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## TRANSMITTAL

DATE: December 10, 2012 REFERENCE NO.: 240897  
PROJECT NAME: 4411 Foothill Boulevard, Oakland  
TO: Jerry Wickham  
Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

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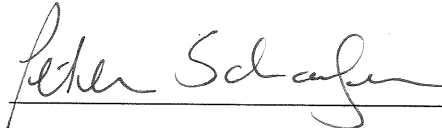
QUANTITY	DESCRIPTION
1	Subsurface Investigation Report

As Requested  For Review and Comment  
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 \_\_\_\_\_

**COMMENTS:**

If you have any questions regarding the contents of this document, please call Peter Schaefer at (510) 420-3319.

Copy to: Denis Brown, Shell Oil Products US (electronic copy)  
Bill Phua, Foothill Blvd. LLC (property owner), PO Box 10664, Oakland, CA 94610

Completed by: Peter Schaefer Signed: 

Filing: Correspondence File



Jerry Wickham  
Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
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**Denis L. Brown**  
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Re: Former Shell Service Station  
4411 Foothill Boulevard  
Oakland, California  
SAP Code 135686  
Incident No. 98995746  
ACEH Case No. RO0000415

Dear Mr. Wickham:

The attached document is provided for your review and comment. Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

If you have any questions or concerns, please call me at (707) 865-0251.

Sincerely,

A handwritten signature in black ink, appearing to read "Denis L. Brown", is written over a horizontal line.

Denis L. Brown  
Senior Program Manager



## **SUBSURFACE INVESTIGATION REPORT**

**FORMER SHELL SERVICE STATION  
4411 FOOTHILL BOULEVARD  
OAKLAND, CALIFORNIA**

**SAP CODE           135686  
INCIDENT NO.    98995746  
AGENCY NO.      RO0000415**

**Prepared by:  
Conestoga-Rovers  
& Associates**

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**DECEMBER10, 2012**

**REF. NO. 240897 (20)**

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CERTIFIED ANALYTICAL REPORT

## EXECUTIVE SUMMARY

- Seven sub-slab soil vapor probes (SSV-1 through SSV-7) were installed.
- CRA collected soil vapor samples from the seven new sub-slab soil vapor probes. The soil vapor samples contained up to 30  $\mu\text{g}/\text{m}^3$  ethylbenzene and 63  $\mu\text{g}/\text{m}^3$  TBA. TPHg, benzene, toluene, total xylenes, and MTBE were not detected in the samples.
- No soil vapor COC concentrations exceeded ESLs in any sub-slab probes.
- Based on these soil vapor results and current soil and groundwater conditions, CRA recommends closure of this environmental case.

## 1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) prepared this report on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell) to document the recent sub-slab soil vapor probe installation and sampling. The purpose of the investigation was to assess the potential for soil gas migration to indoor air in the on-site shopping center. CRA followed the scope of work and procedures presented in our June 4, 2012 work plan, which was approved by Alameda County Environmental Health (ACEH) in their July 16, 2012 letter. ACEH's October 24, 2012 electronic correspondence extended the due date for this report to December 12, 2012.

The site is a former Shell service station located on the southern corner of the intersection of Foothill Boulevard and High Street in Oakland, California (Figure 1). The former station layout included three first-generation underground storage tanks (USTs) (1958 to 1971), three second-generation USTs (1971 to 1984), three third-generation gasoline USTs (1984 to 2002), a waste oil UST (removed 1992), and four product dispensers (removed 2002) as shown on Figure 2. Land use in the vicinity of the site is a mix of commercial and residential, with gasoline service stations occupying the northern and western corners of the intersection. The subject property is currently developed as a strip mall with a variety of commercial and retail uses.

A summary of previous work performed at the site and additional background information is presented in CRA's June 4, 2012 *Subsurface Investigation Work Plan* and is not repeated herein.

## 2.0 INVESTIGATION ACTIVITIES

### 2.1 PERMIT

Alameda County Public Works Agency did not require a permit for the sub-slab soil vapor probe installation.

### 2.2 FIELD DATES

October 19, 2012 (sub-slab soil vapor probe installation) and October 23, 2012 (sub-slab soil vapor probe sampling).

### 2.3 DRILLING COMPANY

Vapor Tech Services, Inc.

### 2.4 CRA PERSONNEL

Staff environmental scientist Cristina Arganbright directed the probe installation, working under the supervision of California Professional Geologist Peter Schaefer.

### 2.5 DRILLING METHOD

Hammer drill.

### 2.6 NUMBER OF PROBES

CRA installed seven sub-slab soil vapor probes (SSV-1 through SSV-7) as described below at the locations shown on Figure 2.

Because CRA could not obtain access to one of the stores, sub-slab soil vapor probe SSV-3 was installed in the sidewalk just outside the store instead.

### 2.7 VAPOR PROBE MATERIALS

CRA cut stainless steel tubing to a length that allows each probe to float within the floor or sidewalk thickness to avoid obstruction of the probe with base material. The tubing was approximately 1/4-inch diameter with stainless steel compression fittings. Each sub-slab soil vapor probe was placed in the borehole so that the top of the probe is flush with the floor or sidewalk. The top of each probe has a recessed stainless steel plug.

### 2.8 PROBE DEPTH

6 inches to 1 foot below grade.



## **2.9            SOIL VAPOR SAMPLING PROCEDURE**

On October 23, 2012, CRA sampled soil vapor probes SSV-1 through SSV-7. All soil vapor samples were collected using a lung box and Tedlar<sup>®</sup> bag.

CRA collected soil vapor samples using laboratory-supplied Tedlar<sup>®</sup> bags. During sampling, CRA connected the Teflon<sup>®</sup> tubing for each vapor probe to a lung box containing the Tedlar<sup>®</sup> bag, and the lung box chamber was connected to the vacuum pump. CRA then drew the sample into the Tedlar<sup>®</sup> bag by reducing the pressure in the lung box with the vacuum pump. Each sample was labeled, documented on a chain-of-custody, and submitted to Calscience Environmental Laboratories, Inc. of Garden Grove, California for analysis within 72 hours.

To check the system for leaks, CRA placed a containment unit (or shroud) over the soil vapor probe surface casing and sampling manifold. Prior to soil vapor probe purging, CRA introduced helium into the containment unit to obtain a minimum 50 percent by volume (%v) helium content level. CRA confirmed the helium content within the containment unit using a helium meter. The helium meter readings are presented in Section 3.2. All samples were analyzed by the laboratory for helium, and CRA presents the results in Section 3.2 and on Table 1.

## **2.10           SOIL VAPOR SAMPLING ANALYSES**

Soil vapor samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by EPA Method TO-3 (M); for benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), and tertiary-butyl alcohol (TBA) by EPA Method 8260B (M); for oxygen and argon, carbon dioxide, and methane by ASTM D-1946; and for helium by ASTM D-1946 (M).

## **3.0            FINDINGS**

### **3.1            SOIL VAPOR**

The soil vapor chemical analytical data are summarized in Table 1, and TPHg, BTEX, MTBE, and TBA analytical results are presented on Figure 2. The laboratory analytical report is presented in Appendix A.

### 3.2 LEAK TESTING

CRA performed leak testing as described above, and up to 0.235%v helium was detected in the samples. As shown in the following table, the detections are less than 10%v of the concentration detected in the shroud, and the samples are considered valid.

<i>Probe ID</i>	<i>Date</i>	<i>Helium concentration in sample (%v)</i>	<i>Minimum helium concentration detected in shroud (%v)</i>	<i>Maximum acceptable helium concentration in sample (%v)</i>
SSV-1	10/23/12	0.0339	58.3	5.83
SSV-2	10/23/12	<0.0100	58.6	5.86
SSV-3	10/23/12	<0.0100	60.9	6.09
SSV-4	10/23/12	0.0621	56.0	5.60
SSV-5	10/23/12	0.235	54.6	5.46
SSV-6	10/23/12	0.107	57.1	5.71
SSV-7	10/23/12	<0.0100	56.3	5.63

The laboratory analytical report for helium is presented in Appendix A, and CRA includes the results on Table 1.

### 4.0 CONCLUSIONS

CRA collected soil vapor samples from the seven new sub-slab soil vapor probes. The soil vapor samples contained up to 30 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) ethylbenzene and 63  $\mu\text{g}/\text{m}^3$  TBA. TPHg, benzene, toluene, total xylenes, and MTBE were not detected in the samples.

The soil vapor ethylbenzene concentrations were below the San Francisco Bay Regional Water Quality Control Board's environmental screening level (ESL) for commercial land use<sup>1</sup>. There is no ESL for TBA in soil vapor.

### 5.0 RECOMMENDATIONS

Based on these soil vapor results and current soil and groundwater conditions, CRA recommends closure of this environmental case.

---

<sup>1</sup> *Screening for Environmental Concerns at Site With Contaminated Soil and Groundwater, California Regional Water Quality Control Board, Interim Final - November 2007 [Revised May 2008]*

All of which is Respectfully Submitted,  
CONESTOGA-ROVERS & ASSOCIATES

*Peter Schaefer*

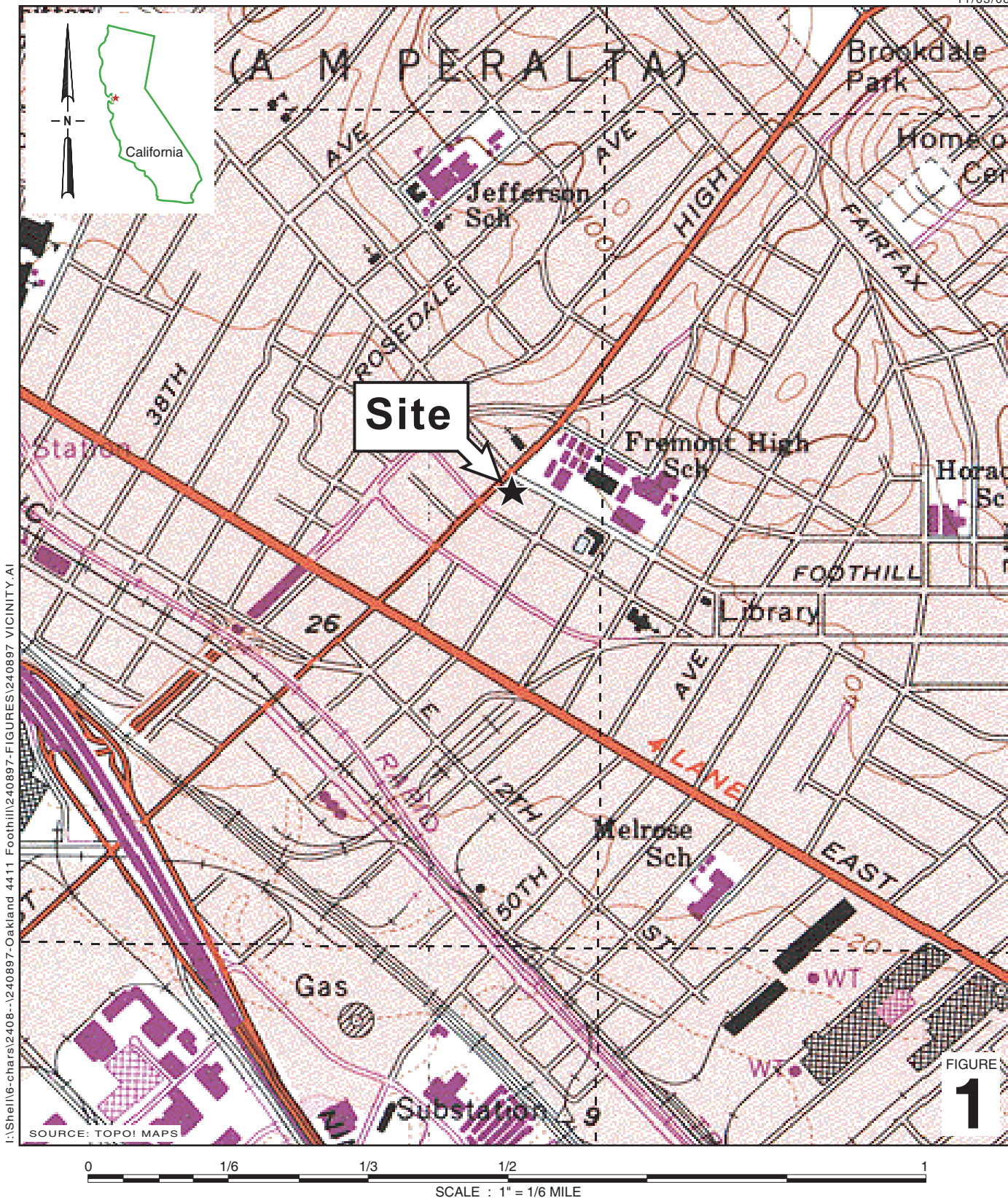
Peter Schaefer, CEG, CHG

*Aubrey K. Cool*

Aubrey K. Cool, PG



## FIGURES



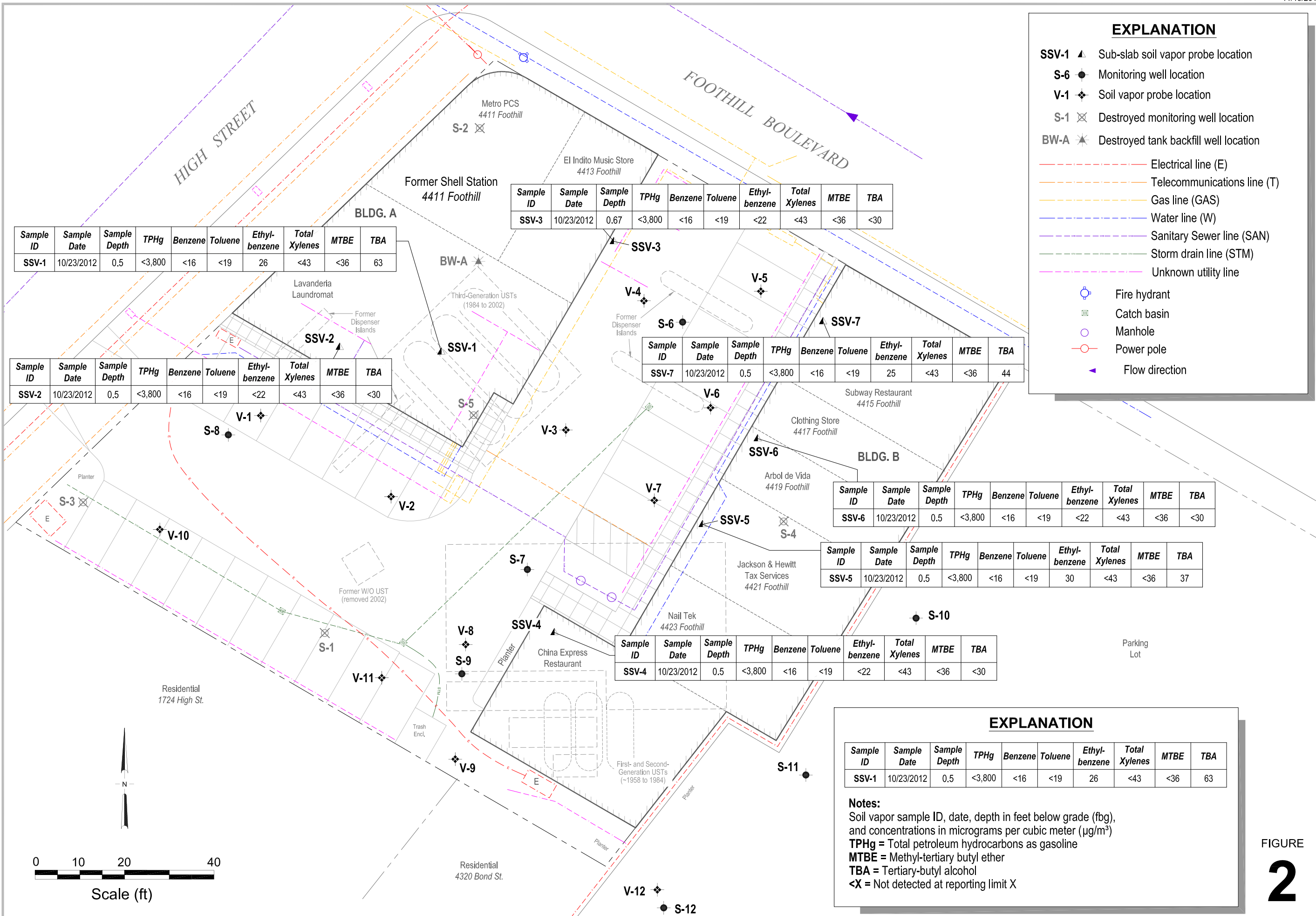
**Former Shell Service Station**  
 4411 Foothill Boulevard  
 Oakland, California



**CONESTOGA-ROVERS  
 & ASSOCIATES**

**Vicinity Map**

I:\Shell\6-chars\24089-1240897-Oakland 4411 Foothill\240897-FIGURES\240897 SITE PLAN.DWG



### EXPLANATION

- SSV-1 ▲ Sub-slab soil vapor probe location
- S-6 ● Monitoring well location
- V-1 ◆ Soil vapor probe location
- S-1 ⊗ Destroyed monitoring well location
- BW-A ✱ Destroyed tank backfill well location
- - - - - Electrical line (E)
- - - - - Telecommunications line (T)
- - - - - Gas line (GAS)
- - - - - Water line (W)
- - - - - Sanitary Sewer line (SAN)
- - - - - Storm drain line (STM)
- - - - - Unknown utility line
- Fire hydrant
- Catch basin
- Manhole
- Power pole
- ▶ Flow direction

Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-1	10/23/2012	0.5	<3,800	<16	<19	26	<43	<36	63

Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-3	10/23/2012	0.67	<3,800	<16	<19	<22	<43	<36	<30

Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-2	10/23/2012	0.5	<3,800	<16	<19	<22	<43	<36	<30

Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-7	10/23/2012	0.5	<3,800	<16	<19	25	<43	<36	44

Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-6	10/23/2012	0.5	<3,800	<16	<19	<22	<43	<36	<30

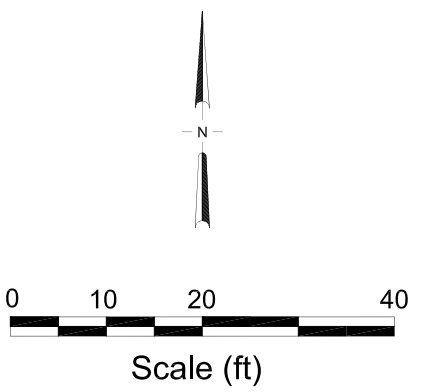
Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-5	10/23/2012	0.5	<3,800	<16	<19	30	<43	<36	37

Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-4	10/23/2012	0.5	<3,800	<16	<19	<22	<43	<36	<30

### EXPLANATION

Sample ID	Sample Date	Sample Depth	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA
SSV-1	10/23/2012	0.5	<3,800	<16	<19	26	<43	<36	63

**Notes:**  
 Soil vapor sample ID, date, depth in feet below grade (fbg), and concentrations in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )  
**TPHg** = Total petroleum hydrocarbons as gasoline  
**MTBE** = Methyl-tertiary butyl ether  
**TBA** = Tertiary-butyl alcohol  
**<X** = Not detected at reporting limit X



Soil Vapor Concentration Map



Former Shell Service Station  
 4411 Foothill Boulevard  
 Oakland, California

FIGURE  
**2**

TABLE

TABLE 1

**HISTORICAL SOIL VAPOR ANALYTICAL DATA  
FORMER SHELL SERVICE STATION  
4411 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA**

Sample ID	Depth (fbg)	Date	TPHg ( $\mu\text{g}/\text{m}^3$ )	B ( $\mu\text{g}/\text{m}^3$ )	T ( $\mu\text{g}/\text{m}^3$ )	E ( $\mu\text{g}/\text{m}^3$ )	X ( $\mu\text{g}/\text{m}^3$ )	MTBE ( $\mu\text{g}/\text{m}^3$ )	TBA ( $\mu\text{g}/\text{m}^3$ )	Helium (%v)	Methane (%v)	Carbon Dioxide (%v)	Oxygen + Argon (%v)
V-1	4.5-4.8	1/14/2008	16,000,000	<1,200	<1,400	<1,700	<5,000	<5,500	<4,600	---	---	---	---
V-1	4.5-4.8	6/26/2008	1,000,000	<160	<190	<220	<220	<180	<610	---	---	---	---
V-1	4.5-4.8	10/22/2008	340,000	<45	<53	<61	<120	<51	<170	---	---	---	---
V-1	4.5-4.8	4/21/2009 b	---	58	<38	49	<170	---	---	<0.0100	---	---	---
V-1	4.5-4.8	5/9/2011 b	<7,000	<16	<19	110	160	<36	<30	<0.0100	<0.500	16.2	3.01
V-2	4.5-4.8	1/14/2008	15,000,000	9,000	<1,100	20,000	7,700	<4,100	<3,500	---	---	---	---
V-2	4.5-4.8	5/22/2008	8,300,000	7,000	2,400	5,600	<1,400	<1,200	<4,000	---	---	---	---
V-2	4.5-4.8	10/22/2008	5,000,000 a	8,300	<380	9,800	7,700	<360	<1,200	---	---	---	---
V-2	4.5-4.8	4/21/2009 b	---	7,100	2,900	3,100	<6,100	---	---	<0.0100	---	---	---
V-2	4.5-4.8	5/9/2011 b	36,000,000	2,400	<940	<1,100	<2,200	<1,800	<1,500	0.0161	<0.500	14.7	2.30
V-3	4.5-4.8	1/14/2008	20,000,000	3,800	<2,800	<3,300	<9,800	<11,000	<9,100	---	---	---	---
V-3	4.5-4.8	5/22/2008	22,000,000	1,600	1,700	<1,300	<1,300	<1,100	<3,700	---	---	---	---
V-3	4.5-4.8	10/22/2008	51,000,000 a	4,200	<4,600	<5,200	<10,000	<4,400	<15,000	---	---	---	---
V-3	4.5-4.8	4/21/2009 b	---	25,000	17,000	<8,700	<35,000	---	---	0.0205	---	---	---
V-3	4.5-4.8	5/9/2011 b	66,000,000	8,100	<3,800	<4,300	<8,700	<7,200	<6,100	<0.0100	4.59	13.7	2.14
V-4	4.5-4.8	1/14/2008	1,300,000	<150	<180	<210	<620	<680	<570	---	---	---	---
V-4	4.5-4.8	6/26/2008	980,000	<160	<190	<220	<220	<180	<620	---	---	---	---
V-4	4.5-4.8	10/22/2008	4,300,000	270	<240	<280	<560	<230	<780	---	---	---	---
V-4	4.5-4.8	4/21/2009 b	---	65	<75	360	520	---	---	0.0171	---	---	---
V-4	4.5-4.8	5/9/2011 b	2,700,000	<320	<380	<430	<870	<720	<610	<0.0100	0.964	7.98	2.18
V-5	4.5-4.8	1/14/2008	2,500,000	<290	<340	<400	<1,190	<1,300	<1,100	---	---	---	---
V-5	4.5-4.8	5/22/2008	3,300,000	<1,600	3,100	<2,200	<2,200	<1,800	<6,100	---	---	---	---
V-5	4.5-4.8	10/22/2008	2,400,000	<340	<400	<460	<920	<380	<1,300	---	---	---	---
V-5	4.5-4.8	4/21/2009 b	---	<64	110	350	510	---	---	1.24	---	---	---
V-5	4.5-4.8	5/9/2011 b	960,000	<130	<150	220	<350	<290	<240	<0.0100	<0.500	9.30	3.29
V-6	4.5-4.8	1/14/2008	15,000,000	9,100	<270	<310	<930	<1,000	<860	---	---	---	---
V-6	4.5-4.8	5/22/2008	2,300,000	<130	<150	<180	<180	<140	<490	---	---	---	---
V-6	4.5-4.8	10/22/2008	5,400,000	<970	<1,100	<1,300	<2,600	<1,100	<3,700	---	---	---	---
V-6	4.5-4.8	4/21/2009 b	---	<20	34	55	<110	---	---	<0.0100	---	---	---
V-6	4.5-4.8	5/9/2011 b	240,000	<40	<47	170	280	<90	<76	<0.0100	<0.500	8.67	6.92
V-7	4.5-4.8	1/14/2008	170,000	<19	<22	<25	<76	<84	<71	---	---	---	---
V-7	4.5-4.8	5/22/2008	790	<4.2	<5.0	<5.7	<5.7	<4.8	<16	---	---	---	---
V-7	4.5-4.8	10/22/2008	3,700	<2.6	<3.0	26	120	<2.9	<9.8	---	---	---	---
V-7	4.5-4.8	5/9/2011 b	<7,000	<16	<19	42	48	<36	<30	<0.0100	<0.500	4.95	15.2
V-8	5.0-5.2	10/23/2008	7,000	<3.8	<4.5	<5.2	<10	<4.3	<14	---	---	---	---
V-8	5.0-5.2	5/9/2011 b	250,000	<64	<75	150	<170	<140	<120	<0.0100	<0.500	13.9	6.39
V-9	5.0-5.2	10/23/2008	870	<3.7	<4.4	<5.0	<10	<4.2	>14	---	---	---	---
V-9	5.0-5.2	5/9/2011 b	<7,000	<16	<19	130	170	<36	<30	<0.0100	<0.500	6.75	16.4
V-10	4.5-4.8	1/14/2008	Unable to sample due to water in sample tube						---	---	---	---	---
V-10	4.5-4.8	5/22/2008	750	<4.1	<4.9	<5.6	<5.6	<4.6	<16	---	---	---	---
V-10	4.5-4.8	10/23/2008	280	<4.2	<5.0	<5.7	<11	<4.8	<16	---	---	---	---



TABLE 1

**HISTORICAL SOIL VAPOR ANALYTICAL DATA  
FORMER SHELL SERVICE STATION  
4411 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA**

Sample ID	Depth (fbg)	Date	TPHg ( $\mu\text{g}/\text{m}^3$ )	B ( $\mu\text{g}/\text{m}^3$ )	T ( $\mu\text{g}/\text{m}^3$ )	E ( $\mu\text{g}/\text{m}^3$ )	X ( $\mu\text{g}/\text{m}^3$ )	MTBE ( $\mu\text{g}/\text{m}^3$ )	TBA ( $\mu\text{g}/\text{m}^3$ )	Helium (%v)	Methane (%v)	Carbon Dioxide (%v)	Oxygen + Argon (%v)
V-10	4.5-4.8	5/9/2011	Unable to sample due to water in sample tube										
V-11	4.5-4.8	1/14/2008	<b>18,000</b>	<2.2	5	<3.0	<8.9	<9.8	<8.2	---	---	---	---
V-11	4.5-4.8	6/26/2008	<260	<4.0	<4.8	<5.5	<5.5	<4.6	<15	---	---	---	---
V-11	4.5-4.8	10/23/2008	<220	<3.5	<4.1	<4.8	<9.6	<4.0	<13	---	---	---	---
V-11	4.5-4.8	5/9/2011	<7,000	<16	<19	43	49	<36	<30	<0.0100	<0.500	7.76	12.6
V-12	4.2-4.3	10/1/2009	Unable to sample due to water in sample tube										
V-12	4.2-4.3	11/19/2009	Unable to sample due to water in sample tube										
V-12	4.2-4.3	7/29/2010 c	<5,700	<32	<38	<43	<87	<72	<61	<0.0100	---	---	---
V-12	4.2-4.3	5/9/2011	Unable to sample due to water in sample tube										
SSV-1	0.58	5/19/2009	---	8.8	11	4.4	<12	---	---	0.251	---	---	---
SSV-1	0.5	10/23/2012 b	<3,800	<16	<19	26	<43	<36	63	0.0339	<0.500	<0.500	15.6
SSV-2	1	5/15/2009	---	<2.1	<2.4	<2.8	<11	---	---	0.261	---	---	---
SSV-2	1	10/23/2012 b	<3,800	<16	<19	<22	<43	<36	<30	<0.0100	<0.500	<0.500	21.1
SSV-3	0.67	10/23/2012 b	<3,800	<16	<19	<22	<43	<36	<30	<0.0100	<0.500	<0.500	19.8
SSV-4	0.5	10/23/2012 b	<3,800	<16	<19	<22	<43	<36	<30	0.0621	<0.500	<0.500	21.3
SSV-5	0.5	10/23/2012 b	<3,800	<16	<19	30	<43	<36	37	0.235	<0.500	<0.500	21.8
SSV-6	0.5	10/23/2012 b	<3,800	<16	<19	<22	<43	<36	<30	0.107	<0.500	<0.500	20.3
SSV-7	0.5	10/23/2012 b	<3,800	<16	<19	25	<43	<36	44	<0.0100	<0.500	<0.500	21.4
Ambient Air	---	1/14/2008	<17,000	<2.4	4	<3.2	<9.7	<11	<9.0	---	---	---	---
<b>RWQCB ESLs for Soil Gas<sup>d</sup></b>		<b>Commercial Land Use</b>	<b>29,000</b>	<b>280</b>	<b>180,000</b>	<b>3,300</b>	<b>58,000</b>	<b>31,000</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
		<b>Residential Land Use</b>	<b>10,000</b>	<b>84</b>	<b>63,000</b>	<b>980</b>	<b>21,000</b>	<b>9,400</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

**Notes:**

fbg = Feet below grade

 $\mu\text{g}/\text{m}^3$  = Micrograms per cubic meter

%v = Percent by volume

TPHg = Total petroleum hydrocarbons as gasoline analyzed by EPA Method TO-3M; before 5/9/11, analyzed by modified EPA Method TO-3 GC/FID.

BTEX = Benzene, toluene, ethylbenzene and total xylenes analyzed by EPA Method 8260B (M); before 7/29/09, analyzed by modified EPA Method TO-15.

MTBE = Methyl-tertiary butyl ether analyzed by EPA Method 8260B (M); before 7/29/09, analyzed by modified EPA Method TO-15.

TBA = Tertiary-butyl alcohol analyzed by EPA Method 8260B (M); before 7/29/09, analyzed by Modified EPA Method TO-15.

Helium analyzed by ASTM D-1946 (M)

Methane, carbon dioxide, and oxygen + argon analyzed by ASTM D-1946

&lt;x = Not detected at reporting limit x

--- = Not analyzed

ESL = Environmental screening level

RWQCB = San Francisco Bay Regional Water Quality Control Board

NA = No applicable ESL

Results in **bold** exceed ESL for commercial land use

All samples were collected in Summa canisters unless otherwise noted.

a = Exceeds quality control limits, possibly due to matrix effects.

b = Samples collected in Tedlar bags.

TABLE 1

HISTORICAL SOIL VAPOR ANALYTICAL DATA  
 FORMER SHELL SERVICE STATION  
 4411 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

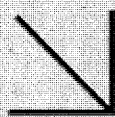
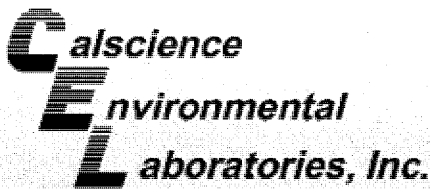
<i>Sample ID</i>	<i>Depth</i> ( <i>fbg</i> )	<i>Date</i>	<i>TPHg</i> ( $\mu\text{g}/\text{m}^3$ )	<i>B</i> ( $\mu\text{g}/\text{m}^3$ )	<i>T</i> ( $\mu\text{g}/\text{m}^3$ )	<i>E</i> ( $\mu\text{g}/\text{m}^3$ )	<i>X</i> ( $\mu\text{g}/\text{m}^3$ )	<i>MTBE</i> ( $\mu\text{g}/\text{m}^3$ )	<i>TBA</i> ( $\mu\text{g}/\text{m}^3$ )	<i>Helium</i> (%v)	<i>Methane</i> (%v)	<i>Carbon Dioxide</i> (%v)	<i>Oxygen + Argon</i> (%v)
------------------	--------------------------------	-------------	---	--	--	--	--	---	--	-----------------------	------------------------	-------------------------------	-------------------------------

c = Sample received by laboratory with very low volume.

d = From Table E of RWQCB ESLs. Ref: Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - Interim Final - November 2007 (Revised May 2008).

APPENDIX A

CALSCIENCE ENVIRONMENTAL LABORATORIES, INC. -  
CERTIFIED ANALYTICAL REPORT



# CALSCIENCE

WORK ORDER NUMBER: 12-10-1648

*The difference is service*



AIR ··· SOIL ··· WATER ··· MARINE CHEMISTRY

### Analytical Report For

**Client:** Conestoga-Rovers & Associates

**Client Project Name:** 4411 Foothill Blvd., Oakland, CA

**Attention:** Peter Schaefer  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008

Approved for release on 10/31/2012 by:  
Xuan Dang  
Project Manager



[ResultLink](#) ▶  
[Email your PM](#) ▶

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

## **Contents**

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Work Order Number: 12-10-1648

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**Case Narrative**

**Work Order # 12-10-1648**

**Modified EPA 8260 in Air**

This method is used to determine the concentration of BTEX/Oxygenates/Naphthalene having a vapor pressure greater than  $10^{-1}$  torr at 25°C at standard pressure in an air matrix. The method is similar to EPA TO-15 and uses air standards for calibration. Method specifics are listed in the table below. A known volume of sample is directed from the container (Summa® canister or Tedlar™ bag) through a solid multi-module (glass beads, tenex, cryofocuser) concentrator. Following concentration, the VOCs are thermally desorbed onto a gas chromatographic column for separation and then detected on a mass selective detector.

**Comparison of Calscience TO-15(Modified) versus EPA 8260 (Modified) in Air**

<b>Requirement</b>	<b>Calscience TO-15(M)</b>	<b>Calscience EPA 8260(M) in Air</b>
BFB Acceptance Criteria	SW846 Protocol	SW846 Protocol
Initial Calibration	Allowable % RSD for each Target Analyte $\leq 30\%$ , 10% of analytes allowed $\leq 40\%$	Allowable % RSD for each Target Analyte $\leq 30\%$ , 10% of analytes allowed $\leq 40\%$
Initial Calibration Verification (ICV) - Second Source Standard (LCS)	Analytes contained in the LCS standard evaluated against historical control limits for the LCS	BTEX and MTBE only - $\leq 30\%D$
Daily Calibration Verification (CCV)	<b>Full List Analysis:</b> Allowable % Difference for each CCC analyte is $\leq 30\%$	BTEX and MTBE only - $\leq 30\%D$
	<b>Target List Analysis:</b> Allowable % Difference for each target analytes is $\leq 30\%$	
Daily Calibration Verification (CCV) - Internal Standard Area Response	Allowable +/- 50% (Range: 50% to 150%)	Allowable +/- 50% (Range: 50% to 150%)
Method Blank, Laboratory Control Sample and Sample - Internal Standard Area Response	Allowable +/- 50% of the mean area response of most recent Calibration Verification (Range: 50% to 150%)	Allowable +/- 50% of the mean area response of the most recent Calibration Verification (Range: 50% to 150%)
Surrogates	1,4-Bromofluorobenzene, 1,2-Dichloroethane-d4 and Toluene-d8 - % Recoveries based upon historical control limits +/-3S	1,4-Bromofluorobenzene, 1,2-Dichloroethane-d4 and Toluene-d8 - % Recoveries based upon historical control limits +/-3S

Client: Conestoga-Rovers & Associates  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008  
Attn: Peter Schaefer

Work Order: 12-10-1648  
Project name: 4411 Foothill Blvd., Oakland, CA  
Received: 10/24/12 10:30

**DETECTIONS SUMMARY**

Client Sample ID

Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
<b>SSV-1 (12-10-1648-1)</b>						
Oxygen + Argon	15.6		0.500	%v	ASTM D-1946	N/A
Helium	0.0339		0.0100	%v	ASTM D-1946 (M)	N/A
Ethylbenzene	26		22	ug/m3	EPA 8260B (M)	N/A
Tert-Butyl Alcohol (TBA)	63		30	ug/m3	EPA 8260B (M)	N/A
<b>SSV-2 (12-10-1648-2)</b>						
Oxygen + Argon	21.1		0.500	%v	ASTM D-1946	N/A
<b>SSV-3 (12-10-1648-3)</b>						
Oxygen + Argon	19.8		0.500	%v	ASTM D-1946	N/A
<b>SSV-4 (12-10-1648-4)</b>						
Oxygen + Argon	21.3		0.500	%v	ASTM D-1946	N/A
Helium	0.0621		0.0100	%v	ASTM D-1946 (M)	N/A
<b>SSV-5 (12-10-1648-5)</b>						
Oxygen + Argon	21.8		0.500	%v	ASTM D-1946	N/A
Helium	0.235		0.0100	%v	ASTM D-1946 (M)	N/A
Ethylbenzene	30		22	ug/m3	EPA 8260B (M)	N/A
Tert-Butyl Alcohol (TBA)	37		30	ug/m3	EPA 8260B (M)	N/A
<b>SSV-6 (12-10-1648-6)</b>						
Oxygen + Argon	20.3		0.500	%v	ASTM D-1946	N/A
Helium	0.107		0.0100	%v	ASTM D-1946 (M)	N/A
<b>SSV-7 (12-10-1648-7)</b>						
Oxygen + Argon	21.4		0.500	%v	ASTM D-1946	N/A
Ethylbenzene	25		22	ug/m3	EPA 8260B (M)	N/A
Tert-Butyl Alcohol (TBA)	44		30	ug/m3	EPA 8260B (M)	N/A

Subcontracted analyses, if any, are not included in this summary.

\*MDL is shown.



Conestoga-Rovers & Associates  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008

Date Received: 10/24/12  
Work Order No: 12-10-1648  
Preparation: N/A  
Method: ASTM D-1946  
Units: %v

Project: 4411 Foothill Blvd., Oakland, CA

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-1	12-10-1648-1-A	10/23/12 07:41	Air	GC 34	N/A	10/24/12 13:25	121024L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	15.6	0.500	1	
Carbon Dioxide	ND	0.500	1						

SSV-2	12-10-1648-2-A	10/23/12 07:13	Air	GC 34	N/A	10/24/12 14:48	121024L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	21.1	0.500	1	
Carbon Dioxide	ND	0.500	1						

SSV-3	12-10-1648-3-A	10/23/12 11:07	Air	GC 34	N/A	10/24/12 15:19	121024L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	19.8	0.500	1	
Carbon Dioxide	ND	0.500	1						

SSV-4	12-10-1648-4-A	10/23/12 10:11	Air	GC 34	N/A	10/24/12 15:51	121024L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	21.3	0.500	1	
Carbon Dioxide	ND	0.500	1						

SSV-5	12-10-1648-5-A	10/23/12 10:35	Air	GC 34	N/A	10/24/12 16:22	121024L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	21.8	0.500	1	
Carbon Dioxide	ND	0.500	1						

SSV-6	12-10-1648-6-A	10/23/12 08:16	Air	GC 34	N/A	10/24/12 16:57	121024L01
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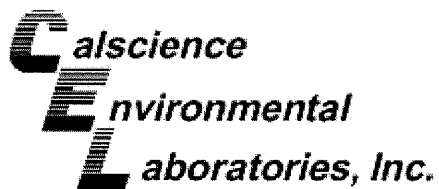
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	20.3	0.500	1	
Carbon Dioxide	ND	0.500	1						

SSV-7	12-10-1648-7-A	10/23/12 08:49	Air	GC 34	N/A	10/24/12 17:28	121024L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	21.4	0.500	1	
Carbon Dioxide	ND	0.500	1						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





Analytical Report



Conestoga-Rovers & Associates  
 5900 Hollis Street, Suite A  
 Emeryville, CA 94608-2008

Date Received: 10/24/12  
 Work Order No: 12-10-1648  
 Preparation: N/A  
 Method: ASTM D-1946  
 Units: %v

Project: 4411 Foothill Blvd., Oakland, CA

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-03-002-1,666	N/A	Air	GC 34	N/A	10/24/12 12:43	121024L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	ND	0.500	1	
Carbon Dioxide	ND	0.500	1						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

**Analytical Report**



Conestoga-Rovers & Associates  
 5900 Hollis Street, Suite A  
 Emeryville, CA 94608-2008

Date Received: 10/24/12  
 Work Order No: 12-10-1648  
 Preparation: N/A  
 Method: ASTM D-1946 (M)

Project: 4411 Foothill Blvd., Oakland, CA

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-1	12-10-1648-1-A	10/23/12 07:41	Air	GC 55	N/A	10/24/12 15:11	121024L01

Parameter	Result	RL	DF	Qual	Units
Helium	0.0339	0.0100	1		%v

SSV-2	12-10-1648-2-A	10/23/12 07:13	Air	GC 55	N/A	10/24/12 15:32	121024L01
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Parameter	Result	RL	DF	Qual	Units
Helium	ND	0.0100	1		%v

SSV-3	12-10-1648-3-A	10/23/12 11:07	Air	GC 55	N/A	10/24/12 16:41	121024L01
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Parameter	Result	RL	DF	Qual	Units
Helium	ND	0.0100	1		%v

SSV-4	12-10-1648-4-A	10/23/12 10:11	Air	GC 55	N/A	10/24/12 17:07	121024L01
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Parameter	Result	RL	DF	Qual	Units
Helium	0.0621	0.0100	1		%v

SSV-5	12-10-1648-5-A	10/23/12 10:35	Air	GC 55	N/A	10/24/12 17:39	121024L01
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Parameter	Result	RL	DF	Qual	Units
Helium	0.235	0.0100	1		%v

SSV-6	12-10-1648-6-A	10/23/12 08:16	Air	GC 55	N/A	10/24/12 18:06	121024L01
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Parameter	Result	RL	DF	Qual	Units
Helium	0.107	0.0100	1		%v

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

**Analytical Report**



Conestoga-Rovers & Associates  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008

Date Received: 10/24/12  
Work Order No: 12-10-1648  
Preparation: N/A  
Method: ASTM D-1946 (M)

Project: 4411 Foothill Blvd., Oakland, CA

Page 2 of 2

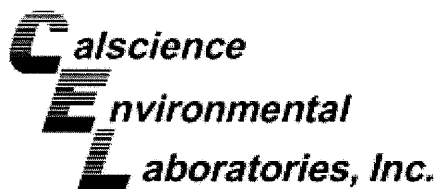
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-7	12-10-1648-7-A	10/23/12 08:49	Air	GC 55	N/A	10/24/12 18:30	121024L01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Helium	ND	0.0100	1		%v

Method Blank	099-12-872-338	N/A	Air	GC 55	N/A	10/24/12 14:36	121024L01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Helium	ND	0.0100	1		%v

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Conestoga-Rovers & Associates  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008

Date Received: 10/24/12  
Work Order No: 12-10-1648  
Preparation: N/A  
Method: EPA 8260B (M)  
Units: ug/m3

Project: 4411 Foothill Blvd., Oakland, CA

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-1	12-10-1648-1-A	10/23/12 07:41	Air	GC/MS YY	N/A	10/24/12 20:59	121024L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	26	22	1		Tert-Butyl Alcohol (TBA)	63	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	95	47-156			1,2-Dichloroethane-d4	93	47-156		
Toluene-d8	99	47-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-2	12-10-1648-2-A	10/23/12 07:13	Air	GC/MS YY	N/A	10/24/12 21:49	121024L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	ND	22	1		Tert-Butyl Alcohol (TBA)	ND	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	97	47-156			1,2-Dichloroethane-d4	93	47-156		
Toluene-d8	99	47-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-3	12-10-1648-3-A	10/23/12 11:07	Air	GC/MS YY	N/A	10/24/12 22:40	121024L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	ND	22	1		Tert-Butyl Alcohol (TBA)	ND	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	98	47-156			1,2-Dichloroethane-d4	93	47-156		
Toluene-d8	101	47-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-4	12-10-1648-4-A	10/23/12 10:11	Air	GC/MS YY	N/A	10/24/12 23:30	121024L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	ND	22	1		Tert-Butyl Alcohol (TBA)	ND	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	98	47-156			1,2-Dichloroethane-d4	95	47-156		
Toluene-d8	98	47-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Conestoga-Rovers & Associates  
 5900 Hollis Street, Suite A  
 Emeryville, CA 94608-2008

Date Received: 10/24/12  
 Work Order No: 12-10-1648  
 Preparation: N/A  
 Method: EPA 8260B (M)  
 Units: ug/m3

Project: 4411 Foothill Blvd., Oakland, CA

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>SSV-5</b>	<b>12-10-1648-5-A</b>	<b>10/23/12 10:35</b>	<b>Air</b>	<b>GC/MS YY</b>	<b>N/A</b>	<b>10/25/12 01:25</b>	<b>121024L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	30	22	1		Tert-Butyl Alcohol (TBA)	37	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	95	47-156			1,2-Dichloroethane-d4	92	47-156		
Toluene-d8	99	47-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>SSV-6</b>	<b>12-10-1648-6-A</b>	<b>10/23/12 08:16</b>	<b>Air</b>	<b>GC/MS YY</b>	<b>N/A</b>	<b>10/25/12 02:15</b>	<b>121024L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	ND	22	1		Tert-Butyl Alcohol (TBA)	ND	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	97	47-156			1,2-Dichloroethane-d4	91	47-156		
Toluene-d8	98	47-156							

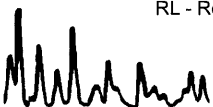
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>SSV-7</b>	<b>12-10-1648-7-A</b>	<b>10/23/12 08:49</b>	<b>Air</b>	<b>GC/MS YY</b>	<b>N/A</b>	<b>10/25/12 03:06</b>	<b>121024L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	25	22	1		Tert-Butyl Alcohol (TBA)	44	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	95	47-156			1,2-Dichloroethane-d4	93	47-156		
Toluene-d8	100	47-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-13-041-1,066</b>	<b>N/A</b>	<b>Air</b>	<b>GC/MS YY</b>	<b>N/A</b>	<b>10/24/12 14:38</b>	<b>121024L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	16	1		Xylenes (total)	ND	43	1	
Toluene	ND	19	1		Methyl-t-Butyl Ether (MTBE)	ND	36	1	
Ethylbenzene	ND	22	1		Tert-Butyl Alcohol (TBA)	ND	30	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	97	47-156			1,2-Dichloroethane-d4	95	47-156		
Toluene-d8	99	47-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



**Analytical Report**



Conestoga-Rovers & Associates  
 5900 Hollis Street, Suite A  
 Emeryville, CA 94608-2008

Date Received: 10/24/12  
 Work Order No: 12-10-1648  
 Preparation: N/A  
 Method: EPA TO-3M

Project: 4411 Foothill Blvd., Oakland, CA

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-1	12-10-1648-1-A	10/23/12 07:41	Air	GC 38	N/A	10/24/12 12:40	121024L01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

SSV-2	12-10-1648-2-A	10/23/12 07:13	Air	GC 38	N/A	10/24/12 13:24	121024L01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

SSV-3	12-10-1648-3-A	10/23/12 11:07	Air	GC 38	N/A	10/24/12 14:10	121024L01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

SSV-4	12-10-1648-4-A	10/23/12 10:11	Air	GC 38	N/A	10/24/12 14:52	121024L01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

SSV-5	12-10-1648-5-A	10/23/12 10:35	Air	GC 38	N/A	10/24/12 15:46	121024L01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

SSV-6	12-10-1648-6-A	10/23/12 08:16	Air	GC 38	N/A	10/24/12 16:27	121024L01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

**Analytical Report**



Conestoga-Rovers & Associates  
 5900 Hollis Street, Suite A  
 Emeryville, CA 94608-2008

Date Received: 10/24/12  
 Work Order No: 12-10-1648  
 Preparation: N/A  
 Method: EPA TO-3M

Project: 4411 Foothill Blvd., Oakland, CA

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SSV-7	12-10-1648-7-A	10/23/12 08:49	Air	GC 38	N/A	10/24/12 17:17	121024L01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

Method Blank	099-14-431-80	N/A	Air	GC 38	N/A	10/24/12 10:25	121024L01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	3800	1		ug/m3

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Conestoga-Rovers & Associates  
 5900 Hollis Street, Suite A  
 Emeryville, CA 94608-2008

Date Received: 10/24/12  
 Work Order No: 12-10-1648  
 Preparation: N/A  
 Method: EPA TO-3M

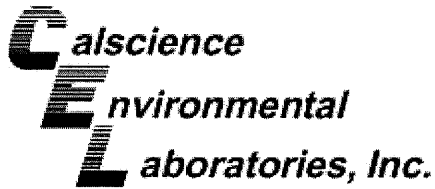
Project: 4411 Foothill Blvd., Oakland, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
SSV-5	Air	GC 38	N/A	10/24/12	121024D01

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	ND	ND	NA	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008

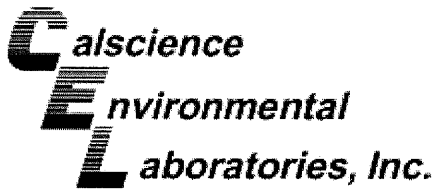
Date Received: N/A  
Work Order No: 12-10-1648  
Preparation: N/A  
Method: ASTM D-1946

Project: 4411 Foothill Blvd., Oakland, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-03-002-1,666	Air	GC 34	N/A	10/24/12	121024L01

Parameter	<u>SPIKE ADDED</u>	<u>LCS CONC</u>	<u>LCS %REC</u>	<u>LCSD CONC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Methane	10.12	8.990	89	8.990	89	80-120	0	0-30	
Carbon Dioxide	10.07	9.981	99	9.941	99	80-120	0	0-30	
Carbon Monoxide	9.930	10.82	109	10.83	109	80-120	0	0-30	
Oxygen + Argon	3.500	3.534	101	3.539	101	80-120	0	0-30	
Nitrogen	10.02	9.888	99	9.892	99	80-120	0	0-30	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008

Date Received: N/A  
Work Order No: 12-10-1648  
Preparation: N/A  
Method: ASTM D-1946 (M)

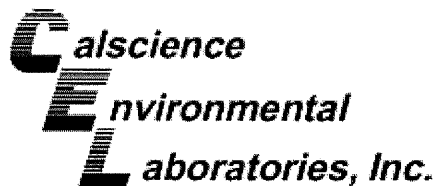
Project: 4411 Foothill Blvd., Oakland, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-872-338	Air	GC 55	N/A	10/24/12	121024L01

Parameter	SPIKE ADDED	LCS CONC	LCS %REC	LCSD CONC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Helium	1.000	0.9843	98	0.9967	100	80-120	1	0-30	
Hydrogen	1.000	1.044	104	1.059	106	80-120	1	0-30	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Conestoga-Rovers & Associates  
5900 Hollis Street, Suite A  
Emeryville, CA 94608-2008

Date Received: N/A  
Work Order No: 12-10-1648  
Preparation: N/A  
Method: EPA 8260B (M)

Project: 4411 Foothill Blvd., Oakland, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number					
099-13-041-1,066	Air	GC/MS YY	N/A	10/24/12	121024L01					
Parameter	SPIKE ADDED	LCS CONC	LCS %REC	LCSD CONC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	79.87	90.97	114	79.69	100	60-156	44-172	13	0-40	
Toluene	94.21	107.3	114	95.02	101	56-146	41-161	12	0-43	
Ethylbenzene	108.6	122.6	113	104.5	96	52-154	35-171	16	0-38	
Xylenes (total)	325.7	345.9	106	308.8	95	42-156	23-175	11	0-41	
Methyl-t-Butyl Ether (MTBE)	90.13	99.96	111	96.63	107	45-147	28-164	3	0-25	
Tert-Butyl Alcohol (TBA)	151.6	168.1	111	158.8	105	60-140	47-153	6	0-35	
Diisopropyl Ether (DIPE)	104.5	117.9	113	96.92	93	60-140	47-153	20	0-35	
Ethyl-t-Butyl Ether (ETBE)	104.5	120.7	116	110.9	106	60-140	47-153	8	0-35	
Tert-Amyl-Methyl Ether (TAME)	104.5	137.8	132	113.3	108	60-140	47-153	20	0-35	
Ethanol	188.4	189.0	100	187.1	99	47-137	32-152	1	0-35	
1,1-Difluoroethane	67.54	64.50	96	64.12	95	78-156	65-169	1	0-35	
Isopropanol	61.45	62.96	102	60.16	98	78-156	65-169	5	0-35	

Total number of LCS compounds : 12

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

**Calscience**  
**Environmental Laboratories, Inc.** Quality Control - Laboratory Control Sample



Conestoga-Rovers & Associates	Date Received:	N/A
5900 Hollis Street, Suite A	Work Order No:	12-10-1648
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	EPA TO-3M

Project: 4411 Foothill Blvd., Oakland, CA

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-14-431-80	Air	GC 38	10/24/12	12102402	121024L01

<u>Parameter</u>	<u>Conc Added</u>	<u>Conc Recovered</u>	<u>LCS %Rec</u>	<u>%Rec CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	382400	424800	111	80-120	

RPD - Relative Percent Difference , CL - Control Limit

Work Order Number: 12-10-1648
 

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<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

MPN - Most Probable Number

LAB (LOCATION)

- CALSCEINCE ( )
- SPL ( )
- XENCO ( )
- TEST AMERICA ( )
- OTHER ( )



# Shell Oil Products Chain Of Custody Record

Please Check Appropriate Box:

<input type="checkbox"/> ENV. SERVICES	<input type="checkbox"/> MOTIVA RETAIL	<input type="checkbox"/> SHELL RETAIL
<input type="checkbox"/> MOTIVA SDR/CM	<input checked="" type="checkbox"/> CONSULTANT	<input type="checkbox"/> LUBES
<input type="checkbox"/> SHELL PIPELINE	<input type="checkbox"/> OTHER _____	

Print Bill To Contact Name: **Peter Schaefer 240897**

INCIDENT # (ENV. SERVICES): \_\_\_\_\_

PO #: \_\_\_\_\_ SAP #: \_\_\_\_\_

CHECK IF NO INCIDENT # APPLIES:

DATE: 10/23/2012

PAGE: 1 of 1

SAMPLING COMPANY: **Conestoga-Rovers & Associates**

LOG CODE: **CRAW**

SITE ADDRESS: Street and City: **4411 Foothill Blvd, Oakland**

State: **CA**

GLOBAL ID NO.: **T0600101065**

ADDRESS: **5900 Hollis Street, Suite A, Emeryville, CA 94608**

EDF DELIVERABLE TO (Name, Company, Office Location): \_\_\_\_\_ PHONE NO.: \_\_\_\_\_ E-MAIL: \_\_\_\_\_ CONSULTANT PROJECT NO.: \_\_\_\_\_

PROJECT CONTACT (Hardcopy or PDF Report to): **Peter Schaefer**

Brenda Carter, CRA, Emeryville 510-420-3343 shell.em.edf@croworld.com 240897-95-12.02

TELEPHONE: **510-420-3319** FAX: **510-420-9170** E-MAIL: **pschaefer@croworld.com**

TURNAROUND TIME (CALENDAR DAYS):  STANDARD (14 DAY)  5 DAYS  3 DAYS  2 DAYS  24 HOURS  RESULTS NEEDED ON WEEKEND

LA - RWQCB REPORT FORMAT  UST AGENCY:

## 12-10-1648

SPECIAL INSTRUCTIONS OR NOTES :

Copy final report to Shell.Lab.Billing@croworld.com

Report results in  $\mu\text{g}/\text{m}^3$

SHELL CONTRACT RATE APPLIES

STATE REIMBURSEMENT RATE APPLIES

EDD NOT NEEDED

RECEIPT VERIFICATION REQUESTED

Lab USE ONLY	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE						NO. OF CONT.	REQUESTED ANALYSIS													TEMPERATURE ON RECEIPT C°	Container PID Readings or Laboratory Notes				
		DATE	TIME		HCL	HNO3	H2SO4	NONE	OTHER	TPH GRO, Purgeable C6-C12 (8260B)		TPH DRO, Extractable (8015M)	TPH (8015M)	BTEX (8260B)	BTEX + MTBE (8260B)	BTEX + MTBE + TBA (8260B)	BTEX + 8 OXYs (MTBE, TBA, DIPE, TAME, ETBE) (8260B)	Full VOC list (8260B)	Single Compound: (8260B)	1,2-DCA (8260B)	EDB (8260B)	Ethanol (8260B)	CH4 ASTM D 1946	O2 + Argon ASTM D 1946			Helium ASTM D 1946 (M)	CO2 ASTM D 1946		
																													LAB USE ONLY	DATE
1	SSV-1	10/23	0741	Vapor							X													X	X	X	X			
2	SSV-2	10/23	0713	Vapor							X														X	X	X	X		
3	SSV-3	10/23	1107	Vapor							X														X	X	X	X		
4	SSV-4	10/23	1011	Vapor							X														X	X	X	X		
5	SSV-5	10/23	1030	Vapor							X														X	X	X	X		
6	SSV-6	10/23	0816	Vapor							X														X	X	X	X		
7	SSV-7	10/23	0849	Vapor							X														X	X	X	X		

Relinquished by: (Signature) <i>Scott Lewis</i>	Received by: (Signature) <i>[Signature]</i>	Date: 10/23/12	Time: 1420
Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Date: 10/24/12	Time: 1030
Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>		



< WebShip > >>>>

800-322-5555 www.gso.com

Ship From:  
ALAN KEMP  
CAL SCIENCE- CONCORD  
5063 COMMERCIAL CIRCLE #H  
CONCORD, CA 94520

Tracking #: 520272967



NPS

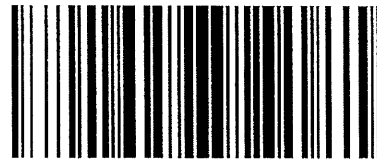
Ship To:  
SAMPLE RECEIVING  
CEL  
7440 LINCOLN WAY  
GARDEN GROVE, CA 92841

ORC  
GARDEN GROVE

A

COD:  
\$0.00

D92841A



5868946

Reference:  
CRA

Delivery Instructions:

Signature Type:  
SIGNATURE REQUIRED

Print Date : 10/23/12 15:13 PM

Package 1 of 1

Send Label To Printer

Print All

Edit Shipment

Finish

**LABEL INSTRUCTIONS:**

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

STEP 1 - Use the "Send Label to Printer" button on this page to print the shipping label on a laser or inkjet printer.

STEP 2 - Fold this page in half.

STEP 3 - Securely attach this label to your package, do not cover the barcode.

STEP 4 - Request an on-call pickup for your package, if you do not have scheduled daily pickup service or Drop-off your package at the nearest GSO drop box. Locate nearest GSO dropbox locations using this link.

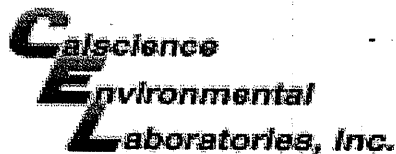
**ADDITIONAL OPTIONS:**

Send Label Via Email

Create Return Label

**TERMS AND CONDITIONS:**

By giving us your shipment to deliver, you agree to all the service terms and conditions described in this section. Our liability for loss or damage to any package is limited to your actual damages or \$100 whichever is less, unless you pay for and declare a higher authorized value. If you declare a higher value and pay the additional charge, our liability will be the lesser of your declared value or the actual value of your loss or damage. In any event, we will not be liable for any damage, whether direct, incidental, special or consequential, in excess of the declared value of a shipment whether or not we had knowledge that such damage might be incurred including but not limited to loss of income or profit. We will not be liable for your acts or omissions, including but not limited to improper or insufficient packaging, securing, marking or addressing. Also, we will not be liable if you or the recipient violates any of the terms of our agreement. We will not be liable for loss, damage or delay caused by events we cannot control, including but not limited to acts of God, perils of the air, weather conditions, act of public enemies, war, strikes, or civil commotion. The highest declared value for our GSO Priority Letter or GSO Priority Package is \$500. For other shipments the highest declared value is \$10,000 unless your package contains items of "extraordinary value", in which case the highest declared value we allow is \$500. Items of "extraordinary value" include, but not limited to, artwork, jewelry, furs, precious metals, tickets, negotiable instruments and other items with intrinsic value.



WORK ORDER #: 12-10-  6  4  8

# SAMPLE RECEIPT FORM

Box 1 of 1

CLIENT: CRA

DATE: 10/24/12

**TEMPERATURE:** Thermometer ID: SC4 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature \_\_\_\_\_ °C - 0.3 °C (CF) = \_\_\_\_\_ °C     Blank     Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature:  Air     Filter    Initial: NC

**CUSTODY SEALS INTACT:**

Box     \_\_\_\_\_     No (Not Intact)     Not Present     N/A    Initial: NC

Sample     \_\_\_\_\_     No (Not Intact)     Not Present    Initial: NC

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**CONTAINER TYPE:**

**Solid:**  4ozCGJ     8ozCGJ     16ozCGJ     Sleeve (\_\_\_\_)     EnCores®     TerraCores®     \_\_\_\_\_

**Water:**  VOA     VOA<sub>h</sub>     VOA<sub>na2</sub>     125AGB     125AGB<sub>h</sub>     125AGB<sub>p</sub>     1AGB     1AGB<sub>na2</sub>     1AGB<sub>s</sub>

500AGB     500AGJ     500AGJ<sub>s</sub>     250AGB     250CGB     250CGB<sub>s</sub>     1PB     1PB<sub>na</sub>     500PB

250PB     250PB<sub>n</sub>     125PB     125PB<sub>z<sub>na</sub></sub>     100PJ     100PJ<sub>na2</sub>     \_\_\_\_\_     \_\_\_\_\_     \_\_\_\_\_

**Air:**  Tedlar®     Canister    **Other:**  \_\_\_\_\_    **Trip Blank Lot#:** \_\_\_\_\_    **Labeled/Checked by:** NC

**Container:** C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope    **Reviewed by:** NC

**Preservative:** h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure z<sub>na</sub>: ZnAc<sub>2</sub>+NaOH f: Filtered    **Scanned by:** NC