Chevron

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

Site Assessment & Remediation Group
Phone (510) 842-9500

January 3, 1995

SID 2047

Ms. Susan Hugo
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Service Station #9-1583
5509 Martin Luther King Way, Oakland, CA

Dear Ms. Hugo:

Enclosed is the quarterly Groundwater Monitoring and Sampling Activities report dated November 23, 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. Benzene was detected in monitor wells MW-1, MW-3, MW-7, and MW-8 at concentrations of 39, 280, 1.2, and 1800 ppb, respectively. Depth to ground water was measured at approximately 10.1 feet to 13.6 feet below grade, and the direction of flow is to the south-southeast.

The direction of ground water flow observed during the past quarter differs greatly from that observed historically at the site. We would like to obtain one more quarter of monitoring data prior to submitting a work plan for additional definition of the dissolved hydrocarbon plume. We anticipate forwarding a work plan for delineation to your office within 30 days following submission of the next quarterly report.

It appears that hydrocarbons detected in upgradient wells MW-5 and MW-6 most likely originated from the upgradient BP site. BP and Chevron have coordinated their sampling events to occur at the same time to better understand the two sites.

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. S.A. Willer

File: 9-1583 QM10

GROUNDWATER TECHNOLOGY, INC.

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

November 23, 1994 Project No. 020104101

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. 9-1583
5509 Martin Luther King Jr. Way, Oakland, California

Dear Mr. Miller:

Groundwater Technology, Inc. presents the quarterly groundwater monitoring and sampling data collected on October 5, 1994. Seven of the eight groundwater monitoring wells at the site were gauged to measure depth to groundwater (DTW) and to check for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not detected in the monitoring wells. A car was parked over monitoring well MW-6 so the well was not monitored or sampled. 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 for total petroleum hydrocarbons-as-gasoline. Results of the chemical analyses 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 with 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

Kenneth P. Johnson
Project Manager

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

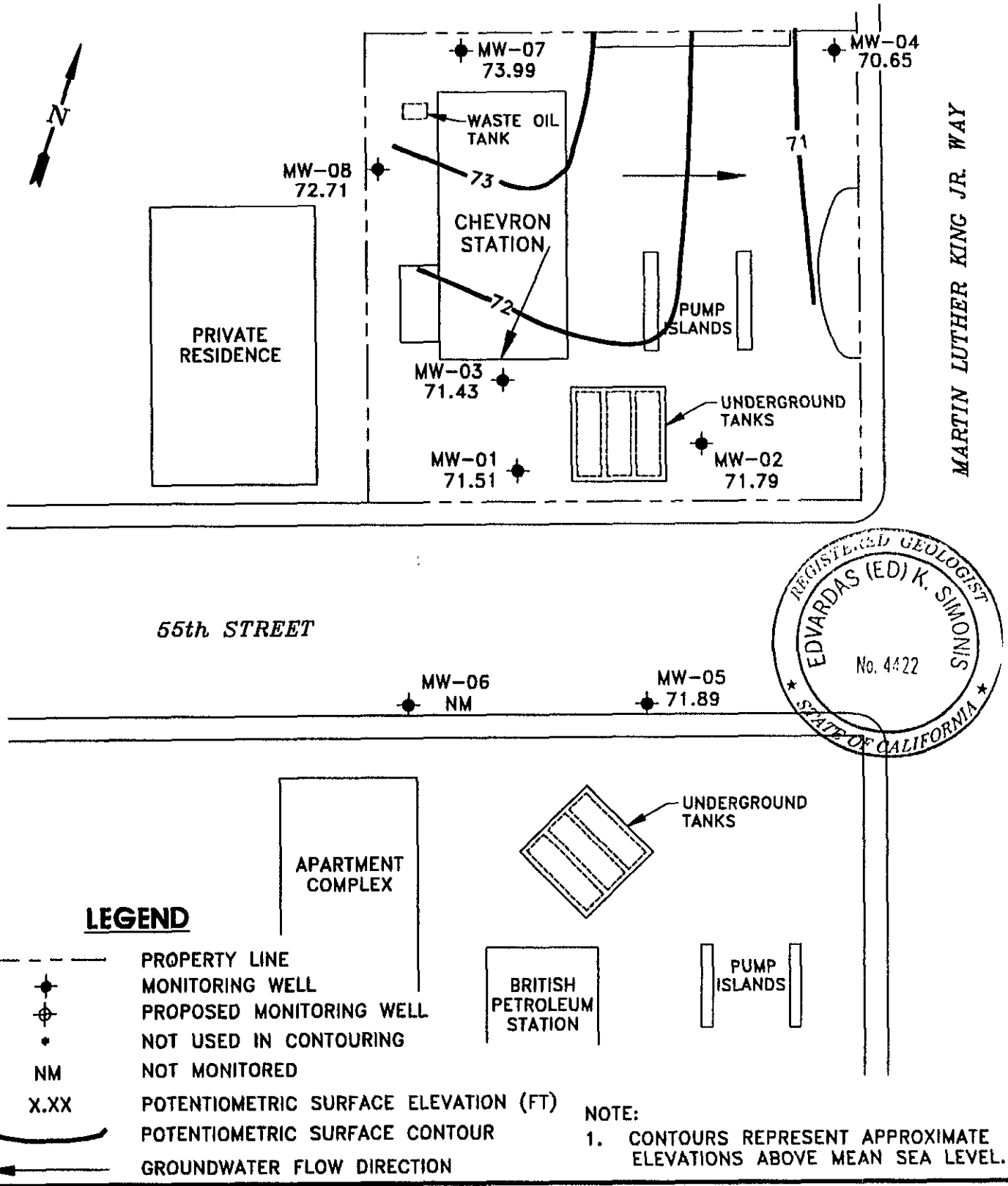
PR

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

4101qmsr 394

ATTACHMENT 1

Figure



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

LEGEND

———	PROPERTY LINE
✦	MONITORING WELL
⊕	PROPOSED MONITORING WELL
•	NOT USED IN CONTOURING
NM	NOT MONITORED
X.XX	POTENTIOMETRIC SURFACE ELEVATION (FT)
⌒	POTENTIOMETRIC SURFACE CONTOUR
←	GROUNDWATER FLOW DIRECTION

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

GROUNDWATER TECHNOLOGY

0 FEET 40
SCALE

POTENTIOMETRIC SURFACE MAP (10/05/94)

CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION NO. 9-1583	FILE: 4101PSM, (1:40)	PROJECT NO.: 02010-4101		PM: KS	PE/RG: EKS
	REV.				
LOCATION: 5509 MARTIN LUTHER KING JR. WAY OAKLAND, CALIFORNIA	DES.: KM	DET.: KM	DATE: 10/11/94	FIGURE: 1	

ATTACHMENT 2

Table

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1583
5509 Martin Luther King Jr. Way, Oakland, California

Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
MW-1	12/22/83	---	---	---	---	---	---	---	10.25	0.00	71.72
	12/30/83	---	---	---	---	---	---	---	9.17	0.00	72.80
*81.97/	03/12/90	50,000	3,000	7,300	1,900	18,000	---	---	10.08	0.00	71.89
82.42	03/25/90	---	---	---	---	---	---	---	10.46	0.00	71.51
	10/18/90	---	---	---	---	---	---	---	---	---	---
	10/31/90	---	---	---	---	---	---	---	---	---	---
	11/16/90	---	---	---	---	---	---	---	11.58	0.00	70.84
	02/08/91	100,000	4,200	8,400	16,000	2,600	---	---	10.11	0.00	72.31
	05/08/91	31,000	200	66	670	2,000	---	---	10.45	0.00	71.97
	08/12/91	17,000	81	7.2	270	710	---	---	11.23	0.00	71.19
	11/07/91	7,100	24	6	130	170	---	---	10.70	0.00	71.72
	02/05/92	110,000	8,900	14,000	2,700	12,000	---	---	10.37	0.00	72.05
	05/13/92	19,000	450	85	480	870	---	---	10.58	0.00	71.84
	07/17/92	8,500	170	<10	360	600	---	---	11.05	0.00	71.37
	10/05/92	22,000	4,300	5,100	570	2,900	---	---	11.41	0.00	71.01
	11/11/92	---	---	---	---	---	---	---	---	---	---
	11/17/92	---	---	---	---	---	---	---	---	---	---
	11/24/92	---	---	---	---	---	---	---	---	---	---
	12/01/92	---	---	---	---	---	---	---	---	---	---
	12/29/92	---	---	---	---	---	---	---	---	---	---
	01/05/93	---	---	---	---	---	---	---	---	---	---
	01/08/93	14,000,000	12,000	79,000	270,000	1,300,000	---	---	8.11	0.00	74.31
	02/02/93	---	---	---	---	---	---	---	---	---	---
	04/14/93	***48,000	670	1,100	1,600	6,300	---	---	9.85	0.00	72.57
	08/06/93	44,000	660	990	1,600	6,100	---	---	10.83	0.00	71.59
	10/21/93	18,000	270	460	1,300	4,700	---	---	10.90	0.00	71.52
	01/05/94	***22,000	160	160	630	2,300	---	---	10.33	0.00	72.09
	04/08/94	21,000	37	110	570	1,400	---	---	10.18	0.00	72.24
	07/06/94	28,000	210	100	540	1,200	---	---	10.64	0.00	71.78
	08/04/94	---	---	---	---	---	---	---	10.51	0.00	71.91
	10/05/94	120,000	39	22	320	900	---	---	10.91	0.00	71.51

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Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
MW-2	12/22/83	---	---	---	---	---	---	---	10.50	0.00	72.98
	12/30/83	---	---	---	---	---	---	---	9.92	0.00	73.56
83.48	03/12/90	800	400	22	18	55	---	---	11.02	0.00	72.46
	03/25/90	---	---	---	---	---	---	---	11.33	0.00	72.15
	10/18/90	---	---	---	---	---	---	---	12.31	0.00	71.17
	10/31/90	---	---	---	---	---	---	---	---	---	---
	11/16/90	---	---	---	---	---	---	---	---	---	---
	02/08/91	4,600	820	440	720	210	---	---	11.05	0.00	72.43
	05/08/91	<50	5	<0.5	<0.5	<0.5	---	---	11.36	0.00	72.12
	08/12/91	<50	<0.5	<0 5	<0.5	<0.5	---	---	11.97	0.00	71.51
	11/07/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	11.50	0.00	71.98
	02/05/92	1,700	390	170	60	200	---	---	11.19	0.00	72.29
	05/13/92	**74	9.3	<0.5	<0.5	<0.5	---	---	11.49	0.00	71.99
	07/17/92	<50	2.0	<0.5	<0.5	<0.5	---	---	11.85	0.00	71.63
	10/05/92	3,500	1,200	530	86	220	---	---	12.00	0.00	71.48
	11/11/92	---	---	---	---	---	---	---	---	---	---
	11/17/92	---	---	---	---	---	---	---	---	---	---
	11/24/92	---	---	---	---	---	---	---	---	---	---
	12/01/92	---	---	---	---	---	---	---	---	---	---
	12/29/92	---	---	---	---	---	---	---	---	---	---
	01/05/93	---	---	---	---	---	---	---	---	---	---
	01/08/93	390	140	0.8	7 7	26	---	---	8 83	0.00	74.65
	02/02/93	---	---	---	---	---	---	---	---	---	---
	04/14/93	<50	5	<0.5	<0.5	<0 5	---	---	10.79	0.00	72.69
	08/06/93	<50	1	<0.5	<0.5	<0.5	---	---	11.71	0.00	71.77
	10/21/93	***<50	1	<0.5	9	<0.5	---	---	11.74	0.00	71.74
	01/05/94	<50	0.7	<0.5	<0.5	0.9	---	---	11.18	0.00	72.30
	04/08/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	11.06	0.00	72.42
	07/06/94	<50	<0 5	<0.5	<0.5	<0.5	---	---	11.68	0.00	71.80
	08/04/94	---	---	---	---	---	---	---	11.19	0.00	72.29
	10/05/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	11.69	0 00	71.79

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Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
MW-3	12/22/83	---	---	---	---	---	---	---	11.58	0.00	72.78
	12/30/83	---	---	---	---	---	---	---	11.17	0.00	73.19
84.36/	03/12/90	47,000	1,000	9,900	1,700	9,800	---	---	12.14	0.00	72.22
84.38	03/25/90	---	---	---	---	---	---	---	12.55	0.00	71.81
	10/18/90	---	---	---	---	---	---	---	---	---	---
	10/31/90	---	---	---	---	---	---	---	---	---	---
	11/16/90	---	---	---	---	---	---	---	13.62	0.00	70.76
	02/08/91	58,000	4,900	5,200	9,500	2,000	---	---	12.18	0.00	72.20
	05/08/91	50,000	2,100	1,400	2,000	9,400	---	---	12.52	0.00	71.86
	08/12/91	15,000	1,300	160	920	1,900	---	---	13.27	0.00	71.11
	11/07/91	26,000	1,000	310	1,900	5,900	---	---	12.81	0.00	71.57
	02/05/92	35,000	2,800	1,300	1,500	4,700	---	---	12.47	0.00	71.91
	05/13/92	47,000	1,500	1,200	1,100	4,800	---	---	12.62	0.00	71.76
	07/17/92	15,000	120	11	88	140	---	---	13.13	0.00	71.25
	10/05/92	---	---	---	---	---	---	---	13.62	0.24	70.95
	11/11/92	---	---	---	---	---	---	---	12.89	0.17	71.63
	11/17/92	---	---	---	---	---	---	---	12.89	0.06	71.54
	11/24/92	---	---	---	---	---	---	---	12.86	0.05	71.56
	12/01/92	---	---	---	---	---	---	---	12.92	0.03	71.48
	12/29/92	---	---	---	---	---	---	---	11.24	Sheen	73.14
	01/05/93	---	---	---	---	---	---	---	11.15	Sheen	73.23
	01/08/93	250,000	5,000	17,000	5,500	28,000	---	---	10.10	0.00	74.28
	02/02/93	---	---	---	---	---	---	---	---	---	---
	04/14/93	---	---	---	---	---	---	---	11.91	0.01	72.48
	08/06/93	150,000	3,800	6,600	3,700	17,000	---	---	12.90	0.01	71.48
	10/21/93	***22,000	2,300	1,700	1,400	5,100	---	---	12.97	0.00	71.41
	01/05/94	***37,000	1,600	1,100	1,300	6,500	---	---	12.42	0.00	71.96
	04/08/94	16,000	250	310	500	2,500	---	---	11.87	0.00	72.51
	07/06/94	43,000	660	320	1,900	6,400	---	---	12.74	0.00	71.64
	08/04/94	---	---	---	---	---	---	---	12.67	0.00	71.71
	10/05/94	12,000	280	90	480	370	---	---	12.95	0.00	71.43

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Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
MW-4	10/18/90	---	---	---	---	---	---	---	15.75	0.00	68.50
	10/31/90	<50	<0.5	<0.5	<0.5	1	---	---	13.90	0.00	70.35
84.25	11/16/90	---	---	---	---	---	---	---	14.25	0.00	70.00
	02/08/91	60	17	2	12	<0.5	---	---	12.32	0.00	71.93
	05/08/91	65	<0.5	<0.5	<0.5	<0.5	---	---	12.23	0.00	72.02
	08/12/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	13.93	0.00	70.32
	11/07/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	13.42	0.00	70.83
	02/05/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	12.83	0.00	71.42
	05/13/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	13.28	0.00	70.97
	07/17/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	13.98	0.00	70.27
	10/05/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	14.23	0.00	70.02
	11/11/92	---	---	---	---	---	---	---	---	---	---
	11/17/92	---	---	---	---	---	---	---	---	---	---
	11/24/92	---	---	---	---	---	---	---	---	---	---
	12/01/92	---	---	---	---	---	---	---	---	---	---
	12/29/92	---	---	---	---	---	---	---	---	---	---
	01/05/93	---	---	---	---	---	---	---	---	---	---
	01/08/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	10.16	0.00	74.09
	02/02/93	---	---	---	---	---	---	---	---	---	---
	04/14/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	12 04	0.00	72.21
	08/06/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	13.91	0.00	70.34
	10/21/93	<50	<0.5	<0.5	<0.5	1	---	---	13.99	0.00	70.26
	01/05/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	12.95	0.00	71.30
	04/08/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	12.94	0.00	71.31
	07/06/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	13.68	0.00	70.57
	08/04/94	---	---	---	---	---	---	---	13.54	0.00	70.71
	10/05/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	13.60	0.00	70 65

TABLE 1
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Chevron Service Station No. 9-1583
5509 Martin Luther King Jr. Way, Oakland, California

Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
MW-5	10/18/90	---	---	---	---	---	---	---	10.78	0.00	71.17
	10/31/90	110	<0.5	<0.5	<0.5	<0.5	---	---	10.63	0.00	71.32
81.95	11/16/90	---	---	---	---	---	---	---	10.68	0.00	71.27
	02/08/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	9.17	0.00	72.78
	05/08/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	8.68	0.00	73.27
	08/12/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	10.33	0.00	71.62
	11/07/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	9.76	0.00	72.19
	02/05/92	**69	<0.5	<0.5	<0.5	<0.5	---	---	9.47	0.00	72.48
	05/13/92	**74	<0.5	<0.5	<0.5	<0.5	---	---	9.70	0.00	72.25
	07/17/92	880	2.6	<1.2	4.6	11	---	---	10.21	0.00	71.74
	10/05/92	120	<0.5	<0.5	0.6	4.9	---	---	10.61	0.00	71.34
	11/11/92	---	---	---	---	---	---	---	---	---	---
	11/17/92	---	---	---	---	---	---	---	---	---	---
	11/24/92	---	---	---	---	---	---	---	---	---	---
	12/01/92	---	---	---	---	---	---	---	---	---	---
	12/29/92	---	---	---	---	---	---	---	---	---	---
	01/05/93	---	---	---	---	---	---	---	---	---	---
	01/08/93	**61	<0.5	<0.5	<0.5	<0.5	---	---	7.34	0.00	74.61
	02/02/93	---	---	---	---	---	---	---	---	---	---
	04/14/93	---	---	---	---	---	---	---	---	---	---
	08/06/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	9.96	0.00	71.99
	10/21/93	<50	<0.5	<0.5	2	4	---	---	10.06	0.00	71.89
	01/05/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	9.43	0.00	72.52
	04/08/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	9.39	0.00	72.56
	07/06/94	<50	0.6	<0.5	<0.5	<0.5	---	---	9.76	0.00	72.19
	08/04/94	---	---	---	---	---	---	---	9.82	0.00	72.13
	10/05/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	10.06	0.00	71.89

GROUNDWATER TECHNOLOGY

TABLE 1
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Chevron Service Station No. 9-1583
5509 Martin Luther King Jr. Way, Oakland, California

Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
MW-6	10/18/90	---	---	---	---	---	---	---	9.79	0.00	70.81
	10/31/90	<50	<0.5	<0.5	<0.5	3	---	---	9.69	0.00	70.91
80.60	11/16/90	---	---	---	---	---	---	---	9.74	0.00	70.86
	02/08/91	---	---	---	---	---	---	---	---	---	---
	05/08/91	56	<0.5	<0.5	<0.5	<0.5	---	---	9.54	0.00	71.06
	08/12/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	9.50	0.00	71.10
	11/07/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	8.89	0.00	71.71
	02/05/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	8.59	0.00	72.01
	05/13/92	---	---	---	---	---	---	---	---	---	---
	07/17/92	---	---	---	---	---	---	---	---	---	---
	10/05/92	---	---	---	---	---	---	---	---	---	---
	11/11/92	---	---	---	---	---	---	---	---	---	---
	11/17/92	---	---	---	---	---	---	---	---	---	---
	11/24/92	---	---	---	---	---	---	---	---	---	---
	12/01/92	---	---	---	---	---	---	---	---	---	---
	12/29/92	---	---	---	---	---	---	---	---	---	---
	01/05/93	---	---	---	---	---	---	---	---	---	---
	01/08/93	---	---	---	---	---	---	---	---	---	---
	02/02/93	<50	2.1	<0.5	<0.5	2.2	---	---	7.71	0.00	72.89
	04/14/93	**<50	1	<0.5	<0.5	<0.5	---	---	8.19	0.00	72.41
	08/06/93	***<50	<0.5	<0.5	<0.5	<0.5	---	---	9.08	0.00	71.52
	10/21/93	***<50	<0.5	<0.5	<0.5	<0.5	---	---	9.14	0.00	71.46
	01/05/94	***<50	4	<0.5	<0.5	<0 5	---	---	8.54	0 00	72.06
	04/08/94	---	---	---	---	---	---	---	---	---	---
inaccessible	07/06/94	---	---	---	---	---	---	---	---	---	---
	08/04/94	***<50	<0.5	<0.5	<0.5	<0.5	---	---	8.94	0.00	71.66
inaccessible	10/05/94	---	---	---	---	---	---	---	---	---	---

GROUNDWATER TECHNOLOGY ®

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1583
5509 Martin Luther King Jr. Way, Oakland, California

Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
MW-7	03/08/94	1,200	440	31	73	200	<10	4,100	11.37	0.00	74.99
86.36	07/06/94	---	---	---	---	---	---	---	---	---	---
	08/04/94	120	15	<0.5	3.8	1.8	---	---	12.50	0.00	73.86
	10/05/94	150	1.2	<0.5	1.2	1.7	---	---	12.37	0.00	73.99
MW-8	03/08/94	28,000	2,900	1,300	1,200	6,800	<10	<100	10.87	0.00	75.06
85.93	07/06/94	---	---	---	---	---	---	---	---	---	---
	08/04/94	22,000	3,000	260	870	4,400	---	---	12.16	0.00	73.77
	10/05/94	12,000	1,800	34	4.6	890	---	---	13.22	0.00	72.71
TBLB	03/12/90	<50	<0.3	<0.3	<0.3	<0.6	---	---	---	---	---
	02/08/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	05/08/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	08/12/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	11/07/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	02/05/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	05/13/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	07/17/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	10/05/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	11/11/92	---	---	<0.5	---	---	---	---	---	---	---
	11/17/92	---	---	---	---	---	---	---	---	---	---
	11/29/92	---	---	---	---	---	---	---	---	---	---
	12/01/92	---	---	---	---	---	---	---	---	---	---
	12/29/92	---	---	---	---	---	---	---	---	---	---
	01/05/93	---	---	---	---	---	---	---	---	---	---
	01/08/93	<50	<0.5	---	<0.5	<0.5	---	---	---	---	---
	02/02/93	---	---	<0.5	---	---	---	---	---	---	---
	04/14/93	<50	<0.5	---	<0.5	<0.5	---	---	---	---	---
	08/06/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	10/21/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	01/05/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	04/08/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	07/06/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	08/04/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	10/05/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---

GROUNDWATER TECHNOLOGY ®

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1583
5509 Martin Luther King Jr. Way, Oakland, California

Well ID/ Elev	Date	TPH-as-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-as-Diesel	TPH-as Motor Oil	DTW (ft)	SPT (ft)	WTE (ft)
Rinsate	01/05/94	<50	<0.5	<0.5	<0.5	<0.5	---		---	---	---

TPH = Total petroleum hydrocarbons
DTW = Depth to water
SPT = Separate-phase hydrocarbon thickness
WTE = Water-table elevation
--- = Not applicable/not sampled/not measured
*81.97/82.42 = March 3, 1990, survey/November 30, 1990, survey
** = The laboratory reported that a nonstandard gasoline pattern was observed in the chromatogram.
*** = Uncategorized compound is not included in gasoline hydrocarbon total.

All elevations are presented as feet above mean sea level.
Analytical results in micrograms per liter, equivalent to parts per billion.

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.

Project Name: Chevron - Martin Luther King

Site Address: 5509 MLK Jr., Oakland

Project Number: 020104101.0610

Date: 10/5/94

Page 1 of 8

Project Manager: Ken Johnson

Well ID: MW-4

Well Diameter: 2"

DTW Measurements:
Initial: 13.60
Recharge:

Calc Well Volume: 1.85 gal
Well Volume: X3 = .557 gal

Purge Method
Peristaltic
Gear Drive
Submersible ✓

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI: X
Hydac:
Omega:

Other:

Time	Temp X C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
13:21 ~~13:30~~	23.8	.584	6.85	2.0	silty grey	
13:22	21.7	.565	6.76	4.0	clear	
13:23				6.0		Dry

Project Name: Chevron - Martin Luther King

Date: 10/5/94

Site Address: 5509 MLK Jr., Oakland

Page 2 of 8

Project Number: 020104101.0610

Project Manager: Ken Johnson

Well ID: MW-6

Well Diameter: 2"

DTW Measurements:
Initial: _____ Calc Well Volume: _____ gal
Recharge: _____ Well Volume: _____ gal

Purge Method
Peristaltic_____
Gear Drive_____
Submersible_____

Pump Depth_____ ft.
Hand Bailed_____
Air Lift_____
Other_____

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

Time	Temp X C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments

car parked over well

Project Name: Chevron - Martin Luther King

Site Address: 5509 MLK Jr., Oakland

Project Number: 020104101.0610

Date: 10/5/94

Page 3 of 8

Project Manager: Ken Johnson

Well ID: MW-5

Well Diameter: 2"

DTW Measurements:
Initial: 10.06
Recharge:

Calc Well Volume: 1.69 gal
Well Volume: 5.07 gal

Purge Method
Peristaltic
Gear Drive
Submersible X

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI: X
Hydac:
Omega:

Other:

Time	Temp X C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
7:52	19.0	0.80	6.54	2	clear	
7:53	17.1	0.38	6.80	3	dark brown cloudy	
7:53	17.9	0.38	6.83	4	"	
7:53	18.6	0.38	6.78	5	"	
7:54	19.0	0.42	6.13	6	"	
7:55	19.1	0.38	6.11	7	" little clearer	

car parked over well

Project Name: Chevron - Martin Luther King

Site Address: 5509 MLK Jr., Oakland

Project Number: 020104101.0610

Date: 10/5/94

Page 4 of 8

Project Manager: Ken Johnson

Well ID: MW-2

Well Diameter: 3"

DTW Measurements:
Initial: 11.69
Recharge:

Calc Well Volume: 2.87 gal
Well Volume: x3 = 8.59 gal

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
13:38	22.6	.549	6.93	3.0	silty grey	
13:39	23.1	.402	6.54	6.0	"	
13:40	23.2	.435	6.45	9.0	"	DRY

Project Name: Chevron - Martin Luther King

Site Address: 5509 MLK Jr., Oakland

Project Number: 020104101.0610

Date: 10/5/94

Page 5 of 8

Project Manager: Ken Johnson

Well ID: MW-1

Well Diameter: 3"

DTW Measurements:
Initial: 10.91
Recharge:

Calc Well Volume: 3.15 gal
Well Volume: 9.45 gal

19.50 - 10.91 = 8.59 + .36) = 3.15

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI: X
Hydac:
Omega:
Other:

Time	Temp X C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
13:48	22.5	.613	6.36	2.5	5, 1+Y Grey	
13:49	21.8	.458	6.38	5.0	CLEAR	
13:51	21.6	.518	6.38	10.0	"	DRY
						Slight odor

Project Name: Chevron - Martin Luther King

Site Address: 5509 MLK Jr., Oakland

Project Number: 020104101.0610

Date: 10/5/94

Page 6 of 8

Project Manager: Ken Johnson

Well ID: MW-3

Well Diameter: 3"

DTW Measurements:
Initial: 12.85
Recharge:

Calc Well Volume: 2.22 gal
Well Volume: 6.66 gal

18.00 - 12.85 = 6.05 x .367 = 2.22

Purge Method
Peristaltic
Gear Drive
Submersible ✓

Pump Depth ft.
Hand Bailed
Air Lift
Other

Instruments Used
YSI: X
Hydac:
Omega:

Other:

Time	Temp ✓C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
13:58	22.1	.758	6.51	2.5	Silty Grey	Product odor
13:59	22.5	.655	6.41	5.0	11	
14:00				7.5		DRY

Project Name: Chevron - Martin Luther King

Site Address: 5509 MLK Jr., Oakland

Project Number: 020104101.0610

Date: 10/5/94

Page 2 of 8

Project Manager: Ken Johnson

Well ID: MW-7

Well Diameter: 2 "

DTW Measurements:
Initial: 12.37
Recharge: _____

Calc Well Volume: 3.47 gal
Well Volume: 3.51 gal

19.58 - 12.37 = 7.21 x .163 = 1.17 x 3 =

Purge Method
Peristaltic _____
Gear Drive _____
Submersible _____

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

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

Time	Temp ~~X~~ C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
14:13	20.5	.869	6.84	1.33	Silty Grey	
14:15	20.8	.873	6.64	2.66	11	
14:16	20.8	.870	6.62	3.66	11	

Project Name: Chevron - Martin Luther King

Site Address: 5509 MLK Jr., Oakland

Project Number: 020104101.0610

Date: 10/5/94

Page 8 of 8

Project Manager: Ken Johnson

Well ID: MW-8

Well Diameter: 2"

DTW Measurements:
Initial: 13.22
Recharge:

Calc Well Volume: 1.05 gal
Well Volume: 3.15 gal

19.20 - 13.22 = 6.48 × .163 = 1.05 × 3 =

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed ✓
Air Lift
Other

Instruments Used
YSI: X
Hydac:
Omega:

Other:

Time	Temp C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
14:24	19.5	.727	6.42	1.33	silty grey	product odor
14:25	19.4	.734	6.42	2.33	"	
14:27	19.4	.746	6.43	3.33	"	

ATTACHMENT 4

Laboratory Report

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

4080 Pike Lane
Concord, CA 94520
(510) 685-7852
(800) 544-3422 Inside CA
(800) 423-7143 Outside CA
(510) 825-0720 FAX

October 21, 1994

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

RE: GTEL Client ID: 020104101
Login Number: C4100165
Project ID (number): 020104101.0610
Project ID (name): CHEVRON/#9-1583,Oakland, CA

Dear Ken Johnson:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 10/10/94.

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: 020104101
Login Number: C4100165
Project ID (number): 020104101.0610
Project ID (name): CHEVRON/#9-1583,Oakland, CA

ANALYTICAL RESULTS

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

GTEL Sample Number	C4100165-01	C4100165-02	C4100165-03	C4100165-04
Client ID	TBLB	MW-4	MW-2	MW-1
Date Sampled	10/05/94	10/05/94	10/05/94	10/05/94
Date Analyzed	10/15/94	10/15/94	10/15/94	10/16/94
Dilution Factor	1.00	1.00	1.00	10.0

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	< 0.5	< 0.5	< 0.5	39.
Toluene	0.5	ug/L	< 0.5	< 0.5	< 0.5	22.
Ethylbenzene	0.5	ug/L	< 0.5	< 0.5	< 0.5	320
Xylenes (total)	0.5	ug/L	< 0.5	< 0.5	< 0.5	900
TPH as GAS	50.	ug/L	< 50.	< 50.	< 50.	12000
BFB (Surrogate)	--	%	91.5	117.	98.6	102.

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

Analyte list modified to include additional compounds. Acceptability limits for recovery in the Bromofluorobenzene (BFB) surrogate is 62-129%.
Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual protocols, May 1988 revision.

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL Client ID: 020104101
Login Number: C4100165
Project ID (number): 020104101.0610
Project ID (name): CHEVRON/#9-1583,Oakland, CA

ANALYTICAL RESULTS

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

GTEL Sample Number	C4100165-05	C4100165-06	C4100165-07	C4100165-08
Client ID	MW-3	MW-8	MW-7	MW-5
Date Sampled	10/05/94	10/05/94	10/05/94	10/05/94
Date Analyzed	10/16/94	10/16/94	10/17/94	10/15/94
Dilution Factor	10.0	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	280	1800	1.2	< 0.5
Toluene	0.5	ug/L	90.	34.	< 0.5	< 0.5
Ethylbenzene	0.5	ug/L	480	4.6	1.2	< 0.5
Xylenes (total)	0.5	ug/L	370	890	1.7	< 0.5
TPH as GAS	50.	ug/L	12000	12000	150	< 50.
BFB (Surrogate)	--	%	104.	91.2	81.5	94.9

Notes:

Dilution Factor:
Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:
"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. Acc recovery in the Bromofluorobenzene (BFB) surrogate is 62-129%. Modification for TPH as gasoline as per California State Water R Manual protocols, May 1988 revision.

C4100165-06:
Data obtained from multiple dilutions. Dilution factor noted represents the dilution used for majority of results.

C4100165-07:
Uncategorized compound is not included in gasoline concentration.

GTEL Client ID: 020104101
Login Number: C4100165
Project ID (number): 020104101.0610
Project ID (name): CHEVRON/#9-1583,Oakland, CA

QUALITY CONTROL RESULTS

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

Method Blank Results

QC Batch No: Q101594-5
Date Analyzed: 15-OCT-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: 020104101
Login Number: C4100165
Project ID (number): 020104101.0610
Project ID (name): CHEVRON/#9-1583,Oakland, CA

QUALITY CONTROL RESULTS

Volatile Organics
Method: EPA 8020
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:C4100109-08		Spike ID:Q101594-1		Dup. ID:Q101594-2				
Units: ug/L	Analysis Date:12-OCT-94		15-OCT-94		16-OCT-94		Client ID:Batch QC		
Benzene	< 0.30	20.0	16.8	84.0	17.0	85.0	1.1	34	57.3-138%
Toluene	< 0.30	20.0	16.7	83.5	16.7	83.5	0	31	63-134%
Ethylbenzene	< 0.30	20.0	16.5	82.5	16.4	82.0	0.6	38	59.3-137%
Xylenes (Total)	< 0.50	60.0	51.3	85.5	50.2	83.7	2.1	31	59.3-144%

Notes:

GTEL ENVIRONMENTAL LABORATORIES, INC

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

Chain-of-Custody-Recc

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

Chevron Facility Number: 9-1583
Facility Address: 5509 Martin Lk, Oak.
Consultant Project Number: 020104101.0610
Consultant Name: GROUNDWATER TECHNOLOGY
Address: 4057 PORT CHICAGO HWY CONCORD, CA.
Project Contact (Name): KEN JOHNSON
(Phone): 671-2387 (Fax Number):

Chevron Contact (Name): Mark Miller
(Phone): (510) 842-8134
Laboratory Name: GTEL
Laboratory Release Number: 876-6770
Samples Collected by (Name): J. Nelson
Collection Date: 10/5/94
Signature:

NOTE:
DO NOT BILL
TB-LB SAMPL

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)	Analyses To Be Performed: 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
TBLB		2	W	G	1400	HCl	Y	X								
MW-4		3			1405			X								
MW-2		3			1415			X								
MW-1		3			1420			X								
MW-3		3			1425			X								
MW-7		3			1430			X								
MW-8		3	✓	✓	1440	✓	✓	X								
MW5		3	X	G	8:00	HCl	Y	X								

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	GTI	10/5/94		GTI	
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	GTI	10/7/94 0400		GTI	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
	GTI	10/10/94 0400		GTEL	10/10/94 0900

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