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

May 14, 1990

Marketing Operations

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

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

Re: Chevron Service Station #9-0020
17TH and Harrison
Oakland, CA

Dear Mr. Shahid:

Enclosed we are forwarding the Quarterly Groundwater Sampling report dated May 4, 1990, conducted by our consultant, Western Geologic Resources, Inc., for the above referenced site.

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

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

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

Very truly yours,
C. G. Trimbach

By John Randall
John Randall

JMR/jmr
Enclosure

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

WESTERN GEOLOGIC RESOURCES, INC.

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

KLD MAY 11 '90

4 May 1990

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

Re: Quarterly Groundwater Monitoring
Sampled January 1990
Former Chevron Service Station #90020
17th and Harrison Streets
Oakland, California
WGR Project #1-012.03

Dear Mr. Randall:

This letter report presents the results of the quarterly groundwater monitoring performed in January 1990 by Western Geologic Resources, Inc. (WGR) at the subject site (Figure 1).

GROUNDWATER SAMPLING

On 9 January 1990, WGR staff measured depth-to-water and collected groundwater samples from monitor wells MW-1 through MW-8 with dedicated sampling systems. Monitor wells MW-5 and MW-7 were purged dry before three well-casing volumes could be evacuated. Wells MW-5 and MW-7 were sampled after recovery to 93% and 52% of their initial static water levels, respectively. 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 analytical results. The groundwater samples and a laboratory-supplied travel blank, consisting of deionized water, were shipped under chain-of-custody to Groundwater Technology Environmental Laboratories, Inc. (GTEL) of Concord, California.

GROUNDWATER FLOW

Figure 2 shows the potentiometric surface of shallow groundwater, based on depth-to-water measurements taken on 9 January 1990. Groundwater-elevation data are presented in Table 1. Hydrographs showing groundwater-elevations over time are included as Attachment C. Average groundwater flow for 9 January 1990 was to the east at a gradient of 0.5%.

ANALYTIC RESULTS

Groundwater samples from monitor wells MW-1 through MW-8 were analyzed for total petroleum hydrocarbons (TPH), for benzene, toluene, ethylbenzene and total xylenes (BTEX) and for selected halocarbons by EPA Methods 8015, 8020 and 8010, respectively. Analytic results for past sampling events and this round of sampling are presented in Tables 2 and 3. The chain-of-custody form, laboratory reports and quality assurance/quality control (QA/QC) documents are included as Attachments D and E. A distribution map for tetrachloroethene (PCE) in shallow groundwater is presented as Figure 3.

COMMENTS

TPH and BTEX were detected in groundwater samples from well MW-7. Samples from all other wells were below detection limits for TPH and BTEX. Halocarbon concentrations in samples from all wells were not significantly different from those found in previous sampling rounds.

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

Sincerely,
Western Geologic Resources, Inc.

Kenneth R. Leonard
Staff Geologist

Thomas M. Howard
Project Hydrogeologist

KRL/TMH:ag

012L1MY0.WP

LAKITA SYSTEMS INTERNATIONAL

P.O. Box 5713 Novato, CA 94948 ☎ 415/382-1987 Fax 415/382-2049 Paging 415/455-2668

COMPANY OVERVIEW

It is important to stress the type of services Lakita Systems provides for its clients. Our consulting associates are highly technical and have extensive experience in computer engineering. The principles of our organization take a personal interest in maintaining the high quality of service we have come to be known for. This is done by monitoring the performance and continually keeping track of our client's needs on a timely basis.

Some of the projects Lakita Systems has been involved in include Client Server, Windows application development, data and voice communications, fiber optics, data switching and hardware installation. We have in-depth knowledge in many types of business applications such as manufacturing, banking, property management, insurance, and publishing among others.

Our development practices utilize the clients knowledge and involve the client with the development process. We believe using RAD (Rapid Application Development) methodology gives the client better results rather than over analyzing the business and system needs. Analysis is required, but over analysis can delay or impede development and acceptance of a product. By using proven state of the art developmental tools and qualified consultants, Lakita Systems provides our clients with the greatest computer services available in the timeliest fashion.

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9335 (FAX)

June 10, 1998
STID 3812

Philip Briggs
Chevron USA Inc.
P.O. Box 5504
San Ramon, CA 94583-0804

re: 1633 Harrison St., Oakland, CA 94612

Dear Philip Briggs:

This office has reviewed a First Quarter Groundwater Monitoring Report dated March 31, 1998 by Blaine Tech Services, Inc. for the above site. Your cover letter was dated April 13, 1998.The following are comments concerning this report.

1. Your request to use hydrogen peroxide should be sent to this office and also Chuck Headlee of the Regional Water Quality Control Board in the form of a workplan. We would need to know the concentration, method of injection, quantity, time period, method of detecting effect, and locations. The Regional Board will then assist us in reviewing your proposal.

2. The use of ORC is acceptable in MW-16, except that there will be no way of knowing what this will do down gradient. It appears from the history that we are seeing a plume of contamination pass this point and there is no reason to think that the plume ends there. Additional investigation may be warranted in the down gradient direction to assess plume stability or degradation. This situation is continuing and was mentioned before.

If you have any questions call me at (510) 567-6782.

Sincerely,

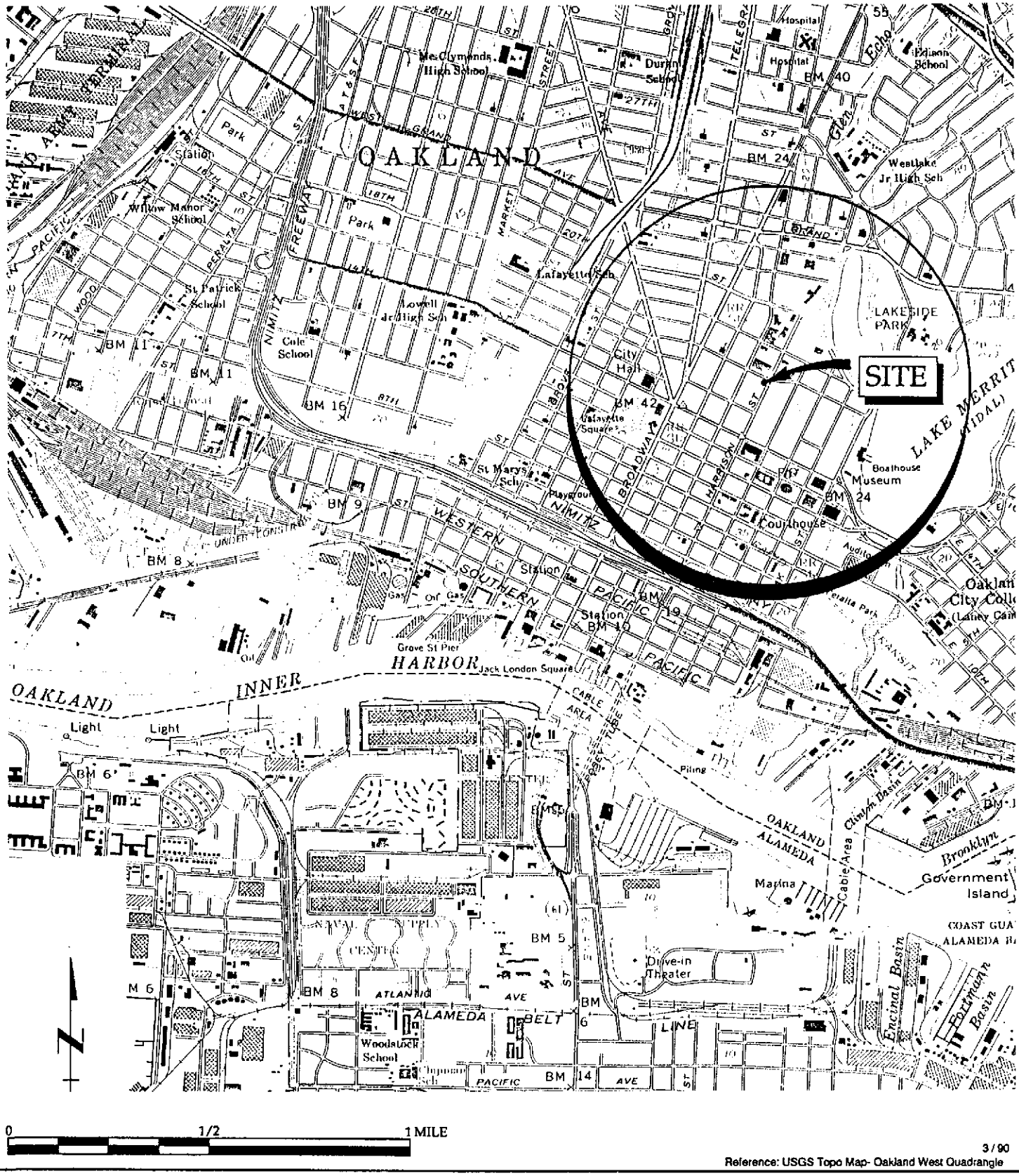
Thomas F. Peacock, Manager
Division of Environmental Protection

c: Dick Pantages, Chief - files

FIGURES

TABLES

ATTACHMENTS



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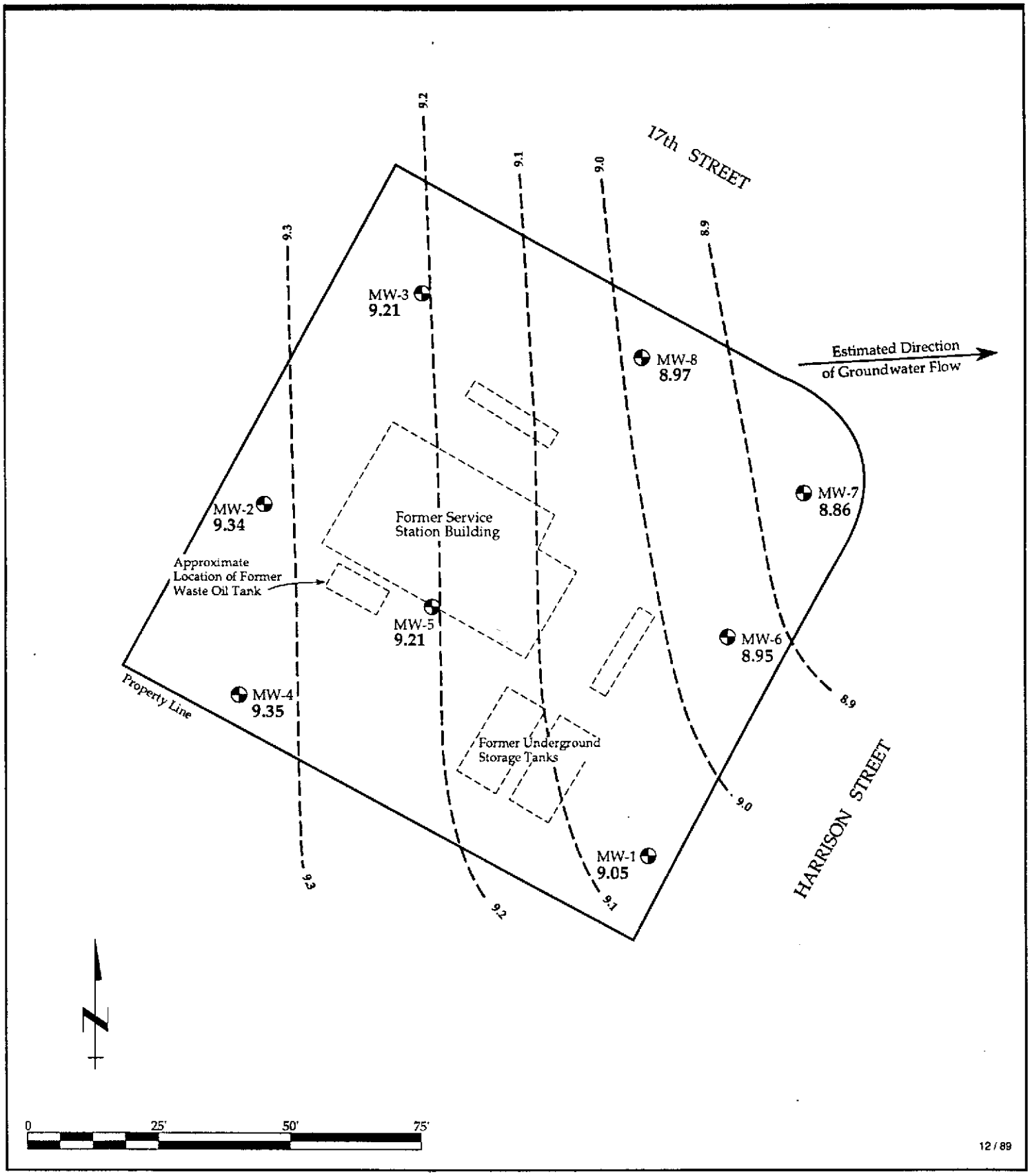
Reference: USGS Topo Map- Oakland West Quadrangle

Site Location Map
Chevron Service Station #90020
17th and Harrison Streets, Oakland, California

FIGURE
1

WESTERN GEOLOGIC RESOURCES, INC.

1-012.03



LEGEND

MW-4 9.35 — Monitor Well Location and groundwater elevation, feet above mean sea level

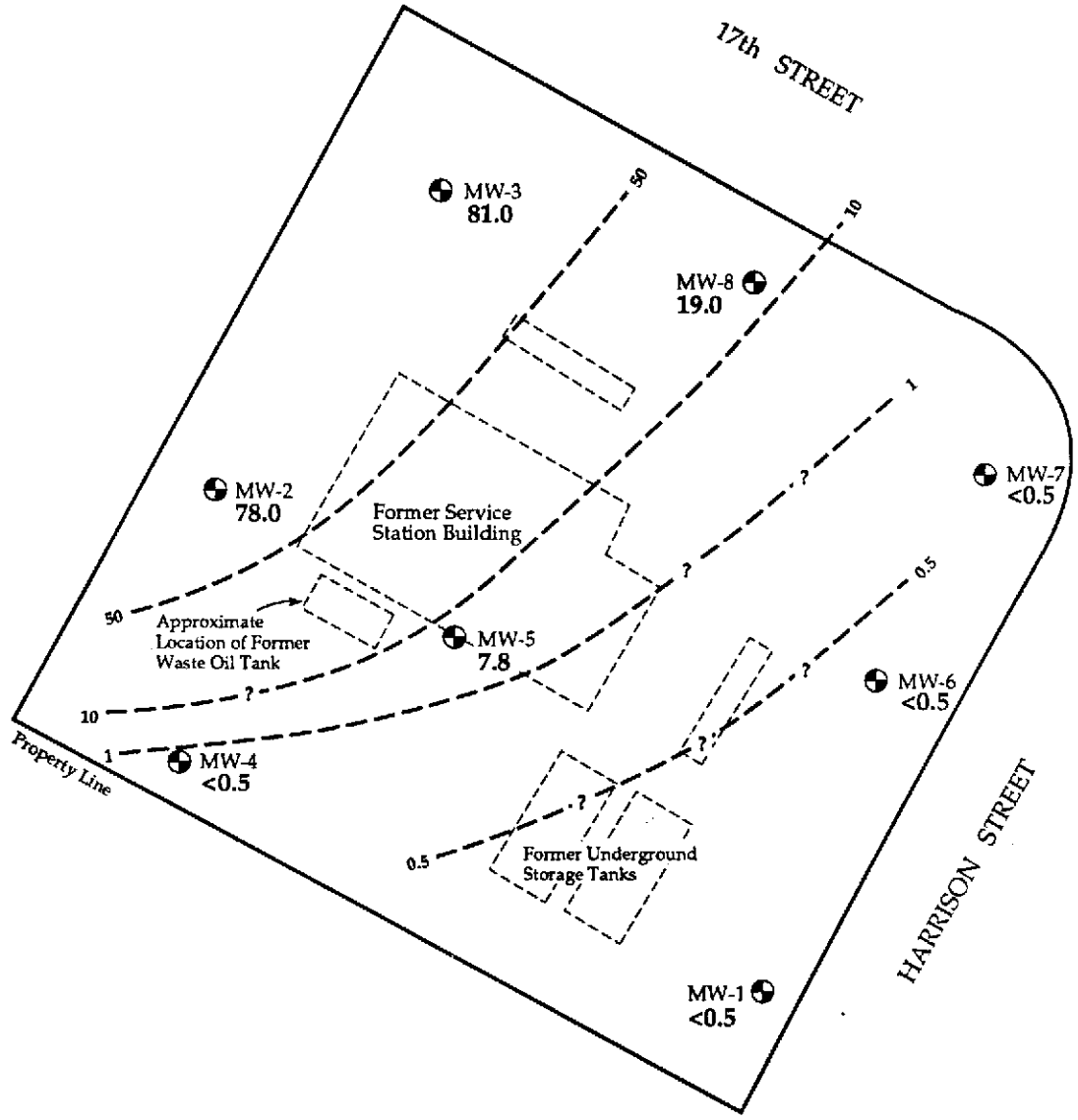
9.2 — — — Groundwater elevation contour, feet above mean sea level, dashed where inferred

Potentiometric Surface of Shallow Groundwater, 9 January 1990
Chevron Service Station #90020
17th and Harrison Streets, Oakland, California

FIGURE 2

WESTERN GEOLOGIC RESOURCES, INC.

1-012.03



LEGEND

MW-8 **19.0**	Monitor Well Location and PCE Concentration in parts per billion
10 — — — ?	Isoconcentration Contour, dashed where inferred, queried where uncertain

Distribution of Tetrachloroethene (PCE) in Shallow Groundwater, 9 January 1990
Chevron Service Station #90020
17th and Harrison Streets, Oakland, California

FIGURE **3**

WESTERN GEOLOGIC RESOURCES, INC. 1-012.03

Table 1. Groundwater and Top-of-Casing Elevations
Former Chevron Service Station #90020
17th/Harrison, Oakland, California

Monitor Well	Date	TOC	DTW	Elev.-W
MW-1	3 Nov 88	29.82	20.40	9.42
	2 Feb 89	29.82	20.71	9.11
	23 Apr 89	29.82	20.34	9.48
	28 Jul 89	29.82	20.58	9.24
	30 Oct 89	29.82	20.52	9.30
	9 Jan 90	29.82	20.77	9.05
MW-2	3 Nov 88	30.59	20.89	9.70
	2 Feb 89	30.59	21.21	9.38
	23 Apr 89	30.59	20.82	9.77
	28 Jul 89	30.59	21.02	9.57
	30 Oct 89	30.59	20.96	9.63
	9 Jan 90	30.59	21.25	9.34
MW-3	3 Nov 89	30.09	20.54	9.55
	2 Feb 89	30.09	20.85	9.24
	23 Apr 89	30.09	20.43	9.66
	28 Jul 89	30.09	20.64	9.45
	30 Oct 89	30.09	20.61	9.48
	9 Jan 90	30.09	20.88	9.21
MW-4	23 Apr 89	31.17	21.33	9.84
	28 Jul 89	31.17	21.58	9.59
	30 Oct 89	31.17	21.54	9.63
	9 Jan 90	31.17	21.82	9.35
MW-5	23 Apr 89	30.28	20.62	9.66
	28 Jul 89	30.28	20.86	9.42
	30 Oct 89	30.28	20.82	9.46
	9 Jan 90	30.28	21.07	9.21
MW-6	23 Apr 89	29.46	20.05	9.41
	28 Jul 89	29.46	20.30	9.16
	30 Oct 89	29.46	20.32	9.14
	9 Jan 90	29.46	20.51	8.95
MW-7	23 Apr 89	29.01	18.99	10.02
	28 Jul 89	29.01	19.94	9.07
	30 Oct 89	29.01	19.97	9.04
	9 Jan 90	29.01	20.15	8.86
MW-8	23 Apr 89	29.57	20.14	9.43
	28 Jul 89	29.57	20.37	9.20
	30 Oct 89	29.57	20.32	9.25
	9 Jan 90	29.57	20.60	8.97

Table 1. Groundwater and Top-of-Casing Elevations (continued)
Former Chevron Service Station #90020
17th/Harrison, Oakland, California

Notes:

TOC = Top-of-Casing Elevation, feet above mean sea level
DTW = Depth-to-water, feet
Elev.W = Elevation of water, feet above mean sea level

Table 2 Analytic Results for Groundwater
TFH, TPH/TPPH and BTEX
Former Chevron Service Station 90020
17th/Harrison, Oakland, California

Monitor Well	Date	EPA Method	Lab	FC	TFH	TPH/TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	O & G
					<--------		ppb				-------->	ppm
MW-1	03 Nov 88	624/8015	BC	---	<1000	---	<1.0	<1.0	<1.0	<1.0	<1.0	---
MW-1	10 Feb 89	524.2/8240	CCAS	---	---	<100	<0.2	<0.2	<0.2	<0.4	<0.2	---
MW-1	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<3
MW-1	28 Jul 89	8260	CCAS	---	---	<50	<0.1	<0.5	<0.2	<0.5	<0.1	<3
MW-1	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-1	09 Jan 90	8020/8015	GTEL	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-2	03 Nov 88	624/8015	BC	---	<1000	---	<1.0	<1.0	<1.0	<1.0	<1.0	---
MW-2	10 Feb 89	524.2/8240	CCAS	---	---	<100	<0.2	<0.2	<0.2	<0.4	<0.2	---
MW-2	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<3
MW-2	28 Jul 89	8260	CCAS	---	---	<100	<0.2	<1.0	<0.2	<0.4	<0.2	<3
MW-2	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-2	09 Jan 90	8020/8015	GTEL	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-3	03 Nov 88	624/8015	BC	---	<1000	---	<1.0	<1.0	<1.0	<1.0	<1.0	---
MW-3	10 Feb 89	524.2/8240	CCAS	---	---	<100	<0.2	<0.2	<0.2	<0.4	<0.2	---
MW-3	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<3
MW-3	28 Jul 89	8260	CCAS	---	---	<100	<0.2	<1.0	<0.2	<0.4	<0.2	<3
MW-3	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-3	09 Jan 90	8020/8015	GTEL	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-4	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<3
MW-4	28 Jul 89	8260	CCAS	---	---	<50	<0.1	<0.5	<0.1	<0.2	<0.1	<3
MW-4	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-4	09 Jan 90	8020/8015	GTEL	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.5*	---

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Table 2 Analytic Results for Groundwater (continued)
TFH, TPH/TPPH and BTEX
Former Chevron Service Station 90020
17th/Harrison, Oakland, California

Monitor Well	Date	EPA Method	Lab	FC	TFH	TPH/TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	O & G
					<--------			ppb			-------->	ppm
MW-5	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<3
MW-5	28 Jul 89	8260	CCAS	---	---	<100	<0.2	<1.0	<0.2	<0.4	<0.2	<3
MW-5	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-5	09 Jan 90	8020/8015	GTEL	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-6	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<3
MW-6	28 Jul 89	8260	CCAS	---	---	<100	<0.2	<1.0	<0.2	<0.4	0.6	<3
MW-6	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-6	09 Jan 90	8020/8015	GTEL	---	---	<50	<0.3	<0.3	<0.3	<0.6	1.8*	---
MW-7	24 Apr 89	524.2/8260	CCAS	GAS	---	8400	100	260	160	1300	<1.0	3**
MW-7	28 Jul 89	8260	CCAS	GAS	---	7000	230	90	70	440	6.0	<3
MW-7D	28 Jul 89	8260	CCAS	GAS	---	6000	280	180	58	430	<5.0	---
MW-7	30 Oct 89	8020/8015	GTEL	GAS	---	10000	570	55	160	400	6.4*	---
MW-7D	30 Oct 89	8020/8015	GTEL	GAS	---	9900	520	82	180	410	6.2*	---
MW-7	09 Jan 90	8020/8015	GTEL	GAS	---	3400	290	72	9	200	8.4*	---
MW-8	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	3
MW-8D	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	---
MW-8	28 Jul 89	8260	CCAS	---	---	<100	<0.2	<1.0	<0.2	<0.4	<0.2	<3
MW-8	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
MW-8	09 Jan 90	8020/8015	GTEL	GAS	---	<50	<0.3	<0.3	<0.3	<0.6	<0.5*	---
TB	03 Nov 88	624/8015	BC	---	---	---	<1.0	<1.0	<1.0	<1.0	<1.0	---
TB	10 Feb 89	524.2/8240	CCAS	---	---	<50	<0.1	<0.1	<0.1	<0.2	<0.1	---
TB	24 Apr 89	524.2/8260	CCAS	---	---	<50	<0.5	<1.0	<1.0	<1.0	<1.0	---
TB	28 Jul 89	8260	CCAS	---	---	<50	<0.1	<0.5	<0.1	<0.2	<0.1	---

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Table 2 Analytic Results for Groundwater (continued)
TFH, TPH/TPPH and BTEX
Former Chevron Service Station 90020
17th/Harrison, Oakland, California

Monitor Well	Date	EPA Method	Lab	FC	TFH	TPH/TPPH	Benzene	Toluene	E-Benzene	Xylenes	1,2-DCA	O & G
					<-ppb->							ppm
TB	30 Oct 89	8020/8015	GTEL	---	---	<500	<0.3	<0.3	<0.3	<0.6	<0.5*	---
TB	09 Jan 90	8020/8015	GTEL	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.5*	---

Notes:

ppb = parts-per-billion
ppm = parts-per-million
O & G = Oil and Grease by California Standard Method 503E
* = Analyzed by EPA Method 601
** = Acetone 50 ppb, 2-Butanone 160 ppb
FC = Fuel characterization
GAS = Gasoline
TFH = Total fuel hydrocarbons
TPH/TPPH = Total petroleum hydrocarbons/Total purgeable petroleum hydrocarbons
E-Benzene = Ethyl benzene
1,2-DCA = 1,2-Dichloroethane
TB = Travel blank
D = Duplicate analysis
BC = Brown and Caldwell Laboratories
CCAS = Central Coast Analytical Services
GTEL = Groundwater Technology Environmental Laboratories

WESTERN GEOLOGIC RESOURCES, INC.

TABLE 3. Analytic Results for Groundwater
Selected Halocarbons
Former Chevron Service Station #90020
17th/Harrison, Oakland, California

Monitor Well	Date	EPA Method	LAB	Carb Tet	Chlor	PCE	TCE	1,2-DCE*	t-1,2-DCE	c-1,2-DCE	TCA
MW-1	03 Nov 88	624/8015	BC	18.0	7.0	<1.0	<1.0	---	<1.0	---	<1.0
MW-1	10 Feb 89	524.2/8240	CCAS	17.0	6.0	<0.2	<0.2	---	<0.2	<0.2	<0.2
MW-1	24 Apr 89	524.2/8260	CCAS	16.0	6.0	<1.0	<1.0	<1.0	---	---	<1.0
MW-1	28 Jul 89	8260	CCAS	20.0	6.4	<0.1	<0.1	---	<0.1	<0.1	0.3
MW-1	30 Oct 89	601	GTEL	11.0	4.9	<0.5	<0.5	---	<0.5	---	<0.5
MW-1	09 Jan 90	601	GTEL	24.0	7.2	<0.5	<0.5	---	<0.5	---	<0.5
MW-2	03 Nov 88	624/8015	BC	3.0	2.0	34.0	3.0	---	10.0	---	<1.0
MW-2	10 Feb 89	524.2/8240	CCAS	1.4	1.0	17.2	<0.2	---	<0.2	6.3	<0.2
MW-2	24 Apr 89	524.2/8260	CCAS	2.0	2.0	38.0	3.0	9.0	---	---	<1.0
MW-2	28 Jul 89	8260	CCAS	3.7	2.0	46.0	2.6	---	<0.2	<0.2	<0.2
MW-2	30 Oct 89	601	GTEL	1.4	2.6	53.0	1.1	---	14.0	---	<0.5
MW-2	09 Jan 90	601	GTEL	3.6	3.9	78.0	5.3	---	16.0	---	<0.5
MW-3	03 Nov 88	624/8015	BC	8.0	6.0	84.0	3.0	---	5.0	---	<1.0
MW-3	10 Feb 89	524.2/8240	CCAS	5.8	4.0	53.0	1.9	---	<0.2	9.0	<0.2
MW-3	24 Apr 89	524.2/8260	CCAS	7.0	6.0	110.0	3.0	11.0	---	---	<1.0
MW-3	28 Jul 89	8260	CCAS	8.6	5.0	49.0	2.1	---	<0.2	11.0	<0.2
MW-3	30 Oct 89	601	GTEL	5.6	5.3	62.0	0.77	---	8.2	---	<0.5
MW-3	09 Jan 90	601	GTEL	8.6	6.1	81.0	3.8	---	8.7	---	<0.5
MW-4	24 Apr 89	524.2/8260	CCAS	35.0	11.0	<1.0	<1.0	<1.0	---	---	<1.0
MW-4	28 Jul 89	8260	CCAS	32.0	9.3	<0.1	<0.1	---	<0.1	<0.1	<0.1
MW-4	30 Oct 89	601	GTEL	32.0	8.5	<0.5	<0.5	---	<0.5	---	<0.5
MW-4	09 Jan 90	601	GTEL	36.0	9.8	<0.5	<0.5	---	<0.5	---	<0.5

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TABLE 3. Analytic Results for Groundwater (continued)
Selected Halocarbons
Former Chevron Service Station #90020
17th/Harrison, Oakland, California

Monitor Well	Date	EPA Method	LAB	Carb Tet	Chlor	PCE	TCE	1,2-DCE*	t-1,2-DCE	c-1,2-DCE	TCA
MW-5	24 Apr 89	524.2/8260	CCAS	4.0	5.0	4.0	<1.0	2.0	---	---	<1.0
MW-5	28 Jul 89	8260	CCAS	5.6	4.0	5.3	0.3	---	0.2	2.3	0.5
MW-5	30 Oct 89	601	GTEL	2.9	2.0	2.7	<0.5	---	0.86	---	<0.5
MW-5	09 Jan 90	601	GTEL	8.2	4.6	7.8	0.6	---	3.1	---	<0.5
MW-6	24 Apr 89	524.2/8260	CCAS	13.0	7.0	<1.0	<1.0	<1.0	---	---	<1.0
MW-6	28 Jul 89	8260	CCAS	9.6	4.0	<0.2	<0.2	---	<0.2	<0.2	0.5
MW-6	30 Oct 89	601	GTEL	8.2	3.6	<0.5	<0.5	---	<0.5	---	<0.5
MW-6	09 Jan 90	601	GTEL	10.0	4.2	<0.5	<0.5	---	<0.5	---	<0.5
MW-7	24 Apr 89	524.2/8260	CCAS	3.0	9.0	<1.0	<1.0	<1.0	---	---	<1.0
MW-7	28 Jul 89	8260	CCAS	<2.0	<10.0	<2.0	<2.0	---	<2.0	<2.0	<10.0
MW-7D	28 Jul 89	8260	CCAS	<5.0	<20.0	<5.0	<5.0	---	<5.0	<5.0	<5.0
MW-7	30 Oct 89	601	GTEL	<1.0	3.9	<1.0	<1.0	---	<1.0	---	<1.0
MW-7D	30 Oct 89	601	GTEL	<1.0	3.1	<1.0	<1.0	---	<1.0	---	<1.0
MW-7	09 Jan 90	601	GTEL	<0.5	3.0	<0.5	<0.5	---	<0.5	---	<0.5
MW-8	24 Apr 89	524.2/8260	CCAS	2.0	3.0	6.0	<1.0	4.0	---	---	<1.0
MW-8D	24 Apr 89	524.2/8260	CCAS	2.0	2.0	6.0	<1.0	3.0	---	---	<1.0
MW-8	28 Jul 89	8260	CCAS	2.3	2.0	5.6	<0.2	---	<0.2	3.8	<0.2
MW-8	30 Oct 89	601	GTEL	2.5	2.6	8.0	<0.5	---	5.5	---	<0.5
MW-8	09 Jan 90	601	GTEL	4.9	3.9	19.0	0.9	---	6.6	---	<0.5

WESTERN GEOLOGIC RESOURCES, INC.

TABLE 3. Analytic Results for Groundwater (continued)
Selected Halocarbons
Former Chevron Service Station #90020
17th/Harrison, Oakland, California

Monitor Well	Date	EPA Method	LAB	Carb Tet	Chlor	PCE	TCE	1,2-DCE*	t-1,2-DCE	c-1,2-DCE	TCA
TB	10 Feb 89	524.2/8240	CCAS	<0.1	<0.5	<0.1	<0.1	---	<0.1	<0.1	<0.1
TB	24 Apr 89	524.2/8260	CCAS	<1.0	<1.0	<1.0	<1.0	<1.0	---	---	<1.0
TB	28 Jul 89	8260	CCAS	<0.1	<0.5	<0.1	<0.1	---	<0.1	<0.1	<0.1
TB	30 Oct 89	601	GTEL	<0.5	<0.5	<0.5	<0.5	---	<0.5	---	<0.5
TB	09 Jan 90	601	GTEL	<0.5	<0.5	<0.5	<0.5	---	<0.5	---	<0.5

Notes:

ppb = parts-per-billion
Carb Tet = Carbon tetrachloride
Chlor = Chloroform
PCE = Tetrachloroethene
TCE = Trichloroethene
* = cis and trans isomers
1,2 DCE = 1,2-Dichloroethene
t = trans
c = cis
TCA = 1,1,1-Trichloroethane
D = Duplicate analysis
TB = Travel blank
BC = Brown and Caldwell Laboratories
CCAS = Central Coast Analytical Services
GTEL = Groundwater Technology Environmental Laboratories

012T3MYO.WK1

WESTERN GEOLOGIC RESOURCES, INC.

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

Job 17th / Harrison Date 1-9-90
Job # 1-012.03 Initials RS / JK

WELL	HISTORIC DATA/ DATE: DTW	DTLH	LHT	CURRENT DATA DTW	DTLH	LHT	METHOD WLP, PB or IP*	TIME	COMMENTS
MW1				20.77				7:47	
MW2				21.25				7:54	
MW3				20.88				7:41	
MW4				21.82				7:55	
MW5				21.07				7:50	
MW6				20.51				7:46	
MW7				20.15				7:45	
MW8				20.60				7:43	

PAGE 1 OF 1

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

WGR

WATER SAMPLING DATA Well Name MW-1 Date 1-9-90 Time 9:30
Job Name 17th / Harrison Job Number 1-012.03 Initials (RS)
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 20.77 ft.
Well Depth 29 ft. (spec.) Sounded Depth — ft.
Well Diameter 4 in. Date — Time —

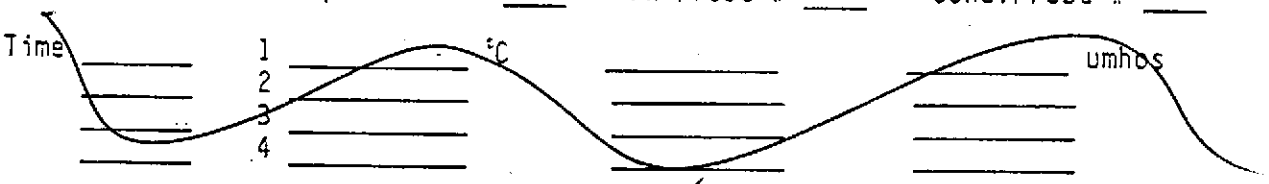
EVACUATION: Sampling Equipment:
PVC Bailer: _____ in. Dedicated: Bladder Pump ✓ ;Bailer _____
Sampling Port:Number _____ Rate _____ gpm. Volume _____ gal.
Other _____
Initial Height of Water in Casing 8.23 ft; Volume 5.4 gal.
Volume To Be Evacuated = 16.1 gal. (initial volume x3 ✓, x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	10:01		
Start	9:38		
Total minutes	23		
Amount Evacuated	16.25		
Total Evacuated	gal.		
Evacuation Rate	0.71 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_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Depth to water during pumping 21.95 ft. 9:55 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 10:05 time Depth to water 21.39 ft. Refrigerated: _____
Sample description: Water color Clear Odor none
Sediment/Foreign matter none

Sample ID no.		Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
D1096-01A	40 ml		HCl	EPA 602 / 8015	ETEL
-01B	ml		"	" "	
-01C	ml		NONE	EPA 601	
-01D	ml		"	"	
	ml				
	ml				
	ml				
	ml				

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

COMMENTS: _____

WGR

WATER SAMPLING DATA Well Name MW2 Date 1-9-90 Time 8:03
Job Name 17/Hanson Job Number 1-012.03 Initials JK
WELL DATA: Well type M (M=monitoring well; Describe —)
Depth to Water 21.25 ft.
Well Depth 28.5 ft. (spec.) Sounded Depth — ft.
Well Diameter 4 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 7.25 ft; Volume 4.73 gal.
Volume To Be Evacuated = 14.2 gal. (initial volume x3 ___, x4 ___)

	Evacuated	Evacuated	Evacuated
Time: Stop	10:42		
Start	10:26		
Total minutes	16		
Amount Evacuated	15		
Total Evacuated	15 gal.		
Evacuation Rate	.93 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_{1}" casing = 0.163 gal/ft
V_{2}" casing = 0.367 gal/ft
V_{4}" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_{6}" casing = 1.47 gal/ft
V_{8}" casing = 2.61 gal/ft

Depth to water during pumping 23.00 ft. 10:38 time
Pumped dry? NO After — gal. Recovery rate —
Depth to water for 80% recovery — ft.

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

Time		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓; End of bailer —; Other —
Samples taken 10:46 time Depth to water 22.18 ft. Refrigerated: yes
Sample description: Water color clear Odor —
Sediment/Foreign matter —

Sample ID no.		Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
01090-02A	40 ml		HCl	EPA 602/8015	Gtl
B	ml		↓	↓	
C	ml		None	EPA 601	
D	ml		↓	↓	
	ml				
	ml				
	ml				
	ml				

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

COMMENTS:

WGR

WATER SAMPLING DATA Well Name MW3 Date 1-9-90 Time 8:21
Job Name 17th & Harrison Job Number 1-012.03 Initials JTC
WELL DATA: Well type M (M=monitoring well; Describe —)
Depth to Water 20.88 ft.
Well Depth 32 ft. (spec.) Sounded Depth — ft.
Well Diameter 4 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 11.12 ft; Volume — gal.
Volume To Be Evacuated = 21.7 gal. (initial volume x3 ___, x4 ___)

	Evacuated	Evacuated	Evacuated
Time: Stop	9:36 *	9:51	
Start	9:26	9:41	
Total minutes	10	10	
Amount Evacuated	11	11	
Total Evacuated	22 gal.		
Evacuation Rate	1.1 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
V₄" casing = 0.653 gal/ft
V₅" casing = 0.826 gal/ft
V₆" casing = 1.47 gal/ft
V₈" casing = 2.61 gal/ft

Depth to water during pumping 21.75 ft. 9:42 time
Pumped dry? NO After — gal. Recovery rate —
Depth to water for 80% recovery — ft.

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

Time		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓ ; End of bailer —; Other —
Samples taken 9:53 time Depth to water 21.27 ft. Refrigerated: —
Sample description: Water color. clear Odor —
Sediment/Foreign matter very little

Sample ID no.			Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
01090-03A	40	ml		HCl	EPA 602/8015	Gtel
B		ml		↓	↓	
C		ml		None	EPA 601	
D	↓	ml	↓	↓	↓	↓
		ml				
		ml				
		ml				
		ml				

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

COMMENTS: —

* had to move truck, so stopped pumping

WGR

WATER SAMPLING DATA Well Name MW-4 Date 1-9-90 Time 10:25
Job Name 17th/Harrison Job Number 1-012.03 Initials (RS)
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 21.82 ft.
Well Depth 33.5 ft. (spec.) Sounded Depth — ft.
Well Diameter 4 in. Date — Time —

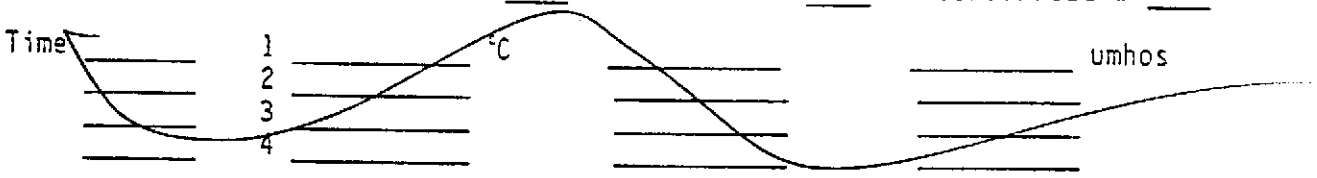
EVACUATION: Sampling Equipment:
PVC Bailer: _____ in. Dedicated: Bladder Pump ✓ ;Bailer _____
Sampling Port:Number _____ Rate _____ gpm. Volume _____ gal.
Other _____
Initial Height of Water in Casing 11.68 ft; Volume 7.63 gal.
Volume To Be Evacuated = 22.9 gal. (initial volume x3 ✓, x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	11:02		
Start	10:31		
Total minutes	31		
Amount Evacuated	23		
Total Evacuated		gal.	
Evacuation Rate	0.74	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_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Depth to water during pumping 23.39 ft. 10:52 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 11:04 time Depth to water 22.63 ft. Refrigerated: _____
Sample description: Water color clear Odor none noticeable
Sediment/Foreign matter none

Sample ID no.		Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
01090-4A	40 ml		HCl	EPA 602/8015	GTEL
-4B	" ml		"	" "	
-4C	" ml		NONE	EPA 601	
-4D	" ml		"	"	
	ml				
	ml				
	ml				
	ml				

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

COMMENTS: _____

WGR

WATER SAMPLING DATA Well Name MW-5 Date 1-9-90 Time 8:02
Job Name 17th/H. Job Number 1-012.03 Initials JK
WELL DATA: Well type M (M=monitoring well; Describe —)
Depth to Water 21.07 ft.
Well Depth 32 ft. (spec.) Sounded Depth — ft.
Well Diameter 4 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 10.93 ft; Volume 7.13 gal.
Volume To Be Evacuated = 21.4 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	8:30		
Start	8:10		
Total minutes	20		
Amount Evacuated	10		
Total Evacuated	10 gal.		
Evacuation Rate	.50 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
2" casing = 0.163 gal/ft
3" casing = 0.367 gal/ft
4" casing = 0.653 gal/ft
5.4" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
Pumped dry? yes After 10 gal. Recovery rate .08
Depth to water for 80% recovery 23.25 ft.

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

Time		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓; End of bailer —; Other —
Samples taken 1 2 4 time Depth to water 22.50 ft. Refrigerated: yes
Sample description: Water color brown yellow Odor —
Sediment/Foreign matter —

Sample ID no.		Container (VOA) / other	Preservative $NaHSO_4$/Azide/other	Analysis	Lab
01090-05 A	40 ml		HCl	EPA 602/8015	GTEL
B	ml		↓	↓	↓
C	ml		NaN	EPA 601	
D	ml		↓	↓	
	ml				
	ml				
	ml				
	ml				

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

COMMENTS: DTW
30.77 @ 8:33
30.14 @ 8:38
21.81 @ 11:14 = 93.2% recovered * SAMPLED

Water level probe acted up ∴ late taking DTW.

WGR

WATER SAMPLING DATA Well Name MW-6 Date 1-9-90 Time 8:42
Job Name 17th / Harrison Job Number 1-012.03 Initials RS
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 20.51 ft.
Well Depth 26 ft. (spec.) Sounded Depth - ft.
Well Diameter 4 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 5.49 ft; Volume 3.58 gal.
Volume To Be Evacuated = 10.7 gal. (initial volume x3 ✓, x4 ____)

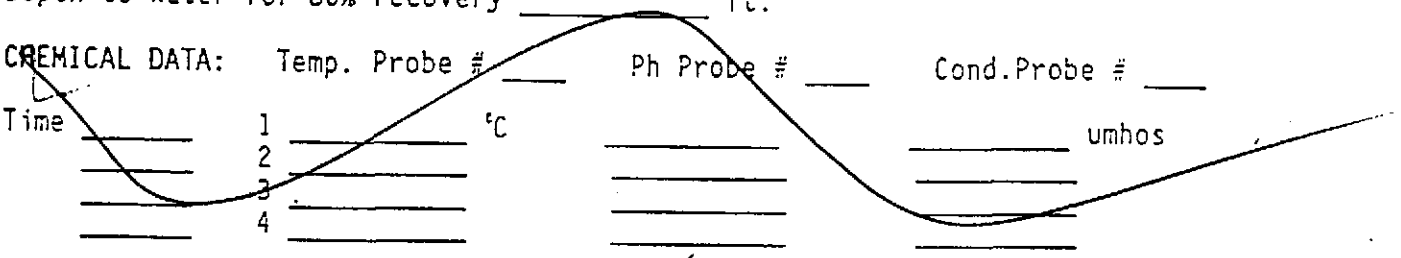
	Evacuated	Evacuated	Evacuated
Time: Stop	9:02		
Start	8:49		
Total minutes	13		
Amount Evacuated	10.75		
Total Evacuated		gal.	
Evacuation Rate	0.83	gpm.	

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_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Depth to water during pumping 21.53 ft. 8:57 time
Pumped dry? NO After _____ gal. Recovery rate _____
Depth to water for 80% recovery _____ ft.

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

Time		°C		umhos
	1			
	2			
	3			
	4			



SAMPLING: Point of collection: PE Hose ✓ ; End of bailer ___ ; Other _____
Samples taken 9:06 time Depth to water 22.43 ft. Refrigerated: _____
Sample description: Water color clear Odor none
Sediment/Foreign matter none

Sample ID no.		Container VOA / other	Preservative $NaHSO_4$/Azide/other	Analysis	Lab
010990-6A	40 ml		HCl	EPA 602/8015	GTEL
-6B	ml		"	"	
-6C	ml		NONE	EPA 601	
-6D	ml		"	"	
	ml				
	ml				
	ml				
	ml				

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

COMMENTS: _____

WGR

WATER SAMPLING DATA Well Name MW7 Date 1/9/90 Time 7:56
Job Name 7th & Harrison Job Number 1-012.03 Initials JK
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 20.15 ft.
Well Depth 27 ft. (spec.) Sounded ~~Depth~~ _____ ft.
Well Diameter 4 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 6.85 ft; Volume 4.47 gal.
Volume To Be Evacuated = 13.4 gal. (initial volume x3 ___, x4 ___)

	Evacuated	Evacuated	Evacuated
Time: Stop	8:25		
Start	8:16		
Total minutes	9		
Amount Evacuated	7.25		
Total Evacuated	gal.		
Evacuation Rate	0.81 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
2" casing = 0.163 gal/ft
3" casing = 0.367 gal/ft
4" casing = 0.653 gal/ft
5" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
Pumped dry? Y/N After 7.25 gal. Recovery rate 0.05
Depth to water for 80% recovery 21.52 ft.

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

Time		°C	umhos
	1		
	2		
	3		
	4		

(*) SAMPLING: Point of collection: PE Hose ✓; End of bailer ___; Other _____
Samples taken 11:37 time Depth to water 24.10 ft. Refrigerated: _____
Sample description: Water color clear Odor slight product odor
Sediment/Foreign matter ~~Minimum~~ small amount of v. fine silt

Sample ID no.			Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
01090-07A	40	ml		HCl	EPA 602/8015	Gtel
B		ml		↓	↓	↓
C		ml		None	EPA 601	
D	↓	ml		↓	↓	
		ml				
		ml				
		ml				
		ml				

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

COMMENTS: There is a fair amount of oil & grease on the ground around the well. I don't know if any has found it's way into the system or not, but it's worth noting.

25.84' @ 8:27 23.42' @ 11:25 (52% recovery)
25.46 @ 8:32 (*) Sampled at 52%

WGR ✓

WATER SAMPLING DATA Well Name MW8 Date 1-9-90 Time 8:23
Job Name 17th & Harrison Job Number 1-012.03 Initials JTC
WELL DATA: Well type M (M=monitoring well; Describe —)
Depth to Water 20.60 ft.
Well Depth 26 ft. (spec.) Sounded Depth — ft.
Well Diameter 4 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 5.4 ft; Volume 3.5 gal.
Volume To Be Evacuated = 10.5 gal. (initial volume x3 ✓, x4 —)

	Evacuated	Evacuated	Evacuated
Time: Stop	9:07		
Start	8:48		
Total minutes	19		
Amount Evacuated	10.5		
Total Evacuated	10.5 gal.		
Evacuation Rate	.55 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
2" casing = 0.163 gal/ft
3" casing = 0.367 gal/ft
4" casing = 0.653 gal/ft
5" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" 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		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose —; End of bailer —; Other —
Samples taken 911 time Depth to water 20.54 ft. Refrigerated: —
Sample description: Water color clear Odor —
Sediment/Foreign matter —

Sample ID no.			Container VOA / other	Preservative $NaHSO_4$/Azide/other	Analysis	Lab
01090-08A	40	ml		HCl	EPA 602/8015	GTEL
B		ml		↓	↓	
C		ml		NaN	EPA 601	
D	↓	ml	↓	↓	↓	↓
		ml				
		ml				
		ml				
		ml				

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

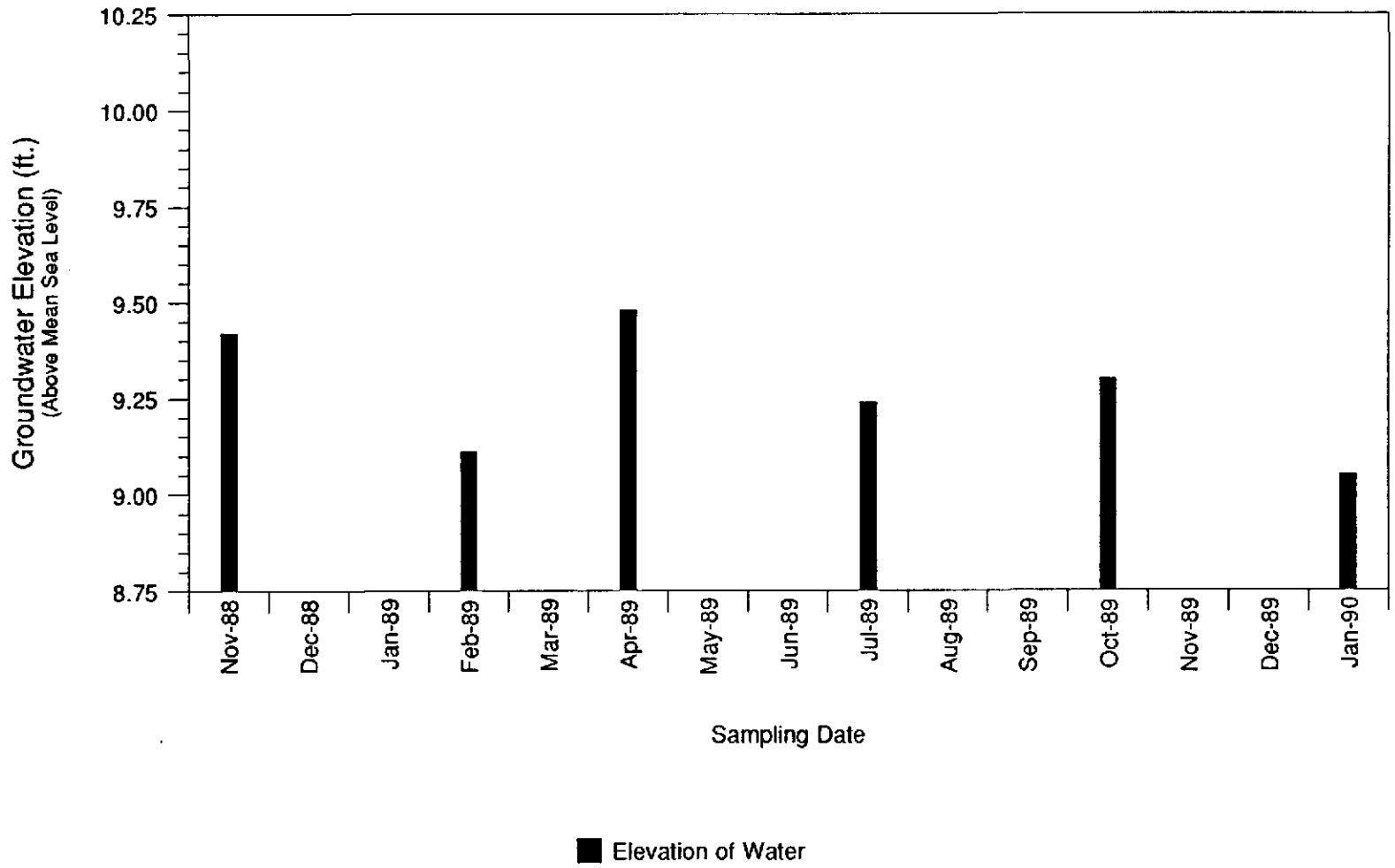
COMMENTS: —

ATTACHMENT C

HYDROGRAPHS

GROUNDWATER MONITOR WELL MW-1

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California

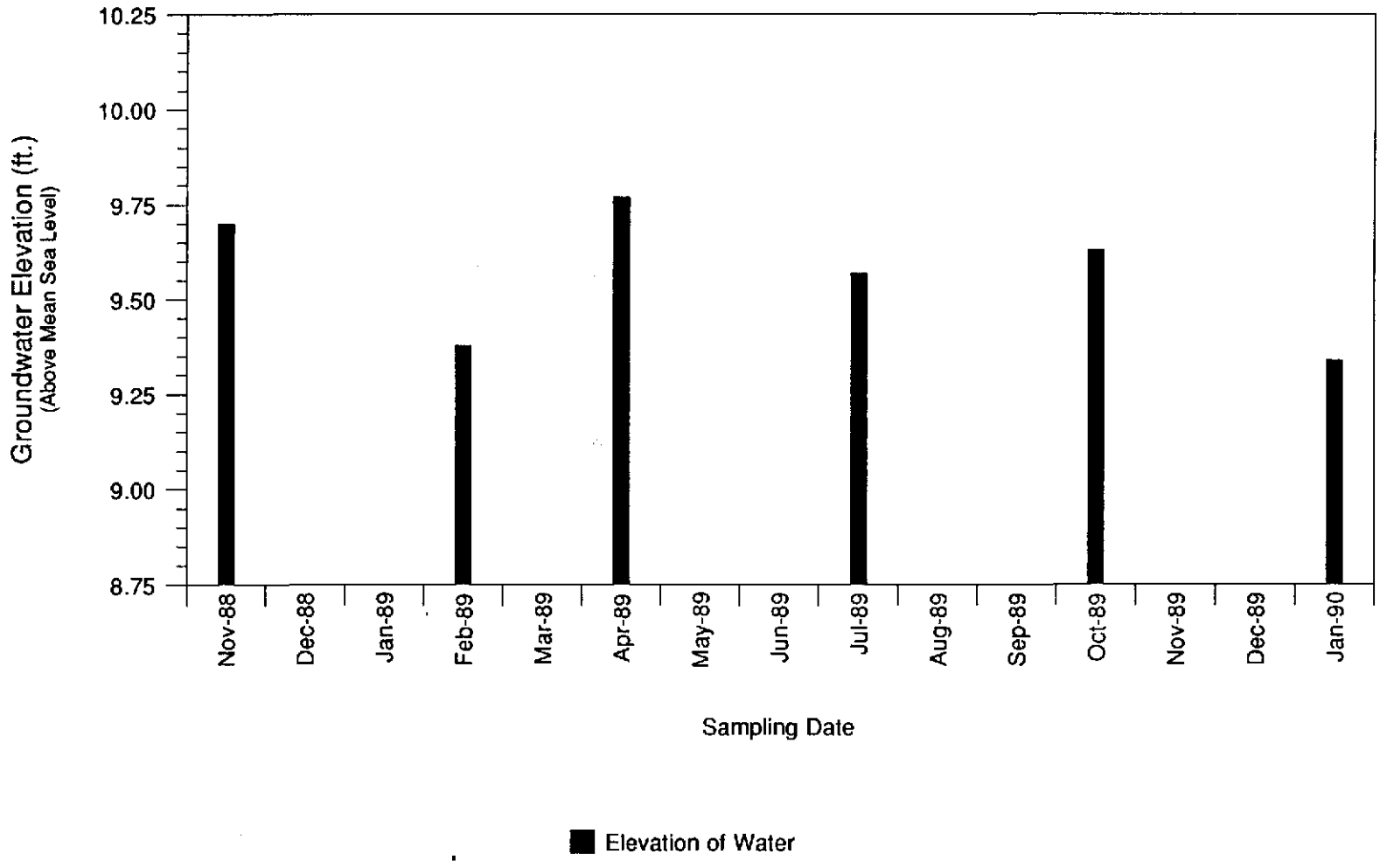


WGR #1-012.03

WESTERN GEOLOGIC RESOURCES, INC.

GROUNDWATER MONITOR WELL MW-2

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California

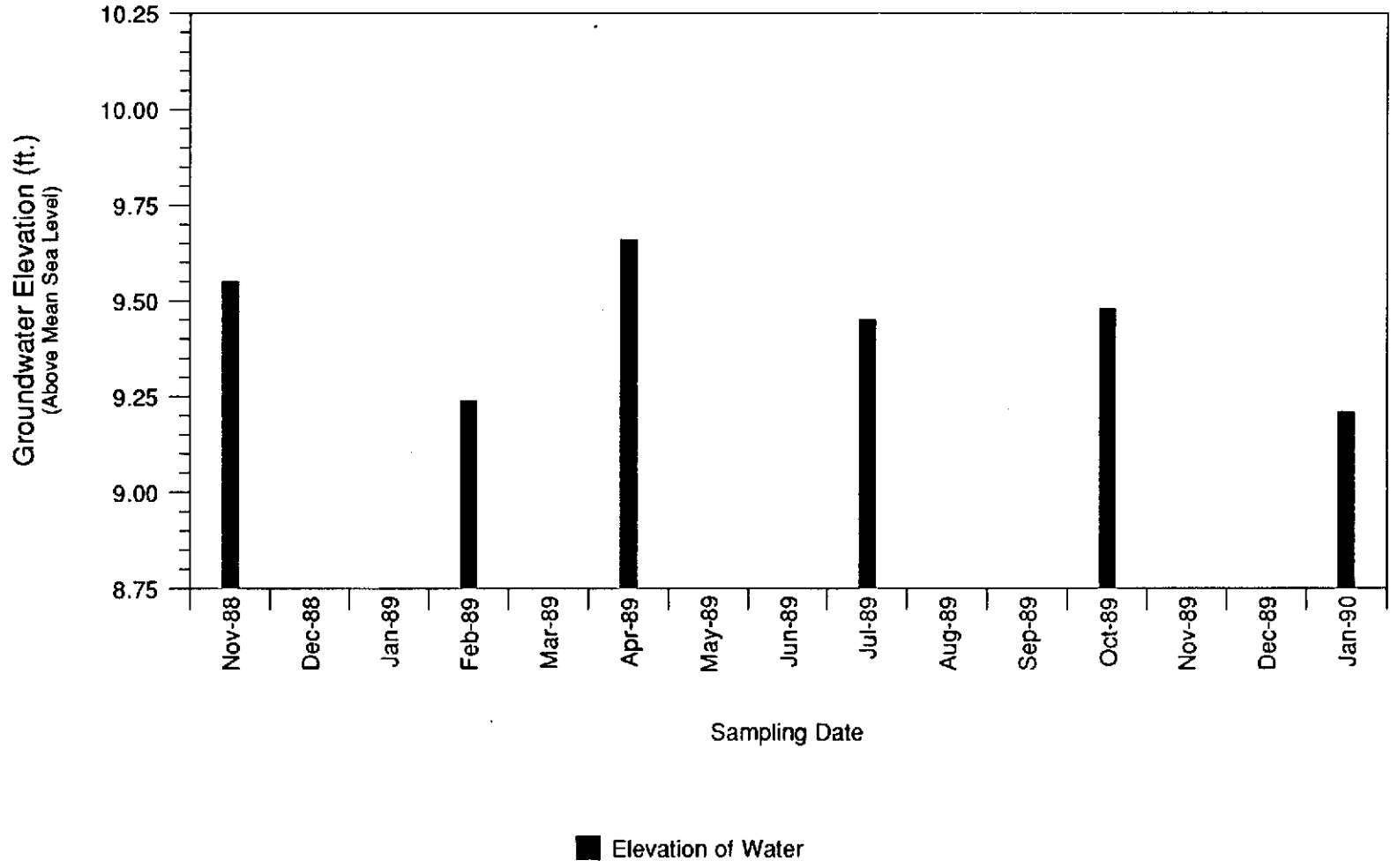


WGR #1-012.03

WESTERN GEOLOGIC RESOURCES, INC.

GROUNDWATER MONITOR WELL MW-3

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California

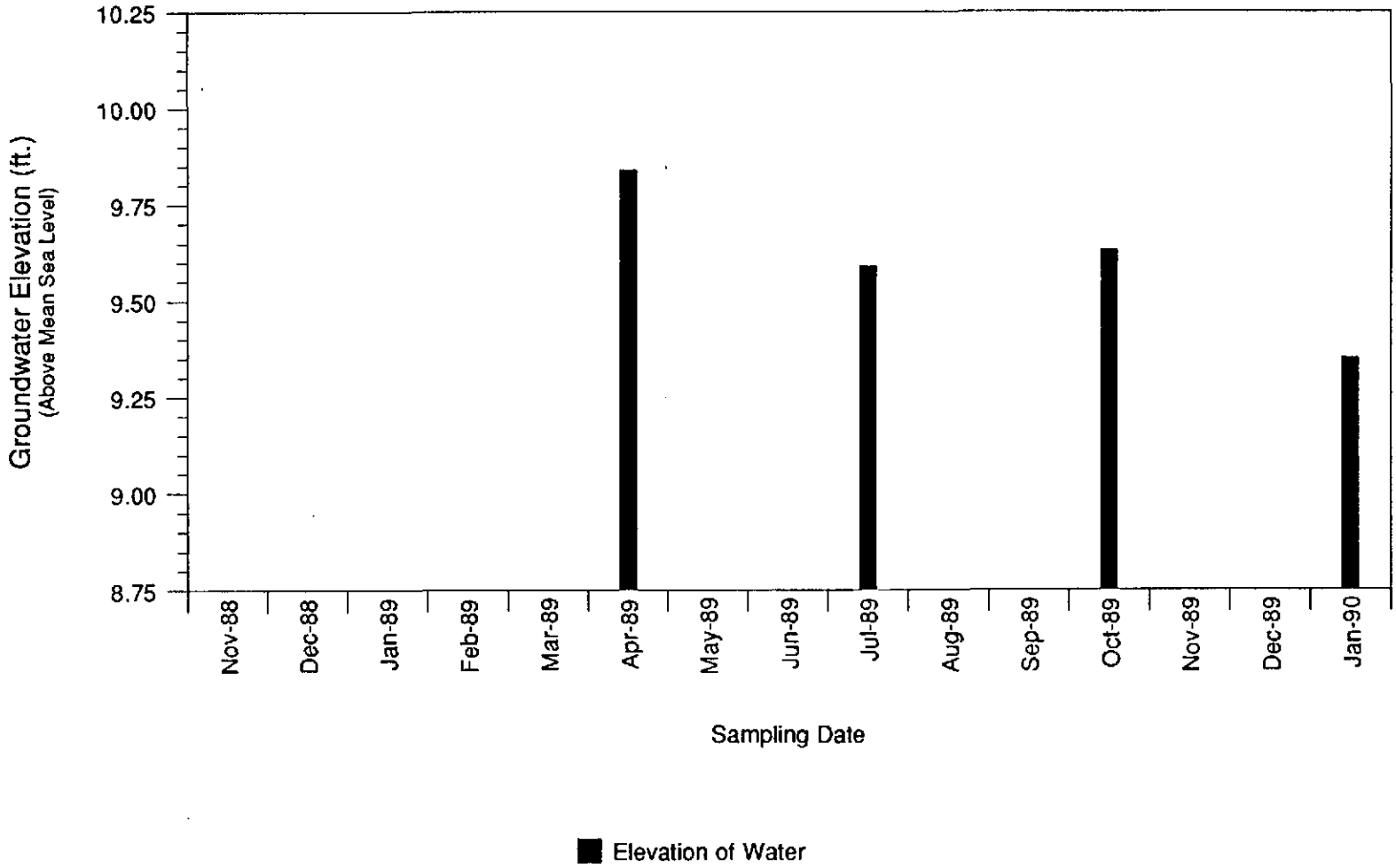


WGR #1-012.03

WESTERN GEOLOGIC RESOURCES, INC.

GROUNDWATER MONITOR WELL MW-4

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California

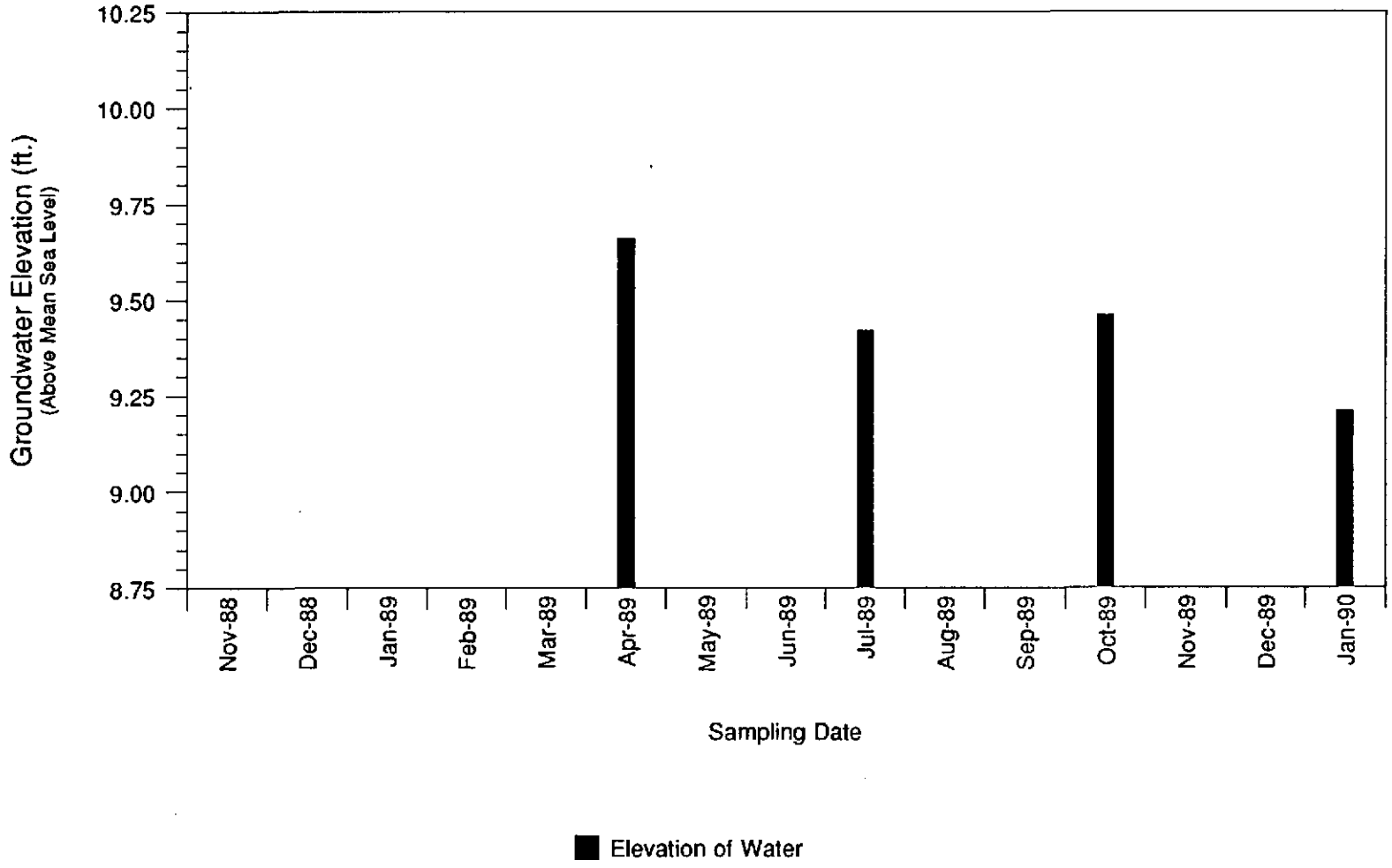


WGR #1-012.03

WESTERN GEOLOGIC RESOURCES, INC.

GROUNDWATER MONITOR WELL MW-5

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California

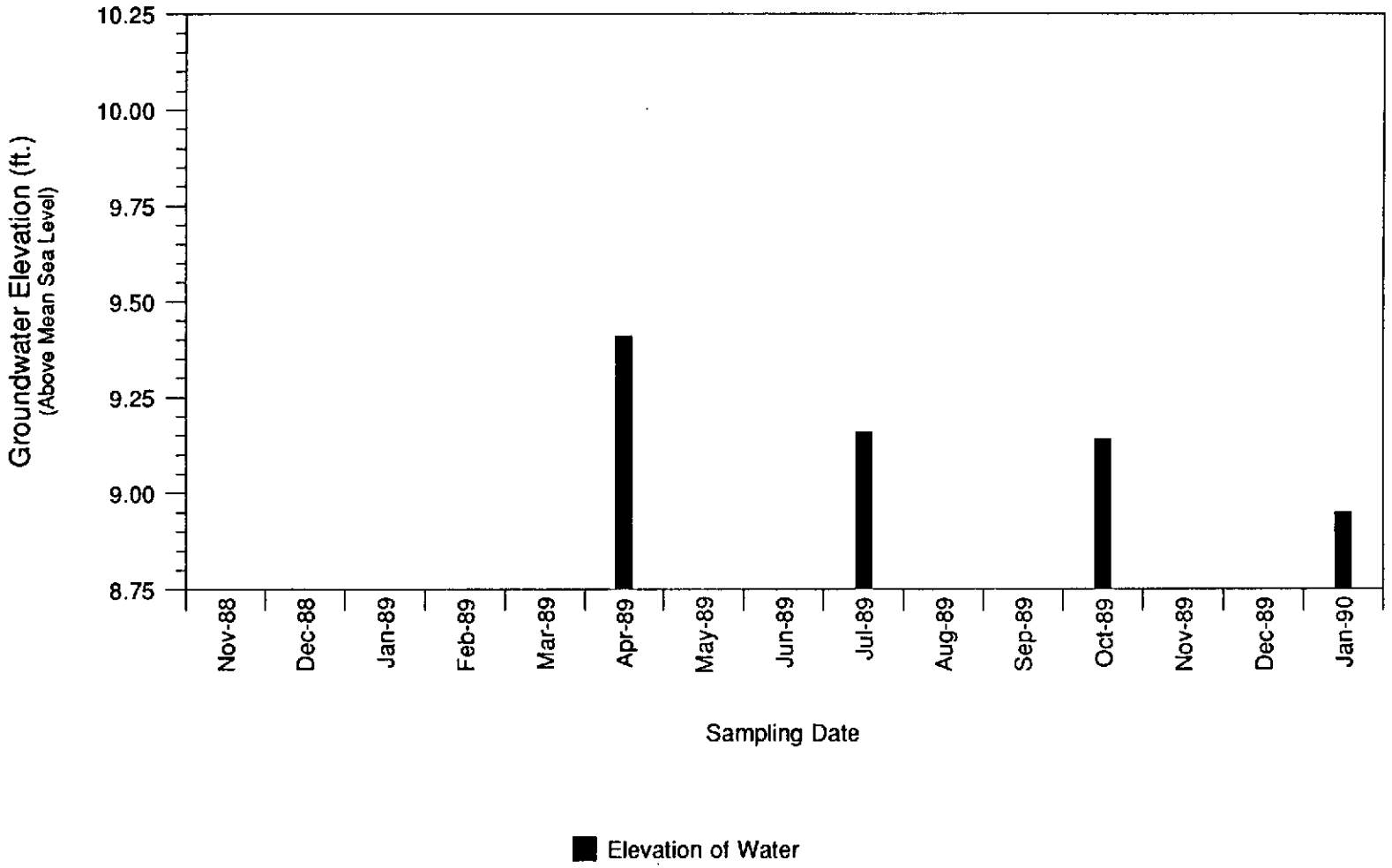


WGR #1-012.03

WESTERN GEOLOGIC RESOURCES, INC.

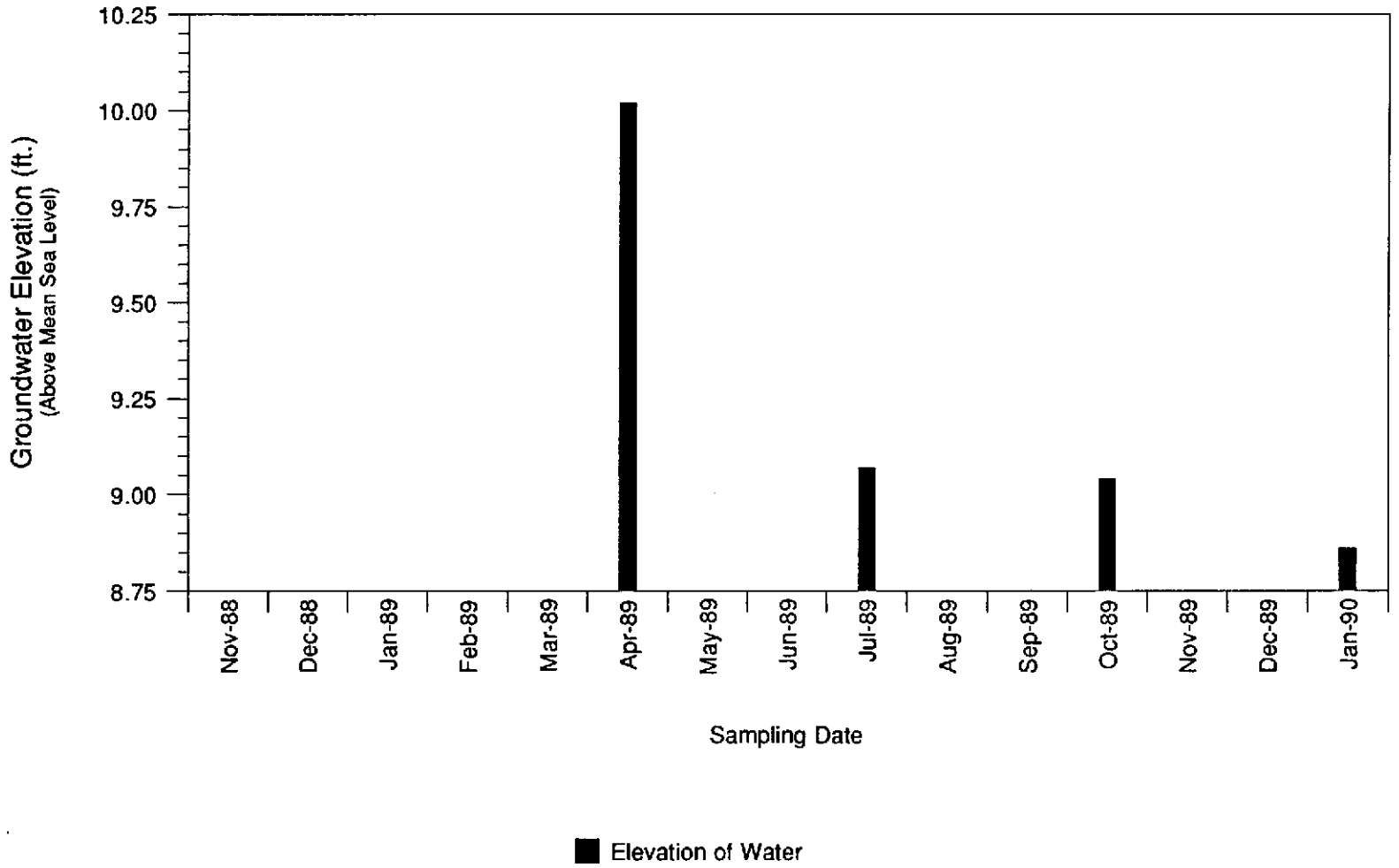
GROUNDWATER MONITOR WELL MW-6

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California



GROUNDWATER MONITOR WELL MW-7

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California

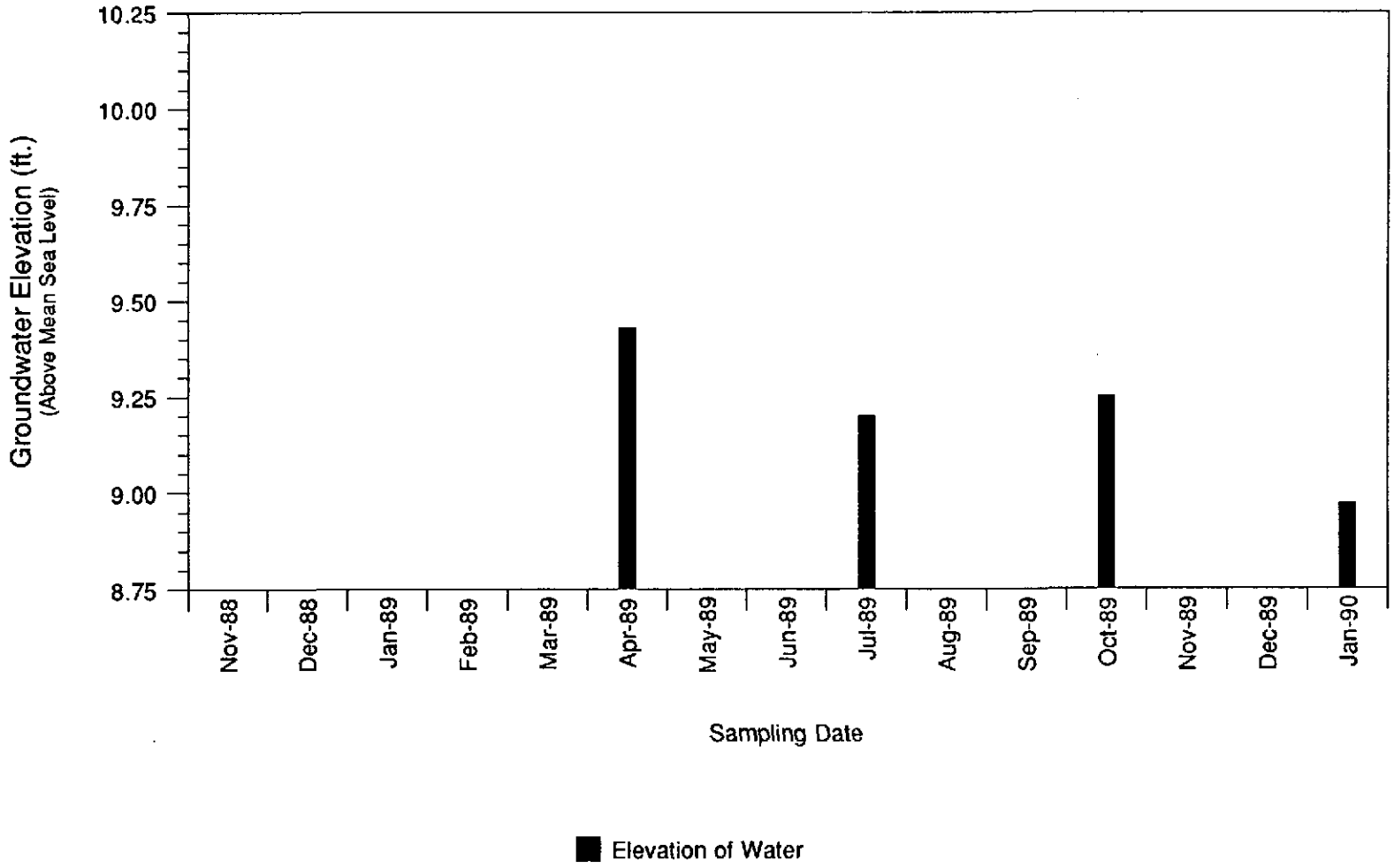


WGR #1-012.03

WESTERN GEOLOGIC RESOURCES, INC.

GROUNDWATER MONITOR WELL MW-8

Chevron Service Station #90020 17th & Harrison Sts., Oakland, California



WGR #1-012.03

WESTERN GEOLOGIC RESOURCES, INC.

ATTACHMENT D

CHAIN-OF-CUSTODY FORM

SFB-175-0204-72 Chain of Custody

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

Chevron Facility Number: 90020
Consultant Release Number:
Consultant Project Number: 1-012-03
Consultant Name: Western Geologic Resources
Address: 2169 E. Francisco Bl., San Rafael
Fax Number: 415-457-8521
Project Contact (Name): Tom Howard
(Phone): 415-457-7595

Chevron Contact (Name): John Randall
(Phone): 842-9625
Laboratory Name: GTEL
Contract Number: 2584790
Samples Collected by (Name): R. Smith / J. Krebs
Collection Date: 1-9-90
Signature: R. D. Smith

Analyses To Be Performed

Sample Number	Lab Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	EPA 601			Remarks
01090-01 ABCD	01	4	W		10:05	HCl / none	✓	X			X				X			AB = HCl CD = no pres.
01090-02 ABCD	02	↓	↓		1046	"		↓			↓				↓			AB = 602/8015
01090-03 ABCD	03				953	"												CD = 601
01090-04 ABCD	04				1109	"												
01090-05 ABCD	05				1124	"												
01090-06 ABCD	06				906	"												
01090-07 ABCD	07				1137	"												
01090-08 ABCD	08	↓	↓		911	"		↓			↓				↓			
01090-TB AB	09	2	W		-	NONE		✓			✓				✓			

Handwritten notations: "TB was received w/out ice KB 1-9-90"; "BMM 1-18-90"

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
	WGR, Inc.		Garrett Anderson	Concord Courier	1/9 3:10PM	24 Hrs.
Relinquished By (Signature): Garrett Anderson	Concord Courier	1/9 4:55	Received By (Signature)		Date/Time	48 Hrs. / 5 Days / (10 Days)
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature): Kathy Brian		Date/Time: 1-10-90 10:15	

White / Project File — Canary / Sampler — Pink / Lab

Printed in U.S.A.

ATTACHMENT E

LABORATORY REPORTS AND QUALITY ASSURANCE/
QUALITY CONTROL DOCUMENTS

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Western Region
4080-C Pike Ln., Concord, CA 94520
(415) 685-7852
In CA: (800) 544-3422
Outside CA: (800) 423-7143

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

Tom Howard
Western Geologic Resources
2169 E. Francisco Blvd.
San Rafael, CA 94901

Dear Mr. Howard,

Attached please find the analytical results for the samples received by GTEL on January 10, 1990.

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

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

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

Sincerely,

GTEL Environmental Laboratories, Inc.

Emma P. Popek
Laboratory Director

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

Table 1

ANALYTICAL RESULTS

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

GTEL Sample Number		01	02	03	04	05
Client Identification		01090-01 ABCD	01090-02 ABCD	01090-03 ABCD	01090-04 ABCD	01090-05 ABCD
Date Sampled		01/09/90	01/09/90	01/09/90	01/09/90	01/09/90
Date Analyzed		01/11/90	01/11/90	01/11/90	01/11/90	01/11/90
Analyte	Detection Limit, ug/L	Concentration, ug/L				
Benzene	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
TPH as Gasoline	50	<50	<50	<50	<50	<50

GTEL Sample Number		06	07	08	09
Client Identification		01090-06 ABCD	01090-07 ABCD	01090-08 ABCD	01090-TB AB
Date Sampled		01/09/90	01/09/90	01/09/90	01/09/90
Date Analyzed		01/11/90	01/11/90	01/11/90	01/11/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	290	<0.3	<0.3
Toluene	0.3	<0.3	72	<0.3	<0.3
Ethylbenzene	0.3	<0.3	9	<0.3	<0.3
Xylene (total)	0.6	<0.6	200	<0.6	<0.6
TPH as Gasoline	50	<50	3400	<50	<50

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

QA Conformance Summary

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

1.0 Blanks

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

2.0 Independent QC Check Sample

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

3.0 Surrogate Compound Recoveries

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

4.0 Matrix Spike (MS) Accuracy

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

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

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

6.0 Sample Handling

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

6.2 There were exceptional conditions requiring dilution of samples.

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

Table 2

REAGENT BLANK DATA

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

Date of Analysis: 01/11/90

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

GTEL ENVIRONMENTAL LABORATORIES, INC.

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

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

Date of Analysis: 01/03/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Benzene	50	54	108	85-115
Toluene	50	55	110	85-115
Ethylbenzene	50	54	108	85-115
Xylene (total)	150	163	109	85-115

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

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

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

GTEL ENVIRONMENTAL LABORATORIES, INC.

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

Table 4

SURROGATE COMPOUND RECOVERY

Naphthalene

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

Acceptability Limits[1]: 73 - 129 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	200	191	96
01	200	166	83
02	200	162	81
03	200	167	84
04	200	163	82
05	200	167	84
06	200	165	82
07	200	231	116
08	200	164	82
09	200	191	96
MS	200	160	80
WS	200	175	88
WSD	200	169	84

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

GTEL ENVIRONMENTAL LABORATORIES, INC.

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

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

Date of Analysis: 01/11/90
Sample Spiked: 01
Client ID: 01090-01 ABCD
Units: ug/L

Analyte	Sample Result	Concentration Added	Concentration Recovered	MS Result	MS, % Recovery	Acceptability Limits[1], %
Benzene	<0.3	25	22.4	22.4	90	73-119
Toluene	<0.3	25	22.0	22.0	88	72-118
Ethylbenzene	<0.3	25	21.7	21.7	87	78-115
Xylene (total)	<0.6	75	66.0	66.0	88	84-116

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

GTEL ENVIRONMENTAL LABORATORIES, INC.

Consultant Project Number: 1-012.03
Project Number: SFB-175-0204.72
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001192
Report Issue Date: January 19, 1990

Table 6

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

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

Date of Analysis: 01/11/90 Units: ug/L

Analyte	Concentration Added	WS Result	WS, % Recovery	WSD Result	WSD, % Recovery
Benzene	25	25.0	100	24.4	98
Toluene	25	24.6	98	24.0	96
Ethylbenzene	25	24.3	97	23.3	93
Xylene (total)	75	73.1	97	71.6	95

Analyte	RPD, %	Acceptability Limits[1]	
		Maximum RPD, %	% Recovery
Benzene	2	30	85-131
Toluene	3	30	82-124
Ethylbenzene	4	30	81-121
Xylene (total)	2	30	87-125

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

GTEL ENVIRONMENTAL LABORATORIES, INC.

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Western Region
4080-C Pike Ln., Concord, CA 94520
(415) 685-7852
In CA: (800) 544-3422
Outside CA: (800) 423-7143

Project Number: SFB-175-0204.72
Consultant Project Number 1-012.03
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001193
Report Issue Date: March 22, 1990

Tom Howard
Western Geologic Resources
2169 E. Francisco Blvd.
San Rafael, CA 94901

Dear Mr. Howard,

Attached please find the analytical results for the samples received by GTEL on January 10, 1990.

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

Sincerely,
GTEL Environmental Laboratories, Inc.

Emma P. Popek
Laboratory Director

Project Number: SFB-175-0204.72
Consultant Project Number 1-012.03
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001193
Report Issue Date: March 22, 1990

Table 1
ANALYTICAL RESULTS
Purgeable Halocarbons in Water
EPA Method 601

Date Sampled		01/09/90	01/09/90	01/09/90	01/09/90
Date Analyzed		01/11/90	01/11/90	01/11/90	01/11/90
Client Identification		01090-01 ABCD	01090-02 ABCD	01090-03 ABCD	01090-04 ABCD
GTEL Sample Number		01	02	03	04
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	<1	<1	<1	<1
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	0.5	<0.5	16	8.7	<0.5
Chloroform	0.5	7.2	3.9	6.1	9.8
1,2-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5	24	3.6	8.6	36
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	<0.5	5.3	3.8	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	78	81	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5

1 = Extraction by EPA Method 5030

Table 1 continued on page 3

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number 1-012.03
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001193
Report Issue Date: March 22, 1990

Table 1 con't
ANALYTICAL RESULTS
Purgeable Halocarbons in Water
EPA Method 601

Date Sampled		01/09/90	01/09/90	01/09/90	01/09/90
Date Analyzed		01/11/90	01/11/90	01/11/90	01/11/90
Client Identification		01090-05 ABCD	01090-06 ABCD	01090-07 ABCD	01090-08 ABCD
GTEL Sample Number		05	06	07	08
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	<1	<1	<1	<1
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	1.3	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	0.5	3.1	<0.5	<0.5	6.6
Chloroform	0.5	4.6	4.2	3.0	3.9
1,2-Dichloroethane	0.5	<0.5	1.8	8.4	<0.5
1,1,1-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5	8.2	10	<0.5	4.9
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	0.7	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	0.6	<0.5	<0.5	0.9
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	7.8	<0.5	<0.5	19
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5

1 = Extraction by EPA Method 5030

Table 1 continued on page 4

Project Number: SFB-175-0204.72
Consultant Project Number 1-012.03
Contract Number: N46CWC0244-9-X
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Table 1 con't
ANALYTICAL RESULTS
Purgeable Halocarbons in Water
EPA Method 601

Date Sampled		01/09/90			
Date Analyzed		01/11/90			
Client Identification		01090-TB ABCD			
GTEL Sample Number		09			
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5			
Bromomethane	0.5	<0.5			
Dichlorodifluoromethane	0.5	<0.5			
Vinyl chloride	1	<1			
Chloroethane	0.5	<0.5			
Methylene chloride	0.5	<0.5			
Trichlorofluoromethane	0.5	<0.5			
1,1-Dichloroethene	0.2	<0.2			
1,1-Dichloroethane	0.5	<0.5			
trans-1,2-Dichloroethene	0.5	<0.5			
Chloroform	0.5	<0.5			
1,2-Dichloroethane	0.5	<0.5			
1,1,1-Trichloroethane	0.5	<0.5			
Carbon tetrachloride	0.5	<0.5			
Bromodichloromethane	0.5	<0.5			
1,2-Dichloropropane	0.5	<0.5			
trans-1,3-Dichloropropene	0.5	<0.5			
Trichloroethene	0.5	<0.5			
Dibromochloromethane	0.5	<0.5			
1,1,2-Trichloroethane	0.5	<0.5			
cis-1,3-Dichloropropene	0.5	<0.5			
2-Chloroethylvinyl ether	1	<1			
Bromoform	0.5	<0.5			
1,1,2,2-Tetrachloroethane	0.5	<0.5			
Tetrachloroethene	0.5	<0.5			
Chlorobenzene	0.5	<0.5			
1,3-Dichlorobenzene	0.5	<0.5			
1,2-Dichlorobenzene	0.5	<0.5			
1,4-Dichlorobenzene	0.5	<0.5			

1 = Extraction by EPA Method 5030

Project Number: SFB-175-0204.72
Consultant Project Number 1-012.03
Contract Number: N46CWC0244-9-X
Facility Number: 90020
Work Order Number: D001193
Report Issue Date: March 22, 1990

QA Conformance Summary

Purgeable Halocarbons in Water
EPA Method 601

1.0 Blanks

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

2.0 Independent QC Check Sample

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

3.0 Surrogate Compound Recoveries

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

4.0 Matrix Spike (MS) Accuracy

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

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

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

6.0 Sample Handling

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

6.2 There were no exceptional conditions requiring dilution of samples.

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Table 2

REAGENT BLANK DATA

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 01/11/90

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

ND = Not Detected above the Statistical Detection Limit

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Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 01/04/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %[1]
Vinyl Chloride	100	91	91	85 - 115
Chloroethane	100	86	86	85 - 115
Methylene Chloride	100	99	99	85 - 115
1,1,1 Trichloroethane	100	108	108	85 - 115
1,2 Dichloroethane	100	104	104	85 - 115
Bromodichlorimethane	100	99	99	85 - 115
1,1,2,2 Tetrachloroethane	100	99	99	85 - 115
Chlorobenzene	100	101	101	85 - 115

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

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Halocarbons in Water
EPA Method 601

Analyte	Lot Number	Source
Vinyl Chloride	LA21062	PURGEABLE C SUPELCO
Chloroethane	LA21062	PURGEABLE C SUPELCO
Methylene Chloride	LA21173	PURGEABLE A SUPELCO
1,1,1 Trichloroethane	LA20674	PURGEABLE B SUPELCO
1,2 Dichloroethane	LA20674	PURGEABLE B SUPELCO
Bromodichlorimethane	LA20674	PURGEABLE B SUPELCO
1,1,2,2 Tetrachloroethane	LA20674	PURGEABLE B SUPELCO
Chlorobenzene	LA21173	PURGEABLE A SUPELCO

Table 4

SURROGATE COMPOUND RECOVERY

Bromofluorobenzene

Purgeable Halocarbons in Water
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Acceptability Limits[1]: 63 - 112 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	50	45	90
01	50	36	72
02	50	40	80
03	50	37	74
04	50	36	82
05	50	39	78
06	50	37	74
07	50	36	72
08	50	41	82
09	50	40	80
MS	50	58	116
WS	50	52	104
WSD	50	44	88

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

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 01/15/90
Sample Spiked: 01
Client ID: 01090-01 ABCD
Units: ug/L

Analyte	Sample Result	MS Result	Concentration Added	MS, % Recovery	Acceptability Limits, %[1]
1,1-Dichloroethene	ND	64.1	75	85	62 - 129
Chlorobenzene	ND	66.3	75	88	75 - 115
Trichloroethene	ND	65.4	75	87	78 - 119

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

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Table 6

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

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 01/11/90 Units: ug/L

Analyte	Concentration Added	WS Result	WSD Result	WS, % Recovery	WSD, % Recovery
1,1 Dichloroethene	75	70.8	88.6	94	118
Chlorobenzene	75	81.4	72.2	109	96
Trichloroethene	75	77.9	78.7	104	105

Analyte	RPD, %	Maximum RPD, %	Acceptability Limits[1] % Recovery
1,1 Dichloroethene	22	30	56-132
Chlorobenzene	12	30	80-116
Trichloroethene	1	30	86-117

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