



Chevron

December 2, 1994

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

Mr. Scott Seery
Alameda County Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Re: Former Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, CA 94546

Dear Mr. Seery :

All wells with the exception of C-1 and C-2 were non-detect for dissolved hydrocarbons. ~~has liquid hydrocarbons which is being removed by a passive skimmer.~~

Chevron is still operating and maintaining the remediation system.

For additional information, please refer to the enclosed report from Groundwater Technology, Inc. dated November 28, 1994. If you have any questions or comments, please feel free to call me at (510) 842-8752.

Sincerely,

Chevron U.S.A. Products Co.

Kenneth Kan
Engineer

LKAN/MacFile 9-2960R18

Enclosure

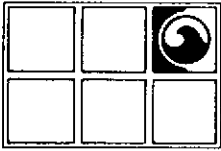
cc: Mr. Kevin Graves
RWQCB-S.F.Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612

Mr. Bob Yule
First Presbyterian Church
2490 Grove Way
Castro Valley, CA 94546

Ms. Bette Owen
Chevron U.S.A. Products Co.

54 DEC 9 10 28 AM '94

RECEIVED



GROUNDWATER TECHNOLOGY, INC.

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

FAX: (415) 685-9148

November 28, 1994

Project No. 020104087

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

SUBJECT: *Groundwater Monitoring and Sampling Activities*
Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Dear Mr. Kan:

Groundwater Technology, Inc. presents the quarterly groundwater monitoring and sampling data collected on October 6 and 27, 1994. 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 wells C-1, C-2, and C-3.~~ 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, except monitoring well C-1, was purged and sampled. Groundwater monitoring and sample collection protocol and field data sheets are presented in attachment 3. The groundwater samples were analyzed for benzene, toluene, ethylbenzene, xylenes, and total petroleum hydrocarbons-as-gasoline. Results of the chemical analyses are summarized in attachment 2. The laboratory report and chain-of-custody record are included in attachment 4. Monitoring-well purge water was transported by Groundwater Technology to the Chevron Terminal in Richmond, California, for recycling.

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

Sincerely,
Groundwater Technology, Inc.
Reviewed/Approved by


Kenneth P. Johnson
Project Manager

PR 

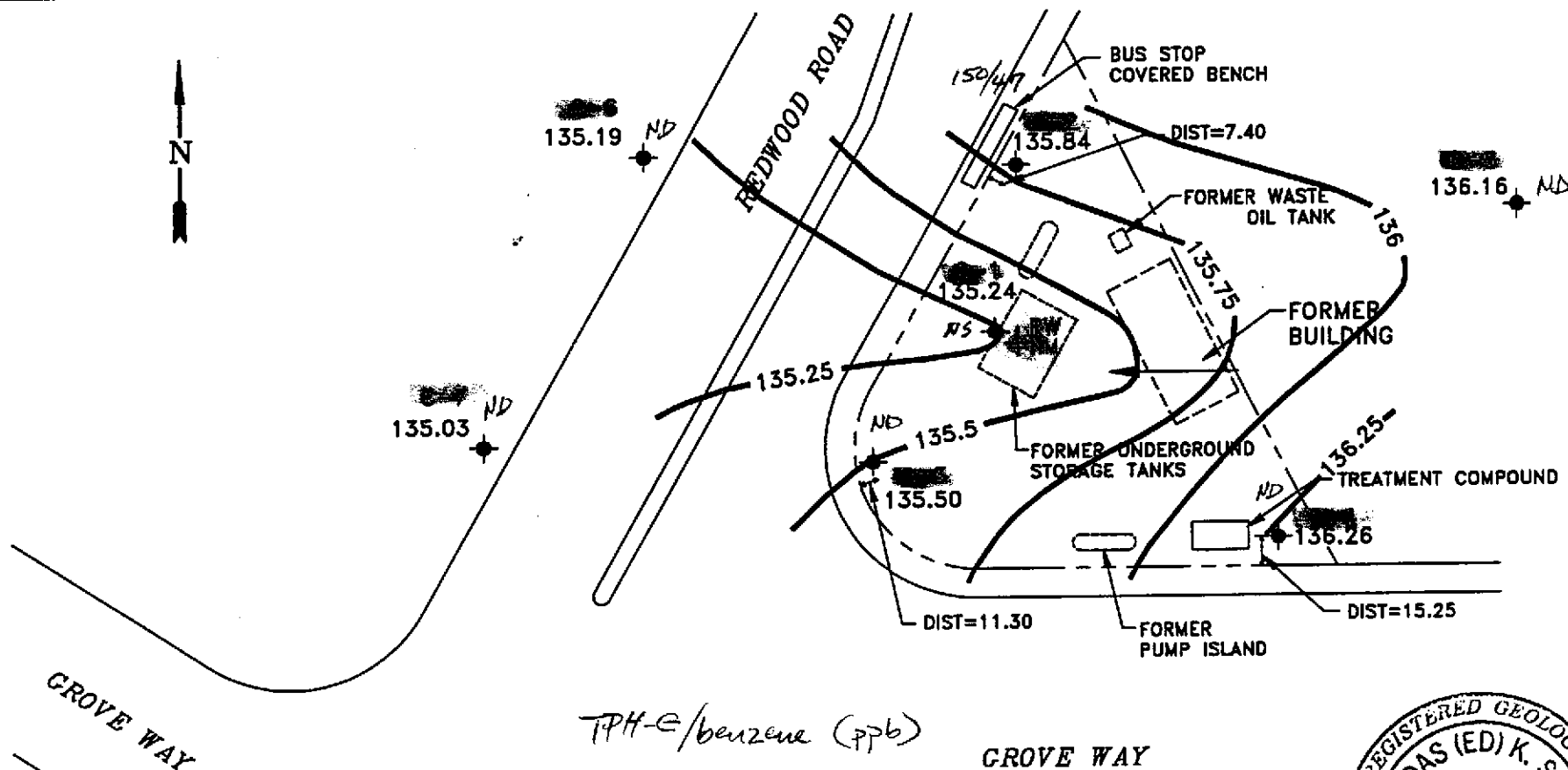
Attachment 1 Figure
Attachment 2 Table
Attachment 3 Protocol and Field Data Sheets
Attachment 4 Laboratory Report

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




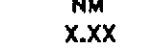


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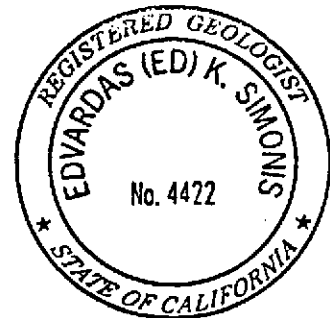
ATTACHMENT 1

Figure



LEGEND

-  PROPERTY LINE
-  MONITORING WELL
-  RECOVERY WELL
-  NOT MEASURED PER CLIENTS REQUEST
POTENTIOMETRIC SURFACE ELEVATION (FT)
-  POTENTIOMETRIC SURFACE CONTOUR
-  GROUNDWATER FLOW DIRECTION



NOTE:

1. CONTOURS REPRESENT APPROXIMATE ELEVATIONS ABOVE MEAN SEA LEVEL.



GROUNDWATER TECHNOLOGY



CLIENT:
CHEVRON U.S.A. PRODUCTS CO.
SERVICE STATION NO. 8-2960

LOCATION:
2416 GROVE WAY
CASTRO VALLEY, CALIFORNIA

POTENTIOMETRIC SURFACE MAP
(10/06/94)

FILE: 4087PSM, (1:40)

PROJECT NO.:
02010-4087

PM:

PE/RG:

FIGURE:

REV.:

DES.:
KM

DET.:
KM

DATE:
10/07/94

JK

Edi

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ATTACHMENT 2

Table

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-2	10/23/86	30,000	2,700	1,900	---	1,500	---	---	---
	09/10/87	14,000	2,600	2,900	500	1,200	---	---	---
151.84	10/16/89	600	260	34	1.7	41	---	---	---
	01/04/90	2,600	470	150	23	130	---	---	---
	04/05/90	500	280	29	6.3	19	---	---	---
	07/02/90	2,400	670	110	17	76	---	---	---
	10/03/90	---	---	---	---	---	---	---	---
	10/25/90	1,300	390	47	9	58	16.60	---	135.24
	01/22/91	2,600	680	88	29	130	16.69	---	135.15
	02/21/91	---	---	---	---	---	16.31	---	135.53
	04/01/91	---	---	---	---	---	15.08	---	136.76
	04/11/91	---	---	---	---	---	15.23	---	136.61
	07/01/91	---	---	---	---	---	15.96	---	135.88
	09/24/91	3,600	1,400	63	6.9	63	16.51	---	135.33
	10/23/91	---	---	---	---	---	16.66	---	135.18
	11/22/91	---	---	---	---	---	16.37	---	135.47
	01/09/92	7,100	770	740	190	690	15.56	---	136.28
	03/06/92	3,200	250	230	59	220	14.37	---	137.47
	06/04/92	1,500	<0.5	180	42	130	15.04	---	136.80
	09/28/92	6,400	940	230	57	220	16.40	---	135.44
	12/17/92	1,500	370	160	6	25	15.38	---	136.46
	04/29/93	1,800	690	120	74	140	14.97	0.00	136.87
	07/29/93	4,300	1,500	96	29	96	14.92	0.00	136.92
	10/22/93	820	560	57	15	58	15.81	0.00	136.03
	01/24/94	---	---	---	---	---	---	---	---
04/11/94	2,000	240	48	36	110	15.35	0.00	136.49	
07/01/94	370	55	12	3.1	8.6	15.40	0.00	136.44	
	10/23/94	---	---	4.8	1.8	5.4	16.00	0.00	135.84

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HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-3	10/23/86	3,300	49	24	---	20	---	---	---
	09/10/87	200	110	2.6	<2.0	<2.0	---	---	---
154.13	10/16/89	900	640	4.2	1.6	16	---	---	---
	01/04/90	920	430	7	6	7	---	---	---
	04/05/90	930	690	3.4	5.1	4.8	---	---	---
	07/02/90	1,700	590	11	4.8	9.4	---	---	---
	10/03/90	---	---	---	---	---	19.16	---	134.97
	10/25/90	750	510	2	6	5	19.28	---	134.85
	01/22/91	430	260	2	2	5	19.18	---	134.95
	01/22/91	400	250	2	2	5	19.18	---	134.95
	02/21/91	---	---	---	---	---	18.88	---	135.25
	04/01/91	---	---	---	---	---	17.59	---	136.54
	04/11/91	---	---	---	---	---	17.81	---	136.32
	07/01/91	---	---	---	---	---	18.56	---	135.57
	09/24/91	260	62	0.7	0.8	2.2	19.12	---	135.01
	10/23/91	---	---	---	---	---	19.24	---	134.89
	11/22/91	---	---	---	---	---	19.03	---	135.10
	01/09/92	240	120	0.9	<0.5	1.6	18.23	---	135.90
	03/06/92	230	68	1.2	1.2	1.3	17.04	---	137.09
	06/04/92	80	36	0.6	0.5	0.7	17.79	---	136.34
	09/28/92	84	49	<0.5	<0.5	1.5	19.00	---	135.13
	12/17/92	220	30	<0.5	<0.5	<0.5	18.18	---	135.95
	04/29/93	380	12	0.6	<0.5	<1.5	18.78	0.00	135.35
	07/26/93	800	38	1.1	<0.5	<1.5	17.72	0.00	136.41
	10/22/93	200	64	0.6	<0.5	<1.5	18.50	0.00	135.63
01/24/94	<50	<0.5	<0.5	<0.5	<0.5	18.51	0.00	135.62	
04/11/94	100	3.6	2.1	<0.5	2.3	18.04	0.00	136.09	
07/01/94	140	3.7	1.2	<0.5	1.0	18.12	0.00	136.01	
10/06/94	<50	<0.5	<0.5	<0.5	<0.5	18.63	0.00	135.50	

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HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-4	10/23/86	570	3	4	---	5	---	---	---
	09/10/87	500	3.0	<0.5	<0.5	<0.5	---	---	---
156.00	10/16/89	<500	12	1.0	<0.5	0.8	---	---	---
	01/04/90	<500	5	<0.5	<0.5	0.9	---	---	---
	04/05/90	<50	6.6	<0.5	<0.5	0.7	---	---	---
	07/02/90	71	4.1	<0.5	<0.5	<0.5	---	---	---
	10/03/90	---	---	---	---	---	---	---	---
	10/25/90	<50	2	<0.5	<0.5	<0.5	20.43	---	135.57
	01/22/91	<50	3	<0.5	<0.5	<0.5	20.50	---	135.50
	02/21/91	---	---	---	---	---	20.23	---	135.77
	04/01/91	---	---	---	---	---	19.03	---	136.97
	04/11/91	---	---	---	---	---	19.05	---	136.95
	07/01/91	---	---	---	---	---	19.90	---	136.10
	09/24/91	87	1.6	<0.5	<0.5	<0.5	20.41	---	135.59
	10/23/91	---	---	---	---	---	20.53	---	135.47
	11/22/91	---	---	---	---	---	20.35	---	135.65
	01/09/92	51	4.3	<0.5	<0.5	<0.5	19.54	---	136.46
	01/09/92	<50	4.8	<0.5	<0.5	<0.5	19.54	---	136.46
	03/06/92	<50	0.8	<0.5	<0.5	<0.5	18.26	---	137.74
	06/04/92	<50	<0.5	<0.5	<0.5	0.7	18.92	---	137.08
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	20.31	---	135.69
	12/17/92	<50	<0.5	<0.5	<0.5	<0.5	19.57	---	136.43
	04/29/93	<50	<0.5	<0.5	<0.5	<1.5	17.78	0.00	138.22
	07/26/93	---	---	---	---	---	---	---	---
	08/18/93	<50	<0.5	<0.5	<0.5	<1.5	18.91	0.00	137.09
	10/22/93	<50	2.9	2.1	1.1	4.3	19.39	0.00	136.61
	01/24/94	<50	<0.5	<0.5	<0.5	<0.5	19.42	0.00	136.58
	04/11/94	<50	<0.5	0.6	<0.5	0.5	19.14	0.00	136.86
	07/01/94	<50	<0.5	<0.5	<0.5	<0.5	19.20	0.00	136.80
	10/06/94	<50	<0.5	<0.5	<0.5	<0.5	19.74	0.00	136.26

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Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-5	10/03/90	<50	<0.5	<0.5	<0.5	<0.5	17.78	---	135.60
	10/25/90	<50	<0.5	<0.5	<0.5	<0.5	17.92	---	135.46
153.38	11/09/90	<50	<0.5	<0.5	<0.5	<0.5	17.92	---	135.46
	01/22/91	<50	<0.5	<0.5	<0.5	<0.5	17.80	---	135.58
	02/21/91	---	---	---	---	---	17.51	---	135.87
	04/01/91	---	---	---	---	---	16.31	---	137.07
	04/11/91	---	---	---	---	---	16.36	---	137.02
	07/01/91	---	---	---	---	---	17.12	---	136.26
	09/24/91	<50	<0.5	<0.5	<0.5	<0.5	17.70	---	135.68
	09/24/91	<50	<0.5	<0.5	<0.5	<0.5	17.70	---	135.68
	10/23/91	---	---	---	---	---	17.82	---	135.56
	11/22/91	---	---	---	---	---	17.61	---	135.77
	01/09/92	<50	<0.5	0.7	<0.5	<0.5	17.04	---	136.34
	03/06/92	<50	<0.5	<0.5	<0.5	<0.5	15.76	---	137.62
	06/04/92	<50	<0.5	<0.5	<0.5	<0.5	16.40	---	136.98
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	17.58	---	135.80
	12/17/92	<50	<0.5	<0.5	<0.5	<0.5	16.82	---	136.56
	04/29/93	<50	<0.5	<0.5	<0.5	<1.5	15.24	0.00	138.14
	07/26/93	<50	<0.5	<0.5	<0.5	<1.5	16.30	0.00	137.08
	10/22/93	52	2.3	2.7	1.1	5.2	17.08	0.00	136.30
	01/24/94	<50	<0.5	<0.5	<0.5	<0.5	17.13	0.00	136.25
	04/11/94	<50	<0.5	0.7	<0.5	0.6	16.63	0.00	136.75
	07/01/94	<50	<0.5	<0.5	<0.5	<0.5	16.65	0.00	136.73
	10/06/94	<50	<0.5	<0.5	<0.5	<0.5	17.22	0.00	136.16

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Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-6	10/03/90	<50	<0.5	<0.5	<0.5	<0.5	18.14	---	134.70
	10/25/90	<50	<0.5	1	<0.5	<0.5	18.29	---	134.55
152.84	11/09/90	<50	<0.5	<0.5	<0.5	<0.5	18.26	---	134.58
	01/22/91	<50	<0.5	<0.5	<0.5	<0.5	18.15	---	134.69
	02/21/91	---	---	---	---	---	17.92	---	134.92
	04/01/91	---	---	---	---	---	17.11	---	135.73
	04/11/91	---	---	---	---	---	17.01	---	135.83
	07/01/91	---	---	---	---	---	17.72	---	135.12
	09/24/91	<50	<0.5	<0.5	<0.5	<0.5	18.12	---	134.72
	10/23/91	---	---	---	---	---	18.25	---	134.59
	11/22/91	---	---	---	---	---	18.05	---	134.79
	01/09/92	<50	<0.5	<0.5	<0.5	<0.5	17.42	---	135.42
	03/06/92	<50	<0.5	<0.5	<0.5	<0.5	16.51	---	136.33
	06/04/92	<50	<0.5	<0.5	<0.5	<0.5	17.01	---	135.83
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	18.00	---	134.84
	12/17/92	<50	<0.5	<0.5	<0.5	<0.5	17.26	---	135.58
	04/29/93	<50	<0.5	<0.5	<0.5	<1.5	16.23	---	136.61
	07/29/93	<50	<0.5	<0.5	<0.5	<1.5	16.96	---	135.88
	10/22/93	74	7.4	6.1	3.3	9.7	17.46	0.00	135.38
	01/24/94	<50	<0.5	<0.5	<0.5	<0.5	17.46	0.00	135.38
04/11/94	<50	<0.5	<0.5	<0.5	<0.5	17.20	0.00	135.64	
07/01/94	<50	<0.5	<0.5	<0.5	<0.5	17.18	0.00	135.66	
10/06/94	<50	<0.5	<0.5	<0.5	<0.5	17.65	0.00	135.19	

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Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
C-7 155.34	10/03/90	<50	<0.5	<0.5	<0.5	<0.5	20.82	---	134.52
	10/25/90	<50	<0.5	1	<0.5	<0.5	20.91	---	134.43
	11/09/90	<50	<0.5	<0.5	<0.5	<0.5	20.94	---	134.40
	01/22/91	<50	4	<0.5	<0.5	<0.5	21.50	---	133.84
	02/21/91	---	---	---	---	---	20.71	---	134.63
	04/01/91	---	---	---	---	---	20.00	---	135.34
	04/11/91	---	---	---	---	---	20.05	---	135.29
	07/01/91	---	---	---	---	---	20.52	---	134.82
	09/24/91	<50	<0.5	<0.5	<0.5	<0.5	20.82	---	134.52
	10/23/91	---	---	---	---	---	20.91	---	134.43
	11/22/91	---	---	---	---	---	20.79	---	134.55
	01/09/92	<50	<0.5	<0.5	<0.5	0.9	20.16	---	135.18
	03/06/92	<50	<0.5	<0.5	<0.5	<0.5	19.42	---	135.92
	05/04/92	250	<0.5	<0.5	<0.5	<0.5	19.81	---	135.53
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	20.65	---	134.69
	12/17/92	<50	<0.5	<0.5	<0.5	<0.5	20.02	---	135.32
	04/29/93	<50	<0.5	<0.5	<0.5	<1.5	19.15	0.00	136.19
	07/26/93	<50	<0.5	<0.5	<0.5	<1.5	19.77	0.00	135.57
	10/22/93	---	---	---	---	---	20.17	0.00	135.17
	01/24/94	<50	<0.5	<0.5	<0.5	<0.5	20.23	0.00	135.11
04/11/94	<50	<0.5	<0.5	<0.5	<0.5	19.95	0.00	135.39	
07/01/94	<50	<0.5	<0.5	<0.5	<0.5	19.92	0.00	135.42	
10/06/94	<50	<0.5	<0.5	<0.5	<0.5	20.31	0.00	135.03	

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
TBLB	10/03/90	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	10/25/90	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	11/09/90	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	01/22/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	09/24/91	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	01/09/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	03/06/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	06/04/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	12/17/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	04/29/93	<50	<0.5	<0.5	<0.5	<1.5	---	---	---
	07/26/93	<50	<0.5	<0.5	<0.5	<1.5	---	---	---
	10/22/93	<50	<0.5	<0.5	<0.5	<1.5	---	---	---
	01/24/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	04/11/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	07/01/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
10/06/94	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Chevron Service Station No. 9-2960
2416 Grove Way, Castro Valley, California

Well ID/ Elev	Date	TPH-G	Benzene	Toluene	Ethyl- Benzene	Xylenes	DTW (ft)	SPT (ft)	WTE (ft)
Rinsate	09/10/87	<100	<0.5	<0.5	<0.5	<0.5	---	---	---
	10/25/90	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	09/24/90	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	01/09/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	03/06/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	06/04/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	01/24/94	<50	<0.5	0.9	<0.5	<0.5	---	---	---

- DTW = Depth to water
- WTE = Water table elevations measured in feet above mean sea level
- = Not applicable/not measured/not sampled
- SPT = Separate-phase hydrocarbons
- TPH-G = Total petroleum hydrocarbons-as-gasoline
- TB/LB = Laboratory trip blank
- * = The sample collected on 10/06/94 from C-2 was mistakenly not analyzed and the well resampled on 10/27/94.

Data before April 29, 1993, was provided by Alton GeoSciences.

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:

$$(\text{Product thickness}) \times (0.8) + (\text{Water elevation}) = \text{Corrected water elevation}$$

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 triple 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 - Casto Valley

Date: 10/5/94

Site Address: 2416 Grove Way, Castro Valley

Page 1 of 7

Project Number: 020104087.0610

Project Manager: Ken Johnson

Well ID: C-4

DTW Measurements:

Well Diameter: 3

Initial: 19.74

Calc Well Volume: 3.23 gal

Recharge: _____

Well Volume: 9.68 gal

Purge Method _____ Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Submersible Other _____

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

Time	Temp	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
	<input checked="" type="checkbox"/> C _____ F					
10:49	21.8	0.97	6.85	2	cloudy	
10:50	21.7	0.93	6.63	4	cloudy (less)	
10:51	21.7	0.98	6.55	6	Slight Cloudy	
10:52	21.7	0.98	6.54	8	"	
10:53	21.8	0.97	6.54	10	more cloudy	

6

Project Name: Chevron - Casto Valley

Date: 10/5/94

Site Address: 2416 Grove Way, Castro Valley

Page 2 of 7

Project Number: 020104087.0610

Project Manager: Ken Johnson

Well ID: C-5

DTW Measurements:

Initial: 17.22 Calc Well Volume: 2.12 gal

Well Diameter: 2

Recharge: _____ Well Volume: 6.36 gal

Purge Method _____ Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Submersible Other _____

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

Time	Temp		Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
	<input checked="" type="checkbox"/> C	<input type="checkbox"/> F					
10:58	22.2		1.03	6.67	2	Cloudy	
10:59	22.2		1.55	6.66	4	Very cloudy	
11:00	22.1		1.57	6.67	5	Less cloudy	
11:01	22.2		1.57	6.67	6	"	
11:02	22.2		1.58	6.68	7		

Q

Project Name: Chevron - Casto Valley

Date: 10/5/94

Site Address: 2416 Grove Way, Castro Valley

Page 3 of 7

Project Number: 020104087.0610

Project Manager: Ken Johnson

Well ID: C-6

DTW Measurements:

Well Diameter: 2

Initial: 17.65

Calc Well Volume: 1.80 gal

Recharge: _____

Well Volume: 5.40 gal

Purge Method Submersible Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Other _____

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

Time	Temp		Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
	<input checked="" type="checkbox"/> C	<input type="checkbox"/> F					
11:31	22.4		1.16	6.75	2	cloudy	
11:32	22.5		1.65	6.78	3	cloudy	
11:33	22.2		1.65	6.89	4	cloudy	dy e 4 gal Lit Recharge
11:35	22.2		1.63	6.96	5	cloudy	dy e 5 gal
					6		

6

Project Name: Chevron - Casto Valley

Date: 10/5/94

Site Address: 2416 Grove Way, Castro Valley

Page 4 of 7

Project Number: 020104087.0610

Project Manager: Ken Johnson

Well ID: C-7

DTW Measurements:

Well Diameter: 2

Initial: 20.31

Calc Well Volume: 2.14 gal

Recharge: _____

Well Volume: 6.42 gal

Purge Method Pump Depth _____ ft.

Peristaltic _____ Hand Bailed _____

Gear Drive _____ Air Lift _____

Submersible X Other _____

Instruments Used

YSI: Y Other: _____

Hydac: _____

Omega: _____

Time	Temp <u>X</u> C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
11:46	22.5	1.63	7.01	2	cloudy	
11:47	22.0	1.53	7.09	4	less cloudy	
11:47	21.6	1.54	7.16	5	"	
11:48	21.5	1.53	7.18	6	"	
11:48	21.4	1.53	7.18	7	cloudy	

K

Project Name: Chevron - Casto Valley

Date: 10/5/94

Site Address: 2416 Grove Way, Castro Valley

Page 5 of 7

Project Number: 020104087.0610

Project Manager: Ken Johnson

Well ID: C-3

DTW Measurements:

Initial: 18.63

Calc Well Volume: 4.50 gal

Well Diameter: 3

Recharge: _____

Well Volume: 13.51 gal

Purge Method _____ Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Submersible ✓ Other _____

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

Time	Temp		Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
	<u>T</u>	<u>C</u>					
11:56	22.0		1.55	7.14	3	cloudy	
11:57	21.2		1.55	6.86	6	less cloudy	
11:59	21.3		1.55	6.79	9	41	dry det Recharge
12:02	21.6		1.61	6.77	10	very dark	dry @ 10 gal
					15		

R

Project Name: Chevron - Casto Valley

Date: 10/5/94

Site Address: 2416 Grove Way, Castro Valley

Page 6 of 7

Project Number: 020104087.0610

Project Manager: Ken Johnson

Well ID: C-2

DTW Measurements:

Well Diameter: 3

Initial: 16.00

Calc Well Volume: 5.19 gal

Recharge: _____

Well Volume: 15.58 gal

Purge Method _____ Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Submersible Other _____

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

Time	Temp C E	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
12:05	23.0	2.82	6.88	3	Cloudy	
12:06	21.7	2.47	6.74	5	Cloudy	
12:08	21.4	2.66	6.70	9	Cloudy	dry @ 9 gal let Recharge
12:12	22.0	2.87	6.72	10	dry: Cloudy	
12:13	21.8	2.73	6.76	11	Cloudy	dry @ 11 gal

New Lock

Q.

ATTACHMENT 4

Laboratory Report



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

Groundwater Technology Inc.
Attn: KEN JOHNSON

Project 020104087
Reported 10/13/94

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed Matrix
15847- 1	TB-LB	10/06/94	10/12/94 Water
15847- 2	C-4	10/06/94	10/12/94 Water
15847- 3	C-5	10/06/94	10/12/94 Water
15847- 4	C-6	10/06/94	10/12/94 Water
15847- 5	C-7	10/06/94	10/12/94 Water
15847- 6	C-3	10/06/94	10/12/94 Water

RESULTS OF ANALYSIS

Laboratory Number: 15847- 1 15847- 2 15847- 3 15847- 4 15847- 5

Gasoline_Range:	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	ND<0.5	ND<0.5	ND<0.5	ND<0.5

Concentration: ug/L ug/L ug/L ug/L ug/L

Laboratory Number: 15847- 6

Gasoline_Range:	ND<50
Benzene:	ND<0.5
Toluene:	ND<0.5
Ethyl Benzene:	ND<0.5
Total Xylenes:	ND<0.5

Concentration: ug/L



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

CERTIFICATE OF ANALYSIS ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

Page 2 of 2
QA/QC INFORMATION
SET: 15847

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

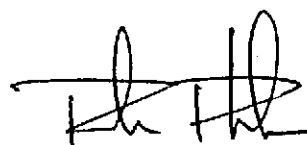
OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

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_Range:	86/81	6%	56-117
Benzene:	89/94	5%	59-149
Toluene:	87/93	7%	59-149
Ethyl Benzene:	80/85	6%	59-149
Total Xylenes:	84/89	6%	59-149

 10/14/94

Senior Chemist
Account Manager

Certified Laboratories

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

15847

Chain-of-Custody-Record

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

Chevron Facility Number: 9-2960
Facility Address: 2416 GROVE CASTRO VLY
Consultant Project Number: 020104087
Consultant Name: GROUNDWATER TECHNOLOGY
Address: 4057 PORT CHICAGO HWY CONCORD, CA
Project Contact (Name): KEN JOHNSON
(Phone) 671-2387 (Fax Number)

Chevron Contact (Name): Ken Kan
(Phone): (510)842-8752
Laboratory Name: Superior Analytical
Laboratory Release Number: 921-6461
Samples Collected by (Name): TERRY JAMES
Collection Date: 10/6/94
Signature: Terry James

Analyses To Be Performed

NOTE:
Do NOT BILL
TB-LB SAMPLES

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Chertcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed										Remarks			
								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)						
TBLB		2	W			HCl	Yes	X													
CE 4		3		C	12:40			X													
C- 5		1			12:45			X													
C- 6		1			12:50			X													
C- 7		1			12:55			X													
C- 3		1			13:00			X													
C- 2		1			13:05			X													

Initials: NH
 Samples Stored in ice:
 Samples in original containers:
 Samples preserved:
 D.V.s with identification:
 Comments:

2.2°C

Relinquished By (Signature): [Signature]
 Relinquished By (Signature): [Signature]
 Relinquished By (Signature): [Signature]

Organization: GTL
 Organization: AERO
 Organization: AERO

Date/Time: 10/6/94 1400
 Date/Time: 10-7-94 12:40
 Date/Time: 12/40

Received By (Signature): [Signature]
 Received By (Signature): [Signature]
 Received For Laboratory By (Signature): [Signature]

Organization: AERO
 Organization: [Signature]

Date/Time: 12:25-10-7
 Date/Time: [Signature]
 Date/Time: 12/40

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



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

GROUNDWATER TECHNOLOGY, INC.
Attn: KEN JOHNSON

Project 020104087.610
Reported 11/10/94

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed Matrix
30815- 1	TB-LB	10/27/94	11/08/94 Water
30815- 2	C-2	10/27/94	11/08/94 Water

RESULTS OF ANALYSIS

Laboratory Number: 30815- 1 30815- 2

Gasoline:	ND<50	150
Benzene:	ND<0.5	47
Toluene:	ND<0.5	4.8
Ethyl Benzene:	ND<0.5	1.8
Total Xylenes:	ND<0.5	5.4
Concentration:	ug/L	ug/L



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

Page 2 of 2
QA/QC INFORMATION
SET: 30815

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:	77/77	0%	56-117
Benzene:	107/111	4%	59-149
Toluene:	95/96	1%	59-149
Ethyl Benzene:	94/95	1%	59-149
Total Xylenes:	97/98	1%	59-149

Certified Laboratory Senior Chemist

