Received 9/22

ENVIRONMENTAL PROTECTION

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Chevron

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

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

September 18, 1995

Ms. Amy Leach
Alameda County Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Re: Former Chevron Station # 9-5607, 5269 Crow Canyon Road, Castro Valley, CA
Attached Summary of Well Development Results (G & M, 12/15/94)
Attached Quarterly Discharge Report (G & M, 6/1/95)

Dear Ms. Leach:

Please find attached a report dated December 15, 1994, which was prepared by Chevron's consultant, Geraghty & Miller (G & M), to describe the results of well developments that were performed at the subject site between July 25 and November 14, 1994.

The results indicated that there was no improvement in pumping rates after redeveloping extraction well RW-1 and that monitoring well C-6 would not be recommended for inclusion into the existing groundwater extraction system.

Note: report also indicates that well casing is likely damaged

You will also find attached a report dated June 1, 1995, which was also prepared by G & M, to describe the quarterly status of the groundwater extraction system at the subject site. As of May 25, 1995, the groundwater extraction system has been shut off due to inefficient operation. The system is currently being reconfigured and will resume extraction from wells RW-1 and C-9 by October 31, 1995.

I am looking forward to our meeting on September 26, 1995. I will be interested in talking to you more about site specific clean up goals. If you have any questions or comments, I can be reached at (510) 842-8695.

Sincerely,

Brett L. Hunter

Brett L. Hunter
Environmental Engineer
Site Assessment and Remediation

Attachments

cc: Rich Hiett, San Francisco Bay RWQCB, Oakland, CA
Kevin Hinckley, 5269 Crow Canyon Road, Castro Valley, CA 94546
Bette Owen, Chevron USA, Products Company, San Ramon, CA (w/o attachments)

GERAGHTY
& MILLER, INC.
Environmental Services

A Heidemij company

June 1, 1995
Project No. RC0069.008

Mr. Brett Hunter
Engineer, Environmental Projects
Chevron U.S.A. Products Company
6001 Bollinger Canyon Road
P.O. Box 5004
San Ramon, California 94583-0804

SUBJECT: **Quarterly Discharge Report, April 1995**
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Dear Mr. Hunter:

This quarterly discharge report has been prepared by Geraghty & Miller, Inc. (Geraghty & Miller) for Chevron U.S.A. Products Company (Chevron) to comply with the sampling and reporting requirements for the groundwater remediation and extraction system at the former Chevron service station referenced above.

The compliance sampling and reporting are required by Air Quality Permit #2114, issued by the Bay Area Air Quality Management District (BAAQMD) on September 17, 1990 (renewed October 1, 1991), and by the Special Discharge Permit issued by the Castro Valley Sanitary District (CVSD) on October 6, 1988. The permits require sampling and analysis of the system influent, the oil/water separator effluent, and the system effluent. Earlier reports were on a bimonthly (every two months) basis. On December 20, 1991, the Oro Loma Sanitary District, in conjunction with the CVSD (the Oro Loma District is the actual sanitary district in which the CVSD discharge is treated), issued a letter granting a change in the sampling frequency based on a review of the past performance of the remediation system. The current sampling frequency is quarterly. A quarterly sampling interval for the CVSD will match the quarterly sampling interval originally allowed by the BAAQMD. The next quarterly compliance sampling event for this system is scheduled during July 1995.

The compliance sampling of the groundwater remediation system was completed by Geraghty & Miller on May 4, 1995, and the samples were analyzed by Sequoia Analytical

in Walnut Creek, California. The samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline by USEPA Method 8015, modified, and for benzene, toluene, ethylbenzene, and xylenes (BTEX) by USEPA Method 8020. Copies of the laboratory reports and chain-of-custody documentation are included in Attachment 1.

From January 28, 1995, through May 4, 1995, a total of 40,770 gallons of water has been discharged from the system, and the average flow rate has been less than 1 gallon per minute. Table 1 presents a summary of flow totalizer readings since the system began operation on March 26, 1990. Table 2 presents a summary of the analytical data. After receipt of the quarterly compliance sample analytical results, problems with the air strippers were noted, and the remediation system was shut down for adjustments and repairs. The system is currently out of service.

Geraghty & Miller appreciates the opportunity to be of service to Chevron. If you have any questions regarding this report, please do not hesitate to call.

Sincerely,
GERAGHTY & MILLER, INC.

Paul V. Hehn
Project Geologist/Project Manager

Jeffrey W. Hawkins, R.G.
Senior Geologist

Gary W. Keyes
Principal Engineer/Associate
Richmond, California Office Manager

Attachments: Table 1 Total Flow Summary
Table 2 Summary of Groundwater Analytical Results

Attachment 1 Copies of Certified Laboratory Reports and Chain-of-Custody Documentation

cc: Ms. Mary Ferdette
District Manager
Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, California 94546-6098

Project No. RC0069.008

Table 1: Total Flow Summary
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Date of Reading	Totalizer Reading (gallons)	Total Gallons Extracted	Total Flow (gallons)	Number of Days	Average Flow (gal/min)	Comments
26-Mar-90	693	693	693	1	0.481	Start-up date
27-Mar-90	1,040	1,040	347	1	0.241	
29-Mar-90	1,230	1,230	190	2	0.066	
4-Apr-90	1,293	1,293	63	6	0.007	Replace all tower motors
13-Apr-90	3,271	3,271	1,978	9	0.153	
16-Apr-90	3,959	3,959	688	3	0.159	
25-Apr-90	4,363	4,363	405	9	0.031	System on
27-Apr-90	5,250	5,250	886	2	0.308	
28-Apr-90	NM	5,250	NM	1	NM	
29-Apr-90	NM	5,250	NM	1	NM	
30-Apr-90	5,521	5,521	271	1	0.188	
15-May-90	8,044	8,044	2,523	15	0.117	
25-May-90	9,978	9,978	1,934	10	0.134	
8-Jun-90	13,602	13,602	3,624	14	0.18	
20-Jun-90	14,103	14,103	501	12	0.029	System off
26-Jun-90	14,442	14,442	339	1	0.039	System on
27-Jun-90	14,507	14,507	65	1	0.045	
6-Jul-90	14,571	14,571	64	9	0.005	
23-Jul-90	17,160	17,160	2,589	17	0.106	
24-Jul-90	17,167	17,167	7	1	0.005	
30-Jul-90	17,793	17,793	626	6	0.072	
8-Aug-90	18,527	18,527	734	9	0.057	
15-Aug-90	18,550	18,550	23	7	0.002	System off
16-Aug-90	18,564	18,564	14	1	0.01	System on
23-Aug-90	19,105	19,105	541	7	0.054	
27-Aug-90	19,132	19,132	27	4	0.005	System off
2-Nov-90	19,236	19,236	104	67	0.001	System on
6-Nov-90	19,698	19,698	462	4	0.08	System off
7-Nov-90	19,698	19,698	0	1	0	System on
27-Nov-90	21,376	21,376	1,678	20	0.058	
10-Dec-90	22,845	22,845	1,469	13	0.078	
2-Jan-91	24,443	24,443	1,598	23	0.048	
8-Jan-91	24,443	24,443	0	6	0	
29-Jan-91	29,998	29,998	5,555	20	0.192	Install new flowmeter
1-Feb-91	218	30,216	218	3	0.05	Reset flow to new flowmeter
28-Feb-91	2,964	32,962	2,746	27	0.07	
4-Mar-91	3,434	33,432	470	5	0.065	
12-Mar-91	4,722	34,720	1,288	8	0.112	
1-Apr-91	5,845	35,843	1,123	20	0.039	System off
9-Apr-91	8,289	38,287	2,444	7	0.24	System on
3-May-91	9,444	39,442	1,155	23	0.04	
8-May-91	11,424	41,422	1,980	5	0.28	
15-May-91	13,657	43,655	2,233	6	0.26	
28-May-91	14,165	44,163	508	12	0.03	System off - electrical repairs

Table 1: Total Flow Summary
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Date of Reading	Totalizer Reading (gallons)	Total Gallons Extracted	Total Flow (gallons)	Number of Days	Average Flow (gal/min)	Comments
13-Jun-91	14,207	44,205	42	15	0.002	System on
18-Jun-91	15,632	45,630	1,425	4	0.25	
29-Aug-91	22,922	52,920	7,290	71	0.07	
9-Sep-91	23,846	53,844	924	10	0.06	Install additional extraction pump
10-Sep-91	24,478	54,476	632	1	0.44	
23-Sep-91	28,881	58,879	4,403	12	0.25	
16-Oct-91	30,703	60,701	1,822	22	0.06	Malfunction in extraction pump
18-Oct-91	30,919	60,917	216	2	0.08	System off
22-Oct-91	30,961	60,959	42	3	0.01	System on
29-Oct-91	32,922	62,920	1,961	6	0.23	
31-Oct-91	33,277	63,275	355	2	0.12	
27-Dec-91	55,335	85,333	22,058	56	0.27	Power accidentally shut off
31-Dec-91	56,843	86,841	1,508	4	0.26	
2-Jan-92	57,429	87,427	586	1.5	0.27	
13-Mar-92	97,409	127,407	39,980	71	0.39	
24-Mar-92	104,749	134,747	7,340	10	0.51	Repair air stripper pump
21-Apr-92	117,512	147,510	12,763	27	0.33	Repair air stripper pump seals
2-May-92	117,512	147,510	0	10	0	Restart system after repairs
8-May-92	118,261	148,259	749	5	0.1	Check system after auto-dialer call
19-May-92	119,404	149,402	1,143	10	0.08	Repair leak at Well C-9
11-Jun-92	130,255	160,253	10,851	22	0.34	
18-Jul-92	141,311	171,309	11,056	36	0.21	Repair broken compressor belt
21-Jul-92	142,699	172,697	1,388	3	0.32	
25-Sep-92	166,158	196,156	23,459	65	0.25	
29-Oct-92	175,190	205,188	9,032	34	0.19	Repair scaling in pumps
7-Nov-92	179,093	209,091	3,903	9	0.30	Repair air stripper pump
19-Dec-92	193,607	223,605	14,514	42	0.24	Repair air stripper blower
20-Jan-93	209,114	239,112	15,507	32	0.34	Repair blower housing and pumps
24-Jan-93	213,562	243,560	4,448	4	0.77	Repair pump and compressor
18-Mar-93	254,898	284,896	41,336	51	0.56	Repair compressor and flow meter
31-Mar-93	267,759	297,902	13,006	13	0.69	Replace air stripper pump
7-Apr-93	274,759	304,757	6,855	7	0.68	Repair pump and piping
14-Apr-93	281,074	311,072	6,315	7	0.63	
21-Apr-93	287,453	317,451	6,379	6	0.74	Replace anti-scaling tank
5-May-93	295,105	325,103	7,652	12	0.44	Replace compressor belt
26-May-93	296,867	326,865	1,762	21	0.06	Repair compressor and pump
25-Jul-93	297,990	327,988	1,123	101	0.008	Repair compressor and two pumps
6-Aug-93	302,730	332,723	4,740	12	0.27	Repair air stripper pumps
25-Aug-93	312,805	342,803	10,075	19	0.37	
10-Sep-93	320,426	350,424	7,621	16	0.33	
29-Sep-93	329,790	359,788	9,364	19	0.34	
27-Oct-93	348,872	378,870	19,082	28	0.47	
4-Nov-93	349,703	379,701	831	7	0.08	Repair air stripper & transfer pumps
8-Nov-93	350,314	380,312	611	4	0.11	System off - order parts for pumps

Table 1: Total Flow Summary
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Date of Reading	Totalizer Reading (gallons)	Total Gallons Extracted	Total Flow (gallons)	Number of Days	Average Flow (gal/min)	Comments
7-Dec-93	350,464	380,462	150	29	0.01	Install repaired pumps - system on
16-Jan-94	377,442	407,440	26,978	39	0.48	
31-Jan-94	385,245	415,243	7,803	16	0.34	
28-Feb-94	403,723	433,719	18,476	28	0.46	Repair pump seal
4-Apr-94	426,711	456,707	22,988	35	0.46	Remove pump scale and reseal
25-Apr-94	437,196	467,192	10,485	21	0.35	Clean oil/water separator
31-May-94	443,200	473,196	6,004	36	0.12	Repair compressor pump/Well RW
20-Jun-94	450,335	480,331	7,135	20	0.25	Replace extraction pump/Well RW
15-Jul-94	452,307	482,303	1,972	25	0.05	Repair compressor motor--seized
21-Jul-94	453,106	483,102	799	6	0.09	Repair hose connection
26-Jul-94	454,820	484,816	1,714	5	0.24	Repair extraction pump
2-Aug-94	458,149	488,145	3,329	7	0.33	
5-Oct-94	476,549	506,545	18,400	35	0.37	Replace extraction hose
1-Jan-95	542,502	572,499	65,954	57	0.80	Repair leak in Tower 3
27-Jan-95	572,137	602,134	29,635	26	0.79	Repair anti-scale pump
8-Mar-95	575,302	605,299	3,165	40	0.06	Repair breaker for Well RW
14-Apr-95	608,082	638,079	32,780	37	0.62	Adjust control box
4-May-95	612,907	642,904	4,825	20	0.17	Tower problem-system turned off May 25, 1995

NM Not Measured
Initial start date: March 26, 1990
April 20, 1990: System down - pumps scaled.
June 26, 1990: Replaced all motors damaged by scaling.
August 27, 1990: System turned off to allow for modifications.
September 9, 1991: Additional extraction pump installed in Well C-9.

Reference for Analytical Results and System Operational Data prior to April 1, 1991 - Chemical Processors, Inc., January 11, 1991.
Reference for Analytical Results and System Operational Data after April 1, 1991 - Geraghty & Miller, Inc.

Table 2: Summary of Groundwater Analytical Results
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Sample Location	Date	TPH (gas) (µg/L) (a)	Benzene (µg/L) (b)	Toluene (µg/L) (b)	Ethyl-benzene (µg/L) (b)	Total Xylenes (µg/L) (b)
Air Stripper Remediation System						
System Influent	26-Mar-90	--	--	--	--	--
	29-Mar-90	--	--	--	--	--
	13-Apr-90	--	--	--	--	--
	27-Apr-90	--	--	--	--	--
	28-Apr-90	--	--	--	--	--
	29-Apr-90	--	--	--	--	--
	30-Apr-90	--	--	--	--	--
	25-May-90	--	--	--	--	--
	27-Jun-90	--	--	--	--	--
	6-Jul-90	--	--	--	--	--
	30-Jul-90	--	--	--	--	--
	27-Aug-90	--	--	--	--	--
	27-Sep-90	--	--	--	--	--
	28-Oct-90	--	--	--	--	--
	2-Nov-90	45,000	21,000	1	1,400	7,000
	10-Dec-90	5,100	2,500	200	140	950
	8-Jan-91	51,000	29,000	1,400	2,000	8,300
	1-Apr-91	75,000	31,000	2,000	1,700	7,900
	18-Jun-91	30,000	6,600	530	390	5,200
	29-Aug-91	51,000	13,000	920	1,300	4,800
	31-Oct-91	5,600	1,400	120	100	640
	2-Jan-92	7,700	1,700	220	130	1,100
	13-Mar-92	50,000	11,000	1,700	2,500	6,200
	21-Jul-92	25,000	4,100	490	790	2,300
	29-Oct-92	57,000	9,200	850	1,100	2,900
	20-Jan-93	32,000	6,200	750	1,000	4,600
	14-Apr-93	17,000	4,000	470	1,100	2,200
	25-Jul-93	22,000	5,600	580	1,100	2,200
	27-Oct-93	1,100	220	22	70	100
	31-Jan-94	6,200	1,400	110	350	640
	25-Apr-94	24,000	550	690	1,600	2,600
	15-Jul-94	39,000	10,000	2,100	2,900	3,900
	5-Oct-94	15,000	4,100	290	820	900
	27-Jan-95	18,000	7,600	520	670	4,600
	4-May-95	13,000	4,400	290	440	2,000

Table 2: **Summary of Groundwater Analytical Results**
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Sample Location	Date	TPH (gas) (µg/L) (a)	Benzene (µg/L) (b)	Toluene (µg/L) (b)	Ethyl-benzene (µg/L) (b)	Total Xylenes (µg/L) (b)
Oil/Water Separator Effluent	26-Mar-90	--	--	--	--	--
	29-Mar-90	--	--	--	--	--
	13-Apr-90	--	--	--	--	--
	27-Apr-90	28,000	8,100	11,000	703	6,700
	28-Apr-90	7,700	2,400	250	110	1,500
	29-Apr-90	7,200	2,300	260	100	1,600
	30-Apr-90	4,300	1,400	150	64	830
	25-May-90	3,400	1,200	190	98	780
	27-Jun-90	20,000	10,000	1,600	770	3,300
	6-Jul-90	7,200	2,300	NA	NA	NA
	30-Jul-90	7,800	3,200	250	<25	1,100
	27-Aug-90	--	--	--	--	--
	27-Sep-90	--	--	--	--	--
	28-Oct-90	--	--	--	--	--
	2-Nov-90	51,000	12,000	1,000	660	4,100
	10-Dec-90	1,600	700	35	81	480
	8-Jan-91	48,000	18,000	1,200	1,200	7,000
	1-Apr-91	77,000	31,000	2,800	1,700	11,000
	18-Jun-91	29,000	5,600	300	74	4,800
	29-Aug-91	65,000	14,000	1,400	1,200	6,700
	31-Oct-91	5,700	1,700	140	160	560
	2-Jan-92	40,000	4,900	2,400	1,400	5,700
	13-Mar-92	44,000	7,600	1,900	2,000	6,200
	21-Jul-92	42,000	8,500	500	1,000	3,500
	29-Oct-92	100,000	8,200	5,800	3,100	8,900
	20-Jan-93	45,000	4,400	1,800	1,400	5,400
	14-Apr-93	17,000	3,100	310	400	1,900
	25-Jul-93	17,000	3,500	370	640	1,700
	27-Oct-93	470	92	6.1	11	41
	31-Jan-94	9,200	1,900	150	230	740
	25-Apr-94	22,000	4,400	1100	1,200	2,200
	15-Jul-94	29,000	6,900	850	2,000	2,600
	5-Oct-94	20,000	4,500	400	1,200	1,300
	27-Jan-95	11,000	4,400	270	470	2,400
	4-May-95	14,000	3,800	280	590	1,700

Table 2: Summary of Groundwater Analytical Results
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Sample Location	Date	TPH (gas) (µg/L) (a)	Benzene (µg/L) (b)	Toluene (µg/L) (b)	Ethyl-benzene (µg/L) (b)	Total Xylenes (µg/L) (b)
System Effluent	26-Mar-90	86	30	1.9	1.5	12
	29-Mar-90	57	13	1.4	ND(<0.5)	5.4
	13-Apr-90	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)
	27-Apr-90	100	3.1	ND(<0.5)	ND(<0.5)	1.6
	28-Apr-90	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)
	29-Apr-90	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	<1.0
	30-Apr-90	--	--	--	--	--
	25-May-90	ND(<50)	ND(<0.3)	1	ND(<0.3)	ND(<0.6)
	27-Jun-90	430	210	22	9	67
	6-Jul-90	ND(<50)	ND(<0.5)	NA	NA	NA
	30-Jul-90	ND(<50)	ND(<0.5)	2.7	ND(<0.5)	5.1
	27-Aug-90	--	--	--	--	--
	27-Sep-90	--	--	--	--	--
	28-Oct-90	--	--	--	--	--
	2-Nov-90	ND(<50)	3.2	ND(<0.5)	ND(<0.5)	1
	10-Dec-90	ND(<50)	2.9	ND(<0.5)	0.6	2
	8-Jan-91	290	59	5.6	6.2	37
	1-Apr-91	270	110	7.4	4.1	26
	18-Jun-91	140	18	0.9	ND(<0.5)	17
	29-Aug-91	190	29	2.9	1.6	14
	31-Oct-91	140	3.8	0.8	ND(<0.5)	2.1
	2-Jan-92	ND(<50)	2.3	1.2	0.9	4.8
	13-Mar-92	390	66	15	16	50
	21-Jul-92	200	30	3.5	6.6	14
	29-Oct-92	120	4.2	3	1.4	6.6
	20-Jan-93	270	36	7.7	9.2	26
	14-Apr-93	160	35	4	4	22
	25-Jul-93	760	220	35	37	78
	27-Oct-93	63	10	1.1	1.1	3.7
	31-Jan-94	210	59	5	6	23
	25-Apr-94	440	140	12	16	68
	15-Jul-94	380	93	12	22	34
	5-Oct-94	1,000	420	27	70	960
	27-Jan-95	2,700	940	62	97	510
	4-May-95	7,300	2,900	200	300	1,200

(a) TPH as gasoline analyzed by USEPA Method 8015, modified
(b) BTEX analyzed by USEPA Method 8020
-- No Data
NA Not Analyzed
ND(<0.5) Not Detected (Detection Limit)

Reference for analytical results from June 19, 1985, to June 3, 1988: Groundwater Technology, Inc.

Reference for analytical results from March 26, 1990, to April 1, 1991: Chemical Processors, Inc.

Reference for analytical results after April 1, 1991: Geraghty & Miller, Inc.

Project No. RC0069.008

ATTACHMENT 1

COPIES OF CERTIFIED LABORATORY REPORTS

AND

CHAIN-OF-CUSTODY DOCUMENTATION

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Geraghty & Miller, Inc.	Client Project ID:	Chevron #9-5607	Sampled: May 4, 1995
1050 Marina Way South	Sample Matrix:	Water	Received: May 5, 1995
Richmond, CA 94804	Analysis Method:	EPA 5030/8015/8020	Reported: May 15, 1995
Attention: Paul V. Hehn	First Sample #:	505-0459	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 505-0459 System Influent	Sample I.D. 505-0460 O/W/S Effluent	Sample I.D. 505-0461 System Effluent
Purgeable Hydrocarbons	50	13,000	14,000	7,300
Benzene	0.50	4,400	3,800	2,900
Toluene	0.50	290	280	200
Ethyl Benzene	0.50	440	590	300
Total Xylenes	0.50	2,000	1,700	1,200
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	100	100	100
Date Analyzed:	5/12/95	5/12/95	5/11/95
Instrument Identification:	HP-5	HP-5	HP-9
Surrogate Recovery, %: (QC Limits = 70-130%)	88	88	93

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Geraghty & Miller, Inc.
1050 Marina Way South
Richmond, CA 94804
Attention: Paul V. Hehn

Client Project ID: Chevron #9-5607
Matrix: Liquid
QC Sample Group: 5050459-61

Reported: May 15, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
MS/MSD Batch#:	5050521	5050521	5050521	5050521
Date Prepared:	5/11/95	5/11/95	5/11/95	5/11/95
Date Analyzed:	5/11/95	5/11/95	5/11/95	5/11/95
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	75	95	100	105
Matrix Spike Duplicate % Recovery:	75	95	100	108
Relative % Difference:	0.0	0.0	0.0	2.8
LCS Batch#:	4LCS051195	4LCS051195	4LCS051195	4LCS051195
Date Prepared:	5/11/95	5/11/95	5/11/95	5/11/95
Date Analyzed:	5/11/95	5/11/95	5/11/95	5/11/95
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
LCS % Recovery:	89	101	106	111
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

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Attention: Paul V. Hehn

Client Project ID: Chevron #9-5607
Matrix: Liquid
QC Sample Group: 5050459-61

Reported: May 15, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
MS/MSD Batch#:	5050519	5050519	5050519	5050519
Date Prepared:	5/12/95	5/12/95	5/12/95	5/12/95
Date Analyzed:	5/12/95	5/12/95	5/12/95	5/12/95
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	85	95	95	98
Matrix Spike Duplicate % Recovery:	85	95	95	98
Relative % Difference:	0.0	0.0	0.0	0.0
LCS Batch#:	3LCS051295	3LCS051295	3LCS051295	3LCS051295
Date Prepared:	5/12/95	5/12/95	5/12/95	5/12/95
Date Analyzed:	5/12/95	5/12/95	5/12/95	5/12/95
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	91	100	98	101
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

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

Chain-of-Custody-Record

hevron U.S.A. Inc.
.O. BOX 5004
an Ramon, CA 94583
AX (415)842-9591

Chevron Facility Number: 9-5607
Facility Address: 5269 Crow Canyon Rd. CASTRO VA, CA
Consultant Project Number: RC0069.006
Consultant Name: Geraghty & Miller, Inc.
Address: 1050 Marina Way South Rich, CA 94804
Project Contact (Name): Paul V Hehn
(Phone) (510) 233-3200 (Fax Number) (510) 233-3204

Chevron Contact (Name): Brett Hunter
(Phone) (510) 842-8695
Laboratory Name: Sequoia
Laboratory Release Number: 29106
Samples Collected by (Name): Ricky Spencer
Collection Date: 5-4-95
Signature: Ricky Spencer

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	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 (TCLP or AA)					Remarks
								Analyses To Be Performed												
SYSTEM EFFLUENT		3	W	G	1500	HCL	YES	X				5050459			A-C					NOTE: DO NOT BILL FOR TB-LB
W/SEP EFFLUENT		3	″	″	1500	″	″	X				5050460			↓					
SYSTEM EFFLUENT		3	″	″	1500	″	″	X				5050461								
T.B. LB.		1	↓	↓		↓	↓	X												

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Ricky Spencer	G+M Inc	5-5-95		Sequoia	5-5 12:40
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
		5-5 5:30			
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
					5-5 5:30

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

GERAGHTY
& MILLER, INC.
Environmental Services

A Heidemij company

December 15, 1994
Project No. RC0069.007

Mr. Brett Hunter
Engineer, Environmental Projects
Chevron U.S.A. Products Company
6001 Bollinger Canyon Road
San Ramon, California 94583

SUBJECT: **Results of Well Redevelopment**
Former Chevron Service Station #9-5607
5269 Crow Canyon Road, Castro Valley, California.

Dear Mr. Hunter:

This report presents the results of well-redevelopment and testing activities performed by Geraghty & Miller, Inc. (Geraghty & Miller) at the Chevron U.S.A. Products Company (Chevron) site referenced above. **The objective of this work was to redevelop two existing groundwater monitor/extraction wells in an attempt to improve the potential groundwater-extraction rates from these wells.** Prior to and after the redevelopment of each well, a brief test was performed to evaluate the success of the well-redevelopment efforts. **The tested rate of groundwater that could be pumped from each well was measured to determine whether Wells C-6 and RW may be useful as a permanent addition to the current extraction system.** The scope of work for these activities was presented in a letter to Chevron dated May 16, 1994.

PRE- AND POST-REDEVELOPMENT TESTS

Prior to and after the redevelopment of groundwater Monitor/Extraction Wells RW and C-6, a brief test of the volume of groundwater that could be pumped was performed on each well. On July 25, 1994, pre-redevelopment tests were performed on Wells RW and C-6. On November 14, 1994, a post-redevelopment test was performed on Well RW. On November 17, 1994, a post-redevelopment test was performed on Well C-6. The tests on July 25 and November 14, 1994, were completed by inserting a submersible pump into each well to be tested. The test performed on November 17, 1994, was completed by using a diaphragm pump. **Groundwater was pumped from each well at various flow rates until a steady pumping rate from the well was achieved.** The depth to water in each well was checked at regular intervals during the process to determine the drawdown level during pumping.

All equipment that entered the wells was washed in a solution of nonphosphate cleaner and water, and then triple-rinsed in deionized water prior to using it in each well. All water pumped from the wells during the tests was temporarily stored in 55-gallon drums. After the completion of the tests, all pumped water was disposed of by processing the water through Chevron's on-site groundwater remediation system.

REDEVELOPMENT OF WELLS

On November 14, 1994, Wells RW and C-6 were redeveloped using a well redevelopment rig under the supervision of a Geraghty & Miller geologist. On that date, groundwater extraction was discontinued from Well RW prior to commencement of redevelopment activities. It should be noted that the groundwater level in Well RW was abnormally low (31.30 feet below top of casing [TOC]). Additionally, Well RW would not recharge during the 2-hour period immediately after groundwater extraction was discontinued. Prior to redevelopment, the casing of Well RW was filled with potable water to a static groundwater level previously measured (18.25 feet below TOC).

Accumulated sediment at the bottom of each well was removed using a well development bailer. After sediment was removed, each well was repeatedly surged using a vented surge block. Following surging, approximately four casing volumes of water were extracted from Well RW and approximately two casing volumes of water were extracted from Well C-6 with the bailer to remove any sediment that may have accumulated in the wells during surging. While bailing water from Well C-6, fine- to medium-grained sand (with gravel-pack sand properties) repeatedly entered the well casing and accumulated in the casing to a depth of 31.30 feet below TOC (Well C-6 was initially installed to a depth of 35 feet below ground surface). It is suspected that the sand was entering the well through damaged casing. Therefore, bailing was discontinued in Well C-6 after two casing volumes of water were removed to prevent further sand influx and potential casing damage. The purged water was monitored for temperature, specific conductance, pH, turbidity, and dissolved oxygen (DO). The purged water was stored onsite in 55-gallon drums prior to disposal. After the completion of the redevelopment, all purged water was disposed of by processing the water through Chevron's on-site groundwater remediation system.

RESULTS

During the pre-redevelopment tests, Wells RW and C-6 achieved pumping rates of approximately 0.25 gallons per minute (gpm) and 0.10 gpm, respectively. **During the post-redevelopment tests on Wells RW and C-6, a pumping rate of approximately 0.25 gpm in each well was achieved.** The results of the tests before and after redevelopment are presented in Table 1. No significant changes in temperature, specific conductance, pH, or turbidity were measured in the purged water during redevelopment. An anomalously high DO reading (8.4 milligrams per liter [mg/L]) was measured in Well C-6 at the startup of purging activities. DO measurements collected in groundwater purged from Well C-6 ranged between 0.86 and 1.53 mg/L throughout the remainder of the purging activities.

DISCUSSION

Based on the results of the pre-redevelopment and post-redevelopment tests on Well RW, there were no measurable differences in the pumping rates achieved before and after the redevelopment of the well.

Even though an increase in the groundwater extraction rate from existing Well C-6 was achieved after redevelopment, its use as an additional extraction well is not recommended. As indicated by the influx of sand into the casing of Well C-6 during redevelopment, the well screen of Well C-6 may be damaged. If this well were to be used for extraction purposes, the sand pack in the casing/well bore annulus could be evacuated during groundwater extraction, resulting in decreased well efficiency and a possibly lower pumping rate from the well. Consequently, it is not recommended that [illegible] Well C-6 be used as an additional extraction well. [illegible] for redeveloped Well C-6.

Geraghty & Miller appreciates the opportunity to be of service to Chevron. If you have any questions, please do not hesitate to call the undersigned.

Sincerely,
GERAGHTY & MILLER, INC.

Paul V. Hehn
Project Geologist/Project Manager

Jeffrey W. Hawkins
Senior Geologist

Gary W. Keyes, P.E.
Principal Engineer/Associate
Richmond, California Office Manager

Attachment Table 1: Results of Tests of Groundwater Pumped from Wells

Table 1: Results of Tests of Groundwater Pumped from Wells
Former Chevron Service Station #9-5607,
5269 Crow Canyon Road, Castro Valley, California.

Well #	Date	Elapsed Time From Start of Test (minutes)	Depth to Water (a) (feet)	Pumping Rate (GPM)	Comments
Pre-Redevelopment Tests:					
C-6	25-Jul-94	0	16.88	0.00	Begin Pre-Redevelopment Test
		5	23.25	1.50	Reduce Pumping Rate to 1 GPM
		10	24.85	1.00	
		25	28.77	1.00	Reduce Pumping Rate to 0.2 GPM
		35	27.77	0.20	
		40	27.44	0.20	Increase Pumping Rate to 0.3 GPM
		42	27.85	0.30	
		43	28.40	0.30	Reduce Pumping Rate to 0.2 GPM
		46	29.01	0.20	Reduce Pumping Rate to 0.1 GPM
		48	28.82	0.10	
		52	27.91	0.10	Conclude Pre-Redevelopment Test
			Results of Test= 0.10 GPM.		
RW	25-Jul-94	0	18.25	0.00	Begin Pre-Redevelopment Test
		10	20.22	1.00	
		20	22.00	1.00	Reduce Pumping Rate to 0.5 GPM
		30	22.61	0.50	Reduce Pumping Rate to 0.4 GPM
		35	22.79	0.40	Reduce Pumping Rate to 0.25 GPM
		36	22.80	0.25	
		37	22.80	0.25	
		38	22.80	0.25	
		40	22.81	0.25	
		41	22.81	0.25	
		42	22.82	0.25	Conclude Pre-Redevelopment Test
			Results of Test= 0.25 GPM.		
Post-Redevelopment Tests:					
C-6	17-Nov-94	0	19.30	0.00	Begin Post-Development Test
		10	23.86	0.50	Reduce Pumping Rate to 0.4 GPM
		20	26.40	0.40	Reduce Pumping Rate to 0.3 GPM
		27	28.47	0.30	Reduce Pumping Rate to 0.25 GPM
		30	28.29	0.25	
		35	28.29	0.25	
		41	28.70	0.25	Conclude Post-Redevelopment Test
			Results of Test= 0.25 GPM.		
RW	14-Nov-94	0	23.40	0.00	Begin Pre-Redevelopment Test
		4	23.65	0.60	Reduce Pumping Rate to 0.4 GPM
		6	23.70	0.40	Reduce Pumping Rate to 0.25 GPM
		7	23.72	0.25	
		10	23.72	0.25	Increase Pumping Rate to 1.0 GPM
		13	23.91	1.00	Decrease Pumping Rate to 0.25 GPM
		23	23.90	0.25	Conclude Post-Redevelopment Test
			Results of Test= 0.25 GPM.		

(a) Depth to Water Measured from Top of Casing
GPM Gallons per Minute

Project No. RC0069.007