



January 2, 2002

JAN 08 2002

3164 Gold Camp Drive  
Suite 200  
Rancho Cordova, CA 95670-6021  
U.S.A.  
916/638-2085  
FAX: 916/638-8385

Mr. Don Hwang  
Hazardous Materials Specialist  
Alameda County Health Care Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Subject: *Interim Corrective Action Evaluation*  
Chevron Service Station #9-9708  
5910 MacArthur Boulevard, Oakland, California.

Dear Mr. Hwang,

On behalf of Chevron Products Company (Chevron), Delta Environmental Consultants, Inc. (Delta) performed interim corrective action (ICA) at the subject site on August 2, 2001. During the ICA event, a total of 50 gallons of groundwater was extracted from wells MW-1 and MW-2. Following ICA, groundwater sampling results were evaluated and compared with analytical results from the previous quarterly sampling event. As requested by Alameda County Health Care Services (ACHCS) in a letter dated November 26, 2001, the data was compared to evaluate the effects of ICA on dissolved concentrations of petroleum hydrocarbons in wells MW-1 and MW-2. ACHCS letter is attached.

Based on the evaluation of the two sampling events, the concentrations of methyl tertiary butyl ether (MTBE) increased one order of magnitude in well MW-1, and generally remained consistent in well MW-2. Benzene concentrations decreased one order of magnitude in wells MW-1 and MW-2, while concentrations of total petroleum hydrocarbons as gasoline (TPHg) remained consistent in both wells. Historical groundwater monitoring data is presented in Table 1 (attached).

Based on the comparison of analytical data from the second and third quarter sampling events, it appears that the ICA activities had little impact on reducing the concentration of dissolved petroleum hydrocarbons in groundwater. Furthermore, based on the cost to conduct the ICA activities and the volume of extracted groundwater removed, it is Delta's opinion that "no significant" benefit is realized from this activity. Therefore, Delta recommends that Chevron discontinue future ICA activities at the subject site.

Mr. Don Hwang  
Alameda County Health Care Services  
January 2, 2002  
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Currently, Delta is working on obtaining the necessary permits required for the two additional downgradient wells that were proposed in *Delta's Interim Corrective Action Plan*, dated June 30, 2000. Delta has planned to install the new wells during the first quarter of 2002. If you have questions, please call Todd Del Frate at (916) 536-2612.

Sincerely,

**Delta Environmental Consultants, Inc.**



Brett A. Bardsley  
Staff Geologist



Todd Del Frate  
Project Manager

BAB (Lrp003.9708.doc)

Attachments: Alameda County Health Care Services Letter dated November 26, 2001

cc: Tom Bauhs – Chevron Products Company

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES

ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
FAX (510) 337-9335

November 26, 2001

Tom Bauhs, Project Manager  
Chevron USA, Inc.  
Site Assessment & Remediation  
6001 Bollinger Canyon Rd., V1132  
PO Box 6004  
San Ramon, CA 94583-0904

Dear Mr. Bauhs:

Subject: Former Chevron Service Station #9-9708, 5910 MacArthur Blvd., Oakland, CA;  
RO0000124

“Sensitive Receptor Survey Report” dated August 1, 2001 and “Interim Corrective Action” dated August 6, 2001 by Gettler-Ryan, Inc., were reviewed. These reports documented the implementation of some of the items proposed in the Interim Corrective Action Plan (ICAP) dated June 30, 2000. The sanitary sewer and storm drain were identified as possible pathways for dissolved and vapor phase petroleum hydrocarbons. Hydrocarbon impacted groundwater was extracted from monitoring wells MW-1 and MW-2. An evaluation of the extraction activities will be included with the next quarterly groundwater monitoring results.

The two additional downgradient wells were not installed. Indicate when they will be installed. If you have any questions, please call me at (510) 567-6746.

Sincerely,

Don Hwang  
Hazardous Materials Specialist

Todd Del Frate, Steven Meeks, Brett Bardsley, Gettler-Ryan, Inc., 3164 Gold Camp Dr.,  
Suite 200, Rancho Cordova, CA 95670-6021

File

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Chevron Service Station #9-9708  
5910 MacArthur Boulevard  
Oakland, California

WELL ID/ DATE	TOC (%)	GWE (msl)	DTW (ft)	TPH-D (ppb)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	1,2-DCB (ppb)	1,2-DCA (ppb)	HVOCs (ppb)
<b>MW-1</b>													
05/29/97	96.61	84.41	12.20	--	--	--	--	--	--	--	--	--	--
06/04/97	96.61	84.40	12.21	--	380	58	1.2	5.4	40	85	--	--	--
09/16/97	96.61	83.84	12.77	--	420	120	<0.5	19	2.7	28	--	--	--
12/17/97	96.61	85.43	11.18	--	210 <sup>4</sup>	43	0.61	11	0.61	69	--	--	--
03/18/98	96.61	84.59	12.02	--	210 <sup>4</sup>	47	<0.5	8.2	<0.5	92	--	--	--
06/28/98	96.61	83.99	12.62	--	<50	<0.5	<0.5	<0.5	<0.5	66	--	--	--
09/07/98	96.61	82.32	14.29	--	<50	6.7	<0.5	<0.5	<0.5	92	--	--	--
12/29/98	96.61	83.18	13.43	--	<100	<1.0	<1.0	2.24	1.14	278	--	--	--
03/11/99	96.61	83.80	12.81	--	110	<1.0	<1.0	7.95	<1.0	418	--	--	--
05/04/99	96.61	83.85	12.76	--	--	--	--	--	--	--	--	--	--
06/29/99	96.61	84.06	12.55	--	352	34.6	<2.5	51	<2.5	780	--	--	--
09/29/99	96.61	83.21	13.40	--	647	167	<2.5	58.6	14.8	1570	--	--	--
12/08/99	96.61	85.70	10.91	--	481	121	1.16	17.9	11	3910	--	--	--
03/01/00	96.61	85.46	11.15	--	2580	481	6.84	86.6	41.9	5460	--	--	--
06/23/00	96.61	83.68	12.93	--	900 <sup>4</sup>	120	<5.0	22	6.7	5,400	--	--	--
09/30/00	96.61	83.07	13.54	--	1,300 <sup>4</sup>	450	5.5	170	11	2,000	--	--	--
12/08/00	96.61	83.63	12.98	--	<1,000	41.7	<10.0	11.5	<10.0	6,030	--	--	--
03/01/01	96.61	84.94	11.67	--	340 <sup>7</sup>	36.6	<0.500	10.1	<0.500	3,360	--	--	--
06/19/01	96.61	83.94	12.67	--	610 <sup>4</sup>	110	<5.0	9.2	<5.0	110	--	--	--
09/18/01	96.61	83.48	13.13	--	200	32	0.55	3.0	<1.5	1,600	--	--	--
<b>MW-2</b>													
05/29/97	96.91	83.85	13.06	--	--	--	--	--	--	--	--	--	--
06/04/97	96.91	83.96	12.95	--	1600	120	5.9	32	15	2100	--	--	--
09/16/97	96.91	83.92	12.99	--	1100	23	3.2	7.0	2.5	1200	--	--	--
12/17/97	96.91	84.73	12.18	--	7,100 <sup>1</sup>	650	69	610	69	4,700/2,600 <sup>2</sup>	--	--	--
03/18/98	96.91	84.21	12.70	--	5,900 <sup>1</sup>	250	<50	98	<50	12,000/7,100 <sup>2</sup>	--	--	--
06/28/98	96.91	83.98	12.93	--	4300	400	<10	<10	<10	3,000/4,000 <sup>2</sup>	--	--	--
09/07/98	96.91	83.94	12.97	--	3700	220	5.1	38	7.6	1,300/1,400 <sup>2</sup>	--	--	--
12/29/98	96.91	83.99	12.92	--	6500	573	26.8	131	33.9	2660	--	--	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Chevron Service Station #9-9708  
5910 MacArthur Boulevard  
Oakland, California

WELL ID/ DATE	TOC ( <i>l</i> )	GWE ( <i>msl</i> )	DTW ( <i>ft</i> )	TPH-D ( <i>ppb</i> )	TPH-G ( <i>ppb</i> )	B ( <i>ppb</i> )	T ( <i>ppb</i> )	E ( <i>ppb</i> )	X ( <i>ppb</i> )	MTBE ( <i>ppb</i> )	1,2-DCB♦ ( <i>ppb</i> )	1,2-DCA♦ ( <i>ppb</i> )	HYOCs♦ ( <i>ppb</i> )
<b>MW-2 (cont)</b>													
03/11/99	96.91	84.04	12.87	--	4970	651	30.8	60.3	<5.0	2600	--	--	--
05/04/99	96.91	84.05	12.86	--	--	--	--	--	--	--	--	--	--
06/29/99	96.91	83.98	12.93	--	2030	238	11.6	8.98	<5.0	540	--	--	--
09/29/99	96.91	84.02	12.89	--	2000	320	10.4	16.5	20.3	642	--	--	--
12/08/99	96.91	86.18	10.73	--	96.8	2.74	<0.5	<0.5	<0.5	<2.5	--	--	--
03/01/00	96.91	84.31	12.60	--	<50	6.92	<0.5	<0.5	<0.5	254	--	--	--
06/23/00	96.91	83.98	12.93	--	1,700 <sup>d</sup>	490	7.5	<5.0	7.7	770	--	--	--
09/30/00	96.91	83.95	12.96	--	2,000 <sup>d</sup>	420	14	<10	<10	380	--	--	--
12/08/00	96.91	83.98	12.93	--	984	54.9	<2.50	4.15	<2.50	306	--	--	--
03/01/01	96.91	84.15	12.76	--	<50.0	4.16	<0.500	<0.500	<0.500	245	--	--	--
06/19/01	96.91	83.23	13.68	--	1,700 <sup>d</sup>	250	9.2	<5.0	6.9	410	--	--	--
09/18/01	96.91	83.96	12.95	--	1,700	42	1.9	2.0	2.9	280	--	--	--
<b>MW-3</b>													
05/29/97	97.86	86.41	11.45	--	--	--	--	--	--	--	--	--	--
06/04/97 <sup>3</sup>	97.86	86.58	11.28	1200	<50	<0.5	<0.5	<0.5	<0.5	<5.0	ND	1.0	--
09/16/97	97.86	85.67	12.19	2,700 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
12/17/97	97.86	87.06	10.80	1,200 <sup>1</sup>	<50	0.9	0.53	<0.5	<0.5	<2.5	--	--	--
03/18/98	97.86	86.98	10.88	820 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
06/28/98	97.86	86.26	11.60	1,100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<2.5	0.99	ND	<0.5-<5.0
09/07/98	97.86	85.64	12.22	1,100 <sup>3</sup>	<50	<0.5	<0.5	<0.5	<0.5	<2.5	0.79	0.54	--
12/29/98	97.86	86.06	11.80	1,760 <sup>3</sup>	185	<0.5	<0.5	<0.5	0.669	<2.0	1.04	0.578	<0.5-<5.0
03/11/99	97.86	86.83	11.03	1440	<50	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	<1.0	<1.0-<2.0
05/04/99	97.86	86.43	11.43	--	--	--	--	--	--	--	--	--	--
06/29/99	97.86	85.71	12.15	690 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<5.0	0.754	<0.5	<0.5-<5.0
09/29/99	97.86	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--
12/08/99	97.86	88.43	9.43	1,000 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<2.5	<0.5	0.66	<0.5-<5.0
03/01/00	97.86	87.16	10.70	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	0.821	0.984	<0.5-<5.0
06/23/00	97.86	85.96	11.90	2,600 <sup>3</sup>	<50	<0.50	<0.50	<0.50	<0.50	<2.5	<2.0	<2.0	<0.5-<2.0

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Chevron Service Station #9-9708  
5910 MacArthur Boulevard  
Oakland, California

WELL ID DATE	TOC (ft)	GWE (msl)	DTW (ft)	TPH-D (ppb)	TPH-G (ppb)	B (ppb)	T (ppb)	R (ppb)	X (ppb)	MTBE (ppb)	1,2-DCB♦ (ppb)	1,2-DCA♦ (ppb)	HVOCs♦ (ppb)
<b>MW-3 (cont)</b>													
09/30/00	97.86	85.45	12.41	1,100 <sup>5</sup>	<50	<0.50	0.61	<0.50	0.82	2.7	<2.0	<2.0	<0.50-<2.0
12/08/00	97.86	85.78	12.08	870 <sup>5</sup>	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	<2.0	<2.0	<0.50-<10
03/01/01	97.86	87.09	10.77	1,060 <sup>6</sup>	60.9 <sup>7</sup>	<0.500	<0.500	<0.500	<0.500	<2.50	0.545	0.528	<0.500-<5.00
06/19/01	97.86	85.87	11.99	120 <sup>5</sup>	<50	<0.50	<0.50	<0.50	<0.50	<2.5	<1.2	<1.6	<0.50-<2.0
09/18/01	97.86	85.19	12.67	4,800	<50	<0.50	<0.50	<0.50	<1.5	<2.5	<1 <sup>8</sup>	<2 <sup>8</sup>	<1-<2 <sup>8</sup>
<b>MW-4</b>													
05/04/99	96.25	83.66	12.59	--	140	<0.5	0.62	0.67	2.6	<2.5	--	--	--
06/29/99	96.25	83.64	12.61	--	183	<0.5	<0.5	1.1	<0.5	<5.0	--	--	--
09/29/99	96.25	83.70	12.55	--	64.3	<0.5	<0.5	<0.5	1.18	<2.5	--	--	--
12/08/99	96.25	83.81	12.44	--	91.2	0.589	<0.5	0.52	<0.5	86	--	--	--
03/01/00	96.25	84.55	11.70	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
06/23/00	96.25	84.12	12.13	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--
09/30/00	96.25	84.30	11.95	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--
12/08/00	96.25	83.85	12.40	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	--	--
03/01/01	96.25	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--
06/19/01	96.25	82.83	13.42	--	210 <sup>7</sup>	7.6	1.4	<0.50	<0.50	10	--	--	--
09/18/01	96.25	83.17	13.08	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--	--	--
<b>TRIP BLANK</b>													
06/04/97	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
09/16/97	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
12/17/97	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
03/18/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
06/28/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
09/07/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
09/07/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
12/29/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0	--	--	--
03/11/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0	--	--	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Chevron Service Station #9-9706  
5910 MacArthur Boulevard  
Oakland, California

WELL ID/ DATE	TOC (ft)	GWE (ms)	DTW (ft)	TPH-D (ppb)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	1,2-DCR* (ppb)	1,2-DCA* (ppb)	HVOCs* (ppb)
<b>TRIP BLANK (cont)</b>													
05/04/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
06/29/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
09/29/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
12/08/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
03/01/00	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--
06/23/00	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--
09/30/00	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--
12/08/00	--	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	--	--
03/01/01	--	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	--	--
06/19/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--
09/18/01	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--	--	--

**TABLE 1**  
**Groundwater Monitoring Data and Analytical Results**  
Chevron Service Station #9-9708  
5910 MacArthur Boulevard  
Oakland, California

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**EXPLANATIONS:**

Groundwater monitoring data and laboratory analytical results prior to June 23, 2000, were compiled from reports prepared by Blaine Tech Services, Inc.

TOC = Top of Casing (ft.) = Feet	TPH-G = Total Petroleum Hydrocarbons as Gasoline B = Benzene	1,2-DCB = 1,2-Dichlorobenzene 1,2-DCA = 1,2-Dichloroethane
GWE = Groundwater Elevation (msl) = Mean sea level	T = Toluene E = Ethylbenzene	HVOCs = Halogenated Volatile Organic Compounds ND = Not Detected
DTW = Depth to Water	X = Xylenes	-- = Not Measured/Not Analyzed
TPH-D Total Petroleum Hydrocarbons as Diesel	MTBE = Methyl tertiary butyl ether	

◆ Analysis by EPA Method 8010.

<sup>1</sup> Chromatogram pattern indicates an unidentified hydrocarbon.

<sup>2</sup> Confirmation run.

<sup>3</sup> Sample also analyzed for the following: Total Oil & Grease by EPA Method 5520F was ND;  
Semivolatile Organics by EPA Method 8270B were ND; Volatile Organics by EPA Method 8010B were ND.

<sup>4</sup> Laboratory report indicates gasoline C6-C12.

<sup>5</sup> Laboratory report indicates unidentified hydrocarbons >C16.

<sup>6</sup> Laboratory report indicates unidentified hydrocarbons C9-C24.

<sup>7</sup> Laboratory report indicates unidentified hydrocarbons C6-C12.

<sup>8</sup> Volatile Organic Compounds (VOCs) by EPA Method 8260.