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November 14, 2001

Mr. Thomas Bauhs
Chevron Products Company
P.O. Box 6004
San Ramon, California 94583

Subject: *Tier 1 RBCA Evaluation Addendum*
Former Chevron Station #9-0020
1633 Harrison Street
Oakland, California
DG90020G.3C99

Mr. Bauhs:

At the request of Chevron Products Company (Chevron), Delta Environmental Consultants, Inc. network associate Gettler-Ryan Inc. (GR) performed a limited Tier 1 Risk-Based Corrective Action (RBCA) evaluation for the above referenced site. This limited evaluation is intended to supplement GR report #346499.02, *Site Conceptual Model and Risk-Based Corrective Action Evaluation*, dated June 27, 2000. This additional work was requested by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated August 2, 2001, in order to close the investigation at the subject site without imposing deed restrictions.

In GR's report, representative on-site benzene, toluene, ethylbenzene, total xylenes, and methyl tert-butyl ether (MtBE) concentrations in groundwater were compared with Oakland Tier 1 Risk Based Screening Levels (RBSLs)[1] for inhalation of vapor volatilizing from groundwater for commercial/industrial receptors. Inhalation of vapor volatizing from groundwater is the only complete exposure pathway identified at the site. The ACHCSA letter pointed out that the representative concentration of benzene given in GR's report exceeds the Tier 1 RBSLs for residential use, and closure at the site would require deed restrictions for residential development. The concentrations given in the GR report were maximum historical concentrations reported on-site in well MW-7 during a sampling event in December 1992, and does not represent concentrations currently detected at the site. The Oakland Tier 1 RBSL of benzene for inhalation of indoor air vapors, residential receptor, carcinogenic risk, is 0.11 ppm. The benzene concentration in groundwater on-site has not exceeded that level since December 1996, and is currently non-detect. Table 1 (attached) compares recently reported benzene concentrations in groundwater on-site with relevant Oakland Tier 1 RBSLs. Table 1 also compares historical soil chemical analytical data with relevant Oakland Tier 1 RBSLs for soil. Based on these comparisons, no risk to human health exists at the site for both indoor and outdoor inhalation of vapors volatilizing from soil or groundwater for residential receptors.

The ACHCSA letter also requested an evaluation for risk from Total Petroleum Hydrocarbons as gasoline (TPHg) on-site. The City of Oakland does not have Tier 1 RBSLs for TPHg. The California Regional Water Quality Control Board San Francisco Bay Region (CRWQCB-SFB) has Tier 1 RBSLs[2] for TPHg in groundwater and soil for risk of ingestion and dermal contact, but not as an inhalation risk because they consider TPHg to be non-volatile. The Massachusetts Department of

Environmental Protection (MADEP) has created cleanup standards[3] for TPHg in soil and groundwater. The cleanup standards were developed so that TPHg concentrations in soil and groundwater below the standard's levels do not pose a risk to human health, public welfare, and the environment via a number of exposure pathways and concerns, including direct contact, ingestion, leaching (soil), and volatilization (groundwater). The MADEP approach is based on the evaluation of collective ranges of aliphatic and aromatic hydrocarbons, with the cleanup standards based on the non-cancer toxicity of each range. Table 2 (attached) compares aliphatic (C5-C8 and C9-C12) and aromatic (C9-C10) hydrocarbon ranges within the total TPHg range for concentrations in groundwater and soil on-site with the MADEP cleanup standards. The TPH fraction concentrations shown on Figure 2 for on-site soil and groundwater data are approximate values based on estimated percentages of those ranges in the total reported TPHg concentrations. Figure 2 shows that the TPH fraction concentrations in groundwater and soil on-site are below the MADEP cleanup standards, and do not pose a risk to human health.

The volatilization of TPHg range hydrocarbons and benzene from soil and groundwater at the site do not pose a risk to residential receptors for the inhalation of indoor and outdoor air vapors. GR recommends that the site be closed without deed restrictions.

If you have any questions please call our Rancho Cordova office at (916) 631-1300.

DELTA ENVIRONMENTAL CONSULTANTS, INC.
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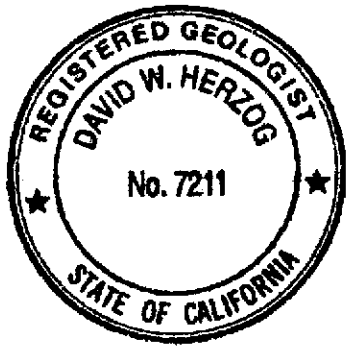

Attachments: Table 1. Comparison of On-Site Benzene Concentrations with Oakland Tier 1 RBSLs
Table 2. Comparison of On-Site TPH Fraction Concentrations with MADEP Cleanup Standards

Cc: Mr. Don Hwang, ACHCSA, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502
Mr. Jim Brownell, Delta Environmental Consultants, Inc.

[1] *Oakland Urban Land Redevelopment Program: Guidance Document*, City of Oakland Public Works Agency, January 1, 2000.
[2] *Application of Risk-Based Screening Levels and Decision Making to Sites With Impacted Soil and Groundwater*, CRWQCB-SFB, Interim Final-August 2000.
[3] *Implementation of the MADEP VPH/EPH Approach*, MADEP, Final Draft, June 2001.

Table 1 - Comparison of On-Site Benzene Concentrations with Oakland Tier 1 Risk-Based Screening Levels (RBSLs)[1]

Former Chevron Service Station #9-0020
1633 Harrison Street
Oakland, California

Benzene in Groundwater			
On-Site Monitoring and Sampling Data (Well MW-7)			
Concentration on March 27, 2001		<0.0005 ppm	
Maximum concentration previous 4 semi-annual events		0.039 ppm	
Average concentration previous 4 semi-annual events		0.019 ppm	
Oakland Tier 1 RBSLs - Residential Receptor			
Inhalation of indoor air vapors	Carcinogenic	0.11 ppm	110
	Hazard	3.7 ppm	
Inhalation of outdoor air vapors	Carcinogenic	5.6 ppm	5600
	Hazard	220 ppm	
Benzene in Subsurface Soil[2]			
On-Site Well and Soil Boring Sampling Data			
Average concentration[3]		0.0056 ppm	
Oakland Tier 1 RBSLs - Residential Receptor			
Inhalation of indoor air vapors	Carcinogenic	0.069 ppm	
	Hazard	2.3 ppm	
Inhalation of outdoor air vapors	Carcinogenic	0.19 ppm	
	Hazard	7.6 ppm	

[1] *Oakland Urban Land Redevelopment Program: Guidance Document*, City of Oakland Public Works Agency, January 1, 2000.

[2] Subsurface Soil: Soil between 1 foot below ground surface and groundwater

[3] Based on historical chemical analytical soil data in Appendix C, GR report #346499.02, *Site Conceptual Model and Risk-Based Corrective Action Evaluation*, dated June 27, 2000.

Table 2 - Comparison of On-Site TPH Fraction Concentrations
with Massachusetts Department of Environmental Protection (MADEP) Cleanup Standards[1]
Former Chevron Service Station #9-0020
1633 Harrison Street
Oakland, California

	TPH Fraction		
TPHg in Groundwater			
On-Site Monitoring and Sampling Data (Well MW-7)	C5-C8	C9-C12	C9-C10
Total TPHg concentrations on March 27, 2001	←	<0.050 ppm	→
Maximum TPH fraction concentrations previous 4 semi-annual events[2]	0.32 ppm	0.40 ppm	0.15 ppm
Average TPH fraction concentrations previous 4 semi-annual events[2]	0.134 ppm	0.146 ppm	0.037 ppm
MADEP Method 1 Cleanup Standards			
GW-1[3] TPH fraction standards	0.400 ppm	4.00 ppm	0.200 ppm
TPHg in Subsurface Soil			
On-Site Well and Soil Boring Sampling Data			
Average TPH fraction concentrations[2]	0.052 ppm	0.053 ppm	0.016 ppm
MADEP Method 1 Cleanup Standards			
S-1[4] TPH fraction standards	100 ppm	1,000 ppm	100 ppm

[1]MADEP, *Implementation of the MADEP VPH/EPH Approach*, Final Draft, June 2001
[2]Approximate fraction concentrations based on estimated percentage of reported TPHg range hydrocarbons.
[3]GW-1: Cleanup standard at sites where groundwater is or may be used for drinking purposes.
[4]S-1: Cleanup standard at sites where soil is accessible or potentially accessible, and frequency and/or intensity of exposure is high.