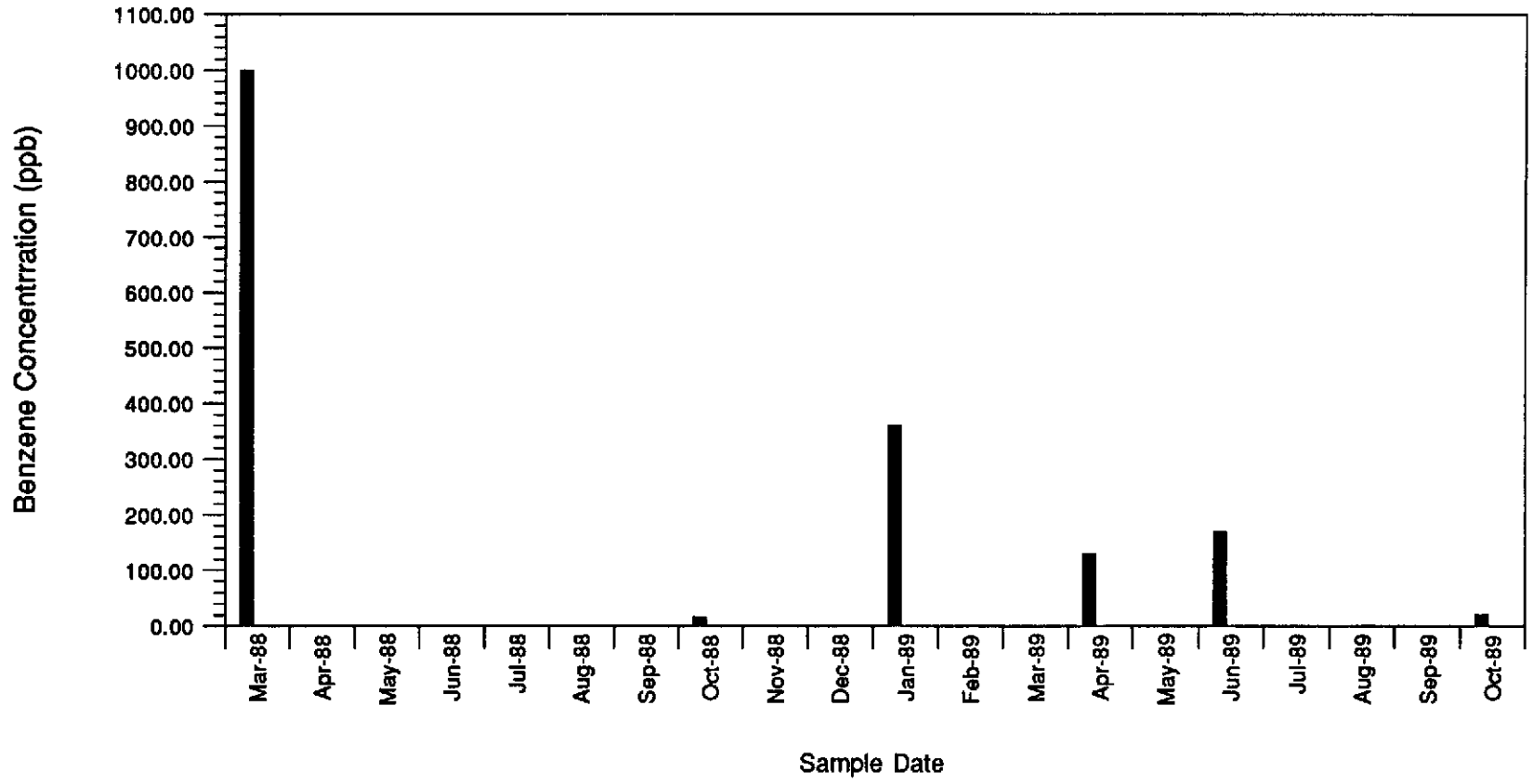
GROUNDWATER MONITOR WELL C-14

Chevron Service Station #91924 Livermore, California



GROUNDWATER MONITOR WELL C-16

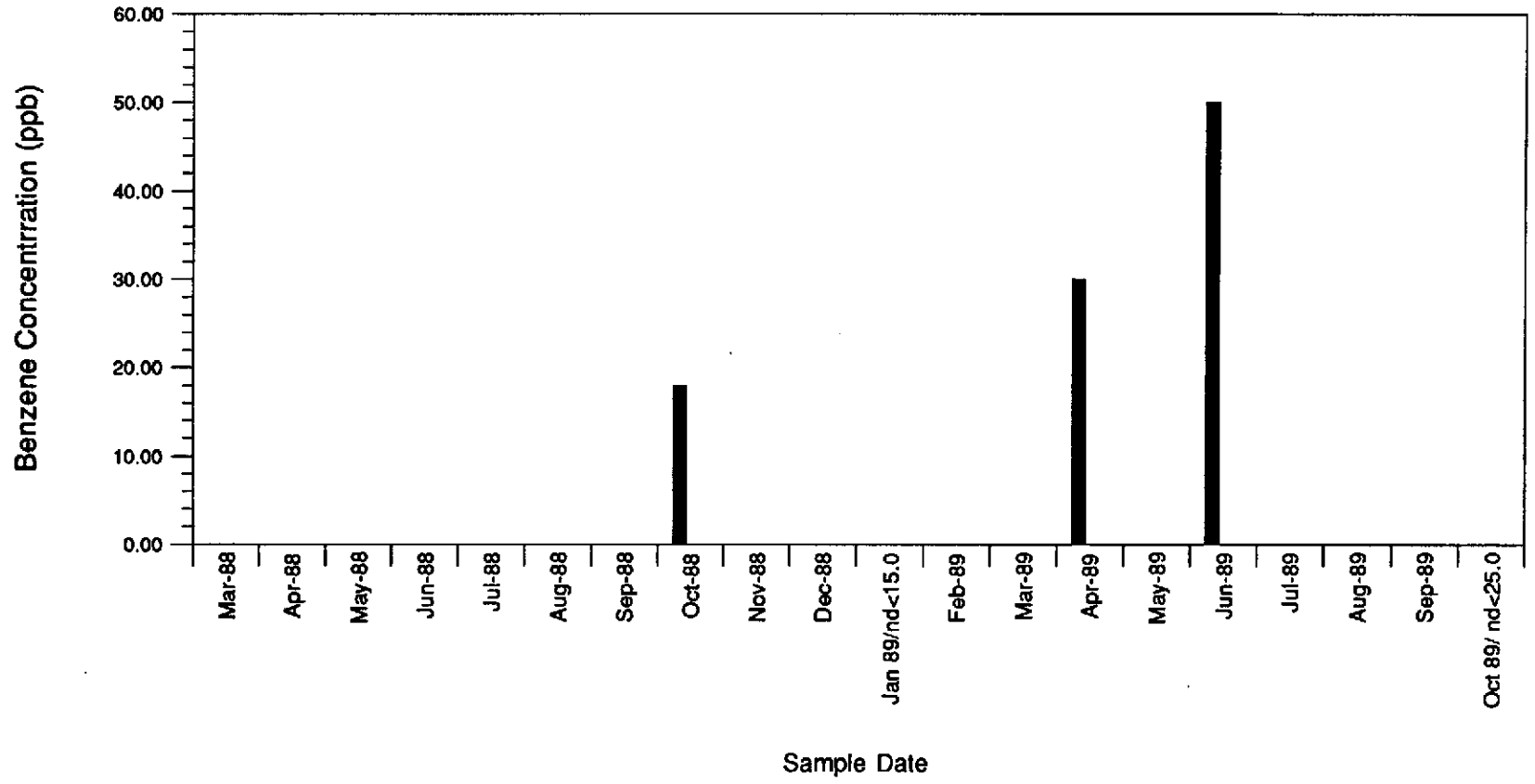
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

GROUNDWATER MONITOR WELL C-17

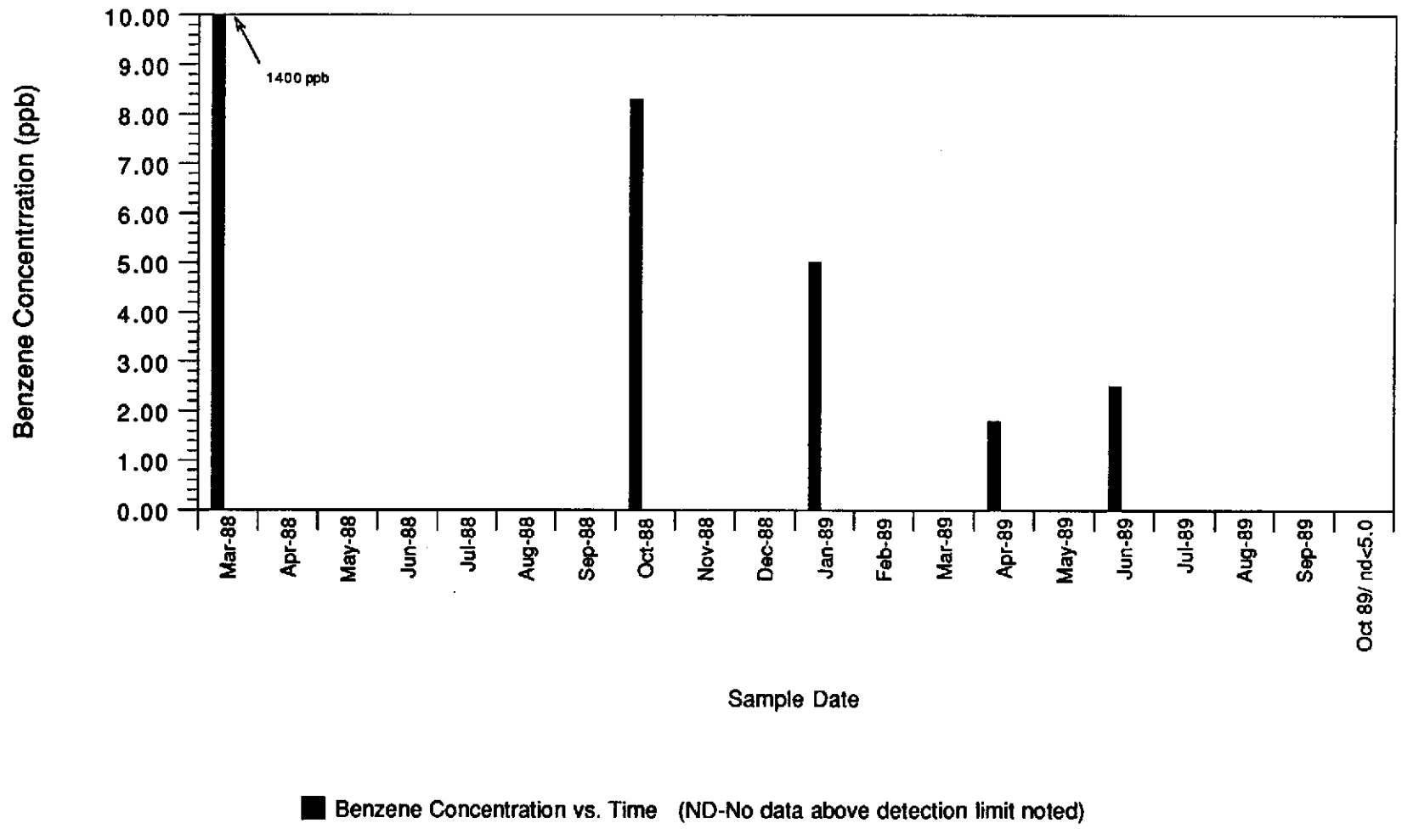
Chevron Service Station #91924 Livermore, California



Benzene Concentration vs. Time (ND-No data above detection limit noted)

GROUNDWATER MONITOR WELL C-19

Chevron Service Station #91924 Livermore, California



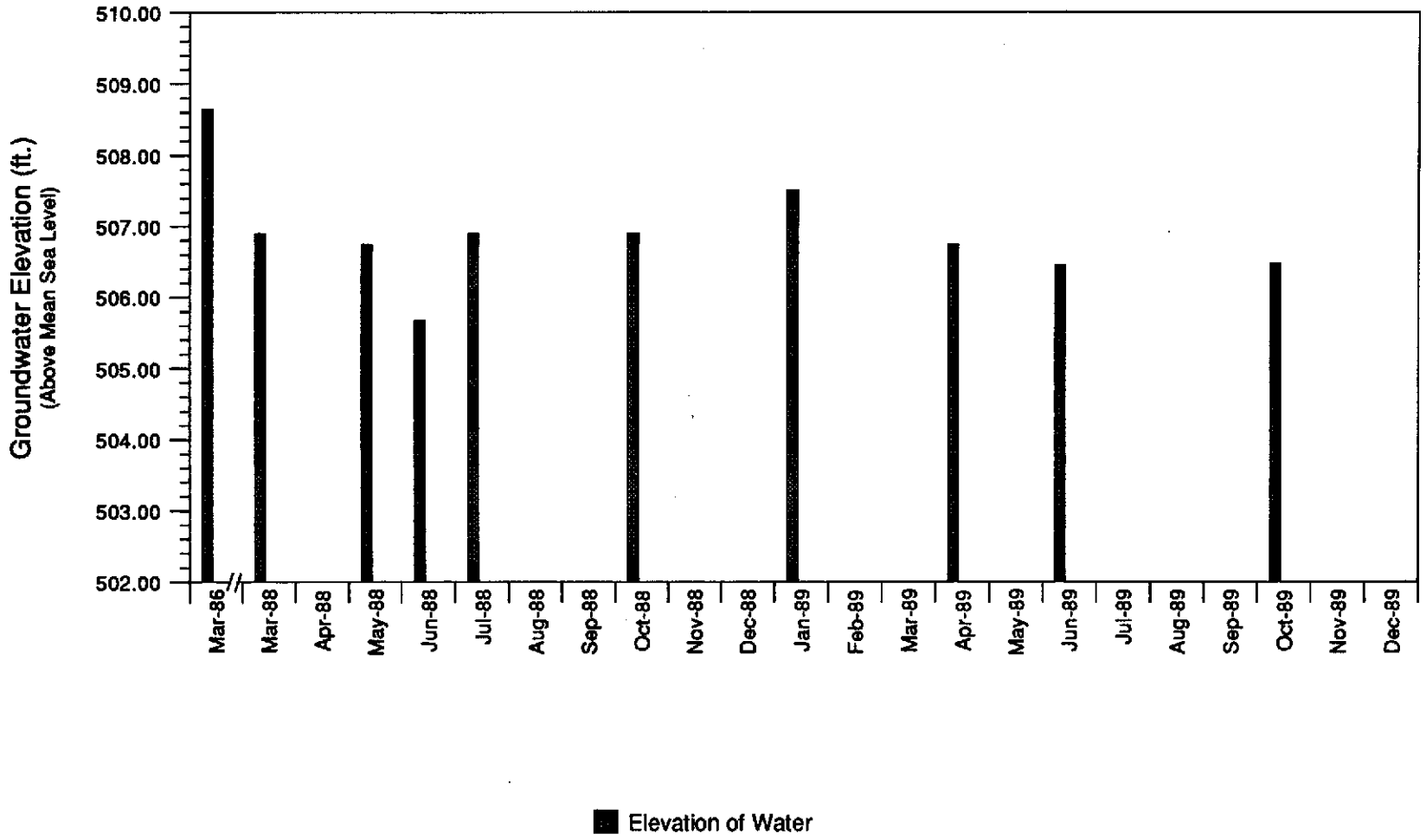
Benzene Concentration vs. Time (ND-No data above detection limit noted)

APPENDIX E

HYDROGRAPHS FOR ALL MONITOR WELLS

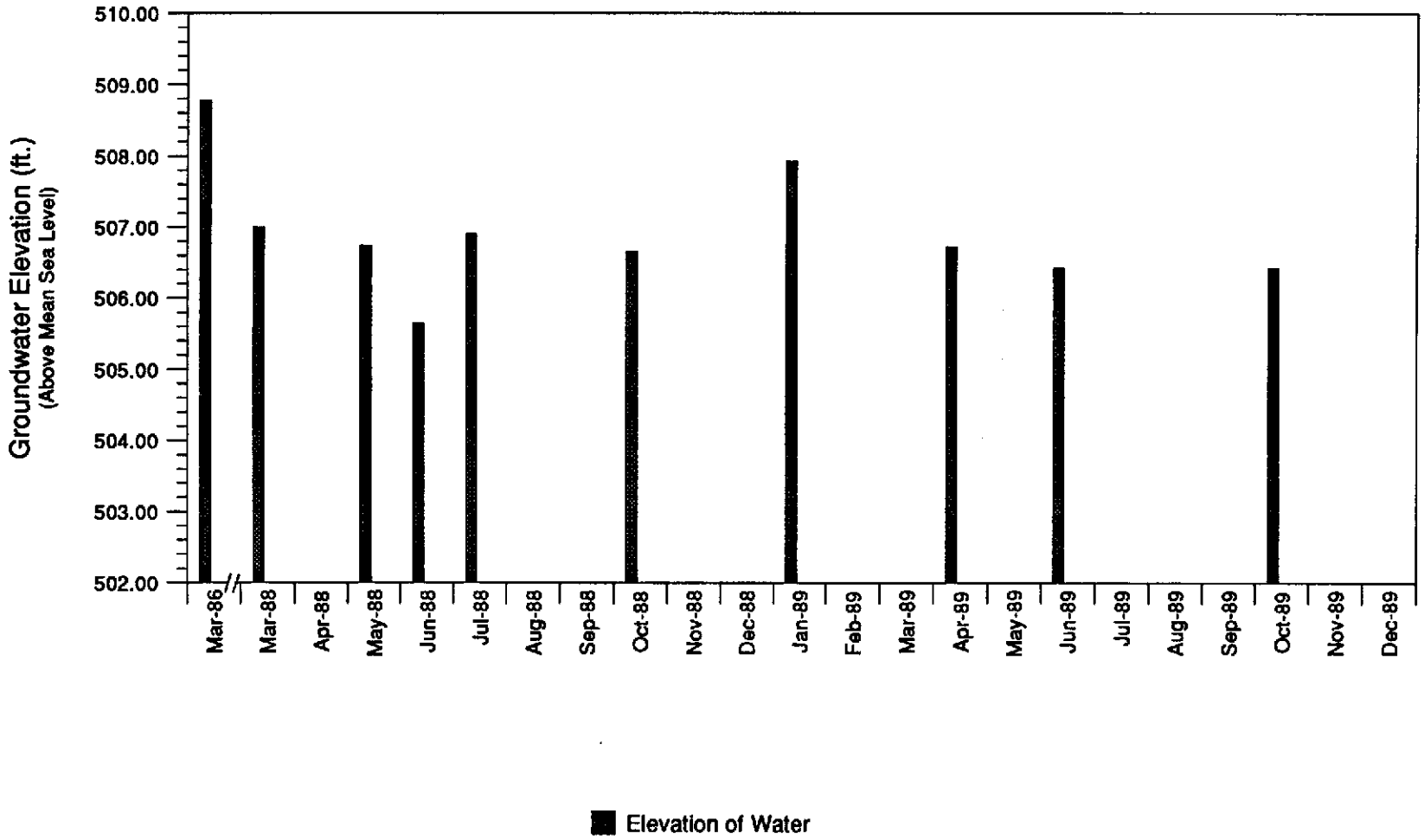
GROUNDWATER MONITOR WELL C-1

Chevron Service Station #91924 Livermore, California



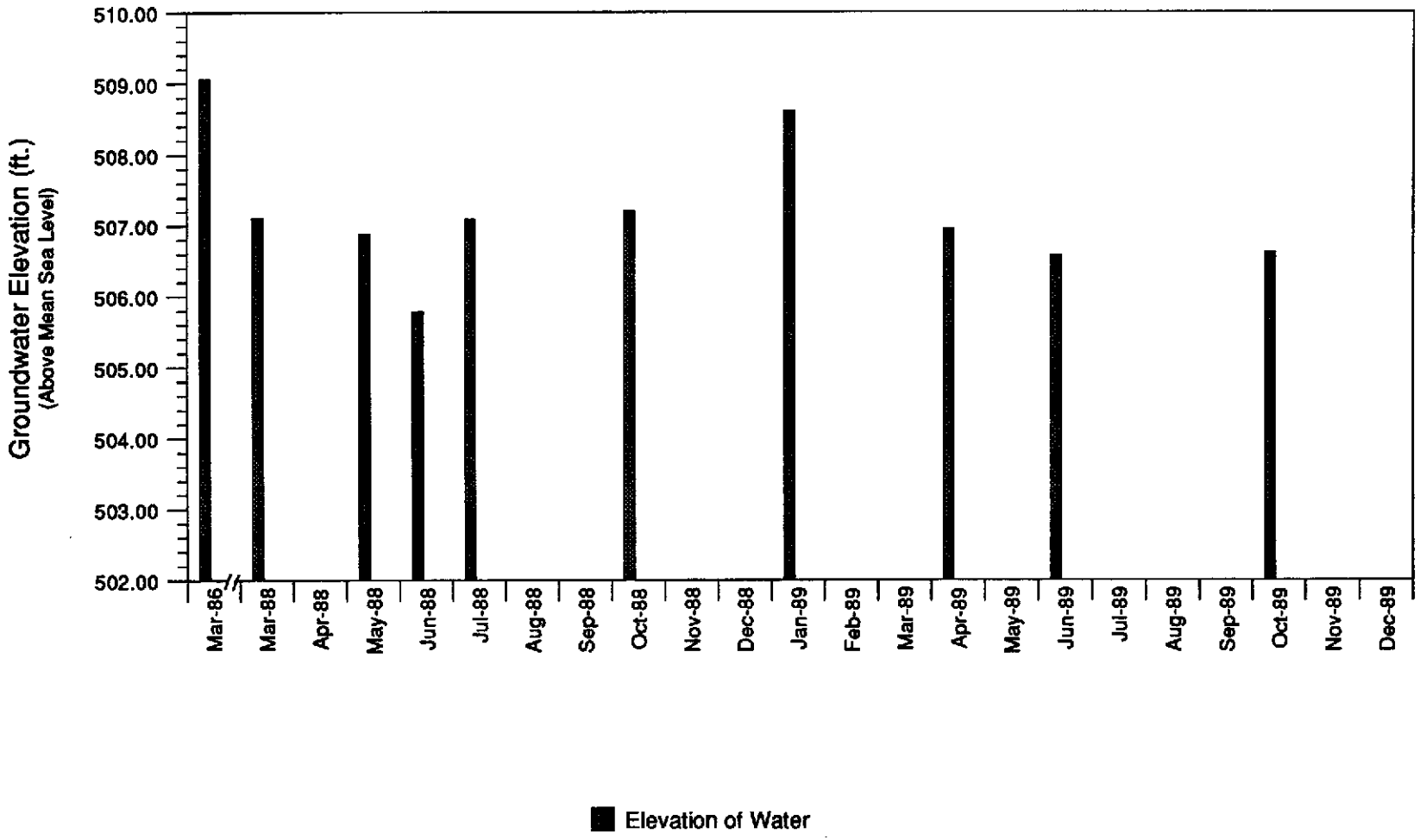
GROUNDWATER MONITOR WELL C-2

Chevron Service Station #91924 Livermore, California



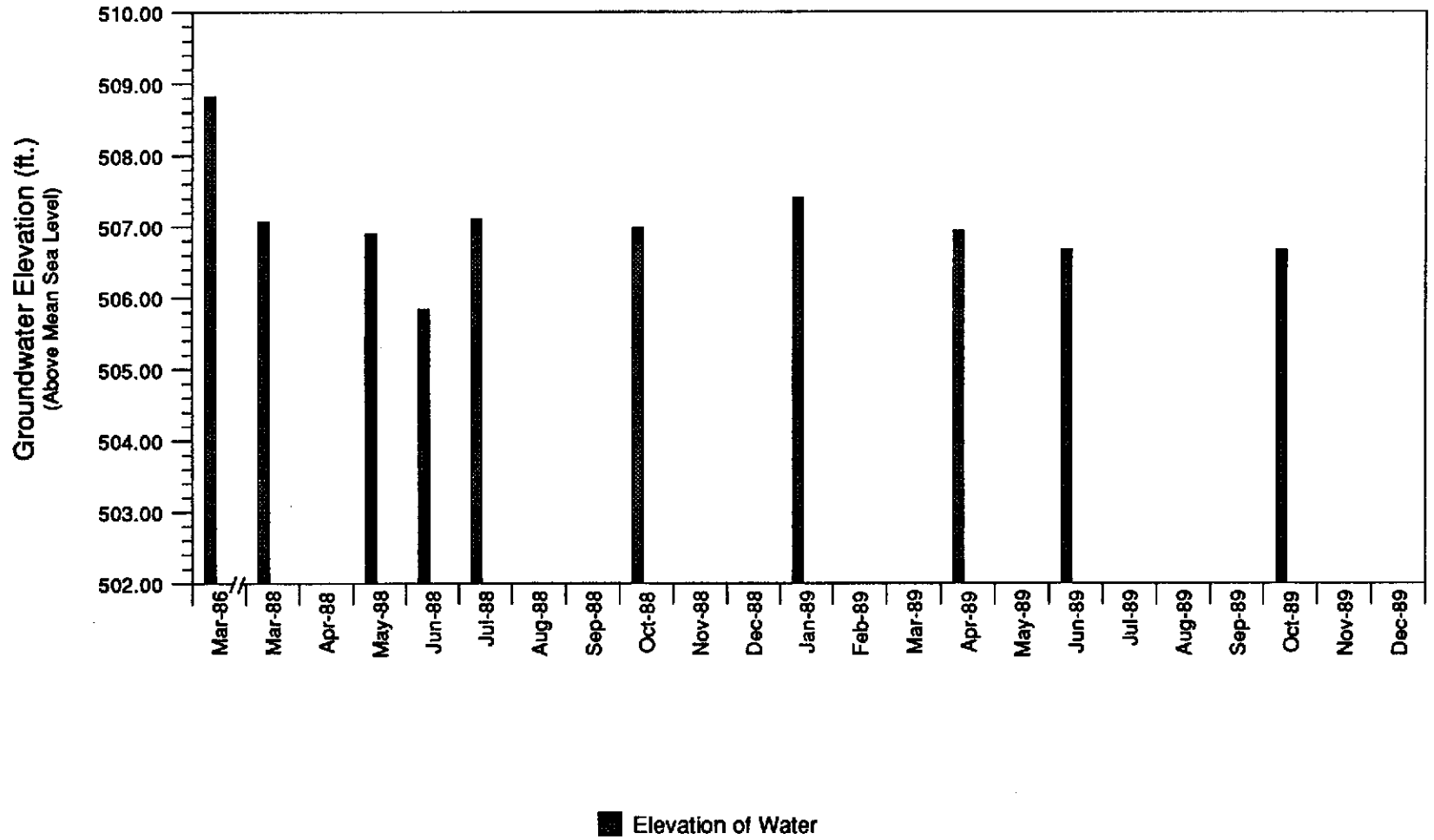
GROUNDWATER MONITOR WELL C-3

Chevron Service Station #91924 Livermore, California



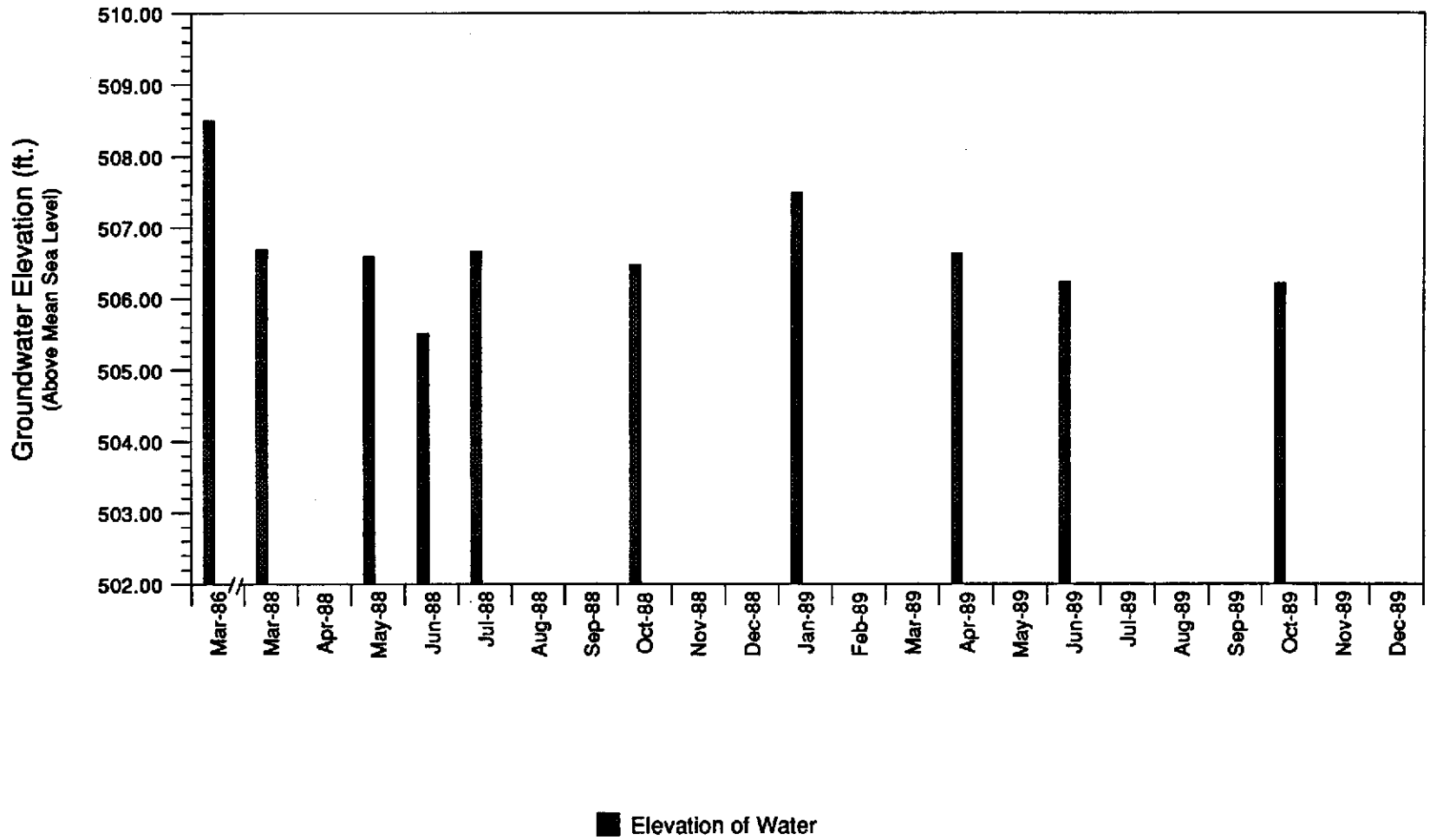
GROUNDWATER MONITOR WELL C-5

Chevron Service Station #91924 Livermore, California



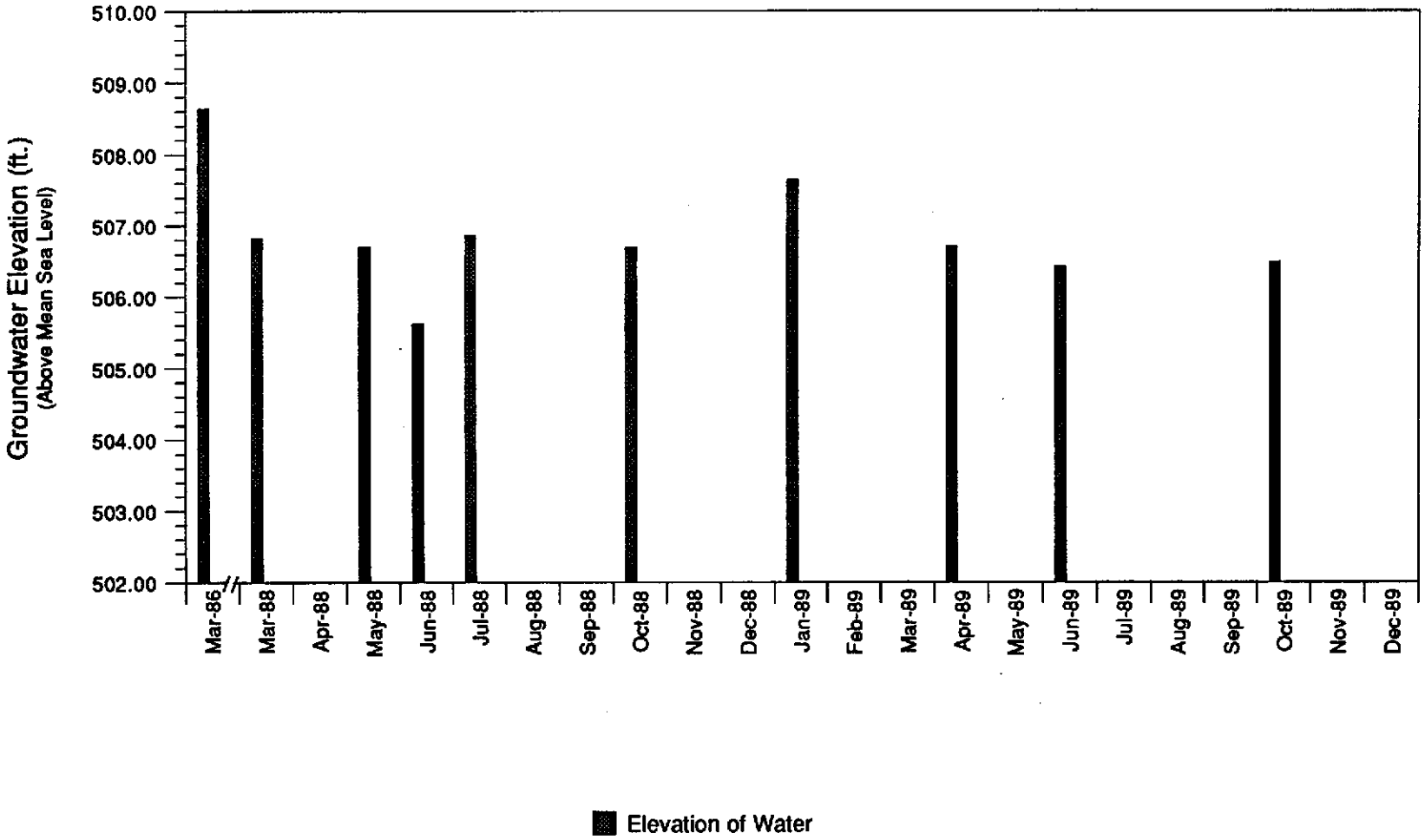
GROUNDWATER MONITOR WELL C-6

Chevron Service Station #91924 Livermore, California



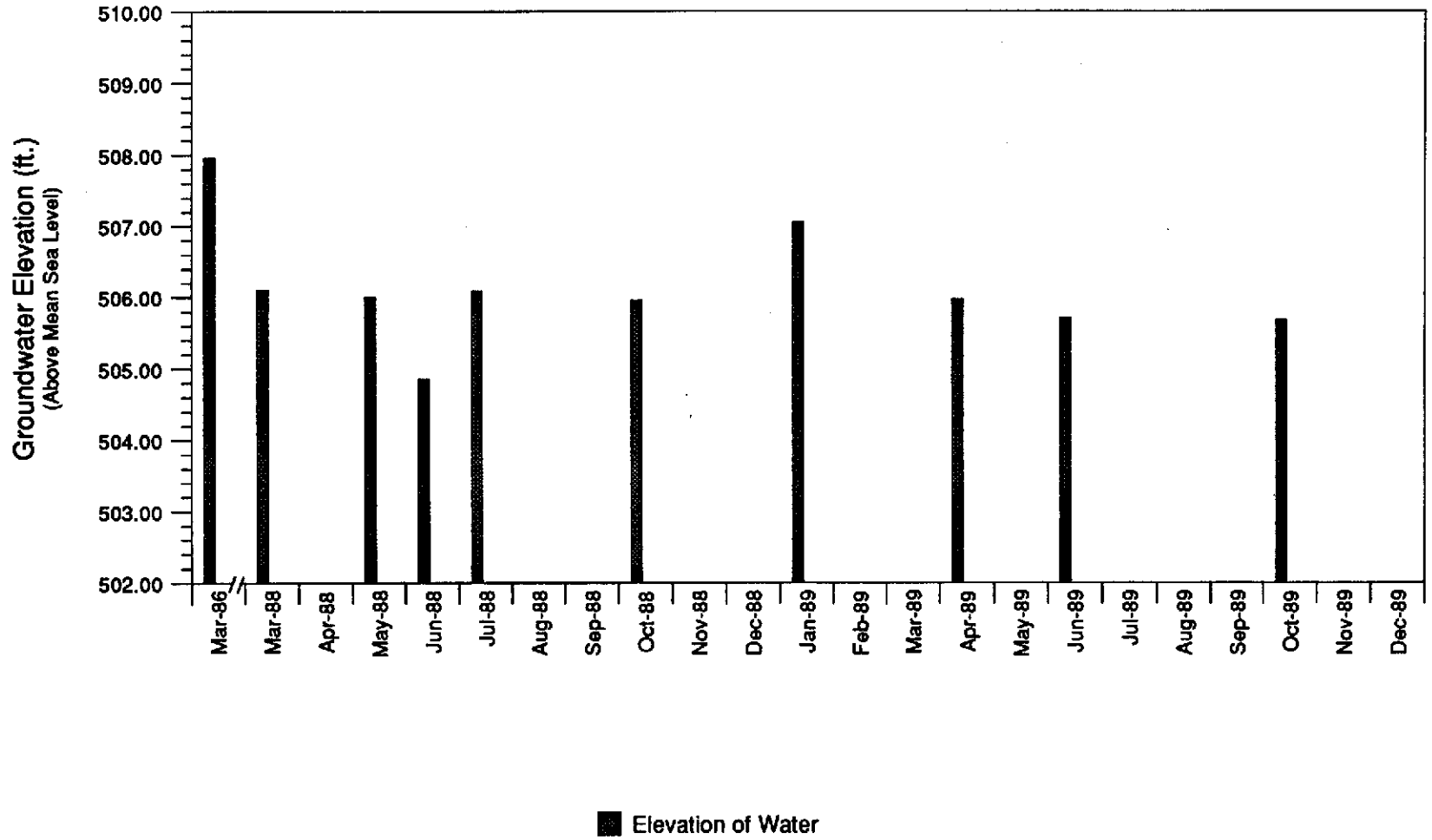
GROUNDWATER MONITOR WELL C-7

Chevron Service Station #91924 Livermore, California



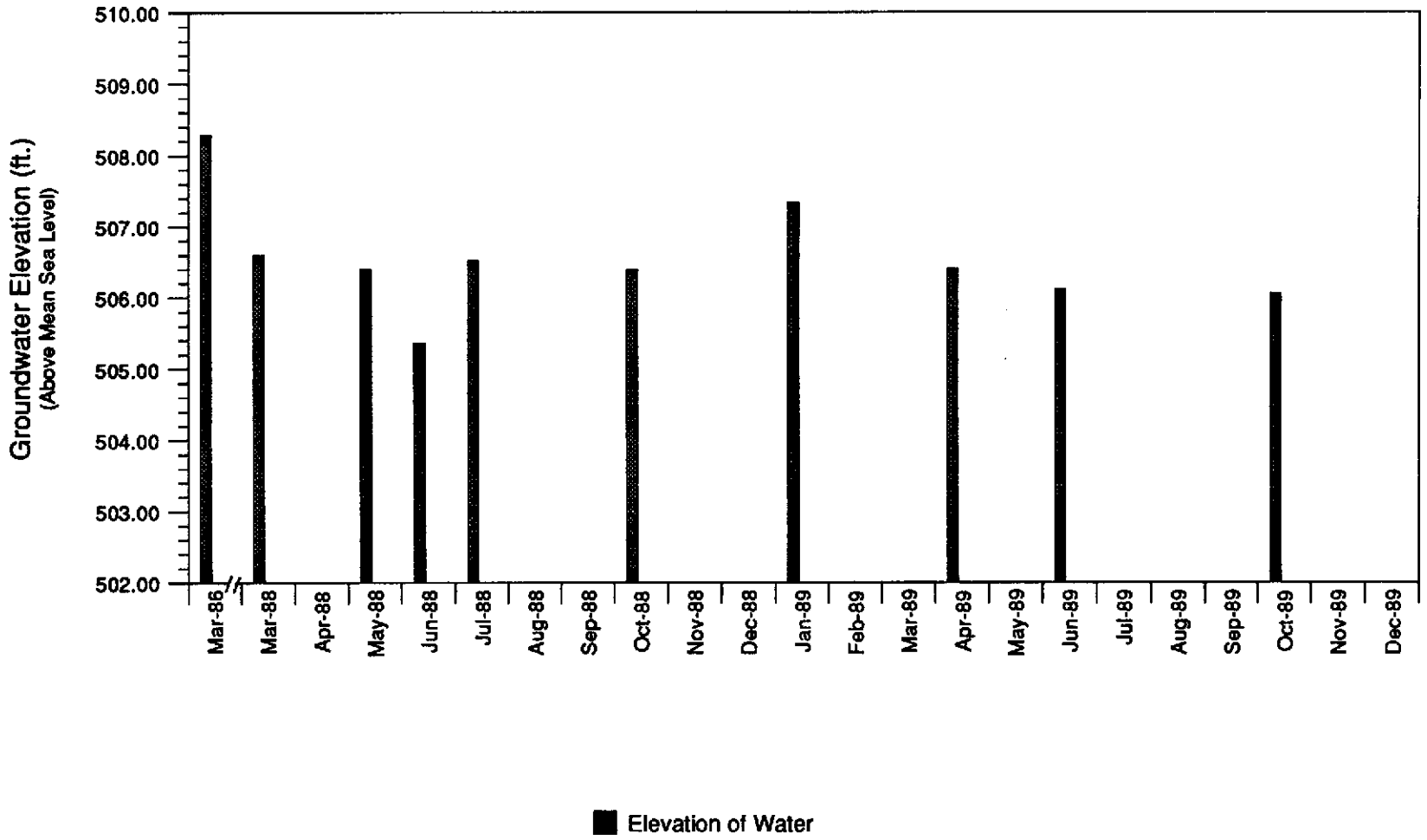
GROUNDWATER MONITOR WELL C-8

Chevron Service Station #91924 Livermore, California



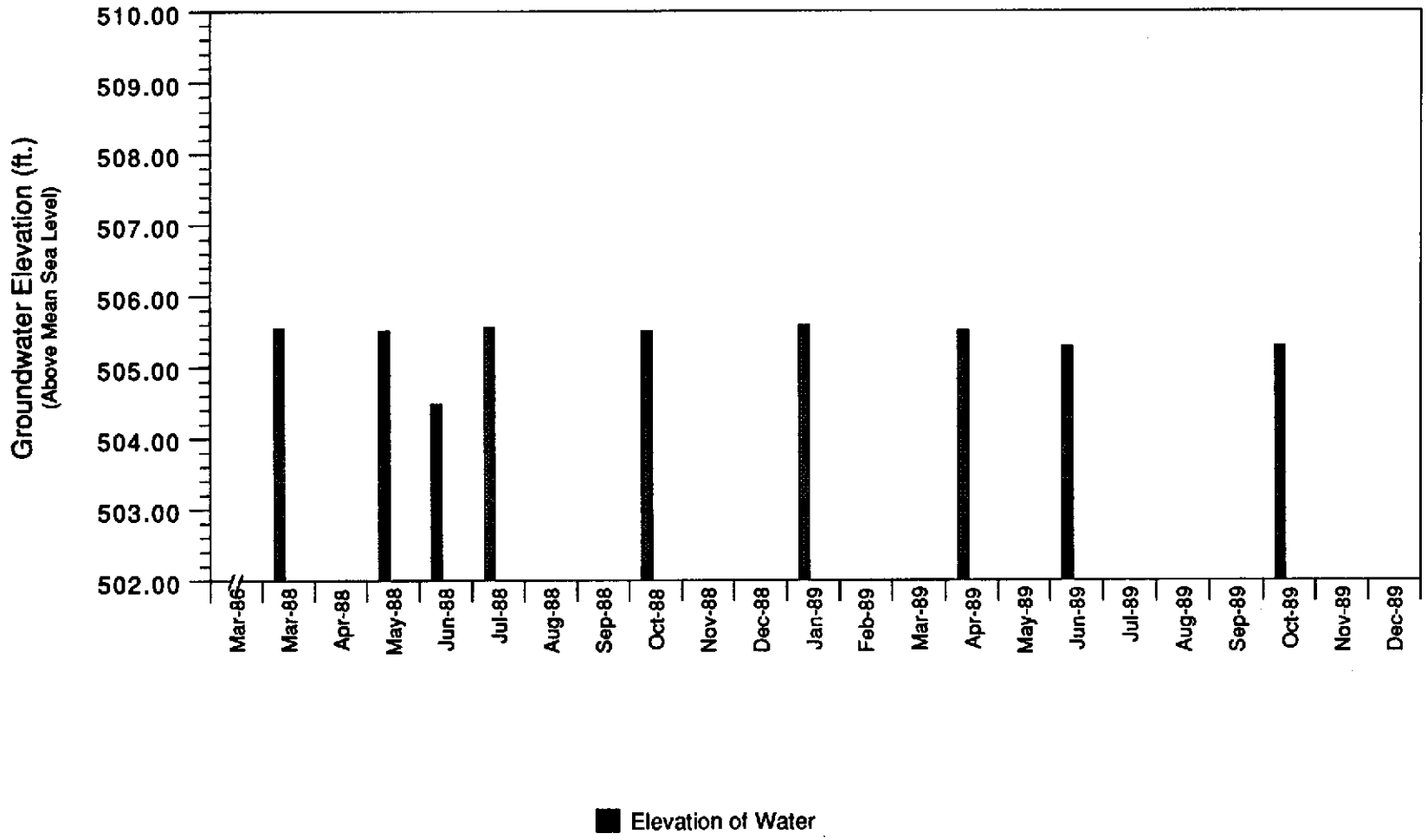
GROUNDWATER MONITOR WELL C-9

Chevron Service Station #91924 Livermore, California



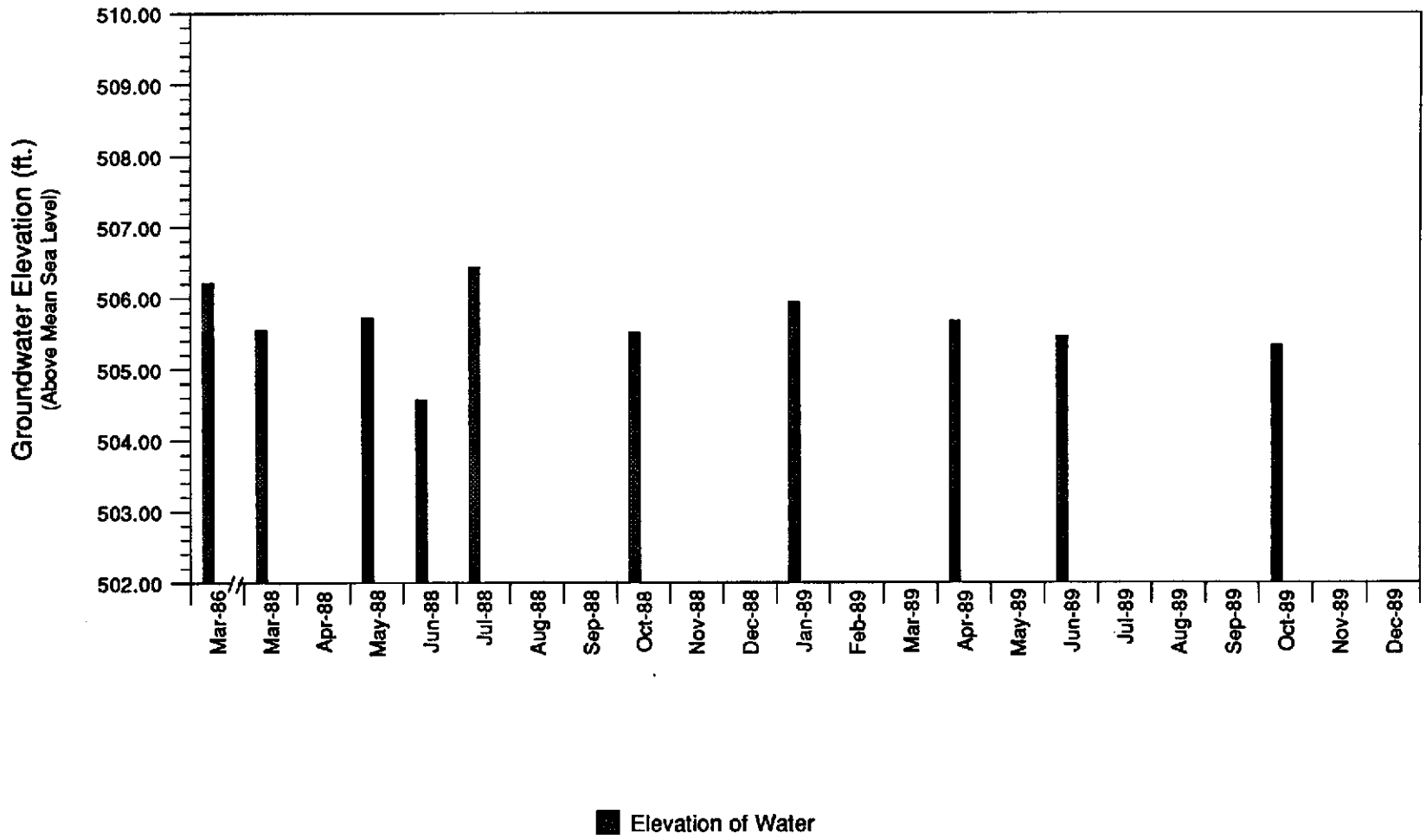
GROUNDWATER MONITOR WELL C-10

Chevron Service Station #91924 Livermore, California



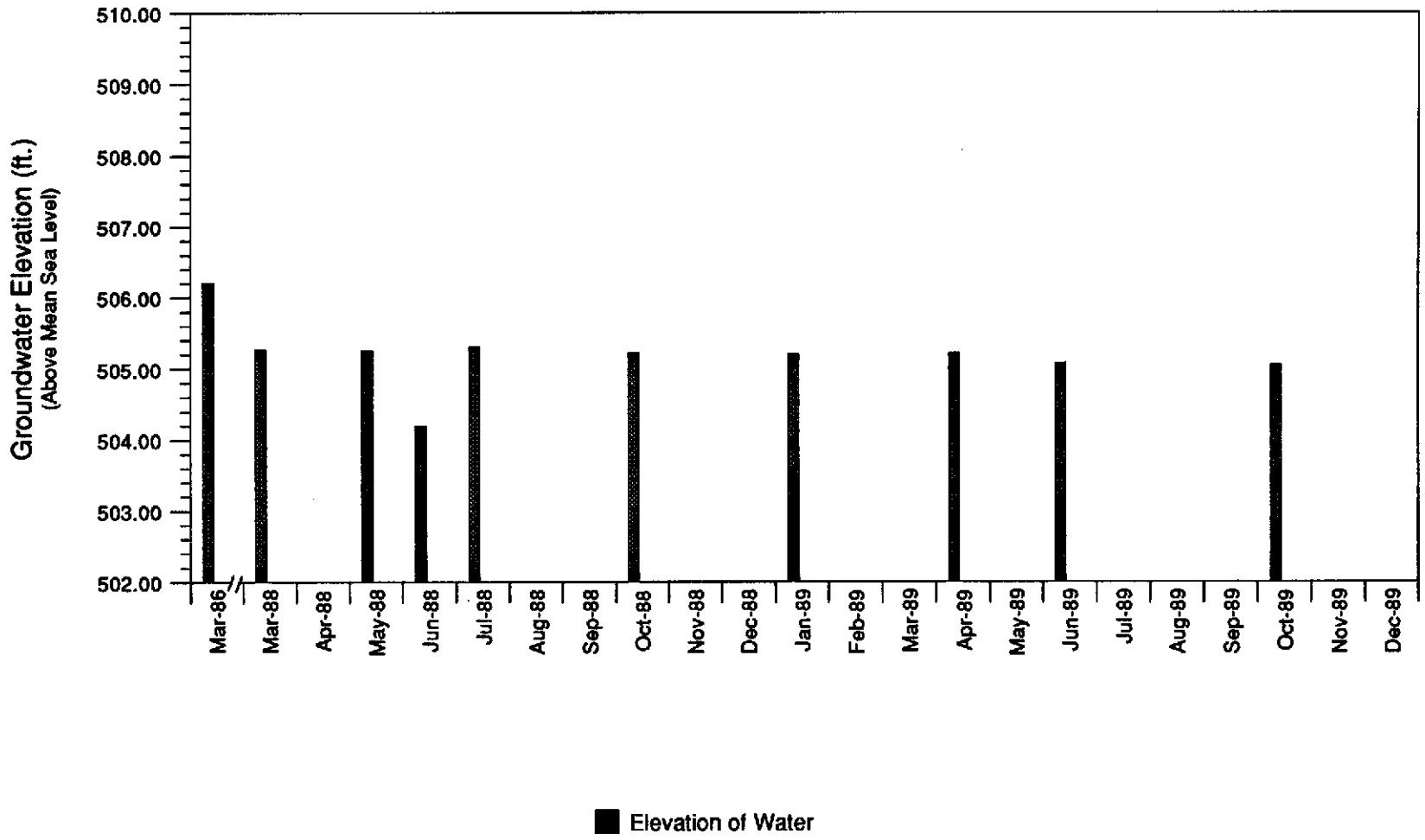
GROUNDWATER MONITOR WELL C-11

Chevron Service Station #91924 Livermore, California



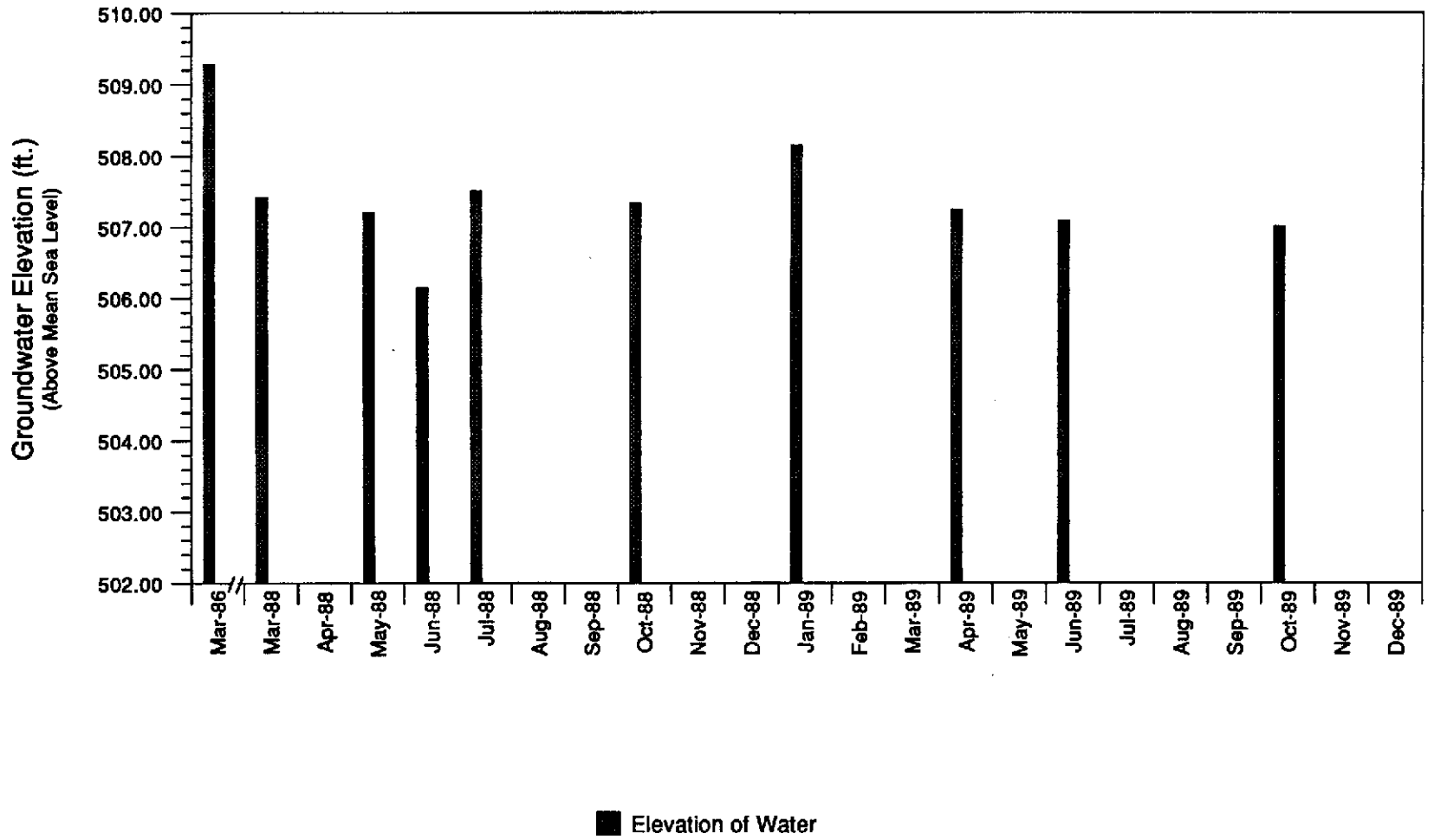
GROUNDWATER MONITOR WELL C-12

Chevron Service Station #91924 Livermore, California



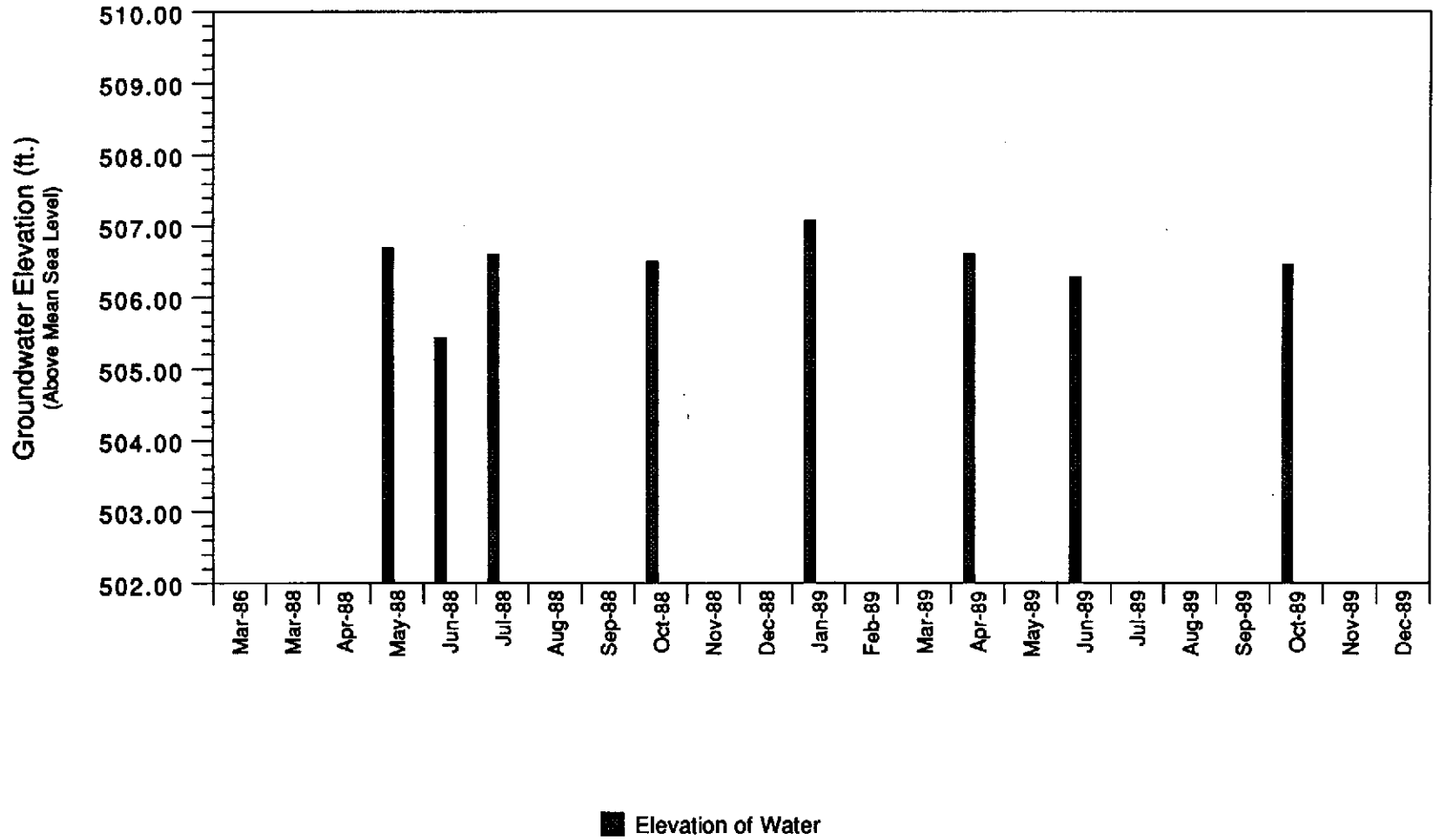
GROUNDWATER MONITOR WELL C-13

Chevron Service Station #91924 Livermore, California



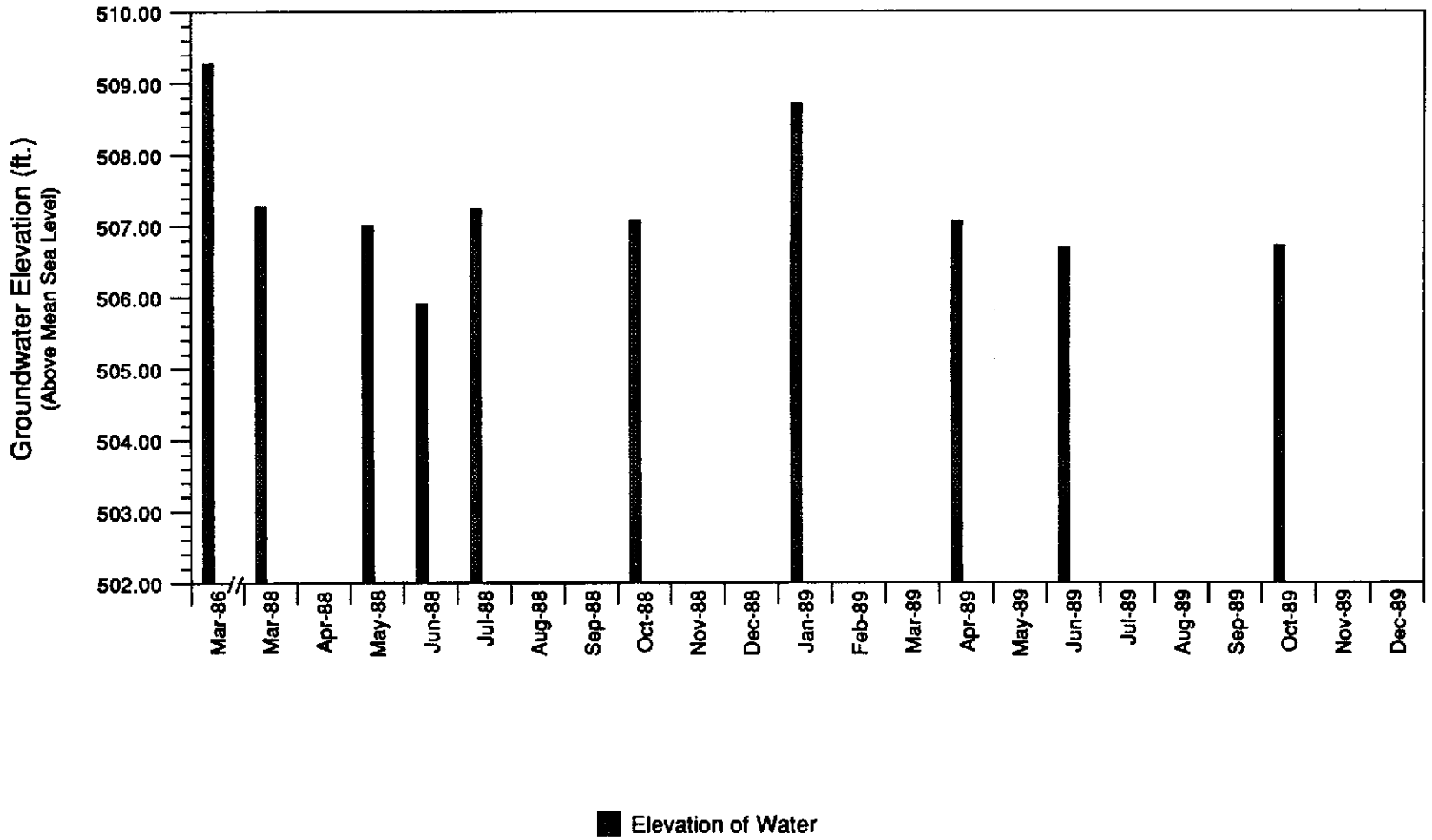
GROUNDWATER MONITOR WELL C-14

Chevron Service Station #91924 Livermore, California



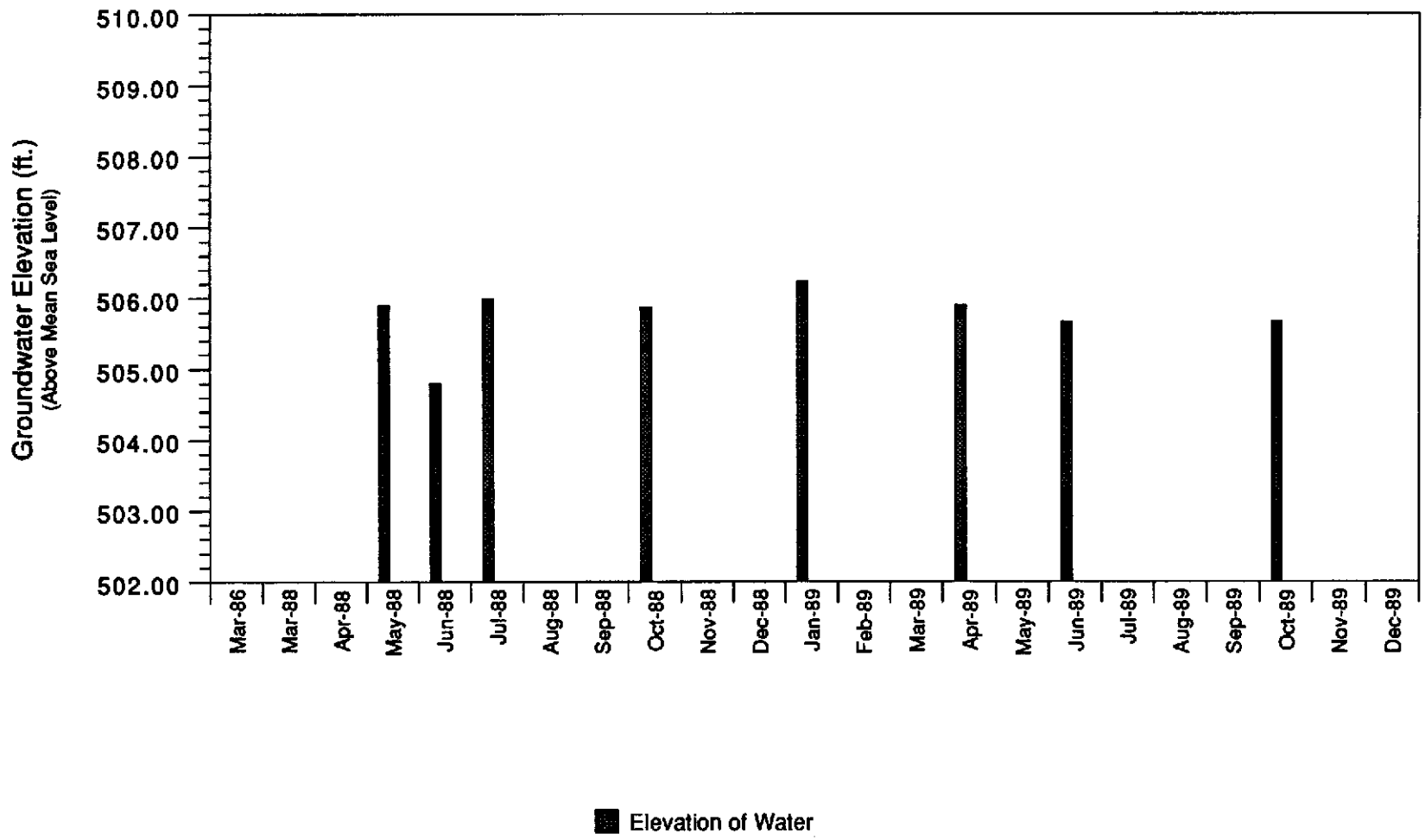
GROUNDWATER MONITOR WELL C-15

Chevron Service Station #91924 Livermore, California



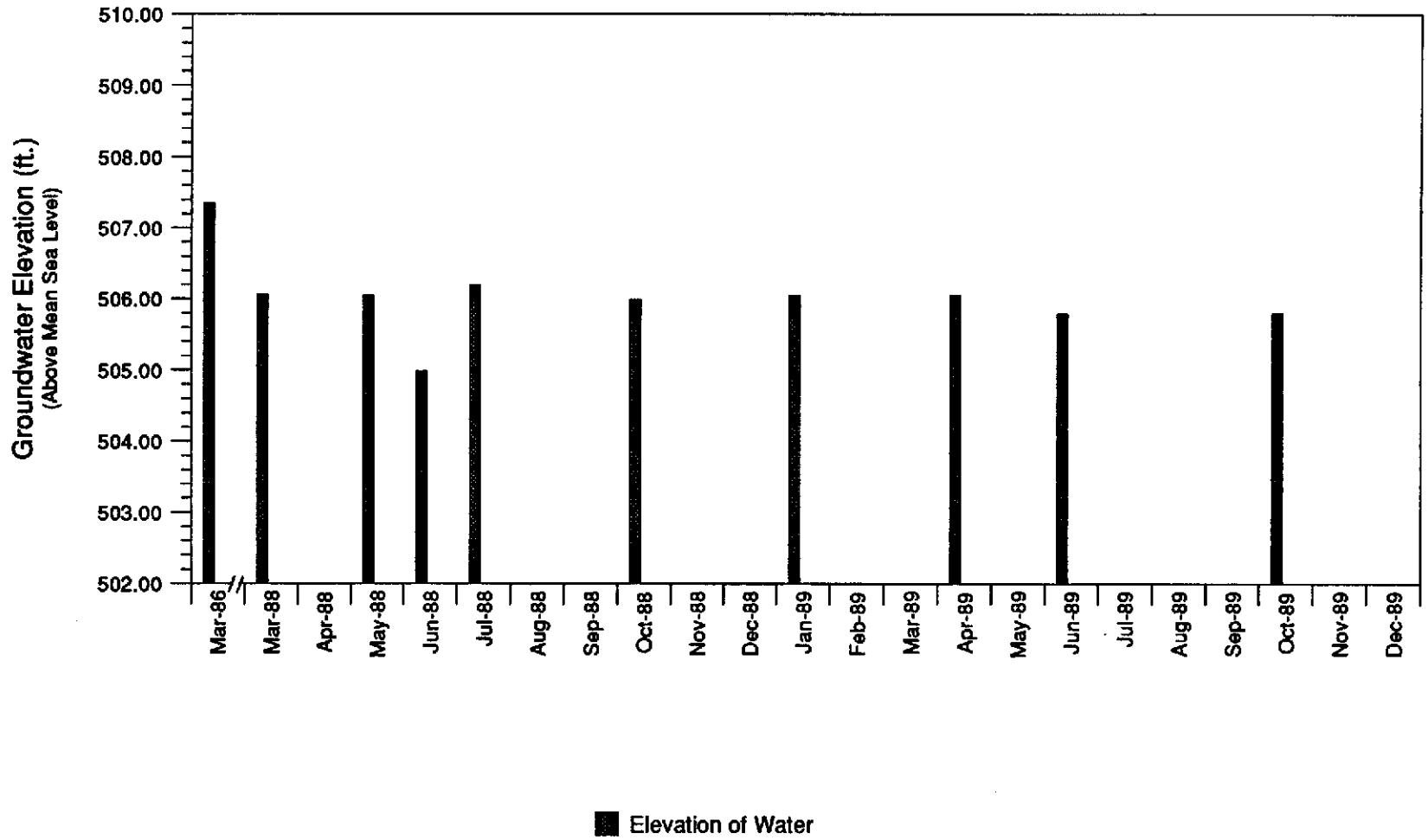
GROUNDWATER MONITOR WELL C-16

Chevron Service Station #91924 Livermore, California



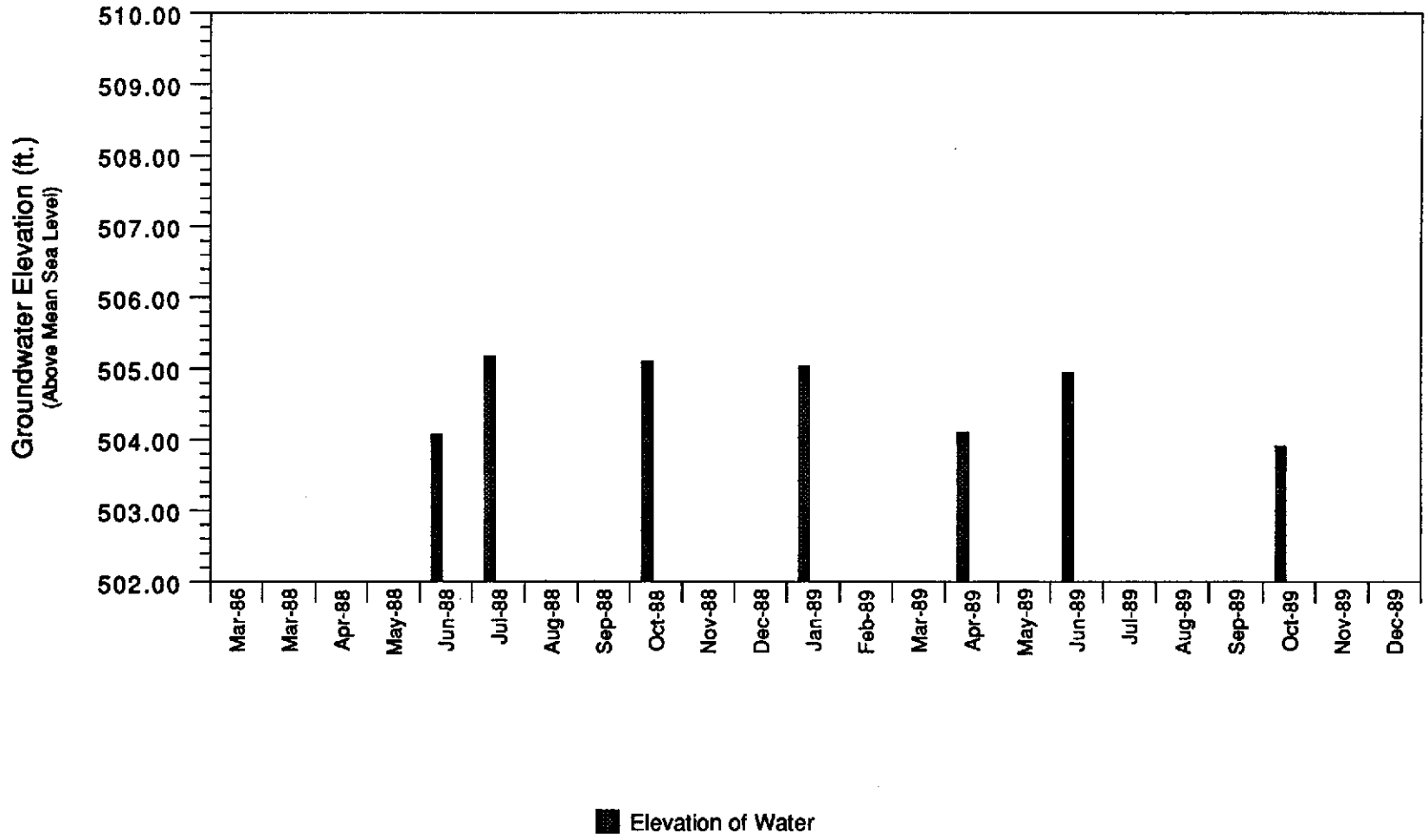
GROUNDWATER MONITOR WELL C-17

Chevron Service Station #91924 Livermore, California



GROUNDWATER MONITOR WELL C-18

Chevron Service Station #91924 Livermore, California



GROUNDWATER MONITOR WELL C-19

Chevron Service Station #91924 Livermore, California