February 6, 2013

Ms. Barbara Jakub
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Supplementary Soil Vapor Sampling
Sunny Piedmont Cleaners
Oakland, California

Dear Ms. Jakub:

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Sincerely,

Jimmy Koo

Enclosure: Supplementary Soil Vapor Sampling Report

ICES
Innovative & Creative
Environmental Solutions

February 4, 2013 ICES 7016

Ms. Barbara Jakub
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Supplementary Soil Vapor Sampling
Sunny Piedmont Cleaners
Oakland, California

Dear Barbara:

Enclosed is our report documenting the supplementary soil vapor sampling activities that were conducted at the Sunny Piedmont Cleaners located at 4364 Piedmont Avenue in Oakland, California ("the Site"). The purpose of the supplementary soil vapor sampling was to assess the effectiveness of the soil remedial activities that were conducted in January 2012.

The latest soil vapor results indicated that VOC concentrations were below their respective commercial/industrial ESLs. Based on the results of the confirmation soil and soil vapor samples, the remedial activities have been successfully completed. We recommend closure of the remedial activities at the Site.

If you have any questions or comments concerning this report, please do not hesitate to contact Derek Wong or me.

Sincerely,

Peng Leong, P.E.
Principal Engineer

Enclosure

cc: Mr. Jimmy Koo, Sunny Piedmont Cleaners

Tel (510) 652-3222
Fax (510) 652-3555
3300 Powell Street
Suite #109
Emeryville, CA
94608

SUPPLEMENTARY SOIL VAPOR SAMPLING

SUNNY PIEDMONT CLEANERS
OAKLAND, CALIFORNIA

February 4, 2013

ICES 7016

Prepared for

Mr. Jimmy Koo
Sunny Piedmont Cleaners
4364 Piedmont Avenue
Oakland, California 94611

ICES
Innovative & Creative Environmental Solutions
3300 Powell Street, Suite #109 Emeryville CA 94608
... (510) 652-3222 ...

ICES

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ICES

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February 4, 2013 ICES 7016

SUPPLEMENTARY SOIL VAPOR SAMPLING

SUNNY PIEDMONT CLEANERS
OAKLAND, CALIFORNIA

1.0 INTRODUCTION

This report presents the supplementary soil vapor sampling activities conducted at the Sunny Piedmont Cleaners located at 4364 Piedmont Avenue in Oakland, California ("the Site"; Figure 1). The purpose of the supplementary soil vapor sampling was to assess the effectiveness of the soil remedial activities that were conducted in January 2012.

The Environmental Screening Levels (ESLs) that were developed by the Regional Water Quality Control Board for commercial/industrial applications were adopted as the remedial goals for the Site.

2.0 SITE DESCRIPTION

The Site is located on the west side of Piedmont Avenue, between Brandon Street and Gleneden Avenue, within the city limits of Oakland in a residential and commercial/industrial area of Alameda County, California. The Site is sandwiched between Verizon Wireless to the west and Honey Baked Ham and a packaging store to the east, all of which are housed within a rectangular building. An asphalt-paved parking area adjoins the Site to the south. Sunny Piedmont Cleaners, a dry cleaner, is the current tenant at the Site.

3.0 BACKGROUND

Nova Consulting Group, Inc. (Nova) of San Francisco, California completed a Phase I Environmental Site Assessment (ESA) for the Site in April 2009. The ESA reported that dry cleaning operations using PCE and petroleum based cleaners had been conducted at the Site since 1984, a period of approximately 26 years.

A Phase II site investigation was conducted by Nova in June 2009. The objective of the investigation activities was to evaluate the shallow soil at the Site for the potential

presence of contaminants associated with the onsite dry cleaning operations. Five soil samples were collected from five soil boring locations at depths ranging from 4 to 20 feet below the existing ground surface (bgs) using a hand auger and geoprobe. The soil samples were analyzed for total petroleum hydrocarbons (TPH) as mineral spirits (TPHms) and volatile organic compounds (VOCs). Analysis of the soil samples indicated that TPHms and VOC concentrations were generally below their respective commercial/industrial ESLs with the exception of PCE. The PCE concentration contained in sample HAB-2 that was collected at a depth of approximately 4 feet bgs (located adjacent to the dry cleaning machine at the eastern portion of the Site) of 11 mg/kg exceeded the commercial/industrial ESL of 0.70 mg/kg. The four remaining soil samples contained PCE concentrations below the commercial/industrial ESL. Based on the findings of the investigation, it appeared that a very localized dry cleaning solvent release to the subsurface sediments beneath the eastern portion of the Site had occurred.

ICES conducted a supplementary site characterization in June and July 2010. The purpose of the supplementary site characterization activities was to establish the lateral and vertical extent of VOCs that were encountered in the surficial soil at the Site during the June 2009 Phase II site investigation. Soil samples were collected from three onsite borings (B-1 through B-3). A grab groundwater sample was also collected from boring B-3. Boring B-1 was located adjacent to the dry cleaning machines at the eastern portion of the Site (in the immediate vicinity of boring HAB-2); boring B-2 was located adjacent to the sanitary sewer line and floor drain at the northern portion of the building, north of the dry cleaning machines; and boring B-3 was located along the western perimeter of the building. An angled boring was drilled at boring B-3 to gain access to the groundwater beneath the dry cleaning machines. Laboratory analytical results of the soil samples collected indicated VOC concentrations below their respective commercial/industrial ESLs. VOC concentrations contained in the grab groundwater sample that was collected from boring B-3 were below their respective ESLs.

Based on the laboratory analytical results of the Phase II Site Investigation and supplementary site characterization activities, it appeared that the underlying sediments containing PCE levels exceeding the ESL was confined to the immediate vicinity of the dry cleaning machines and extended to a maximum depth of approximately 5 feet bgs.

As requested by Alameda County Environmental Health, a conduit study and well survey was completed for the Site in July and August 2011. Cruz Brothers of Scotts Valley and Underground Services Alert were contacted to assist in identifying and locating subsurface utilities within the Site, the sidewalk area along Piedmont Avenue (adjacent to and north of the Site), and along Piedmont Avenue. Figure 2 presents the findings of the utility survey showing the approximate location of the utilities.

A review of the City of Oakland Sanitary Sewer maps and a visual inspection of the sanitary sewer alignment onsite and in the adjacent street (Piedmont Avenue) indicated that the sanitary sewer runs south to north within the building to a tie-in at Piedmont Avenue to the north. Water, gas, and electrical lines were aboveground and overhead within the building.

According to the State of California Department of Water Resources database and the Alameda County Public Works Agency database, there are two wells located within a 1,000-foot radius of the Site, five wells located just over 1,500 feet from the Site; and 54 wells located over 2,000 feet from the Site.

A supplementary assessment and investigation in the vicinity of the sanitary sewer alignment was performed by ICES to assess the potential migration of PCE in February 2012. Soil samples were collected from boring B-4 which was located along the sanitary sewer alignment at the northern portion of the Site and approximately 35 feet north of boring B-2 (Figure 2). Soil samples were collected at continuous 2-foot intervals, starting at a depth of approximately 1 foot below the sanitary sewer line (approximately 5 feet bgs) and extended to a depth of approximately 10 feet bgs. The soil from the boring was also screened using a portable photoionization detector (PID). Field screening of the soil from the boring did not detect elevated concentrations of organic vapors when screened using a PID. In addition, neither odor nor discoloration was observed in the soil. Laboratory analysis of the sample that was collected at 5 feet bgs (B-4@5') indicated VOC concentrations below their respective commercial/industrial ESLs.

Remedial activities to remove the PCE-affected soil located within the immediate vicinity of the dry cleaning machines was performed in January and May 2012 in accordance with the approved Work Plan dated August 8, 2011. The removal of the PCE-affected soil was performed manually using shovels and wheel barrows on January 13, 2012. The excavated soil was placed in 55-gallon drums for offsite disposal.

Post excavation confirmation sampling consisted of five soil (four sidewall and one floor) samples. Post excavation final confirmation soil samples did not contain VOC concentrations above their respective commercial/industrial ESLs. The excavation was subsequently backfilled and compacted using virgin import fill on January 14, 2012. The two 55-gallon drums of PCE-affected soil were removed on May 1, 2012 by Veolia Environmental Services and transported to Kettleman Hills landfill located in Kettleman City, California.

Sub-slab soil vapor samples were collected from two onsite borings (SV-1 and SV-2) located at the eastern and western portions of the Site (Figure 2) on February 10, 2012 and May 2, 2012. A summary of the soil vapor sample results are presented in Table 1.

Laboratory analysis of the soil vapor samples indicated that VOC concentrations were generally below their respective commercial/industrial ESLs with the exception of PCE. The detectable PCE contained in soil vapor sample SV-1 collected in February 2012 and May 2012 was 100,000 ug/m^3 and 24,000 ug/m^3, respectively. PCE concentrations detected in soil vapor sample SV-2 in February 2012 and May 2012 were 14,000 ug/m^3 and 13,000 ug/m^3, respectively. All the above soil vapor PCE concentrations exceeded the commercial/industrial ESL of 1,400 ug/m^3.

4.0 SUPPLEMENTARY SOIL VAPOR SAMPLING

Additional sub-slab soil vapor samples were collected from borings SV-1 and SV-2 which were located at the eastern and western portions of the Site on November 1, 2012 and January 22, 2013. Soil vapor samples were collected from the borings in accordance with the approved Work Plan - Addendum I dated November 8, 2012.

The soil vapor samples were sent to McCampbell and analyzed for VOCs using TO-15; and oxygen, carbon dioxide, and methane using ASTM D 1946-90 on a normal 5-day turnaround basis. A summary of the soil vapor sample results are presented in Table 1.

Laboratory analysis of the soil vapor samples indicated that VOC concentrations were below their respective commercial/industrial ESLs. Oxygen, carbon dioxide, and methane levels contained in sample SV-1 collected on November 1, 2012 were 170,000 uL/L (17%), 36,000 uL/L (3.6%), and 3.0 uL/L (0.0003%), respectively. McCampbell reported the oxygen, carbon dioxide, and methane levels in sample SV-1 collected on January 22, 2013 at 200,000 uL/L (20%), 15,000 uL/L (1.5%), and 3.7 uL/L (0.00037%). The oxygen, carbon dioxide, and methane levels contained in sample SV-2 collected on November 1, 2012 were 180,000 uL/L (18%), 36,000 uL/L (3.6%), and 1.8 u/L (0.00018%); and 190,000 uL/L (19%), 48,000 uL/L (4.8%), and 17.0 uL/L (0.0017%) on January 22, 2013.

5.0 DISCUSSION

The remedial activities consisted of excavating and disposing the PCE-impacted soil within the immediate vicinity of the dry cleaning machines at the eastern portion of the Site. The confirmation excavation sidewall and floor samples indicated that the impacted soil was completely removed. It is highly unlikely that PCE has migrated offsite according to the results of the soil sampling activities that were conducted along the sanitary sewer alignment. The latest soil vapor results showed that residual VOC concentrations were below their respective commercial/industrial ESLs.

Based on our observations and results of the confirmation soil and soil vapor samples, the remedial activities have been successfully completed. We recommend closure of the remedial activities at the Site.

6.0 EXCLUSIONS

ICES assumes no responsibility or liability for the reliance hereon or use hereof of information contained in this report by anyone other than the party to whom it is addressed.

The evaluations and recommendations presented in this report are based on the limited site investigation results available at this time and could be revised if new information necessitating further review of the Site becomes available.

TABLE 1
SOIL VAPOR SAMPLE RESULTS
Sunny Piedmont Cleaners
Oakland, California

Sample ID	SV-1	SV-1	SV-1	SV-1	Commercial/Industrial ESL
Date Sampled	2/10/2012	5/2/2012	11/1/2012	1/22/2013	
Compound					
Acetone (ug/m3)	130	200	130	<120.0	1,800,000
Benzene (ug/m3)	10	<6.5	13	19	280
1,3-Butadiene (ug/m3)	<4.5	<4.5	<4.5	48	NE
Chloroform (ug/m3)	<9.9	28	<9.9	<9.9	1,500
Ethanol (ug/m3)	<96.0	<96.0	170	<96.0	NE
Ethyl Acetate (ug/m3)	17	<7.3	<19.0	<19.0	NE
Ethylbenzene (ug/m3)	10	11	<8.8	<8.8	3,300
Hexane (ug/m3)	2,500	580	<180.0	200	NE
MIBK (ug/m3)	12	<8.3	<8.3	<8.3	NE
Methylene chloride (ug/m3)	110	<7.1	<7.1	<7.1	17,000
Naphthalene (ug/m3)	<11.0	<11.0	<11.0	<11.0	240
Propene (ug/m3)	<88.0	<88.0	<88.0	240	NE
PCE (ug/m3)	100,000	24,000	<14.0	19	1,400
Toluene (ug/m3)	33	12	19	25	180,000
TCE (ug/m3)	500	110	<11.0	<11.0	4,100
1,2,4-Trimethylbenzene (ug/m3)	<10.0	<10.0	<10.0	<10.0	NE
1,3,5-Trimethylbenzene (ug/m3)	<10.0	<10.0	<10.0	<10.0	NE
Xylenes (ug/m3)	41	52	<27.0	<27.0	58,000
VOCs (ug/m3)	<4.2-210.0	<4.2-210.0	<4.2-210.0	<4.2-210.0	- - -
Oxygen (uL/L)	150,000	90,000	170,000	200,000	- - -
Methane (uL/L)	5.4	2.5	3.0	3.7	- - -
Carbon Dioxide (uL/L)	7,400	100,000	36,000	15,000	- - -

Notes:

NE = Not Established

MIBK = 4-Methyl-2-pentanone

PCE = Tetrachloroethene

TCE = Trichlorothene

TABLE 1
SOIL VAPOR SAMPLE RESULTS
Sunny Piedmont Cleaners
Oakland, California

Sample ID	SV-2	SV-2	SV-2	SV-2	Commercial/Industrial ESL
Date Sampled	2/10/2012	5/2/2012	11/1/2012	1/22/2013	
Compound					
Acetone (ug/m3)	290	150	<120.0	<120.0	1,800,000
Benzene (ug/m3)	6.7	8.1	8.4	47	280
1,3-Butadiene (ug/m3)	<4.5	<4.5	<4.5	64	NE
Chloroform (ug/m3)	19	<9.9	<9.9	<9.9	1,500
Ethanol (ug/m3)	350	99	180	<96.0	NE
Ethyl Acetate (ug/m3)	35	17	<19.0	<19.0	NE
Ethylbenzene (ug/m3)	<8.8	<8.8	<8.8	18	3,300
Hexane (ug/m3)	740	530	<180.0	200	NE
MIBK (ug/m3)	16	17	<8.3	<8.3	NE
Methylene chloride (ug/m3)	37	<7.1	<7.1	<7.1	17,000
Naphthalene (ug/m3)	18	<11.0	<11.0	<11.0	240
Propene (ug/m3)	<88.0	<88.0	<88.0	320	NE
PCE (ug/m3)	14,000	13,000	<14.0	71	1,400
Toluene (ug/m3)	23	26	15	77	180,000
TCE (ug/m3)	60	83	<11.0	<11.0	4,100
1,2,4-Trimethylbenzene (ug/m3)	<10.0	<10.0	<10.0	28	NE
1,3,5-Trimethylbenzene (ug/m3)	<10.0	<10.0	<10.0	10	NE
Xylenes (ug/m3)	45	<27.0	<27.0	96	58,000
VOCs (ug/m3)	<4.2-210.0	<4.2-210.0	<4.2-210.0	<4.2-210.0	---
Oxygen (uL/L)	110,000	93,000	180,000	190,000	---
Methane (uL/L)	4.6	6.0	1.8	17	---
Carbon Dioxide (uL/L)	49,000	110,000	36,000	48,000	---

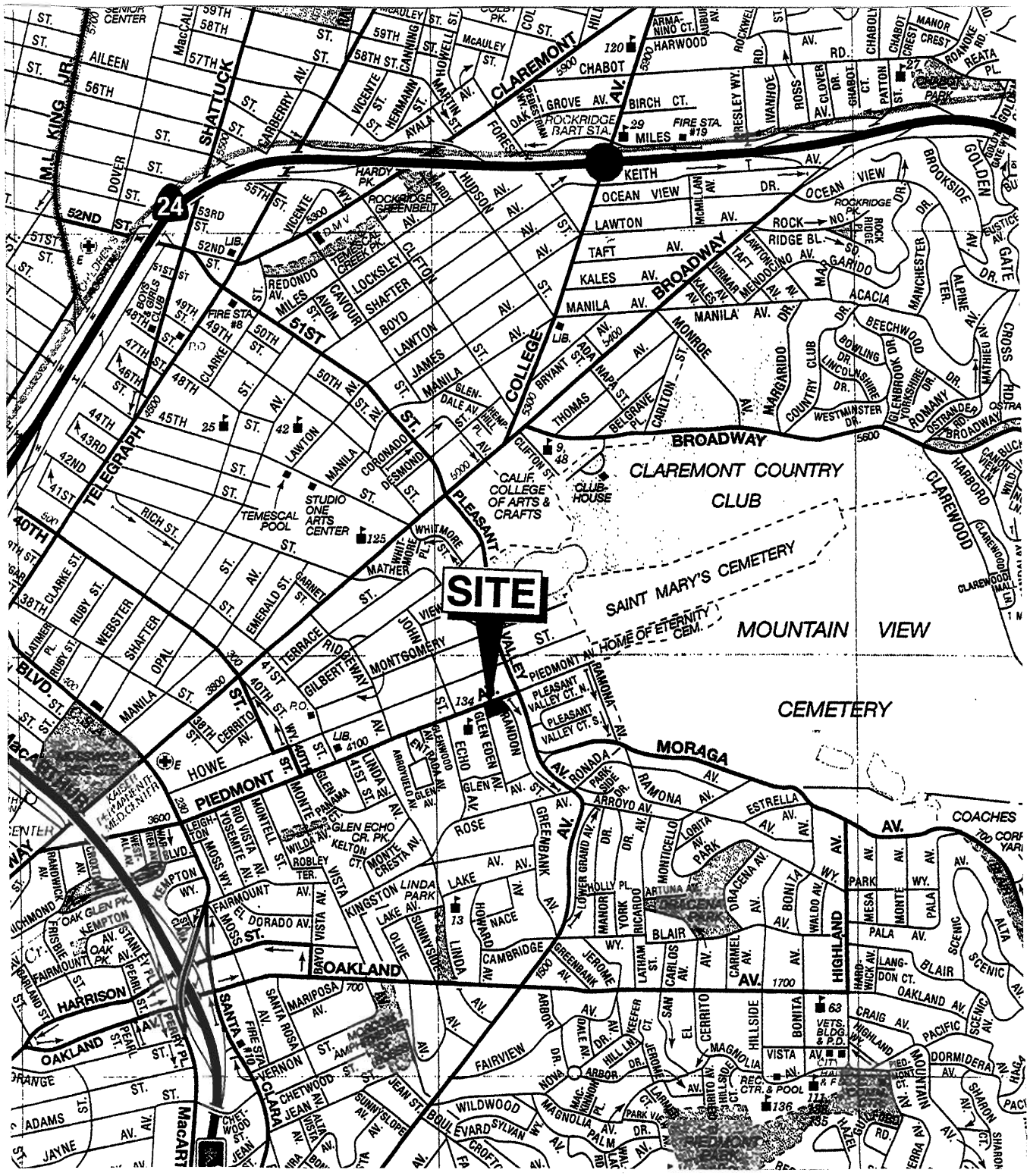
Notes:

NE = Not Established

MIBK = 4-Methyl-2-pentanone

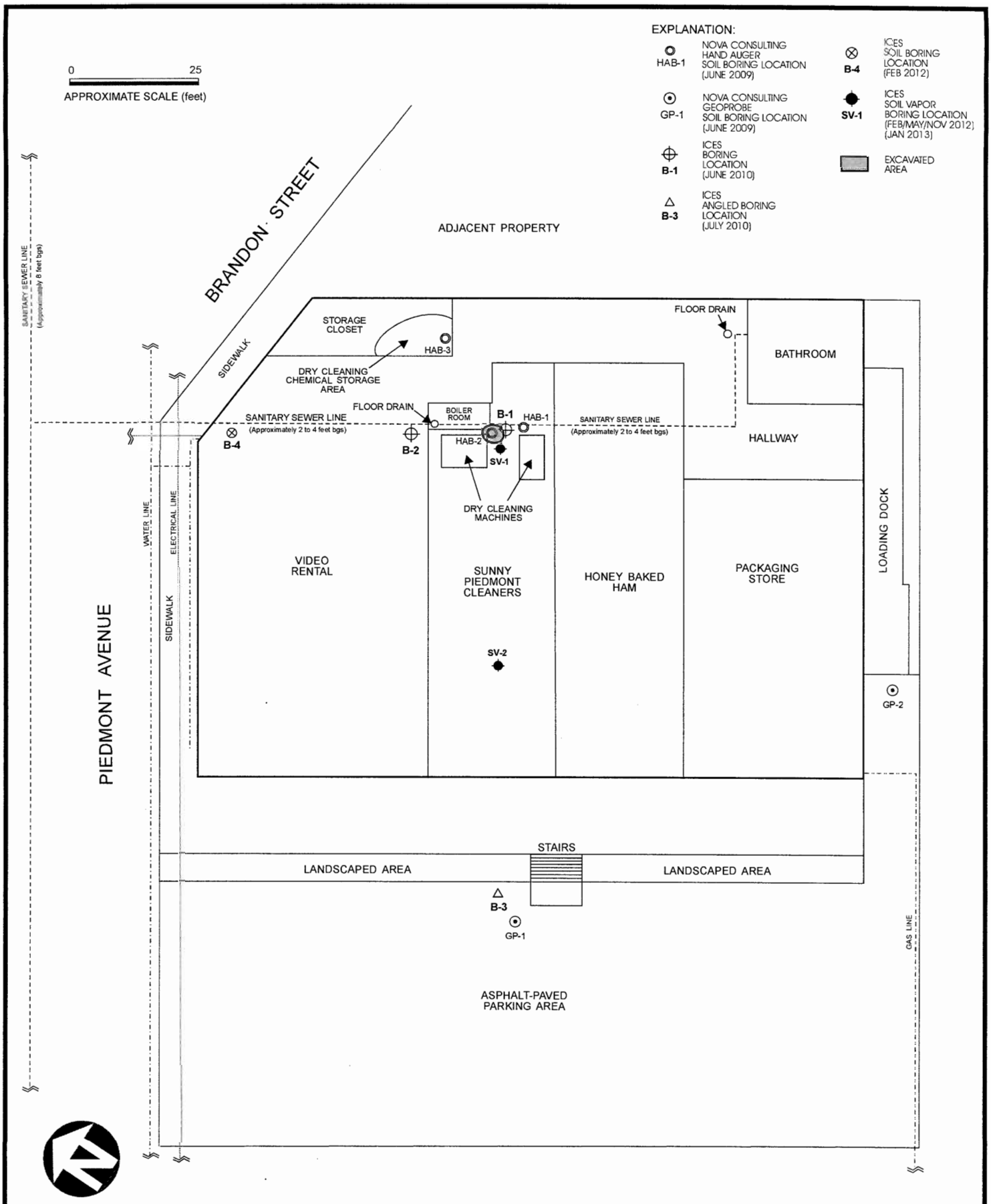
PCE = Tetrachloroethene

TCE = Trichlorothene



MAP SOURCE : AAA

Scale: 1" = 1100 ft	February 2013	**SITE LOCATION** Sunny Piedmont Cleaners Oakland, California	Figure 1
ICES Innovative & Creative Environmental Solutions			Project 7016



February 2013

Innovative & Creative Environmental Solutions

SITE PLAN

Sunny Piedmont Cleaners
Oakland, California

Figure 2

Project 7016

APPENDIX A

LABORATORY CERTIFICATES

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

ICES	Client Project ID: ICES 7016	Date Sampled: 11/01/12
P.O. Box 99288		Date Received: 11/02/12
	Client Contact: Peng Leong	Date Reported: 11/14/12
Emeryville, CA 94662	Client P.O.:	Date Completed: 11/15/12

WorkOrder: 1211089

November 16, 2012

Dear Peng:

Enclosed within are:

1) The results of the **2** analyzed samples from your project: **ICES 7016,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

The analytical results relate only to the items tested.

McCAMPBELL ANALYTICAL INC.
1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Yes

Lab Use Only

Report To: Peng Leong	Bill To: Same
Company: ICES	
3300 Powell Street #109	
Emeryville, CA 94662	E-Mail: derek_ices@yahoo.com
Tele: (510) 652-3222	Fax: (510) 652-3555
Project #: ICES 7016	Project Name:
Project Location: Sunny Piedmont Cleaners	
Sampler Signature:	

Pressurized By	Date	Pressurization Gas	
		N2	He

Helium Shroud SN#:

Other:

Notes:

Field Sample ID (Location)	Collection		Canister SN#	Manifold / Sampler Kit SN#	Analysis Requested	Indoor Air	Soil Gas	Canister Pressure/Vacuum			
	Date	Time						Initial	Final	Receipt	Final (psi)
SV-1	11-1-12	4:48	CAN7520-868	MAN316-722	VOCs (TO-15), Oxygen, Carbon Dioxide, Methane		X	30.0	3		
SV-2	11-1-12	4:53	CAN5809-740	MAN316-830	VOCs (TO-15), Oxygen, Carbon Dioxide, Methane		X	30.0	3		

ICE: NA
GOOD CONDITION ✓ APPROPRIATE ✓
HEAD SPACE ABSENT ___ CONTAINERS ___
DECHLORINATED IN LAB ___ PRESERVED IN LAB ___
PRESERVATION: VOAS | O&G | METALS | OTHER

Relinquished By:	Date:	Time:	Received By:
	11-2-12	1425	
Relinquished By:	Date:	Time:	Received By:
	11/2/12	1645	11/2/12 1645
Relinquished By:	Date:	Time:	Received By:

Temp (°C): ____ Work Order #: 1211089

Equipment Condition: ____

Shipped Via: ____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1211089 **ClientCode: ICES**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Peng Leong
ICES
P.O. Box 99288
Emeryville, CA 94662
(510) 652-3222 FAX: (510) 652-3555

Email: derek_ices@yahoo.com
cc:
PO:
ProjectNo: ICES 7016

Bill to:
Accounts Payable
ICES
P.O. Box 99288
Emeryville, CA 94662

Requested TAT: 5 days

Date Received: **11/02/2012**
Date Printed: **11/14/2012**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1211089-001	SV-1	Soil Gas	11/1/2012 4:48	☐	A	A	A									
1211089-002	SV-2	Soil Gas	11/1/2012 4:53	☐	A		A									

Test Legend:

1	LG_SUMMA_SOILGAS	2	PREDF REPORT	3	TO15_SOIL(UG/M3)	4		5	
6		7		8		9		10	
11		12							

The following SampIDs: 001A, 002A contain testgroup.

Prepared by: Gabrielle Walker

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name: **ICES**

Date and Time Received: **11/2/2012 8:13:51 PM**

Project Name: **ICES 7016**

LogIn Reviewed by: Gabrielle Walker

WorkOrder N°: **1211089** Matrix: Soil Gas

Carrier: Rob Pringle (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp:		NA ☑
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	No VOA vials submitted ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☐	No ☑	

** NOTE: If the "No" box is checked, see comments below.*

Comments:

McCampbell Analytical, Inc.
"When Quality Counts"

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

ICES	Client Project ID: ICES 7016	Date Sampled: 11/01/12
P.O. Box 99288		Date Received: 11/02/12
Emeryville, CA 94662	Client Contact: Peng Leong	Date Reported: 11/14/12
	Client P.O.:	Date Completed: 11/15/12

Work Order: 1211089

November 15, 2012

CASE NARRATIVE REGARDING TO-15 ANALYSIS

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The dissadvantages are listed in Appendix B of the DTSC Advisory of April 2012.

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

ICES	Client Project ID: ICES 7016	Date Sampled: 11/01/12
		Date Received: 11/02/12
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 11/08/12-11/13/12
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 11/08/12-11/13/12

Light Gases*

Extraction Method: ASTM D 1946-90 | Analytical Method: ASTM D 1946-90 | Work Order: 1211089

Lab ID	1211089-001A	1211089-002A			Reporting Limit for DF =1 and Pressure Ratio (Final/Initial) = 2	
Client ID	SV-1	SV-2				
Matrix	Soil Gas	Soil Gas				
Initial Pressure (psia)	13.94	13.74				
Final Pressure (psia)	27.79	27.50				
DF	1	1			Soil Gas	W
Compound	**Concentration**				µL/L	ug/L
Carbon Dioxide	36,000	36,000			50	NA
Methane	3.0	1.8			1.0	NA
Oxygen	170,000	180,000			4000	NA
Surrogate Recoveries (%)						
%SS:	N/A	N/A				
Comments						

* soil vapor samples are reported in µL/L.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

ICES	Client Project ID: ICES 7016	Date Sampled: 11/01/12
		Date Received: 11/02/12
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 11/14/12
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 11/14/12

Leak Check Compound*

Extraction method: TO15 Analytical methods: TO15 Work Order: 1211089

Lab ID	Client ID	Matrix	Initial Pressure	Final Pressure	Isopropyl Alcohol	DF	% SS	Comments
001A	SV-1	Soil Gas	13.94	27.79	ND	1	N/A	
002A	SV-2	Soil Gas	13.74	27.50	ND	1	N/A	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	psia	psia	NA		NA
	SoilGas	psia	psia	50		µg/m³

* leak check compound is reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

The (liquid) Leak Check reference is:

DTSC, Advisory-Active Soil Gas Investigations, April 2012, page 17, section 4.2.2.1:

"The laboratory reports should quantify and annotate all detections of the leak check compound at the reporting limit of the target analytes."

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

ICES	Client Project ID: ICES 7016	Date Sampled: 11/01/12
		Date Received: 11/02/12
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 11/14/12
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 11/14/12

Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 Analytical Method: TO15 Work Order: 1211089

Lab ID	1211089-001A	Initial Pressure (psia)	13.94
Client ID	SV-1	Final Pressure (psia)	27.79
Matrix	Soil Gas		

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	130	1.0	120	Acrylonitrile	ND	1.0	4.4
tert-Amyl methyl ether (TAME)	ND	1.0	8.5	Benzene	13	1.0	6.5
Benzyl chloride	ND	1.0	11	Bromodichloromethane	ND	1.0	14
Bromoform	ND	1.0	21	Bromomethane	ND	1.0	7.9
1,3-Butadiene	ND	1.0	4.5	2-Butanone (MEK)	ND	1.0	150
t-Butyl alcohol (TBA)	ND	1.0	62	Carbon Disulfide	ND	1.0	6.3
Carbon Tetrachloride	ND	1.0	13	Chlorobenzene	ND	1.0	9.4
Chloroethane	ND	1.0	5.4	Chloroform	ND	1.0	9.9
Chloromethane	ND	1.0	4.2	Cyclohexane	ND	1.0	180
Dibromochloromethane	ND	1.0	17	1,2-Dibromo-3-chloropropane	ND	1.0	20
1,2-Dibromoethane (EDB)	ND	1.0	16	1,2-Dichlorobenzene	ND	1.0	12
1,3-Dichlorobenzene	ND	1.0	12	1,4-Dichlorobenzene	ND	1.0	12
Dichlorodifluoromethane	ND	1.0	10	1,1-Dichloroethane	ND	1.0	8.2
1,2-Dichloroethane (1,2-DCA)	ND	1.0	8.2	1,1-Dichloroethene	ND	1.0	8.1
cis-1,2-Dichloroethene	ND	1.0	8.1	trans-1,2-Dichloroethene	ND	1.0	8.1
1,2-Dichloropropane	ND	1.0	9.4	cis-1,3-Dichloropropene	ND	1.0	9.2
trans-1,3-Dichloropropene	ND	1.0	9.2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	1.0	14
Diisopropyl ether (DIPE)	ND	1.0	8.5	1,4-Dioxane	ND	1.0	7.3
Ethanol	170	1.0	96	Ethyl acetate	ND	1.0	19
Ethyl tert-butyl ether (ETBE)	ND	1.0	8.5	Ethylbenzene	ND	1.0	8.8
4-Ethyltoluene	ND	1.0	10	Freon 113	ND	1.0	16
Heptane	ND	1.0	210	Hexachlorobutadiene	ND	1.0	22
Hexane	ND	1.0	180	2-Hexanone	ND	1.0	210
4-Methyl-2-pentanone (MIBK)	ND	1.0	8.3	Methyl-t-butyl ether (MTBE)	ND	1.0	7.3
Methylene chloride	ND	1.0	7.1	Naphthalene	ND	1.0	11
Propene	ND	1.0	88	Styrene	ND	1.0	8.6
1,1,1,2-Tetrachloroethane	ND	1.0	14	1,1,2,2-Tetrachloroethane	ND	1.0	14
Tetrachloroethene	ND	1.0	14	Tetrahydrofuran	ND	1.0	6.0
Toluene	19	1.0	7.7	1,2,4-Trichlorobenzene	ND	1.0	15
1,1,1-Trichloroethane	ND	1.0	11	1,1,2-Trichloroethane	ND	1.0	11
Trichloroethene	ND	1.0	11	Trichlorofluoromethane	ND	1.0	11
1,2,4-Trimethylbenzene	ND	1.0	10	1,3,5-Trimethylbenzene	ND	1.0	10
Vinyl Acetate	ND	1.0	180	Vinyl Chloride	ND	1.0	5.2
Xylenes, Total	ND	1.0	27				

Surrogate Recoveries (%)

%SS1:	103	%SS2:	104
%SS3:	102		

Comments:

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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ICES	Client Project ID: ICES 7016	Date Sampled: 11/01/12
		Date Received: 11/02/12
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 11/14/12
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 11/14/12

Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 | Analytical Method: TO15 | Work Order: 1211089

Lab ID	1211089-002A	Initial Pressure (psia)	13.74
Client ID	SV-2	Final Pressure (psia)	27.50
Matrix	Soil Gas		

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	120	Acrylonitrile	ND	1.0	4.4
tert-Amyl methyl ether (TAME)	ND	1.0	8.5	Benzene	8.4	1.0	6.5
Benzyl chloride	ND	1.0	11	Bromodichloromethane	ND	1.0	14
Bromoform	ND	1.0	21	Bromomethane	ND	1.0	7.9
1,3-Butadiene	ND	1.0	4.5	2-Butanone (MEK)	ND	1.0	150
t-Butyl alcohol (TBA)	ND	1.0	62	Carbon Disulfide	ND	1.0	6.3
Carbon Tetrachloride	ND	1.0	13	Chlorobenzene	ND	1.0	9.4
Chloroethane	ND	1.0	5.4	Chloroform	ND	1.0	9.9
Chloromethane	ND	1.0	4.2	Cyclohexane	ND	1.0	180
Dibromochloromethane	ND	1.0	17	1,2-Dibromo-3-chloropropane	ND	1.0	20
1,2-Dibromoethane (EDB)	ND	1.0	16	1,2-Dichlorobenzene	ND	1.0	12
1,3-Dichlorobenzene	ND	1.0	12	1,4-Dichlorobenzene	ND	1.0	12
Dichlorodifluoromethane	ND	1.0	10	1,1-Dichloroethane	ND	1.0	8.2
1,2-Dichloroethane (1,2-DCA)	ND	1.0	8.2	1,1-Dichloroethene	ND	1.0	8.1
cis-1,2-Dichloroethene	ND	1.0	8.1	trans-1,2-Dichloroethene	ND	1.0	8.1
1,2-Dichloropropane	ND	1.0	9.4	cis-1,3-Dichloropropene	ND	1.0	9.2
trans-1,3-Dichloropropene	ND	1.0	9.2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	1.0	14
Diisopropyl ether (DIPE)	ND	1.0	8.5	1,4-Dioxane	ND	1.0	7.3
Ethanol	180	1.0	96	Ethyl acetate	ND	1.0	19
Ethyl tert-butyl ether (ETBE)	ND	1.0	8.5	Ethylbenzene	ND	1.0	8.8
4-Ethyltoluene	ND	1.0	10	Freon 113	ND	1.0	16
Heptane	ND	1.0	210	Hexachlorobutadiene	ND	1.0	22
Hexane	ND	1.0	180	2-Hexanone	ND	1.0	210
4-Methyl-2-pentanone (MIBK)	ND	1.0	8.3	Methyl-t-butyl ether (MTBE)	ND	1.0	7.3
Methylene chloride	ND	1.0	7.1	Naphthalene	ND	1.0	11
Propene	ND	1.0	88	Styrene	ND	1.0	8.6
1,1,1,2-Tetrachloroethane	ND	1.0	14	1,1,2,2-Tetrachloroethane	ND	1.0	14
Tetrachloroethene	ND	1.0	14	Tetrahydrofuran	ND	1.0	6.0
Toluene	15	1.0	7.7	1,2,4-Trichlorobenzene	ND	1.0	15
1,1,1-Trichloroethane	ND	1.0	11	1,1,2-Trichloroethane	ND	1.0	11
Trichloroethene	ND	1.0	11	Trichlorofluoromethane	ND	1.0	11
1,2,4-Trimethylbenzene	ND	1.0	10	1,3,5-Trimethylbenzene	ND	1.0	10
Vinyl Acetate	ND	1.0	180	Vinyl Chloride	ND	1.0	5.2
Xylenes, Total	ND	1.0	27				

Surrogate Recoveries (%)

%SS1:	103	%SS2:	102
%SS3:	101		

Comments:

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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QC SUMMARY REPORT FOR ASTM D 1946-90

W.O. Sample Matrix: SoilGas | QC Matrix: SoilGas | BatchID: 72329 | WorkOrder: 1211089

EPA Method: ASTM D 1946-90 **Extraction: ASTM D 1946-90** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	µL/L	µL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Carbon Dioxide	N/A	100	N/A	N/A	N/A	93	N/A	N/A	70 - 130
Methane	N/A	100	N/A	N/A	N/A	79.8	N/A	N/A	70 - 130
Oxygen	N/A	7000	N/A	N/A	N/A	97.9	N/A	N/A	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 72329 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1211089-001A	11/01/12 4:48 AM	11/08/12	11/08/12 7:15 PM	1211089-001A	11/01/12 4:48 AM	11/12/12	11/12/12 3:40 PM
1211089-001A	11/01/12 4:48 AM	11/13/12	11/13/12 3:42 PM	1211089-002A	11/01/12 4:53 AM	11/08/12	11/08/12 7:36 PM
1211089-002A	11/01/12 4:53 AM	11/12/12	11/12/12 4:05 PM	1211089-002A	11/01/12 4:53 AM	11/13/12	11/13/12 3:31 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

QA/QC Officer

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QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 72487 | WorkOrder: 1211089

EPA Method: TO15 **Extraction: TO15** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	nL/L	nL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Acrylonitrile	N/A	25	N/A	N/A	N/A	96.8	N/A	N/A	60 - 140
tert-Amyl methyl ether (TAME)	N/A	25	N/A	N/A	N/A	94.6	N/A	N/A	60 - 140
Benzene	N/A	25	N/A	N/A	N/A	91.4	N/A	N/A	60 - 140
Benzyl chloride	N/A	25	N/A	N/A	N/A	95	N/A	N/A	60 - 140
Bromodichloromethane	N/A	25	N/A	N/A	N/A	97.9	N/A	N/A	60 - 140
Bromoform	N/A	25	N/A	N/A	N/A	113	N/A	N/A	60 - 140
t-Butyl alcohol (TBA)	N/A	25	N/A	N/A	N/A	74.9	N/A	N/A	60 - 140
Carbon Disulfide	N/A	25	N/A	N/A	N/A	94.2	N/A	N/A	60 - 140
Carbon Tetrachloride	N/A	25	N/A	N/A	N/A	94.9	N/A	N/A	60 - 140
Chlorobenzene	N/A	25	N/A	N/A	N/A	89.9	N/A	N/A	60 - 140
Chloroethane	N/A	25	N/A	N/A	N/A	105	N/A	N/A	60 - 140
Chloroform	N/A	25	N/A	N/A	N/A	93	N/A	N/A	60 - 140
Chloromethane	N/A	25	N/A	N/A	N/A	107	N/A	N/A	60 - 140
Dibromochloromethane	N/A	25	N/A	N/A	N/A	102	N/A	N/A	60 - 140
1,2-Dibromo-3-chloropropane	N/A	25	N/A	N/A	N/A	121	N/A	N/A	60 - 140
1,2-Dibromoethane (EDB)	N/A	25	N/A	N/A	N/A	91.8	N/A	N/A	60 - 140
1,2-Dichlorobenzene	N/A	25	N/A	N/A	N/A	89.6	N/A	N/A	60 - 140
1,3-Dichlorobenzene	N/A	25	N/A	N/A	N/A	89.8	N/A	N/A	60 - 140
1,4-Dichlorobenzene	N/A	25	N/A	N/A	N/A	83.8	N/A	N/A	60 - 140
Dichlorodifluoromethane	N/A	25	N/A	N/A	N/A	123	N/A	N/A	60 - 140
1,1-Dichloroethane	N/A	25	N/A	N/A	N/A	95.8	N/A	N/A	60 - 140
1,2-Dichloroethane (1,2-DCA)	N/A	25	N/A	N/A	N/A	94.2	N/A	N/A	60 - 140
1,1-Dichloroethene	N/A	25	N/A	N/A	N/A	122	N/A	N/A	60 - 140
cis-1,2-Dichloroethene	N/A	25	N/A	N/A	N/A	96.1	N/A	N/A	60 - 140
trans-1,2-Dichloroethene	N/A	25	N/A	N/A	N/A	96.6	N/A	N/A	60 - 140
1,2-Dichloropropane	N/A	25	N/A	N/A	N/A	94.7	N/A	N/A	60 - 140
cis-1,3-Dichloropropene	N/A	25	N/A	N/A	N/A	94.5	N/A	N/A	60 - 140
trans-1,3-Dichloropropene	N/A	25	N/A	N/A	N/A	96.7	N/A	N/A	60 - 140
1,2-Dichloro-1,1,2,2-tetrafluoroethane	N/A	25	N/A	N/A	N/A	88.6	N/A	N/A	60 - 140
Diisopropyl ether (DIPE)	N/A	25	N/A	N/A	N/A	97	N/A	N/A	60 - 140
1,4-Dioxane	N/A	25	N/A	N/A	N/A	91.4	N/A	N/A	60 - 140

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

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QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 72487 | WorkOrder: 1211089

EPA Method: TO15 | **Extraction: TO15** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	nL/L	nL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Ethyl acetate	N/A	25	N/A	N/A	N/A	93.1	N/A	N/A	60 - 140
Ethyl tert-butyl ether (ETBE)	N/A	25	N/A	N/A	N/A	98	N/A	N/A	60 - 140
Ethylbenzene	N/A	25	N/A	N/A	N/A	103	N/A	N/A	60 - 140
Freon 113	N/A	25	N/A	N/A	N/A	90.9	N/A	N/A	60 - 140
Hexachlorobutadiene	N/A	25	N/A	N/A	N/A	86	N/A	N/A	60 - 140
4-Methyl-2-pentanone (MIBK)	N/A	25	N/A	N/A	N/A	93.8	N/A	N/A	60 - 140
Methyl-t-butyl ether (MTBE)	N/A	25	N/A	N/A	N/A	93.2	N/A	N/A	60 - 140
Methylene chloride	N/A	25	N/A	N/A	N/A	107	N/A	N/A	60 - 140
Naphthalene	N/A	25	N/A	N/A	N/A	91.2	N/A	N/A	60 - 140
Styrene	N/A	25	N/A	N/A	N/A	91.4	N/A	N/A	60 - 140
1,1,1,2-Tetrachloroethane	N/A	25	N/A	N/A	N/A	97.7	N/A	N/A	60 - 140
1,1,2,2-Tetrachloroethane	N/A	25	N/A	N/A	N/A	94.8	N/A	N/A	60 - 140
Tetrachloroethene	N/A	25	N/A	N/A	N/A	109	N/A	N/A	60 - 140
Tetrahydrofuran	N/A	25	N/A	N/A	N/A	120	N/A	N/A	60 - 140
Toluene	N/A	25	N/A	N/A	N/A	91.1	N/A	N/A	60 - 140
1,2,4-Trichlorobenzene	N/A	25	N/A	N/A	N/A	89.2	N/A	N/A	60 - 140
1,1,1-Trichloroethane	N/A	25	N/A	N/A	N/A	93.9	N/A	N/A	60 - 140
1,1,2-Trichloroethane	N/A	25	N/A	N/A	N/A	93.7	N/A	N/A	60 - 140
Trichloroethene	N/A	25	N/A	N/A	N/A	96.7	N/A	N/A	60 - 140
1,2,4-Trimethylbenzene	N/A	25	N/A	N/A	N/A	89.5	N/A	N/A	60 - 140
1,3,5-Trimethylbenzene	N/A	25	N/A	N/A	N/A	90.6	N/A	N/A	60 - 140
Vinyl Chloride	N/A	25	N/A	N/A	N/A	94.8	N/A	N/A	60 - 140
%SS1:	N/A	500	N/A	N/A	N/A	99	N/A	N/A	60 - 140
%SS2:	N/A	500	N/A	N/A	N/A	102	N/A	N/A	60 - 140
%SS3:	N/A	500	N/A	N/A	N/A	101	N/A	N/A	60 - 140

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 72487 | WorkOrder: 1211089

EPA Method: TO15 | **Extraction: TO15** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	nL/L	nL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS

BATCH 72487 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1211089-001A	11/01/12 4:48 AM	11/14/12	11/14/12 10:24 PM	1211089-002A	11/01/12 4:53 AM	11/14/12	11/14/12 9:43 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

QA/QC Officer

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Analytical Report

ICES	Client Project ID: #ICES 7016	Date Sampled: 01/22/13
		Date Received: 01/23/13
P.O. Box 99288	Client Contact: Peng Leong	Date Reported: 01/30/13
Emeryville, CA 94662	Client P.O.:	Date Completed: 01/30/13

WorkOrder: 1301545

January 30, 2013

Dear Peng:

Enclosed within are:

1) The results of the **2** analyzed samples from your project: **#ICES 7016,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

The analytical results relate only to the items tested.

1301548

McCAMPBELL ANALYTICAL INC.

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CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☑ 5 DAY
EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Peng Leong	Bill To: Same
Company: ICES	
3300 Powell Street #109	
Emeryville, CA 94662	E-Mail: derek_ices@yahoo.com
Tele: (510) 652-3222	Fax: (510) 652-3555
Project #: ICES 7016	Project Name:
Project Location: Sunny Piedmont Cleaners	
Sampler Signature:	

Lab Use Only

Pressurized By	Date	Pressurization Gas	
		N2	He

Helium Shroud SN#:

Other:

Notes:

Field Sample ID (Location)	Collection		Canister SN#	Manifold / Sampler Kit SN#	Analysis Requested	Indoor Air	Soil Gas	Canister Pressure/Vacuum			
	Date	Time						Initial	Final	Receipt	Final (psi)
SV-1	1-22-13	2:26	CAN5802-733	MAN316-689	VOCs (TO-15), Oxygen, Carbon Dioxide, Methane		X	29.5	3		
SV-2	1-22-13	2:43	CAN5800-731	MAN316-827	VOCs (TO-15), Oxygen, Carbon Dioxide, Methane		X	30.0	3		

Relinquished By:	Date:	Time:	Received By:
	1-22-13	1430	
Relinquished By:	Date:	Time:	Received By:
	1/23/13	1539	
Relinquished By:	Date:	Time:	Received By:

Temp (°C): Work Order #:

Equipment Condition:

Shipped Via:

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1301545 **ClientCode: ICES**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Peng Leong
ICES
P.O. Box 99288
Emeryville, CA 94662
(510) 652-3222 FAX: (510) 652-3555

Email: derek_ices@yahoo.com
cc:
PO:
ProjectNo: #ICES 7016

Bill to:
Accounts Payable
ICES
P.O. Box 99288
Emeryville, CA 94662

Requested TAT: **5 days**

Date Received: **01/23/2013**
Date Printed: **01/23/2013**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1301545-001	SV-1	Soil Gas	1/22/2013 14:26	☐	A	A										
1301545-002	SV-2	Soil Gas	1/22/2013 14:43	☐	A	A										

Test Legend:

1	LG_SUMMA_SOILGAS	2	TO15_SOIL(UG/M3)	3		4		5	
6		7		8		9		10	
11		12							

The following SampIDs: 001A, 002A contain testgroup.

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name: **ICES**

Date and Time Received: **1/23/2013 5:48:33 PM**

Project Name: **#ICES 7016**

LogIn Reviewed by: Jena Alfaro

WorkOrder N°: **1301545** Matrix: Soil Gas

Carrier: Rob Pringle (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp:		NA ☑
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	No VOA vials submitted ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☐	No ☑	

** NOTE: If the "No" box is checked, see comments below.*

Comments:

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ICES	Client Project ID: #ICES 7016	Date Sampled: 01/22/13
		Date Received: 01/23/13
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 01/24/13-01/29/13
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 01/24/13-01/29/13

Light Gases*

Extraction Method: ASTM D 1946-90 | Analytical Method: ASTM D 1946-90 | Work Order: 1301545

Lab ID	1301545-001A	1301545-002A			Reporting Limit for DF =1 and Pressure Ratio (Final/Initial) = 2	
Client ID	SV-1	SV-2				
Matrix	Soil Gas	Soil Gas				
Initial Pressure (psia)	13.49	13.63				
Final Pressure (psia)	26.88	27.16				
DF	1	1			Soil Gas	W
Compound	**Concentration**				µL/L	ug/L
Carbon Dioxide	15,000	48,000			50	NA
Methane	3.7	17			1.0	NA
Oxygen	200,000	190,000			4000	NA
Surrogate Recoveries (%)						
%SS	N/A	N/A				
Comments						

* soil vapor samples are reported in µL/L.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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ICES	Client Project ID: #ICES 7016	Date Sampled: 01/22/13
		Date Received: 01/23/13
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 01/28/13
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 01/28/13

Leak Check Compound*

Extraction method: TO15 Analytical methods: TO15 Work Order: 1301545

Lab ID	Client ID	Matrix	Initial Pressure	Final Pressure	Isopropyl Alcohol	DF	% SS	Comments
001A	SV-1	Soil Gas	13.49	26.88	ND	1	N/A	
002A	SV-2	Soil Gas	13.63	27.16	ND	1	N/A	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	psia	psia	NA	NA
	SoilGas	psia	psia	50	µg/m³

* leak check compound is reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

The (liquid) Leak Check reference is:

DTSC, Advisory-Active Soil Gas Investigations, April 2012, page 17, section 4.2.2.1:

"The laboratory reports should quantify and annotate all detections of the leak check compound at the reporting limit of the target analytes."

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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ICES	Client Project ID: #ICES 7016	Date Sampled: 01/22/13
		Date Received: 01/23/13
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 01/28/13
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 01/28/13

Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 | Analytical Method: TO15 | Work Order: 1301545

Lab ID	1301545-001A	Initial Pressure (psia)	13.49
Client ID	SV-1	Final Pressure (psia)	26.88
Matrix	Soil Gas		

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	120	Acrylonitrile	ND	1.0	4.4
tert-Amyl methyl ether (TAME)	ND	1.0	8.5	Benzene	19	1.0	6.5
Benzyl chloride	ND	1.0	11	Bromodichloromethane	ND	1.0	14
Bromoform	ND	1.0	21	Bromomethane	ND	1.0	7.9
1,3-Butadiene	48	1.0	4.5	2-Butanone (MEK)	ND	1.0	150
t-Butyl alcohol (TBA)	ND	1.0	62	Carbon Disulfide	ND	1.0	6.3
Carbon Tetrachloride	ND	1.0	13	Chlorobenzene	ND	1.0	9.4
Chloroethane	ND	1.0	5.4	Chloroform	ND	1.0	9.9
Chloromethane	ND	1.0	4.2	Cyclohexane	ND	1.0	180
Dibromochloromethane	ND	1.0	17	1,2-Dibromo-3-chloropropane	ND	1.0	20
1,2-Dibromoethane (EDB)	ND	1.0	16	1,2-Dichlorobenzene	ND	1.0	12
1,3-Dichlorobenzene	ND	1.0	12	1,4-Dichlorobenzene	ND	1.0	12
Dichlorodifluoromethane	ND	1.0	10	1,1-Dichloroethane	ND	1.0	8.2
1,2-Dichloroethane (1,2-DCA)	ND	1.0	8.2	1,1-Dichloroethene	ND	1.0	8.1
cis-1,2-Dichloroethene	ND	1.0	8.1	trans-1,2-Dichloroethene	ND	1.0	8.1
1,2-Dichloropropane	ND	1.0	9.4	cis-1,3-Dichloropropene	ND	1.0	9.2
trans-1,3-Dichloropropene	ND	1.0	9.2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	1.0	14
Diisopropyl ether (DIPE)	ND	1.0	8.5	1,4-Dioxane	ND	1.0	7.3
Ethanol	ND	1.0	96	Ethyl acetate	ND	1.0	19
Ethyl tert-butyl ether (ETBE)	ND	1.0	8.5	Ethylbenzene	ND	1.0	8.8
4-Ethyltoluene	ND	1.0	10	Freon 113	ND	1.0	16
Heptane	ND	1.0	210	Hexachlorobutadiene	ND	1.0	22
Hexane	200	1.0	180	2-Hexanone	ND	1.0	210
4-Methyl-2-pentanone (MIBK)	ND	1.0	8.3	Methyl-t-butyl ether (MTBE)	ND	1.0	7.3
Methylene chloride	ND	1.0	7.1	Naphthalene	ND	1.0	11
Propene	240	1.0	88	Styrene	ND	1.0	8.6
1,1,1,2-Tetrachloroethane	ND	1.0	14	1,1,2,2-Tetrachloroethane	ND	1.0	14
Tetrachloroethene	19	1.0	14	Tetrahydrofuran	ND	1.0	6.0
Toluene	25	1.0	7.7	1,2,4-Trichlorobenzene	ND	1.0	15
1,1,1-Trichloroethane	ND	1.0	11	1,1,2-Trichloroethane	ND	1.0	11
Trichloroethene	ND	1.0	11	Trichlorofluoromethane	ND	1.0	11
1,2,4-Trimethylbenzene	ND	1.0	10	1,3,5-Trimethylbenzene	ND	1.0	10
Vinyl Acetate	ND	1.0	180	Vinyl Chloride	ND	1.0	5.2
Xylenes, Total	ND	1.0	27				

Surrogate Recoveries (%)

%SS1:	100	%SS2:	94
%SS3:	90		

Comments:

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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ICES	Client Project ID: #ICES 7016	Date Sampled: 01/22/13
		Date Received: 01/23/13
P.O. Box 99288	Client Contact: Peng Leong	Date Extracted: 01/28/13
Emeryville, CA 94662	Client P.O.:	Date Analyzed: 01/28/13

Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 Analytical Method: TO15 Work Order: 1301545

Lab ID	1301545-002A	Initial Pressure (psia)	13.63
Client ID	SV-2	Final Pressure (psia)	27.16
Matrix	Soil Gas		

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	120	Acrylonitrile	ND	1.0	4.4
tert-Amyl methyl ether (TAME)	ND	1.0	8.5	Benzene	47	1.0	6.5
Benzyl chloride	ND	1.0	11	Bromodichloromethane	ND	1.0	14
Bromoform	ND	1.0	21	Bromomethane	ND	1.0	7.9
1,3-Butadiene	64	1.0	4.5	2-Butanone (MEK)	ND	1.0	150
t-Butyl alcohol (TBA)	ND	1.0	62	Carbon Disulfide	ND	1.0	6.3
Carbon Tetrachloride	ND	1.0	13	Chlorobenzene	ND	1.0	9.4
Chloroethane	ND	1.0	5.4	Chloroform	ND	1.0	9.9
Chloromethane	ND	1.0	4.2	Cyclohexane	ND	1.0	180
Dibromochloromethane	ND	1.0	17	1,2-Dibromo-3-chloropropane	ND	1.0	20
1,2-Dibromoethane (EDB)	ND	1.0	16	1,2-Dichlorobenzene	ND	1.0	12
1,3-Dichlorobenzene	ND	1.0	12	1,4-Dichlorobenzene	ND	1.0	12
Dichlorodifluoromethane	ND	1.0	10	1,1-Dichloroethane	ND	1.0	8.2
1,2-Dichloroethane (1,2-DCA)	ND	1.0	8.2	1,1-Dichloroethene	ND	1.0	8.1
cis-1,2-Dichloroethene	ND	1.0	8.1	trans-1,2-Dichloroethene	ND	1.0	8.1
1,2-Dichloropropane	ND	1.0	9.4	cis-1,3-Dichloropropene	ND	1.0	9.2
trans-1,3-Dichloropropene	ND	1.0	9.2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	1.0	14
Diisopropyl ether (DIPE)	ND	1.0	8.5	1,4-Dioxane	ND	1.0	7.3
Ethanol	ND	1.0	96	Ethyl acetate	ND	1.0	19
Ethyl tert-butyl ether (ETBE)	ND	1.0	8.5	Ethylbenzene	18	1.0	8.8
4-Ethyltoluene	ND	1.0	10	Freon 113	ND	1.0	16
Heptane	ND	1.0	210	Hexachlorobutadiene	ND	1.0	22
Hexane	200	1.0	180	2-Hexanone	ND	1.0	210
4-Methyl-2-pentanone (MIBK)	ND	1.0	8.3	Methyl-t-butyl ether (MTBE)	ND	1.0	7.3
Methylene chloride	ND	1.0	7.1	Naphthalene	ND	1.0	11
Propene	320	1.0	88	Styrene	ND	1.0	8.6
1,1,1,2-Tetrachloroethane	ND	1.0	14	1,1,2,2-Tetrachloroethane	ND	1.0	14
Tetrachloroethene	71	1.0	14	Tetrahydrofuran	ND	1.0	6.0
Toluene	77	1.0	7.7	1,2,4-Trichlorobenzene	ND	1.0	15
1,1,1-Trichloroethane	ND	1.0	11	1,1,2-Trichloroethane	ND	1.0	11
Trichloroethene	ND	1.0	11	Trichlorofluoromethane	ND	1.0	11
1,2,4-Trimethylbenzene	28	1.0	10	1,3,5-Trimethylbenzene	10	1.0	10
Vinyl Acetate	ND	1.0	180	Vinyl Chloride	ND	1.0	5.2
Xylenes, Total	96	1.0	27				

Surrogate Recoveries (%)

%SS1:	97	%SS2:	93
%SS3:	91		

Comments:

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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QC SUMMARY REPORT FOR ASTM D 1946-90

W.O. Sample Matrix: SoilGas | QC Matrix: SoilGas | BatchID: 74243 | WorkOrder: 1301545

EPA Method: ASTM D 1946-90 **Extraction: ASTM D 1946-90** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	µL/L	µL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Carbon Dioxide	N/A	100	N/A	N/A	N/A	89	N/A	N/A	70 - 130
Methane	N/A	100	N/A	N/A	N/A	71.1	N/A	N/A	70 - 130
Oxygen	N/A	7000	N/A	N/A	N/A	81.5	N/A	N/A	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 74243 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1301545-001A	01/22/13 2:26 PM	01/24/13	01/24/13 3:26 PM	1301545-001A	01/22/13 2:26 PM	01/29/13	01/29/13 5:13 PM
1301545-001A	01/22/13 2:26 PM	01/29/13	01/29/13 7:52 PM	1301545-002A	01/22/13 2:43 PM	01/24/13	01/24/13 3:51 PM
1301545-002A	01/22/13 2:43 PM	01/29/13	01/29/13 5:50 PM	1301545-002A	01/22/13 2:43 PM	01/29/13	01/29/13 5:50 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

QA/QC Officer

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QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas QC Matrix: Soilgas BatchID: 74184 WorkOrder: 1301545

EPA Method: TO15 **Extraction: TO15** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	nL/L	nL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Acrylonitrile	N/A	25	N/A	N/A	N/A	73.3	N/A	N/A	60 - 140
tert-Amyl methyl ether (TAME)	N/A	25	N/A	N/A	N/A	106	N/A	N/A	60 - 140
Benzene	N/A	25	N/A	N/A	N/A	103	N/A	N/A	60 - 140
Benzyl chloride	N/A	25	N/A	N/A	N/A	101	N/A	N/A	60 - 140
Bromodichloromethane	N/A	25	N/A	N/A	N/A	112	N/A	N/A	60 - 140
Bromoform	N/A	25	N/A	N/A	N/A	103	N/A	N/A	60 - 140
t-Butyl alcohol (TBA)	N/A	25	N/A	N/A	N/A	75.4	N/A	N/A	60 - 140
Carbon Disulfide	N/A	25	N/A	N/A	N/A	68	N/A	N/A	60 - 140
Carbon Tetrachloride	N/A	25	N/A	N/A	N/A	112	N/A	N/A	60 - 140
Chlorobenzene	N/A	25	N/A	N/A	N/A	101	N/A	N/A	60 - 140
Chloroethane	N/A	25	N/A	N/A	N/A	124	N/A	N/A	60 - 140
Chloroform	N/A	25	N/A	N/A	N/A	107	N/A	N/A	60 - 140
Chloromethane	N/A	25	N/A	N/A	N/A	94	N/A	N/A	60 - 140
Dibromochloromethane	N/A	25	N/A	N/A	N/A	112	N/A	N/A	60 - 140
1,2-Dibromo-3-chloropropane	N/A	25	N/A	N/A	N/A	122	N/A	N/A	60 - 140
1,2-Dibromoethane (EDB)	N/A	25	N/A	N/A	N/A	104	N/A	N/A	60 - 140
1,2-Dichlorobenzene	N/A	25	N/A	N/A	N/A	97.8	N/A	N/A	60 - 140
1,3-Dichlorobenzene	N/A	25	N/A	N/A	N/A	98.9	N/A	N/A	60 - 140
1,4-Dichlorobenzene	N/A	25	N/A	N/A	N/A	84	N/A	N/A	60 - 140
Dichlorodifluoromethane	N/A	25	N/A	N/A	N/A	88.6	N/A	N/A	60 - 140
1,1-Dichloroethane	N/A	25	N/A	N/A	N/A	107	N/A	N/A	60 - 140
1,2-Dichloroethane (1,2-DCA)	N/A	25	N/A	N/A	N/A	112	N/A	N/A	60 - 140
1,1-Dichloroethene	N/A	25	N/A	N/A	N/A	83.7	N/A	N/A	60 - 140
cis-1,2-Dichloroethene	N/A	25	N/A	N/A	N/A	106	N/A	N/A	60 - 140
trans-1,2-Dichloroethene	N/A	25	N/A	N/A	N/A	105	N/A	N/A	60 - 140
1,2-Dichloropropane	N/A	25	N/A	N/A	N/A	107	N/A	N/A	60 - 140
cis-1,3-Dichloropropene	N/A	25	N/A	N/A	N/A	106	N/A	N/A	60 - 140
trans-1,3-Dichloropropene	N/A	25	N/A	N/A	N/A	111	N/A	N/A	60 - 140
1,2-Dichloro-1,1,2,2-tetrafluoroethane	N/A	25	N/A	N/A	N/A	83.6	N/A	N/A	60 - 140
Diisopropyl ether (DIPE)	N/A	25	N/A	N/A	N/A	116	N/A	N/A	60 - 140
1,4-Dioxane	N/A	25	N/A	N/A	N/A	100	N/A	N/A	60 - 140

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
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Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

QA/QC Officer

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QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 74184 | WorkOrder: 1301545

EPA Method: TO15 | **Extraction: TO15** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	nL/L	nL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Ethyl acetate	N/A	25	N/A	N/A	N/A	111	N/A	N/A	60 - 140
Ethyl tert-butyl ether (ETBE)	N/A	25	N/A	N/A	N/A	109	N/A	N/A	60 - 140
Ethylbenzene	N/A	25	N/A	N/A	N/A	93.8	N/A	N/A	60 - 140
Freon 113	N/A	25	N/A	N/A	N/A	67.8	N/A	N/A	60 - 140
Hexachlorobutadiene	N/A	25	N/A	N/A	N/A	89.6	N/A	N/A	60 - 140
4-Methyl-2-pentanone (MIBK)	N/A	25	N/A	N/A	N/A	111	N/A	N/A	60 - 140
Methyl-t-butyl ether (MTBE)	N/A	25	N/A	N/A	N/A	105	N/A	N/A	60 - 140
Methylene chloride	N/A	25	N/A	N/A	N/A	66	N/A	N/A	60 - 140
Naphthalene	N/A	25	N/A	N/A	N/A	107	N/A	N/A	60 - 140
Styrene	N/A	25	N/A	N/A	N/A	98.4	N/A	N/A	60 - 140
1,1,1,2-Tetrachloroethane	N/A	25	N/A	N/A	N/A	109	N/A	N/A	60 - 140
1,1,2,2-Tetrachloroethane	N/A	25	N/A	N/A	N/A	105	N/A	N/A	60 - 140
Tetrachloroethene	N/A	25	N/A	N/A	N/A	98	N/A	N/A	60 - 140
Tetrahydrofuran	N/A	25	N/A	N/A	N/A	95.6	N/A	N/A	60 - 140
Toluene	N/A	25	N/A	N/A	N/A	101	N/A	N/A	60 - 140
1,2,4-Trichlorobenzene	N/A	25	N/A	N/A	N/A	94.4	N/A	N/A	60 - 140
1,1,1-Trichloroethane	N/A	25	N/A	N/A	N/A	111	N/A	N/A	60 - 140
1,1,2-Trichloroethane	N/A	25	N/A	N/A	N/A	105	N/A	N/A	60 - 140
Trichloroethene	N/A	25	N/A	N/A	N/A	104	N/A	N/A	60 - 140
1,2,4-Trimethylbenzene	N/A	25	N/A	N/A	N/A	100	N/A	N/A	60 - 140
1,3,5-Trimethylbenzene	N/A	25	N/A	N/A	N/A	99.8	N/A	N/A	60 - 140
Vinyl Chloride	N/A	25	N/A	N/A	N/A	78.1	N/A	N/A	60 - 140
%SS1:	N/A	500	N/A	N/A	N/A	89	N/A	N/A	60 - 140
%SS2:	N/A	500	N/A	N/A	N/A	92	N/A	N/A	60 - 140
%SS3:	N/A	500	N/A	N/A	N/A	90	N/A	N/A	60 - 140

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

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QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 74184 | WorkOrder: 1301545

EPA Method: TO15 | **Extraction: TO15** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	nL/L	nL/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS

BATCH 74184 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1301545-001A	01/22/13 2:26 PM	01/28/13	01/28/13 5:23 PM	1301545-001A	01/22/13 2:26 PM	01/28/13	01/28/13 5:23 PM
1301545-002A	01/22/13 2:43 PM	01/28/13	01/28/13 6:03 PM	1301545-002A	01/22/13 2:43 PM	01/28/13	01/28/13 6:03 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

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