Chevron

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Marketing – Northwest Region
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February 13, 1996

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

Dear Ms. Leach:

I appreciated the opportunity to discuss risk-based corrective action strategies with you, Ravi, and Kevin on January 29, 1996. By way of this letter, I would like to confirm our understanding of the key points that were addressed that day and to clarify the tasks that Chevron will be performing.

In a previous evaluation that was performed by Chevron, it was found that benzene concentrations in groundwater at monitoring well C-9 exceeded the Tier 1 risk-based screening levels for the groundwater exposure pathway/residential vapor intrusion receptor scenario. As a result, Chevron proposed advancing to a Tier 2-type evaluation. This proposal was adopted at our January meeting and specific tasks to be performed in association with the Tier 2 evaluation were assigned. It was also agreed at our meeting that the acquired results would be used to develop a risk-based corrective action plan and that Chevron's applied process would be evaluated as a prototype to optimize future Tier 2 investigations.

The following three tasks were assigned to Chevron as part of the Tier 2 evaluation process:

1) Perform additional site assessment for the purpose of collecting soil samples. Representative samples will provide site-specific soil data to be included in analytical modeling. Analytical modeling will be performed to determine site-specific target levels.

2) Perform an offsite soil vapor investigation in the vicinity of the Forest Creek Townhomes. Two separate investigations will be performed; one during spring, 1996 and one during summer, 1996. Soil vapor investigative methods will correspond to the recommended EPA methodology. Results of the soil vapor investigations will be compared to those obtained from analytical modeling.

3) Develop a "fact sheet" to inform Forest Creek Townhome residents of the current environmental status, Chevron's interpretation of the current data, and of Chevron's future investigation and remediation plans. The "fact sheet" will be co-developed with support from the Alameda County Health Care Services, Environmental Health Department. The "fact sheet" will be distributed prior to any offsite field work being performed. The fact sheet will be distributed to all affected parties by March 31, 1996.

The acquired data from these investigations and modeling will be used to determine actual site-specific health and safety risk target levels. The data will be presented in a format similar to the Groundwater Services, Inc. (GSI) Tier 2 RBCA Summary Report. Findings will be compared to the six definitions of a low risk groundwater case that appeared in a San Francisco Bay Regional Water Quality Control Board memorandum dated, January 5, 1996. An appropriate risk-based corrective action plan will then be developed based on the acquired results and on the comparison to the low risk groundwater case.

Chevron appreciates the opportunity to assist in the development of a practical Tier 2 evaluation procedure that should help optimize future Tier 2 evaluations.

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

cc: Kevin Graves, San Francisco Bay RWQCB, Oakland, CA
Ravi Arulanantham, San Francisco Bay RWQCB, Oakland, CA
Kevin Hinckley, 5269 Crow Canyon Road, Castro Valley, CA 94546
Curt Peck, Chevron Research and Technology Company, Richmond, CA
John Randall, Chevron USA, Products Company, San Ramon, CA
Bette Owen, Chevron USA, Products Company, San Ramon, CA

Meeting on January 29, 1996 in Oakland at the San Francisco Bay RWQCB

StId 670
Former Chevron Station
5269 Crow Canyon Road, Castro Valley

Meeting Attendees:
Brett Hunter and Curt Peck with Chevron, Ravi Arulanantham and Kevin Graves with SF RWQCB, and Amy Leech with ACDEH

Primary scope of meeting was to discuss Chevron's proposal to complete a RBCA Tier 2 analysis.

It was discussed that a site specific model should incorporate foc, total porosity, flux (Henry's Law) by collecting soil cores from the site and incorporate data into the model.

<-Note: Statistical methods for Environmental Pollution Monitoring = Richard Gilbert (Man-Kendall Test)>

Primary purpose to collect site specific data is to determine if there is an immediate threat to human health

-Per Ravi there is an EPA methodology # TO14 associated with obtaining soil vapor measurements.

-Per Ravi, soil vapor measurements should be collected at least 2 different time during the summer months (worst case scenario).

-Should sample every 4 feet at least.

Active Remediation will still be required regardless of results of Tier 2, per Kevin Graves.

-It was agreed GWE has proven to be money not well spent at this site.

-Status of source removal? Data indicates that free product may exist under the site. Possibly Dual Phase/High Vacuum Extraction would be appropriate for this site.

-Chevron needs to propose alternative remediation alternative.

Public Notification
-It was agreed that Chevron would draft a fact sheet that would notify the residents of the townhomes located downgradient of the site in the vicinity of C-12 and C-9 of environmental investigations (past and future). ACDEH and RWQCB indicated they would participate in co-developing this fact sheet.

-Per Kevin, a CAP should be conceptually designed prior to distributing the fact sheet.

-Chevron will respond w/in 60 days

StId 670
Former Chevron Station
5269 Crow Canyon Road, C.V.

Gas station was abandoned ~1991. Current land use is an auto repair shop and residential properties (Townhome development) and Crow Creek are located directly downgradient.

Network of 17 MWs were installed 1985 -1990 and have been sampled quarterly

GWES started in 10/85 to control plume migration by installing RW
-C-9 was converted to a gwew in 1991
-Chevron redeveloped RW and C-6 in 1994. Pumping rate for RW was not improved and remained 0.25 gpm. The screen for C-6 is thought to be damaged and consultant recommended installing another well near C-6 to include in the gwes.

Benzene levels 570/120/79/50 ppb the last 4 quarters at C-12 (located just upgradient from townhomes).

Benzene levels was at 7,200 ppb at C-9 on 10/24/95 which is also located just upgradient of townhomes.

Should complete a risk assessment for the residential properties located downgradient to see if a more aggressive remediation strategy needs to be implemented in this area.

Tier 1 RBCA residential exposure:

Groundwater Volat. to Outdoor Air -	3.19 ppm (3,190 ppb) 10-6
	319 ppm (319,000 ppb) 10-4
Groundwater Vapor to Building-	0.007 ppm (7 ppb) 10-6
	0.69 ppm (690 ppb) 10-4

Based on this Tier 1 RBCA, looks like we need to go to Tier 2 -- Chevron has proposed to collect site specific soil vapor measurements to complete Tier 2. Need to discuss how this will be accomplished (methodology, sample # and locations, extrapolation). Can other site specific parameters be considered first (see Table X2.5 of ASTM and discuss)? Also, consider risk for workers on-site using commercial exposure -- do we need to gather groundwater data from beneath the station building or can we extrapolate?

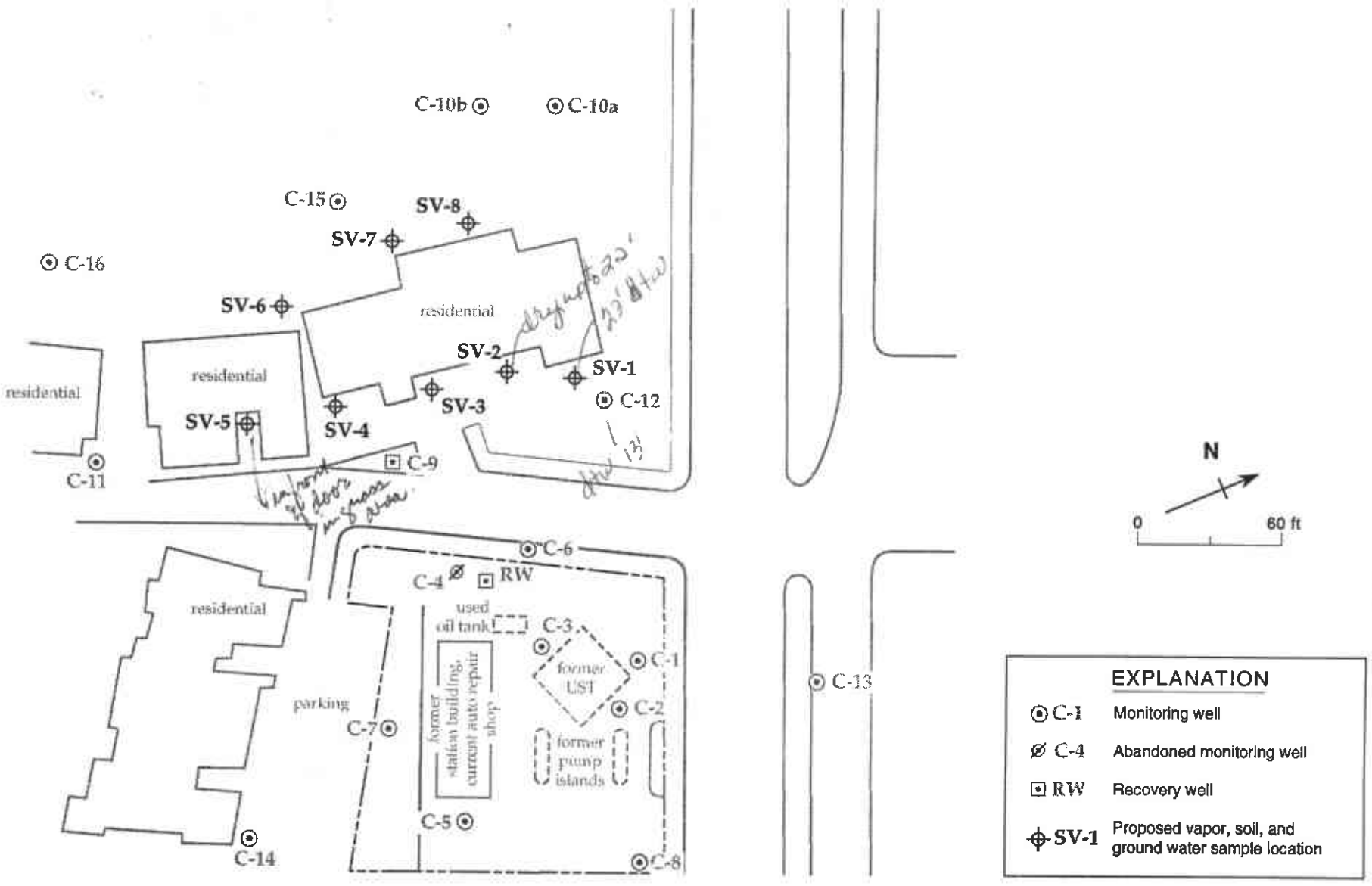
Regardless of outcome of risk assessment, need to achieve plume control at the site since levels are so high. We had discussed possibility of floating product on-site -- proposal to investigate this? What were final soil results at this site?

Monitoring site to verify that natural biodegredation is taking place -- determine site specific rate?

Seems like O2 is depleted throughout the area being monitored -- should consider augmenting this.

If it appears that biodegredation can be effective in remediating this site, can we speed it up by using augmentation technologies, such as, ORC?

Tom 678-6974



Sample Location	VAPOR SAMPLES		WATER SAMPLES	SOIL SAMPLES			
	Sample Depths	Analysis Methods	Hydrocarbon Analysis	Hydrocarbon Sample Depth	Hydrocarbon Analysis Method	Modeling Parameter Sample Depth	Modeling Parameter Analysis Method
SV-1	3, feet bgs,	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	8 feet bgs	Density and Porosity by ASTM Methods D2850 and D4612 respectively
SV-2	3, 8 feet bgs, 3 feet above water table	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	3 feet bgs and within 10 feet of water table	Fraction of Organic Carbon by Walley Black Method
SV-3	3, 8 feet bgs, 3 feet above water table	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	3 feet bgs and within 10 feet of water table	Fraction of Organic Carbon by Walley Black Method
SV-4	3, 8 feet bgs, 3 feet above water table	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	3 feet bgs and within 10 feet of water table	Fraction of Organic Carbon by Walley Black Method
SV-5	3 feet bgs	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	None	None
SV-6	3 feet bgs	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	None	None
SV-7	3 feet bgs	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	None	None
SV-8	3 feet bgs	benzene by EPA Method TO-14 and O_2, CO_2, CH_4 by ASTM Method D3416	BTEX and MTBE by EPA method 8020 (1 sample)	5, 10 feet bgs and within capillary fringe	BTEX and MTBE by EPA Method 8020	None	None

Notes:

bgs = Below ground surface
BTEX = Benzene, toluene, ethylbenzene and xylenes.
O_2 = Oxygen
CO_2 = Carbon dioxide
CH_4 = Methane

Figure 1. Vapor, Soil, Ground Water Sample Locations and Analytical Methods - Chevron Station 9-5607, 5269 Crow Canyon Road, Castro Valley, California