Chevron

Chevron

September 28, 1994

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

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

Re: Chevron Service Station #9-0290
1802 Webster Street, Alameda, CA

Dear Ms. Shin:

Enclosed is the quarterly Groundwater Monitoring and Sampling Activities report dated September 20, 1994, prepared by our consultant Groundwater Technology, Inc. for the above referenced site. As previously communicated, this report was delayed due to construction activities at the site which prevented access to the ground water monitor wells.

As indicated in the report, ground water samples collected were analyzed for total petroleum hydrocarbons as gasoline (TPH-G), total petroleum hydrocarbons as diesel (TPH-D), and BTEX. Dissolved concentrations of these constituents detected during this sampling event are similar to historical observations at the site. Depth to ground water was measured at approximately 5.1 to 6.4 feet below grade and the direction of flow is to the north.

Separate phase hydrocarbons (SPH) are being removed on a weekly basis from monitor well A-1. Absorbent pads are currently employed to remove the SPH due to its viscous nature. A summary of the baling program is presented in Tables 1 and 2 of the enclosed report.

We currently anticipate submitting a comprehensive site review and proposed future action plan to your office by September 30, 1994. 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

Ms. Louise Van De Deere
Housing Authority of the City of Alameda
701 Atlantic Avenue
Alameda, CA 94501

File: 9-0290 QM4

GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387

FAX: (415) 685-9148

September 20, 1994 Project No. 020104098

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. 9-0290
1802 Webster Street, Alameda, California

Dear Mr. Miller:

Groundwater Technology, Inc. presents the quarterly groundwater monitoring and sampling data collected on August 18, 1994. The seven 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 detected in monitoring well A-1. Separate phase too thick to measure. Groundwater Technology was removing separate phase on a weekly basis from wells A-1 and A-2 (Tables 1 and 2). An absorbant pad was placed in A-1 during this site visit to remove separate phase. 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, except wells A-1 and B-1. The well casing was bent on B-1. Groundwater monitoring and sample collection protocol and field data sheets are included in attachment 3. The groundwater samples were analyzed for benzene, toluene, ethylbenzene, and xylenes; total petroleum hydrocarbons-as-gasoline; and total petroleum hydrocarbons-as-diesel fuel. 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 on this project. If you have any questions or comments, please contact our Concord office at (510) 671-2387.

Groundwater Technology, Inc.
Written/Submitted by:

Kenneth P. Johnson
Project Manager

PR _____

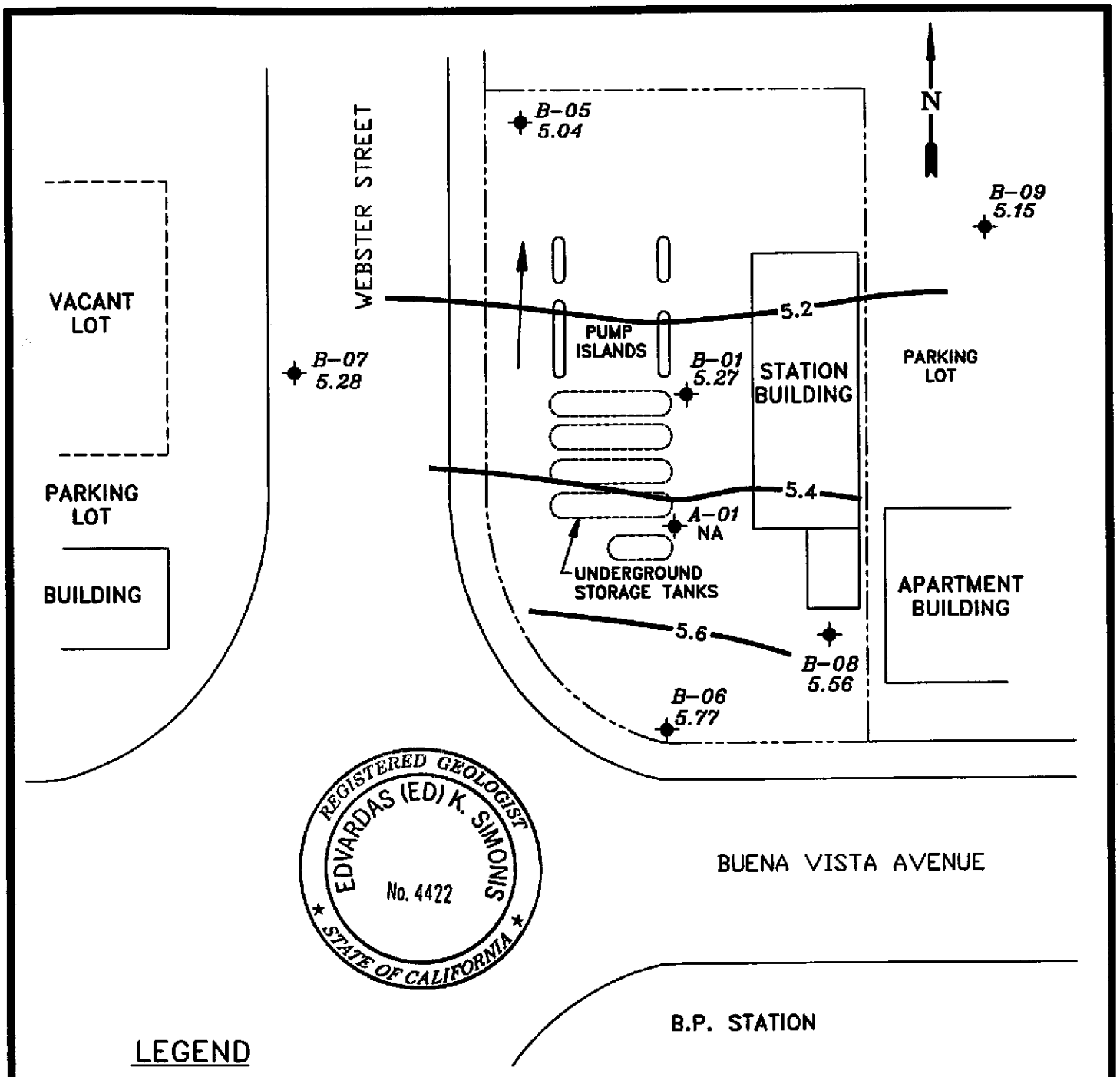
For:
Wendell W. Lattz
Vice President, General Manager
West Region

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

4098qmsr.394

ATTACHMENT 1

Figure



LEGEND

— — — —	PROPERTY LINE
✦	MONITORING WELL
NA	NOT AVAILABLE
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 (8/18/94)

CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION NO. 9-0290	FILE: 4098PSM, (1:40)	PROJECT NO.: 02010-4098	PM: KJ	PE/RG: EKS
LOCATION: 1802 WEBSTER STREET ALAMEDA, CALIFORNIA	REV.	DES.: SS	DET.: SS	DATE: 8/24/94	FIGURE: 1

ATTACHMENT 2

Tables

GROUNDWATER TECHNOLOGY ®

TABLE 1
SEPARATE-PHASE HYDROCARBONS BAILED
MONITORING WELL A-1
Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Date	Amount Product Bailed (gallons)	Total Product Bailed (gallons)
06/11/93	2 gallons	2.00
06/15/93	0.13	2.13
06/18/93	0.13	2.26
06/22/93	0.5 gallon	2.76
06/29/93	*	2.76
07/09/93	**	2.76
07/15/93	***	2.76
07/20/93	***	2.76
07/27/93	***	2.76
08/06/93	***	2.76
08/10/93	***	2.76
08/16/93	***	2.76
09/16/93	***	2.76
09/24/93	***	2.76
10/01/93	***	2.76
10/07/93	***	2.76
10/13/93	***	2.76
10/20/93	***	2.76
10/28/93	***	2.76
11/12/93	***	2.76
11/19/93	***	2.76
11/30/93	***	2.76
12/10/93	***	2.76
12/16/93	**	2.76
12/23/93	***	2.76
12/29/93	**	2.76
01/03/94	***	2.76
01/17/94	***	2.76
01/26/94	***	2.76
02/07/94	**	2.76
02/11/94	***	2.76
02/18/94	***	2.76
02/25/94	***	2.76
03/04/94	**	2.76
03/11/94	***	2.76
03/16/94	***	2.76
03/25/94	**	2.76
04/0//94	***	2.76
08/18/94	***	2.76

* = Absorbent pad installed to collect separate-phase product
** = Absorbent pads turned over
*** = Replaced absorbent pad

GROUNDWATER TECHNOLOGY ®

TABLE 2
SEPARATE-PHASE HYDROCARBONS BAILED
MONITORING WELL A-2
Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Date	Amount Product Bailed (gallons)	Total Product Bailed (gallons)
06/11/93	1.00	1.00
06/15/93	0.13	1.13
06/18/93	0.26	1.39
06/22/93	0.50	1.89
06/29/93	*	1.89
07/09/93	**	1.89
07/15/93	***	1.89
07/20/93	***	1.89
07/27/93	***	1.89
08/06/93	***	1.89
08/10/93	***	1.89
08/16/93	***	1.89
09/16/93	***	1.89
09/24/93	***	1.89
10/01/93	***	1.89
10/07/93	***	1.89
10/13/93	***	1.89
10/20/93	***	1.89
10/28/93	***	1.89
11/12/93	***	1.89
11/19/93	***	1.89
11/30/93	***	1.89
12/10/93	**	1.89
12/16/93	***	1.89
12/23/93	***	1.89
12/29/93	***	1.89
01/03/94	***	1.89
01/17/94	***	1.89
01/26/94	**	1.89
02/07/94	**	1.89
02/11/94	***	1.89
02/18/94	***	1.89
02/25/94	***	1.89
03/04/94	***	1.89
03/11/94	**	1.89
03/16/94	**	1.89
03/25/94	***	1.89
04/01/94	***	1.89

* = Absorbent pad installed to collect separate-phase product
** = Absorbent pads turned over
*** = Replaced absorbent pad

TABLE 3
HISTORICAL GROUNDWATER MONITORING AND ANALYTICAL RESULTS
Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
A1	09/20/91	---	---	---	---	---	---	---	9.23	1.58	0.48
8.13	10/09/91	---	---	---	---	---	---	---	6.67	0.00	1.46
	10/17/91	---	---	---	---	---	---	---	7.28	0.58	1.43
	10/23/91	---	---	---	---	---	---	---	7.42	0.65	1.36
	11/01/91	---	---	---	---	---	---	---	7.14	0.50	1.49
	11/07/91	---	---	---	---	---	---	---	7.14	0.51	1.50
	11/15/91	---	---	---	---	---	---	---	7.19	0.53	1.47
	11/21/91	---	---	---	---	---	---	---	7.28	0.54	1.28
	12/12/91	---	---	---	---	---	---	---	7.33	0.49	1.29
	12/30/91	---	---	---	---	---	---	---	6.76	0.36	1.73
	01/13/92	---	---	---	---	---	---	---	6.29	0.37	2.21
	01/22/92	---	---	---	---	---	---	---	6.43	0.45	2.15
	02/12/92	---	---	---	---	---	---	---	6.30	0.38	2.21
	03/09/92	---	---	---	---	---	---	---	5.30	0.31	3.14
	04/10/92	---	---	---	---	---	---	---	5.37	0.07	2.83
	05/18/92	---	---	---	---	---	---	---	6.14	0.40	2.39
	01/06/93	---	---	---	---	---	---	---	---	---	---
	02/03/93	---	---	---	---	---	---	---	---	---	---
11.56	04/23/93	---	---	---	---	---	---	---	5.85	0.60	6.19
	07/19/93	---	---	---	---	---	---	---	6.23	0.26	5.54
	10/19/93	---	---	---	---	---	---	---	---	0.10	---
	01/17/94	---	---	---	---	---	---	---	---	---	---
	08/18/94	---	---	---	---	---	---	---	---	---	---

TABLE 3
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Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
A-2	09/20/91	8,100	860	14	110	53	---	**5,100	7.73	0.00	0.27
8.00	10/09/91	---	---	---	---	---	---	---	6.61	0.00	1.39
	10/17/91	---	---	---	---	---	---	---	6.66	0.00	1.34
	10/23/91	---	---	---	---	---	---	---	6.80	0.09	1.29
	11/01/91	---	---	---	---	---	---	---	6.63	0.15	1.45
	11/07/91	---	---	---	---	---	---	---	6.64	0.21	1.45
	11/15/91	---	---	---	---	---	---	---	6.81	0.19	1.38
	11/21/91	---	---	---	---	---	---	---	6.93	0.24	1.31
	12/12/91	---	---	---	---	---	---	---	6.97	0.15	1.24
	12/30/91	---	---	---	---	---	---	---	6.54	0.24	1.70
	01/13/92	---	---	---	---	---	---	---	5.92	0.08	2.16
	01/22/92	---	---	---	---	---	---	---	6.01	0.10	2.00
	02/12/92	---	---	---	---	---	---	---	6.06	0.25	2.20
	03/09/92	---	---	---	---	---	---	---	4.93	0.04	3.11
	04/10/92	---	---	---	---	---	---	---	5.20	<0.01	2.80
	05/18/92	---	---	---	---	---	---	---	5.66	0.02	2.36
	01/06/93	---	---	---	---	---	---	---	---	---	---
	02/03/93	---	---	---	---	---	---	---	4.98	0.22	3.20
11.46	04/23/93	---	---	---	---	---	---	---	5.36	0.18	6.24
	07/19/93	---	---	---	---	---	---	---	6.79	1.07	5.53
	10/19/93	---	---	---	---	---	---	---	6.36	1.41	6.23
Abandoned	01/17/94	---	---	---	---	---	---	---	---	---	---
B-1	04/23/93	13,000	4,900	22	250	47	---	8,300	5.93	0.00	6.19
12.12	07/19/93	3,300	1,200	16	24	<30	---	1,600	6.66	0.00	5.46
	10/19/93	2,300	730	18	14	31	---	550	7.08	0.00	5.04
	01/17/94	22,000	6,500	170	210	430	---	<50	6.73	0.00	5.39
Casing Bent	08/18/94	---	---	---	---	---	---	---	6.85	0.00	5.27

TABLE 3
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Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
B-3	09/20/91	---	---	---	---	---	---	---	6.94	0.01	1.08
8.01	10/09/91	---	---	---	---	---	---	---	6.35	0.00	1.66
	10/17/91	---	---	---	---	---	---	---	6.44	0.00	1.57
	10/23/91	---	---	---	---	---	---	---	6.84	0.00	1.53
	11/01/91	---	---	---	---	---	---	---	6.31	0.00	1.70
	11/07/91	---	---	---	---	---	---	---	6.32	0.00	1.69
	11/15/91	---	---	---	---	---	---	---	6.39	0.00	1.62
	11/21/91	---	---	---	---	---	---	---	6.44	0.00	1.57
	12/12/91	---	---	---	---	---	---	---	6.82	<0.01	1.19
	12/30/91	---	---	---	---	---	---	---	6.37	0.00	1.64
	01/13/92	---	---	---	---	---	---	---	5.94	0.00	2.07
	01/22/92	---	---	---	---	---	---	---	5.99	0.00	2.02
	02/12/92	---	---	---	---	---	---	---	5.82	<0.01	2.19
	03/09/92	---	---	---	---	---	---	---	5.10	0.00	2.91
	04/10/92	---	---	---	---	---	---	---	5.36	0.00	2.65
	05/18/92	6,200	550	58	13	51	<5,000	**250	5.72	0.00	2.29
	01/06/93	5,400	490	54	51	82	---	***10,000	5.50	SHEEN	2.51
	02/03/93	---	---	---	---	---	---	---	---	---	---
11.42	04/23/93	18,000	540	69	47	120	---	6,400	5.32	0.00	6.10
	07/29/93	40,000	780	69	49	150	---	4,000	5.94	0.00	5.48
	10/19/93	20,000	520	37	43	100	---	1,500	6.32	0.00	5.10
Abandoned	01/17/94	3,900	430	32	29	82	---	<50	6.95	0.00	4.47

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Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
B-4	09/20/91	19,000	710	160	650	2,000	---	*1,400	6.82	0.00	1.22
8.04	10/09/91	---	---	---	---	---	---	---	6.63	0.00	1.41
	10/17/91	---	---	---	---	---	---	---	6.84	0.00	1.20
	10/23/91	---	---	---	---	---	---	---	6.87	0.00	1.17
	11/01/91	---	---	---	---	---	---	---	6.70	0.00	1.34
	11/07/91	---	---	---	---	---	---	---	6.73	0.00	1.31
	11/15/91	---	---	---	---	---	---	---	6.83	0.00	1.21
	11/21/91	---	---	---	---	---	---	---	6.84	0.00	1.20
	12/12/91	---	---	---	---	---	---	---	6.87	0.00	1.17
	12/30/91	---	---	---	---	---	---	---	6.46	0.00	1.58
	01/13/92	---	---	---	---	---	---	---	5.91	0.00	2.13
	01/22/92	---	---	---	---	---	---	---	5.95	0.00	2.09
	02/12/92	15,000	920	75	520	940	---	*860	5.78	0.00	2.26
	03/09/92	---	---	---	---	---	---	---	5.09	0.00	2.95
	04/10/92	---	---	---	---	---	---	---	5.39	0.00	2.65
	05/18/92	19,000	2,000	97	560	1,200	<5,000	<50	5.59	0.00	2.45
	01/06/93	19,000	2,000	89	490	740	---	*2,700	5.50	SHEEN	2.54
	02/03/93	---	---	---	---	---	---	---	---	---	---
11.46	04/23/93	5,700	2,400	75	380	580	---	2,300	5.39	0.00	6.07
	07/19/93	19,000	2,400	140	440	620	---	2,400	6.13	0.00	5.33
	10/19/93	13,000	1,200	84	290	530	---	2,100	6.51	0.00	4.95
Abandoned	01/17/94	11,000	1,900	63	170	290	---	<50	6.18	0.00	5.28

TABLE 3
HISTORICAL GROUNDWATER MONITORING AND ANALYTICAL RESULTS
Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
B-5	09/20/91	<50	<0.5	<0.5	<0.5	<0.5	---	<50	5.53	0.00	2.20
7.73	10/09/91	---	---	---	---	---	---	---	5.31	0.00	2.42
	10/17/91	---	---	---	---	---	---	---	5.64	0.00	2.09
	10/23/91	---	---	---	---	---	---	---	5.68	0.00	2.05
	11/01/91	---	---	---	---	---	---	---	5.49	0.00	2.24
	11/07/91	---	---	---	---	---	---	---	5.54	0.00	2.19
	11/15/91	---	---	---	---	---	---	---	5.63	0.00	2.10
	11/21/91	---	---	---	---	---	---	---	---	---	---
	12/12/91	---	---	---	---	---	---	---	5.68	0.00	2.05
	12/30/91	---	---	---	---	---	---	---	5.19	0.00	2.54
	01/13/92	---	---	---	---	---	---	---	4.65	0.00	3.07
	01/22/92	---	---	---	---	---	---	---	4.70	0.00	3.03
	02/12/92	<50	<0.5	<0.5	<0.5	<0.5	---	<50	4.45	0.00	3.28
	03/09/92	---	---	---	---	---	---	---	4.05	0.00	3.68
	04/10/92	---	---	---	---	---	---	---	4.43	0.00	3.30
	05/18/92	390	39	1.9	11	24	<5,000	---	3.79	0.00	3.94
	01/06/93	<50	<0.5	<0.5	<0.5	<0.5	---	<50	4.44	SHEEN	3.29
	02/03/93	---	---	---	---	---	---	---	---	---	---
10.18	04/23/93	<50	<0.5	<0.5	<0.5	<1.5	---	<50	4.32	0.00	5.86
	07/19/93	54	<0.5	0.7	<0.5	<1.5	---	<50	5.03	0.00	5.15
	10/19/93	<50	2.0	4.1	0.6	3.5	---	<50	5.10	0.00	5.08
	01/07/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	4.86	0.00	5.32
	08/18/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	5.14	0.00	5.04

TABLE 3
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Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
B-6	09/20/91	<50	<0.5	<0.5	<0.5	<0.5	---	<50	6.85	0.00	1.70
8.55	10/09/91	---	---	---	---	---	---	---	6.83	0.00	1.72
	10/17/91	---	---	---	---	---	---	---	6.90	0.00	1.65
	10/23/91	---	---	---	---	---	---	---	6.93	0.00	1.62
	11/01/91	---	---	---	---	---	---	---	6.78	0.00	1.77
	11/07/91	---	---	---	---	---	---	---	6.81	0.00	1.74
	11/15/91	---	---	---	---	---	---	---	6.88	0.00	1.67
	11/21/91	---	---	---	---	---	---	---	6.95	0.00	1.60
	12/12/91	---	---	---	---	---	---	---	7.14	0.00	1.41
	12/30/91	---	---	---	---	---	---	---	6.50	0.00	2.05
	01/13/92	---	---	---	---	---	---	---	6.19	0.00	2.36
	01/22/92	---	---	---	---	---	---	---	6.27	0.00	2.28
	02/12/92	<50	<0.5	<0.5	<0.5	<0.5	---	<50	6.12	0.00	2.43
	03/09/92	---	---	---	---	---	---	---	5.28	0.00	3.27
	04/10/92	---	---	---	---	---	---	---	5.48	0.00	3.07
	05/18/92	<50	<0.5	<0.5	<0.5	<0.5	<5,000	<50	5.90	0.00	2.65
	01/06/93	<50	<0.5	<0.5	<0.5	<0.5	---	<50	5.79	0.00	2.76
	02/03/93	---	---	---	---	---	---	---	---	---	---
11.97	04/23/93	<50	<0.5	<0.5	<0.5	<1.5	---	<50	5.27	0.00	6.70
	07/19/93	74	<0.5	<0.5	<0.5	<1.5	---	<50	6.91	0.00	5.06
	10/19/93	<50	<0.5	0.5	<0.5	2.2	---	<50	6.48	0.00	5.49
	01/17/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	6.18	0.00	5.79
	08/18/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	6.20	0.00	5.77
B-7	04/23/93	<50	<0.5	<0.5	<0.5	<1.5	<50	---	4.52	0.00	6.02
10.54	07/19/93	<50	<0.5	<0.5	<0.5	<1.5	<50	<50	5.04	0.00	5.50
	10/19/93	<50	3.1	<0.5	<0.5	0.8	---	<50	5.40	0.00	5.14
	01/17/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	5.19	0.00	5.35
	08/18/94	<50	<0.5	<0.5	<0.5	1.1	---	<50	5.26	0.00	5.28

TABLE 3
HISTORICAL GROUNDWATER MONITORING AND ANALYTICAL RESULTS
Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
B-8	04/23/93	<50	<0.5	<0.5	<0.5	<1.5	<50	---	5.36	0.00	6.63
11.99	07/19/93	<50	<0.5	<0.5	<0.5	<1.5	<50	<50	6.22	0.00	5.77
	10/19/93	---	---	---	---	---	---	---	Dry	---	---
	01/17/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	6.30	0.00	5.69
	08/18/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	6.43	0.00	5.56
B-9	04/23/93	<50	<0.5	<0.5	<0.5	<1.5	<50	---	4.56	0.00	6.14
10.70	07/19/93	<50	<0.5	<0.5	<0.5	<1.5	<50	<50	5.45	0.00	5.25
	10/19/93	<50	<0.5	<0.5	<0.5	<0.5	---	<50	5.89	0.00	4.81
	01/17/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	5.41	0.00	5.29
	08/18/94	<50	<0.5	<0.5	<0.5	<0.5	---	<50	5.55	0.00	5.15

TABLE 3
HISTORICAL GROUNDWATER MONITORING AND ANALYTICAL RESULTS
Chevron Service Station No. 9-0290
1802 Webster Street, Alameda, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	TOG	TPH-D	DTW (ft)	SPT (ft)	WTE (ft)
TBLB	01/06/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	----
	04/23/93	---	---	---	---	---	---	---	---	---	---
	****07/19/93	---	---	---	---	---	---	---	---	---	---
	10/19/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	01/17/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
	08/18/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---

TPH-G = Total petroleum hydrocarbons-as-gasoline
TPH-D = Total petroleum hydrocarbons-as-diesel fuel
DTW = Depth to water
SPT = Separate-phase hydrocarbon thickness
WTE = Water table elevation in feet above mean sea level
TOG = Total oil and grease
--- = Not applicable/not sampled/not measured
* = Diesel fuel range concentration reported. The pattern of peaks observed in the chromatogram is typical of gasoline.
** = Does not match typical diesel patterns
*** = Diesel fuel range concentration reported. The pattern of peaks observed in the chromatogram is a mixture of gasoline and heavy hydrocarbons.
**** = Trip blank contaminated in lab; no back-up trip blank was carried.
Analytical results in micrograms/liter (µ/l), 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 - Webster St. Date: 8/18/94

Site Address: 1802 Webster St., Oakland Page 1 of _____

Project Number: 0201204098.0610 Project Manager: Ken Johnson

Well ID: B-7

Well Diameter: 2

DTW Measurements:
Initial: _____ Calc Well Volume: _____ gal
Recharge: _____ Well Volume: 5 gal

Purge Method
Peristaltic _____
Gear Drive _____
Submersible X

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
12:24	22.4	1.21	6.32	1	CLEAR to Reddish Brown	Well dry @ 1/4 1 gallon Switched to hand Bailing
12:34	24.2	0.72	7.16	2	BROWN	
12:36	22.5	0.67	6.94	3	Brown	lots of Sediment Dry @ 3 gals.
				4		
				5		

Project Name: Chevron - Webster St. **Date:** 8/18/94

Site Address: 1802 Webster St., Oakland **Page** 2 **of** _____

Project Number: 0201204098.0610 **Project Manager:** Ken Johnson

Well ID: B-8 DTW Measurements:

Well Diameter: 2 Initial: _____ Calc Well Volume: _____ gal

Recharge: _____ Well Volume: 4 gal

Purge Method **Pump Depth** _____ ft.

Peristaltic _____ Hand Bailed X

Gear Drive _____ Air Lift _____

Submersible _____ Other _____

Instruments Used

YSI: X Other: _____

Hydac: _____

Omega: _____

Time	Temp X C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
12:50	20.7	0.78	6.62	1	Clear	HAND BAILED
12:52	21.2	0.80	6.37	2	Brown	
12:54	~~20.0~~ 21.1	0.75	6.44	3	Dark grey	dry @ 3 gal
				4		

Project Name: Chevron - Webster St. Date: 8/8/94

Site Address: 1802 Webster St., Oakland Page 3 of _____

Project Number: 0201204098.0610 Project Manager: Ken Johnson

Well ID: B-9 DTW Measurements:

Well Diameter: _____ Initial: _____ Calc Well Volume: _____ gal

Recharge: _____ Well Volume: 5 gal

Purge Method **Pump Depth** _____ ft. **Instruments Used**

Peristaltic _____ Hand Bailed _____ YSI: X Other: _____

Gear Drive _____ Air Lift _____ Hydac: _____

Submersible _____ Other _____ Omega: _____

Time	Temp C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
12:59	23.9	1.25	5.72	1	Clear	good Recharge on this Well
1:00	24.4	1.28	6.12	2	Red Brown	
1:01	24.5 ~~23.5~~	1.29	6.21	3	Brown	
1:02	24.4	1.28	6.30	4	Brown	
1:03	24.3	1.22	6.33	5	Brown	

Project Name: Chevron - Webster St. Date: 8/18/94

Site Address: 1802 Webster St., Oakland Page 4 of

Project Number: 0201204098.0610 Project Manager: Ken Johnson

Well ID: B-6

Well Diameter: 2

DTW Measurements:
Initial: Calc Well Volume: gal
Recharge: Well Volume: 5 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
1:09	23.6	0.84	5.55	0	clear	HAND BAILED
1:10	23.7	0.87	5.93	1	cloudy	
1:11	23.5	0.89	6.11	3	cloudy	
1:13	22.8	0.87	6.17	5	↓	
1:15	22.8	0.88	6.17	6	↓	

Project Name: Chevron - Webster St.

Date: 8/18/94

Site Address: 1802 Webster St., Oakland

Page 5 **of** _____

Project Number: 0201204098.0610

Project Manager: Ken Johnson

Well ID: B-5

Well Diameter: 2

DTW Measurements:
Initial: _____ Calc Well Volume: _____ gal
Recharge: _____ Well Volume: 6 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
1:21	23.8	0.97	6.20	0	Clear	HAND BAILED
1:22	23.1	0.95	6.20	1	Cloudy	
1:24	22.3	0.96	6.25	3	Brown	
1:26	22.4	0.96	6.41	5		Dup @ 5 gal
				6		

Project Name: Chevron - Webster St.

Site Address: 1802 Webster St, Oakland

Project Number: 0201204098.0610

Date: 8/18/94

Page 6 **of** _____

Project Manager: Ken Johnson

Well ID: B-1

Well Diameter: 2

DTW Measurements:
Initial: _____ Calc Well Volume: _____ gal
Recharge: _____ Well Volume: 5 gal

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
						WELL CASING SEVERELY BENT.
						Could not get 2" Bailer Down well
						must be done w/ Peristaltic Pump

ATTACHMENT 4

Laboratory Report

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

GROUNDWATER TECHNOLOGY, INC.
Attn: KEN JOHNSON

Project 9-0290
Reported 09/01/94

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
30719- 1	TRIP BLK	08/16/94	08/22/94	Water
30719- 2	B-7	08/16/94	08/22/94	Water
30719- 3	B-9	08/16/94	08/22/94	Water
30719- 4	B-8	08/16/94	08/23/94	Water
30719- 5	B-6	08/16/94	08/23/94	Water
30719- 6	B-5	08/16/94	08/23/94	Water

RESULTS OF ANALYSIS

Laboratory Number:	30719- 1	30719- 2	30719- 3	30719- 4	30719- 5
Gasoline:	ND<50	ND<50	ND<50	ND<50	ND<50
Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Toluene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Total Xylenes:	ND<0.5	1.1	ND<0.5	ND<0.5	ND<0.5
Diesel:	NA	ND<50	ND<50	ND<50	ND<50
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

Laboratory Number:	30719- 6
Gasoline:	ND<50
Benzene:	ND<0.5
Toluene:	ND<0.5
Ethyl Benzene:	ND<0.5
Total Xylenes:	ND<0.5
Diesel:	ND<50
Concentration:	ug/L

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

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

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 30719

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	115/104	10%	70-130
Benzene:	127/123	3%	70-130
Toluene:	118/110	7%	70-130
Ethyl Benzene:	77/81	5%	70-130
Total Xylenes:	96/98	2%	70-130
Diesel:	98/112	13%	50-143

Michael R. Veeh
Senior Chemist

Certified Laboratories

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Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

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

30719

Chain-of-Custody-Recor

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

Chevron Facility Number: 9-0290
Facility Address: 1802 WEBSTER
Consultant Project Number: 020164098.0610
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: Superior
Laboratory Release Number: 614-8510
Samples Collected by (Name): P. GUERRERO
Collection Date: 8/16/94
Signature:

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type C = Grab 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
TRIP-BLANK	1	2	W	G		HCl/None	YES	X												
BMW-7	2	4			13:40			X	X											
BMW-9	3	4			13:50			X	X											
BMW-8	4	4			13:45			X	X											
BMW-6	5	4			13:55			X	X											
BMW5	6	4	↓	↓	14:00	↓	↓	X	X											

NOTE:
DO NOT BILL TB-LB SAMPLES

Please Initial:
Samples Stored in ice. YES
Appropriate containers YES
Samples preserved YES
VOA's without headspace YES
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	GTI	8/16/94			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
		8:19 1034			
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
				8-19-94	

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