Chevron

August 22, 1994

AUG 24 RECD

Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, CA 94583
P.O. Box 5004
San Ramon, CA 94583-0804

Marketing Department
Phone 510 842 9500

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

Re: Former Chevron Service Station #9-1026
3701 Broadway, Oakland, CA

Dear Ms. Hugo:

Enclosed is the quarterly Groundwater Monitoring and Sampling Activities report dated July 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. The levels of dissolved hydrocarbon constituents in the ground water samples analyzed were consistent with previous observations at the site. Depth to ground water was measured at approximately 11.4 feet to 156.6 feet below grade and the direction of flow is to the south-southwest.

15.6

Separate phase hydrocarbons (SPH) were observed in monitor well B at a measured thickness of 0.23 feet. No measurable SPH could be removed from this well during this sampling event. The results of the bailing program are summarized in Table 2 of the enclosed report.

At this time we do not feel that ground water remediation is an appropriate corrective action to implement based on known upgradient sources of hydrocarbons in the ground water. Implementing remedial measures to address the contamination present in the ground water beneath the referenced site will not address the impacts from the upgradient sources as it is undetermined what extent has migrated beneath the Chevron site.

Based on discussions in our meeting of November 9, 1993, we are currently evaluating appropriate remedial measures for the site. We have asked our consultant to review all historical data gathered and develop a comprehensive site management plan to guide future activities at this site. We currently anticipate completing this plan during the 4th quarter of 1994. 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
Ms. Alison Watts, Weiss Associates
Ms. Argy Mena, Sierra Environmental Services
Ms. B.C. Owen

Mr. W. Bruce Bercovich
Kay & Merkel
100 The Embarcadero, 3rd Floor
San Francisco, CA 94105

File: 9-1026 QM6

GROUNDWATER TECHNOLOGY, INC.

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

July 15, 1994

Project No. 020104090

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. 9-1026
3701 Broadway, Oakland, California

Dear Mr. Miller:

Groundwater Technology, Inc. presents the quarterly groundwater monitoring and sampling data collected on June 13, 1994. Nine of the ten groundwater monitoring wells at this site were gauged to measure depth to groundwater (DTW) and to check for the presence of separate-phase hydrocarbons. Monitoring well A was under a trailer and was not monitored or sampled. Separate-phase hydrocarbons were detected in monitoring well B, with a separate-phase thickness of 0.23 feet. A potentiometric surface map and a summary of groundwater monitoring data are presented in Attachments 1 and 2, respectively. The results of the product recovery program are presented in Attachment 2. After the DTW was measured, each monitoring well was purged and sampled, except monitoring wells B and A. 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. Well caps were replaced on monitoring wells F and B-1. 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

Kenneth P. Johnson
Project Manger

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

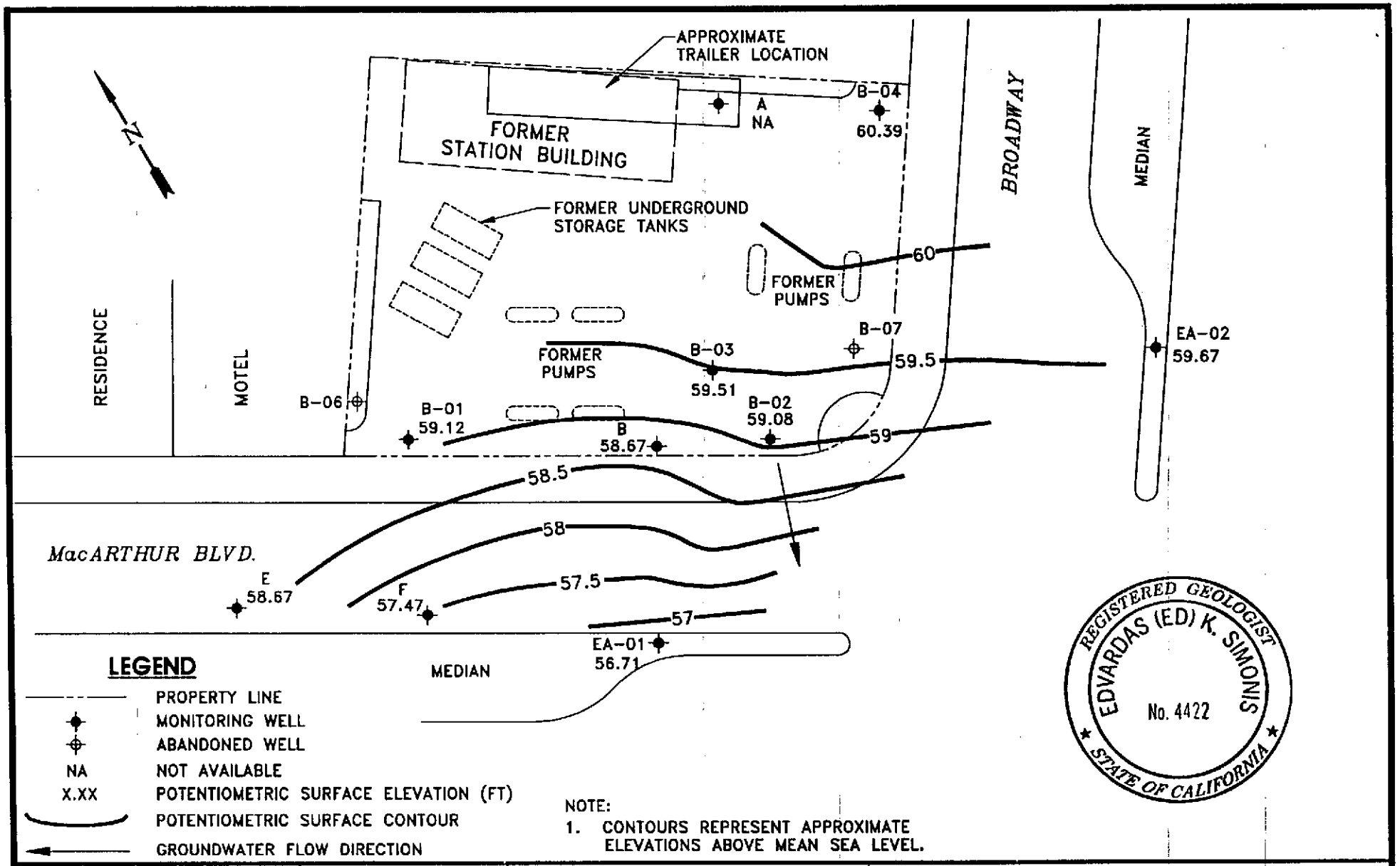
PR

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

4090qmsr.294

ATTACHMENT 1

Figure



GROUNDWATER TECHNOLOGY

0 FEET 50
SCALE

CLIENT: CHEVRON U.S.A. PRODUCTS CO.
SERVICE STATION No. 9-1026

LOCATION: 3701 BROADWAY
OAKLAND, CALIFORNIA

POTENTIOMETRIC SURFACE MAP (6/13/94)

FILE:	PROJECT NO.:	REV.:	DES.:	DET.:	DATE:	PM:	PE/RG:	FIGURE:
4090PSM, (1:50)	02010-4090		SS	SS	6/20/94			1

ATTACHMENT 2

Tables

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1026
3701 Broadway, Oakland, California

Well ID/ Elevation	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
A	05/09/89	11,000	260	<2	94	230	13.92	0.00	61.36
	08/09/89	12,000	370	<1.5	100	240	15.62	0.00	59.66
75.28	11/09/89	16,000	690	10	180	350	15.95	0.00	59.33
	02/08/90	14,000	600	7	120	270	14.73	0.00	60.55
	05/10/90	16,000	840	4.8	140	340	15.48	0.00	59.80
	08/09/90	17,000	510	40.0	170	280	15.66	0.00	59.62
	11/13/90	9,000	570	3.1	86	170	16.48	0.00	58.80
	03/27/91	8,000	660	<5	110	250	---	---	---
	04/05/91	---	---	---	---	---	13.22	0.00	62.06
	06/19/91	8,900	740	<3	120	280	15.37	0.00	59.91
	08/21/91	6,800	620	23	85	200	15.99	0.00	59.29
	11/08/91	4,000	640	<5	77	160	16.15	0.00	59.13
	02/13/92	8,000	860	<5	120	390	14.58	0.00	60.70
	05/01/92	13,000	870	19	220	780	14.26	0.00	61.02
75.29	11/18/92	12,000	1,500	83	360	530	16.38	0.00	58.91
	03/19/93	14,000	820	6.1	180	420	12.16	0.00	63.13
	06/10/93	9,000	700	13	170	310	14.25	0.00	61.04
	09/08/93	---	---	---	---	---	---	---	---
	12/21/93	---	---	---	---	---	---	---	---
	03/09/94	9,600	860	21	200	390	13.34	0.00	61.95
	06/13/94	---	---	---	---	---	---	---	---
B	05/09/89	---	---	---	---	---	13.97	0.20	59.58
	08/09/89	---	---	---	---	---	15.69	0.20	57.86
73.39	11/09/89	---	---	---	---	---	15.29	0.08	58.16
	02/08/90	---	---	---	---	---	14.46	0.00	58.93
	05/10/90	---	---	---	---	---	15.07	0.00	58.32
	08/09/90	---	---	---	---	---	15.12	0.00	58.27
	11/13/90	---	---	---	---	---	15.76	0.00	57.63
	04/05/91	---	---	---	---	---	13.38	0.00	60.01
	06/19/91	26,000	7,100	370	430	1,000	15.14	0.00	58.25
	08/21/91	16,000	4,900	270	390	640	15.58	0.00	57.81
	11/08/91	11,000	2,400	48	280	160	15.71	0.00	57.68
	02/13/92	6,800	2,400	60	220	140	14.66	0.00	58.73
	05/01/92	16,000	6,000	180	370	460	14.50	Sheen	58.89
	11/18/92	28,000	2,200	150	920	4,300	15.60	0.00	57.79
	03/19/93	---	---	---	---	---	13.29	0.03	60.12
	06/10/93	---	---	---	---	---	14.30	0.03	59.11
	09/08/93	---	---	---	---	---	15.33	0.24	58.25
	12/21/93	---	---	---	---	---	14.73	0.12	58.76
	03/09/94	---	---	---	---	---	14.07	0.04	59.35
	06/13/94	---	---	---	---	---	14.90	0.23	58.67

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1026
3701 Broadway, Oakland, California

Well ID/ Elevation	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
B-1	05/09/89	16,000	2,300	260	81	740	12.58	0.00	59.19
	08/09/89	12,000	2,600	340	100	870	14.09	0.00	57.68
71.77	11/09/89	17,000	340	140	110	760	14.06	0.00	57.71
	02/08/90	5,500	70	19	17	150	12.65	0.00	59.12
	05/10/90	18,000	770	110	73	600	13.62	0.00	58.15
	08/09/90	82,000	750	66	95	980	13.87	0.00	57.90
	11/13/90	43,000	1,300	120	74	760	14.38	0.00	57.39
	03/27/91	18,000	580	92	94	770	---	---	---
	04/05/91	---	---	---	---	---	11.73	0.00	60.04
	06/19/91	21,000	910	56	96	810	13.56	0.00	58.21
	08/21/91	50,000	2,400	610	300	1,800	13.90	0.00	57.87
	11/08/91	540,000	3,600	1,500	1,900	5,900	14.05	0.00	57.72
	02/13/92	20,000	500	100	150	920	12.68	0.00	59.09
	05/01/92	27,000	2,800	200	310	1,900	12.92	Sheen	58.85
72.30	11/18/92	300	9.7	3.4	2.3	21	14.30	0.00	58.00
	03/19/93	130	23	0.9	<0.5	5.6	12.28	0.00	60.02
	06/10/93	170	21	1.1	0.8	6.6	13.04	0.00	59.26
	09/08/93	---	---	---	---	---	13.88	0.05	58.46
	12/21/93	<50	6.7	0.5	<0.5	1.2	13.53	0.00	58.77
	03/09/94	1,300	520	8.8	2.4	53	12.65	0.00	59.65
	06/13/94	69	10	0.9	<0.5	2.3	13.18	0.00	59.12
B-2	05/09/89	170,000	30,000	8,400	2,300	12,000	14.58	0.00	59.93
	08/09/89	60,000	29,000	8,700	2,400	12,000	16.06	0.00	58.45
74.51	11/09/89	110,000	32,000	5,500	2,800	12,000	16.95	0.00	57.56
	02/08/90	67,000	28,000	5,900	2,300	11,000	15.56	0.00	58.95
	05/10/90	69,000	24,000	4,800	2,000	11,000	15.94	0.00	58.57
	08/09/90	100,000	33,000	4,000	2,100	12,000	15.97	0.00	58.54
	11/13/90	110,000	33,000	4,300	2,900	13,000	16.70	0.00	57.81
	03/27/91	160,000	26,000	3,200	2,600	15,000	---	---	---
	04/05/91	---	---	---	---	---	14.20	0.00	60.31
	06/19/91	100,000	22,000	2,500	2,000	11,000	15.83	0.00	58.68
	08/21/91	80,000	28,000	2,800	2,400	12,000	16.31	0.00	58.20
	11/08/91	94,000	29,000	1,900	2,200	11,000	16.60	0.00	57.91
	02/13/92	280,000	34,000	2,500	4,600	23,000	15.93	0.00	58.58
	05/01/92	29,000	1,700	300	1,100	4,300	14.94	Sheen	59.57
74.52	11/18/92	26,000	11,000	170	870	950	16.71	0.00	57.81
	03/19/93	110,000	28,000	1,200	2,200	12,000	14.06	0.00	60.46
	06/10/93	140,000	15,000	930	1,900	8,800	14.88	0.00	59.64
	09/08/93	---	---	---	---	---	16.03	0.04	58.52
	12/21/93	980,000	21,000	30,000	9,100	71,000	15.61	0.00	58.91
	03/09/94	110,000	23,000	920	1,300	7,800	14.53	Sheen	59.99
	06/13/94	100,000	22,000	970	1,400	11,000	15.44	0.00	59.08

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1026
3701 Broadway, Oakland, California

Well ID/ Elevation	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
B-3	05/09/89	70,000	12,000	9,500	400	8,900	14.02	0.00	60.01
	08/09/89	---	---	---	---	---	15.38	0.00	58.74
74.12	11/09/89	---	---	---	---	---	15.55	0.05	58.61
	02/08/90	---	---	---	---	---	14.68	<0.01	59.44
	05/10/90	---	---	---	---	---	15.15	0.02	58.99
	08/09/90	---	---	---	---	---	15.27	<0.01	58.85
	11/13/90	---	---	---	---	---	16.04	0.06	58.13
	04/05/91	---	---	---	---	---	13.30	<0.01	60.82
	06/19/91	260,000	20,000	9,000	2,200	16,000	15.16	0.00	58.96
	08/21/91	70,000	28,000	11,000	1,800	11,000	15.61	0.00	58.51
	11/08/91	150,000	29,000	9,700	2,200	13,000	15.77	0.00	58.35
	02/13/92	100,000	27,000	9,906	2,000	11,000	14.88	0.00	59.24
	05/01/92	---	---	---	---	---	14.20	0.01	59.93
74.13	11/18/92	---	---	---	---	---	15.68	0.03	58.47
	03/19/93	---	---	---	---	---	13.75	1.08	61.24
	06/10/93	---	---	---	---	---	14.79	0.87	60.04
	09/08/93	---	---	---	---	---	15.38	0.08	58.81
	12/21/93	1,100,000	18,000	29,000	8,900	59,000	14.74	0.00	59.39
	03/09/94	130,000	11,000	20,000	1,700	15,000	13.53	0.00	60.60
	06/13/94	120,000	9,000	12,000	2,300	19,000	14.62	0.00	59.51
B-4	05/09/89	3,600	840	34	120	200	14.93	0.00	61.50
	08/09/89	<500	4,200	130	370	260	16.65	0.00	59.78
76.43	11/09/89	5,000	4,200	83	400	250	---	---	---
	02/08/90	14,000	6,000	70	530	300	16.99	0.00	59.44
	05/10/90	12,000	5,400	130	460	320	16.05	0.00	60.38
	08/09/90	16,000	7,400	120	530	350	16.49	0.00	59.94
	11/13/90	21,000	7,000	100	550	320	16.64	0.00	59.79
	03/27/91	17,000	8,500	120	500	300	17.42	0.00	59.01
	04/05/91	14,000	7,700	75	610	210	14.66	0.00	61.77
	06/19/91	16,000	7,800	110	550	340	16.48	0.00	59.95
	08/21/91	18,000	11,000	110	450	340	17.00	0.00	59.43
	11/08/91	18,000	6,800	98	500	620	17.38	0.00	59.05
	02/13/92	15,000	9,100	86	570	350	16.42	0.00	60.01
	05/01/92	36,000	16,000	180	990	690	15.50	0.00	60.93
	03/19/93	26,000	15,000	150	900	790	14.11	0.00	62.32
	06/10/93	35,000	14,000	180	940	590	15.44	0.00	60.99
	09/08/93	34,000	15,000	170	1,100	870	16.65	0.00	59.78
	12/21/93	30,000	12,000	74	610	340	16.45	0.00	59.98
	03/09/94	37,000	15,000	140	1,000	580	14.88	0.00	61.55
	06/13/94	36,000	13,000	150	700	250	16.04	0.00	60.39
B-6	05/09/89	26,000	120	110	250	1,300	12.11	0.00	60.55
	08/09/89	19,000	470	150	440	1,400	14.72	0.00	57.94
72.66	11/09/89	13,000	70	36	36	440	13.85	0.00	58.81
	02/08/90	2,900	16	5	10	58	7.73	0.00	64.93
	05/10/90	---	---	---	---	---	---	---	---
	08/09/90	14,000	55	3	130	500	14.51	0.00	58.15
	11/13/90	---	---	---	---	---	14.86	0.00	57.80
	04/05/91	---	---	---	---	---	10.43	0.00	62.23
	06/19/91	Abandoned	---						

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1026
3701 Broadway, Oakland, California

Well ID/ Elevation	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
B-7	05/09/89	210,000	13,000	19,000	2,000	20,000	14.73	0.00	60.67
	08/09/89	672,000	8,700	17,000	2,700	30,000	16.36	0.00	59.04
75.40	11/09/89	150,000	7,000	12,000	1,800	16,000	16.64	0.00	58.76
	02/08/90	41,000	2,500	6,900	1,100	11,000	15.69	0.00	59.71
	05/10/90	---	---	---	---	---	---	---	---
	08/09/90	50,000	1,100	3,900	640	7,200	16.31	0.00	59.09
	11/13/90	---	---	---	---	---	17.09	0.00	58.31
	04/05/91	---	---	---	---	---	14.36	0.00	61.04
	06/19/91	Abandoned							
E	11/18/92	280	2.7	2.4	3.0	12	12.20	0.00	57.87
70.07	03/19/93	<50	<0.5	<0.5	<0.5	<1.5	9.97	0.00	60.10
	06/10/93	<50	<0.5	<0.5	<0.5	<1.5	10.98	0.00	59.09
	09/08/93	---	---	---	---	---	11.80	0.03	58.29
	12/21/93	<50	<0.5	<0.5	<0.5	<0.5	11.25	0.00	58.82
	03/09/94	<50	<0.5	0.7	<0.5	0.7	10.67	0.00	59.40
	06/13/94	<50	<0.5	<0.5	<0.5	<0.7	11.40	0.00	58.67
EA-1	05/09/89	<500	<0.5	<0.5	<0.5	<0.5	14.56	0.00	59.38
	08/09/89	<500	<0.5	<0.5	<0.5	<0.5	16.09	0.00	57.85
73.94	11/09/89	<500	<0.5	<0.5	<0.5	<0.5	15.84	0.00	58.10
	02/08/90	<50	<0.3	<0.3<	<0.3	<0.6	15.05	0.00	58.89
	05/10/90	<50	1	0.3	<0.3	<0.6	15.65	0.00	58.29
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	15.67	0.00	58.27
	11/13/90	<50	<0.4	<0.3<	<0.3	<0.4	16.32	0.00	57.62
	03/27/91	<50	0.7	0.5	<0.5	<0.5	---	---	---
	04/05/91	---	---	---	---	---	14.03	0.00	59.91
	06/19/91	<50	<0.5	<0.5	<0.5	<0.5	15.56	0.00	58.38
	08/21/91	<50	<0.4	<0.3	<0.3	<0.4	15.99	0.00	57.95
	11/08/91	<50	<0.5	<0.5	<0.5	<0.5	16.13	0.00	57.81
	02/13/92	<50	<0.5	<0.5	<0.5	<0.5	15.10	0.00	58.84
	05/01/92	<50	2.7	<0.5	<0.5	<0.5	18.80	0.00	55.14
71.85	11/18/92	<10	<0.3	<0.3	<0.3	<0.5	15.97	0.00	55.88
	03/19/93	<50	<0.5	<0.5	<0.5	<1.5	13.66	0.00	58.19
	06/10/93	<50	<0.5	<0.5	<0.5	<1.5	14.71	0.00	57.14
	09/08/93	---	---	---	---	---	15.58	0.08	56.33
	12/21/93	<50	<0.5	<0.5	<0.5	<0.5	15.02	0.00	56.83
	03/09/94	<50	<0.5	1.0	<0.5	<0.5	14.38	0.00	57.47
	06/13/94	<50	<0.5	<0.5	<0.5	<0.5	15.14	0.00	56.71

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1026
3701 Broadway, Oakland, California

Well ID/ Elevation	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
EA-2	05/09/89	760	<0.5	<0.5	1.1	<0.5	15.95	0.00	59.29
	08/09/89	<500	<0.5	<0.5	<0.5	<0.5	17.45	0.00	57.79
75.24	11/09/89	<500	<0.5	1	<0.5	<0.5	17.41	0.00	57.83
	02/08/90	190	<0.3	<0.3	<0.3	<0.6	16.57	0.00	58.67
	05/10/90	<50	<0.3	<0.3	<0.3	<0.6	17.12	0.00	58.12
	08/09/90	120	<0.3	<0.3	<0.3	<0.6	17.20	0.00	58.04
	11/13/90	160	<0.4	1.0	<0.3	<0.4	17.88	0.00	57.36
	03/27/91	110	<0.5	<0.5	<0.5	<0.5	---	---	---
	04/05/91	---	---	---	---	---	15.54	0.00	59.70
	06/19/91	<50	<0.5	<0.5	<0.5	<0.5	17.07	0.00	58.17
	08/21/91	70	0.8	1.4	<0.3	<0.4	17.46	0.00	57.78
	11/08/91	<50	<0.5	0.7	<0.5	<0.5	17.58	0.00	57.66
	02/13/92	<50	<0.5	<0.5	<0.5	<0.5	16.69	0.00	58.55
	05/01/92	340	<0.5	2.6	0.7	<0.5	16.16	0.00	59.08
76.24	11/18/92	450	<0.5	3.3	<0.5	0.8	17.61	0.00	58.63
	03/19/93	450	<0.5	2.3	0.6	<1.5	15.00	0.00	61.24
	06/10/93	250	<0.5	1.3	<0.5	<1.5	16.08	0.00	60.16
	09/08/93	<50	<0.5	<0.5	<0.5	<1.5	17.07	0.00	59.17
	12/21/93	170	<0.5	1.3	<0.5	<0.5	16.60	0.00	59.64
	03/09/94	200	1.8	1.4	<0.5	<0.5	15.83	0.00	60.41
	06/13/94	<50	<0.5	<0.5	<0.5	<0.5	16.57	0.00	59.67
F	05/09/89	<500	<0.5	<0.5	0.6	1.0	18.70	0.00	53.31
	08/09/89	---	---	---	---	---	19.03	0.00	52.98
72.01	11/09/89	---	---	---	---	---	19.02	0.00	52.99
	02/08/90	<50	0.4	<0.3	0.3	<0.6	18.70	0.00	53.31
	05/10/90	---	---	---	---	---	18.98	0.00	53.03
	08/09/90	---	---	---	---	---	18.95	0.00	53.06
	11/13/90	---	---	---	---	---	19.10	0.00	52.91
	03/27/91	64	<0.5	<0.5	<0.5	1	---	---	---
	06/19/91	---	---	---	---	---	18.95	0.00	53.06
	08/21/91	---	---	---	---	---	>19.94	0.00	<52.07
	11/08/91	---	---	---	---	---	>19.94	0.00	<52.07
	02/13/92	<50	<0.5	<0.5	<0.5	<0.5	18.60	0.00	53.41
	05/01/92	---	---	---	---	---	Dry	---	---
71.72	11/18/92	<50	<0.5	<0.5	<0.5	<0.5	14.85	0.00	56.87
	03/19/93	<50	<0.5	<0.5	<0.5	<1.5	14.25	0.00	57.47
	06/10/93	<50	<0.5	<0.5	<0.5	<1.5	13.92	0.00	57.80
	09/08/93	---	---	---	---	---	14.80	0.04	56.95
	12/21/93	<50	<0.5	<0.5	<0.5	<0.5	13.31	0.00	58.41
	03/09/94	<50	<0.5	<0.5	<0.5	<0.5	12.99	0.00	58.73
	06/13/94	<50	<0.5	<0.5	<0.5	<0.5	14.25	0.00	57.47

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-1026
3701 Broadway, Oakland, California

Well ID/ Elevation	Date	TPH-G	Benzene	Toluene	Ethyl-benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
TBLB	05/09/89	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	08/09/89	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	11/09/89	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	02/08/90	<50	<0.3	<0.3	<0.3	<0.6	---	---	---
	05/10/90	<50	<0.3	<0.3	<0.3	<0.6	---	---	---
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	---	---
	11/13/90	<50	<0.4	<0.3	<0.3	<0.4	---	---	---
	03/27/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	06/19/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	08/21/91	<50	<0.4	<0.3	<0.3	<0.4	---	---	---
	11/08/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	02/13/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	05/01/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	11/18/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	03/19/93	<50	<0.5	<0.5	<0.5	<1.5	---	---	---
	06/10/93	<50	<0.5	<0.5	<0.5	<1.5	---	---	---
	09/08/93	<50	<0.5	<0.5	<0.5	<1.5	---	---	---
	12/21/93	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	03/09/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	06/13/94	<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
TB-LB =Trip blank, lab blank
--- =Not applicable, not sampled, not measured

Data from May 9, 1989, through February 13, 1992, taken from *First Quarter 1992 Groundwater Monitoring Report*, dated February 28, 1992 (Weiss Associates).
All elevations are given as feet above mean sea level.
Concentrations shown in parts per billion.

TABLE 2
SEPARATE-PHASE HYDROCARBONS BAILED
MONITORING WELLS B AND B-3
Chevron Service Station No. 9-1026
3701 Broadway, Oakland, California

Well ID	Date	Amount Product Bailed (gallons)	Total Product Bailed (gallons)
B	06/22/93	0.66	0.66
	06/29/93	0.25	0.91
	07/09/93	0.25	1.16
	07/15/93	0.25	1.41
	07/20/93	0.50	1.91
	07/27/93	0.50	2.41
	08/06/93	0.01	2.42
	08/10/93	0.08	2.50
	08/16/83	0.22	2.72
	08/25/93	0.25	2.97
	08/31/93	0.03	3.00
	09/10/93	0.01	3.01
	09/16/93	0.15	3.16
B-3	06/22/93	0.33	0.33
	06/29/93	0.25	0.58
	07/09/93	0.25	0.83
	07/15/93	0.25	1.08
	07/20/93	0.50	1.58
	07/27/93	0.11	1.69
	08/06/93	0.01	1.70
	08/10/93	0.01	1.71
	08/16/93	0.01	1.72
	08/25/93	0.02	1.74
	08/31/93	0.01	1.75
	09/10/93	0.01	1.76
	09/16/93	0.01	1.77

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 - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/13/94

Page 1 of 10

Project Manager: Tim Watchers

Well ID: EA-1

Well Diameter: 4 in

DTW Measurements:
Initial: 15.14
Recharge:

Calc Well Volume: 9.31 gal
Well Volume: 27.93 gal

29.40 - 15.14 = 14.26 x .653 = 9.3143 = 27.93

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
0842	21.7	1.00	6.15	5		cloudy & brown
0844	21.9	1.01	6.28	10		cloudy
0846				~~20~~ 15		DTW @ 15 gal/s
				~~28~~		

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/13/14

Page 2 of 10

Project Manager: Tim Watchers

Well ID: MWF

Well Diameter: 2"

DTW Measurements:
Initial: 14.23
Recharge: ~~3~~

Calc Well Volume: 3.12 gal
Well Volume: 9.36 gal

33.40 - 14.25 = 19.15 x .163 = 3.12 x 3 = 9.36

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
0910	21.3	1.01	6.10	2		cloudy LT, 3 Rocm
0911	21.5	1.01	6.24	4		"
0912	21.9	0.99	6.23	6		" Dry @ 6gc
				9		

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/13/84

Page 3 of 10

Project Manager: Tim Watchers

Well ID: MW E

Well Diameter: 2 4

DTW Measurements:
Initial: 11.40
Recharge:

Calc Well Volume: 3.48 gal
Well Volume: 10.44 gal

32.80 - 11.40 = 21.40 x .163 = 3.48 x 3 = 10.44

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
0933	20.2	1.01	6.06	2		Cloudy Brown
0934	20.1	1.00	6.19	4		"
0936	20.1	0.99	6.22	8		"
0937	20.2	1.00	6.21	10		"

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/13/94

Page 4 of 10

Project Manager: Tim Watchers

Well ID: D-1

Well Diameter: 4 in

DTW Measurements:
Initial: 13.18
Recharge: _____

Calc Well Volume: 13.04 gal
Well Volume: 39.12 gal

33.15 - 13.18 = 19.97 x .653 = 13.04 x 3 = 39.12

Purge Method
Peristaltic _____
Gear Drive _____
Submersible X

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
1004	21.6	0.96	6.12	8		cloudy
1008	21.7	0.97	6.26	16		"
1012	21.8	0.94	6.23	24		"
1015	21.8	0.94	6.23	30		"
1020	21.9	0.94	6.22	39		"

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/13/94

Page 5 of 10

Project Manager: Tim Watchers

Well ID: EA-2

Well Diameter: 4"

DTW Measurements:
Initial: 16.57
Recharge: _____

Calc Well Volume: 8.76 gal
Well Volume: 26.28 gal

30.00 - 16.57 = 13.43 x .653 = 8.76 x 3 = 26.28

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
1050	20.7	0.61	6.49	6		clear
1053	20.9	0.64	6.53	12		"
1056	20.8	0.76	6.54	18		"
1058				~~22~~ 24		Drove 22 gals
1100				~~26~~		

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/17/14

Page 6 of 10

Project Manager: Tim Watchers

Well ID: MW-2

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
	Under Water					
	No purge on					
	sample					

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/15/17

Page 7 of 10

Project Manager: Tim Watchers

Well ID: B-4

Well Diameter: 2"

DTW Measurements:
Initial: 16.04
Recharge:

Calc Well Volume: .48 gal
Well Volume: 1.44 gal

19.00 - 16.04 = 2.96 x .163 = .48 x 3 = 1.44

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
1123	20.4	2.44	6.31	0		cloudy
1125	19.9	2.50	6.20	.5 X		cloudy ½ gal

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/13/07

Page 8 of 10

Project Manager: Tim Watchers

Well ID: B-2

Well Diameter: 2 4

DTW Measurements:
Initial: 15.44
Recharge:

Calc Well Volume: .58 gal
Well Volume: 1.74 gal

19.00 - 15.44 = 3.56 x .163 = .58 x 3 = 1.74

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
1050	20.6	1.69	6.31	0		Cloudy GR-Gray
1052	20.4	1.68	6.42	1.5		"
				2		

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 6/13/94

Page 9 of 10

Project Manager: Tim Watchers

Well ID: MW-3

Well Diameter: _____

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: ✓
Hydac: _____
Omega: _____

Other: _____

Time	Temp ~~C~~ F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments

PRODUCT

25

Project Name: Chevron - Broadway

Site Address: 3701 Broadway, Oakland

Project Number: 020104090.0610

Date: 9/15/17

Page 13 of 10

Project Manager: Tim Watchers

Well ID: B-3

Well Diameter: 2 "

DTW Measurements:
Initial: 14.62
Recharge:

Calc Well Volume: .91 gal
Well Volume: 2.73 gal

19.00 - 14.62 = 4.38 x .163 = .71 x 3 = 2.13

Purge Method
Peristaltic
Gear Drive
Submersible

Pump Depth ft.
Hand Bailed X
Air Lift
Other

Instruments Used
YSI: X
Hydac:
Omega:

Other:

Time	Temp C / F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
1224	20.9	0.93	5.97	0		Clear / Strong Sheen
1226	20.1	0.97	6.11	1.5		"
				2		

ATTACHMENT 4

Laboratory Report

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: TIM WATCHERS

Project 9-1026
Reported 06/24/94

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
30588- 1	TB-LB	06/13/94	06/22/94	Water
30588- 2	EA-1	06/13/94	06/22/94	Water
30588- 3	MW-F	06/13/94	06/22/94	Water
30588- 4	MW-E	06/13/94	06/22/94	Water
30588- 5	B-1	06/13/94	06/22/94	Water
30588- 6	EA-2	06/13/94	06/22/94	Water
30588- 7	B-4	06/13/94	06/22/94	Water
30588- 8	B-2	06/13/94	06/22/94	Water
30588- 9	B-3	06/13/94	06/22/94	Water

RESULTS OF ANALYSIS

Laboratory Number:	30588- 1	30588- 2	30588- 3	30588- 4	30588- 5
Gasoline:	ND<50	ND<50	ND<50	ND<50	69
Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10
Toluene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.9
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Total Xylenes:	ND<0.5	ND<0.5	ND<0.5	ND<0.7	2.3
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

Laboratory Number:	30588- 6	30588- 7	30588- 8	30588- 9
Gasoline:	ND<50	36000	100000	120000
Benzene:	ND<0.5	13000	22000	9000
Toluene:	ND<0.5	150	970	12000
Ethyl Benzene:	ND<0.5	700	1400	2300
Total Xylenes:	ND<0.5	250	11000	19000
Concentration:	ug/L	ug/L	ug/L	ug/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

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: 30588

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

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:	91/88	3%	70-130
Benzene:	101/98	3%	70-130
Toluene:	98/97	1%	70-130
Ethyl Benzene:	87/86	1%	70-130
Total Xylenes:	101/103	2%	70-130

Senior Chemist

30586
C

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

Chain-of-Custody-Recor

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

Chevron Facility Number 9-1026
Facility Address 3701 Broadway/Oakland
Consultant Project Number 020104090
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 Sequoia Analytical Labs
Laboratory Release Number 495-0430
Samples Collected by (Name) J. Nelson
Collection Date 6/13/94
Signature [signature]

Analyses To Be Performed

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water 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
TB-LB		2	W	C	0850	HCL	Y	X													NOTE: Do NOT BILL TB-LB SAMPLES
EA-1		3	↓	↓	0855	↓	↓	X													
MW-F		3	↓	↓	0920	↓	↓	X													
MW-E		3	↓	↓	0945	↓	↓	X													
B-1		3	↓	↓	1030	↓	↓	X													
EA-2		3	↓	↓	1100	↓	↓	X													
B-4		3	↓	↓	1135	↓	↓	X													
B-2		3	↓	↓	1200	↓	↓	X													
B-3		3	W	C	1235	HCL	Y	X													

Please Initial: Samples [illegible] in ice. Samples [illegible] Appropriate [illegible] Samples [illegible] VOA's [illegible] Comments [illegible]
4.0°C Y Y

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	GTI	6/13/94	[signature]	GTI	
Relinquished By (Signature) [signature]	GTI	6-14-94	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) [signature] SAN MTC		Date/Time 6-14-94 1240

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