Chevron

Chevron

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

January 14, 1994

Ms. Susan Hugo
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Re: Former Chevron Service Station No. 9-3864
5101 Telegraph Avenue, Oakland, California

Dear Ms. Hugo :

In response to Christine Noma's letter dated November 24, 1993, Chevron never refused to remediate the above referenced site. Based on the results of previous investigations, remediation, and risk-based analysis, further remediation was not warranted.

The risk assessment did consider off-site sources. In fact, the results of Pacific Environmental Group's off-site investigation was incorporated into the risk assessment. Furthermore, Alameda Co. Environmental Health was made aware of potential off-site sources including two potential sources near monitoring well MW-3 and C-1 during a meeting on October 26, 1992.

The latest groundwater results does not confirm that Chevron has not fully investigated the site. The latest results does confirm that off-site sources are contributing to the contamination of the groundwater because of the dissolved hydrocarbons found in wells MW-4 and MW-5. The fact that another off-site source does exist south of the site provides an explanation for the contamination in well MW-3. These potential off-site sources do exist, and they are possibly contributing or partially causing Chevron's groundwater contamination. During the meeting on November 18, 1993 at the Regional Board's office, the property owner's son, Mr. John L. Gwynn, did confirm while looking at an aerial photograph that a service station did exist in the vicinity of MW-3. Regarding the change in groundwater, it is not an uncommon phenomenon.

The risk assessment does not necessarily have to be re-run. Kirk Peck from Chevron Research & Technology Company has taken the latest analytical results and applied them to the same equations in Geraghty & Miller's risk assessment. The results shows the plume moving slower and covering a shorter distance. It is important to understand that monitoring well data does not change the Health-Based Remediation Goals.

Chevron still maintains that it has fully investigated the site. It is in Chevron's opinion that further investigation of the site is not warranted because all of the potential on-site sources (ie. product lines, underground storage tanks, etc.) have been investigated and removed.

Finally, it is my understanding that Chevron offered if not already indemnified the property owner's for contamination resulting from Chevron's operation.

Enclosed is the latest monitoring and sampling report from Sierra Environmental Services dated December 20, 1993 and Kirk Peck's memorandum on the new groundwater results.

All nine wells were monitored and sampled on December 14, 1993. Results from this sampling event show detectable levels of dissolved hydrocarbons in all monitoring wells with the exception

of MW-1 and MW-2. Monitoring data shows groundwater flowing in the south -easterly and -westerly direction.

Please refer to the enclosed memorandum and report for the latest information. In the meantime, 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
Site Assessment and Remediation Engineer

LKAN/MacFile 9-3864R21

Enclosure

cc: Mr. Richard Hiett
RWQCB-San Francisco Bay Area
2101 Webster Street, Suite 500
Oakland, CA 94612

Dr. Ravi Arulananthum
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Mr. Timothy S. Williams
Wendel, Rosen, Black, Dean, & Levitan
1221 Broadway, Suite 2000
P.O. Box 2047
Oakland, CA 94604-2047

Mr. Paul Eveloff
Wood Island, Suite 3A
80 E. Sir Francis Drake Blvd.
Larkspur, CA 94939

Mr. Jim Gribi
Century West Engineering
7950 Dublin Blvd., Suite 210
Dublin, CA 94568

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

DEC 20 1993 K.L.N.

SIERRA

Environmental Services

December 20, 1993

Kenneth Kan
Chevron USA Products Company
P.O. Box 5004
San Ramon, CA 94583

Re: Former Chevron Service Station #9-3864
5101 Telegraph Avenue
Oakland, California
SES Project #1-203-04

Dear Mr. Kan:

This report presents the results of quarterly ground water sampling at Former Chevron Service Station #9-3864, located at 5101 Telegraph Avenue in Oakland, California. Nine wells, C-1 through C-4 and MW-1 through MW-5, were sampled (Figure 1).

On December 14, 1993, SES personnel visited the site. Water level measurements were collected in all site wells and all wells were checked for the presence of free-phase hydrocarbons. Free-phase hydrocarbons were not present in any of the site wells. Water level data are shown in Table 1 and ground water elevation contours are included on Figure 1.

The water samples were collected on December 14, 1993 in accordance with SES Standard Operating Procedure - Ground Water Sampling (attached). All analyses were performed by Superior Precision Analytical, Inc. of Martinez, California. Analytic results for ground water are presented in Table 2. The chain of custody document and laboratory analytic reports are attached. SES is not responsible for laboratory omissions or errors.

Thank you for allowing us to provide services to Chevron. Please call if you have any questions.

REGISTERED PROFESSIONAL ENGINEER
CHRIS J. BRAMER
C 048846
CIVIL
STATE OF CALIFORNIA

Sincerely,
Sierra Environmental Services

Argy Mena
Staff Geologist

Chris J. Bramer
Professional Engineer #C48846

AJM/CJB/gb
20304QM.DE3

Attachments
Figure
Tables
SES Standard Operating Procedure
Chain of Custody Document and Laboratory Analytic Reports

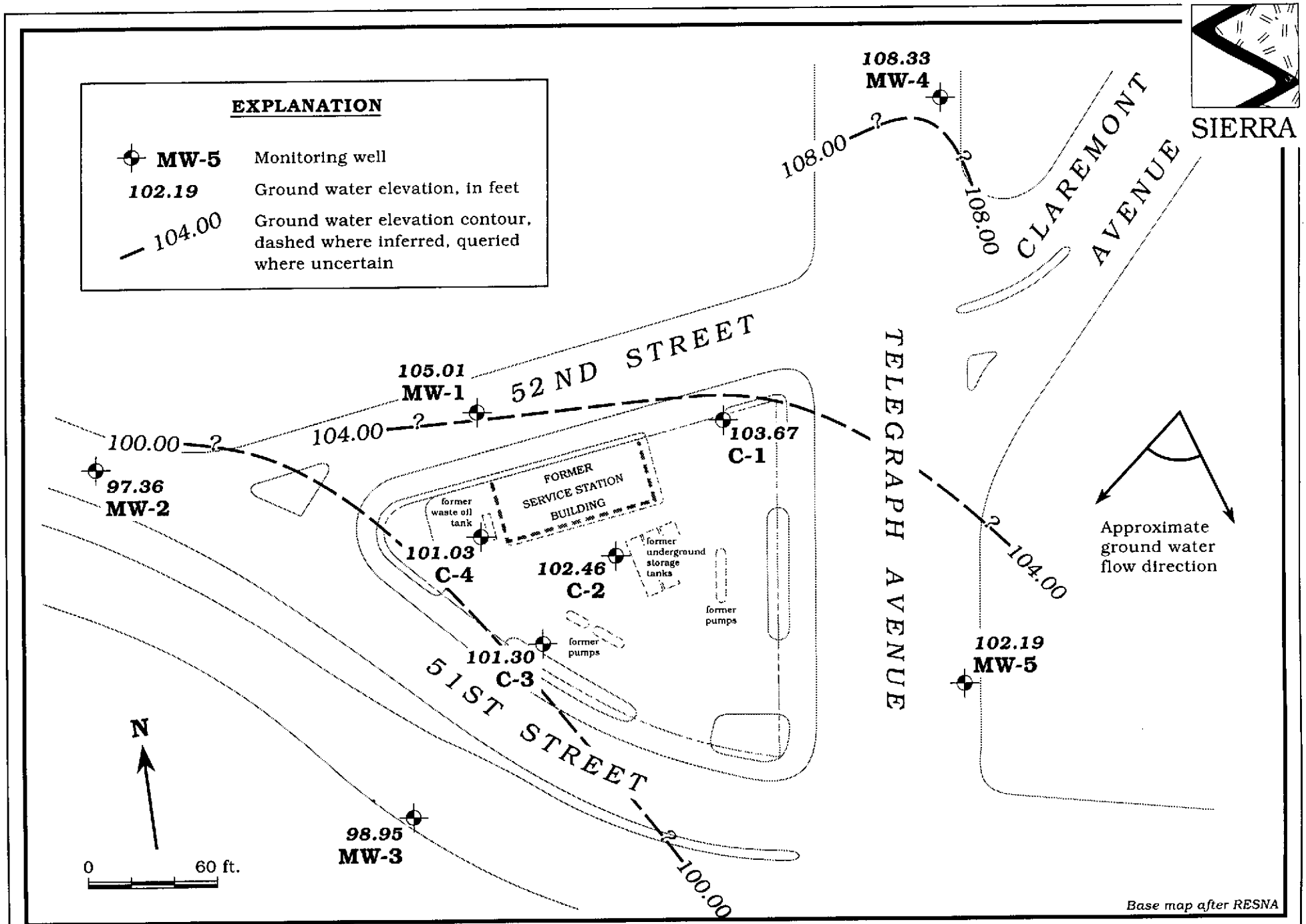

Figure 1. Monitoring Well Location and Ground Water Elevation Contour Map – December 14, 1993 – Former Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California

SIERRA

Table 1. Water Level Data and Well Construction Details - Former Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California

Well ID	Date Measured	DTW (ft)	TOC (ft)	GWE (msl)	Product Thickness* (ft)	Screen Interval	Sand Pack Interval	Bentonite/Grout Interval
						<----------feet below grade---------->		
C-1	12/6/90	15.34	117.45	102.11	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	14.62		102.83	0			
	12/4/91	14.48		102.97	0			
	6/2/92	14.53		102.92	0			
	9/16/92	14.93		102.52	0			
	12/21/92	13.73		103.72	0			
	3/11/93	13.83		103.62	0			
	6/11/93	14.19		103.26	0			
	9/13/93	14.60		102.85	0			
	12/14/93	**13.78**		**103.67**	**0**			
C-2	12/6/90	15.34	116.16	100.82	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	14.62		101.54	0			
	12/4/91	15.43		100.73	0			
	6/2/92	14.42		101.74	0			
	9/16/92	14.81		101.35	0			
	12/21/92	13.37		102.79	0			
	3/11/93	13.47		102.69	0			
	6/11/93	13.98		102.18	0			
	9/13/93	14.55		101.61	0			
	12/14/93	**13.70**		**102.46**	**0**			
C-3	12/6/90	16.86	115.70	98.84	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	15.69		100.01	0			
	12/4/91	15.38		100.32	0			
	6/2/92	15.40		100.30	0			
	9/16/92	15.89		99.81	0			
	12/21/92	13.91		101.79	0			
	3/11/93	13.75		101.95	0			
	6/11/93	14.67		101.03	0			
	9/13/93	15.53		100.17	0			
	12/14/93	**14.40**		**101.30**	**0**			
C-4	12/6/90	17.68	116.10	98.42	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	16.49		99.61	0			
	12/4/91	16.82		99.28	0			
	6/2/92	16.92		99.18	0			
	9/16/92	17.71		98.39	0			
	12/21/92	15.36		100.74	0			

SIERRA

Table 1. Water Level Data and Well Construction Details - Former Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California (continued)

Well ID	Date Measured	DTW (ft)	TOC (ft)	GWE (msl)	Product Thickness* (ft)	Screen Interval	Sand Pack Interval	Bentonite/Grout Interval
						<----------*feet below grade*---------->		
C-4 (cont)	3/11/93	15.49		100.61	0			
	6/11/93	16.27		99.83	0			
	9/13/93	17.18		98.92	0			
	12/14/93	**15.07**		**101.03**	**0**			
MW-1[1]	9/20/93	12.68	115.05[2]	102.37	0	7 - 25	6 - 25	0 - 6
	12/14/93	**10.04**		**105.01**	**0**			
MW-2[1]	9/20/93	12.15	112.08[2]	99.93	0	7 - 25	6 - 25	0 - 6
	12/14/93	**14.72**		**97.36**	**0**			
MW-3[1]	9/20/93	16.42	113.67[2]	97.25	0	7 - 27	6 - 27	0 - 6
	12/14/93	**14.72**		**98.95**	**0**			
MW-4[1]	9/20/93	10.93	118.10[2]	107.17	0	7 - 22	6 - 22	0 - 6
	12/14/93	**9.77**		**108.33**	**0**			
MW-5[1]	9/20/93	15.31	116.74[2]	101.43	0	7 - 22	6 - 22	0 - 6
	12/14/93	**14.55**		**102.19**	**0**			

EXPLANATION:

DTW = Depth to water
TOC = Top of casing elevation
GWE = Ground water elevation
msl = Measurements referenced relative to mean sea level

NOTES:

Depth to water measurements and top of casing elevations prior to June 6, 1991 were compiled from the January 17, 1991 Site Update Report prepared for this service station by GeoStrategies, Inc. of Hayward, California.

Well construction details were compiled from November 14 and 15, 1990 boring logs by GeoStrategies, Inc.

* Product thickness was measured by GeoStrategies, Inc. on December 6, 1990 with an electronic oil-water interface probe. SES product thickness measurements after 12/6/90 were made with an MMC flexi-dip interface probe.

[1] Well construction details for MW-1 through MW-5 were compiled from the boring logs prepared for Chevron by Resna, September 16 and 17, 1993.

[2] Top of casing elevations for wells MW-1 through MW-5 were compiled from the Well Installation Report prepared for Chevron by Resna, September 1993.

SIERRA

Table 2. Analytic Results for Ground Water - Former Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California

Well ID	Date Sampled	Analytic Lab	Analytic Method	TPPH(G)	B	T	E	X
				<----------ppb---------->				
C-1	12/6/90	SAL	8015/8020	1,900	17	11	3	21
	6/6/91	SAL	8015/8020	3,400	21	15	11	18
	12/4/91	SPA	8015/8020	2,700	22	16	13	23
	6/2/92	SPA	8015/8020	1,900	170	170	13	83
	9/16/92	SPA	8015/8020	810	5.8	5.7	2.0	6.3
	12/21/92	SPA	8015/8020	75	2.4	2.9	1.4	4.7
	3/11/93	SPA	8015/8020	150	2.4	20	3.3	23
	6/11/93	SPA	8015/8020	400	4.3	2.3	1.0	3.5
	9/13/93	SPA	8015/8020	4,100	62	43	34	57
	12/14/93	**SPA**	**8015/8020**	**3,100**	**9.5**	**4.5**	**1.2**	**11**
C-2	12/6/90	SAL	8015/8020	210	140	9	2	11
	6/6/91	SAL	8015/8020	4,800	340	23	19	23
	12/4/91	SPA	8015/8020	3,900	85	15	9.1	15
	6/2/92	SPA	8015/8020	3,300	76	9.2	14	15
	9/16/92	SPA	8015/8020	3,000	16	15	3.4	7.5
	12/21/92	SPA	8015/8020	2,200	21	12	7.1	15
	3/11/93	SPA	8015/8020	2,200	33	24	12	25
	6/11/93	SPA	8015/8020	2,600	21	25	11	26
	9/13/93	SPA	8015/8020	2,100	31	25	18	39
	12/14/93	**SPA**	**8015/8020**	**3,800**	**<2.5**	**24**	**12**	**20**
C-3	12/6/90	SAL	8015/8020	210	2	<0.5	<0.5	1
	12/6/90[1]	SAL	8015/8020	220	2	0.6	<0.5	2
	6/6/91	SAL	8015/8020	6,400	310	21	16	21
	12/4/91	SPA	8015/8020	5,100	120	18	17	20
	6/2/92	SPA	8015/8020	6,700	140	44	17	37
	9/16/92	SPA	8015/8020	7,100	130	26	12	30
	12/21/92	SPA	8015/8020	13,000	390	360	100	410
	3/11/93	SPA	8015/8020	5,100	86	20	12	23
	6/11/93	SPA	8015/8020	7,200	91	38	19	38
	9/13/93	SPA	8015/8020	6,800	100	52	41	75
	12/14/93	**SPA**	**8015/8020**	**8,600**	**74**	**23**	**18**	**36**
C-4	12/6/90	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/18/90[2]	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	6/6/91	SAL	8015/8020	<50	1.0	1.0	<0.5	0.7
	12/4/91	SPA	8015/8020	70	6.5	9.8	1.7	8.6
	6/2/92	SPA	8015/8020	70	3.0	4.4	1.8	9.0
	9/16/92	SPA	8015/8020	<50	1.4	1.8	<0.5	1.1
	12/21/92	SPA	8015/8020	<50	0.6	0.7	<0.5	1.5

SIERRA

Table 2. Analytic Results for Ground Water - Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California (continued)

Well ID	Date Sampled	Analytic Lab	Analytic Method	TPPH(G)	B	T	E	X
				<----------ppb---------->				
C-4 (cont)	3/11/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	6/11/93	SPA	8015/8020	52	0.9	3.1	0.7	3.8
	9/13/93	SPA	8015/8020	64	0.9	1.0	<0.5	1.7
	12/14/93	**SPA**	**8015/8020**	**<50**	**<0.5**	**0.8**	**<0.5**	**0.7**
MW-1	9/21/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	12/14/93	**SPA**	**8015/8020**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-2	9/21/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	12/14/93	**SPA**	**8015/8020**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-3	9/21/93	SPA	8015/8020	6,600	400	11	32	23
	12/14/93	**SPA**	**8015/8020**	**8,400**	**390**	**9.4**	**13**	**<2.5**
MW-4	9/21/93	SPA	8015/8020	5,800	16	4.2	35	48
	12/14/93	**SPA**	**8015/8020**	**7,100**	**19**	**6.5**	**24**	**35**
MW-5	9/21/93	SPA	8015/8020	590	25	1.8	0.6	2
	12/14/93	**SPA**	**8015/8020**	**210**	**11**	**6.3**	**2.3**	**6.1**
Trip Blank	12/6/90	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/18/90[3]	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
(AA)	6/6/91	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/4/91	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
TB-LB	6/2/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	9/16/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/21/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	3/11/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	6/11/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	9/13/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	12/14/93	**SPA**	**8015/8020**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Bailer Blank (BB)	6/6/91	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/4/91	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	6/2/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	9/16/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/21/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	3/11/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	6/11/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	9/13/93	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<1.5
	12/14/93	**SPA**	**8015/8020**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

SIERRA

Table 2. Analytic Results for Ground Water - Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California (continued)

EXPLANATION:

TPPH(G) = Total Purgeable Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
ppb = Parts per billion
--- = Not analyzed/not applicable

ANALYTIC METHODS:

8015 = EPA Method 8015/5030 for TPPH(G)
8020 = EPA Method 8020 for BTEX

ANALYTIC LABORATORIES:

SAL = Superior Analytical Laboratory of Martinez and San Francisco, California
SPA = Superior Precision Analytical, Inc. of Martinez, California

NOTES:

Ground water analytic data from December 6 and 18, 1990 was compiled from the January 17, 1991 Site Update Reports prepared for this service station by GeoStrategies, Inc. of Hayward, California.

Analytic data for September 1993 sampling event for wells MW-1 through MW-5 were compiled from the Well Installation Report prepared for Chevron by Resna, September 1993.

[1] Duplicate sample.

[2] C-4 was also analyzed for halogenated volatile organic compounds (HVOCs) by EPA Method 8010, and metals (Cd, Cr, Pb, Ni and Zn) by EPA-approved methods. Two ppb chloroform, 0.18 ppm chromium, 0.25 ppm nickel and 0.23 ppm zinc were detected. Other HVOCs, Cd and Pb were not detected.

[3] The trip blank was also analyzed for HVOCs. HVOCs were not detected.

SIERRA

SES STANDARD OPERATING PROCEDURE
GROUND WATER SAMPLING

The following describes sampling procedures used by SES field personnel to collect and handle ground water samples. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis. Wells will be sampled no less than 24 hours after well development. Collection methods specific to ground water sampling are presented below.

Prior to sampling, each well is checked for the presence of free-phase hydrocarbons using an MMC flexi-dip interface probe. Product thickness (measured to the nearest 0.01 foot) is noted on the sampling form. Water level measurements are also made using either a water level meter or the interface probe. The water level measurements are also noted on the sampling form.

Prior to sampling, each well is purged of a minimum of three well casing volumes of water using a steam-cleaned PVC bailer, or a pre-cleaned pump. Temperature, pH and electrical conductivity are measured at least three times during purging. Purging is continued until these parameters have stabilized (i.e., changes in temperature, pH or conductivity do not exceed ±0.5°F, 0.1 or 5%, respectively).

The purge water is taken to Chevron's Richmond Refinery for disposal.

Ground water samples are collected from the wells with steam-cleaned Teflon bailers. The water samples are decanted into the appropriate container for the analysis to be performed. Pre-preserved sample containers may be used or the analytic laboratory may add preservative to the sample upon arrival. Duplicate samples are collected from each well as a back-up sample and/or to provide quality control. The samples are labeled to include the project number, sample ID, date, preservative, and the field person's initials. The samples are placed in polyethylene bags and in an ice chest (maintained at 4°C) for transport under chain of custody to the laboratory.

The chain of custody form includes the project number, analysis requested, sample ID, date analysis and the SES field person's name. The form is signed and dated (with the transfer time) by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.

A trip blank and bailer blank accompanies each sampling set, or 5% trip blanks and 5% bailer blanks are included for sets of greater than 20 samples. The bailer blank is prepared by pouring previously boiled water into a steam-cleaned Teflon bailer prior to sampling a well. The trip and bailer blanks are analyzed for some or all of the same compounds as the ground water samples.

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☑ No 20126

Chain-of-Custody-Record

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

Chevron Facility Number: 9-3864
Facility Address: 5101 TELEGRAPH, OAKLAND
Consultant Project Number: 1-203-04
Consultant Name: SIERRA ENVIRONMENTAL SERVICES
Address: PO BOX 2546, MARTINEZ, CA 94553
Project Contact (Name): ~~RICK HILTON~~/ED MORALES
(Phone) 510-370-1280 (Fax Number) 510-370-7959

Chevron Contact (Name): MR. KENNETH KAN
(Phone): 842-8752
Laboratory Name: SUPERIOR PRECISION ANALYTICAL
Laboratory Release Number: 4056670
Samples Collected by (Name): RICK HILTON
Collection Date: 12/14/93
Signature:

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)	DO NOT BILL CHEVRON FOR TB-LB SAMPLES Remarks
TB-LB		3	W	G	1045	HCl	YES	X								ANALYZE AS SHOWN; NOTE 72 HR TURN AROUND TIME
BB					1100			X								
MW-1					1105			X								
MW-2					1134			X								
MW-3					1236			X								
MW-4					1240			X								
MW-5					1259			X								
C-4					1326			X								
C-2					1342			X								
C-1					1420			X								
C-3					~~1315~~ 1440	REN		X								

Please Initial
Samples Received (hand delivered)
Appropriate containers
Samples
VOA's without headspace
Comments: cold

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	SES	12-15-93 9:25		SES	12-15-93 9:25
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	SES	12-15-93 7:10			
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			K. Carlyon		12/15/93 9:00

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted
72HRS
12/15/93

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

Sierra Environmental
Attn: ED MORALES

Project 1-203-04
Reported 12/17/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
30126- 1	TB-LB	12/14/93	12/16/93	Water
30126- 2	BB	12/14/93	12/16/93	Water
30126- 3	MW-1	12/14/93	12/16/93	Water
30126- 4	MW-2	12/14/93	12/16/93	Water
30126- 5	MW-3	12/14/93	12/16/93	Water
30126- 6	MW-4	12/14/93	12/16/93	Water
30126- 7	MW-5	12/14/93	12/16/93	Water
30126- 8	C-4	12/14/93	12/16/93	Water
30126- 9	C-2	12/14/93	12/17/93	Water
30126-10	C-1	12/14/93	12/16/93	Water

RESULTS OF ANALYSIS

Laboratory Number:	30126- 1	30126- 2	30126- 3	30126- 4	30126- 5
Gasoline:	ND<50	ND<50	ND<50	ND<50	8400
Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	390
Toluene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	9.4
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	13
Total Xylenes:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

Laboratory Number:	30126- 6	30126- 7	30126- 8	30126- 9	30126-10
Gasoline:	7100	210	ND<50	3800	3100
Benzene:	19	11	ND<0.5	ND<2.5	9.5
Toluene:	6.5	6.3	0.8	24	4.5
Ethyl Benzene:	24	2.3	ND<0.5	12	1.2
Total Xylenes:	35	6.1	0.7	20	11
Concentration:	ug/L	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

Sierra Environmental
Attn: ED MORALES

Project 1-203-04
Reported 12/17/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
30126-11	C-3	12/14/93	12/17/93	Water

RESULTS OF ANALYSIS

Laboratory Number: 30126-11

Gasoline:	8600
Benzene:	74
Toluene:	23
Ethyl Benzene:	18
Total Xylenes:	36
Concentration:	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: 30126

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:	101/98	3%	70-130
Benzene:	96/90	6%	70-130
Toluene:	93/88	6%	70-130
Ethyl Benzene:	99/96	3%	70-130
Total Xylenes:	109/106	3%	70-130

12/17/93

Senior Chemist

MEMORANDUM

December 14, 1993
Updated: January 10, 1994
Richmond, CA

RISK ASSESSMENT COMMENTS
CHEVRON SERVICE STATION #9-3864
5101 TELEGRAPH AVE., OAKLAND, CA

MR. KENNETH KAN:
San Ramon, CA

I have reviewed the November 24, 1993 correspondence regarding the request by the attorney for the current landowners for additional review of the Risk-Based Analysis by the ACHCSA and RWQCB and offer my comments below. It is not necessary to re-run the Risk-Based Analysis performed by Geraghty & Miller for this site based on additional data from offsite wells. It is not necessary to re-run the Fate and Transport (F&T) module of the analysis because inputting of the new data into the existing model decreases the contaminant velocity (see item 5) below), thereby further decreasing the distance the plume could have migrated toward the San Francisco Bay. Note that the F&T module is not used to determine Health-Based Remediation Goals (HBG's) and will not impact the results presented in Table 8-1 (attached).

1) The "new groundwater information" (offsite benzene concentration of 0.4 mg/L on 9/13/93) is still well below the calculated Health-Based Remediation Goal (HBG) of 190 mg/L for exposure to VOC's from benzene in the groundwater beneath this site (Table 8-1). It is not necessary to re-run the current Risk-Based Analysis because of this new data, rather a comparison of analytical values to HBG's in Table 8-1 would suffice. Current site soil and groundwater concentrations of the constituents of concern are all below the derived HBG's listed in Table 8-1 and indicate that the no further remedial action option is warranted for this site.

2) The groundwater gradient for this site has averaged 0.027 ft/ft for the past 10 groundwater gauging events. The interpreted groundwater flow direction has changed based on newly installed offsite wells and is currently in the south-southwest direction (San Francisco Bay is almost due west). Note that the groundwater gradient is used to determine velocities of water and benzene for the purpose of determining if benzene migrates to the Bay and not to determine HBG's.

3) To alleviate the concerns expressed by the attorney and regulatory agencies, it may be necessary to update the Fate and Transport model component of the Risk Analysis given the analytical results from offsite wells. The changes outlined below could be made to the input parameters in Table 5-2 of the Risk Analysis presentation. NOTE: these changes will not impact calculated HBG's and are solely proposed for provide closure to the concerns raised by the landowners.

A) Average Horizontal Hydraulic Gradient (i) = 0.027 ft/ft; this is based on average of 10 groundwater elevation gaugings since 12/6/90. (Note that original input was 0.038 ft/ft)

B) Concentration at Source (Co) = 400 ppb; represents benzene value from offsite well MW-3 based on 9/13/93 analytical data. (Note that original input was 340 ppb for Co)

4) Based on the changes in 3) above, calculation results in Table 5-2 for Equations (1), (2) and (3) are:

A) $Vw = \frac{(50\ ft/d)\ (0.027\ ft/ft)}{0.25} = 5.4\ ft/day$ (Original calculation = 7.6 ft/day)

B) $Rd = 1 + \frac{(1.75\ g/cm3)}{(0.30)} (83\ mL/g) (0.0025) = 2.21$ (Same as input)

C) $Vb = \frac{Vw}{Rd} = \frac{5.4\ ft/day}{2.21} = 2.44$ ft/day Benzene Plume Velocity (Original = 3.4 ft/day)

5) Plume migration may be re-calculated and presented in Section 5.5.4 and Figure 5-1. NOTE: the changes proposed in 3) and 4) above and using the conservative assumptions in Table 5.2 will result in a distance of plume migration of approximately 4400 feet as compared to the calculated distance of 6640 feet by using the parameters outlined in Table 5.2. Again, the plume would not reach the San Francisco Bay.

If necessary, the Fate and Transport calculations from items 3), 4) and 5) above should be forwarded to the ACHCSA and RWQCB as an addendum to the Risk Analysis with a cover letter explaining the changes and their limited impact on the overall Risk Analysis.

Please contact me at 242-7086 if questions or comments arise.

Curtis A. Peck

cc: J. W. Hartwig
J. L. Pease
T. E. Buscheck
U. Kelmser