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Attorneys for Petitioner  
ChevronTexaco Corp.

Alameda County  
JAN 23 2004  
Environmental Health

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

<p>In Re:</p> <p>Alameda County Health Care Services Agency Record ID: RO0000374 Letter dated July 7, 2003, issued to ChevronTexaco re 15595 Washington Ave., San Lorenzo</p> <hr/>	<p>) SWRCB FILE NO. :</p> <p>)</p> <p>) CHEVRONTEXACO CORP.'S REPLY</p> <p>) TO ALAMEDA COUNTY HEALTH</p> <p>) CARE SERVICES AGENCY'S</p> <p>) RESPONSE TO CHEVRONTEXACO'S</p> <p>) PETITION FOR REVIEW OF THE</p> <p>) ALAMEDA COUNTY HEALTH CARE</p> <p>) SERVICES AGENCY'S JULY 7, 2003</p> <p>) DESIGNATION OF IT AS</p> <p>) SECONDARY RESPONSIBLE PARTY</p> <p>)</p> <p>)</p> <p>)</p>
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ChevronTexaco Corp. (hereinafter "ChevronTexaco") submits this reply to Alameda County Environmental Health Services' ("ACEHS") response to ChevronTexaco's petition for review of ACEHS's July 7, 2002 designation of ChevronTexaco as a secondary responsible party for the soil and groundwater contamination at 15595 Washington Avenue, San Lorenzo.

ACEHS's response is flawed in several ways. The ACEHS (1) ignores the analytical data presented by ChevronTexaco; (2) misrepresents other data collected near the 2<sup>nd</sup> generation USTs; (3) bases its analysis on unreliable "odor" observations; (4) misrepresents the significance of depth from which samples were taken; and (5) offers speculation concerning the presence of NAPL from the pre-1986 release. These errors inevitably lead ACEHS to incorrectly conclude that ChevronTexaco should be designated a secondary responsible party.

**1. ACEHS ignores the analytical data presented by ChevronTexaco.**

As discussed in Cambria Environmental Technology, Inc.'s ("Cambria") letter dated January 20, 2004, a copy of which is attached hereto as **Exhibit A**, ACEHS erroneously states that "soil and water samples were not collected nor analyzed from SB3 located downgradient of the USTs. Therefore it cannot be determined whether or not groundwater was contaminated at that location" (ACEHS Response at 2-3). In fact, however, the 1986 Brown and Caldwell analytical report included this very data (see pages 2 and 4 of Attachment B (Soil and Groundwater Analytical Data) to Exhibit D to ChevronTexaco's Supplemental Petition submitted on October 3, 2003). These data indicate that *no* hydrocarbons were detected in the soil and groundwater collected from boring SB-3.

In addition, ACEHS states that Cambria failed to consider the "migration of contamination via pathways other than the dissolved phase" (ACEHS Response at 4). Once again, ACEHS chooses to ignore Cambria's analysis which contained a discussion of this particular issue. Specifically, Cambria's October 1, 2003 letter (Exhibit D to ChevronTexaco's Supplemental Petition submitted on October 3, 2003) discusses 1986

site conditions as compared to current Environmental Screening Levels (Ex. D to ChevronTexaco's Supplemental Petition at 3-4). This analysis is discussed further in Cambria's January 20, 2004 letter (Ex. A at 3-4). No soil contamination was detected in 1986, and the low levels of groundwater contamination are unlikely to exceed current risk standards even without the fact that concentrations would have degraded over the intervening 17+ years.

2. **ACEHS misrepresents the data concerning soil samples taken near the 2<sup>nd</sup> Generation USTs.**

ACEHS misrepresents the results from the composite soil samples data collected near the 2<sup>nd</sup> generation USTs. The samples taken showed that *no* soil sample taken from these areas contained more than 30 mg/kg TPHg, 1.5 mg/kg benzene and toluene or 3.0 mg/kg xylene isomers (Exhibit A at 2). If there had been elevated concentrations of hydrocarbons present in these samples, they would have been detected. ACEHS's conclusion that the results cannot be relied upon is completely unfounded.

3. **ACEHS relies on the observation of petroleum odors.**

ACEHS also states in its response at page 3 that "strong petroleum odors were noted in almost all of the boring logs," yet ACEHS fails to discuss the significance of these observations. Strong hydrocarbon odors are not uncommon when drilling in areas with low hydrocarbon concentrations (see Exhibit A at 2-3). This is the very reason that all tests of soil and groundwater are designed to obtain actual measurements of hydrocarbon concentrations that can be analyzed. The actual results of the testing done on the soil and groundwater reflect that hydrocarbons were detected in only two of the six borings. Just as ACEHS would not solely rely on a lack of odor when determining

whether to close a contamination site, ACEHS should not rely merely on the observation of petroleum odors, in the face of analytical data showing limited contamination, when making its determination of responsibility.

4. **ACEHS misrepresents the significance of sample depth.**

ACEHS faults the prior sampling performed at the site because those samples were taken from borings not exceeding 15' bgs (ACEHS Response at 3). ACEHS concludes that there is insufficient data concerning the "uppermost preferential pathway for contaminant migration . . ." (Id.) ACEHS, however, fails to explain the relevance of the "more permeable zone starting at depths of 20 to 25 feet below grade" in light of the fact that no soil contamination was detected at any boring and low levels of hydrocarbons were detected at only two borings. It is not typical to bore deeper when little or no contamination is found at depths relevant to a contaminant source. ACEHS provides no rationale for such additional borings under these circumstances.

5. **ACEHS speculates concerning the presence of NAPL.**

ACEHS states that residual non-aqueous-phase liquid ("NAPL") "or other high-concentration zones of contamination from the 2<sup>nd</sup> generation UST system *could* easily be present at the site within shallow, fine-grained sediments" (ACEHS Response at 4) (emphasis added). ACEHS further states that "*if* vapor migration of other constituents is significant, then the earlier release cannot be ignored since residual and possibly free-phase LNAPL from the earliest releases *may* still exist in fine-grained strata beneath the site" (Id.) (emphasis added).

Such speculation, however, is inconsistent with the actual analytical data collected concerning the site. There was no evidence of NAPL in the 1986 soil samples. Indeed,

no hydrocarbons were detected. In addition, no NAPL was detected in the groundwater samples from 1986. ACEHS cites no evidence suggesting that NAPL was released at the site prior to ChevronTexaco's sale of the property.

### CONCLUSION

Ignoring the weight of the evidence before it, ACEHS states that "there is not sufficient information to close the 1986 fuel leak case," and that it is unclear "[h]ow much of a contribution release(s) from the 2<sup>nd</sup> generation USTs make to the site in terms of corrective action and costs." (ACEHS Response at 6.) The evidence, however, is overwhelming.

- No hydrocarbon contamination was detected in soil samples taken in 1986;
- Two groundwater samples showed low level contamination, and that level of contamination, now almost 18 years later, would not contribute to the need to remediate the site.
- The low level of hydrocarbon concentrations from the pre-1986 release would not have posed a danger in 1986 and using a conservative approach to attenuation levels, would be virtually undetectable today.
- The sole cause of remediation work at the site is the post-1986 release of MTBE and other contaminants.

As discussed more thoroughly in the attached Cambria letter (Ex. A) and the prior reports prepared by Cambria, the preponderance of the evidence supports de-designating ChevronTexaco and the Calleri's as secondary responsible parties.

**SERVICE ON ALAMEDA COUNTY HEALTH CARE SERVICES AND OTHER**

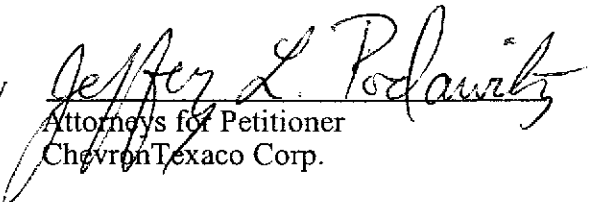
**INTERESTED PARTIES**

A proof of service of this Supplemental Petition on all interested parties,  
including Alameda County Health Care Services, is attached.

Dated: January 21, 2004

GLYNN & FINLEY, LLP

By


  
Attorneys for Petitioner  
ChevronTexaco Corp.

January 20, 2004

Ms. Karen Streich  
ChevronTexaco  
P. O. Box 6004  
San Ramon, California 94583

Re: **Comments on the December 1, 2003 ACEH Letter**  
Former Texaco Station 211285  
15595 Washington Avenue  
San Lorenzo, California

Dear Ms. Streich:



As you requested, Cambria Environmental Technology, Inc. (Cambria) prepared these comments to the December 1, 2003 Alameda County Environmental Health Services (ACEH) letter to the State Water Resources Control Board (SWRCB). The ACEH was directed by the SWRCB to consider whether constituents released prior to Texaco's tenure at the site were contributing to the current need for remediation. The site background, as well as pertinent ACEH technical comments from their December 1, 2003 letter and our responses are presented below.

## Site Background

The site was operated as an active service station from approximately 1964 through 1983 and from 1986 through to the present. From 1974 to 1983, the site was owned by the Calleri family, who operated a service station. Texaco owned the site from 1983 through 1986, but did not operate the facility and neither stored nor dispensed gasoline during that period. The site location is presented in Figure 1.

Texaco conducted a baseline assessment in 1986 to determine site conditions and identify potential environmental liabilities prior to selling the property to Mr. Bertram Kubo. Texaco drilled six borings and installed wells MW-1, MW-2 and MW-3 in three of the borings. A figure with boring and well locations is presented in Attachment A.

Because the investigation objectives were to screen the site for potential liabilities to support a property transaction and not for a regulated environmental investigation, 3-point composite soil samples were analyzed from each boring. No hydrocarbons were detected in soil at detection limits of 10 mg/kg total petroleum hydrocarbons as gasoline (TPHg), 0.5 mg/kg benzene and toluene, and 1.0 mg/kg xylene isomers in the six samples analyzed.

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Groundwater samples were collected from the 3 borings and 3 wells to assess potential impacts to groundwater. No benzene, toluene or xylenes were detected in wells MW-2 and MW-3, or in borings SB-2 and SB-3 at detection limits of 0.05 ug/l. The groundwater sample from well MW-1 contained 82 ug/l xylenes and groundwater from boring SB-1 contained 220 ug/l benzene, 390 ug/l toluene and 680 ug/l xylenes. Analytical data for soil and groundwater from the 1986 investigation are presented in Attachment B.

There is a more recent oxygenated fuels release with high MTBE concentrations that post-dates Texaco's ownership of the site. The ACEH named ChevronTexaco as a secondary RP for the contamination that is present on the site due to the pre-1983 release.



## **ACEH Technical Comments and Discussion**

The following are pertinent technical comments from the December 1, 2003 ACEH letter and our response to those comments.

### *Groundwater Analytical Data*

The ACEH letter indicates that no soil or groundwater samples were collected from boring SB-3, located near the gasoline tanks that were in place during Texaco's tenure. This data was included in Attachment B of our October 1, 2003 on page 2 (soil data) and page 4 (groundwater data) of the August 28, 1986 Brown and Caldwell analytical report. A copy of this report is included in Attachment B to the current letter. No hydrocarbons were detected in soil or groundwater.

### *Lack of Depth-Discrete Soil Analytical Results*

The ACEH letter indicates that the six 3-point composite soil samples collected near the 2<sup>nd</sup> generation tanks and dispensers cannot reliably represent soil contamination that may have been detected at discrete depths. The detection limit for the 3-point composite samples were 10 mg/kg TPHg, 0.5 mg/kg benzene and toluene, and 1.0 mg/kg xylene isomers. Based on these detection limits, it is correct to state that no discrete soil sample that comprised the 3-point composite sample contained more than 30 mg/kg TPHg, 1.5 mg/kg benzene and toluene and 3.0 mg/kg xylene isomers (three times the detection limit).

The ACEH letter also indicates that the odors noted on the boring logs indicate elevated hydrocarbon concentrations exist in soil. It is not uncommon for hydrocarbon odors to be



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detected during drilling that are the result of relatively low hydrocarbon concentrations actually in soil. This appears to be the case at this site based on the site data. If there were elevated hydrocarbon concentrations detected in soil in the borings and wells, we would expect the composite soil samples to reflect this and we would expect elevated concentrations in groundwater due to dissolution. However, wells and borings wherein a "strong" hydrocarbon odor was noted in the logs did not contain elevated hydrocarbons concentrations in soil or groundwater. In fact, although a slight to strong hydrocarbon odor was noted in all six borings and wells, hydrocarbons were only detected in groundwater from two of the six.



Well MW-1 is a good example of how odor reported in soil and hydrocarbon concentrations in soil and groundwater have no correlation at this site. No hydrocarbons were detected in soil or groundwater from well MW-1 where a strong hydrocarbon odor was noted from 8 to 15 feet below grade (at and below the water table). If elevated hydrocarbon concentrations were in soil from 8 to 15 feet below grade, we would anticipate at least some indication of hydrocarbons in soil and groundwater analytical reports. The lack of hydrocarbon detections indicates that hydrocarbon odor comments noted on the boring logs do not indicate a significant hydrocarbon concentration in soil and these comments are not reliable indicators of site conditions. This lack of correlation is the reason most investigations and remediations are based on quantifiable analytical data instead of qualitative field observations.

### *Depth of Investigations*

The ACEH letter points out the presence of a more permeable zone starting at depths of 20 to 25 feet below grade and its affect on MTBE migration from the more recent release. The occurrence of this more permeable zone may influence the migration of MTBE, however, we are unclear as to its relevance pertaining to the question of whether the low hydrocarbon concentrations resulting from releases prior to Texaco's tenure would contribute to the need for site remediation.

### *Vapor Migration Pathways*

The ACEH letter indicates that vapor migration pathways that could affect human health were not evaluated. These pathways were evaluated in Cambria's October 1, 2003 letter wherein we compared site conditions in 1986 to current Environmental Screening Levels (ESLs) presented in *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (July 2003, updated September 4, 2003) produced by the RWQCB. The evaluation compared hydrocarbon concentrations detected in groundwater to the ESL for the evaluation of potential indoor-air impacts (a copy of ESL Table E-1a upon which this analysis is based is included in

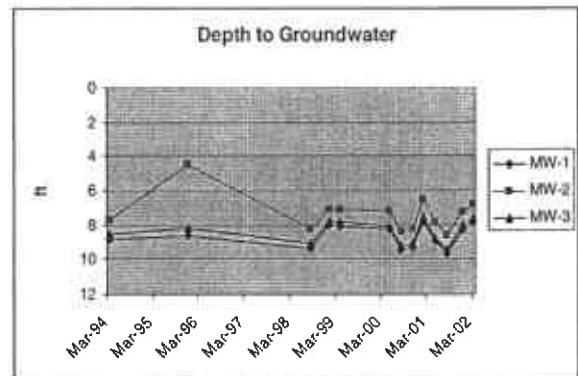
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Attachment C). Table A below presents maximum hydrocarbon concentrations detected in groundwater in the 1986 investigation and corresponding ESLs for the conservative residential redevelopment scenario. Although not included in our original submittal, we have also included the commercial ESLs along with the residential ESLs in Table A below.

Analyte	Maximum Detection (ug/l)	Residential ESL (ug/l)	Commercial ESL (ug/l)	Comments
Benzene	220	530 to 1,900	1,800 to 6,400	Below ESL
Toluene	390	500,000 to 530,000	500,000 to 530,000	Below ESL
Xylenes	680	150,000 to 160,000	150,000 to 160,000	Below ESL

ESL: Groundwater Screening Levels for Evaluation of Potential Indoor-Air Impacts, Table E-1a, residential and commercial land use scenario. Ranges based on high permeability soil (first number presented) and low/moderate permeability soil (second number presented).

It is important to note that these ESLs are based on a presumed 10 ft depth to groundwater. As indicated in the adjacent graph, groundwater at the site is about 8 feet below grade. Therefore, the ESLs are technically not applicable at this site. However, the concentrations detected in 1986 are sufficiently below the ESLs that they are unlikely to exceed current risk standards were a Tier 2 assessment conducted. It is also likely that benzene concentrations in groundwater would have degraded over the last 17 years and that current concentrations, and hence risk, would be lower.



No hydrocarbons were detected in soil so it is impossible to compare hydrocarbon concentrations in soil to ESLs. The fact that no hydrocarbons were detected in soil and only low concentrations were detected in groundwater indicates that there was no significant impact to soil from operations prior to cessation of initial operations in 1983.

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## *Potential Impacts to Wells*

The ACEH letter notes that an active irrigation well 330 ft southwest of the site has not been analyzed for hydrocarbons. We concur that this well could be at risk from the MTBE and other hydrocarbons currently detected at the site and it should be sampled. However, this well is not at risk from the low hydrocarbon concentrations in groundwater in 1986 from releases prior to Texaco's tenure at the site.

## *Attenuation Assessment*

The ACEH letter correctly points out several factors that affect hydrocarbon attenuation including source depletion, lateral and vertical migration, and biodegradation. Other parameters affecting attenuation include sorption, chemical or abiotic reaction, and volatilization. It is the cumulative sum of these potential effects that result in natural attenuation of hydrocarbons.

We concur with the ACEH letter that it is difficult to predict attenuation rates for the previous low concentration benzene, toluene and xylenes plume based on attenuation rates for the high concentration oxygenated fuel release. In our October 1, 2003 letter, we were conservative in our approach by assuming that the benzene, toluene and xylenes detected in 1986 would attenuate no faster than the current TPHg and MTBE concentrations. We deemed this to be conservative because benzene, toluene and xylenes attenuation rates are typically far higher than MTBE attenuation rates. Regardless of the attenuation rate, it is apparent that current hydrocarbon concentrations are attenuating and that the processes by which these hydrocarbons are attenuating are likely to have occurred in the past as well. Therefore, the 220 ug/l benzene detected in 1986 is likely to be appreciably lower 17 years later. The TPHg concentration half-life calculated in our October 1, 2003 letter was 58 days in well MW-3, 90 days in well MW-2 and 267 days in well MW-1 based on the recent release. It is reasonable to assume that the more degradable benzene, toluene and xylenes detected in 1986 would degrade at a similar rate.

## *Additional Comments*

The ACEH letter insinuates that there may be non-aqueous-phase liquid hydrocarbons (NAPL) in the subsurface from the pre-1986 release. However, there is no evidence of NAPL in the 1986 soil data (no hydrocarbons were detected) or in the groundwater data (maximum concentrations of 220 ug/l benzene, 390 ug/l toluene and 680 ug/l xylenes). Therefore, there is no evidence of NAPL from pre-1986 releases. We concur that there is evidence of NAPL from the more recent releases (e.g. sheens observed in wells, elevated hydrocarbon concentrations in groundwater).

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## Conclusions

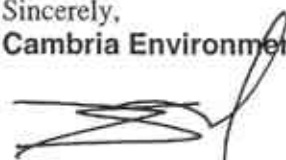
The ACEH letter presented several arguments that point to the need for additional investigation at the site. We agree that additional investigation, and likely remediation, is required at the site. However, this need is driven by the presence of a high concentration oxygenated fuels release that occurred as a result of operations many years after Texaco's tenure at the site.

The ACEH states that based on their evaluation there is insufficient evidence to close the case on the pre-1986 fuels release. However, that was not question that the SWRCB requested be addressed. The SWRCB requested that the ACEH address whether the hydrocarbons detected in 1986 contribute to the need for remediation at the site. None of the arguments presented by the ACEH point to the need for remediation based on the 1986 data. In fact, comparing the concentrations detected in 1986 to current ESLs indicates that the concentrations detected in 1986 did not pose a risk to human health in 1986; and with natural attenuation, concentrations from the pre-1986 release would likely be near or below detection levels today. Therefore, there is no evidence that any remediation would be required at the site were it not for the more recent release of oxygenated fuels. In addition, none of the data collected in the 1986 investigation would preclude case closure were it not for the recent oxygenated fuels release.

We recommend once again that ChevronTexaco petition the SWRCB to review the ACEH's recent decision re-designating ChevronTexaco and the Calleri's as secondary RPs at the site. The secondary RP status assigned ChevronTexaco by the ACEH results in significant current and future liability that is unwarranted given the low concentrations of hydrocarbons detected in the groundwater attributable to pre-1986 site use.

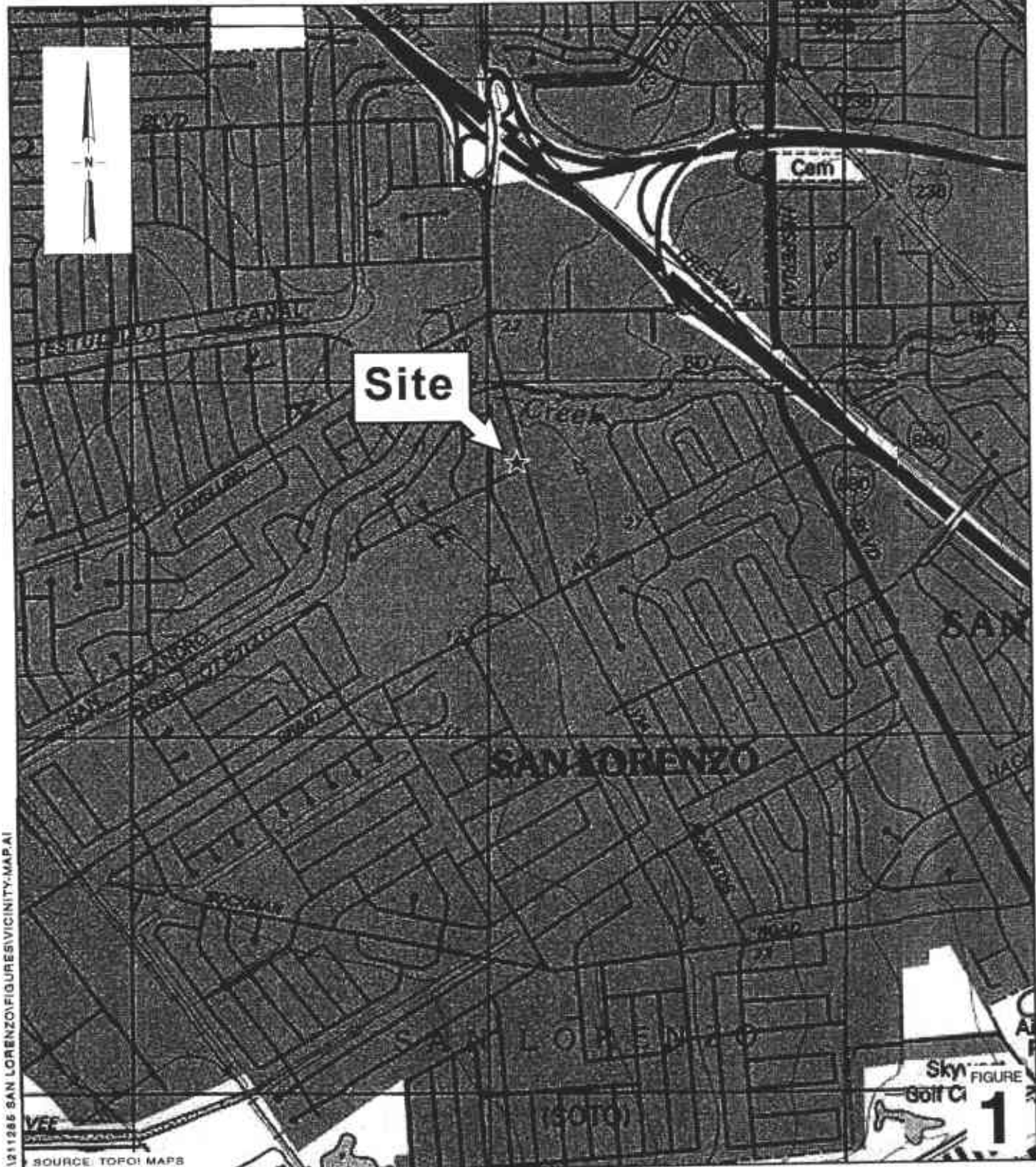
Please contact me at (510) 420-3301 if you have any questions or comments.

Sincerely,  
**Cambria Environmental Technology, Inc.**



N. Scott MacLeod, RG  
Principal Geologist

Attachments: A - Site Maps  
B - Soil and Groundwater Analytical Data  
C - ESL Table E-1a



1:1211285 SAN LORENZO FIGURES VICINITY-MAP.A1

SOURCE: TOPOI MAPS



**Chevron Service Station 211285**  
 15595 Washington Avenue  
 San Lorenzo, California



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Vicinity Map

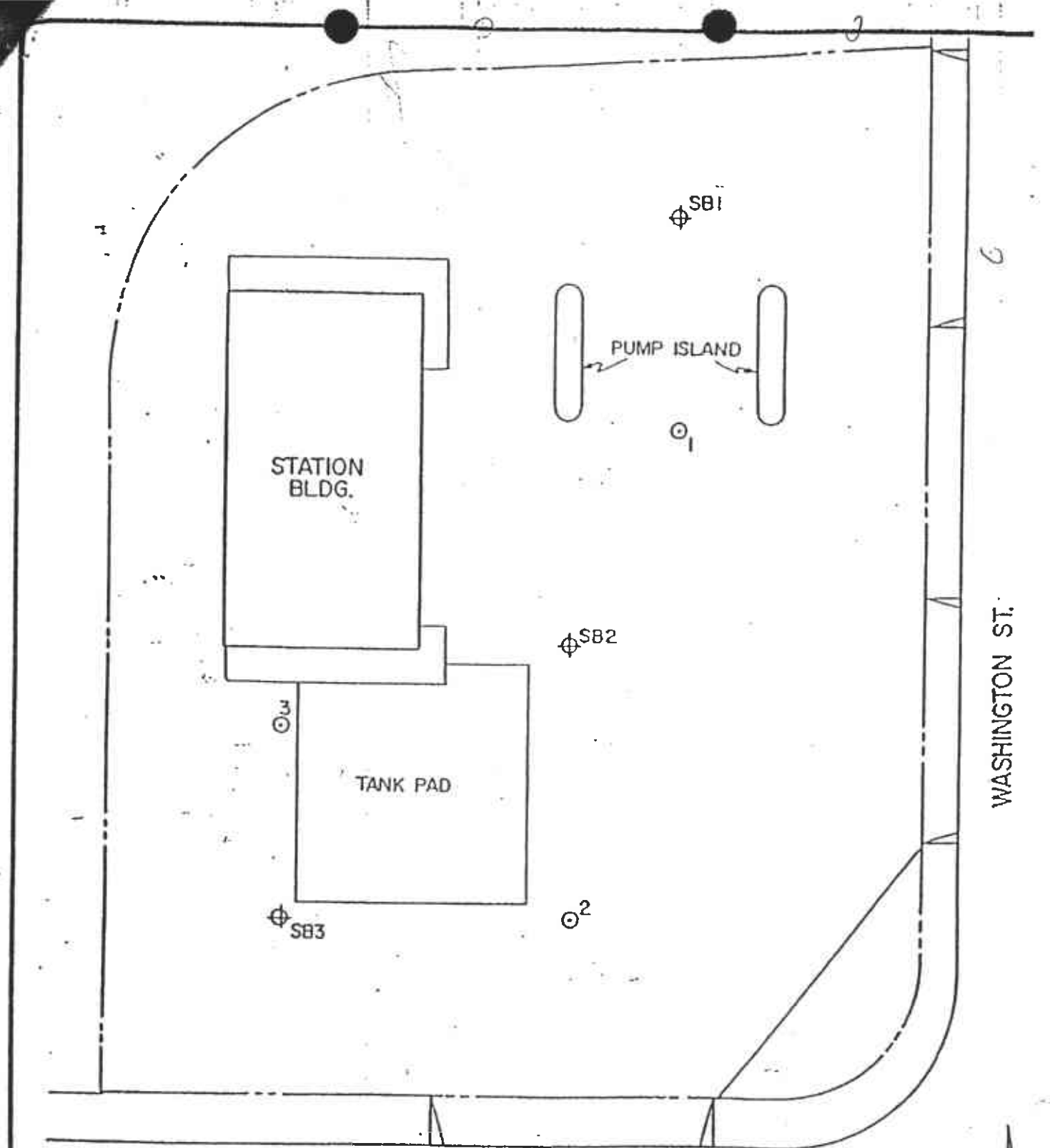


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**ATTACHMENT A**

**Site Maps**



**LEGEND**  
 ⊙ MONITORING WELL  
 ⊕ SOIL BORING

VIA ENRICO ST.

WASHINGTON ST.

FIGURE 2  
 SITE PLAN

TEXACO USA  
 SAN LORENZO, CALIFORNIA

0 FEET

GROUNDWATER TECHNOLOGY



BROWN AND CALDWELL



ANALYTICAL LABORATORIES

RECEIVED

Aug 2 1986

LOG NO: E86-08-202

Received: 11 AUG 86

Reported: 28 AUG 86

Ms. Amy Sager  
Groundwater Technology  
4080 Pike Lane, Suite D  
Concord, California 94520

Purchase Order: 464

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED				
08-202-1	MN-1 Composite	08 AUG 86				
08-202-2	MN-2 Composite	08 AUG 86				
08-202-3	MN-3 Composite	08 AUG 86				
08-202-4	SB-1 Composite	08 AUG 86				
08-202-5	SB-2 Composite	08 AUG 86				
PARAMETER		08-202-1	08-202-2	08-202-3	08-202-4	08-202-5
Lead, mg/kg		12	12	18	14	20
Nitric Acid Digestion, Date		08.18.86	08.18.86	08.18.86	08.18.86	08.18.86
Benzene, Toluene, Xylene Isomers						
Benzene, mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Toluene, mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylene Isomers, mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
Total Fuel Hydrocarbons, mg/kg		<10	<10	<10	<10	<10



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REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
08-202-6	SB-3 Composite	08 AUG 86
PARAMETER	08-202-6	
Lead, mg/kg	12	
Nitric Acid Digestion, Date	08.18.86	
Benzene, Toluene, Xylene Isomers		
Benzene, mg/kg	<0.5	
Toluene, mg/kg	<0.5	
Total Xylene Isomers, mg/kg	<1.0	
Total Fuel Hydrocarbons, mg/kg	<10	

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REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION , GROUND WATER SAMPLES	DATE SAMPLED				
08-202-7	MN-1	08 AUG 86				
08-202-8	MN-2	08 AUG 86				
08-202-9	MN-3	08 AUG 86				
08-202-10	SB-1	08 AUG 86				
08-202-11	SB-2	08 AUG 86				
PARAMETER		08-202-7	08-202-8	08-202-9	08-202-10	08-202-11
Benzene, Toluene, Xylene Isomers						
Benzene, mg/L		<0.05	<0.05	<0.05	0.22	<0.05
Toluene, mg/L		<0.05	<0.05	<0.05	0.39	<0.05
Total Xylene Isomers, mg/L		0.082	<0.05	<0.05	0.68	<0.05

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ANALYTICAL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION , GROUND WATER SAMPLES	DATE SAMPLED
08-202-12	SB-3	08 AUG 86
PARAMETER	08-202-12	
Benzene, Toluene, Xylene Isomers		
Benzene, mg/L		<0.05
Toluene, mg/L		<0.05
Total Xylene Isomers, mg/L		<0.05

*Linda Brack Fox*  
D. A. McLean, Laboratory Director

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**ATTACHMENT B**

**Soil and Groundwater Analytical Data**

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ATTACHMENT C

ESL Table E-1a

**TABLE E-1a. GROUNDWATER SCREENING LEVELS  
FOR EVALUATION OF POTENTIAL INDOOR-AIR IMPACTS  
(volatile chemicals only)**

CHEMICAL PARAMETER	Physical State		Residential Land Use		Commercial/Industrial Land Use	
			Vadose-Zone Soil Type		Vadose-Zone Soil Type	
			*High Permeability (ug/L)	*Low/Moderate Permeability (ug/L)	*High Permeability (ug/L)	*Low/Moderate Permeability (ug/L)
#ACENAPHTHENE	V	S	4.2E+03	4.2E+03	4.2E+03	4.2E+03
ACENAPHTHYLENE	V	S	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)
#ACETONE	V	L	6.0E+06	7.9E+06	1.6E+07	2.2E+07
ALDRIN	NV	S				
#ANTHRACENE	V	S	4.3E+01	4.3E+01	4.3E+01	4.3E+01
ANTIMONY	NV	S				
ARSENIC	NV	S				
BARIUM	NV	S				
#BENZENE	V	L	5.3E+02	1.9E+03	1.8E+03	6.4E+03
BENZO(a)ANTHRACENE	NV	S				
BENZO(b)FLUORANTHENE	NV	S				
BENZO(k)FLUORANTHENE	NV	S				
BENZO(a,h,i)PERYLENE	NV	S				
BENZO(a)PYRENE	NV	S				
BERYLLIUM	NV	S				
BIPHENYL, 1,1-	V	S	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)
BIS(2-CHLOROETHYL)ETHER	V	L	6.3E+01	8.3E+01	2.1E+02	2.8E+02
BIS(2-CHLOROISOPROPYL)ETHER	V	L	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)
BIS(2-ETHYLHEXYL)PHTHALATE	NV	S				
BORON	NV	S				
BROMODICHLOROMETHANE	V	L	1.6E+02	3.1E+02	5.4E+02	1.0E+03
BROMOFORM	NV	S				
BROMOMETHANE	V	G	5.8E+02	2.0E+03	1.6E+03	5.7E+03
CADMIUM	NV	S				
CARBON TETRACHLORIDE	V	L	9.5E+00	4.0E+01	3.2E+01	1.4E+02
CHLORDANE	NV	S				
CHLOROANILINE, p-	NV	S				
CHLOROBENZENE	V	L	1.3E+04	4.3E+04	3.8E+04	1.2E+05
CHLOROETHANE	V	G	8.2E+02	3.3E+03	2.7E+03	1.1E+04
CHLOROFORM	V	L	3.4E+02	1.2E+03	1.1E+03	3.9E+03
CHLOROMETHANE	V	G	1.7E+02	7.5E+02	5.8E+02	2.5E+03
CHLOROPHENOL, 2-	V	L	5.5E+03	1.6E+04	1.5E+04	4.6E+04
CHROMIUM (Total)	NV	S				
CHROMIUM III	NV	S				
CHROMIUM VI	NV	S				
CHRYSENE	NV	S				
COBALT	NV	S				
COPPER	NV	S				

**TABLE E-1a. GROUNDWATER SCREENING LEVELS  
FOR EVALUATION OF POTENTIAL INDOOR-AIR IMPACTS  
(volatile chemicals only)**

CHEMICAL PARAMETER	Physical State		Residential Land Use		Commercial/Industrial Land Use	
			Vadose-Zone Soil Type		Vadose-Zone Soil Type	
			High Permeability (ug/L)	Low/Moderate Permeability (ug/L)	High Permeability (ug/L)	Low/Moderate Permeability (ug/L)
CYANIDE (Free)	NV	S				
DIBENZO(a,h)ANTHTRACENE	NV	S				
DIBROMOCHLOROMETHANE	V	S	1.8E+02	4.2E+02	6.1E+02	1.4E+03
1,2-DIBROMO-3-CHLOROPROPANE	V	L	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)
DIBROMOETHANE, 1,2-	V	S	1.6E+02	2.6E+02	5.6E+02	8.6E+02
DICHLOROBENZENE, 1,2-	V	L	7.8E+04	1.6E+05	1.6E+05	1.6E+05
DICHLOROBENZENE, 1,3-	V	L	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)	(NV: Use soil gas)
DICHLOROBENZENE, 1,4-	V	S	3.6E+02	1.0E+03	1.2E+03	3.4E+03
DICHLOROBENZIDINE, 3,3-	NV	S				
DICHLORODIPHENYLDICHLOROETHANE (DDD)	NV	S				
DICHLORODIPHENYLDICHLOROETHYLENE (DDE)	NV	S				
DICHLORODIPHENYLTRICHLOROETHANE (DDT)	NV	S				
DICHLOROETHANE, 1,1-	V	L	1.0E+03	3.6E+03	3.5E+03	1.2E+04
DICHLOROETHANE, 1,2-	V	L	2.0E+02	5.1E+02	6.9E+02	1.7E+03
DICHLOROETHYLENE, 1,1-	V	L	6.3E+03	2.7E+04	1.8E+04	7.5E+04
DICHLOROETHYLENE, Cis 1,2-	V	L	6.2E+03	2.0E+04	1.7E+04	5.5E+04
DICHLOROETHYLENE, Trans 1,2-	V	L	6.7E+03	2.5E+04	1.9E+04	6.9E+04
DICHLOROPHENOL, 2,4-	NV	S				
DICHLOROPROPANE, 1,2-	V	L	2.9E+02	8.9E+02	9.6E+02	3.0E+03
DICHLOROPROPENE, 1,3-	V	L	4.9E+01	2.0E+02	1.7E+02	6.6E+02
DIELDRIN	NV	S				
DIETHYLPHTHALATE	NV	S				
DIMETHYLPHTHALATE	NV	S				
#DIMETHYLPHENOL, 2,4-	V	S	2.8E+06	4.1E+08	8.0E+08	1.1E+07
DINITROPHENOL, 2,4-	NV	S				
DINITROTOLUENE, 2,4-	NV	S				
1,4 DIOXANE	NV	L				
DIOXIN (2,3,7,8-TCDD)	NV	S				
ENDOSULFAN	NV	S				
ENDRIN	NV	S				
#ETHYLBENZENE	V	L	1.4E+04	5.2E+04	4.7E+04	1.8E+05
FLUORANTHENE	NV	S				
#FLUORENE	V	S	1.9E+03	1.9E+03	1.9E+03	1.9E+03
HEPTACHLOR	NV	S				
HEPTACHLOR EPOXIDE	NV	S				
HEXACHLOROBENZENE	NV	S				
HEXACHLOROBUTADIENE	NV	S				
HEXACHLOROCYCLOHEXANE (gamma) LINDANE	NV	S				

**TABLE E-1a. GROUNDWATER SCREENING LEVELS  
FOR EVALUATION OF POTENTIAL INDOOR-AIR IMPACTS  
(volatile chemicals only)**

CHEMICAL PARAMETER	Physical State		Residential Land Use		Commercial/Industrial Land Use	
			Vadose-Zone Soil Type		Vadose-Zone Soil Type	
			High Permeability (ug/L)	Low/Moderate Permeability (ug/L)	High Permeability (ug/L)	Low/Moderate Permeability (ug/L)
HEXACHLOROETHANE	NV	S				
INDENO(1,2,3-cd)PYRENE	NV	S				
LEAD	NV	S				
MERCURY	NV	S				
METHOXYCHLOR	NV	S				
METHYLENE CHLORIDE	V	L	2.4E+03	7.2E+03	8.1E+03	2.4E+04
#METHYL ETHYL KETONE	V	L	5.5E+07	1.2E+08	1.5E+08	3.3E+08
#METHYL ISOBUTYL KETONE	V	L	3.1E+06	4.3E+06	8.7E+06	1.2E+07
METHYL MERCURY	NV	S				
#METHYLNAPHTHALENE (total 1- & 2-)	V	S	2.6E+04	2.6E+04	2.6E+04	2.6E+04
METHYL TERT BUTYL ETHER	V	L	2.4E+04	4.8E+04	8.0E+04	1.6E+05
MOLYBDENUM	NV	S				
#NAPHTHALENE	V	S	2.8E+04	3.1E+04	3.1E+04	3.1E+04
NICKEL	NV	S				
PENTACHLOROPHENOL	NV	S				
PERCHLORATE	NV	S				
PHENANTHRENE	V	S	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)
PHENOL	NV	S				
POLYCHLORINATED BIPHENYLS (PCBs)	NV	S				
#PYRENE	V	S	1.4E+02	1.4E+02	1.4E+02	1.4E+02
SELENIUM	NV	S				
SILVER	NV	S				
#STYRENE	V	L	3.1E+05	3.1E+05	3.1E+05	3.1E+05
tert-BUTYL ALCOHOL			(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)
TETRACHLOROETHANE, 1,1,1,2-	V	L	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)
TETRACHLOROETHANE, 1,1,2,2-	V	L	1.9E+02	3.1E+02	8.3E+02	1.0E+03
TETRACHLOROETHYLENE	V	L	1.3E+02	5.2E+02	4.3E+02	1.7E+03
THALLIUM	NV	S				
#TOLUENE	V	L	5.0E+05	5.3E+05	5.3E+05	5.3E+05
TOXAPHENE	NV	S				
TPH (gasolines)	V	L	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)
TPH (middle distillates)	V	L	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)	(NV; Use soil gas)
TPH (residual fuels)	NV	L/S				
TRICHLOROBENZENE, 1,2,4-	V	L	1.5E+05	2.6E+05	3.0E+05	3.0E+05
TRICHLOROETHANE, 1,1,1-	V	L	1.3E+05	5.2E+05	3.6E+05	1.3E+06
TRICHLOROETHANE, 1,1,2-	V	L	3.5E+02	8.0E+02	1.2E+03	2.7E+03
TRICHLOROETHYLENE	V	L	5.3E+02	2.1E+03	1.8E+03	8.9E+03
TRICHLOROPHENOL, 2,4,5-	V	S	8.2E+05	8.2E+05	1.2E+06	1.2E+06



**TABLE E-1a. GROUNDWATER SCREENING LEVELS  
FOR EVALUATION OF POTENTIAL INDOOR-AIR IMPACTS  
(volatile chemicals only)**

CHEMICAL PARAMETER	Physical State		Residential Land Use		Commercial/Industrial Land Use	
			Vadose-Zone Soil Type		Vadose-Zone Soil Type	
			<sup>1</sup> High Permeability (ug/L)	<sup>2</sup> Low/Moderate Permeability (ug/L)	<sup>1</sup> High Permeability (ug/L)	<sup>2</sup> Low/Moderate Permeability (ug/L)
TRICHLOROPHENOL, 2,4,6-	NV	S				
VANADIUM	NV	S				
VINYL CHLORIDE	V	G	4.0E+00	1.7E+01	1.3E+01	5.7E+01
m-XYLENES	V	L	1.5E+05	1.6E+05	1.6E+05	1.6E+05
ZINC	NV	S				

**Notes:**

- "Residential" screening levels generally considered adequate for other sensitive uses (e.g., day-care centers, hospitals, etc.).
- High permeability soil model: One meter dry sandy soil (92% sand, 5% silt, 3% clay) over one meter moist clayey loam (33% sand, 34% silt, 33% clay).
- Low/Moderate permeability soil model: One meter dry loamy sand (83% sand, 11% silt, 6% clay) over one meter moist silt (7% sand, 87% silt, 6% clay).
- For inclusion in Tier 1 screening levels, all groundwater assumed to potentially migrate under a residential area. Screening levels for protection of indoor air under a residential exposure scenario carried forward for use at both residential and commercial/industrial sites (see Table F series).

Screening levels calculated using spreadsheet provided with *User's Guide for the Johnson and Ettinger Indoor Air model (1991) for Subsurface Vapor Intrusion Into Buildings* (USEPA 2001). Assumed vadose-zone thickness/depth to groundwater three meters. See Appendix 1 text for model details.

Physical state of chemical at ambient conditions (V - volatile, NV - nonvolatile, S - sl, L - liquid, G - gas).

Chemical considered to be "volatile" if Henry's number (atm m<sup>3</sup>/mole) > 0.00001 and molecular weight < 200.

Dibromochloromethane, dibromochloropropane and pyrene considered volatile for purposes of modeling (USEPA 2002).

Target cancer risk = 1E-06, Target Hazard Quotient = 0.2

\*#: Nonchlorinated VOCs (except MTBE) adjusted upwards by factor of ten to account for assumed biodegradation in vadose-zone prior to emission at surface.

NV: No value. Use soil gas data to evaluate potential indoor-air impact concerns.

1 Docket No. SWRCB FILE NO.:

2 PROOF OF SERVICE BY MAIL

3 I, Jennifer Brooks, the undersigned, hereby certify and declare under penalty of  
4 perjury that the following statements are true and correct:

5 1. I am over the age of 18 years and am not a party to the within cause.

6 2. My business address is One Walnut Creek Center, 100 Pringle Avenue,  
7 Suite 500, Walnut Creek, CA 94596

8 3. I am familiar with my employer's mail collection and processing practices;  
9 know that said mail is collected and deposited with the United States Postal Service on the same  
10 day it is deposited in interoffice mail; and know that postage thereon is fully prepaid.

11 4. Following said practice, on January 22, 2004 I served a true and correct  
12 copy of the attached document entitled exactly **CHEVRONTEXACO CORP.'S REPLY TO**  
13 **ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY'S RESPONSE TO**  
14 **CHEVRONTEXACO'S PETITION FOR REVIEW OF THE ALAMEDA COUNTY**  
15 **HEALTH CARE SERVICES AGENCY'S JULY 7, 2003 DESIGNATION OF IT AS**  
16 **SECONDARY RESPONSIBLE PARTY** by placing it in an addressed, sealed envelope and  
17 depositing it in regularly maintained interoffice mail to the following:

18 *Please see attached Service List*

19 Executed this 22nd day of January, 2004 at Walnut Creek, California.

20  
21 \_\_\_\_\_  
22 Jennifer Brooks  
23  
24  
25  
26  
27  
28

