



Chevron U.S.A. Inc.

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90 JUN 28 PM 12:07

Marketing Operations

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

June 26, 1990

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

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

Dear Mr. Shahid:

Enclosed we are forwarding the Quarterly Groundwater Sampling report dated June 12, 1990, conducted by our consultant Western Geologic Resources, Inc., at the above referenced site.

The groundwater extraction system and treatment system is in operation. We will keep you apprised of our recovery progress.

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) 842-9581.

Very truly yours,

C. G. Trimbach

NLV/jmr
Enclosure

By 
Nancy Vukelich

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



WESTERN GEOLOGIC RESOURCES INC.

2169 E. FRANCISCO BLVD., SUITE B / SAN RAFAEL
CALIFORNIA 94901 / FAX 415.457.8521
TELE 415.457.7595

JUN 18 '90

12 June 1990

Mr. John Randall
Chevron USA
2410 Camino Ramon
San Ramon, California 94583

Re: Quarterly Groundwater Monitoring
Sampled May 1990
Chevron Service Station #91924
4904 Southfront Road
Livermore, California
WGR Project #1-024.01

Dear Mr. Randall:

This letter report presents the results of the quarterly groundwater monitoring performed on 7 and 8 May 1990 by Western Geologic Resources, Inc. (WGR) at the subject site (Figure 1).

GROUNDWATER SAMPLING

On 7 and 8 May 1990, WGR staff measured depth-to-water and purged monitor wells C-1 through C-3 and C-5 through C-19 with dedicated sampling systems. Wells C-11 and C-14 were purged dry before three well-casing volumes could be evacuated and the wells were allowed to recover overnight. Monitor wells C-11 and C-14 were sampled after recovering to 18% and 60% of their original static water levels, respectively. The other wells were sampled after three well-casing volumes were evacuated. All groundwater samples were collected according to the WGR standard operating procedure for groundwater sampling included as Attachment A; field sampling and monitoring forms are included as Attachment B.

All purged water was temporarily stored on-site in 55-gallon drums pending analytic results. The groundwater samples and a laboratory-supplied travel blank, consisting of deionized water, were shipped under chain-of-custody to Pace Laboratories, Inc. (PACE) of Novato, California.

GROUNDWATER FLOW

Figure 2 shows the potentiometric surface of shallow groundwater, based on depth-to-water measurements taken on 7 and 8 May 1990. Groundwater-elevation data are presented in Table 1. Hydrographs showing groundwater elevations over time are included as Attachment C. Average



groundwater flow direction for 7 and 8 May 1990 was to the west at an average gradient of about 3.0%.

ANALYTIC RESULTS

Groundwater samples from monitor wells C-1 through C-3 and C-5 through C-19 were analyzed for total purgeable petroleum hydrocarbons (TPPH) and for benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Methods 8015 and 8020, respectively. Selected halocarbons were analyzed for using EPA Method 8010. Analytic results for past sampling events and this round of sampling are presented in Table 2. The chain-of-custody forms and laboratory reports with quality assurance/quality control (QA/QC) documents are included as Attachment D and E, respectively. Distribution maps of TPH and benzene in shallow groundwater are presented as Figures 3 and 4, respectively.

COMMENTS

The analytic results for May 1990 indicated concentrations of TPPH and BTEX similar to those reported in the January 1990 analysis with exception to the analytic results for the groundwater samples from wells C-9 and C-11. The sample from monitor well C-9 showed a significant increase in concentrations of TPPH and BTEX compared to the January 1990 sampling, but the results were similar to concentrations detected prior to October 1989. The sample from monitor well C-11 also had higher concentrations of BTEX than previously reported and 110 parts-per-billion TPPH. Both C-9 and C-11 are in the down-gradient direction from the areas of highest contaminant levels, with respect to estimated groundwater flow direction. Groundwater flow direction and gradient were also similar to that previously reported.



J. Randall/12 June 1990

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Western Geologic Resources, Inc. is pleased to provide geologic and environmental consulting services for Chevron and trust that this report meets your needs. Please call us at (415) 475-7595 if you have any questions.

Sincerely,
Western Geologic Resources, Inc.

Joel Coffman
Staff Geologist

Thomas J. Echols
Senior Geologist



J. Randall/12 June 1990

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FIGURES

1. Site Location Map
2. Potentiometric Surface of Shallow Groundwater, 7 and 8 May 1990
3. TPPH Distribution
4. Benzene Distribution

TABLES

1. Groundwater-Elevation Data
2. Analytic Results: Groundwater

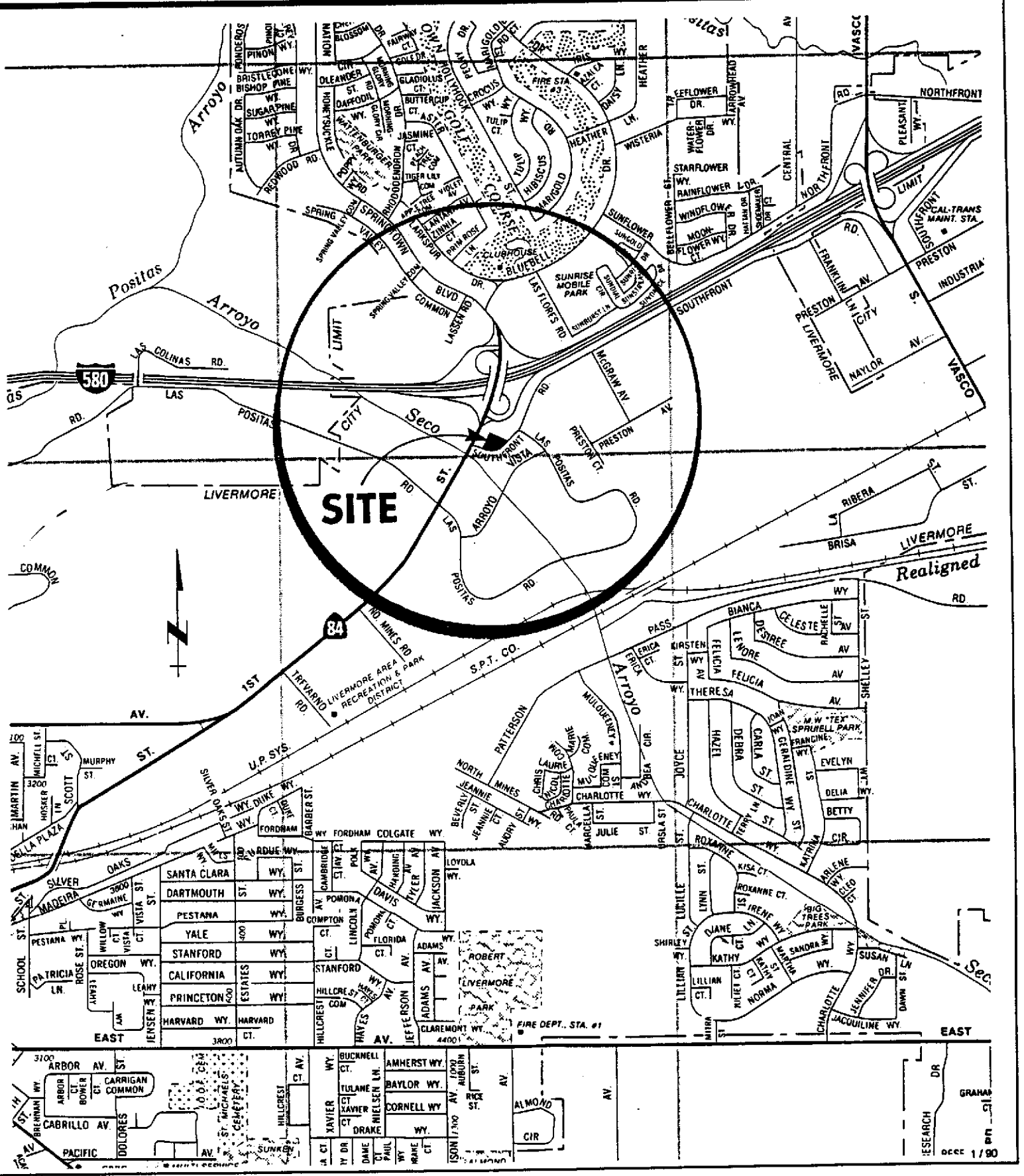
ATTACHMENTS

- A. SOP-4: Groundwater Purging and Sampling
- B. Field Sampling and Monitoring Forms
- C. Hydrographs
- D. Chain-of-Custody Forms
- E. Laboratory Reports with Quality Assurance/Quality Control Documentation

024LIMY0.WP



FIGURES

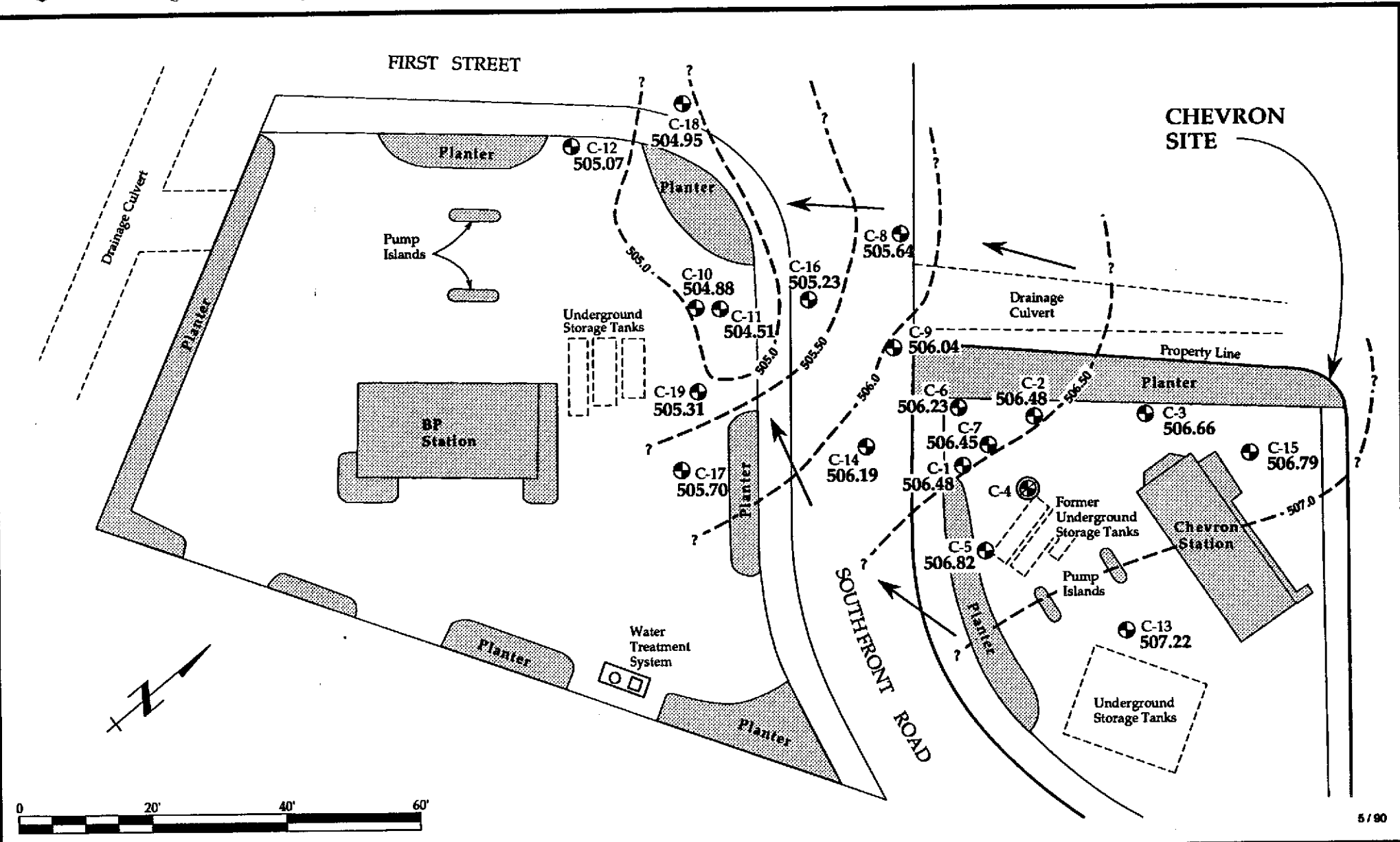


NOT TO SCALE

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

FIGURE

1



5/90

LEGEND

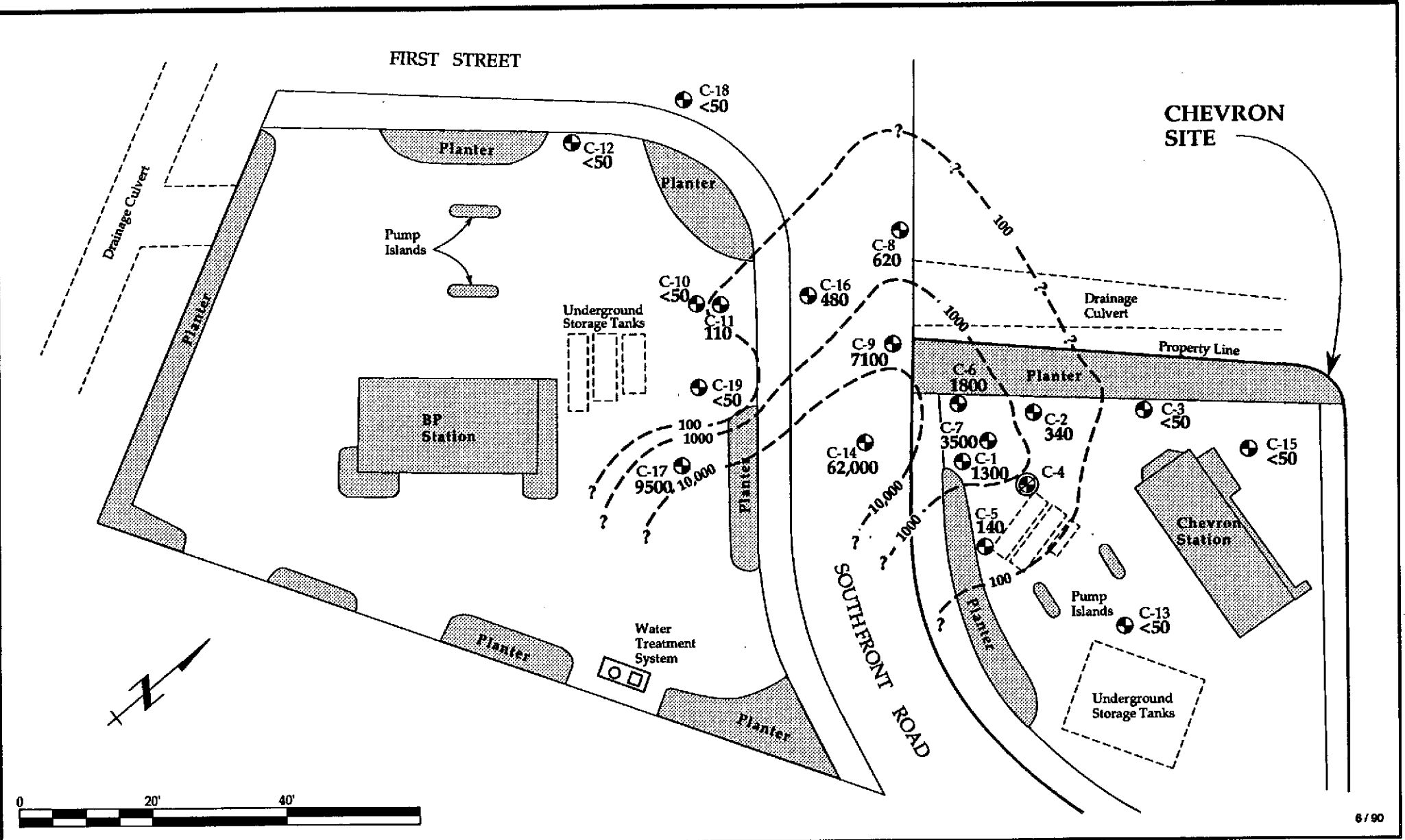
	C-17 505.70	Monitor Well Location and groundwater elevation, feet above mean sea level
	C-4	Destroyed Monitor Well Location
	505.50 - - - ?	Groundwater elevation contour, feet above mean sea level, dashed where inferred, queried where uncertain
	←	Estimated Direction of Groundwater Flow

Potentiometric Surface of Shallow Groundwater
 8 May 1990
 Chevron Service Station #91924, Livermore, California

WESTERN GEOLOGIC RESOURCES, INC.

FIGURE
2

1-024.01



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LEGEND

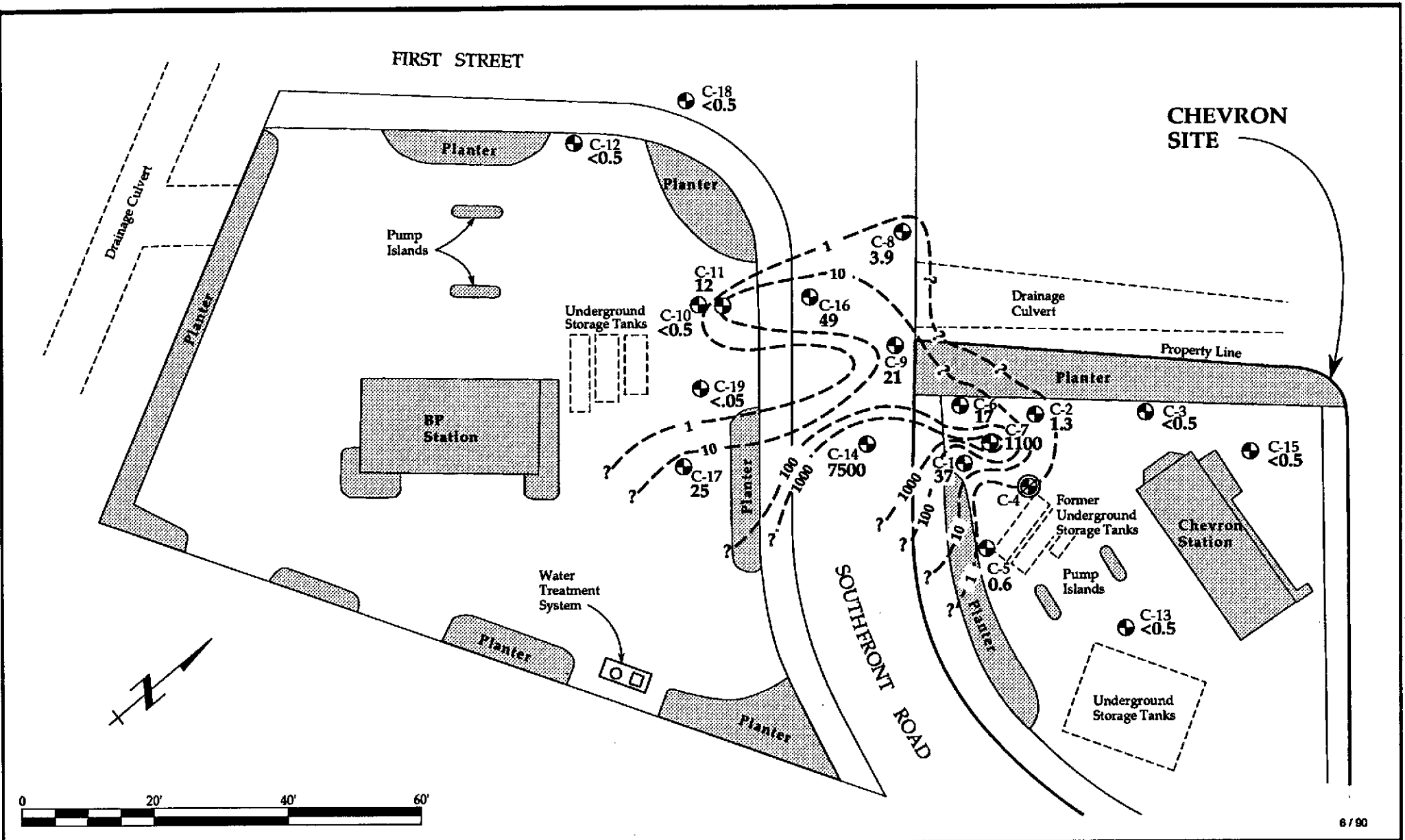
- ⊕ C-5 140 Monitor well location and TPPH concentration in parts per billion (ppb)
- ⊗ C-4 Destroyed monitor well
- ?- -100- - Isoconcentration contour of TPPH in ppb, dashed where inferred, queried where uncertain

Distribution of Total Purgeable Petroleum Hydrocarbons
 8 May 1990
 Chevron Service Station #91924, Livermore, California

WESTERN GEOLOGIC RESOURCES, INC.

FIGURE
3

1-024.01



6/90

LEGEND	
● C-5 0.6	Monitor well location and Benzene concentration in parts per billion (ppb)
⊗ C-4	Destroyed monitor well
? - - 10 - - -	Isoconcentration contour of Benzene in ppb, dashed where inferred, queried where uncertain

Distribution of Benzene in Shallow Groundwater, 8 May 1990
Chevron Service Station #91924, Livermore, California

FIGURE 4

WESTERN GEOLOGIC RESOURCES, INC. 1-024.01



TABLES



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-1	3 Jan 90	520.39	---	13.80	---	---	506.59
C-1	8 May 90	520.39	---	13.91	---	---	506.48
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-2	3 Jan 90	520.76	---	14.11	---	---	506.65
C-2	8 May 90	520.76	---	14.28	---	---	506.48
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-3	3 Jan 90	521.31	---	14.42	---	---	506.89
C-3	8 May 90	521.31	---	14.65	---	---	506.66
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



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

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
----->-----feet-----<-----							
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	---	---	506.68
C-5	3 Jan 90	520.82	---	14.10	---	---	506.72
C-5	8 May 90	520.82	---	14.00	---	---	506.82
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-6	3 Jan 90	519.62	---	13.18	---	---	506.44
C-6	8 May 90	519.62	---	13.39	Sheen	---	506.23
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-7	3 Jan 90	520.30	---	13.71	---	---	506.59
C-7	8 May 90	520.30	---	13.85	---	---	506.45
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



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

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
		←-----feet-----→					
C-13	12 Oct 89	522.24	---	15.23	---	---	507.01
C-13	3 Jan 90	522.24	---	15.15	---	---	507.09
C-13	8 May 90	522.24	---	15.02	---	---	507.22
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	---	15.96	---	---	506.45
C-15	3 Jan 90	522.41	---	15.42	---	---	506.99
C-15	8 May 90	522.41	---	15.62	---	---	506.79
FIRST STREET WELL							
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
C-18	3 Jan 90	518.96	---	14.07	---	---	504.89
C-18	7 May 90	518.96	---	14.01	---	---	504.95
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-8	3 Jan 90	519.74	---	13.74	---	---	506.00
C-8	7 May 90	519.74	---	14.10	---	---	505.64



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

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
		←-----feet-----→					
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-9	3 Jan 90	519.52	---	13.20	---	---	506.32
C-9	7 May 90	519.52	---	13.48	---	---	506.04
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
C-14	3 Jan 90	520.08	---	13.91	---	---	506.17
C-14	8 May 90	520.08	---	13.89	---	---	506.19
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
C-16	3 Jan 90	519.68	---	13.97	---	---	505.71
C-16	7 May 90	519.68	---	14.45	---	---	505.23
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



TABLE 1. Liquid Level and Top-of-Casing Elevations (continued)

Chevron Service Station # 91924

4904 Southfront Road

Livermore, California

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
----->-----feet-----<-----							
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-10	3 Jan 90	520.41	---	15.01	---	---	505.40
C-10	7 May 90	520.41	---	15.53	---	---	504.88
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-11	3 Jan 90	520.04	---	14.61	---	---	505.43
C-11	8 May 90	520.04	---	15.53	---	---	504.51
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
C-12	3 Jan 90	519.82	---	14.85	---	---	504.97
C-12	7 May 90	519.82	---	14.75	---	---	505.07
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



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

Monitor Well	Date	TOC	DTLH	DTW	LHT	Elev.-LH	Elev.-W
-----feet-----							
C-17	12 Oct 89	520.82	---	15.02	---	---	505.80
C-17	3 Jan 90	520.82	---	15.10	---	---	505.72
C-17	8 May 90	520.82	---	15.12	---	---	505.70
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
C-19	3 Jan 90	520.99	---	15.45	---	---	505.54
C-19	7 May 90	520.99	---	15.68	---	---	505.31

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
- Elevation Datum: Mean Sea Level



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

Well	Date	LAB	EPA Method	O & G ppm	FC	TFH	TPH	TPPH	Onsite Wells					1,2-DCA	Other
									Benzene	Toluene	E-Benzene	Xylenes	ppb		
C-1	15 Mar 88	GTEL	8015/8020	---	---	27000	---	---	770	87	610	2100	---	---	
C-1	13 Oct 88	BC	8015/8020	---	Gas	3200	---	---	220	11	62	130	---	---	
C-1	12 Jan 89	SAL	8015/8020	---	Gas	---	4000	---	820	43	490	260	---	---	
C-1	10 Apr 89	CCAS	524.2/8260	<3.0	Gas	---	---	4000	100	<5	70	50	<5	---	
C-10	10 Apr 89	CCAS	524.2/8260	---	Gas	---	---	4000	100	<5	60	50	<5	---	
C-1	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	600	97	20	60	50	3	---	
C-10	26 Jun 89	CCAS	8260	---	Gas	---	---	570	86	15	44	35	1.7	---	
C-1	13 Oct 89	SAL	8015/8040	<5	Gas	---	1600	---	64	<5	51	48	<5	2	
C-1	03 Jan 90	SAL	8015/8020*	---	Gas	---	1100	---	36	0.68	30	30	1	---	
C-1	08 May 90	PACE	8015/8020/8010	---	Gas	---	---	1,300	37	9.2	40	32	1.2	---	
Onsite Wells															
C-2	15 Mar 88	GTEL	8015/8020	---	---	22000	---	---	3900	1900	1200	1200	---	---	
C-2	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---	
C-2	12 Jan 89	SAL	8015/8020	---	---	---	1000	---	25	3	83	59	---	---	
C-2	10 Apr 89	CCAS	524.2/8260	<3.0	Gas	---	---	600	2.5	<0.2	15	12	<0.2	---	
C-20	10 Apr 89	CCAS	524.2/8260	---	---	---	---	<10000	<10	<10	11	11	<10	---	
C-2	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	640	5.3	8	18	14	<0.5	---	
C-20	26 Jun 89	CCAS	8260	---	Gas	---	---	750	3.7	0.6	13	8.2	2	---	
C-2	13 Oct 89	SAL	8015/8040	<5	Gas	---	630	---	<5	<5	17	10	<5	---	
C-2	03 Jan 90	SAL	8015/8020*	---	Gas	---	880	---	3	<0.5	19	17	1	---	
C-2	08 May 90	PACE	8015/8020/8010	---	Gas	---	---	340	1.3	2.7	8.4	11	1.1	---	
C-3	15 Mar 88	GTEL	8015/8020	---	---	2100	---	---	86	8	30	36	---	---	
C-3	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---	
C-3	12 Jan 89	SAL	8015/8020	---	---	---	<1000.0	---	7	2	8	11	---	---	
C-3	10 Apr 89	CCAS	524.2/8260	<3.0	Gas	---	---	200	2.1	<0.2	4.4	2.6	1.4	---	
C-3	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	260	1.1	0.7	4.9	1.6	1.5	---	
C-3	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---	



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

Well	Date	LAB	EPA Method	O & G ppm	FC	TFH	TPH	TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	Other
C-3	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	<0.5	0.9	1.4	0.7	---
C-3	08 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	0.7	---
C-5	15 Mar 88	GTEL	8015/8020	---	---	1600	---	---	82	7	77	95	---	---
C-5	13 Oct 88	BC	8015/8020	---	Gas	2500	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C-5	12 Jan 89	SAL	8015/8020	---	---	---	<1000.0	---	42	3	44	52	---	---
C-5	10 Apr 89	CCAS	524.2/8260	<3.0	Gas	---	---	180	2.6	<0.2	6.2	5.5	1.4	---
C-5	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	420	7.6	0.8	40	56	1.5	---
C-5	13 Oct 89	SAL	8015/8040	<5	Gas	---	620	---	<5	<5	10	<5	<5	---
C-5	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	0.7	<0.5	8	6	<0.5	---
C-5	08 May 90	PACE	8015/8020/8010	---	Gas	---	---	140	0.6	0.8	11	7.2	0.8	---
C-6	15 Mar 88	GTEL	8015/8020	---	---	46000	---	---	870	4600	1500	8200	---	---
C-6	10 May 88	GTEL	8015/8020	---	---	86000	---	---	1400	10000	3000	19000	---	---
C-6	13 Oct 88	BC	8015/8020	---	Gas	5300	---	---	300	600	260	1600	---	---
C-6	12 Jan 89	SAL	8015/8020	---	Gas	---	5000	---	260	110	270	720	---	---
C-6	12 Apr 89	CCAS	524.2/8260	4.0	Gas	---	---	5000	90	190	190	680	<20	---
C-6	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	3600	77	250	140	610	<5.0	---
C-6	13 Oct 89	SAL	8015/8040	<5	Gas	---	3500	---	32	81	100	530	<50	---
C-6	03 Jan 90	SAL	8015/8020*	---	Gas	---	3200	---	20	97	65	410	1	---
C-6	08 May 90	PACE	8015/8020/8010	---	Gas	---	---	1800	17	140	<2.5	400	1.6	---
C-7	15 Mar 88	GTEL	8015/8020	---	---	8000	---	---	98	69	120	120	---	---
C-7	13 Oct 88	BC	8015/8020	---	Gas	16000	---	---	4400	220	1000	3000	---	---
C-7	12 Jan 89	SAL	8015/8020	---	Gas	---	8000	---	950	47	670	640	---	---
C-7	12 Apr 89	CCAS	524.2/8260	<3.0	Gas	---	---	6000	1100	30	760	370	<20	---
C-7	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	6000	1300	50	600	340	<10	---
C-7	13 Oct 89	SAL	8015/8040	<5	Gas	---	3900	---	1300	<50	160	150	<50	---



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

Well	Date	LAB	EPA Method	O & G ppm	FC	TFH	TPH	TPPH	----->					Other
									Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	
C-7	03 Jan 90	SAL	8015/8020*	---	Gas	---	5600	---	1200	13	180	200	1	---
C-7	08 May 90	PACE	8015/8020/8010	---	Gas	---	---	3500	1100	15	110	140	1.7	---
C-13	15 Mar 88	GTEL	8015/8020	---	---	250	---	---	2	<0.5	9	3	---	---
C-13	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	1.9	<0.5	<0.5	<0.5	---	---
C-13	12 Jan 89	SAL	8015/8020	---	---	---	<1000	---	<0.3	0.6	4	<0.3	---	---
C-13	10 Apr 89	CCAS	524.2/8260	<3.0	---	---	---	<100	<0.2	<0.2	8	<0.4	<0.2	---
C-13	26 Jun 89	CCAS	8260	<3.0	---	---	---	<50	0.3	<2.0	<2.0	<2.0	<0.2	---
C-13	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---
C-13	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	<0.5	0.5	0.6	<0.5	---
C-13	08 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---
C-15	15 Mar 88	GTEL	8015/8020	---	---	<1.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C-15	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C-15	12 Jan 89	SAL	8015/8020	---	---	---	<1000	---	<0.3	<0.3	<0.3	<0.3	---	---
C-15	10 Apr 89	CCAS	524.2/8260	<3.0	---	---	---	<100	<0.2	<0.2	<0.2	<0.4	<0.2	---
C-15	26 Jun 89	CCAS	8260	<3.0	---	---	---	<50	<0.2	<2.0	<2.0	<2.0	<0.2	---
C-15	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---
C-15	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	<0.5	<0.5	<0.5	<0.5	---
C-15	08 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---
Southfront Road Wells														
C-8	15 Mar 88	GTEL	8015/8020	---	---	7500	---	---	360	25	10	<0.5	---	---
C-8	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	6	5.3	<0.5	<0.5	---	---
C-8	12 Jan 89	SAL	8015/8020	---	---	---	<1000	---	37	4	1	5	---	---
C-8	12 Apr 89	CCAS	524.2/8260	12.0	Gas	---	---	3000	13	<5	<5	<5	5	---
C-8	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	780	14	6	<2.0	6	4	---
C-8	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---



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

Well	Date	LAB	EPA Method	O & G ppm	FC	TFH	TPH	TPPH	-----ppb-----					Other
									Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	
C-8	03 Jan 90	SAL	8015/8020*	---	Gas	---	910	---	<0.5	<0.5	1	1	1.5	---
C-8	07 May 90	PACE	8015/8020/8010	---	Gas	---	---	620	3.9	6	0.5	3.4	1.9	---
C-9	15 Mar 88	GTEL	8015/8020	---	---	29000	---	---	540	560	580	3900	---	---
C-9	13 Oct 88	BC	8015/8020	---	Gas	2200	---	---	57	8	20	150	---	---
C-9	12 Jan 89	SAL	8015/8020	---	Gas	---	2000	---	39	12	51	46	---	---
C-9	11 Apr 89	CCAS	524.2/8260	<3.0	Gas	---	---	6000	16	20	55	240	2.1	---
C-9D	11 Apr 89	CCAS	524.2/8260	---	Gas	---	---	6000	14	25	45	290	<5.0	---
C-9	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	9300	37	63	140	690	<5.0	---
C-9	13 Oct 89	SAL	8015/8040	<5	Gas	---	1300	---	7	<5	26	50	<5	---
C-9	03 Jan 90	SAL	8015/8020*	---	Gas	---	1500	---	<0.5	0.7	2.2	37	1.5	---
C-9	07 May 90	PACE	8015/8020/8010	---	Gas	---	---	7100	21	33	89	500	1.9	---
C-14	10 May 88	GTEL	8015/8020	---	---	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	8260	---	Gas	---	---	140000	14000	25000	3400	26000	30	---
C-14G	13 Oct 89	SAL	8015/8040	---	Gas	---	86000	---	12000	16000	1600	13000	<250	<250
C-14	03 Jan 90	SAL	8015/8020*	---	Gas	---	120000	---	9500	16000	1800	13000	25	3
C-14G	04 Jan 90	SAL	8015/8020*	---	Gas	---	76000	---	3900	8100	1200	7700	18	1
C-14	07 May 90	PACE	8015/8020/8010	---	Gas	---	---	62,000	7500	17000	1400	14000	13	---
C-16	10 May 88	GTEL	8015/8020	---	---	4500	---	---	1000	73	140	180	---	---
C-16	13 Oct 88	BC	8015/8020	---	Gas	1600	---	---	16	5.5	<1.0	16	---	---
C-16	12 Jan 89	SAL	8015/8020	---	Gas	---	1000	---	360	11	78	51	---	---
C-16	11 Apr 89	CCAS	524.2/8260	<3.0	Gas	---	---	1500	130	4	21	19	8	---
C-16	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	1300	170	8	37	43	<1.0	---
C-16	13 Oct 89	SAL	8015/8040	<5	Gas	---	1000	---	20	<5	7	<5	<5	---



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

Well	Date	LAB	EPA Method	D & G ppm	FC	TFH	TPH	TPPH	-----ppb-----					Other
									Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	
C-16	03 Jan 90	SAL	8015/8020*	---	Gas	---	1300	---	150	3	41	24	5	---
C-16	07 May 90	PACE	8015/8020/8010	---	Gas	---	---	480	49	4.4	29	13	4.5	---
First Street Wells														
C-18	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C-18	12 Jan 89	SAL	8015/8020	---	---	---	<1000.0	---	<0.3	<0.3	<0.3	<0.3	---	---
C-18	11 Apr 89	CCAS	524.2/8260	<3.0	---	---	---	<200	<0.2	<0.2	<0.2	<0.4	3.6	---
C-18	26 Jun 89	CCAS	8260	<3.0	---	---	---	<50	<0.2	<2.0	<2.0	<2.0	3.1	---
C-18	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---
C-18	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	<0.5	<0.5	<0.5	1	---
C-18	07 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---
Mobil Station Wells														
C-10	15 Mar 88	GTEL	8015/8020	---	---	90	---	---	7	<0.5	<0.5	<0.5	---	---
C-10	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---
C-10	12 Jan 89	SAL	8015/8020	---	---	---	<1000	---	<0.3	<0.3	<0.3	<0.3	---	---
C-10	11 Apr 89	CCAS	524.2/8260	<3.0	---	---	---	<300	4.8	<0.5	<0.5	<1	6.1	---
C-10	26 Jun 89	CCAS	8260	4.0	---	---	---	<100	0.7	<0.5	<0.5	1.5	<0.5	---
C-10	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---
C-10	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	<0.5	<0.5	<0.5	3	---
C-10	07 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---
C-11	14 Oct 88	BC	8015/8020	---	Gas	1.9	---	---	240	33	4.7	67	---	---
C-11	12 Jan 89	SAL	8015/8020	---	---	---	<1000.0	---	<0.3	0.8	<0.3	<0.3	---	---
C-11	12 Apr 89	CCAS	524.2/8260	<3.0	---	---	---	<50	4.3	<1	<1	<1	<1	---
C-11	26 Jun 89	CCAS	8260	4.0	---	---	---	<50	2	<2.0	<2.0	<2.0	<0.2	---
C-11	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---
C-11	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	<0.5	<0.5	0.7	<0.5	---
C-11	07 May 90	PACE	8015/8020/8010	---	Gas	---	---	110	12	11	0.9	22	<0.5	---



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

Well	Date	LAB	EPA Method	O & G ppm	FC	TFH	TPH	TPPH	-----ppb-----					1,2-DCA	Other
									Benzene	Toluene	E-Benzene	Xylenes			
C-12	15 Mar 88	GTEL	8015/8020	---	---	<1.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---	
C-12	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	<0.5	<0.5	<0.5	<0.5	---	---	
C-12	12 Jan 89	SAL	8015/8020	---	---	---	<1000.0	---	<0.3	<0.3	<0.3	<0.3	---	---	
C-12	11 Apr 89	CCAS	524.2/8260	<3.0	---	---	---	<100	<0.2	<0.2	<0.2	<0.4	<0.2	---	
C-12	26 Jun 89	CCAS	8260	<3.0	---	---	---	<50	<0.2	<2.0	<2.0	<2.0	<0.2	---	
C-12	13 Oct 89	SAL	8015/8040	<5	---	---	<500	---	<5	<5	<5	<5	<5	---	
C-12	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	<0.5	<0.5	0.6	<0.5	---	
C-12	07 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	
C-17	13 Oct 88	BC	8015/8020	---	Gas	270,000	---	---	18	900	760	5500	---	---	
C-17	12 Jan 89	SAL	8015/8020	---	Gas	---	190,000	---	<15	490	2100	6700	---	---	
C-17	11 Apr 89	CCAS	524.2/8260	6.0	Gas	---	---	27,000	30	150	320	1000	<10	---	
C-17	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	20,000	50	390	660	2000	<10	---	
C-17D	26 Jun 89	CCAS	8260	---	Gas	---	---	27,000	40	420	740	2200	<10	---	
C-17	13 Oct 89	SAL	8015/8040	<5	Gas	---	17000	---	<25	48	230	480	<25	---	
C-17	03 Jan 90	SAL	8015/8020*	---	Gas	---	14000	---	<0.3	29	120	210	<0.5	---	
C-17	07 May 90	PACE	8015/8020/8010	---	Gas	---	---	9500	25	130	210	470	<0.5	---	
C-19	10 May 88	GTEL	8015/8020	---	---	18	---	---	1400	360	350	1300	---	---	
C-19	13 Oct 88	BC	8015/8020	---	---	<1000.0	---	---	8.3	4.7	4.4	<0.5	---	---	
C-19	12 Jan 89	SAL	8015/8020	---	---	---	<1000	---	5	4	<0.3	<0.3	---	---	
C-19	11 Apr 89	CCAS	524.2/8260	<3.0	---	---	---	<1000	1.8	<2	<2	<4	13	---	
C-19D	11 Apr 89	CCAS	524.2/8260	---	Gas	---	---	500	1.2	<0.2	0.6	0.6	14	---	
C-19	26 Jun 89	CCAS	8260	<3.0	Gas	---	---	500	2.5	<5.0	<5.0	<5.0	26	---	
C-19	13 Oct 89	SAL	8015/8040	<5	Gas	---	540	---	<5	<5	<5	<5	13	13	
C-19	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	1.2	0.7	1.3	0.9	11	---	
C-19	07 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	4.6	---	



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

Well	Date	LAB	EPA Method	O & G ppm	FC	TFH	TPH	TPPH	-----ppb-----					Other
									Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	
TB	12 Jan 89	SAL	8015/8020	---	---	---	---	---	<0.3	<0.3	<0.3	<0.3	---	---
TB	12 Apr 89	CCAS	524.2/8260	---	---	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	---
TB	26 Jun 89	CCAS	8260	---	---	---	---	<50	<0.1	<1.0	<1.0	<1.0	<0.1	---
TB	13 Oct 89	SAL	8015/8040	---	---	---	<500	---	<5	<5	<5	<5	<5	---
TB	03 Jan 90	SAL	8015/8020*	---	---	---	<500	---	<0.5	0.5	<0.5	0.7	<0.5	---
TB	08 May 90	PACE	8015/8020/8010	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---

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
 O&G = Oil and Grease by California Standard Method 503E
 ppb = Parts per billion
 ppm = Parts-per-million
 NS = Not sampled because of poor recovery
 TB = Travel Blank
 D = Duplicate Analysis

GTEL = GTEL Environmental Laboratories
 BC = Brown and Caldwell Laboratories
 SAL = Superior Analytical Laboratories
 CCAS = Central Coast Analytical Services
 PACE = Pace Laboratories, Inc.

1 = Carbon Disulfide
 2 = Acetone
 3 = Vinyl Chloride

D = Duplicate Analysis

G = Grab Sample

* = Halogenated Volatile Organics Analyzed by EPA Method 8010



ATTACHMENT A

SOP-4: GROUNDWATER PURGING AND SAMPLING



**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.



ATTACHMENT B

FIELD SAMPLING AND MONITORING FORMS

LIQUID-LEVEL DATA SHEET

Project No. 1-024.01 Project Name Livermore Date 5/7/90 Initials DRA MPF

Well No.	HISTORIC DATA/DATE:			CURRENT DATA:			METHOD	TIME	COMMENTS
	DTLH	DTW	LHT	DTLH	DTW	LTH			
C-1					13.91'		WLP	11:53	
C-2					14.28'			11:57	
C-3					14.65'			11:54	
C-5					14.00'			11:51	
C-6					13.39'			12:00	
C-7					13.85'			11:58	
C-8					14.10'			12:07	
C-9					13.48'			12:05	
C-10					15.53			12:16	
C-11					15.53			12:18	
C-12					14.75'			12:13	
C-13					15.02'			11:47	
C-14					13.89'			12:03	
C-15					15.62'			11:46	
C-16					14.45'			12:09	
C-17					15.12'			12:21	
C-18					14.01'			12:11	
C-19					15.68'		✓	12:19	

* WLP = Water-Level Probe
PB = Product Bailer
IP = Interface Probe

WATER SAMPLING DATA Well Name C-1 Date 5.8.90 Time 0955
 Job Name LIVERMORE Job Number 1-02401 Initials MPF
WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 13.91 ft.
 Well Depth 18.8 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

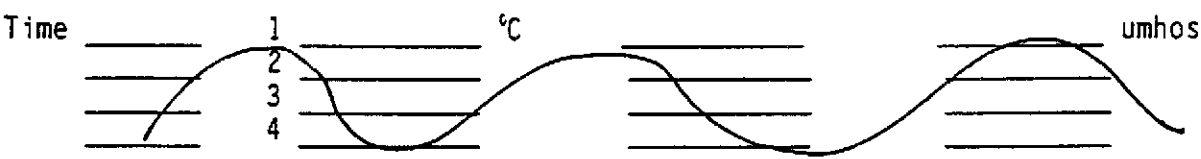
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 4.89 ft; Volume 1.8 gal.
 Volume To Be Evacuated = 5.4 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>1002</u>	_____	_____
Start	<u>0955</u>	_____	_____
Total minutes	<u>7</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>6</u> gal.	_____	_____
Evacuation Rate	<u>.9</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 $vol. of col. = \pi r^2 h$
 7.48 gal/ft^3
 V_1 casing = 0.163 gal/ft
 V_2 casing = 0.367 gal/ft
 V_3 casing = 0.653 gal/ft
 V_4 casing = 0.826 gal/ft
 V_5 casing = 1.47 gal/ft
 V_6 casing = 2.61 gal/ft

Depth to water during pumping 1 ft. 1 time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 1002 time Depth to water 14.47 ft. Refrigerated:
 Sample description: Water color CLEAR Odor SLIGHT
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-01A</u>	<u>40</u> ml	<u>NaHSO₃/Azide/other</u>	<u>EPA 3015 / 602</u>	<u>PAL</u>
<u>B</u>	ml	<u>HCl</u>	↓	↓
<u>C</u>	ml	↓	↓	↓
<u>D</u>	ml	<u>NONE</u>	<u>EPA 601</u>	↓
<u>E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-2 Date 5-8-90 Time 0815
 Job Name LIVELMORE Job Number 1-024.01 Initials MFF
 WELL DATA: Well type m (M=monitoring well; Describe _____)
 Depth to Water 14.28 ft.
 Well Depth 23.9 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 9.62 ft; Volume 3.5 gal.
 Volume To Be Evacuated = 10.6 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>0829</u>	_____	_____
Start	<u>0815</u>	_____	_____
Total minutes	<u>14</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>11</u>	gal.	_____
Evacuation Rate	<u>.8</u>	gpm.	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 0829 time Depth to water 14.90 ft. Refrigerated:
 Sample description: Water color CLEAR Odor SLIGHT
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
	VOA / other	NaHSO ₃ /Azide/other		
<u>05080-02A</u>	<u>40</u> ml	<u>NaI</u>	<u>EPA 8015/602</u>	<u>PAL</u>
<u>B</u>	ml	↓	↓	↓
<u>C</u>	ml	↓	↓	↓
<u>D</u>	ml	<u>NaOM</u>	<u>EPA 601</u>	↓
<u>E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-3 Date 5-8-90 Time 0755
 Job Name LIVEMORE Job Number 1-024.01 Initials MPF
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 14.65 ft.
 Well Depth 17.8 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

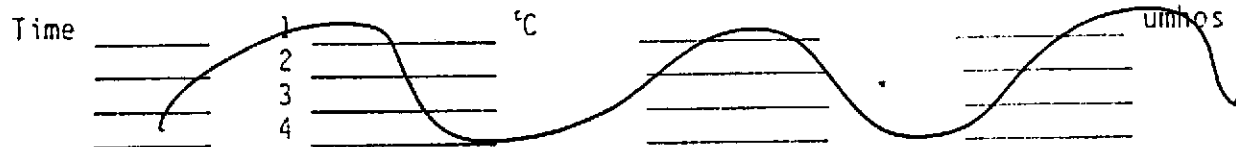
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____ gal.
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 3.15 ft; Volume 1.2 gal.
 Volume To Be Evacuated = 3.5 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>0804</u>	_____	_____
Start	<u>0758</u>	_____	_____
Total minutes	<u>6</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>5</u> gal.	_____	_____
Evacuation Rate	<u>.8</u> gpm.	_____	_____

Formula: / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft'
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 0804 time Depth to water 15.11 ft. Refrigerated:
 Sample description: Water color CLEAR Odor _____
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
	YOA / other	NaHSO ₃ /Azide/other		
<u>05080-03 A</u>	<u>40</u> ml	<u>HCl</u>	<u>EPA 8015/602</u>	<u>PAL</u>
<u>B</u>	ml	↓	↓	↓
<u>C</u>	ml	↓	↓	↓
<u>D</u>	ml	<u>NONE</u>	<u>EPA 601</u>	↓
<u>E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-5 Date 5.8.90 Time 0935
 Job Name LIVE & MORE Job Number L024.01 Initials MPE
WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 14.00 ft.
 Well Depth 18.3 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

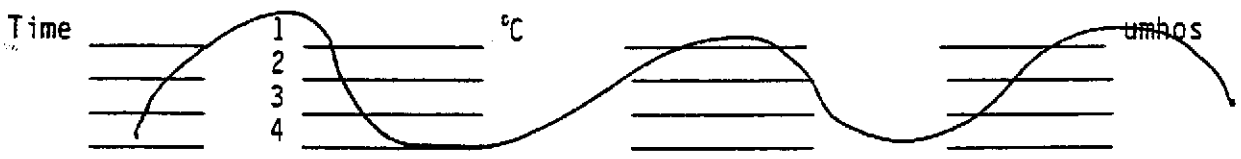
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 4.3 ft; Volume 1.5 gal.
 Volume To Be Evacuated = 4.6 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>0945</u>	_____	_____
Start	<u>0939</u>	_____	_____
Total minutes	<u>6</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>5</u> gal.	_____	_____
Evacuation Rate	<u>.8</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____ ; Other _____
 Samples taken 0945 time Depth to water 16.65 ft. Refrigerated:
 Sample description: Water color 66PAU Odor _____
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-05A</u> <u>40</u> ml	<u>VOA</u> / other	<u>NaHSO₄/Azide/other</u>	<u>EPA 805/602</u>	<u>PAC</u>
<u>8</u> ml	↓	<u>HCl</u>	↓	↓
<u>C</u> ml	↓	↓	↓	↓
<u>D</u> ml	↓	<u>NaOH</u>	<u>EPA 601</u>	↓
<u>E</u> ml	↓	↓	↓	↓
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-6 Date 5.8.90 Time 0835
 Job Name LIVERMORE Job Number 1-024.01 Initials MPP
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 13.39 ft.
 Well Depth 21.6 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

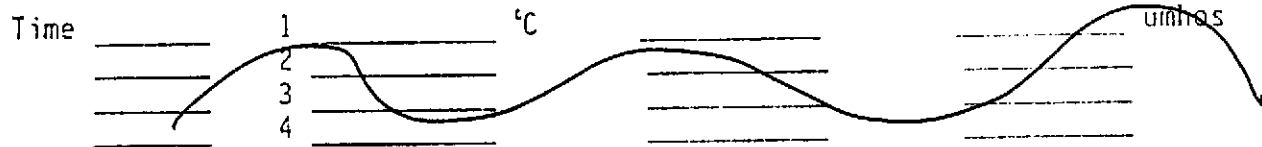
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 8.21 ft; Volume 3.0 gal.
 Volume To Be Evacuated = 9.0 gal. (initial volume x3 x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>0848</u>	_____	_____
Start	<u>0838</u>	_____	_____
Total minutes	<u>10</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>9</u> gal.	_____	_____
Evacuation Rate	<u>.9</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.357 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 0848 time Depth to water 13.76 ft. Refrigerated:
 Sample description: Water color CLEAR Odor STRONG
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
	VOA / other	NaHSO ₃ /Azide/other		
<u>05080-06A 40</u> ml	_____	<u>Hcl</u>	<u>EPA 8015/602</u>	<u>PAL</u>
<u>3</u> ml	_____	_____	_____	_____
<u>6</u> ml	_____	_____	_____	_____
<u>9</u> ml	_____	<u>None</u>	<u>EPA 601</u>	_____
<u>12</u> ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe _____

COMMENTS: OIL SHEEN ON EVACUATED WATER

WATER SAMPLING DATA Well Name C-7 Date 5-8-90 Time 0855
 Job Name LIVERMORE Job Number 1-024.01 Initials MPF
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 13.85 ft.
 Well Depth 21.2 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

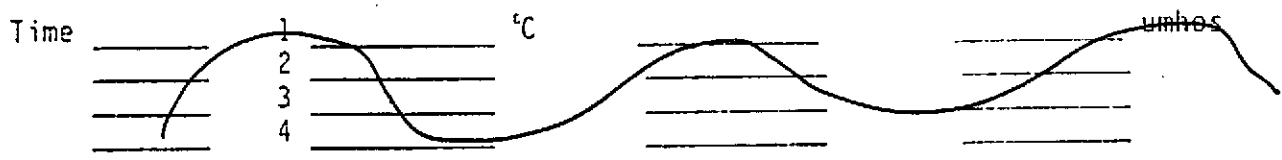
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 7.35 ft; Volume 2.7 gal.
 Volume To Be Evacuated = 8.1 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>0910</u>	_____	_____
Start	<u>0858</u>	_____	_____
Total minutes	<u>12</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>9</u> gal.	_____	_____
Evacuation Rate	<u>8</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft;
 h = ht of water col in ft;
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 1/2" casing = 0.163 gal/ft
 3/4" casing = 0.367 gal/ft
 1" casing = 0.653 gal/ft
 1 1/4" casing = 0.826 gal/ft
 1 3/4" casing = 1.47 gal/ft
 2" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 0910 time Depth to water 14.11 ft. Refrigerated:
 Sample description: Water color CLEAR Odor SLIGHT
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
	VOA / other	NaHSO ₃ /Azide/other		
<u>05080-07 A</u>	<u>40</u> ml	<u>HCl</u>	<u>EPA 8015/602</u>	<u>PAL</u>
<u>B</u>	ml	↓	↓	↓
<u>C</u>	ml	↓	↓	↓
<u>D</u>	ml	<u>NONE</u>	<u>EPA 601</u>	↓
<u>E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-8 Date 5/7/90 Time 15:12
 Job Name L. Vermore Job Number 1-024.01 Initials PRA
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 14.10 ft.
 Well Depth 22.1 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 8.00 ft; Volume 2.9 gal.
 Volume To Be Evacuated = 8.8 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>15:33</u>	_____	_____
Start	<u>15:21</u>	_____	_____
Total minutes	<u>12</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>9</u> gal.	_____	_____
Evacuation Rate	<u>.75</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 15:33 time Depth to water 15.55 ft. Refrigerated:
 Sample description: Water color Clear Odor Slight
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-08A</u>	<u>40</u> ml	<u>NaHSO₃/Azide/other</u>	<u>EPA 606/8015</u>	<u>PAL</u>
<u>B</u>	ml	<u>HCl</u>	↓	↓
<u>C</u>	ml	↓	↓	↓
<u>D</u>	ml	<u>NDMP</u>	<u>EPA 601</u>	↓
<u>E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe _____

COMMENTS: _____

WATER SAMPLING DATA Well Name C-9 Date 5/7/90 Time 14:36
 Job Name Livermore Job Number 1-024.01 Initials MFP
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 13.48 ft.
 Well Depth 22.2 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 8.72 ft.; Volume 3.2 gal.
 Volume To Be Evacuated = 9.6 gal. (initial volume x3 x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>1555</u>	_____	_____
Start	<u>1542</u>	_____	_____
Total minutes	<u>13</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>10</u> gal.	_____	_____
Evacuation Rate	<u>.8</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.183 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping ft. time
 Pumped dry? NO After gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 1555 time Depth to water 14.12 ft. Refrigerated:
 Sample description: Water color GREY CLAY Odor SLIGHT
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
	VOA / other	NaHSO ₃ / Azide / other		
<u>05080-09A 40</u> ml	<u>VOA</u>	<u>HCl</u>	<u>EPA 8015 / 602</u>	<u>PAL</u>
<u>B</u> ml	↓	↓	↓	↓
<u>C</u> ml	↓	↓	↓	↓
<u>D</u> ml	↓	<u>NONE</u>	<u>EPA 601</u>	↓
<u>E</u> ml	↓	↓	↓	↓
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-10 Date 5-7-90 Time 13:30
 Job Name LIVERMORE Job Number 1-024-01 Initials MPF
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 15.53 ft.
 Well Depth 33.3 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

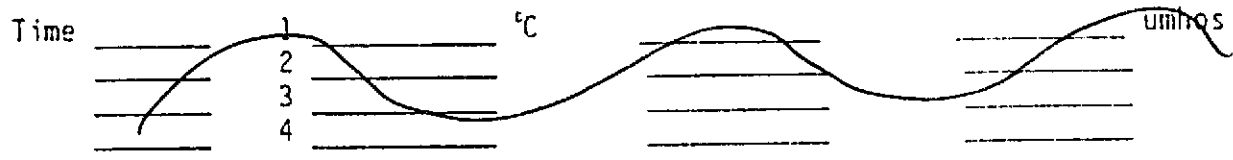
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 17.77 ft; Volume 6.5 gal.
 Volume To Be Evacuated = 19.6 gal. (initial volume x3 x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>1410</u>	_____	_____
Start	<u>1351</u>	_____	_____
Total minutes	<u>19</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>20</u> gal.	_____	_____
Evacuation Rate	<u>1</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.357 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping 1 ft. 1 time
 Pumped dry? No After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 14:10 time Depth to water 16.10 ft. Refrigerated:
 Sample description: Water color GREY CLEAR Odor _____
 Sediment/Foreign matter SILT

Sample ID no.	Container	Preservative	Analysis	Lab
	NOA / other	NaHSO ₃ / Azide / other		
<u>DS080-10A</u>	<u>40</u> ml	<u>HCl</u>	<u>EPA 8015 / 602</u>	<u>PAL</u>
<u>B</u>	ml	↓	↓	↓
<u>C</u>	ml	↓	↓	↓
<u>D</u>	ml	<u>None</u>	<u>EPA 601</u>	↓
<u>E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-11 Date 5.7.90 Time 12:40 11:00
WIF
 Job Name LIVERMORE Job Number 1-024.01. Initials DRA
WELL DATA: Well type m (M=monitoring well; Describe _____) 10:30
5.8.90
WIF
 Depth to Water 15.53 ft.
 Well Depth 15.4 ft. (spec.) Sounded Depth 18.19 ft.
 Well Diameter 3 in. Date 5.7.90 Time 12:58

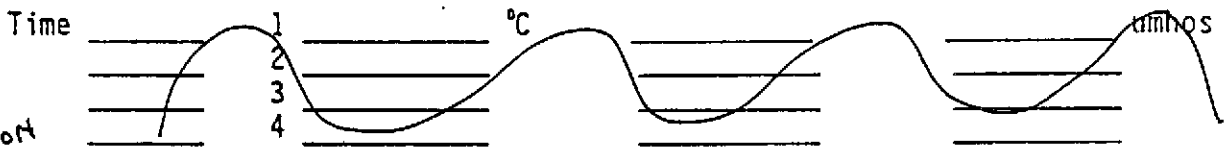
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump _____ ; Bailer 1 1/4
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 2.66 ft; Volume .9 gal.
 Volume To Be Evacuated = 3.0 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>1306</u>	_____	_____
Start	<u>1304</u>	_____	_____
Total minutes	<u>2</u>	_____	_____
Amount Evacuated	<u>1</u>	_____	_____
Total Evacuated	_____	_____ gal.	_____
Evacuation Rate	<u>.5</u>	_____ gpm.	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? YES After 1 gal. Recovery rate _____
 Depth to water for 80% recovery 16.06 ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



8:40 ON

SAMPLING: Point of collection: PE Hose _____; End of bailer ; Other _____
 Samples taken 1045 time Depth to water 17.82 ft. Refrigerated:
 Sample description: Water color LT BROWN Odor _____
 Sediment/Foreign matter _____ VERY FINE SILT

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-11A</u>	<u>40 ml</u>	<u>NaHSO₃/Azide/other</u>	<u>EPA 8015/602</u>	<u>PAL</u>
<u>B</u>	<u>ml</u>	<u>HCl</u>	<u>↓</u>	<u>↓</u>
<u>C</u>	<u>ml</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>D</u>	<u>ml</u>	<u>NONE</u>	<u>EPA 601</u>	<u>↓</u>
<u>E</u>	<u>ml</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
_____	_____ ml	_____	_____	_____
_____	_____ ml	_____	_____	_____
_____	_____ ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe _____

COMMENTS: DNW AFTER BAILING DRY: 17.74 @ 13:10 (WELL MAY BE UNDER THE
17.89 @ 13:19 INFLUENCE OF EXTRACTION
BAILED DRY AGAIN: 18.18 @ 13:25 PUMP NMTZ BY
16.96 @ 13:30
17.85 @ 16:10
18.33 @ 16:39
5-8-90 17.72 @ 10:37 = 180% recovery

WATER SAMPLING DATA Well Name C-12 Date 5/7/90 Time 14:10
 Job Name L. Jermore Job Number 1-024.01 Initials ORA
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 14.75 ft.
 Well Depth 18.0 ft. (spec.) Sounded Depth 18.35' ft.
 Well Diameter 3 1/2 in. Date 5/7/90 Time 14:10

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 3.6 ft; Volume 1.32 gal.
 Volume To Be Evacuated = 3.96 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>14:26</u>	_____	_____
Start	<u>14:18</u>	_____	_____
Total minutes	<u>8</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>5 gals</u>	gal.	_____
Evacuation Rate	<u>0.6</u>	gpm.	_____

Formulas / Conversions
 r = well radius in ft
 h = ht. of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____
 Time _____ 1 _____ °C _____ umhos
 _____ 2 _____
 _____ 3 _____
 _____ 4 _____

SAMPLING: Point of collection: PE Hose ; End of bailer _____ ; Other _____
 Samples taken 14:26 time Depth to water 14.86' ft. Refrigerated: yes
 Sample description: Water color light brown/clear Odor _____
 Sediment/Foreign matter S:H

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-12A 40</u>	<u>VOA / other</u>	<u>NaHSO₃ / Azide / other</u>	<u>EPA 602/8015</u>	<u>PACE</u>
<u>12B</u>	_____	<u>HCL</u>	_____	_____
<u>12C</u>	_____	_____	_____	_____
<u>12D</u>	_____	<u>None</u>	<u>EPA 601</u>	_____
<u>12E</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe _____

COMMENTS: _____

WATER SAMPLING DATA Well Name C-13 Date 5-8-90 Time 0915
 Job Name LIVERMORE Job Number 1-024.01 Initials MPF
WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 15.02 ft.
 Well Depth 20.8 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

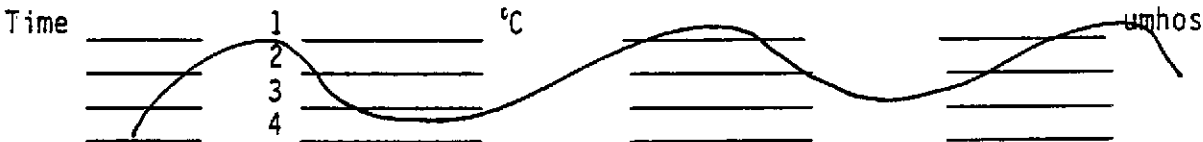
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 5.78 ft; Volume 2.1 gal.
 Volume To Be Evacuated = 6.4 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>0930</u>	_____	_____
Start	<u>0919</u>	_____	_____
Total minutes	<u>11</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>7</u> gal.	_____	_____
Evacuation Rate	<u>.6</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V_{12} casing = 0.163 gal/ft
 V_{14} casing = 0.367 gal/ft
 V_{16} casing = 0.653 gal/ft
 V_{18} casing = 0.826 gal/ft
 V_{20} casing = 1.47 gal/ft
 V_{22} casing = 2.61 gal/ft

Depth to water during pumping ft. time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 0930 time Depth to water 15.31 ft. Refrigerated:
 Sample description: Water color GREY CLEAR Odor _____
 Sediment/Foreign matter _____ *FINE SILT*

Sample ID no.	Container (VOA / other)	Preservative (NaHSO ₃ /Azide/other)	Analysis	Lab
<u>05080-13A</u> 40 ml	<u>VOA</u>	<u>HCl</u>	<u>EPA 3015/602</u>	<u>PAL</u>
<u>B</u> ml	↓	↓	↓	↓
<u>C</u> ml	↓	↓	↓	↓
<u>D</u> ml	↓	<u>NOH</u>	<u>EPA 601</u>	↓
<u>E</u> ml	↓	↓	↓	↓
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-14 Date 5-7-90 Time 13:41 10:15
 Job Name LIVERMORE Job Number 1-024.01. Initials DRA 5-8-90
 WELL DATA: Well type M (M=monitoring well; Describe _____) MPF
 Depth to Water 13.89 ft.
 Well Depth 14.1 ft. (spec.) Sounded Depth 14.46 ft.
 Well Diameter 3 in. Date 5-7-90 Time 15:55

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump _____; Bailer 1 1/4
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing .57 ft; Volume .2 gal.
 Volume To Be Evacuated = .6 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>1346</u>	_____	_____
Start	<u>1344</u>	_____	_____
Total minutes	<u>2</u>	_____	_____
Amount Evacuated	<u>.1</u>	_____	_____
Total Evacuated	_____ gal.	_____	_____
Evacuation Rate	_____ gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? YES After .1 gal. Recovery rate _____
 Depth to water for 80% recovery 14.00 ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____

Time	1	2	3	4	°C	umhos
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

SAMPLING: Point of collection: PE Hose _____; End of bailer ; Other _____

Samples taken 1030 time Depth to water 14.28 ft. Refrigerated:

Sample description: Water color LT BROWN Odor _____

Sediment/Foreign matter VERY FINE SILT

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-14A</u>	<u>40 ml</u>	<u>HCl</u>	<u>EPA 8015/602</u>	<u>PAL</u>
<u>↓ B ↓</u>	<u>↓</u>	<u>—</u>	<u>EPA 601</u>	<u>↓</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS:	DEPTH TO WATER		TIME
<u>BAILER DRY</u>	<u>14.15</u>	<u>@</u>	<u>13:46</u>
	<u>14.13</u>	<u>@</u>	<u>13:51</u>
	<u>14.16</u>	<u>@</u>	<u>15:43</u>
<u>5-8-90</u>	<u>14.12</u>	<u>@</u>	<u>10:25</u>

ONLY ENOUGH WATER TO COLLECT THE VOLS

= 60% ml

WATER SAMPLING DATA Well Name C-15 Date 5-8-90 Time 0730
 Job Name LIVERMORE Job Number 1-024.01 Initials MPF
 WELL DATA: Well type NA (M=monitoring well; Describe _____)
 Depth to Water 15.62 ft.
 Well Depth 20.2 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

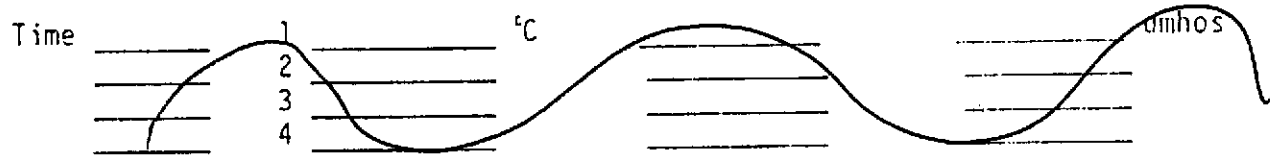
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 4.58 ft; Volume 1.7 gal.
 Volume To Be Evacuated = 5.0 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>0745</u>	_____	_____
Start	<u>0736</u>	_____	_____
Total minutes	<u>9</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>6</u> gal.	_____	_____
Evacuation Rate	<u>.7</u> gpm.	_____	_____

Formula: / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.357 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping - ft. - time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____ ; Other _____
 Samples taken 0745 time Depth to water 15.84 ft. Refrigerated:
 Sample description: Water color GREY CLEAR Odor _____
 Sediment/Foreign matter _____ FINE SIEF

Sample ID no.	Container	Preservative	Analysis	Lab
	<u>VIA</u> / other	NaHSO ₃ /Azide/other		
<u>05080-15A</u>	<u>40</u> ml	<u>HCl</u>	<u>EPA-895/602</u>	<u>PAL</u>
<u>a</u>	ml	↓	↓	↓
<u>c</u>	ml	↓	↓	↓
<u>d</u>	ml	<u>None</u>	<u>EPA-601</u>	↓
<u>e</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-16 Date 5/7/90 Time 14:49
 Job Name Livermore Job Number 1-024.01 Initials ORA
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 14.45 ft.
 Well Depth 28.4 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 3 in. Date _____ Time _____

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 13.95 ft; Volume 5.12 gal.
 Volume To Be Evacuated = 15.25 gal. (initial volume x3 x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>15:13</u>	_____	_____
Start	<u>14:58</u>	_____	_____
Total minutes	<u>15</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>15.5</u> gal.	_____	_____
Evacuation Rate	<u>1.033</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 1/2" casing = 0.163 gal/ft
 3/4" casing = 0.367 gal/ft
 1" casing = 0.653 gal/ft
 1 1/4" casing = 0.826 gal/ft
 1 3/4" casing = 1.47 gal/ft
 2" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____
 Time _____ 1 _____ °C _____ umhos
 _____ 2 _____
 _____ 3 _____
 _____ 4 _____

SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 15:13 time Depth to water 18.63 ft. Refrigerated: yes
 Sample description: Water color gray/clear Odor yes - moderate
 Sediment/Foreign matter Silty

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-16A 40 ml</u>	<u>VOA</u> / other _____	<u>HCL</u>	<u>EPA 602/8015</u>	<u>PACE</u>
<u>16B ml</u>	_____	_____	_____	_____
<u>16C ml</u>	_____	_____	_____	_____
<u>16D ml</u>	_____	<u>None</u>	<u>EPA 601</u>	_____
<u>16E ml</u>	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-17 Date 5-7-90 Time 12:55
 Job Name LIVERMORE Job Number 1-024.01 Initials MPF
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 15.12 ft.
 Well Depth 20.0 ft. (spec.) Sounded Depth 20.36 ft.
Date 5-7-90 Time 1305
 Well Diameter 3 in.

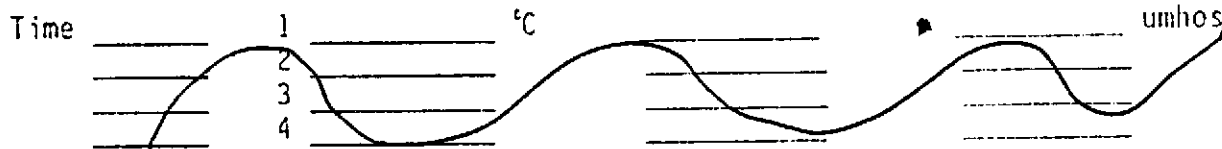
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____ gal.
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 5.24 ft; Volume 1.9 gal.
 Volume To Be Evacuated = 5.8 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>1311</u>	_____	_____
Start	<u>1258</u>	_____	_____
Total minutes	<u>13</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>7</u> gal.	_____	_____
Evacuation Rate	<u>.5</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 13:11 time Depth to water 19.27 ft. Refrigerated:
 Sample description: Water color GREY Odor STRAW
 Sediment/Foreign matter SILT

Sample ID no.	Container	Preservative	Analysis	Lab
	VOA / other	NaHSO ₃ /Azide/other		
<u>05080-17 A</u>	<u>40</u> ml	<u>Hcl</u>	<u>EPA 602/805</u>	<u>PAL</u>
<u>S</u>	ml	↓	↓	↓
<u>C</u>	ml	↓	↓	↓
<u>O</u>	ml	<u>None</u>	<u>EPA 601</u>	↓
<u>E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe _____

COMMENTS: _____

WATER SAMPLING DATA Well Name C-18 Date 5/7/90 Time 14:29
 Job Name Livermore Job Number 1-024.01 Initials DRA
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 14.01 ft.
 Well Depth 25.7 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 2 in. Date _____ Time _____

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 11.64 ft; Volume 1.9 gal.
 Volume To Be Evacuated = 5.7 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>14:37</u>	<u>14:52</u>	_____
Start	<u>14:36</u>	<u>14:44</u>	_____
Total minutes	<u>1</u>	<u>8</u>	_____
Amount Evacuated	<u>1.5 gals</u>	_____	_____
Total Evacuated	<u>7</u> gal.	_____	_____
Evacuation Rate	<u>.875</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht. of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? No After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____
 Time _____ 1 _____ °C _____ umhos
 _____ 2 _____
 _____ 3 _____
 _____ 4 _____

SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 14:52 time Depth to water 14.01 ft. Refrigerated: yes
 Sample description: Water color _____ Odor _____
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-18A</u>	<u>40 ml</u> <u>VOA</u> / other	<u>NaHSO₄/Azide/other</u> <u>HCL</u>	<u>EPA 602/8015</u>	<u>PACC</u>
<u>18B</u>	ml	↓	↓	↓
<u>18C</u>	ml	↓	↓	↓
<u>18D</u>	ml	<u>NaAP</u>	<u>EPA 601</u>	↓
<u>18E</u>	ml	↓	↓	↓
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____
_____	ml	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WATER SAMPLING DATA Well Name C-19 Date 5.7.90 Time 13:25
 Job Name LIVERMORE Job Number 1-024.01 Initials MPF
 WELL DATA: Well type M (M=monitoring well; Describe _____)
 Depth to Water 15.68 ft.
 Well Depth 24.3 ft. (spec.) Sounded Depth _____ ft.
 Well Diameter 2 in. Date _____ Time _____

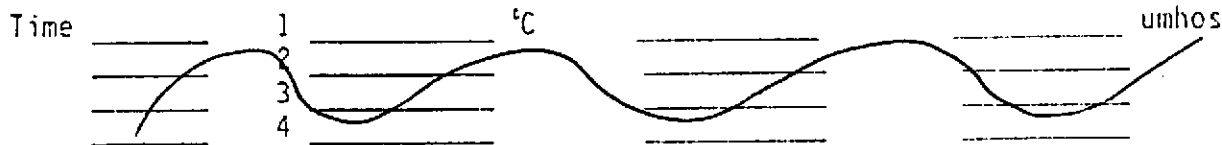
EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing 8.62 ft; Volume 1.4 gal.
 Volume To Be Evacuated = 4.2 gal. (initial volume x3 , x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	<u>1335</u>	_____	_____
Start	<u>1328</u>	_____	_____
Total minutes	<u>7</u>	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	<u>5</u> gal.	_____	_____
Evacuation Rate	<u>.7</u> gpm.	_____	_____

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft'
 V₁" casing = 0.163 gal/ft
 V₂" casing = 0.367 gal/ft
 V₃" casing = 0.653 gal/ft
 V₄" casing = 0.826 gal/ft
 V₅" casing = 1.47 gal/ft
 V₆" casing = 2.61 gal/ft

Depth to water during pumping _____ ft. _____ time
 Pumped dry? NO After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____



SAMPLING: Point of collection: PE Hose ; End of bailer _____; Other _____
 Samples taken 1335 time Depth to water 16.78 ft. Refrigerated:
 Sample description: Water color GREY/CLOUDY Odor SLIGHT
 Sediment/Foreign matter SILT

Sample ID no.	Container	Preservative	Analysis	Lab
<u>05080-19A 40</u> ml	<u>VOA</u> / other	<u>NaHSO₃/Azide/other</u>	<u>EPA 805 / 602</u>	<u>PAL</u>
<u>B</u> ml	↓	<u>HCl</u>	↓	↓
<u>C</u> ml	↓	↓	↓	↓
<u>D</u> ml	↓	<u>NONE</u>	<u>EPA 601</u>	↓
<u>E</u> ml	↓	↓	↓	↓
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____
_____ ml	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe _____

COMMENTS: _____

WATER SAMPLING DATA Well Name TRANEL BLANK Date 5-8-90 Time 10:10
 Job Name LIVESTOCK Job Number 1-024-01 Initials MPF
WELL DATA: Well type _____ (M=monitoring well; Describe _____)
 Depth to Water _____ ft.
 Well Depth _____ ft. (spec.) Sounded Depth _____ ft.
 Well Diameter _____ in. Date _____ Time _____

EVACUATION: Sampling Equipment:
 PVC Bailer: _____ in. Dedicated: Bladder Pump _____ ; Bailer _____
 Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
 Other _____
 Initial Height of Water in Casing _____ ft; Volume _____ gal.
 Volume To Be Evacuated = _____ gal. (initial volume x3 _____, x4 _____)

Formulas / Conversions
 r = well radius in ft
 h = ht of water col in ft
 vol. of col. = $\pi r^2 h$
 7.48 gal/ft³
 $V_{1/2}$ " casing = 0.163 gal/ft
 $V_{3/4}$ " casing = 0.367 gal/ft
 V_1 " casing = 0.653 gal/ft
 $V_{1 1/2}$ " casing = 0.826 gal/ft
 V_2 " casing = 1.47 gal/ft
 $V_{2 1/2}$ " casing = 2.61 gal/ft

	Evacuated	Evacuated	Evacuated
Time: Stop	_____	_____	_____
Start	_____	_____	_____
Total minutes	_____	_____	_____
Amount Evacuated	_____	_____	_____
Total Evacuated	_____ gal.	_____	_____
Evacuation Rate	_____ gpm.	_____	_____

Depth to water during pumping _____ ft. _____ time
 Pumped dry? _____ After _____ gal. Recovery rate _____
 Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # _____ Ph Probe # _____ Cond. Probe # _____
 Time _____ 1 _____ °C _____ umhos
 _____ 2 _____
 _____ 3 _____
 _____ 4 _____

SAMPLING: Point of collection: PE Hose _____; End of bailer _____; Other _____
 Samples taken _____ time Depth to water _____ ft. Refrigerated: _____
 Sample description: Water color _____ Odor _____
 Sediment/Foreign matter _____

Sample ID no.	Container	Preservative	Analysis	Lab
05080-20A	VOA / other	NaHSO ₄ /Azide/other	EPA 905/602	PAL
↓ B ↓	↓	↓	EPA 601	↓
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

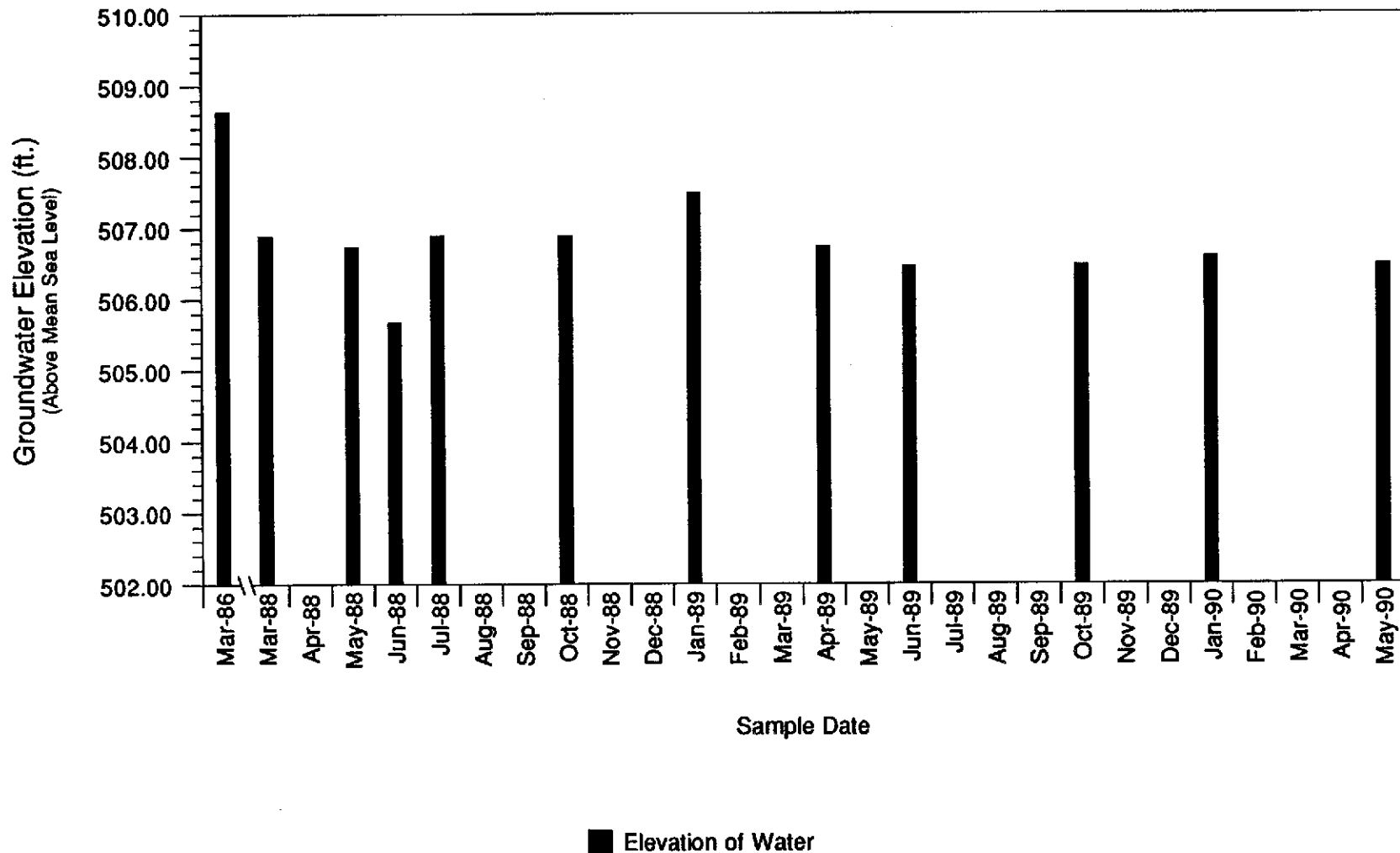
COMMENTS: TRANEL BLANKS SUPPLIED BY PALB, DATED 3-6-90



ATTACHMENT C
HYDROGRAPHS

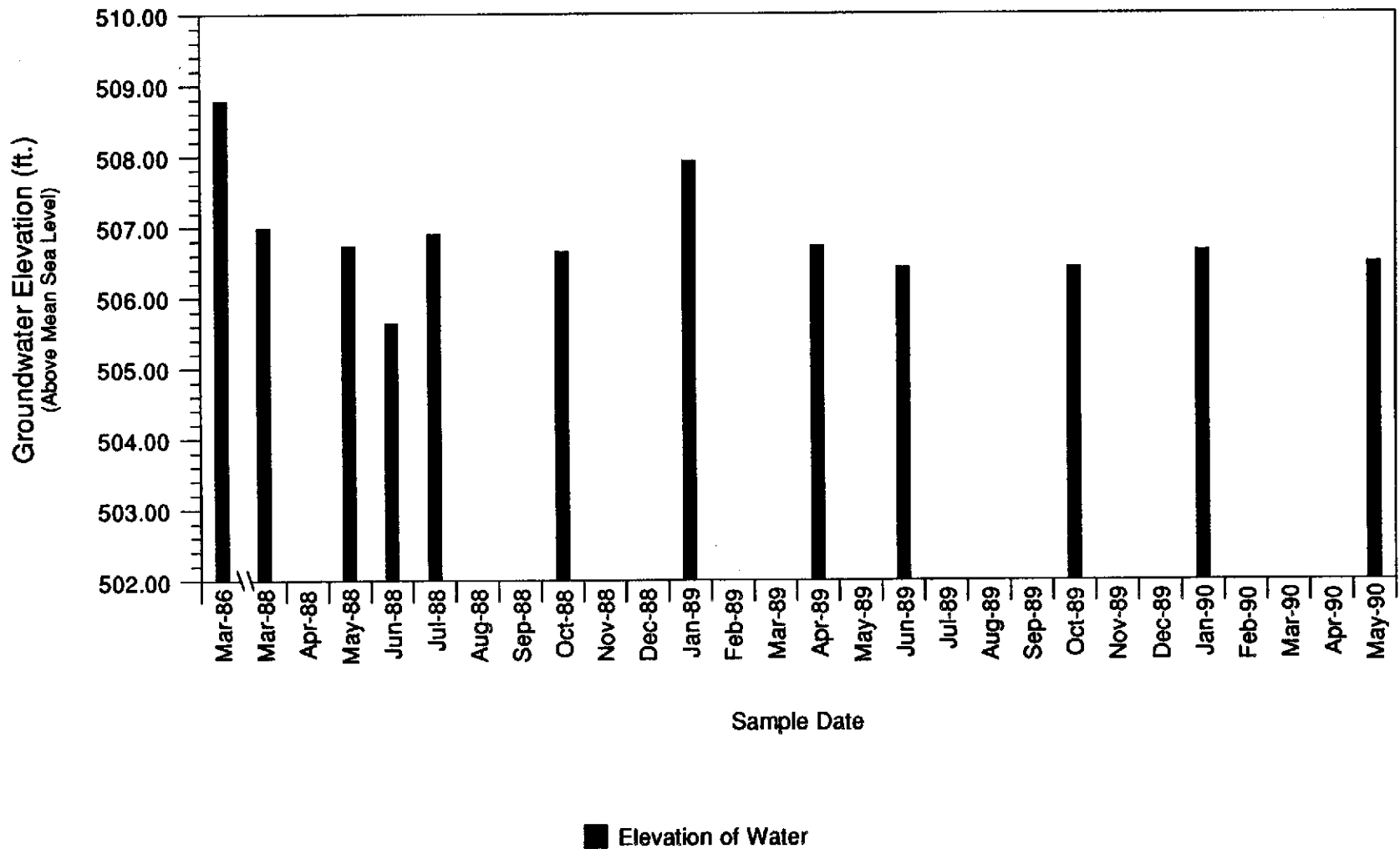
GROUNDWATER MONITOR WELL C-1

Chevron Service Station #91924 Livermore, California



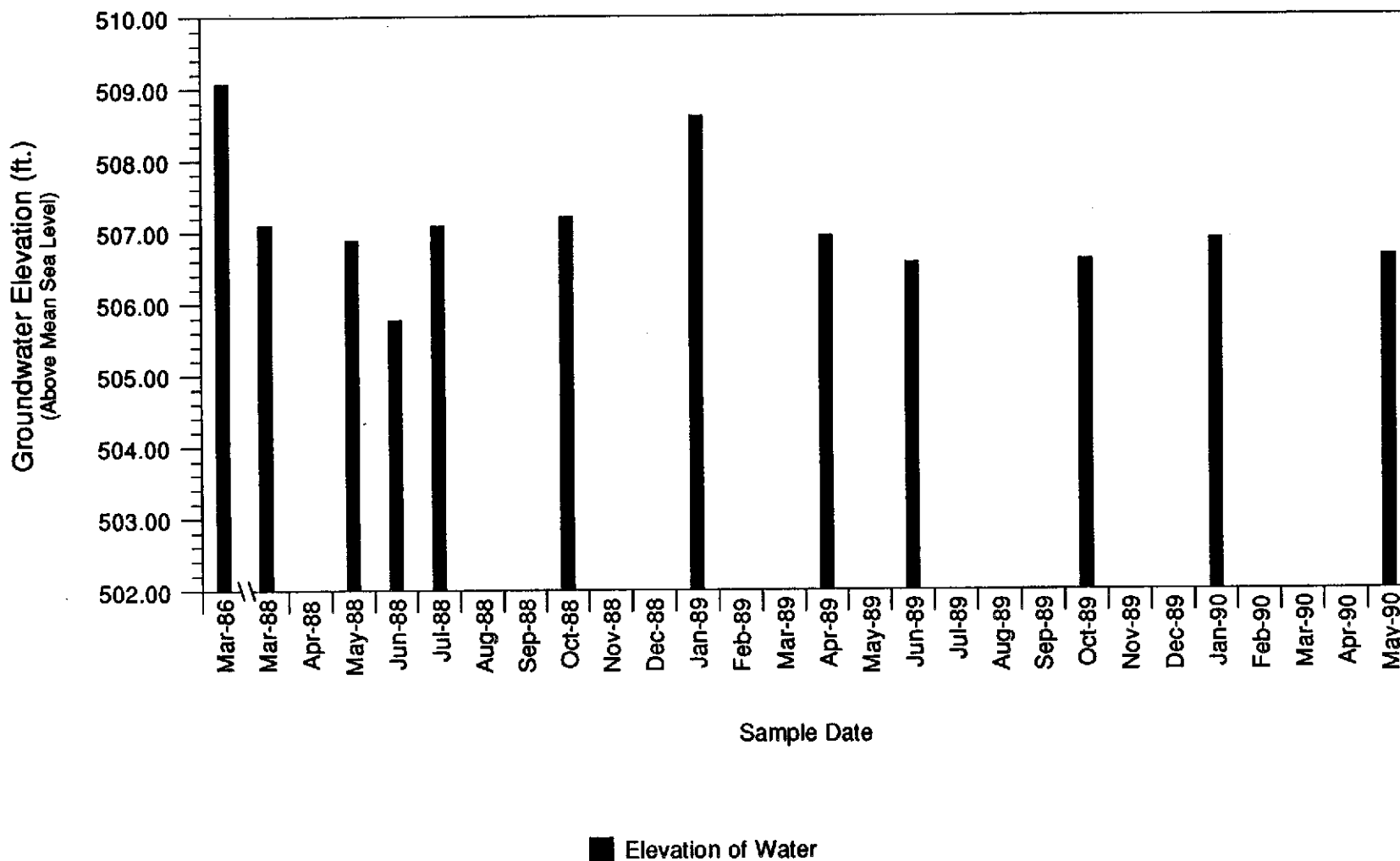
GROUNDWATER MONITOR WELL C-2

Chevron Service Station #91924 Livermore, California



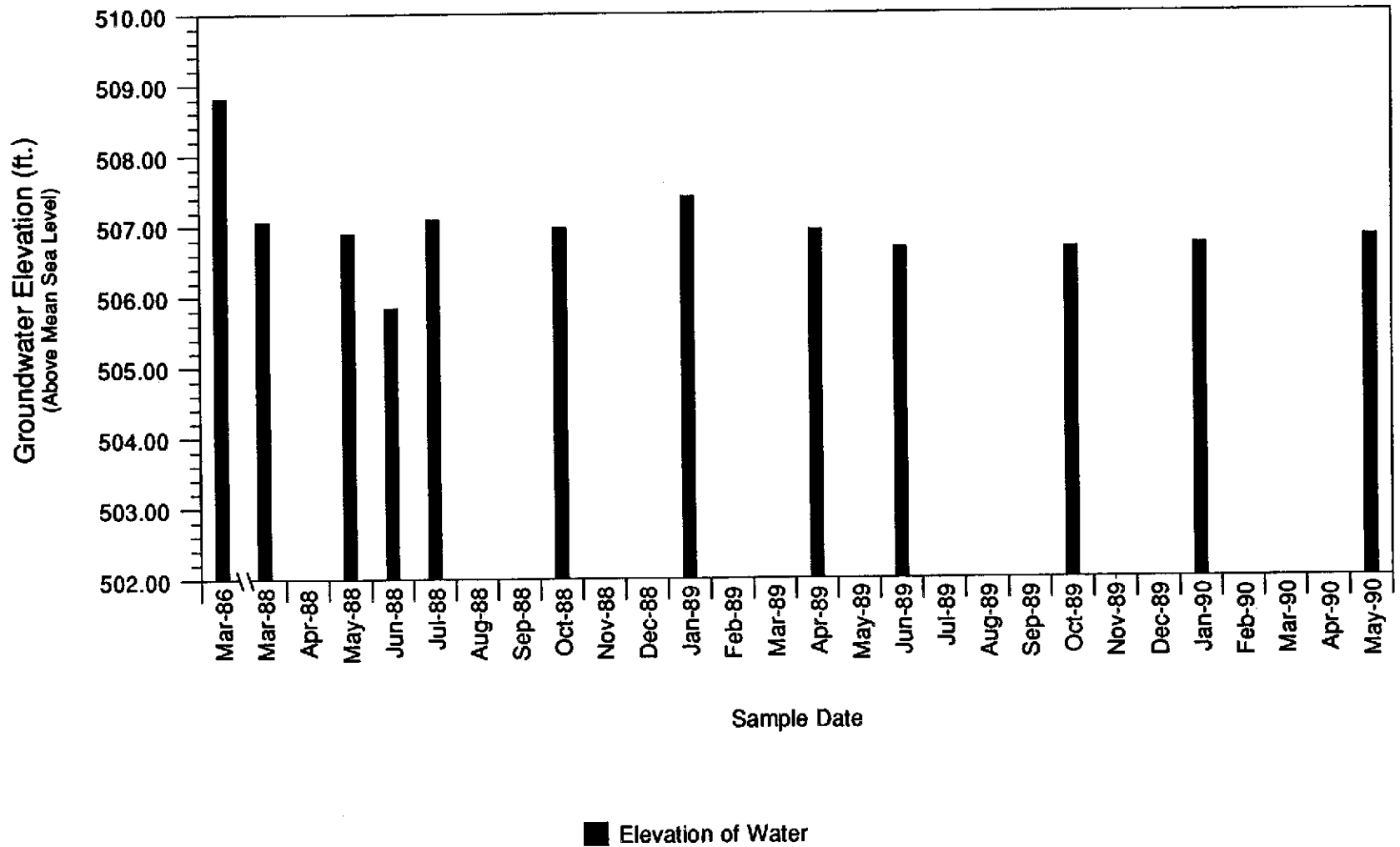
GROUNDWATER MONITOR WELL C-3

Chevron Service Station #91924 Livermore, California



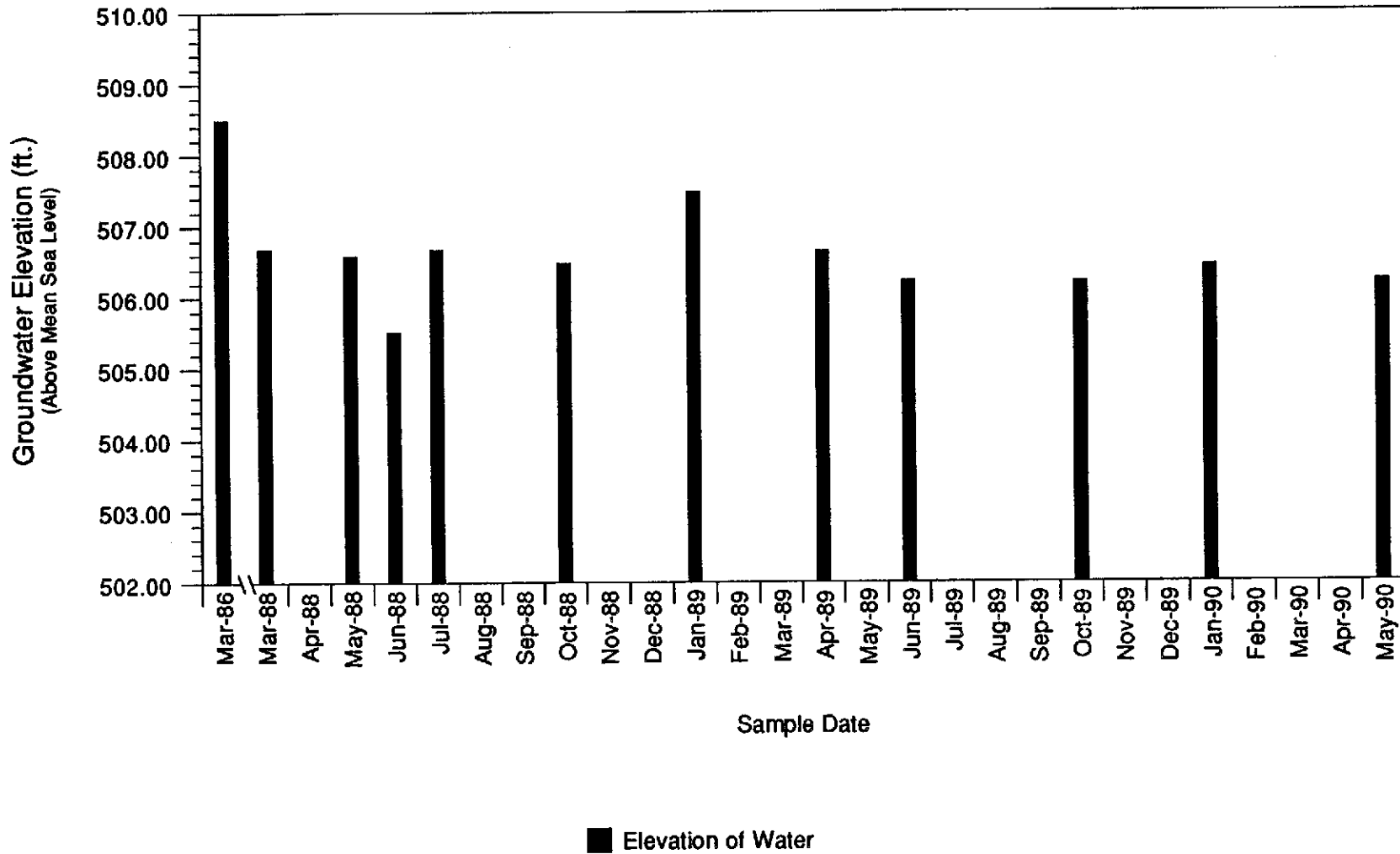
GROUNDWATER MONITOR WELL C-5

Chevron Service Station #91924 Livermore, California



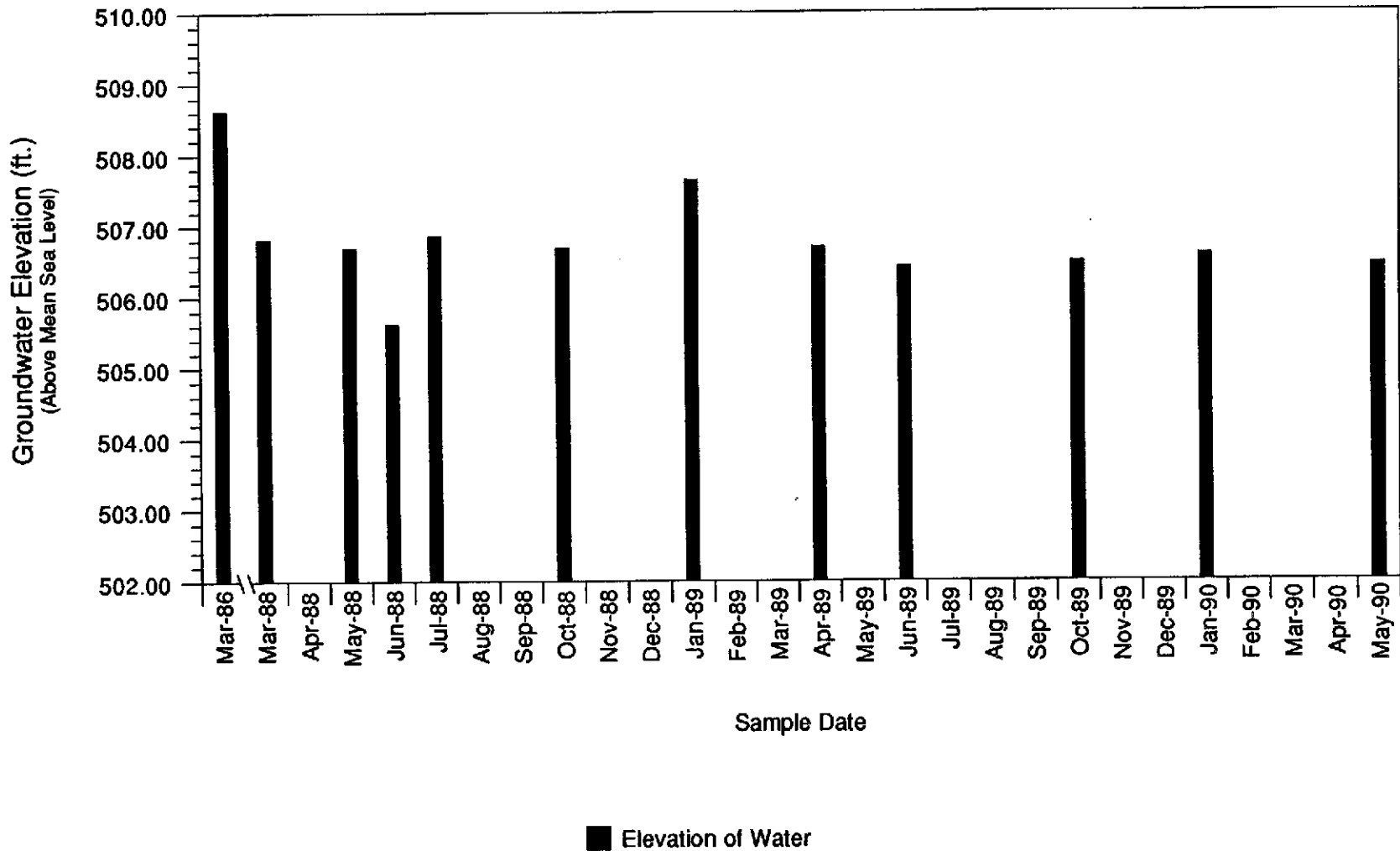
GROUNDWATER MONITOR WELL C-6

Chevron Service Station #91924 Livermore, California



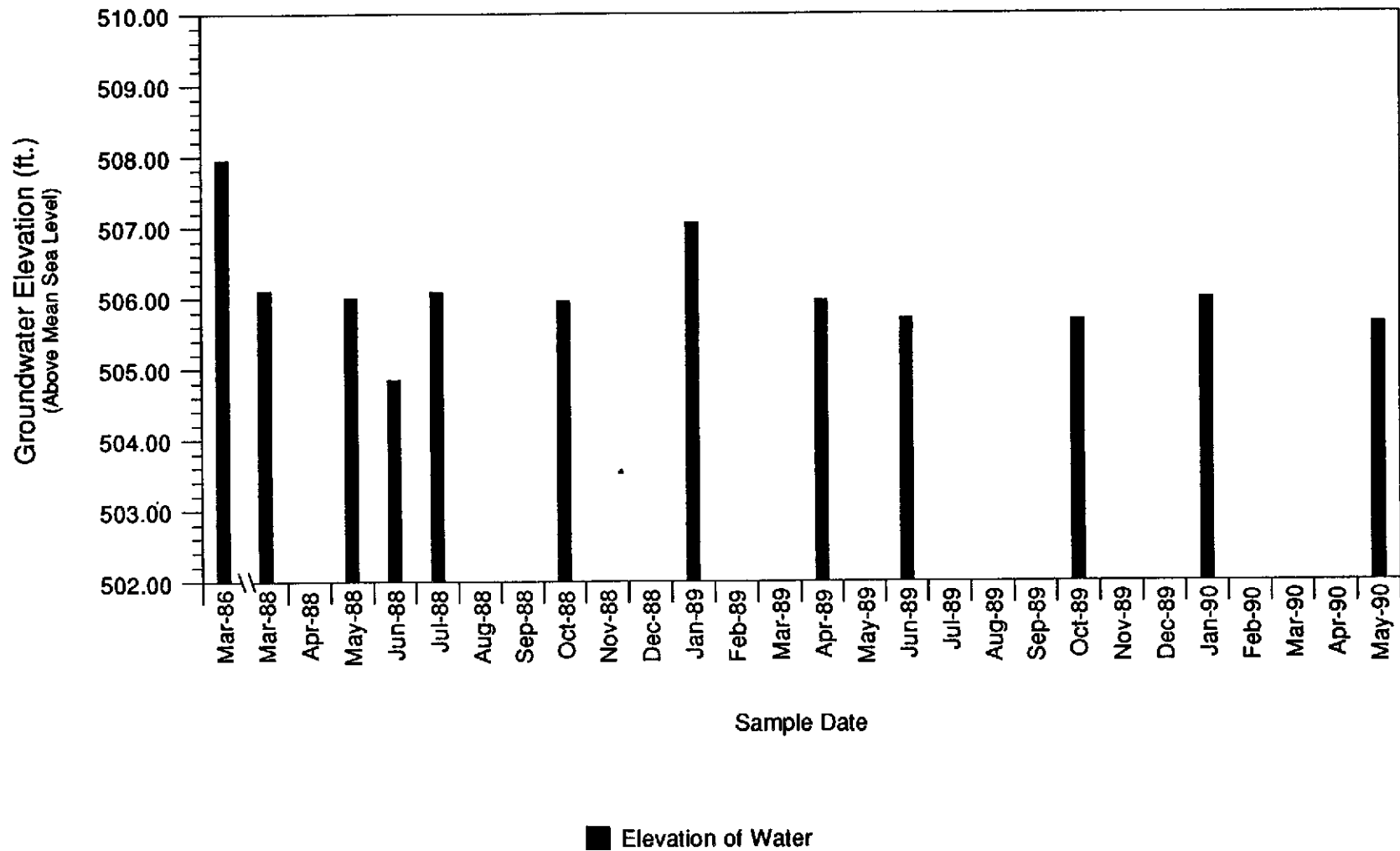
GROUNDWATER MONITOR WELL C-7

Chevron Service Station #91924 Livermore, California



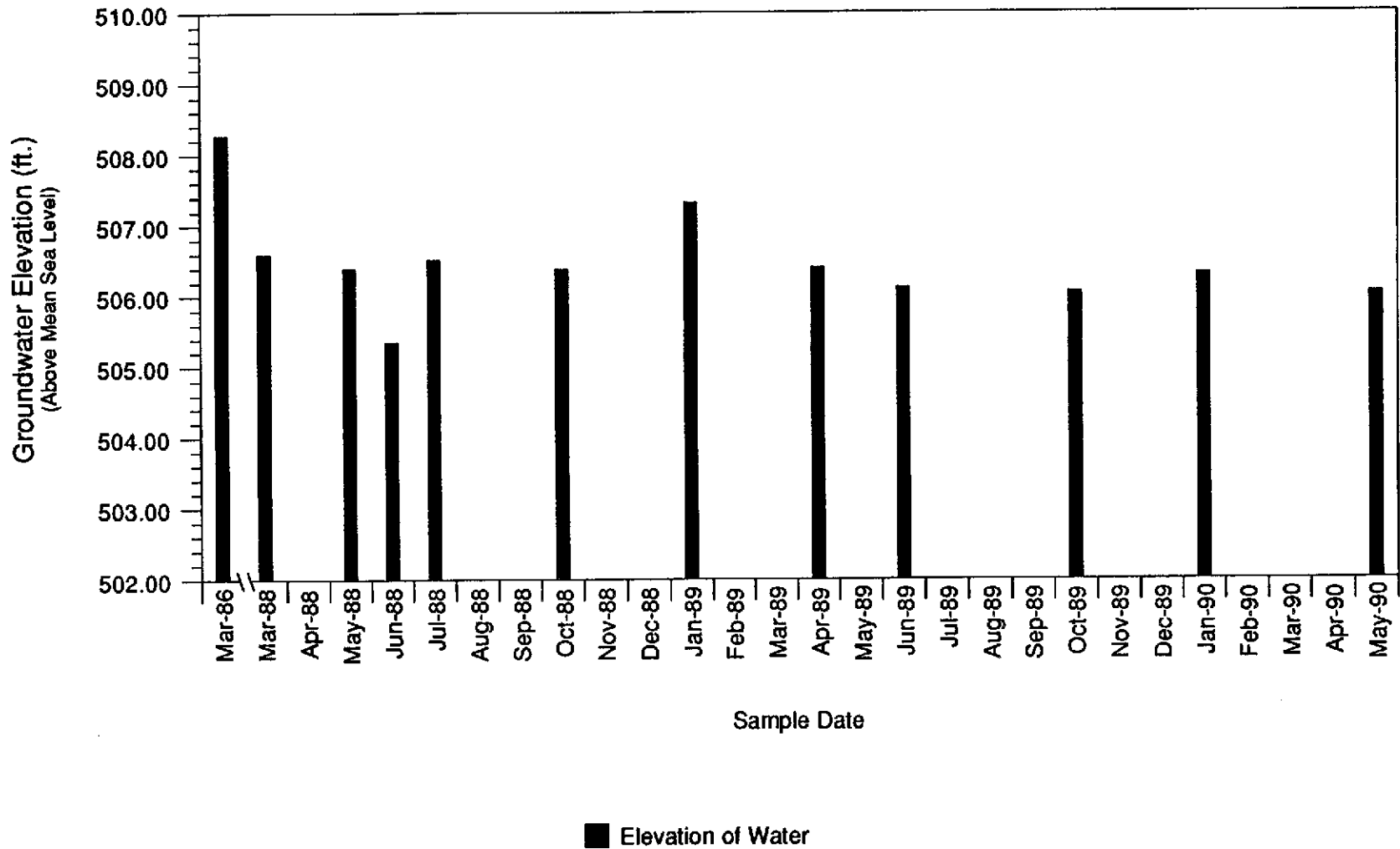
GROUNDWATER MONITOR WELL C-8

Chevron Service Station #91924 Livermore, California



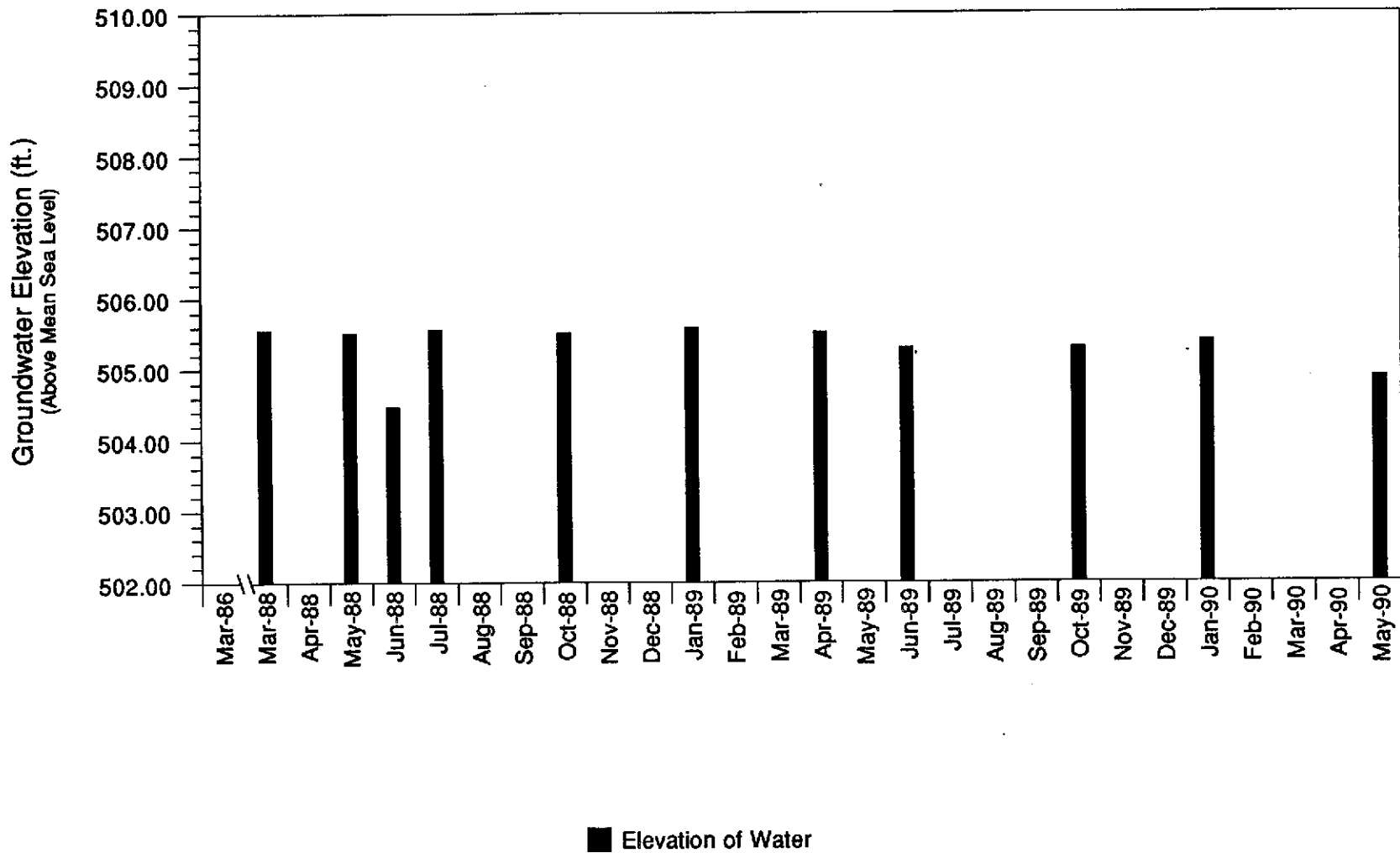
GROUNDWATER MONITOR WELL C-9

Chevron Service Station #91924 Livermore, California



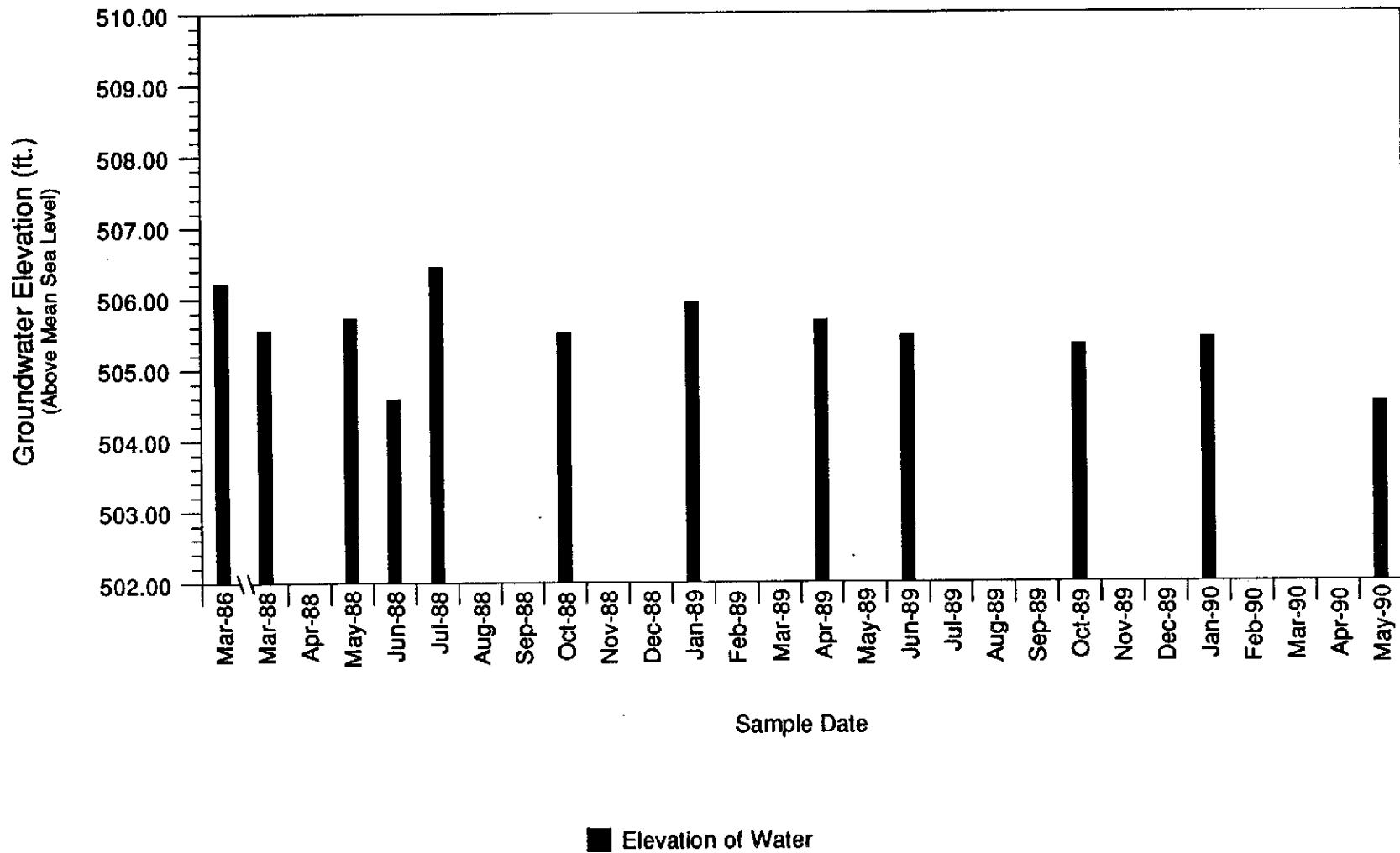
GROUNDWATER MONITOR WELL C-10

Chevron Service Station #91924 Livermore, California



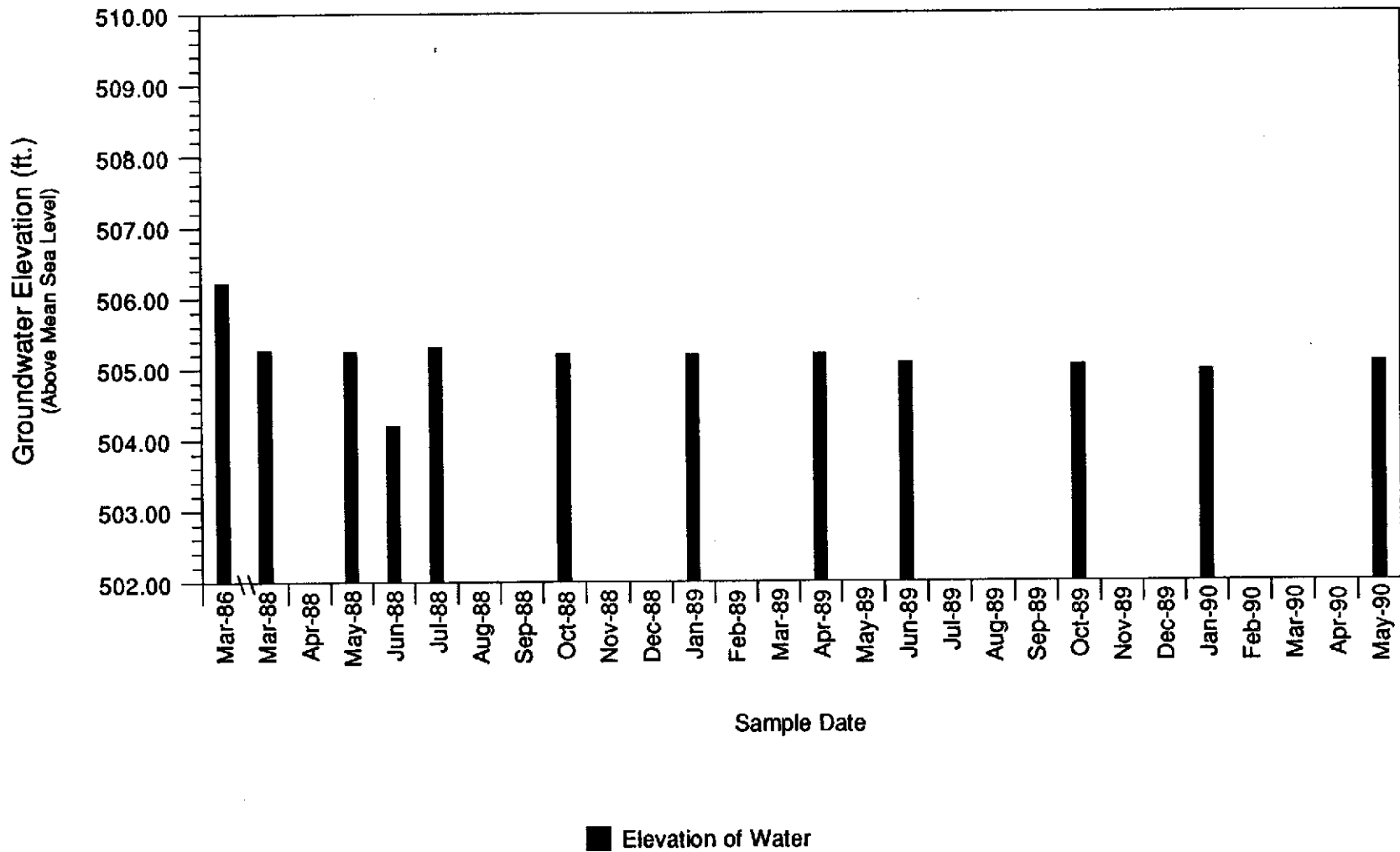
GROUNDWATER MONITOR WELL C-11

Chevron Service Station #91924 Livermore, California



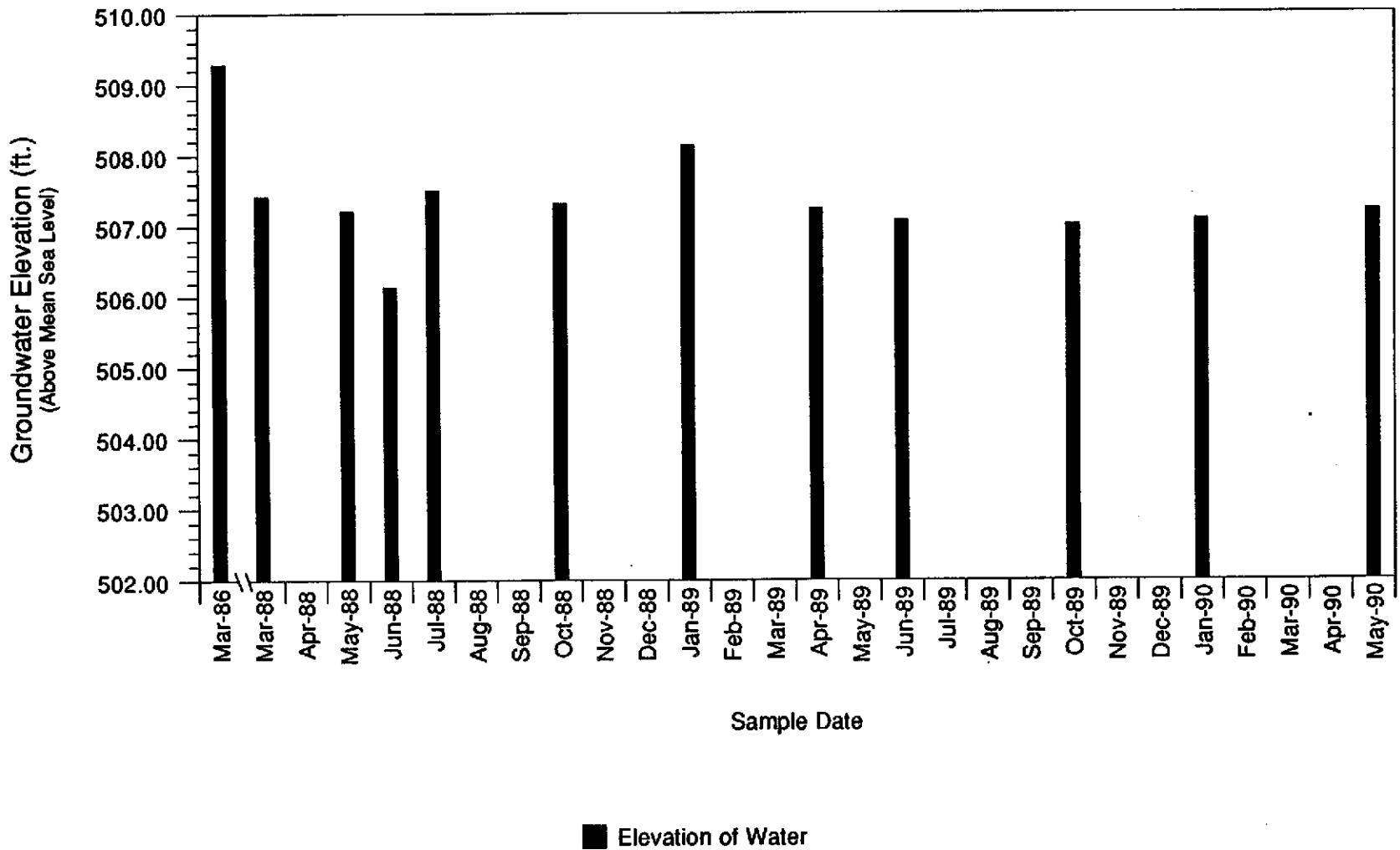
GROUNDWATER MONITOR WELL C-12

Chevron Service Station #91924 Livermore, California



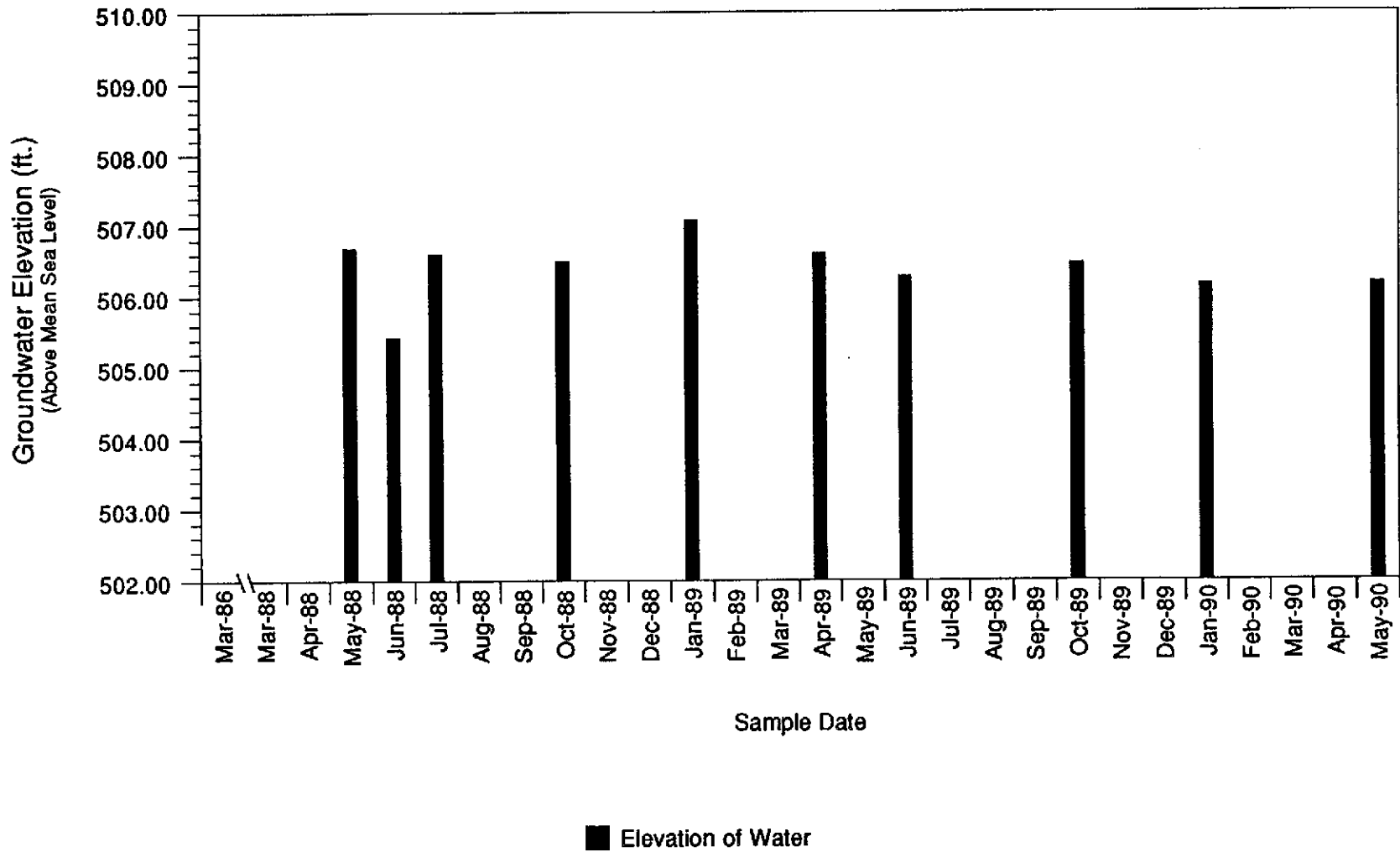
GROUNDWATER MONITOR WELL C-13

Chevron Service Station #91924 Livermore, California



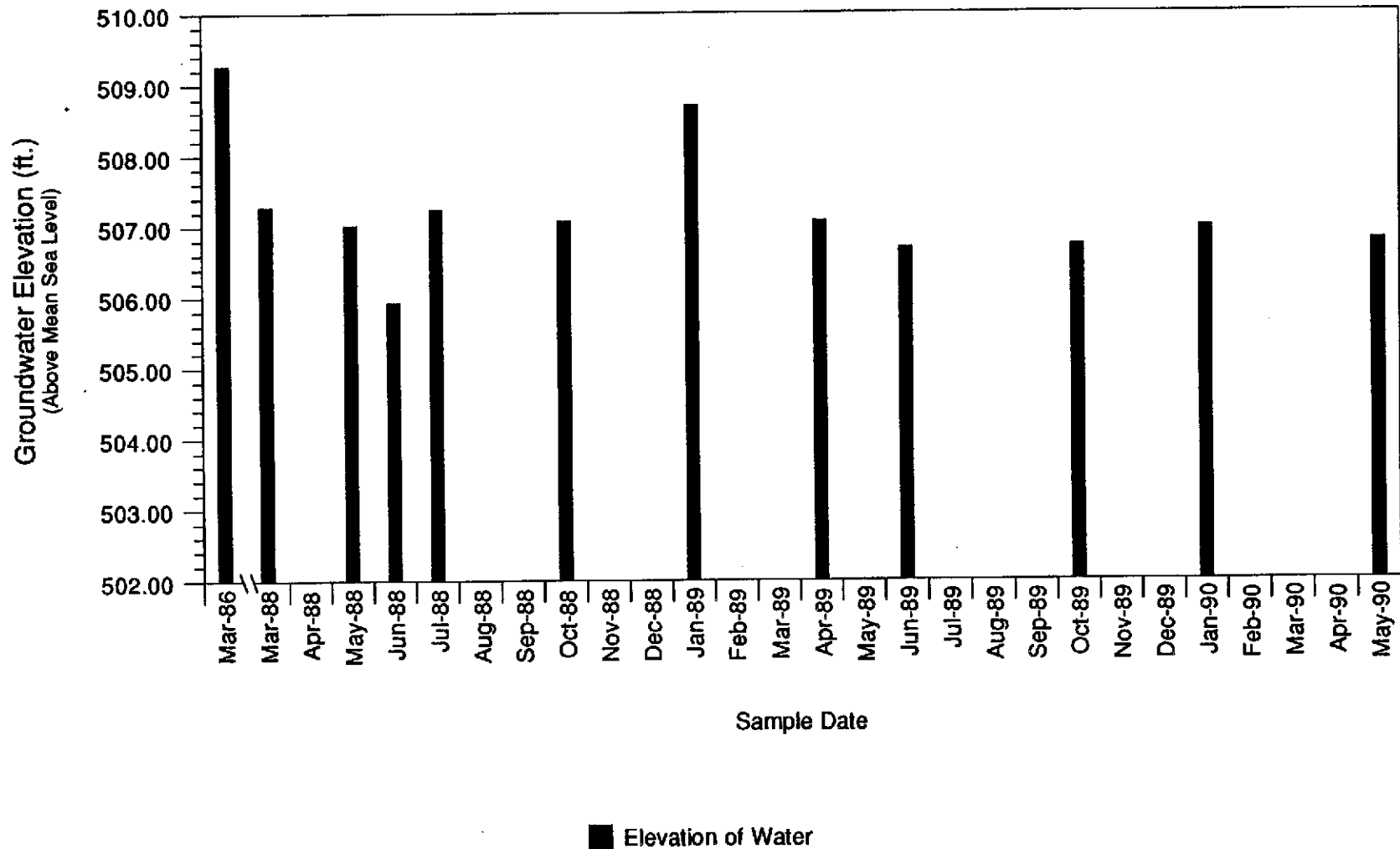
GROUNDWATER MONITOR WELL C-14

Chevron Service Station #91924 Livermore, California



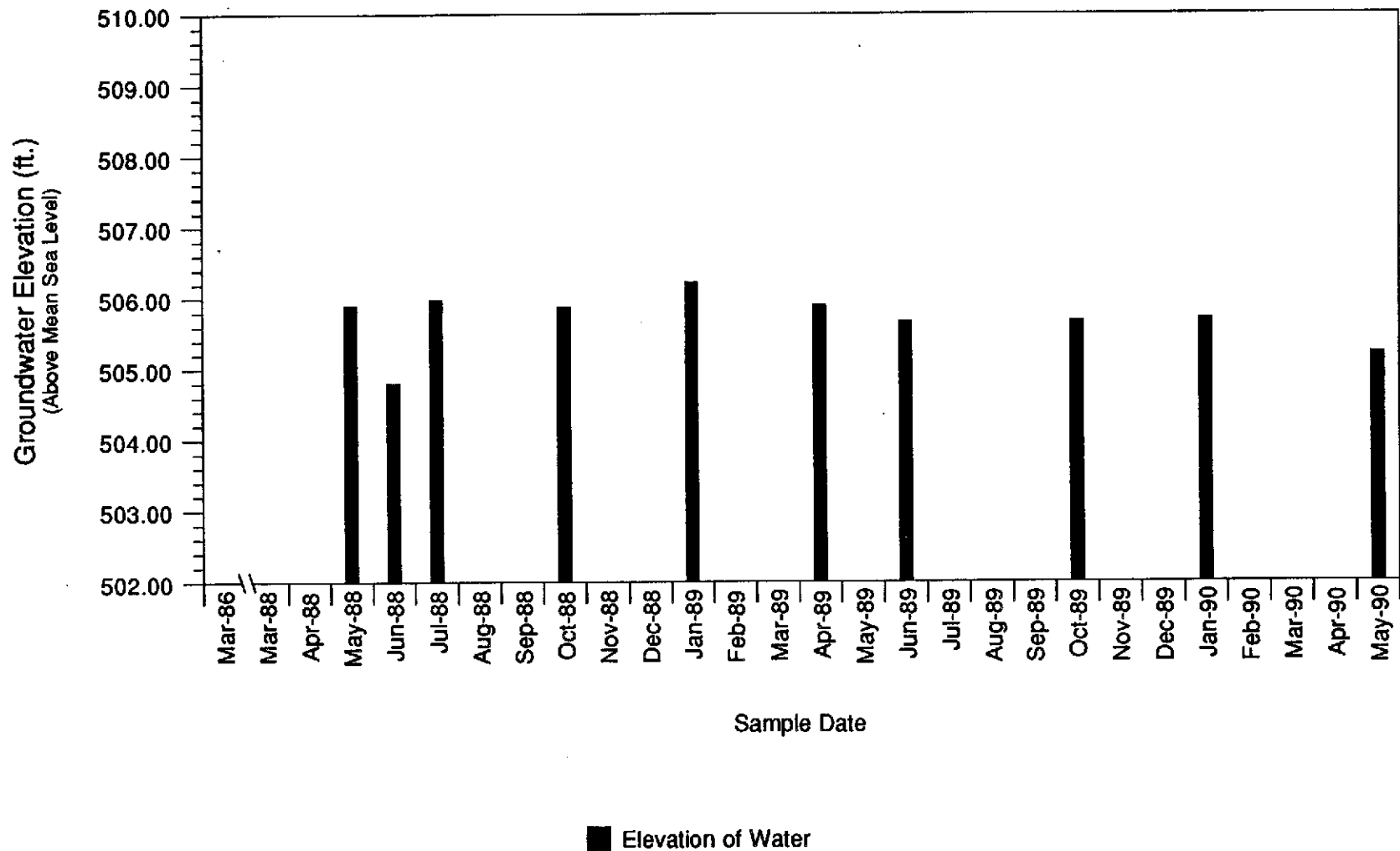
GROUNDWATER MONITOR WELL C-15

Chevron Service Station #91924 Livermore, California



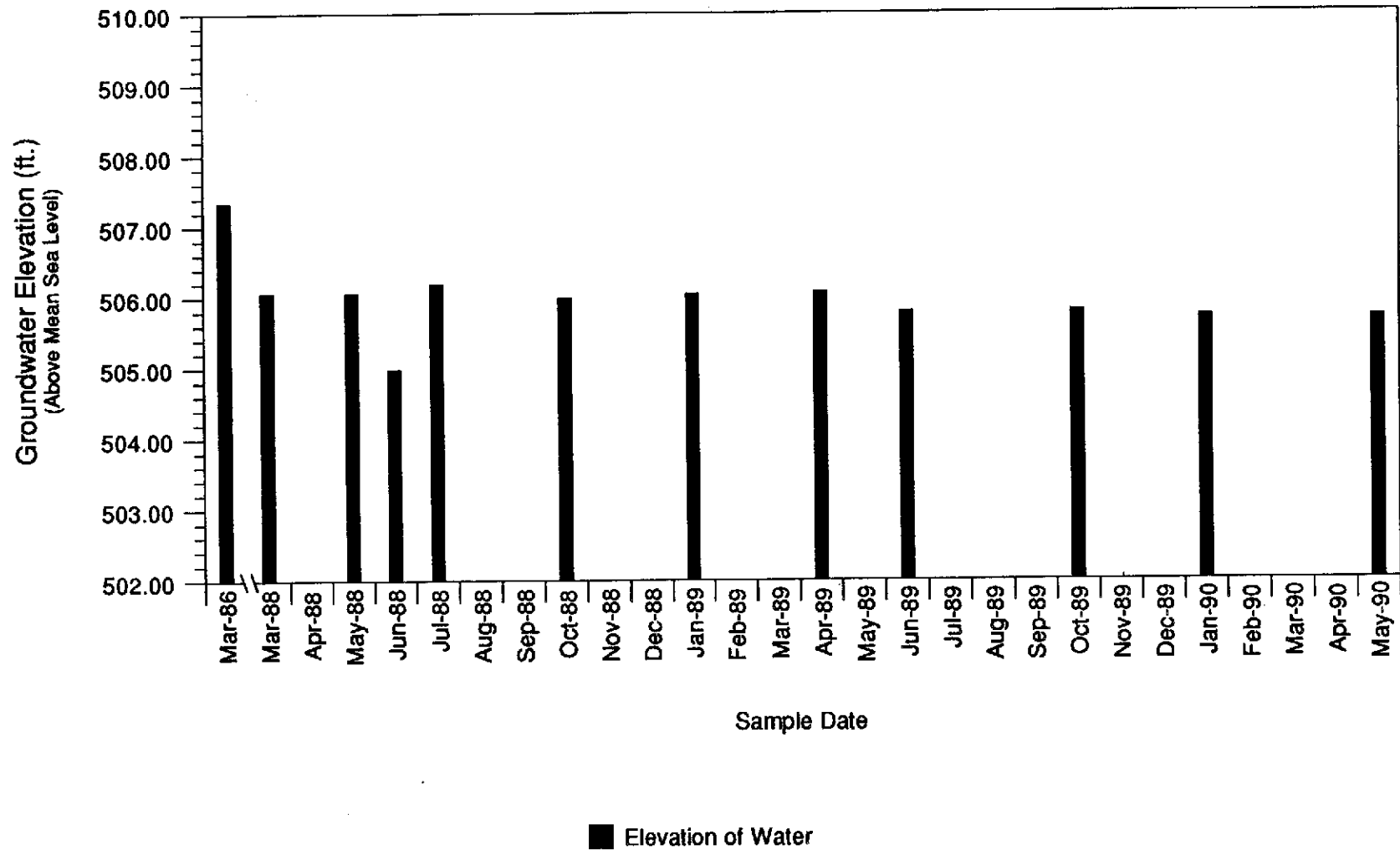
GROUNDWATER MONITOR WELL C-16

Chevron Service Station #91924 Livermore, California



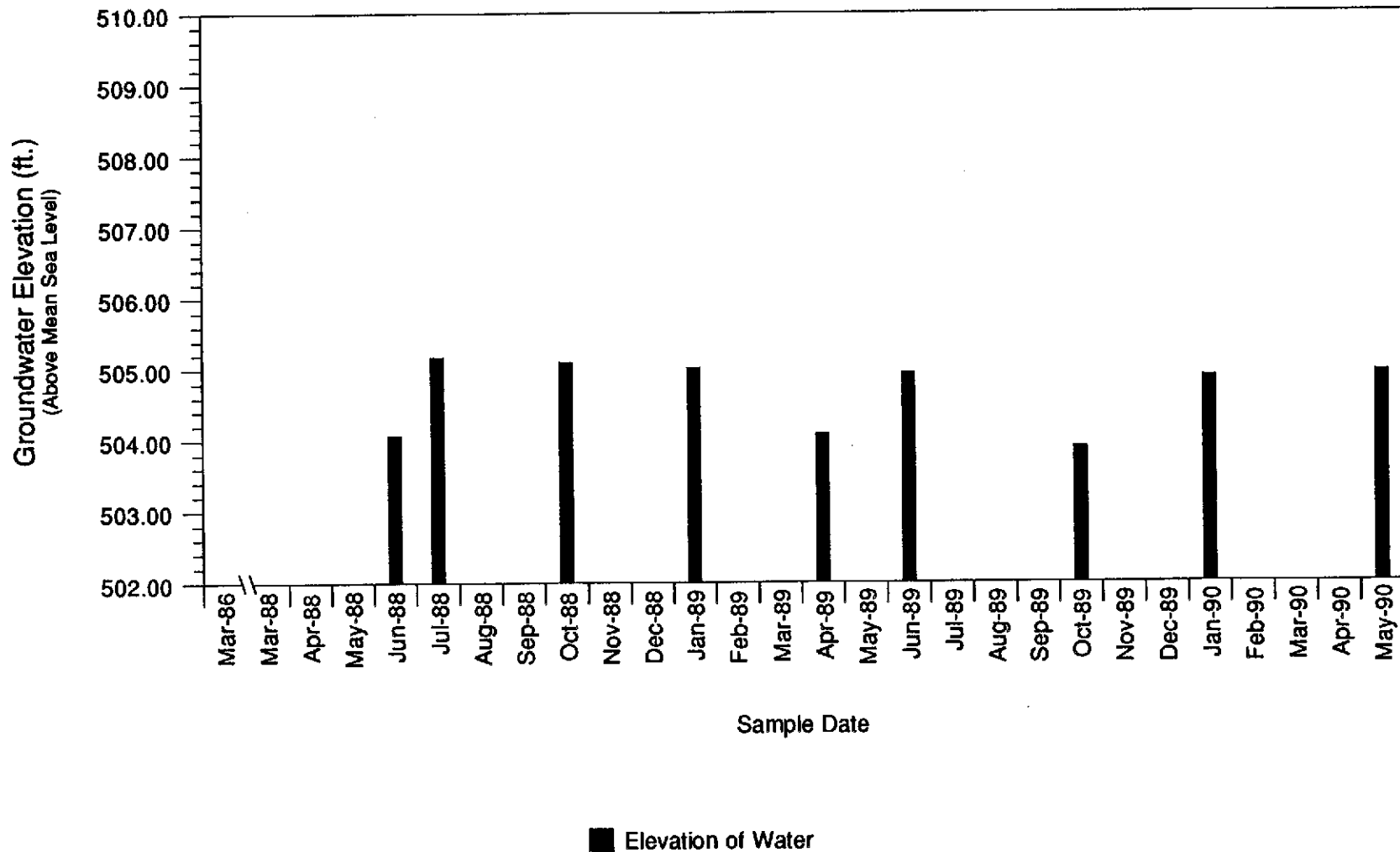
GROUNDWATER MONITOR WELL C-17

Chevron Service Station #91924 Livermore, California



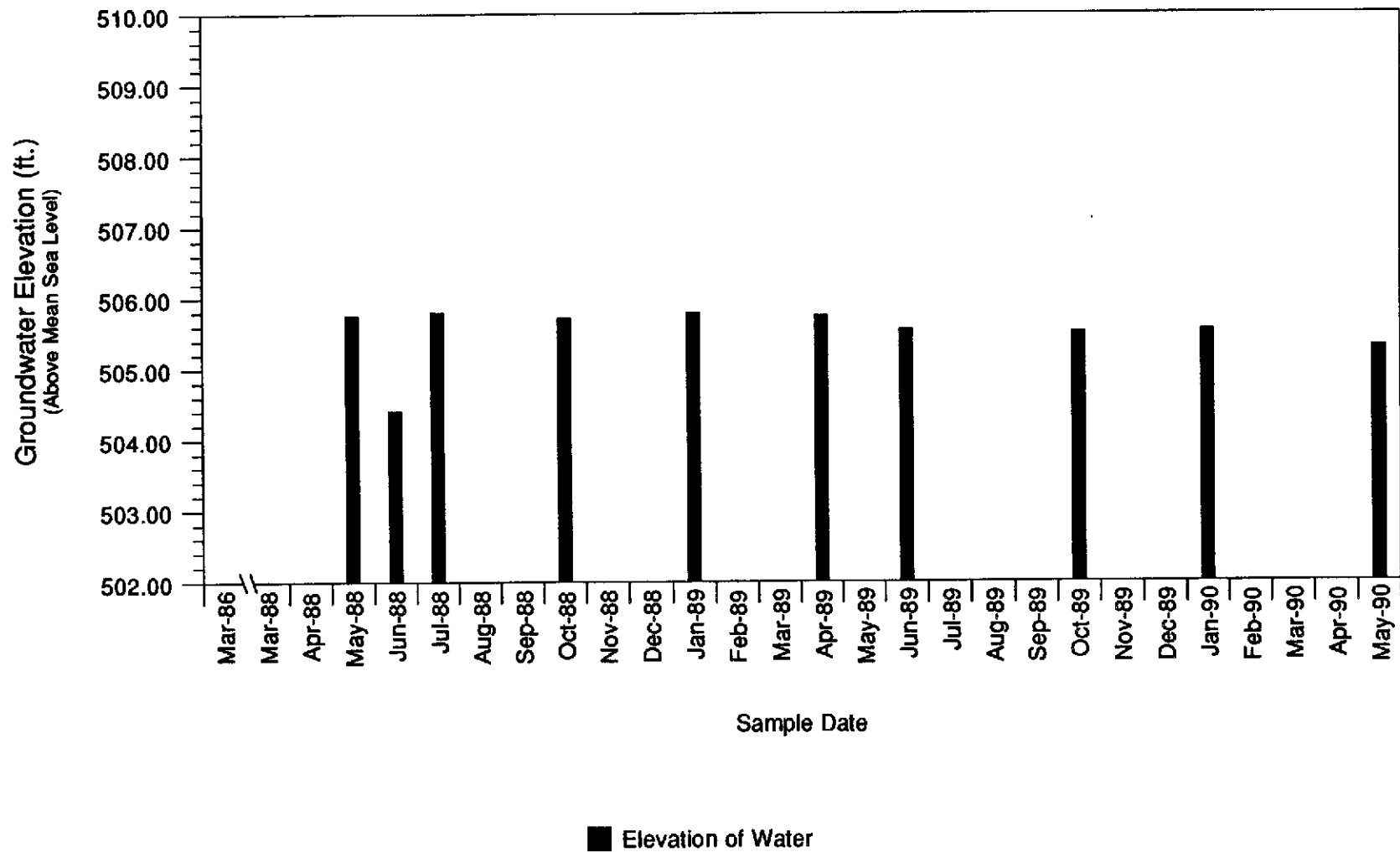
GROUNDWATER MONITOR WELL C-18

Chevron Service Station #91924 Livermore, California



GROUNDWATER MONITOR WELL C-19

Chevron Service Station #91924 Livermore, California





ATTACHMENT D
CHAIN-OF-CUSTODY FORMS

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

Chevron Facility Number 91924
 Consultant _____ Consultant _____
 Release Number _____ Project Number 1-024.01
 Consultant Name WGR INC.
 Address SAN RAFAEL
 Fax Number _____
 Project Contact (Name) SLOTT WEBER
 (Phone) 415 457-7595

Chevron Contact (Name) JOHN RANDALL
 (Phone) 415 842-9625
 Laboratory Name PALE
 Contract Number 2532410
 Samples Collected by (Name) MARK FLYE, DEAN ALLARD
 Collection Date 7, 8 MAY 1990
 Signature Mark Flye

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed							Remarks	
								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
05080-01 A,B,C,D,E		5	W		1002	SEE REMARKS	X	X		X					X	VOID FOR
05080-02 A,B,C,D,E					0829											EPA 8015/602
05080-03 A,B,C,D,E					0804											HAVE HU
05080-05 A,B,C,D,E					0945											VOID FOR
05080-06 A,B,C,D,E					0848											EPA 601
05080-07 A,B,C,D,E					0910											UNPRESERVED
05080-08 A,B,C,D,E					1533											
05080-09 A,B,C,D,E					1555											
05080-10 A,B,C,D,E					1410											
05080-11 A,B,C,D,E					1045											
05080-12 A,B,C,D,E					1426											
05080-13 A,B,C,D,E					0950											
05080-14 A,B		2			1030											

Relinquished By (Signature) <u>Mark Flye</u>	Organization <u>WGR</u>	Date/Time <u>5.8.90</u> <u>1450</u>	Received By (Signature) <u>[Signature]</u>	Organization <u>[Signature]</u>	Date/Time <u>5/8 1990</u>	Turn Around Time (Circle Choice) 24 Hrs 48 Hrs 5 Days <u>10 Days</u>
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	

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

Chevron Facility Number 91924
 Consultant _____ Consultant Project Number 1-024.01
 Release Number _____
 Consultant Name WGR INC.
 Address SAN RAFAEL
 Fax Number _____
 Project Contact (Name) SCOTT WEEB
 (Phone) 415 467-7595

Chevron Contact (Name) JOHN RANDALL
 (Phone) 415 842-9625
 Laboratory Name PAGE
 Contract Number 2532410
 Samples Collected by (Name) MARK FATG, DEAN ALLANO
 Collection Date 7, 8 MAY 1990
 Signature Mark Fatg

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed							Remarks
								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	
05080-15 ABCDF		5	W		0745	SEE REMARKS	X	X			X				VOID FOR EPA 8015/62
05080-16 ABCDF					1513										HAVE ALL
05080-17 ABCDF					1311										
05080-18 ABCDF					1452										VOID FOR EPA 601
05080-19 ABCDF					1335										UNRECOVERED
05080-20 A D		2			1										

Relinquished By (Signature) <u>Mark Fatg</u>	Organization <u>WGR</u>	Date/Time <u>5.8.90</u> <u>1450</u>	Received By (Signature) <u>Ed [Signature]</u>	Organization <u>Page</u>	Date/Time <u>5/8 1450</u>	Turn Around Time (Circle Choice) 24 Hrs 48 Hrs 5 Days <u>10 Days</u>
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	



ATTACHMENT E

**LABORATORY REPORTS WITH QUALITY ASSURANCE/
QUALITY CONTROL DOCUMENTATION**



REPORT OF LABORATORY ANALYSIS

Western Geologic Resources
 2169 E. Francisco Blvd. Suite B
 San Rafael, CA 94901

May 22, 1990
 PACE Project
 Number: 400508502

Attn: Mr. Scott Weber

CH91924/WGR 1-024.01

PACE Sample Number:	748270	748280	748290
Date Collected:	05/08/90	05/08/90	05/08/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 01	05080 - 02	05080 - 03

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	1300	340	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.5	37	1.3	ND
Ethylbenzene	ug/L	0.5	40	8.4	ND
Toluene	ug/L	0.5	9.2	2.7	ND
Xylenes, Total	ug/L	0.5	32	11	ND

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	1.2	1.1	0.7
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
 ND Not detected at or above the MDL.

Mr. Scott Weber
 Page 2

May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748270	748280	748290
Date Collected:	05/08/90	05/08/90	05/08/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 01	05080 - 02	05080 - 03
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u> <u>A, B, C, D, E</u> <u>A, B, C, D, E</u>

ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			94%	104%	100%
1,4-Dichlorobutane (Surrogate Recovery)			87%	103%	106%

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748300	748310	748320
Date Collected:	05/08/90	05/08/90	05/08/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 05	05080 - 06	05080 - 07
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u>

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):		-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	140	1800
PURGEABLE AROMATICS (BTXE BY EPA 8020):		-	-	-
Benzene	ug/L	0.5	0.6	17
Ethylbenzene	ug/L	0.5	11	LT 2.5
Toluene	ug/L	0.5	0.8	140
Xylenes, Total	ug/L	0.5	7.2	400

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	0.8	1.6	1.7
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
 LT Less than.
 ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748300	748310	748320
Date Collected:	05/08/90	05/08/90	05/08/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 05	05080 - 06	05080 - 07
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u>

ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			93%	96%	105%
1,4-Dichlorobutane (Surrogate Recovery)			108%	113%	110%

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748330	748340	748350
Date Collected:	05/07/90	05/07/90	05/07/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 08	05080 - 09	05080 - 10
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A,B,C,D,E</u> <u>A,B,C,D,E</u> <u>A,B,C,D,E</u>

ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):		-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	620	7100
PURGEABLE AROMATICS (BTXE BY EPA 8020):		-	-	-
Benzene	ug/L	0.5	3.9	21
Ethylbenzene	ug/L	0.5	0.5	89
Toluene	ug/L	0.5	6.0	33
Xylenes, Total	ug/L	0.5	3.4	500

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	1.9	1.9	ND
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748330	748340	748350
Date Collected:	05/07/90	05/07/90	05/07/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 08	05080 - 09	05080 - 10
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u>

ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			111%	113%	113%
1,4-Dichlorobutane (Surrogate Recovery)			110%	115%	112%

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
PACE Project
Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748360	748370	748380
Date Collected:	05/08/90	05/07/90	05/08/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 11	05080 - 12	05080 - 13

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	110	ND	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.5	12	ND	ND
Ethylbenzene	ug/L	0.5	0.9	ND	ND
Toluene	ug/L	0.5	11	ND	ND
Xylenes, Total	ug/L	0.5	22	ND	ND

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	ND	ND
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748360	748370	748380
Date Collected:	05/08/90	05/07/90	05/08/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 11	05080 - 12	05080 - 13

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A,B,C,D,E</u>	<u>A,B,C,D,E</u>	<u>A,B,C,D,E</u>
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ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			91%	115%	112%
1,4-Dichlorobutane (Surrogate Recovery)			107%	108%	105%

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
PACE Project
Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748390	748400	748410
Date Collected:	05/08/90	05/08/90	05/07/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 14	05080 - 15	05080 - 16

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	62000	ND	480
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.5	7500	ND	49
Ethylbenzene	ug/L	0.5	1400	ND	29
Toluene	ug/L	0.5	17000	ND	4.4
Xylenes, Total	ug/L	0.5	14000	ND	13

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	13	ND	4.5
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748390	748400	748410
Date Collected:	05/08/90	05/08/90	05/07/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 14	05080 - 15	05080 - 16

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>
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ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			119%	101%	104%
1,4-Dichlorobutane (Surrogate Recovery)			103%	103%	102%

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
PACE Project
Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748420	748430	748440
Date Collected:	05/07/90	05/07/90	05/07/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 17	05080 - 18	05080 - 19

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	9500	ND	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.5	25	ND	ND
Ethylbenzene	ug/L	0.5	210	ND	ND
Toluene	ug/L	0.5	130	ND	ND
Xylenes, Total	ug/L	0.5	470	ND	ND

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	ND	4.6
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number:	748420	748430	748440
Date Collected:	05/07/90	05/07/90	05/07/90
Date Received:	05/08/90	05/08/90	05/08/90
	05080 - 17	05080 - 18	05080 - 19

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>	<u>A, B, C, D, E</u>
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ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			107%	100%	109%
1,4-Dichlorobutane (Surrogate Recovery)			102%	106%	114%

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number: 748450
 Date Collected: 05/08/90
 Date Received: 05/08/90
 05080 - 20

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND
Chloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	2.0	ND
Bromomethane	ug/L	2.0	ND
Chloroethane	ug/L	2.0	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND
1,1-Dichloroethene	ug/L	0.5	ND
Methylene Chloride	ug/L	0.5	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	ug/L	0.5	ND
Chloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND
Carbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.5	ND
Bromodichloromethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
 PACE Project
 Number: 400508502

PACE Sample Number: 748450
 Date Collected: 05/08/90
 Date Received: 05/08/90
 05080 - 20

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>A, B</u>
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ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

cis-1,3-Dichloropropene	ug/L	0.5	ND
1,1,2-Trichloroethane	ug/L	0.5	ND
Tetrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND
Chlorobenzene	ug/L	0.5	ND
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
Bromochloromethane (Surrogate Recovery)			110%
1,4-Dichlorobutane (Surrogate Recovery)			116%

MDL Method Detection Limit
 ND Not detected at or above the MDL.

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May 22, 1990
PACE Project
Number: 400508502

CH91924/WGR 1-024.01

PACE Sample Number: 748460
Date Collected: 05/07/90
Date Received: 05/08/90

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Q.C. Batch No.</u>
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ORGANIC ANALYSIS

PURGEABLE FUELS AND AROMATICS

TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	Q2108
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	ug/L	0.5	Q2109
Ethylbenzene	ug/L	0.5	Q2110

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	Q3087
Chloromethane	ug/L	2.0	Q3088

MDL Method Detection Limit

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.



Ruth J. Siegmund
Organic Chemistry Manager