Chevron

August 30, 1994

#103

Chevron U.S.A. Products Company
6001 Bollinger Canyon Road
Building L
San Ramon, CA 94583
P.O. Box 5004
San Ramon, CA 94583-0804

Marketing – Northwest Region
Phone 510 842 9500

Mr. Barney Chan
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA

Re: Chevron Service Station #9-0076
4265 Foothill Boulevard, Oakland, CA

Dear Mr. Chan:

Enclosed is the Groundwater Monitoring and Sampling Activities report dated April 15, 1994, prepared by our consultant Groundwater Technology, Inc. for the above referenced site. As indicated in the report, ground water samples collected were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and BTEX. Dissolved concentrations of these constituents observed during the past quarter are consistent with historical sampling results.

Depth to ground water was measured at approximately 17.8 to 33.4 feet below grade.

In response to your letter of May 6, 1994, Chevron is very willing to meet with Alameda County Health Care Services and any other interested parties to develop mutual remediation goals for the Chevron site and the adjacent BP and Shell sites. I look forward to hearing from your office soon regarding available meeting dates.

Chevron will continue to monitor and sample all wells at this site on a quarterly basis. If you have any questions or comments, please do not hesitate to contact me at (510) 842-8134.

Sincerely,
CHEVRON U.S.A. PRODUCTS COMPANY

Mark A. Miller
Site Assessment and Remediation Engineer

Enclosure

cc: Mr. Kevin Graves, RWQCB - Bay Area
Mr. Mike Cooke, Weiss Associates
Mr. S.A. Willer

File: 9-0076 QM10

GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387
FAX: (415) 685-9148

July 15, 1994

Project No. 020104102

Mr. Mark Miller
Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, CA 94583-0804

SUBJECT: *Groundwater Monitoring and Sampling Activities*
Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Dear Mr. Miller:

Groundwater Technology, Inc. presents the quarterly groundwater monitoring and sampling data collected on June 16, 1994. Eight groundwater wells were gauged to measure depth to groundwater (DTW) and to check for separate-phase hydrocarbons. Separate-phase hydrocarbons were not detected in the monitoring wells. A potentiometric surface map and a summary of groundwater monitoring data are presented in Attachments 1 and 2, respectively. After the DTW was measured, each monitoring well was purged and sampled. Groundwater monitoring and sample collection protocol and field data sheets are presented in Attachment 3. The groundwater samples were analyzed for benzene, toluene, ethylbenzene, xylenes, and total petroleum hydrocarbons-as-gasoline. Results of the chemical analyses and the Shell station monitoring data from Pacific Environmental Group, Inc. are summarized in Attachment 2. The laboratory report and chain-of-custody record are included in Attachment 4. Monitoring-well purge water was transported by Groundwater Technology to the Chevron Terminal in Richmond, California, for recycling.

Groundwater Technology is pleased to assist Chevron on this project. If you have any questions or comments, please contact our Concord office at (510) 671-2387.

Sincerely,
Groundwater Technology, Inc.
Written/Submitted by

Ken Johnsen
Project Manager

PR

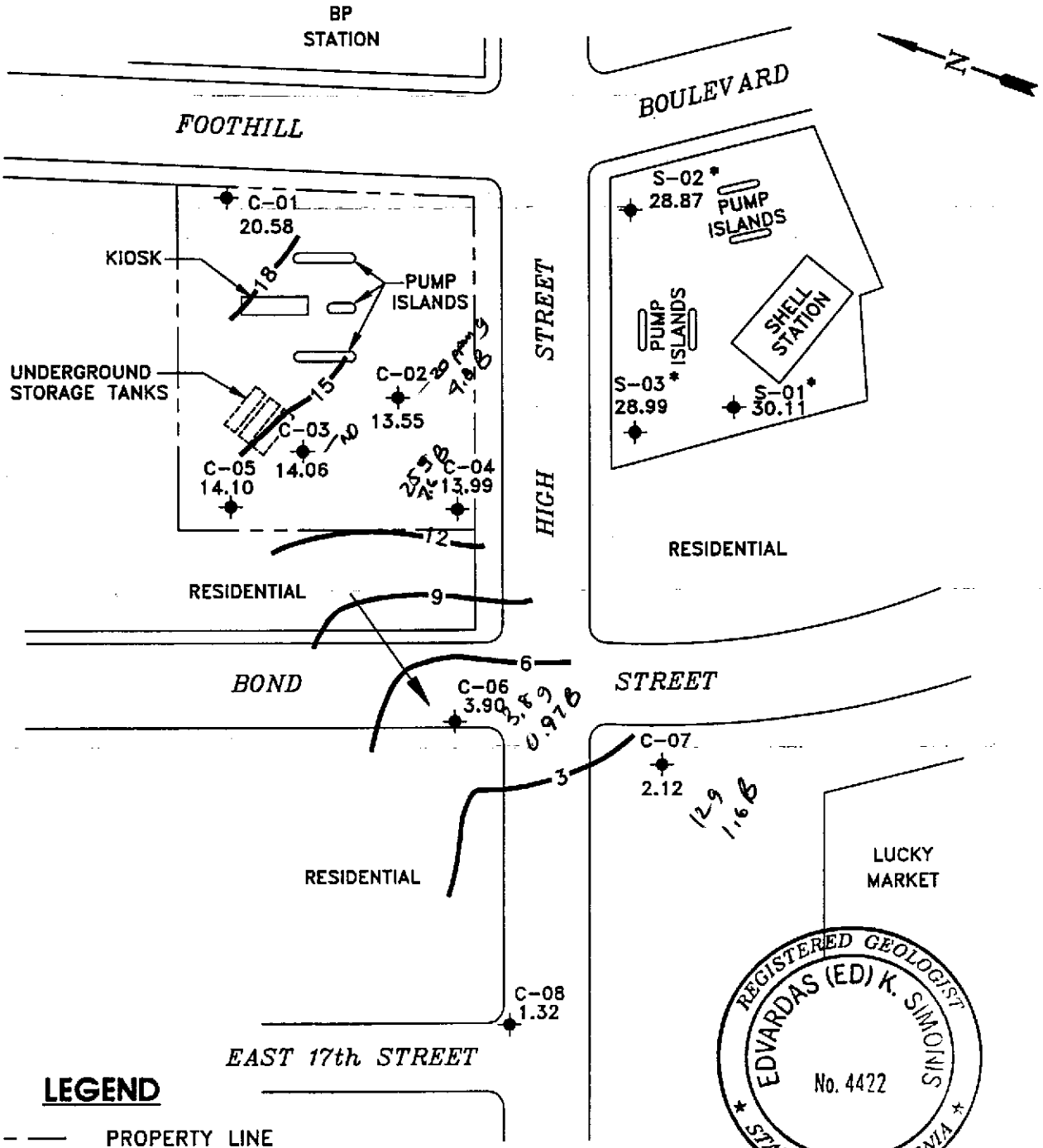
For:
Wendell W. Lattz
Vice President, General Manager
West Region

Attachment 1 Figure
Attachment 2 Table
Attachment 3 Protocol and Field Data Sheets
Attachment 4 Laboratory Report

4102qmsr.294

ATTACHMENT 1

Figure



LEGEND

- PROPERTY LINE
- MONITORING WELL
- X.XX — POTENTIOMETRIC SURFACE ELEVATION (FT)
- * — SHELL SEVICE STATION MONITORING WELL; NOT USED IN COUNTOURING
- POTENTIOMETRIC SURFACE CONTOUR
- GROUNDWATER FLOW DIRECTION

NOTE:
1. CONTOURS REPRESENT APPROXIMATE ELEVATIONS ABOVE MEAN SEA LEVEL.

REGISTERED GEOLOGIST
EDVARDAS (ED) K. SIMONIS
No. 4422
STATE OF CALIFORNIA

GROUNDWATER TECHNOLOGY

0 FEET 80
SCALE

POTENTIOMETRIC SURFACE MAP (6/16/94)

CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION NO. 9-0076	FILE: 4102PSM, (1:80)	PROJECT NO.: 02010-4102	PM KJ	PE/RG EJK
LOCATION: 4265 FOOTHILL BOULEVARD OAKLAND, CALIFORNIA	REV.	DES. SS / DET. SS / DATE: 7/14/94	FIGURE: 1	

ATTACHMENT 2

Table

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-1	04/28/89a	940	30	1.3	11	13	20.05	0.00	15.37
	08/08/89a	820	45	2	13	13	24.07	0.00	11.35
35.42	12/21/89	---	---	---	---	---	22.81	0.00	12.61
	08/27/90	440	15	1	6	13	22.12	0.00	13.30
	11/04/90	---	---	---	---	---	25.56	0.00	9.86
	06/18/91	74	5.6	0.6	1.9	1.3	21.64	0.00	13.78
	09/19/91	150	7.1	<0.5	2.3	3	24.58	0.00	10.84
	12/20/91	250	10	<0.5	3.7	1.6	26.17	0.00	9.25
	03/18/92	190	16	<0.5	8.5	2.9	18.25	0.00	17.17
	07/14/92	20,000	480	2,200	510	2,900	27.61	0.00	7.81
	10/08/92	360	34	4.6	19	12	24.44	0.00	10.98
	01/08/93	120	9.1	0.5	5.1	1.8	19.68	0.00	15.74
	04/14/93	190	74	0.6	1	2	16.38	0.00	19.04
	07/16/93	---	---	---	---	---	---	---	---
	07/27/93	300	12	<0.5	5	2	9.39	0.00	26.03
38.41	09/21/93	360	12	1.2	5.8	3.7	21.42	0.00	16.99
	01/28/94	370	24	1	13	4	19.57	0.00	18.84
	03/17/94	460	42	<0.5	6.7	3.7	16.85	0.00	21.56
	06/16/94	320	20	0.7	8.7	3.0	17.83	0.00	20.58

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-2	04/28/89a	120,000	30,000	22,000	3,000	17,000	26.44	0.00	8.74
	08/08/89a	---	---	---	---	---	29.90	0.01	5.29
35.18	12/21/89	---	---	---	---	---	29.32	0.00	5.86
	08/27/90	---	---	---	---	---	29.55	0.17	5.77
	11/04/90	---	---	---	---	---	30.47	0.00	4.71
	06/18/91	---	---	---	---	---	28.33	0.06	6.90
	09/19/91	---	---	---	---	---	29.39	0.06	5.84
	12/20/91	170,000	20,000	10,000	2,800	19,000	29.23	0.00	5.95
	03/18/92	---	---	---	---	---	13.60	0.09	21.58
	07/14/92	---	---	---	---	---	---	---	---
	10/08/92	---	---	---	---	---	---	---	---
	01/08/93	79,000	14,000	7,200	3,500	16,000	24.20	Sheen	10.98
	04/14/93	---	---	---	---	---	---	---	---
	07/16/93	2,200	440	73	24	350	30.15	0.00	5.03
37.47	**09/21/93	11,000	2,300	300	270	910	26.29	0.00	11.18
	01/28/94	49,000	11,000	3,900	1,600	12,000	23.96	0.00	13.51
	03/17/94	16,000	3,300	1,000	220	3,500	25.99	0.00	11.48
	06/16/94	20,000	4,800	1,500	520	4,300	23.92	0.00	13.55

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-3	04/28/89a	<500	1.7	<0.5	<0.5	<0.5	28.00	0.00	7.28
	08/08/89a	<500	1	<0.5	<0.5	<0.5	30.00	0.00	5.28
35.28	12/21/89	---	---	---	---	---	30.53	0.00	4.75
	08/27/90	<50	<0.3	<0.3	<0.3	<0.6	29.68	0.00	5.60
35.30	11/04/90	---	---	---	---	---	30.36	0.00	4.94
	06/18/91	52	1.1	<0.5	<0.5	1.2	28.46	0.00	6.84
	09/19/91	73	1.2	<0.5	<0.5	<0.5	29.33	0.00	5.97
	12/20/91	<50	0.7	<0.5	<0.5	<0.5	29.77	0.00	5.53
	03/18/92	<50	<0.5	<0.5	<0.5	<0.5	25.75	0.00	9.55
	07/14/92	<50	<0.5	<0.5	<0.5	<0.5	27.87	0.00	7.43
	10/08/92	<50	<0.5	<0.5	<0.5	0.5	28.55	0.00	6.75
	01/08/93	<50	<0.5	<0.5	<0.5	<0.5	25.85	0.00	9.45
	04/14/93	<50	<0.5	<0.5	<0.5	<0.5	23.96	0.00	11.34
	07/16/93	<50	<0.5	<0.5	<0.5	<0.5	25.64	0.00	9.66
38.37	**09/21/93	<50	0.7	<0.5	<0.5	<0.8	26.22	0.00	12.15
	01/28/94	<50	2	<0.5	<0.5	1	25.66	0.00	12.71
	03/17/94	<50	2.8	<0.5	0.6	1.5	24.95	0.00	13.42
	06/16/94	<50	1.4	<0.5	<0.5	<0.5	24.31	0.00	14.06

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HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-4	01/12/89a	---	---	---	---	---	29.49	0.00	3.96
	04/12/89a	---	---	---	---	---	27.44	0.00	6.01
33.45	04/28/89	20,000	6,300	550	230	1,500	29.49	0.00	3.96
	08/08/89a	8,000	7,500	340	88	1,000	29.55	0.00	3.90
	12/21/89	---	---	---	---	---	30.02	0.00	3.43
33.48	08/27/90	26,000	10,000	280	410	1,400	29.02	0.00	4.46
	11/04/90	---	---	---	---	---	29.81	0.00	3.67
	06/18/91	34,000	14,000	410	450	1,300	27.45	0.00	6.03
	09/19/91	16,000	7,400	90	110	460	28.65	0.00	4.83
	12/20/91	24,000	12,000	120	260	740	28.84	0.00	4.64
	03/18/92	48,000	6,000	1,300	1,300	2,400	24.43	0.00	11.05
	07/14/92	40,000	14,000	920	550	2,400	26.89	0.00	6.59
	10/08/92	29,000	13,000	190	110	1,400	27.79	0.00	5.69
	01/08/93	25,000	7,000	630	860	1,800	23.50	0.00	9.98
	04/14/93	*27,000	6,300	1,000	900	1,400	21.13	0.00	12.35
	07/16/93	28,000	7,800	1,100	830	2,100	23.96	0.00	9.52
36.49	**09/21/93	30,000	9,600	130	390	1,300	25.51	0.00	10.98
	01/28/94	18,000	7,800	440	260	1,200	23.31	0.00	13.18
	03/17/94	32,000	7,800	820	820	1,800	21.35	0.00	15.14
	06/16/94	25,000	7,600	710	600	1,800	22.50	0.00	13.99

TABLE 1
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Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-5	08/27/90	<50	<0.3	<0.3	<0.3	<0.6	29.83	0.00	5.67
	11/14/90	---	---	---	---	---	30.56	0.00	4.94
	06/18/91	<50	<0.5	<0.5	<0.5	<0.5	28.52	0.00	6.98
	09/19/91	<50	<0.5	<0.5	<0.5	<0.5	29.51	0.00	5.99
	12/20/91	<50	<0.5	<0.5	<0.5	<0.5	29.96	0.00	5.54
	03/18/92	<50	<0.5	<0.5	<0.5	<0.5	25.92	0.00	9.58
	07/14/92	<50	<0.5	<0.5	<0.5	<0.5	28.00	0.00	7.50
	10/08/92	<50	<0.5	<0.5	<0.5	<0.5	28.65	0.00	6.85
	01/08/93	<50	<0.5	<0.5	<0.5	<0.5	26.02	0.00	9.48
	04/14/93	<50	<0.5	<0.5	<0.5	<0.5	24.04	0.00	11.46
	07/16/93	<50	<0.5	<0.5	<0.5	<0.5	25.21	0.00	10.29
38.50	**09/21/93	60	10	8.1	1.9	9.4	26.36	0.00	12.14
	01/28/94	<50	<0.5	<0.5	<0.5	<0.5	25.90	0.00	12.60
	03/17/94	<50	<0.5	<0.5	<0.5	<0.5	24.50	0.00	14.00
	06/16/94	<50	<0.5	<0.5	<0.5	<0.5	24.40	0.00	14.10
C-6	08/27/90	7,200	2,100	6	41	300	44.11	0.00	-11.71
	11/14/90	---	---	---	---	---	44.03	0.00	-11.63
32.40	06/18/91	4,400	2,500	18	160	77	43.49	0.00	-11.09
	09/19/91	3,100	1,600	8.3	73	8	34.32	0.00	-1.92
	12/20/91	4,400	1,300	3.2	74	10	41.35	0.00	-8.95
	03/18/92	9,800	3,200	34	250	500	40.69	0.00	-8.29
	07/14/92	6,500	2,200	100	96	240	38.89	0.00	-6.49
	10/08/92	1,800	1,000	3.1	15	41	38.67	0.00	-6.27
	01/08/93	5,200	1,600	6.8	63	120	37.81	0.00	-5.41
	04/14/93	11,000	1,800	13	110	200	34.70	0.00	-2.30
	07/16/93	4,800	820	10	41	57	33.87	0.00	-1.47
35.40	**09/21/93	4,100	1,200	<50	75	130	33.98	0.00	1.42
	01/28/94	3,100	930	14	40	34	33.86	0.00	1.54
	03/17/94	5,100	950	18	61	83	32.31	0.00	3.09
	06/16/94	3,800	970	6.4	52	62	31.50	0.00	3.90

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-7	08/27/90	110	26	0.8	4	6	44.23	0.00	-12.06
	11/14/90	---	---	---	---	---	44.11	0.00	-11.94
32.17	06/18/91	23,000	5,700	420	1,000	2,800	42.05	0.00	-9.88
	09/19/91	26,000	4,600	330	970	2,400	41.72	0.00	-9.55
	12/20/91	33,000	5,500	270	1,000	2,100	41.67	0.00	-9.50
	03/18/92	27,000	5,800	410	1,300	3,300	41.20	0.00	-9.03
	07/14/92	46,000	12,000	720	1,700	4,600	39.77	0.00	-7.60
	10/08/92	22,000	6,800	370	1,300	3,200	39.14	0.00	-6.97
	01/08/93	36,000	7,600	540	1,700	4,200	38.50	0.00	-6.33
	04/14/93	23,000	3,100	450	670	1,900	35.93	0.00	-3.76
	07/16/93	19,000	3,200	330	550	1,800	35.38	0.00	-3.21
35.19	**09/21/93	17,000	2,700	160	410	760	35.46	0.00	-0.27
	01/28/94	14,000	1,800	210	390	1,000	35.45	0.00	-0.26
	03/17/94	17,000	1,600	210	410	1,200	33.24	0.00	1.95
	06/16/94	12,000	1,600	180	410	1,200	33.07	0.00	2.12
C-8	11/14/90	<50	<0.3	<0.3	<0.3	<0.6	43.29	0.00	-12.61
	06/18/91	<50	<0.5	<0.5	<0.5	<0.5	42.62	0.00	-11.94
30.68	09/19/91	<50	<0.5	<0.5	<0.5	<0.5	41.72	0.00	-11.04
	12/20/91	<50	<0.5	<0.5	<0.5	<0.5	40.98	0.00	-10.30
	03/18/92	<50	<0.5	<0.5	<0.5	<0.5	40.02	0.00	-9.34
	07/14/92	<50	<0.5	<0.5	<0.5	<0.5	39.02	0.00	-8.34
	10/08/92	<50	<0.5	<0.5	<0.5	1.1	38.68	0.00	-8.00
	01/08/93	<50	<0.5	<0.5	<0.5	<0.5	38.07	0.00	-7.39
	04/14/93	<50	<0.5	<0.5	<0.5	<0.5	35.99	0.00	-5.31
	07/16/93	<50	<0.5	<0.5	<0.5	<0.5	35.32	0.00	-4.64
34.68	**09/21/93	<50	<0.5	<0.5	<0.5	<0.8	35.30	0.00	-0.62
	01/28/94	<50	<0.5	<0.5	<0.5	<0.5	35.61	0.00	-0.93
	03/17/94	<50	<0.5	<0.5	<0.5	<0.5	34.37	0.00	0.31
	06/16/94	<50	<0.5	<0.5	<0.5	<0.5	33.36	0.00	1.32

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-0076
4265 Foothill Boulevard, Oakland, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
TBLB	04/28/89	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	08/08/89	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	08/27/90	<50	<0.3	<0.3	<0.3	<0.6	---	---	---
	11/14/90	<50	<0.3	<0.3	<0.3	<0.6	---	---	---
	06/18/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	09/19/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	12/20/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	03/18/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	07/14/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	10/08/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	01/08/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	04/14/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	07/16/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	**09/21/93	<50	<0.5	<0.5	<0.5	<0.8	---	---	---
	01/28/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	03/17/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	06/16/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---

TPH-G = Total petroleum hydrocarbons-as-gasoline
DTW = Depth to groundwater
SPT = Separate-phase hydrocarbon thickness
WTE = Water-table elevation
--- = Not applicable, not sampled, not measured
* = Uncategorized compound not included in gasoline hydrocarbon concentration.

All elevations are presented as feet above mean sea level.
Analytical results are in micrograms per liter, equivalent to parts per billion.
Top-of-casing elevations were surveyed September 21, 1993.
Data for April 28, 1989, through December 20, 1991, were taken from *Fourth Quarter 1991 Ground Water Monitoring Report*, dated January 30, 1992 (Weiss Associates).

TABLE 2
GROUNDWATER MONITORING DATA
Shell Service Station
4411 Foothill Boulevard, Oakland, California

Well ID/Elev	Date	DTW (ft)	SPT (ft)	WTE (ft)
S-1 38.31	06/16/94	9.41	0.00	30.11
S-2 38.79	06/16/94	10.11	0.00	28.87
S-3 37.33	06/16/94	9.12	0.00	28.99

GROUNDWATER TECHNOLOGY ®

Project Name: Chevron - Foothill Blvd.

Site Address: 4265 Foothill Blvd., Oakland

Project Number: 020104102.0610

Date: 6/16/94

Page 1 of 8

Project Manager: Tim Watchers

Well ID: C-5

Well Diameter: 2"

DTW Measurements:
Initial: 24.40
Recharge:

Calc Well Volume: 3.26 gal
Well Volume: 9.78 gal

44.40 − 24.40 = 20.00 × .163 = 3.26 × 3 = 9.78

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI:
Hydac:
Omega:

Other:

Time	Temp C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
0837	18.4	0.58	6.27	2		cloudy brown
0841	18.1	0.60	6.51	4		4
0848	18.1	0.60	6.57	8		4
0851	18.6	0.58	6.53	10		4

Project Name: Chevron - Foothill Blvd.

Date: 6/16/97

Site Address: 4265 Foothill Blvd., Oakland

Page 2 of 8

Project Number: 020104102.0610

Project Manager: Tim Watchers

Well ID: C-8

DTW Measurements:
Initial: 23.36 Calc Well Volume: 3.38 gal
Recharge: _____ Well Volume: 11.34 gal

Well Diameter: 2"

5-6.60 - 23.36 = 23.24 x .163 = 3.78

Purge Method
Peristaltic _____
Gear Drive _____
Submersible _____

Pump Depth _____ ft.
Hand Bailed X
Air Lift _____
Other _____

Instruments Used
YSI: X
Hydac: _____
Omega: _____
Other: _____

Time	Temp X C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
0909	19.3	0.53	6.30	2		cloudy
0912	19.4	0.59	6.36	4		cloudy LT. BROWN
0919	19.9	0.73	6.45	8		cloudy BROWN
0924	19.4	0.79	6.43	11		4

Project Name: Chevron - Foothill Blvd.

Site Address: 4265 Foothill Blvd., Oakland

Project Number: 020104102.0610

Date: 6/16/94

Page 3 of 8

Project Manager: Tim Watchers

Well ID: C-3

Well Diameter: 3"

DTW Measurements:
Initial: 24.31
Recharge:

Calc Well Volume: 5.70 gal
Well Volume: 17.10 gal

39.50 - 24.31 = 15.19 × .363 = 5.7 × 3 = 17.1

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI:
Hydac:
Omega:

Other:

Time	Temp °C / °F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
0943	20.6	0.61	6.52	4		Cloudy
0949	19.9	0.25	6.55	8		Cloudy LT. Brown
0951	20.0	0.77	6.55	12		"
0956	20.1	0.80	6.57	17		Cloudy Brown

Project Name: Chevron - Foothill Blvd.

Site Address: 4265 Foothill Blvd., Oakland

Project Number: 020104102.0610

Date: 6/16/94

Page 4 of 8

Project Manager: Tim Watchers

Well ID: C-1

Well Diameter: 3"

DTW Measurements:
Initial: 17.83
Recharge: _____

Calc Well Volume: 8.02 gal
Well Volume: 24.06 gal

39.90 − 17.83 = 21.87 + .367 = 8.02 + 3 = 24.06

Purge Method
Peristaltic _____
Gear Drive _____
Submersible _____

Pump Depth _____ ft.
Hand Bailed ✓
Air Lift _____
Other _____

Instruments Used
YSI: ✓
Hydac: _____
Omega: _____
Other: _____

Time	Temp ✓ C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
1011	20.8	0.83	6.45	4		Clear w/ Debris
1014	20.2	0.85	6.59	8		Cloudy Brown/Gray
1017	20.6	0.82	6.58	12		"
1020	20.9	0.81	6.55	18		"
1024	20.1	0.81	6.61	24		"

Project Name: Chevron - Foothill Blvd.

Site Address: 4265 Foothill Blvd., Oakland

Project Number: 020104102.0610

Date: 6/16/94

Page 5 of 8

Project Manager: Tim Watchers

Well ID: C-6

Well Diameter: 2"

DTW Measurements: Initial: 31.50 Recharge:

Calc Well Volume: 3.83 gal

Well Volume: 11.49 gal

55.00 - 31.50 = 23.50 + .163 = 3.83

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed X
Air Lift
Other

Instruments Used
YSI: X
Hydac:
Omega:

Other:

Time	Temp X C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
						Cloudy
1039	20.9	0.87	6.44	2		Gray
1043	20.4	0.88	6.53	4		cloudy Dark Gray
1049	20.3	0.88	6.55	8		4
1053	19.8	0.89	6.53	11		11

Project Name: Chevron - Foothill Blvd.

Site Address: 4265 Foothill Blvd., Oakland

Project Number: 020104102.0610

Date: 6/16/94

Page 6 of 8

Project Manager: Tim Watchers

Well ID: C-7

Well Diameter: 2"

DTW Measurements:
Initial: 33.07
Recharge:

Calc Well Volume: 3.50 gal
Well Volume: 10.50 gal

54.60 - 33.07 = 21.53 x .163 = 3.50 x 3 =

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI:
Hydac:
Omega:

Other:

Time	Temp C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
1115	20.1	0.97	6.52	2	[redacted]	cloudy LT Gray
1117	20.1	0.98	6.34	4		" cloudy
1123	19.7	1.01	6.37	8		Gray
1128	20.0	1.02	6.36	11		"

Chevron - Foothill Blvd.

Date: 6/16/94

4265 Foothill Blvd., Oakland

Page 7 of 8

Number: 020104102.0610

Project Manager: Tim Watchers

Well ID: C-4

Well Diameter: 3"

DTW Measurements:
Initial: 22.50
Recharge:

Calc Well Volume: 6.34 gal
Well Volume: 19.02 gal

39.80 - 22.50 = 17.30 + .367 = 6.343 = 19.02

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI:
Hydac:
Omega:

Other:

Time	Temp C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
1146	20.7	0.84	6.28	4		Slight Cloudy
1148	20.8	0.85	6.36	8		Cloudy CT. Grey
1151	20.6	0.85	6.38	12		Cloudy Grey
1155	20.4	0.84	6.42	16		"
1158	20.0	0.84	6.43	19		"

Project Name: Chevron - Foothill Blvd.

Date: 6/16/94

Site Address: 4265 Foothill Blvd., Oakland

Page 8 of 8

Project Number: 020104102.0610

Project Manager: Tim Watchers

Well ID: C-2

DTW Measurements:
Initial: 23.92 Calc Well Volume: 4.43 gal
Recharge: _____ Well Volume: 13.29 gal

Well Diameter: 3"

36.00 - 23.92 = 12.08 = 4.43 x 3 = 13.29

Purge Method
Peristaltic _____
Gear Drive _____
Submersible _____

Pump Depth _____ ft.
Hand Bailed +
Air Lift _____
Other _____

Instruments Used
YSI: +
Hydac: _____
Omega: _____
Other: _____

Time	Temp X C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
1224	223	0.91	6.42	4		Clear Ct. Sheen
				8		
				12		
				13		

ATTACHMENT 3

Groundwater Monitoring and Sample Collection Protocol
and
Field Data Sheets

GROUNDWATER TECHNOLOGY GROUNDWATER MONITORING AND SAMPLE COLLECTION PROTOCOL

Groundwater Monitoring

Groundwater monitoring is accomplished using a INTERFACE PROBE™ Well Monitoring System. The INTERFACE PROBE™ Well Monitoring System is a hand held, battery operated device for measuring the depth to separate-phase hydrocarbons and depth to water. The INTERFACE PROBE™ Well Monitoring System consists of a dual-sensing probe which utilizes an optical liquid sensor and electrical conductivity to distinguish between water and petroleum products.

Monitoring is accomplished by measuring from the surveyed top of well casing or grade to groundwater and separate-phase hydrocarbons if present. The static water elevation is then calculated for each well and a potentiometric surface map is constructed. If separate-phase hydrocarbons are detected the water elevation is adjusted by the following calculation:

(Product thickness) x (0.8) + (Water elevation) = Corrected water elevation

Groundwater monitoring wells are monitored in order of wells with lowest concentrations of volatile organic compounds to wells with the highest concentrations, based upon historical concentrations. If separate-phase hydrocarbons are encountered in a well, the product is visually inspected to confirm and note color, amount, and viscosity. Monitoring equipment is washed with laboratory grade detergent and rinsed with distilled or deionized water before monitoring each well.

Groundwater Sampling

Before groundwater samples are collected, sufficient water is purged from each well to ensure representative formation water is entering the well. Wells are purged and sampled in the same order as monitoring, from wells with the lowest concentrations of volatile organic compounds to wells with the highest concentrations. Wells are purged using either a polyvinyl chloride (PVC) bailer fitted with a check valve or with a stainless steel submersible Grundfos pump. The purge equipment is decontaminated before use in each well by washing with laboratory grade detergent and tripled rinsing with deionized or distilled water. A minimum of 3 well-casing volumes of water are removed from each well while pH, electrical conductivity, and temperature are recorded to verify that "fresh" formation water is being sampled and the parameters have stabilized. If the well is low yielding, it may be purged dry and sampled before 3 casing volumes are purged. The wells are then allowed to recharge to approximately 80 percent of the initial water level before a sample is collected.

Groundwater samples are collected from each well using a new, prepackaged disposable bailer and string. The water sample is decanted from the bailer into laboratory-provided containers (appropriate for the analyses required) so that there is no headspace in the containers. Samples collected for benzene, toluene, ethylbenzene, xylene, and total petroleum hydrocarbons (TPH)-as-gasoline analyses are collected in 40-milliliter vials fitted with Teflon® septum lids. Samples are preserved with hydrochloric acid (HCL) to a pH of less than 2. Dissolved metals samples are filtered through a 0.45-micron paper filter in the field and preserved as required before submitting to the laboratory for analyses. All samples are labeled immediately upon collection and logged on the chain-of-custody record. Sample label and chain-of-custody recorded information includes the project name and number, sample identification, date and time of collection, analyses requested, and the sampler's name. Sample bottles are placed in plastic bags (to protect the bottles and labels) and on ice (frozen water) in an insulated cooler and are shipped under chain-of-custody protocol to the laboratory.

The chain-of-custody record documents who has possession of the samples until the analyses is performed. Other pertinent information is also noted for the laboratory use on the chain-of-custody record.

Trip blanks (TBLBs) are used for each project as a quality assurance/quality control measure. The TBLBs are prepared by the laboratory and are placed in the insulated cooler and accompany the field samples throughout the sampling event.

ATTACHMENT 4

Laboratory Report

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Western Region
4080 Pike Lane, Suite C
Concord, CA 94520
(510) 685-7852
(800) 544-3422 Inside CA
FAX (510) 825-0720

June 27, 1994

Ken Johnson
Groundwater Technology, Inc.
4057 Port Chicago Hwy
Concord, CA 94520

RE: GTEL Client ID: 020104102
Login Number: C4060377
Project ID (number): 020104102
Project ID (name): CHEVRON/#9-0076/Oakland, CA

Dear Ken Johnson:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 06/22/94.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the Department of Health Service under Certification Number E1075.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Rashmi Shah
Laboratory Director

GTEL Client ID: 020104102
Login Number: C4060377
Project ID (number): 020104102
Project ID (name): CHEVRON/#9-0076/Oakland, CA

ANALYTICAL RESULTS

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

GTEL Sample Number	C4060377-01	C4060377-02	C4060377-03	C4060377-04
Client ID	TBLB	C-5	C-8	C-3
Date Sampled	06/16/94	06/16/94	06/16/94	06/16/94
Date Analyzed	06/24/94	06/24/94	06/24/94	06/24/94
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	< 0.5	< 0.5	< 0.5	1.4
Toluene	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes (total)	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
TPH as GAS	50.	ug/L	< 50.	< 50.	< 50.	< 50.
BFB (Surrogate)	--	%	105.	108.	103.	102.

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

"Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846", Third Edition, Revision 1, US EPA November 1986. Bromofluorobenzene surrogate recovery acceptability limits are 62-129%. Gasoline range hydrocarbons (TPH) quantitated by GC/FID with purge and trap.

C4060377-04:

Uncategorized compound is not included in gasoline concentration.

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL Client ID: 020104102 ANALYTICAL RESULTS
Login Number: C4060377 Volatile Organics
Project ID (number): 020104102 Method: EPA 8020
Project ID (name): CHEVRON/#9-0076/Oakland, CA Matrix: Aqueous

GTEL Sample Number	C4060377-05	C4060377-06	C4060377-07	C4060377-08
Client ID	C-1	C-6	C-7	C-4
Date Sampled	06/16/94	06/16/94	06/16/94	06/16/94
Date Analyzed	06/25/94	06/25/94	06/25/94	06/25/94
Dilution Factor	1.00	5.00	10.0	50.0

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	20.	970	1600	7600
Toluene	0.5	ug/L	0.7	6.4	180	710
Ethylbenzene	0.5	ug/L	8.7	52.	410	600
Xylenes (total)	0.5	ug/L	3.0	62.	1200	1800
TPH as GAS	50.	ug/L	320	3800	12000	25000
BFB (Surrogate)	--	%	85.8	86.0	87.2	84.6

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

"Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846", Third Edition, Revision 1, US EPA November 1986. Bromofluorobenzene surrogate recovery acceptability limits are 62-129%. Gasoline range hydrocarbons (TPH) quantitated by GC/FID with purge and trap.

C4060377-06:

Uncategorized compound is not included in gasoline concentration.

C4060377-07:

Uncategorized compound is not included in gasoline concentration.

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL Client ID: 020104102
Login Number: C4060377
Project ID (number): 020104102
Project ID (name): CHEVRON/#9-0076/Oakland, CA

ANALYTICAL RESULTS

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

GTEL Sample Number	C4060377-09	--	--	--
Client ID	C-2	--	--	--
Date Sampled	06/16/94	--	--	--
Date Analyzed	06/25/94	--	--	--
Dilution Factor	100.	--	--	--

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	4800	--	--	--
Toluene	0.5	ug/L	1500	--	--	--
Ethylbenzene	0.5	ug/L	520	--	--	--
Xylenes (total)	0.5	ug/L	4300	--	--	--
TPH as GAS	50.	ug/L	20000	--	--	--
BFB (Surrogate)	--	%	87.0	--	--	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

"Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846", Third Edition, Revision 1, US EPA November 1986. Bromofluorobenzene surrogate recovery acceptability limits are 62-129%. Gasoline range hydrocarbons (TPH) quantitated by GC/FID with purge and trap.

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL Client ID: 020104102
Login Number: C4060377
Project ID (number): 020104102
Project ID (name): CHEVRON/#9-0076/Oakland, CA

QUALITY CONTROL RESULTS

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

Method Blank Results

QC Batch No: G062594-5
Date Analyzed: 25-JUN-94

Analyte	Method: EPA 8020 Concentration: ug/L
Benzene	< 0.30
Toluene	< 0.30
Ethylbenzene	< 0.30
Xylenes (Total)	< 0.50
TPH as Gasoline	< 10.

Notes:

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL Client ID: 020104102 QUALITY CONTROL RESULTS
Login Number: C4060377 Volatile Organics
Project ID (number): 020104102 Method: EPA 8020
Project ID (name): CHEVRON/#9-0076/Oakland, CA Matrix: Aqueous

Matrix Spike and Matrix Spike Duplicate Results

Analyte	Original Concentration	Spike Amount	Matrix Spike Concentration	Matrix Spike Recovery, %	Matrix Spike Duplicate Concentration	Matrix Spike Duplicate Recovery, %	RPD, %	Acceptability Limits RPD, %	Acceptability Limits Recovery, %
EPA 8020	GTEL Sample ID:C4060376-04		Spike ID:G062594-1		Dup. ID:G062594-2				
Units: ug/L	Analysis Date:25-JUN-94		25-JUN-94		26-JUN-94		Client ID:Batch QC		
Benzene	< 0.50	20.0	17.3	86.4	17.8	88.9	2.8	34	57.3-138%
Toluene	< 0.50	20.0	18.1	90.1	17.6	87.6	2.8	31	63-134%
Ethylbenzene	< 0.50	20.0	17.0	85.0	17.7	88.5	4	38	59.3-137%
Xylenes (Total)	< 0.50	60.0	54.2	90.2	56.5	94.0	4.1	31	59.3-144%

Notes:

GTEL ENVIRONMENTAL LABORATORIES, INC

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No

Chain-of-Custody-Record

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

Chevron Facility Number: 9-0076
Facility Address: 4265 Foothill
Consultant Project Number: 020104102
Consultant Name: Groundwater Technology, Inc.
Address: 4057 Port Chicago Hwy, Concord, CA. 94520
Project Contact (Name): Tim Watchers
(Phone) 510-671-2387 (Fax Number)

Chevron Contact (Name): Tim Watchers
(Phone): (510) 671-2387
Laboratory Name: G-TEL
Laboratory Release Number: 876-6690
Samples Collected by (Name): J. Nelson
Collection Date: 6/16/94
Signature: J. Nelson

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)					Remarks
Tank	01	2	W	G	1255	HCl	X	X												NOTE: DO NOT BILL TB-LB SAMPLES (40) seals intact
C-5	02	3			1300			X												
C-8	03	3			1305			X					3							
C-3	04	3			1315			X												
C-1	05	3			1320			X												
C-6	06	3			1330			X												
C-7	07	3			1345			X												
C-4	08	3			1340			X												
C-2	09	3			1350			X												C4060377

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
J. Nelson	GTI	6/16/94	Clayton Boyle	GTI	
Clayton Boyle	GTI	6-22-94 1400	Robin Walker	GTEL	6-22-94 1400
Robin Walker	GTEL	6-22-94 1600	Received For Laboratory By (Signature): Karen Melander		6/22/94 16:00

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted