Sh D 4466

Chevron

Chevron

January 12, 1997

Chevron Products Company
6001 Bollinger Canyon Road
Building L
San Ramon, CA 94583
P.O. Box 5004
San Ramon, CA 94583-0804

~~Marketing – Northwest Region~~
~~Phone 510 842 9500~~

Ms. Eva Chu
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

① Can Excavate
② what institutional controls proposal

Re: Former Chevron Service Station # 9-1723
9757 San Leandro Blvd.
~~San Leandro~~, California
Oakland

How vapor barrier will be sealed -
Get specs of vapor barrier

Dear Ms. Chu:

Enclosed is a copy of the Investigation Report with the results of the soil vapor investigation that was conducted by our consultant Cambria Environmental Technology, Inc. at the above noted site. The objective of the investigation was to obtain site specific data for vapor-phase hydrocarbons to complete a Risk Based Corrective Action (RBCA) plan for the site.

Soil vapor samples were collected from six borings from 5 to 8 feet in depth. Soil vapor samples were analyzed for BTEX constituents by using analytical method TO-14. Benzene was detected in all vapor samples with the concentrations localized in the vicinity of the former underground storage tanks.

These results are as expected based on the RBCA evaluation and do indicate the necessity of placing institutional controls at the site in case of future commercial development. There should be no health problems due to worker exposure to the soils at the site - not enough exposure time.

If you have any questions or comments, call me at (510) 842-9136.

Sincerely
CHEVRON PRODUCTS COMPANY

Philip R. Briggs
Site Assessment and Remediation Project Manager

6/30/98
Pete McKereghan 420-3325
cambria
He will send RBCA calc of soil vapor & rationale for closure.

Enclosure

cc. Mr. Kevin Graves
RWQWB- San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612

Trustees of the Estate of Mr. Ron Hothem
Pacific American Management Co.
369 Broadway
San Francisco, CA 94133

Dr. Eric J. McHuron, CEG, CEA
President
McHuron Geosciences
1670 8th Avenue
San Francisco, CA 94122

Mr. Chuck Headlee
Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, CA 94608 (Less report)

Ms. Bette Owen, Chevron

Mr. Curtis Peck, Chevron
CRTC/HES/Richmond, CA/Rm. 208

CAMBRIA

January 5, 1998

Mr. Phil Briggs
Chevron USA Products Company
6001 Bollinger Canyon Road, Bldg. L
San Ramon, CA 94583-0804

Re: **Investigation Report**
Former Chevron Service Station 9-1723
9757 San Leandro Boulevard
Oakland, California

Dear Mr. Briggs:

This report presents the results of the soil vapor investigation conducted by Cambria Environmental Technology, Inc. (Cambria) on October 6, 1997, at the site referenced above (Figure 1). The objective of the investigation was to obtain site-specific data for vapor-phase hydrocarbons to complete a Risk-Based Corrective Action (RBCA) assessment for the site. The site background, our scope of work, and the results of our investigation are summarized below.

SITE BACKGROUND

The site is a former Chevron service station located in a primarily commercial and industrial area at 9759 San Leandro Boulevard in Oakland, California. The site is currently used for automobile and trailer parking. To date, ten ground water monitoring wells have been installed and twenty-three soil borings have been drilled at the site.

CAMBRIA
ENVIRONMENTAL
TECHNOLOGY, INC.
1144 65TH STREET,
SUITE B
OAKLAND,
CA 94608
PH: (510) 420-0700
FAX: (510) 420-9170

Site Setting, Geology, and Hydrology: The site is essentially flat, approximately 25 ft above mean sea level, and is located about one mile east of San Francisco Bay. Site stratigraphy comprises primarily alluvial plain and stream channel deposits consisting of low permeability clayey silt, silt, and sandy silts of low to moderate permeability with occasional gravel lenses of moderate to high estimated permeability. Ground water is encountered about 9 to 10 ft bgs and flows to the west at a gradient of 0.004 ft/ft.

Hydrocarbon Distribution in Soil: The highest hydrocarbon concentrations detected in soil samples collected during previous investigations were 1,800 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg) and 99 ppm benzene in the vicinity of the former underground storage tanks (USTs).

Hydrocarbon Distribution in Ground Water: Ground water has been gauged and analyzed since November 1993. TPHg and benzene have been detected in site wells in steadily decreasing concentrations over time. For example, the maximum benzene concentration was 2,000 ppb in well MW-8 on November 12, 1993 but has decreased to 280 ppb in the same well on May 25, 1997.

SCOPE OF WORK

To assess the hydrocarbon concentrations in soil vapor near the former underground storage tanks (USTs), where the highest concentrations of hydrocarbons in soil and ground water are found, Cambria advanced six soil vapor borings and collected in-situ soil vapor data. Boring locations are shown on Figure 1.

Soil vapor boring locations were placed at the direction of Chevron. These sample locations were chosen to enhance the RBCA assessment for the site. Eva Chu of the Alameda County Environmental Health Department (ACEHD) requested that additional samples (SV-5 and SV-6) be taken in the vicinity of SV-1 and SV-2 at depths of 5 ft. Although these confirmation samples were taken at approximately the same depths and locations as the initial samples the inherent variability of the soil media and in-situ soil vapor sampling techniques complicate comparison of the results from these confirmation samples to those from the initial samples.

Cambria's scope of work for the investigation was to:

- Prepare a site Health and Safety Plan, coordinate field activities, secure permits, and notify Underground Service Alert;
- Drill six soil vapor borings and collect in-situ soil vapor data and analyze selected soil samples for benzene, toluene, ethylbenzene and xylenes (BTEX);
- Prepare an investigation report, presenting the results of the soil and ground water sampling.

INVESTIGATION RESULTS

The results of Cambria's October 6, 1997 soil vapor investigation are summarized below. A soil vapor sampling report from Air Toxics LTD. of Folsom, California (Air Toxics) is included as Attachment A. Tabulated analytic results for soil vapor samples are presented in Table 1. Our standard field procedures are presented as Attachment B and soil boring permits from the Alameda County Department of Public Works is included in Attachment C.

Soil Vapor Borings Sampling

Personnel Present:	Project Manager Chuck Headlee directed the field sampling efforts, working under the supervision of Certified Engineering Geologist Joseph P. Theisen.
Permits:	Cambria obtained soil boring permits from Alameda County Department of Public Works prior to beginning field operations.
Drilling Company:	Vironex of Hayward, California.
Drilling Date:	October 6, 1997.
Drilling Methods:	Geoprobe (hydraulic push with roto-hammer).
Rationale for Boring Placement:	SV-1: Determine soil vapor concentrations in the location of former USTs; SV-2: Determine soil vapor concentrations in the vicinity of the former islands; SV-3: Determine soil vapor concentrations in the vicinity of the former islands; SV-4: Determine soil vapor concentrations in the vicinity of the former product lines. SV-5 (SVD-1): Confirm results of SV-1; SV-6 (SVD-2): Confirm results of SV-2; Chain of Custody and field sample identifications were changed to more clearly represent the data. Field samples SVD-1 at 5 ft and SVD-2 at 5 ft were changed to SV-5 at 5 ft and SV-6 at 5 ft, respectively. Chain of Custody and field sample SV-2 at 8 ft was not a representative sample of the soil vapor concentrations due to sampling equipment failures during field sampling. Therefore an additional sample SVD-2 at 8 ft was taken in the same boring to replace the first sample SV-2 at 8 ft and to obtain more accurate data.
Number of Borings:	Six.
Boring Depths:	5 to 8 ft below ground surface.
Chemical Analysis:	Soil vapor samples were analyzed for benzene, toluene, ethyl-benzene, xylenes (BTEX) by analytical method TO-14.
Waste Disposal:	No soil cuttings or waste water were generated.

Hydrocarbon Distribution in Soil Vapor

Benzene was detected in all soil vapor samples collected from borings SV-1 through SV-6. The highest benzene concentration was detected in the 5 ft depth soil vapor sample from SV-5 at 100,000 parts per billion by volume (ppbv). The second highest benzene concentration was detected in SV-2 (SVD-2) at 8 ft bgs at 3,100 ppbv. Borings SV-1, SV-2, SV-5, and SV-6 were advanced in the location of the former USTs. Soil vapor benzene concentrations appear to be localized in the vicinity of the former USTs. Soil vapor samples collected from borings SV-3 and SV-4 detected benzene at concentrations less than 5 ppbv.

CLOSING

We appreciate this opportunity to provide consulting services to Chevron Products Company and we look forward to working with you in the future. Please call if you have any questions or comments.

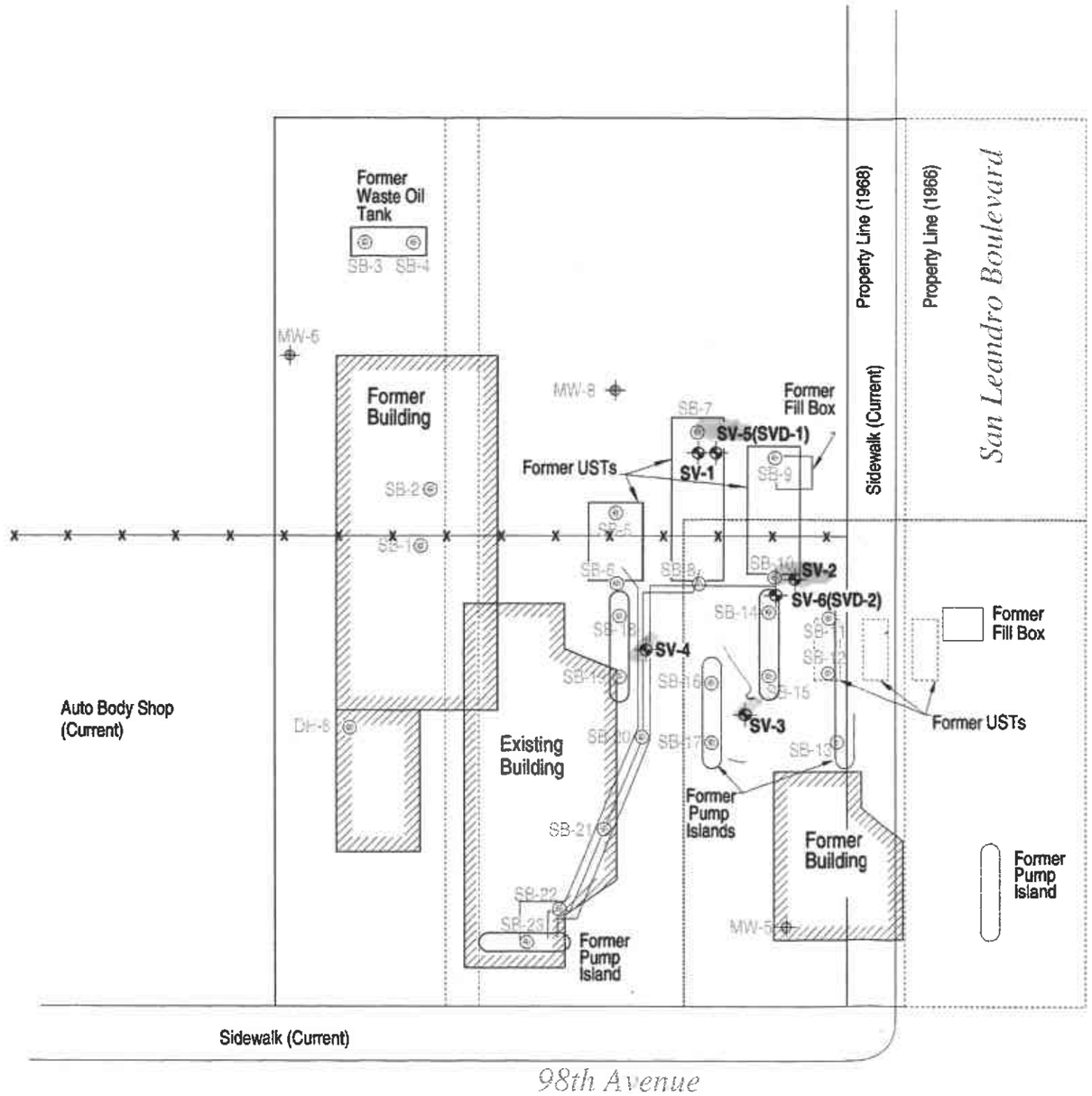
Sincerely,
Cambria Environmental Technology, Inc.

Walter Cuculic
Staff Engineer

Joseph P. Theisen, C.E.G.
Principal Hydrogeologist

Attachments: A - Analytic Results for Soil Vapor Samples
B - Soil Boring Permits
C - Standard Field Procedures

F:\PROJECT\CHEVRON\9-1723 Oakland\REPORT2.WPD



CAMBRIA
Environmental Technology, Inc.

Former Chevron Service Station No. 9-1723
9757 San Leandro Boulevard
Oakland, California

F:\PROJECT\CHEVRON\9-1723\FIGURES\SOL-VPR.DWG

Soil Vapor Sample Locations

FIGURE
1

11/20/97

Table 1. Analytic Data for Soil Vapor Samples- Former Chevron Service Station 9-1723, 9757 San Leandro Boulevard, Oakland, California

Report and Map ID	Chain of Custody and Field ID	Date	Depth (ft)	Benzene	Toluene	Ethylbenzene	m, p -Xylenes	o- Xylene	Comments
				parts per billion by volume					
SV-1-3.0	SV-1-3.0	10/06/97	3.0	96	5.1	6.2	14	5.2	
SV-1-3.0(duplicate)	SV-1-3.0(duplicate)	10/06/97	3.0	94	5.6	6.3	14	5.4	Laboratory Duplicate
SV-1-5.0	SV-1-5.0	10/06/97	5.0	410	4.6	260	25	3.3	
SV-2-3.0	SV-2-3.0	10/06/97	3.0	970	12	190	410	82	
SV-2-5.0	SV-2-5.0	10/06/97	5.0	420	6.0	120	240	46	
SV-2-8.0**	SVD-2-8.0*	10/06/97	8.0	3,100	1,200	2,900	9,200	3,200	
SV-3-3.0	SV-3-3.0	10/06/97	3.0	4.9	5.6	6.4	21	8.2	
SV-3-5.0	SV-3-5.0	10/06/97	5.0	3.6	2.1	2.7	9.0	3.2	
SV-4-3.0	SV-4-3.0	10/06/97	3.0	1.8	4.8	6.0	23	8.4	
SV-4-5.0	SV-4-5.0	10/06/97	5.0	2.0	10	6.0	22	8.2	
SV-5-5.0	SVD-1-5.0*	10/06/97	5.0	100,000	1,500	4,600	1,200	<950	
SV-6-5.0	SVD-2-5.0*	10/06/97	5.0	580	120	490	2,200	980	

Abbreviations / Notes

Benzene, toluene, ethylbenzene, and xylenes by analytical method TO-14

<x = not detected above x parts per billion by volume

Chain of Custody and field sample identifications were changed to more accurately represent the data.

*Incorrectly labeled during field operations

-SVD-2-8.0 corresponds to soil vapor location SV-2 at 8 ft.

-SVD-1-5.0 corresponds to soil vapor location SV-5 at 5 ft.

-SVD-2-5.0- corresponds to soil vapor location SV-6 at 5 ft.

** An additional soil vapor sample was taken at SV-2-8.0 and was not included in table due to sampling equipment failures during field sampling. The analytic results for this sample are inluded on page 8 of Attachment A.

Appendix A

Analytic Results for Soil Vapor Samples

@AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9710097

Work Order Summary

CLIENT:	Mr. Chuck Headlee Cambria Environmental Technology 1144 65th Street, Suite B Oakland, CA 94608	**BILL TO:** Same	
PHONE:	510-420-3328	**P.O. #** NR	
FAX:	510-420-9170	**PROJECT #** 9-1723 Chevron	
DATE RECEIVED:	10/7/97		
DATE COMPLETED:	10/15/97		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	SV-1 at 3 ft	TO-14-S	3.0 "Hg
01AA	SV-1 at 3 ft Duplicate	TO-14-S	3.0 "Hg
02A	SV-1 at 5 ft	TO-14-S	4.0 "Hg
03A	SVD-1 at 5 ft	TO-14-S	3.5 "Hg
04A	SV-2 at 3 ft	TO-14-S	2.5 "Hg
05A	SV-2 at 5 ft	TO-14-S	0.5 "Hg
06A	SV-2 at 8 ft	TO-14-S	1.5 "Hg
07A	SVD-2 at 5 ft	TO-14-S	1.5 "Hg
08A	SVD-2 at 8 ft	TO-14-S	1.0 "Hg
09A	SV-3 at 3'	TO-14-S	1.0 "Hg
10A	SV-3 at 5'	TO-14-S	2.5 "Hg
11A	SV-4 at 3'	TO-14-S	1.0 "Hg
12A	SV-4 at 5'	TO-14-S	2.0 "Hg
13A	Method Spike	TO-14-S	NA
14A	Lab Blank	TO-14-S	NA
14B	Lab Blank	TO-14-S	NA
14C	Lab Blank	TO-14-S	NA

CERTIFIED BY: Linda J. Thomas
Laboratory Director

DATE: 10/15/97

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME : SV-1 at 3 ft

ID#: 9710097-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	j101205	Date of Collection:	10/ 6/97
Dil. Factor:	14.9	Date of Analysis:	10/12/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.75	96
Toluene	0.75	5.1
Ethyl Benzene	0.75	6.2
m,p-Xylene	0.75	14
o-Xylene	0.75	5.2

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	98	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	91	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-1 at 3 ft Duplicate

ID#: 9710097-01AA

EPA METHOD TO-14 GC/MS Full Scan

File Name:	j101207	Date of Collection:	10/ 6/97
Dil. Factor:	14.9	Date of Analysis:	10/12/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.75	94
Toluene	0.75	5.6
Ethyl Benzene	0.75	6.3
m,p-Xylene	0.75	14
o-Xylene	0.75	5.4

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	101	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	94	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-1 at 5 ft

ID#: 9710097-02A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	1101008	Date of Collection:	10/ 6/97
Dil. Factor:	25.8	Date of Analysis:	10/10/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	1.3	410
Toluene	1.3	4.6
Ethyl Benzene	1.3	260
m,p-Xylene	1.3	25
o-Xylene	1.3	3.3

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	105	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	88	70-130

AIR TOXICS LTD.

SAMPLE NAME : SVD-1 at 5 ft

ID#: 9710097-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	101006	Date of Collection:	10/ 6/97
Dil. Factor:	19000	Date of Analysis:	10/10/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	950	100000
Toluene	950	1500
Ethyl Benzene	950	4600
m,p-Xylene	950	1200
o-Xylene	950	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	107	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	87	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-2 at 3 ft

ID#: 9710097-04A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	1100913	Date of Collection:	10/ 6/97
Dil. Factor:	48.7	Date of Analysis:	10/ 9/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	2.4	970
Toluene	2.4	12
Ethyl Benzene	2.4	190
m,p-Xylene	2.4	410
o-Xylene	2.4	82

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	101	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	83	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-2 at 5 ft

ID#: 9710097-05A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	1101007	Date of Collection:	10/ 6/97
Dil. Factor:	19.4	Date of Analysis:	10/10/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.97	420
Toluene	0.97	6.0
Ethyl Benzene	0.97	120
m,p-Xylene	0.97	240
o-Xylene	0.97	46

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	105	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	88	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-2 at 8 ft

ID#: 9710097-06A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	1100914	Date of Collection:	10/ 6/97
Dil. Factor:	14.1	Date of Analysis:	10/ 9/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.71	110
Toluene	0.71	6.1
Ethyl Benzene	0.71	52
m,p-Xylene	0.71	160
o-Xylene	0.71	49

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	85	70-130

AIR TOXICS LTD.

SAMPLE NAME : SVD-2 at 5 ft

ID#: 9710097-07A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	I101011	Date of Collection: 10/6/97
Dil. Factor:	88.1	Date of Analysis: 10/10/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	4.4	580
Toluene	4.4	120
Ethyl Benzene	4.4	490
m,p-Xylene	4.4	2200
o-Xylene	4.4	980

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	106	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	87	70-130

AIR TOXICS LTD.

SAMPLE NAME : SVD-2 at 8 ft

ID#: 9710097-08A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	j100909	Date of Collection:	10/ 6/97
Dil. Factor:	348	Date of Analysis:	10/ 9/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	17	3100
Toluene	17	1200
Ethyl Benzene	17	2900
m,p-Xylene	17	9200
o-Xylene	17	3200

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	84	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-3 at 3'

ID#: 9710097-09A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	1101010	Date of Collection:	10/ 6/97
Dil. Factor:	4.63	Date of Analysis:	10/10/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.23	4.9
Toluene	0.23	5.6
Ethyl Benzene	0.23	6.4
m,p-Xylene	0.23	21
o-Xylene	0.23	8.2

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	87	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	101	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-3 at 5'

ID#: 9710097-10A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	1100515	Date of Collection:	10/ 6/97
Dil. Factor:	20.6	Date of Analysis:	10/ 9/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	1.0	3.6
Toluene	1.0	2.1
Ethyl Benzene	1.0	2.7
m,p-Xylene	1.0	9.0
o-Xylene	1.0	3.2

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	86	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-4 at 3'

ID#: 9710097-11A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	I101009	Date of Collection:	10/ 6/97
Dil. Factor:	4.63	Date of Analysis:	10/10/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.23	1.8
Toluene	0.23	4.8
Ethyl Benzene	0.23	6.0
m,p-Xylene	0.23	23
o-Xylene	0.23	8.4

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	109	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	92	70-130

AIR TOXICS LTD.

SAMPLE NAME : SV-4 at 5'

ID#: 9710097-12A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	101206	Date of Collection:	10/ 6/97
Dil. Factor:	7.20	Date of Analysis:	10/12/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.36	2.0
Toluene	0.36	10
Ethyl Benzene	0.36	6.0
m,p-Xylene	0.36	22
o-Xylene	0.36	8.2

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Octafluorotoluene	78	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	92	70-130

AIR TOXICS LTD.

SAMPLE NAME : Method Spike

ID#: 9710097-13A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	j101202a	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/12/97

Compound	Rpt. Limit (ppbv)	% Recovery
Benzene	0.050	76
Toluene	0.050	88
Ethyl Benzene	0.050	96
m,p-Xylene	0.050	91
o-Xylene	0.050	97

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	111	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	99	70-130

AIR TOXICS LTD.

SAMPLE NAME : Lab Blank

ID#: 9710097-14A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	1100904	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	10/ 9/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.050	Not Detected
Toluene	0.050	Not Detected
Ethyl Benzene	0.050	Not Detected
m,p-Xylene	0.050	Not Detected
o-Xylene	0.050	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	104	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	85	70-130

AIR TOXICS LTD.

SAMPLE NAME : Lab Blank

ID#: 9710097-14B

EPA METHOD TO-14 GC/MS Full Scan

File Name:	101005	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/10/97

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.050	Not Detected
Toluene	0.050	Not Detected
Ethyl Benzene	0.050	Not Detected
m,p-Xylene	0.050	Not Detected
o-Xylene	0.050	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	108	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	86	70-130

AIR TOXICS LTD.

SAMPLE NAME : Lab Blank

ID#: 9710097-14C

EPA METHOD TO-14 GC/MS Full Scan

File Name:	I101204	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 10/12/97	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Benzene	0.050	Not Detected
Toluene	0.050	Not Detected
Ethyl Benzene	0.050	Not Detected
m,p-Xylene	0.050	Not Detected
o-Xylene	0.050	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Octafluorotoluene	98	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	88	70-130

AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

CHAIN-OF-CUSTODY RECORD

№ 12581

Contact Person: WALTER CUCULIC
Company: CAMBRIA ENV TECH.
Address: 1144 65th St Suite C City: Oakland State: CA Zip: 94608
Phone: 510-420-3328 FAX: 510-420-9170
Collected By: Signature: Walter Cuculic

Project info: CHEVRON
P.O. #:
Project #: 9-1723
Project Name:

Turn Around Time:
☒ Normal
☐ Rush ______ Specify

Lab I.D.	Field Sample I.D.	Date	Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
01A	SV-1 at 3 ft	10/6/97	1:30	T-014	28.0	2.0	5.0
02A	SV-1 at 5 ft	10/6/97	1:40	T-014	26.0	2.0	4.0
03A	SVD-1 at 5 ft	10/6/97	2:10	T-014	29.0	2.0	3.5
04A	SV-2 at 3 ft	10/6/97	9:30	T-014	21.5	2.0	3.5
05A	SV-2 at 5 ft	10/6/97	9:45	T-014	27.5	2.0	0.5
06A	SV-2 at 8 ft	10/6/97	11:00	T-014	20.0	2.0	1.5
07A	SVD-2 at 5 ft	10/6/97	11:10	T-014	26.5	2.0	1.5
08A	SVD-2 at 8 ft	10/6/97	11:30	T-014	28.0	2.0	4.0
					inches of Hg		

Relinquished By: (Signature) Walter Cuculic Date/Time: 10/6/97 4:00 Print Name:
Relinquished By: (Signature) Date/Time: Received By: (Signature) [signature] - ATL Date/Time: 9-08-97 9:05am
Relinquished By: (Signature) Date/Time: Received By: (Signature) Date/Time:

Notes: 10/7/97

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Date/Time	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	Fomer	cc	DR	9-08-97 9:05am	Amb	Good	Yes No None N/A	9710097
	cc 510-420-3371	510-420-3312	510-420-3170					

Form 1293 rev. 06

AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

CHAIN-OF-CUSTODY RECORD

№ 12583

Page ___ of ___

Contact Person: WALTER CUCULIC
Company: CAMBRIA ENV. TECH.
Address: 1144 65th St. Suite City: Oakland State: CA Zip: 94608
Phone: 510-470-3328 FAX: 510-420-9170
Collected By: Signature: Walter Cuculic

Project Info: CHEVRON
P.O. #:
Project #: 9-1723
Project Name:

Turn Around Time:
☒ Normal
☐ Rush ______ Specify

Lab I.D.	Field Sample I.D.	Date	Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
09A	SU-3 at 3'	10/6/97	13:40	T-014	20.0	2.0	1.0%
10A	SU-3 at 5'	10/6/97	12:00	T-014	20.0	2.0	2.5%
11A	SU-4 at 3'	10/6/97	12:40	T-014	29.0	2.0	1.0%
12A	SU-4 at 5'	10/6/97	12:40	T-014	29.0	2.0	2.0%
					in of	Hg	

Relinquished By: (Signature) Walter Cuculic Date/Time 10/6/97 4:00 Print Name
Relinquished By: (Signature) Date/Time Received By: (Signature) Date/Time [illegible] 9:...
Relinquished By: (Signature) Date/Time Received By: (Signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Date/Time	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx	[illegible]	DJR	[illegible] 9:00	Amb	Good	Yes No None N/A	9710097
	5104303131	5104303116	5104303120					

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5480 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 9757 San Leandro Blvd
Oakland, CA

California Coordinates Source _____ ft. Accuracy ± ____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Chevron Products Company
Address 6001 Bollinger Canyon Rd. Phone (510) 842-1160
City San Ramon Zip 94583

APPLICANT
Name Chuck Headlee - Cambria Environmental Fax (510) 420-9170
Address 1144 65th St Phone (510) 420-3313
City Oakland Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☐
Cable	☐	Other	☐ Hydraulic push		

DRILLER'S LICENSE NO. C57 - 705927

WELL PROJECTS
Drill Hole Diameter _____ in. Maximum
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth _____ ft. Number _____

GEOTECHNICAL PROJECTS
Number of Borings 6 Maximum
Hole Diameter _____ in. Depth 8 ft.

ESTIMATED STARTING DATE 9/19/97
ESTIMATED COMPLETION DATE 9/19/97

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Chuck Headlee DATE 9/12/97

FOR OFFICE USE

PERMIT NUMBER 97 WR 114
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(D) GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED _____ DATE 9/17/97

Appendix C

Standard Field Procedures

STANDARD FIELD PROCEDURES FOR GEOPROBE® SOIL VAPOR SAMPLING

This document describes Cambria Environmental Technology's standard field methods for Geoprobe® soil vapor sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil vapor samples are collected and analyzed to characterize subsurface contaminant distribution and to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

Soil Vapor Sampling

Geoprobe® cuttingless drill rigs allow for rapid sample retrieval and can move quickly between boring locations. The drill-rig uses a hydraulic-push advancement method and is equipped with a variety of ground water, soil and vapor sampling systems to assure sample collection in most hydrogeologic environments. Since the hollow drill rods are pushed into the ground, rather than augured, the stratigraphy forms a vapor seal between the surface and subsurface environments ensuring that the surface and subsurface gases do not mix. Once the desired soil vapor sampling depth has been reached, the Geoprobe® operator installs disposable polyethylene tubing with a threaded adaptor that screws into the bottom of the rods. The screw adaptor ensures that the vapor sample comes directly from the bottom of the drill rods and does not mix with other vapor from inside the rod or from the ground surface. The operator then pulls up on the rods and exposes about six inches of the desired stratigraphy by leaving an expendable drive point at the maximum depth. The required volume of soil vapor is then purged through the polyethylene tubing using a standard vacuum pump. The soil vapor can be sampled for direct injection into a field gas chromatograph, pumped into inert tedlar bags using a "bell jar" sampling device, or allowed to enter a Summa vacuum canister. Once collected, the vapor sample is transported under chain-of-custody to a state-certified laboratory. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure. Drilling and sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Samples are stored out of direct sunlight in coolers and transported under chain-of-custody to a state-certified analytic laboratory.

Field Screening

After collecting a vapor sample for laboratory analysis, Cambria often collects an additional vapor sample for field screening using a portable photo-ionization detector (PID), flame-ionization detector (FID), or GasTech® combustible gas detector to measure volatile hydrocarbon vapor concentrations. These measurements are used along with the field observations, odors, stratigraphy and ground water depth to help select the best location for additional borings to be advanced during the field mobilization.

Grouting

The borings are filled to the ground surface with neat cement poured or pumped through a tremie pipe.