CONESTOGA-ROVERS & ASSOCIATES

5900 Hollis Street, Suite A
Emeryville, California 94608
Telephone: (510) 420-0700 Fax: (510) 420-9170
www.CRAworld.com

TRANSMITTAL

DATE: November 10, 2011

REFERENCE NO.: 240612

PROJECT NAME: 1784 150th Avenue, San Leandro

TO: Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RECEIVED
10:44 am, Nov 14, 2011
Alameda County
Environmental Health

Please find enclosed:
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- ☐ Prints
- ☒ Final
- ☐ Other

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- ☐ Mail
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- ☐ Same Day Courier
- ☒ Other GeoTracker and Alameda County FTP

QUANTITY	DESCRIPTION
1	Soil Vapor Sampling Report

- ☐ As Requested
- ☐ For Your Use
- ☒ For Review and Comment
- ☐
- ☐

COMMENTS:
If you have any questions regarding the content of this document, please contact Peter Schaefer at (510) 420-3319.

Copy to: Denis Brown, Shell Oil Products US (electronic copy)
Bansal, Inc., 1784 150th Avenue, San Leandro, CA 94578-1826

Completed by: Peter Schaefer Signed: Peter Schaefer

Filing: **Correspondence File**

Denis L. Brown
Shell Oil Products US
HSE – Environmental Services
20945 S. Wilmington Ave.
Carson, CA 90810-1039
Tel (707) 865 0251
Fax (707) 865 2542
Email denis.l.brown@shell.com

Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Shell-branded Service Station
1784 150th Avenue
San Leandro, California
SAP Code 136019
Incident No. 98996068
ACEH Case No. RO0000367

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,

Denis L. Brown
Senior Program Manager

SOIL VAPOR SAMPLING REPORT

SHELL-BRANDED SERVICE STATION
1784 150TH AVENUE
SAN LEANDRO, CALIFORNIA

SAP CODE	136019
INCIDENT NO.	98996068
AGENCY NO.	RO0000367

Prepared by:
Conestoga-Rovers & Associates

5900 Hollis Street, Suite A
Emeryville, California
U.S.A. 94608

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NOVEMBER 10, 2011
REF. NO. 240612 (23)
This report is printed on recycled paper.

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EXECUTIVE SUMMARY

- On August 24, 2011, CRA sampled soil vapor probes SVP-6 and SVP-7 for TPHg, BTEX, and MTBE.
- Soil vapor probes SVP-4 and SVP-5 could not be sampled on August 24, 2011 or November 7, 2011 due to water in the sampling tubing.
- Soil vapor sample concentrations in probes SVP-6 and SVP-7 were below RWQCB ESLs for residential and commercial land use during the August 2011 sampling event.
- Based on these results, no further soil vapor monitoring of probes SVP-1 through SVP-3, SVP-6, and SVP-7 is warranted.
- CRA recommends installing shallower soil vapor probes adjacent to SVP-4 and SVP-5.

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 soil vapor probe monitoring event, as requested in Alameda County Environmental Health's (ACEH's) August 8, 2011 letter.

The site is an operating Shell-branded service station located at the southern corner of the 150th Avenue and Freedom Avenue intersection in San Leandro, California (Figure 1). The area surrounding the site is mixed commercial and residential. The site layout (Figure 2) includes a station building, two dispenser islands, and three fuel underground storage tanks (USTs). One waste oil UST was removed from the site on May 25, 2006.

A summary of previous work performed at the site and additional background information was submitted in CRA's January 31, 2011 *Air Sparge and Soil Vapor Extraction Well Installation and Pilot Test Report* and is not repeated herein.

2.0 SAMPLING ACTIVITIES

2.1 PERSONNEL PRESENT

CRA Geologist Erin Swan sampled soil vapor probes SVP-6 and SVP-7 under the supervision of California Professional Geologist Peter Schaefer.

2.2 SAMPLING DATES

August 24, 2011 and November 7, 2011.

2.3 SOIL VAPOR SAMPLING

During the August 24, 2011 event, CRA sampled soil vapor probes SVP-6 and SVP-7 using a lung box and Tedlar® bags and attempted to sample probes SVP-4 and SVP-5. During the November 7, 2011 event, CRA again attempted to sample probes SVP-4 and SVP-5. Approximately one liter of water was purged from soil vapor probes SVP-4 and SVP-5 during each event prior to abandoning the sampling efforts.

Prior to sampling each probe, CRA purged at least three tubing volumes of air from the vapor probe using a vacuum pump. Immediately after purging, a soil vapor sample was collected using a laboratory-supplied Tedlar® bag. During sampling, the Teflon® tubing for the vapor probe was connected to a lung box containing the Tedlar® bag, and the lung box chamber was connected to the vacuum pump. The sample was then drawn into the Tedlar® bag by reducing the pressure in the lung box with the vacuum pump. The 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, a containment unit (or shroud) was placed to cover the soil gas probe surface casing and sampling manifold. Prior to soil gas probe purging, helium was introduced into the containment unit to obtain a minimum 50 percent helium content level. The helium content within the containment unit was confirmed using a helium meter. The helium meter reading is presented in Section 3.2. The sample was analyzed by the laboratory for helium, and CRA presents the results in Section 3.2 and on Table 1.

3.0 FINDINGS

3.1 SOIL VAPOR

No total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), or methyl tertiary-butyl ether were detected in the soil vapor samples collected from SVP-6 and SVP-7 on August 24, 2011.

Table 1 summarizes historical soil vapor analytical data. TPHg and BTEX results are shown on Figure 2, and the laboratory analytical report is presented in Appendix A.

3.2 LEAK TESTING

CRA performed leak testing as described above, and helium was not detected in any of the samples. As shown in the following table, the reporting limit for helium (0.0100 percent by volume [%*v*]) is less than 10 percent of the concentration detected in the shroud, and the samples are considered valid.

Probe ID	*Helium concentration in sample (%v)*	*Minimum Helium detected in shroud (%v)*	*Maximum acceptable helium concentration in sample (%v)*
SVP-6	<0.0100	50	5.0
SVP-7	<0.0100	50	5.0

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

4.0 CONCLUSIONS AND RECOMMENDATIONS

Soil vapor sample concentrations in SVP-6 and SVP-7 were below San Francisco Bay Regional Water Quality Control Board environmental screening levels[1] for residential and commercial land use during the August 2011 sampling event. Based on these results, no further soil vapor monitoring of these probes is warranted.

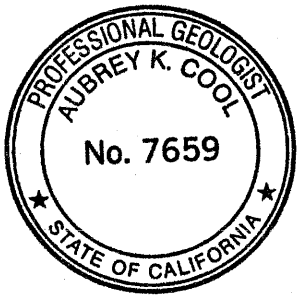
CRA recommends installing shallower soil vapor probes adjacent to SVP-4 and SVP-5. We will submit a work plan detailing this proposal.

1 *Screening for Environmental Concerns at Sites 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, CEG, CHG

Aubrey K. Cool, PG



FIGURES

11/03/08

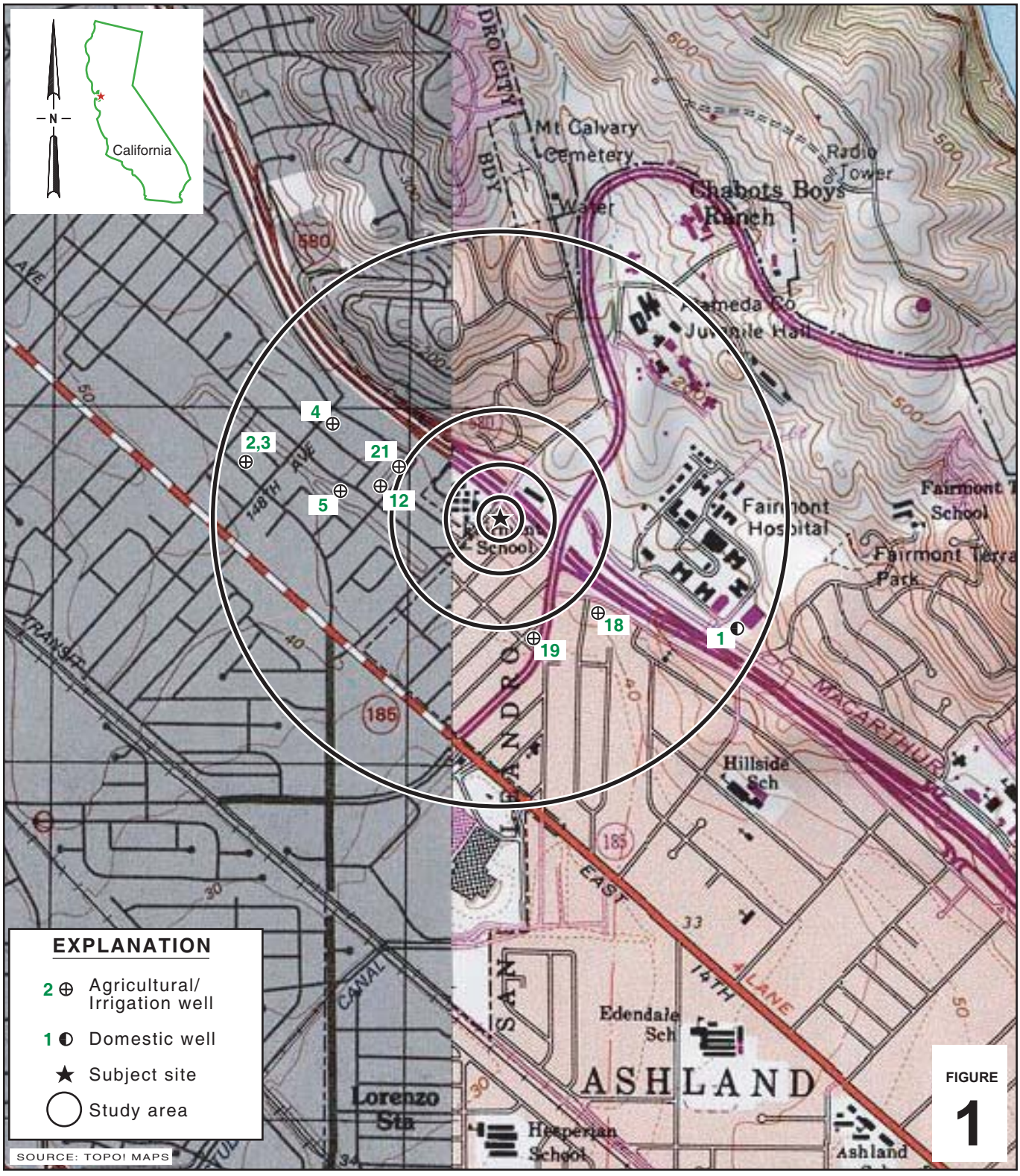


FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

I:\Shell\6-chars\2406-\240612-San Leandro 1784 150th\240612-FIGURES\240612 VICINITY.AI

Shell-branded Service Station

1784 150th Avenue

San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

10/14/2011

Soil Vapor Data Map

August 24, 2011

EXPLANATION

SVE-1	Soil vapor extraction well location
SVP-6	Soil vapor probe location
AS-1	Air sparge well location
P-1A	Piezometer location
P-1B	Deeper piezometer location
EW-1	Extraction well location
MW-3	Monitoring well location
MW-1B	Deeper monitoring well location
MW-1	Destroyed well location
B-1	Soil boring location (9/14/2007)
CPT-1	CPT location (8/29-30/2007)
SVP-1	Soil vapor probe location (8/28/2007 & 10/1/2010)
1	Dispenser number
	Product piping (P)
	Water line (W)

Sample ID	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes
SVP-6	<3,800	<16	<19	<22	<43

Notes:
Soil sample ID and concentrations in micrograms per cubic meter
TPHg = Total petroleum hydrocarbons as gasoline
<X = Not detected at reporting limit X

Sample ID	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes
SVP-6	<3,800	<16	<19	<22	<43

Sample ID	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes
SVP-7	<3,800	<16	<19	<22	<43

PORTOFINO CIRCLE
PORTOFINO DRIVE
150TH AVENUE
FREEDOM AVENUE
I-580
Brick Sound Wall
Residential
Residential
Residential
Residential (Townhouses)
Residential (Townhouses)
Residential (Townhouses)
Private (Gated Driveway)
Storm Drain
Manhole (MH, typ.)
Shell Station
1784 150th Ave.
Former Dispenser Island
Dispenser Islands
USTs
Station Building
Former W/O UST
Air Comp.
Storage
Parking Lot
Denny's Restaurant
15015 Freedom Ave.
SB-12
BH-5
SB-13
MW-9
SB-25/ MW-13
SB-11
MW-10
CPT-3
MW-7
SVP-5
SB-24/MW-12
MW-4
MW-8
MW-2B
P-4B
P-4A
AS-1
MW-2
P-3A
CPT-2
P-3B
MW-11
EW-2
SVP-1
SVE-1
SVP-6
SVP-7
EW-1
CPT-1
SVP-2
P-1B
P-1A
MW-1
P-2B
SVP-3
P-2A
MW-1B
MW-1A
B-1
SB-23
SVP-4
MW-3
SB-18
SB-17
CPT-5
BH-7
MW-5
CPT-6
MW-6

N

0 20 40 80
Scale (ft)

FIGURE
2

Shell-branded Service Station

1784 150th Avenue
San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

I:\Shell\6-chars\2406--\240612-San Leandro 1784 150th\240612-FIGURES\240612 SITE PLAN (F2, SOIL VAPOR DATA 8-11).DWG

TABLE

TABLE 1

HISTORICAL SOIL VAPOR ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
1784 150TH AVENUE, SAN LEANDRO, CALIFORNIA

Sample ID	*Date*	*TPHg* ($\mu g/m^3$)	*Benzene* ($\mu g/m^3$)	*Toluene* ($\mu g/m^3$)	*Ethylbenzene* ($\mu g/m^3$)	*Total Xylenes* ($\mu g/m^3$)	*MTBE* ($\mu g/m^3$)	*Butane*[a] ($\mu g/m^3$)	*Isobutane*[a] ($\mu g/m^3$)	*Propane*[a] ($\mu g/m^3$)	*Methane* (%v)	*Carbon Dioxide* (%v)	*Oxygen + Argon* (%v)	*Helium* (%v)
SVP-1	9/25/2007	**12,000**	<17	7,000	120	300	<19	67	ND	ND	---	---	---	---
SVP-1	3/5/2008	<17,000	8.2	1,300	41	95	<10	ND	70.12	ND	---	---	---	---
SVP-1 DUP[c]	3/5/2008	<18,000	7.9	400	32	65	<11	ND	62.99	ND	---	---	---	---
SVP-1	5/20/2008	620	<3.9	<4.6	<5.2	<5.2	<4.4	ND	ND	ND	---	---	---	---
SVP-1	9/17/2008	<270	<4.2	5.7	<5.7	<5.7	<4.8	ND	ND	ND	---	---	---	---
SVP-1	1/17/2009	<9,800	<2.7	<3.2	<3.7	<15	<12	<20	<20	<46	---	---	---	---
SVP-1	5/6/2011	<7,000	<16	<19	68	99	<36	---	---	---	<0.500	1.61	12.3	0.0191
SVP-2	9/25/2007	760	11	90	14	56	24	ND	ND	ND	---	---	---	---
SVP-2	3/5/2008	<19,000	<2.7	<3.1	<3.6	<7.3	<12	ND	ND	ND	---	---	---	---
SVP-2	5/20/2008	830	<6.4	<7.6	<8.8	<8.8	<7.3	ND	ND	ND	---	---	---	---
SVP-2	9/17/2008	<240	<3.8	<4.5	<5.2	<5.2	<4.3	ND	ND	ND	---	---	---	---
SVP-2 DUP[c]	9/17/2008	<230	<3.6	<4.3	<5.0	<5.0	<4.1	ND	ND	ND	---	---	---	---
SVP-2	1/17/2009	<9,400	<2.6	<3.1	<3.6	<14	<12	<19	25	<44	---	---	---	---
SVP-2	5/6/2011	<7,000	<16	<19	160	220	<36	---	---	---	<0.500	6.73	12.7	<0.0100
SVP-3	9/25/2007	300	<4.4	<5.2	<6.0	<6.0	<5.0	ND	ND	ND	---	---	---	---
SVP-3 DUP[c]	9/25/2007	<260	<4.1	<4.9	<5.6	<5.6	<4.6	ND	ND	ND	---	---	---	---
SVP-3	3/5/2008	<20,000	3.9	32	7.8	38	13	ND	ND	ND	---	---	---	---
SVP-3	5/20/2008	380	<3.9	<4.6	<5.4	<5.4	<4.4	ND	ND	ND	---	---	---	---
SVP-3	9/17/2008	<340	<5.4	<6.3	<7.3	<7.3	<6.1	ND	ND	ND	---	---	---	---
SVP-3	1/17/2009	<9,200	<2.6	<3.0	<3.5	<14	<12	<19	60	<43	---	---	---	---
SVP-3	5/6/2011	<7,000	<16	<19	49	59	<36	---	---	---	<0.500	2.40	19.7	<0.0100
SVP-4	9/25/2007	**12,000**	<3.9	13	6.3	31	<4.4	713	ND	ND	---	---	---	---
SVP-5	9/25/2007	**70,000**	<56	<66	<76	<76	<63	ND	ND	ND	---	---	---	---
SVP-5	3/5/2008	<17,000	<2.3	2.7	<3.1	<6.3	<10	ND	22.11	ND	---	---	---	---
SVP-5	9/17/2008	**280,000**	**260**	780	**14,000**	**48,000**	290	8,600[b]	880[b]	ND	---	---	---	---
SVP-5 (200 ml/min flow)	1/17/2009	<9,100	<2.5	<3.0	<3.4	<14	36	<19	<19	<43	---	---	---	---
SVP-5 (100 ml/min flow)	1/17/2009	<9,100	<2.5	<3.0	<3.4	<14	51	<19	<19	<43	---	---	---	---
SVP-5 DUP[c] (200 ml/min flow)	1/17/2009	<9,000	<2.5	<3.0	<3.4	<14	59	<19	<19	<42	---	---	---	---
SVP-5	10/1/2009	---	4.6	<19	17	<8.7	---	---	---	---	---	---	---	<0.0100

TABLE 1

HISTORICAL SOIL VAPOR ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
1784 150TH AVENUE, SAN LEANDRO, CALIFORNIA

Sample ID	*Date*	*TPHg* ($\mu g/m^3$)	*Benzene* ($\mu g/m^3$)	*Toluene* ($\mu g/m^3$)	*Ethylbenzene* ($\mu g/m^3$)	*Total Xylenes* ($\mu g/m^3$)	*MTBE* ($\mu g/m^3$)	*Butane*[a] ($\mu g/m^3$)	*Isobutane*[a] ($\mu g/m^3$)	*Propane*[a] ($\mu g/m^3$)	*Methane* (%v)	*Carbon Dioxide* (%v)	*Oxygen + Argon* (%v)	*Helium* (%v)
SVP-6	11/2/2010	<7,000	<16	<19	<22	<43	---	---	---	---	<0.500	1.45	20.3	<0.0100
SVP-6	5/6/2011	<7,000	<16	<19	140	200	<36	---	---	---	<0.500	2.58	6.21	0.0259
SVP-6	8/24/2011	<3,800	<16[d]	<19[d]	<22[d]	<43[d]	<36[d]	---	---	---	<0.500	3.72	9.05	<0.0100
SVP-7	11/2/2010	<7,000	<16	<19	<22	<43	---	---	---	---	<0.500	<0.500	21.1	<0.0100
SVP-7	5/6/2011	<7,000	<16	<19	110	170	<36	---	---	---	<0.500	0.656	21.2	<0.0100
SVP-7	8/24/2011	<3,800	<16[d]	<19[d]	<22[d]	<43[d]	<36[d]	---	---	---	<0.500	<0.500	21.6	<0.0100
Residential Land Use ESL[e]:		**10,000**	**84**	**63,000**	**980**	**21,000**	**9,400**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Commercial/Industrial Land Use ESL [e]:		**29,000**	**280**	**180,000**	**3,300**	**58,000**	**31,000**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Notes:
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method TO-3 GC/FID
Benzene, toluene, ethylbenzene and total xylenes by modified EPA Method TO-15 GC/FID Full Scan
MTBE = Methyl tertiary-butyl ether by modified EPA Method TO-15 GC/FID Full Scan
Butane, isobutane, and propane by modified EPA Method TO-15 GC/FID Full Scan
Methane, carbon dioxide, and oxygen+argon analyzed by ASTM D-1946
Helium analyzed by ASTM D-1946(M)
$\mu g/m^3$ = Micrograms per cubic meter
%v = Percentage by volume
ND = Not detected; no reporting limit provided.
--- = Not analyzed
ESL = Environmental screening level
NA = No applicable ESL
Results in **bold** equal or exceed ESL.

a = Detected quantities estimated by laboratory for 2007 and 2008 samples.
b = The identification is based on presumptive evidence; estimated value
c = Field duplicate
d = Analyzed by EPA 8260B (M)
e = San Francisco Bay Regional Water Quality Control Board ESLs for shallow soil gas (Table E of Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, California Regional Water Quality Control Board, Interim Final - November 2007 [Revised May 2008])

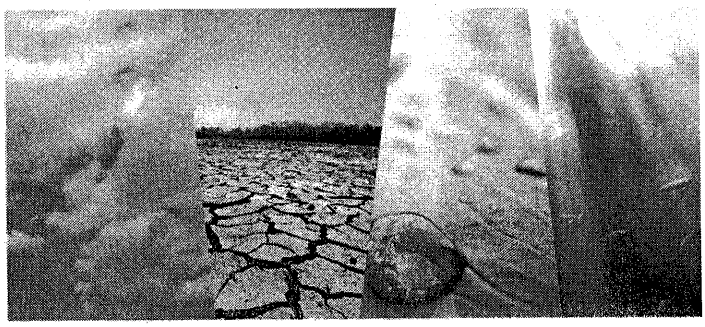
APPENDIX A

CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.
LABORATORY REPORT

Calscience
Environmental & Marine Chemistry Laboratories

CALSCIENCE
WORK ORDER NUMBER: 11-08-1701

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Conestoga-Rovers & Associates

Client Project Name: 1784 150th Ave., San Leandro, CA

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

Approved for release on 09/8/2011 by:
Xuan Dang
Project Manager

ResultLink ▸

Email your PM ▸

Calscience Environmental Laboratories 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 provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience
Environmental & Marine Chemistry Laboratories

Client Project Name: 1784 150th Ave., San Leandro, CA
Work Order Number: 11-08-1701

Contents

Case Narrative

Work Order # 11-08-1701

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 CalscienceTO-15(Modified) versus EPA 8260 (Modified) in Air

Requirement	Calscience TO-15(M)	Calscience EPA 8260(M) in Air
BFB Acceptance Criteria	SW846 Protocol	SW846 Protocol
Initial Calibration	Allowable % RSD for each Target Analyte <= 30%, 10% of analytes allowed <=40%	Allowable % RSD for each Target Analyte <= 30%, 10% of analytes allowed <= 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 - <= 30%D
Daily Calibration Verification (CCV)	**Full List Analysis:** Allowable % Difference for each CCC analyte is <= 30%	BTEX and MTBE only - <= 30%D
	Target List Analysis: Allowable % Difference for each target analytes is <= 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-Bromoflurobenzene, 1,2-Dichloroethane-d4 and Toluene-d8 - % Recoveries based upon historical control limits +/-3S	1,4-Bromoflurobenzene, 1,2-Dichloroethane-d4 and Toluene-d8 - % Recoveries based upon historical control limits +/-3S

Calscience Environmental Laboratories, Inc.

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

Work Order: 11-08-1701
Project name: 1784 150th Ave., San Leandro, CA
Received: 08/25/11 10:30

DETECTIONS SUMMARY

Client Sample ID / Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Extraction
SVP-6						
Carbon Dioxide	**3.72**		0.500	%v	ASTM D-1946	N/A
Oxygen + Argon	**9.05**		0.500	%v	ASTM D-1946	N/A
SVP-7						
Oxygen + Argon	**21.6**		0.500	%v	ASTM D-1946	N/A

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

*MDL is shown.

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 08/25/11
Work Order No: 11-08-1701
Preparation: N/A
Method: ASTM D-1946
Units: %v

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-6	**11-08-1701-1-A**	**08/24/11 11:01**	**Air**	**GC 36**	**N/A**	**08/25/11 14:45**	**110825L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	9.05	0.500	1	
Carbon Dioxide	3.72	0.500	1						

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-7	**11-08-1701-2-A**	**08/24/11 11:30**	**Air**	**GC 36**	**N/A**	**08/25/11 15:02**	**110825L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Methane	ND	0.500	1		Oxygen + Argon	21.6	0.500	1	
Carbon Dioxide	ND	0.500	1						

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-03-002-1,368**	**N/A**	**Air**	**GC 36**	**N/A**	**08/25/11 09:51**	**110825L01**

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates	Date Received: 08/25/11
5900 Hollis Street, Suite A	Work Order No: 11-08-1701
Emeryville, CA 94608-2008	Preparation: N/A
	Method: ASTM D-1946 (M)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-6	**11-08-1701-1-A**	**08/24/11 11:01**	**Air**	**GC 55**	**N/A**	**08/25/11 15:10**	**110825L01**

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

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-7	**11-08-1701-2-A**	**08/24/11 11:30**	**Air**	**GC 55**	**N/A**	**08/25/11 15:36**	**110825L01**

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

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-872-149**	**N/A**	**Air**	**GC 55**	**N/A**	**08/25/11 14:43**	**110825L01**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates	Date Received:	08/25/11
5900 Hollis Street, Suite A	Work Order No:	11-08-1701
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	EPA 8260B (M)
	Units:	ug/m3
Project: 1784 150th Ave., San Leandro, CA		Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-6	**11-08-1701-1-A**	**08/24/11 11:01**	**Air**	**GC/MS II**	**N/A**	**08/25/11 20:26**	**110825L01**

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						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	88	47-156			1,2-Dichloroethane-d4	93	47-156		
Toluene-d8	92	47-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-7	**11-08-1701-2-A**	**08/24/11 11:30**	**Air**	**GC/MS II**	**N/A**	**08/26/11 15:55**	**110826L01**

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						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	94	47-156			1,2-Dichloroethane-d4	96	47-156		
Toluene-d8	94	47-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-13-041-580**	**N/A**	**Air**	**GC/MS II**	**N/A**	**08/25/11 16:05**	**110825L01**

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						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	97	47-156			1,2-Dichloroethane-d4	98	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
Method Blank	**099-13-041-581**	**N/A**	**Air**	**GC/MS II**	**N/A**	**08/26/11 14:03**	**110826L01**

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						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	96	47-156			1,2-Dichloroethane-d4	99	47-156		
Toluene-d8	99	47-156							

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates	Date Received:	08/25/11
5900 Hollis Street, Suite A	Work Order No:	11-08-1701
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-6	**11-08-1701-1-A**	**08/24/11 11:01**	**Air**	**GC 19**	**N/A**	**08/26/11 12:50**	**110826L01**

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

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SVP-7	**11-08-1701-2-A**	**08/24/11 11:30**	**Air**	**GC 19**	**N/A**	**08/26/11 12:11**	**110826L01**

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

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-431-12**	**N/A**	**Air**	**GC 19**	**N/A**	**08/26/11 09:50**	**110826L01**

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

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

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

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

Date Received: 08/25/11
Work Order No: 11-08-1701
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
SVP-6	**Air**	**GC 19**	**N/A**	**08/26/11**	**110826D01**

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

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates	Date Received:	N/A
5900 Hollis Street, Suite A	Work Order No:	11-08-1701
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	ASTM D-1946

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-03-002-1,368	Air	GC 36	N/A	08/25/11	110825L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methane	95	95	80-120	0	0-30	
Carbon Dioxide	103	102	80-120	1	0-30	
Carbon Monoxide	101	101	80-120	0	0-30	
Oxygen + Argon	95	93	80-120	3	0-30	
Nitrogen	97	94	80-120	3	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates	Date Received:	N/A
5900 Hollis Street, Suite A	Work Order No:	11-08-1701
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	ASTM D-1946 (M)

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-872-149	Air	GC 55	N/A	08/25/11	110825L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Helium	96	94	80-120	2	0-30	
Hydrogen	104	102	80-120	1	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 11-08-1701
Preparation: N/A
Method: EPA 8260B (M)

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-041-580	Air	GC/MS II	N/A	08/25/11	110825L01

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	110	107	60-156	44-172	3	0-40	
Toluene	113	108	56-146	41-161	5	0-43	
Ethylbenzene	118	113	52-154	35-171	4	0-38	
Xylenes (total)	117	111	42-156	23-175	5	0-41	
Methyl-t-Butyl Ether (MTBE)	110	108	45-147	28-164	2	0-25	
Tert-Butyl Alcohol (TBA)	119	115	60-140	47-153	3	0-35	
Diisopropyl Ether (DIPE)	100	98	60-140	47-153	2	0-35	
Ethyl-t-Butyl Ether (ETBE)	108	107	60-140	47-153	1	0-35	
Tert-Amyl-Methyl Ether (TAME)	110	108	60-140	47-153	2	0-35	
Naphthalene	93	89	60-140	47-153	4	0-30	
Ethanol	78	76	47-137	32-152	4	0-35	
1,1-Difluoroethane	102	99	78-156	65-169	2	0-35	
Isopropanol	99	94	78-156	65-169	5	0-35	

Total number of LCS compounds : 13
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 - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 11-08-1701
Preparation: N/A
Method: EPA 8260B (M)

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-041-581	Air	GC/MS II	N/A	08/26/11	110826L01

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	106	108	60-156	44-172	2	0-40	
Toluene	109	111	56-146	41-161	2	0-43	
Ethylbenzene	114	117	52-154	35-171	2	0-38	
Xylenes (total)	114	116	42-156	23-175	2	0-41	
Methyl-t-Butyl Ether (MTBE)	105	107	45-147	28-164	1	0-25	
Tert-Butyl Alcohol (TBA)	78	79	60-140	47-153	1	0-35	
Diisopropyl Ether (DIPE)	95	96	60-140	47-153	2	0-35	
Ethyl-t-Butyl Ether (ETBE)	100	103	60-140	47-153	3	0-35	
Tert-Amyl-Methyl Ether (TAME)	101	104	60-140	47-153	3	0-35	
Naphthalene	91	92	60-140	47-153	1	0-30	
Ethanol	76	77	47-137	32-152	2	0-35	
1,1-Difluoroethane	97	99	78-156	65-169	2	0-35	
Isopropanol	96	96	78-156	65-169	1	0-35	

Total number of LCS compounds : 13
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.

Glossary of Terms and Qualifiers

Work Order Number: 11-08-1701

Qualifier	Definition
*	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.

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
- ☑ CALSCIENCE (_____)
- ☐ SPL (_____)
- ☐ XENCO (_____)
- ☐ TEST AMERICA (_____)
- ☐ OTHER (_____)

Please Check Appropriate Box:
- ☐ ENV. SERVICES
- ☐ MOTIVA RETAIL
- ☐ SHELL RETAIL
- ☐ MOTIVA SD&CM
- ☑ CONSULTANT
- ☐ LUBES
- ☐ SHELL PIPELINE
- ☐ OTHER _____

Print Bill To Contact Name: Peter Schaefer

INCIDENT # (ENV SERVICES): 98996068 ☐ CHECK IF NO INCIDENT # APPLIES

DATE: ~~10/18/2010~~ 8/24/11

PO #:

SAP #: 136019

PAGE: 1 of 1

SAMPLING COMPANY: Conestoga-Rovers & Associates

LOG CODE: CRAW

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

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

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

SITE ADDRESS: Street and City: 1784 150th Ave, San Leandro State: CA

GLOBAL ID NO.: TO600101230

EDF DELIVERABLE TO (Name, Company, Office Location): Brenda Carter, CRA, Emeryville

PHONE NO.: 510-420-3343

E-MAIL: shell.em.edf@craworld.com

CONSULTANT PROJECT NO.: 240612-95-11.05

SAMPLER NAME(S) (Print): Erin Swan

LAB USE ONLY: 11-08-1701

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:

☑ SHELL CONTRACT RATE APPLIES
☐ STATE REIMBURSEMENT RATE APPLIES
☐ EDD NOT NEEDED
☐ RECEIPT VERIFICATION REQUESTED

SPECIAL INSTRUCTIONS OR NOTES :
Helium used as Tracer gas
Tedlar bags must be analize within 72 hours of sampling.
TPHg: report in range $C_6 - C_{12}$ only.
Please report results in µg/m3 for 8260, and TO-3 and report results in % by volume for ASTM D 1946(M).

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	TPHg by Method TO-3 (report results from C_6 - C12 carbon range only)	BTEX & MTBE by Method 8260	Oxygen, Argon, Carbon Dioxide, Methane, & Helium (ASTM D 1946 M)	TEMPERATURE ON RECEIPT C° / Container PID Readings or Laboratory Notes
1	SVP-6	8/24/11	11:01	Vapor						1	X	X	X	Tedlar Bag
2	SVP-7	8/24/11	11:30	Vapor						1	X	X	X	Tedlar Bag
	~~SVP-~~			~~Vapor~~							X	X	X	Tedlar Bag
	~~SVP-~~			~~Vapor~~							X	X	X	Tedlar Bag
				~~Vapor~~							X	X	X	Tedlar Bag

Relinquished by: (Signature) Erin Swan	Received by: (Signature) CEL	Date: 8/24/11	Time: 1:50
Relinquished by: (Signature) CO GSO 8/24/11 1730	Received by: (Signature)	Date: 8/25/11	Time: 1030
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

05/2/06 Revision

(1701)

GSO

WebShip > > > > >

800-322-5555 www.gso.com

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

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

COD:
$0.00

Reference:
ERI, CRA, STANTEC

Delivery Instructions:

Signature Type:
SIGNATURE REQUIRED

Tracking #: 517266533

NPS

ORC

D

GARDEN GROVE

D92843A

93732237

Print Date : 08/24/11 15:56 PM

Package 1 of 1

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-08-1701

SAMPLE RECEIPT FORM

Box 1 of 1

CLIENT: CRA

DATE: 08/25/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C + 0.5 °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	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☑ Tedlar® ☐ Summa® **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:** YC

Preservative: h: HCL n: HNO_3 na$_2$: $Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 znna: $ZnAc_2$+NaOH f: Field-filtered **Scanned by:** YC