



March 27, 2015

Ms. Atheria Smith
Peralta Community College District
Facilities Planning and Development Manager
333 East Eighth Street
Oakland, California 94606

sent via: email

Subject: Soil Gas Survey Results, 2118 Milvia Street, Berkeley, California

Dear Ms. Smith:

Terraphase Engineering Inc. (Terraphase) is pleased to present the results of our soil gas survey conducted at 2118 Milvia Street in Berkeley, California (the "Site"). Benzene was detected in one soil gas sample collected at the Site at a concentration below the Regional Water Quality Control Board (RWQCB) Environmental Screening Level (ESL) (RWQCB 2013) and below the Department of Toxic Substances Control (DTSC) California Human Health Screening Level (CHHSL) (OEHHA 2005) - 12 micrograms per cubic meter (ug/m³) versus the ESL of 42 ug/m³ and the CHHSL of 36.2 ug/m³ for shallow soil gas under a residential exposure. Students, staff and teachers at the Site would be exposed to the potential vapor impacts for a much shorter duration than a resident. The residential ESL is based on the assumption that the resident would be exposed 350 days per year for 30 years, 24-hours per day.

Methodology

Terraphase installed three soil gas sampling points at the locations shown on attached Figure 1 on March 6, 2015. As the sample points were installed with a hand auger, the soil gas samples could not be collected for a minimum of 48 hours to be in accordance with the Department of Toxic Substances Control (DTSC) soil gas sampling protocol (DTSC 2011). Soil gas samples were collected from soil gas sampling points 1 and 2 on March 13, 2015. The soil gas samples were collected under a shroud that contained helium at an approximate concentration of 20% to serve as a leak detection gas. The formation at the location of the third soil gas point was too tight to allow for collection of a soil gas sample.

The soil-gas samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method TO-15. Samples were also analyzed for helium by American Society for Testing and Materials (ASTM) modified Method D-1946 with an analytical reporting limit of approximately 500 parts per million by volume (ppmv) to determine if the sample was compromised due to leaks in the sampling train.

Results

The laboratory results are attached to this letter. Only meta and para xylene (m,p-xylene), benzene, ethanol (ethyl alcohol), and acetone were detected in soil gas samples collected at the Site. Ethanol and acetone, which are not significant inhalation health threats, are probably laboratory contaminants. Benzene and m,p-xylenes are probably indications of a release of petroleum hydrocarbons somewhere in the vicinity of the Site, though not necessarily at the Site. Benzene was detected in one sample (Soil Gas-1) at a concentration 33% of the CHHSL for residential exposure, which is 36 ug/m³. The commercial/industrial CHHSL for benzene is 122 ug/m³ in shallow soil gas. No chlorinated VOC, such as perchloroethylene (PCE) or trichloroethylene (TCE) were detected in the soil gas samples.

Helium was detected at a concentration of 0.85% in sample Soil Gas-2 indicating that there was some leakage in the sampling train, but less than the 5% that the California Environmental Protection Agency (2010) considers an indication of a significant leak. The oxygen level in both samples was 20%, which indicates that the atmosphere is not oxygen deficient which indicates that significant biodegradation is not occurring at the subsurface in the vicinity of the two sampling points.

Hence, it is unlikely that there are significant quantities of volatile compounds under the Site. Should the existing structure ever be torn down, it is possible that non-volatile substances may be encountered (metals, heavily degraded petroleum). As long as the existing structure remains in place, our opinion is that any subsurface contamination is unlikely to pose a significant threat to the health of occupants of the building.

Closure

Terraphase is grateful for the opportunity to provide our services on this important project. If you have any question or comments regarding this report, please feel free to call me at any time at (510) 645-1853.

Sincerely,

For Terraphase Engineering Inc.



Jeff Raines, P.E. (C51120), G.E. (2762)
Principal Geotechnical Engineer

References

California Environmental Protection Agency. 2010. Advisory – Active Soil Gas Investigation. March.

Department of Toxic Substances Control (DTSC). 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October. LFR. 2009. Additional Soil and Groundwater Investigation Report. Former Plaza Cleaners Facility, 1831 Ygnacio Valley Road (Ygnacio Plaza), Walnut Creek, California. March 20.

Office of Ecological and Human Health Risk Assessment (OEHHA). 2005. Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties. January.

Regional Water Quality Control Board. 2013. Update to Environmental Screening Levels. December 23.

Table 1
Soil Gas Survey Results
2118 Milvia Street
Berkeley, California

Sample	Compound Name	Detection Limit (ug/m3)	Results (ug/m3)	Data Flags	Screening Level (ug/m3)	Source
Soil Gas - 1	m,p-Xylene	5.1	7.3		52,000	CHHSL
Soil Gas - 1	Benzene	3.7	12		36.2	CHHSL
Soil Gas - 1	Ethanol	8.8	13			
Soil Gas - 1	Acetone	28	32		16,000,000	ESL
Soil Gas - 1	1,1,1-Trichloroethane	6.4		ND	720,000	ESL
Soil Gas - 1	1,1,2,2-Tetrachloroethane	8.0		ND		
Soil Gas - 1	1,1,2-Trichloroethane	6.4		ND		
Soil Gas - 1	1,1-Dichloroethane	4.7		ND		
Soil Gas - 1	1,1-Dichloroethene	4.6		ND	100,000	ESL
Soil Gas - 1	1,2,4-Trichlorobenzene	35		ND	3,100	ESL
Soil Gas - 1	1,2,4-Trimethylbenzene	5.8		ND		
Soil Gas - 1	1,2-Dibromoethane (EDB)	9.0		ND	17	ESL
Soil Gas - 1	1,2-Dichlorobenzene	7.0		ND		
Soil Gas - 1	1,2-Dichloroethane	4.7		ND	58	ESL
Soil Gas - 1	1,2-Dichloropropane	5.4		ND	120	ESL
Soil Gas - 1	1,3,5-Trimethylbenzene	5.8		ND		
Soil Gas - 1	1,3-Butadiene	2.6		ND		
Soil Gas - 1	1,3-Dichlorobenzene	7.0		ND		
Soil Gas - 1	1,4-Dichlorobenzene	7.0		ND	110	ESL
Soil Gas - 1	1,4-Dioxane	17		ND		
Soil Gas - 1	2,2,4-Trimethylpentane	5.5		ND		
Soil Gas - 1	2-Butanone (Methyl Ethyl Ketone)	14		ND	2,600,000	ESL
Soil Gas - 1	2-Hexanone	19		ND		
Soil Gas - 1	2-Propanol	12		ND		
Soil Gas - 1	3-Chloropropene	15		ND		
Soil Gas - 1	4-Ethyltoluene	5.8		ND		
Soil Gas - 1	4-Methyl-2-pentanone	4.8		ND		
Soil Gas - 1	alpha-Chlorotoluene	6.0		ND		
Soil Gas - 1	Bromodichloromethane	7.8		ND		
Soil Gas - 1	Bromoform	12		ND		
Soil Gas - 1	Bromomethane	45		ND	2,600	ESL

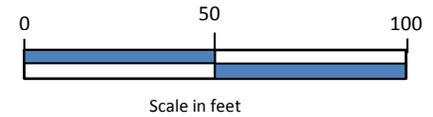
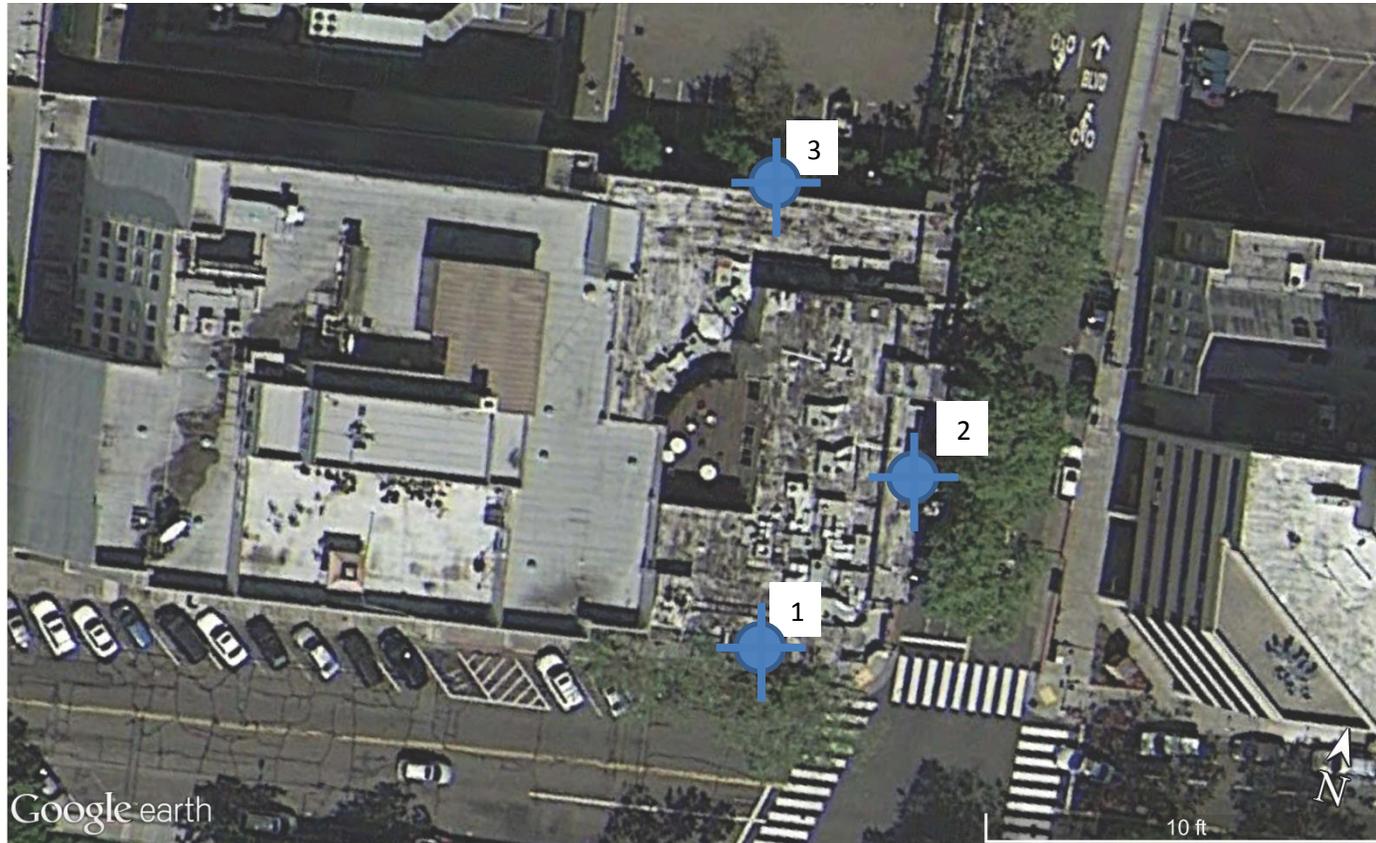
Sample	Compound Name	Detection Limit (ug/m3)	Results (ug/m3)	Data Flags	Screening Level (ug/m3)	Source
Soil Gas - 1	Carbon Disulfide	14		ND		
Soil Gas - 1	Carbon Tetrachloride	7.4		ND	29	ESL
Soil Gas - 1	Chlorobenzene	5.4		ND	520,000	ESL
Soil Gas - 1	Chloroethane	12		ND	16,000,000	ESL
Soil Gas - 1	Chloroform	5.7		ND	230	ESL
Soil Gas - 1	Chloromethane	24		ND	47,000	ESL
Soil Gas - 1	cis-1,2-Dichloroethene	4.6		ND	3,700	ESL
Soil Gas - 1	cis-1,3-Dichloropropene	5.3		ND	76	ESL
Soil Gas - 1	Cumene	5.8		ND		
Soil Gas - 1	Cyclohexane	4.0		ND		
Soil Gas - 1	Dibromochloromethane	10		ND		
Soil Gas - 1	Ethyl Benzene	5.1		ND	490	ESL
Soil Gas - 1	Freon 11	6.6		ND		
Soil Gas - 1	Freon 113	9.0		ND		
Soil Gas - 1	Freon 114	8.2		ND		
Soil Gas - 1	Freon 12	5.8		ND		
Soil Gas - 1	Heptane	4.8		ND		
Soil Gas - 1	Hexachlorobutadiene	50		ND		
Soil Gas - 1	Hexane	4.1		ND		
Soil Gas - 1	Methyl tert-butyl ether	4.2		ND	4,700	ESL
Soil Gas - 1	Methylene Chloride	41		ND	2,600	ESL
Soil Gas - 1	o-Xylene	5.1		ND	52,000	CHHSL
Soil Gas - 1	Propylbenzene	5.8		ND		
Soil Gas - 1	Styrene	5.0		ND	470,000	ESL
Soil Gas - 1	Tetrachloroethene	7.9		ND	180	CHHSL
Soil Gas - 1	Tetrahydrofuran	3.4		ND		
Soil Gas - 1	Toluene	4.4		ND	160,000	CHHSL
Soil Gas - 1	TPH ref. to Gasoline (MW=100)	480		ND	30,000	ESL
Soil Gas - 1	trans-1,2-Dichloroethene	4.6		ND	31,000	ESL
Soil Gas - 1	trans-1,3-Dichloropropene	5.3		ND	76	ESL
Soil Gas - 1	Trichloroethene	6.3		ND	300	ESL
Soil Gas - 1	Vinyl Chloride	3.0		ND	13.3	CHHSL
Soil Gas - 2	Toluene	4.2	5.9		160,000	CHHSL
Soil Gas - 2	Ethanol	8.3	33			
Soil Gas - 2	1,1,1-Trichloroethane	6.0		ND	720,000	ESL
Soil Gas - 2	1,1,2,2-Tetrachloroethane	7.6		ND		

Soil Gas Survey Result
2118 Milvia Street, Berkeley, California

Sample	Compound Name	Detection Limit (ug/m3)	Results (ug/m3)	Data Flags	Screening Level (ug/m3)	Source
Soil Gas - 2	1,1,2-Trichloroethane	6.0		ND		
Soil Gas - 2	1,1-Dichloroethane	4.5		ND		
Soil Gas - 2	1,1-Dichloroethene	4.4		ND	100,000	ESL
Soil Gas - 2	1,2,4-Trichlorobenzene	33		ND	3,100	ESL
Soil Gas - 2	1,2,4-Trimethylbenzene	5.4		ND		
Soil Gas - 2	1,2-Dibromoethane (EDB)	8.5		ND	17	ESL
Soil Gas - 2	1,2-Dichlorobenzene	6.6		ND		
Soil Gas - 2	1,2-Dichloroethane	4.5		ND	58	ESL
Soil Gas - 2	1,2-Dichloropropane	5.1		ND	120	ESL
Soil Gas - 2	1,3,5-Trimethylbenzene	5.4		ND		
Soil Gas - 2	1,3-Butadiene	2.4		ND		
Soil Gas - 2	1,3-Dichlorobenzene	6.6		ND		
Soil Gas - 2	1,4-Dichlorobenzene	6.6		ND	110	ESL
Soil Gas - 2	1,4-Dioxane	16		ND		
Soil Gas - 2	2,2,4-Trimethylpentane	5.2		ND		
Soil Gas - 2	2-Butanone (Methyl Ethyl Ketone)	13		ND	2,600,000	ESL
Soil Gas - 2	2-Hexanone	18		ND		
Soil Gas - 2	2-Propanol	11		ND		
Soil Gas - 2	3-Chloropropene	14		ND		
Soil Gas - 2	4-Ethyltoluene	5.4		ND		
Soil Gas - 2	4-Methyl-2-pentanone	4.5		ND		
Soil Gas - 2	Acetone	26		ND	16,000,000	ESL
Soil Gas - 2	alpha-Chlorotoluene	5.7		ND		
Soil Gas - 2	Benzene	3.5		ND	36.2	CHHSL
Soil Gas - 2	Bromodichloromethane	7.4		ND		
Soil Gas - 2	Bromoform	11		ND		
Soil Gas - 2	Bromomethane	43		ND	2,600	ESL
Soil Gas - 2	Carbon Disulfide	14		ND		
Soil Gas - 2	Carbon Tetrachloride	7.0		ND	29	ESL
Soil Gas - 2	Chlorobenzene	5.1		ND	520,000	ESL
Soil Gas - 2	Chloroethane	12		ND	16,000,000	ESL
Soil Gas - 2	Chloroform	5.4		ND	230	ESL
Soil Gas - 2	Chloromethane	23		ND	47,000	ESL
Soil Gas - 2	cis-1,2-Dichloroethene	4.4		ND	3,700	ESL
Soil Gas - 2	cis-1,3-Dichloropropene	5.0		ND	76	ESL
Soil Gas - 2	Cumene	5.4		ND		
Soil Gas - 2	Cyclohexane	3.8		ND		

Sample	Compound Name	Detection Limit (ug/m3)	Results (ug/m3)	Data Flags	Screening Level (ug/m3)	Source
Soil Gas - 2	Dibromochloromethane	9.4		ND		
Soil Gas - 2	Ethyl Benzene	4.8		ND	490	ESL
Soil Gas - 2	Freon 11	6.2		ND		
Soil Gas - 2	Freon 113	8.5		ND		
Soil Gas - 2	Freon 114	7.7		ND		
Soil Gas - 2	Freon 12	5.5		ND		
Soil Gas - 2	Heptane	4.5		ND		
Soil Gas - 2	Hexachlorobutadiene	47		ND		
Soil Gas - 2	Hexane	3.9		ND		
Soil Gas - 2	m,p-Xylene	4.8		ND	52,000	CHHSL
Soil Gas - 2	Methyl tert-butyl ether	4.0		ND	4,700	ESL
Soil Gas - 2	Methylene Chloride	38		ND	2,600	ESL
Soil Gas - 2	o-Xylene	4.8		ND	52,000	CHHSL
Soil Gas - 2	Propylbenzene	5.4		ND		
Soil Gas - 2	Styrene	4.7		ND	470,000	ESL
Soil Gas - 2	Tetrachloroethene	7.5		ND	180	CHHSL
Soil Gas - 2	Tetrahydrofuran	3.2		ND		
Soil Gas - 2	TPH ref. to Gasoline (MW=100)	450		ND	300,000	ESL
Soil Gas - 2	trans-1,2-Dichloroethene	4.4		ND	31,000	ESL
Soil Gas - 2	trans-1,3-Dichloropropene	5.0		ND	76	ESL
Soil Gas - 2	Trichloroethene	5.9		ND	300	ESL
Soil Gas - 2	Vinyl Chloride	2.8		ND	13.3	CHHSL

Notes: ND – not detected
 ESL – Environmental Screening Level (RWQCB 2014)
 CHHSL – California Human Health Screening Level (OEHHA 2005)
 ug/m3 – microgram per cubic meter
 Screening level is the lower of the CHHSL or ESL (Residential Exposure)



LEGEND

 2
Approximate soil gas probe location

SAFETY FIRST	CLIENT: Peralta Community College District	SOIL GAS PROBE LOCATIONS
	PROJECT: 2118 Milvia Street, Berkeley	
	PROJECT NO.: 0034.002.001	FIGURE 1

ATTACHMENT 1

LABORATORY RESULTS

3/24/2015

Mr. William Werner
Terraphase Engineering Inc.
1404 Franklin Street
Suite 600
Oakland CA 94612

Project Name: Peralta C. C.
Project #: 0034.002.001
Workorder #: 1503280A

Dear Mr. William Werner

The following report includes the data for the above referenced project for sample(s) received on 3/17/2015 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1503280A

Work Order Summary

CLIENT:	Mr. William Werner Terraphase Engineering Inc. 1404 Franklin Street Suite 600 Oakland, CA 94612	BILL TO:	Mr. William Werner Terraphase Engineering Inc. 1404 Franklin Street Suite 600 Oakland, CA 94612
PHONE:	510-645-1850	P.O. #	
FAX:		PROJECT #	0034.002.001 Peralta C. C.
DATE RECEIVED:	03/17/2015	CONTACT:	Kyle Vagadori
DATE COMPLETED:	03/24/2015		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	2118-SG-1	TO-15	4.3 "Hg	14.8 psi
02A	2118-SG-2	TO-15	2.6 "Hg	15 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 03/24/15

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Terraphase Engineering Inc.
Workorder# 1503280A

Two 1 Liter Summa Canister samples were received on March 17, 2015. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: 2118-SG-1

Lab ID#: 1503280A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.7	7.1	8.8	13
Acetone	12	14	28	32
Benzene	1.2	3.8	3.7	12
m,p-Xylene	1.2	1.7	5.1	7.3

Client Sample ID: 2118-SG-2

Lab ID#: 1503280A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.4	18	8.3	33
Toluene	1.1	1.6	4.2	5.9



Air Toxics

Client Sample ID: 2118-SG-1

Lab ID#: 1503280A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032011	Date of Collection:	3/13/15 4:22:00 PM
Dil. Factor:	2.34	Date of Analysis:	3/20/15 04:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.8	Not Detected
Freon 114	1.2	Not Detected	8.2	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	45	Not Detected
Chloroethane	4.7	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.6	Not Detected
Ethanol	4.7	7.1	8.8	13
Freon 113	1.2	Not Detected	9.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Acetone	12	14	28	32
2-Propanol	4.7	Not Detected	12	Not Detected
Carbon Disulfide	4.7	Not Detected	14	Not Detected
3-Chloropropene	4.7	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Hexane	1.2	Not Detected	4.1	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.7	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.4	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Cyclohexane	1.2	Not Detected	4.0	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.5	Not Detected
Benzene	1.2	3.8	3.7	12
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Heptane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.4	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.8	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	Not Detected	4.4	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
2-Hexanone	4.7	Not Detected	19	Not Detected

Client Sample ID: 2118-SG-1

Lab ID#: 1503280A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032011	Date of Collection:	3/13/15 4:22:00 PM
Dil. Factor:	2.34	Date of Analysis:	3/20/15 04:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.0	Not Detected
Chlorobenzene	1.2	Not Detected	5.4	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	1.7	5.1	7.3
o-Xylene	1.2	Not Detected	5.1	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.8	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.0	Not Detected
Propylbenzene	1.2	Not Detected	5.8	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.8	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.0	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,2,4-Trichlorobenzene	4.7	Not Detected	35	Not Detected
Hexachlorobutadiene	4.7	Not Detected	50	Not Detected
TPH ref. to Gasoline (MW=100)	120	Not Detected	480	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	112	70-130



Air Toxics

Client Sample ID: 2118-SG-2

Lab ID#: 1503280A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032012	Date of Collection:	3/13/15 5:25:00 PM
Dil. Factor:	2.21	Date of Analysis:	3/20/15 05:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.5	Not Detected
Freon 114	1.1	Not Detected	7.7	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.4	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.2	Not Detected
Ethanol	4.4	18	8.3	33
Freon 113	1.1	Not Detected	8.5	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	26	Not Detected
2-Propanol	4.4	Not Detected	11	Not Detected
Carbon Disulfide	4.4	Not Detected	14	Not Detected
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	4.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.4	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	Not Detected	5.4	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	1.1	1.6	4.2	5.9
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
2-Hexanone	4.4	Not Detected	18	Not Detected



Client Sample ID: 2118-SG-2

Lab ID#: 1503280A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032012	Date of Collection:	3/13/15 5:25:00 PM
Dil. Factor:	2.21	Date of Analysis:	3/20/15 05:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.5	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	Not Detected	4.8	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Styrene	1.1	Not Detected	4.7	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.4	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected
TPH ref. to Gasoline (MW=100)	110	Not Detected	450	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1503280A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032007	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/20/15 01:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected



Client Sample ID: Lab Blank

Lab ID#: 1503280A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032007	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/20/15 01:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
TPH ref. to Gasoline (MW=100)	50	Not Detected	200	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1503280A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/15 10:52 AM

Compound	%Recovery
Freon 12	109
Freon 114	105
Chloromethane	100
Vinyl Chloride	103
1,3-Butadiene	107
Bromomethane	104
Chloroethane	96
Freon 11	107
Ethanol	98
Freon 113	99
1,1-Dichloroethene	93
Acetone	101
2-Propanol	101
Carbon Disulfide	96
3-Chloropropene	91
Methylene Chloride	100
Methyl tert-butyl ether	95
trans-1,2-Dichloroethene	97
Hexane	94
1,1-Dichloroethane	97
2-Butanone (Methyl Ethyl Ketone)	100
cis-1,2-Dichloroethene	103
Tetrahydrofuran	98
Chloroform	104
1,1,1-Trichloroethane	110
Cyclohexane	101
Carbon Tetrachloride	113
2,2,4-Trimethylpentane	104
Benzene	96
1,2-Dichloroethane	110
Heptane	86
Trichloroethene	99
1,2-Dichloropropane	104
1,4-Dioxane	105
Bromodichloromethane	104
cis-1,3-Dichloropropene	103
4-Methyl-2-pentanone	102
Toluene	101
trans-1,3-Dichloropropene	95
1,1,2-Trichloroethane	96
Tetrachloroethene	100
2-Hexanone	101

Client Sample ID: CCV

Lab ID#: 1503280A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/15 10:52 AM

Compound	%Recovery
Dibromochloromethane	105
1,2-Dibromoethane (EDB)	103
Chlorobenzene	101
Ethyl Benzene	98
m,p-Xylene	100
o-Xylene	102
Styrene	100
Bromoform	109
Cumene	102
1,1,2,2-Tetrachloroethane	102
Propylbenzene	101
4-Ethyltoluene	104
1,3,5-Trimethylbenzene	106
1,2,4-Trimethylbenzene	102
1,3-Dichlorobenzene	106
1,4-Dichlorobenzene	107
alpha-Chlorotoluene	106
1,2-Dichlorobenzene	107
1,2,4-Trichlorobenzene	109
Hexachlorobutadiene	109
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	111	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1503280A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/15 11:27 AM

Compound	%Recovery	Method Limits
Freon 12	106	70-130
Freon 114	106	70-130
Chloromethane	98	70-130
Vinyl Chloride	101	70-130
1,3-Butadiene	99	70-130
Bromomethane	102	70-130
Chloroethane	93	70-130
Freon 11	104	70-130
Ethanol	92	70-130
Freon 113	92	70-130
1,1-Dichloroethene	88	70-130
Acetone	89	70-130
2-Propanol	95	70-130
Carbon Disulfide	80	70-130
3-Chloropropene	77	70-130
Methylene Chloride	92	70-130
Methyl tert-butyl ether	86	70-130
trans-1,2-Dichloroethene	80	70-130
Hexane	84	70-130
1,1-Dichloroethane	91	70-130
2-Butanone (Methyl Ethyl Ketone)	79	70-130
cis-1,2-Dichloroethene	97	70-130
Tetrahydrofuran	83	70-130
Chloroform	90	70-130
1,1,1-Trichloroethane	97	70-130
Cyclohexane	89	70-130
Carbon Tetrachloride	98	70-130
2,2,4-Trimethylpentane	93	70-130
Benzene	81	70-130
1,2-Dichloroethane	96	70-130
Heptane	74	70-130
Trichloroethene	88	70-130
1,2-Dichloropropane	91	70-130
1,4-Dioxane	86	70-130
Bromodichloromethane	92	70-130
cis-1,3-Dichloropropene	84	70-130
4-Methyl-2-pentanone	88	70-130
Toluene	88	70-130
trans-1,3-Dichloropropene	80	70-130
1,1,2-Trichloroethane	79	70-130
Tetrachloroethene	82	70-130
2-Hexanone	83	70-130



Client Sample ID: LCS

Lab ID#: 1503280A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/15 11:27 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	88	70-130
1,2-Dibromoethane (EDB)	87	70-130
Chlorobenzene	86	70-130
Ethyl Benzene	84	70-130
m,p-Xylene	85	70-130
o-Xylene	89	70-130
Styrene	84	70-130
Bromoform	96	70-130
Cumene	87	70-130
1,1,2,2-Tetrachloroethane	86	70-130
Propylbenzene	89	70-130
4-Ethyltoluene	89	70-130
1,3,5-Trimethylbenzene	93	70-130
1,2,4-Trimethylbenzene	89	70-130
1,3-Dichlorobenzene	94	70-130
1,4-Dichlorobenzene	93	70-130
alpha-Chlorotoluene	97	70-130
1,2-Dichlorobenzene	95	70-130
1,2,4-Trichlorobenzene	107	70-130
Hexachlorobutadiene	105	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1503280A-05AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032005	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/15 11:51 AM

Compound	%Recovery	Method Limits
Freon 12	95	70-130
Freon 114	94	70-130
Chloromethane	85	70-130
Vinyl Chloride	88	70-130
1,3-Butadiene	88	70-130
Bromomethane	86	70-130
Chloroethane	82	70-130
Freon 11	92	70-130
Ethanol	87	70-130
Freon 113	82	70-130
1,1-Dichloroethene	75	70-130
Acetone	80	70-130
2-Propanol	86	70-130
Carbon Disulfide	69 Q	70-130
3-Chloropropene	70	70-130
Methylene Chloride	80	70-130
Methyl tert-butyl ether	76	70-130
trans-1,2-Dichloroethene	71	70-130
Hexane	76	70-130
1,1-Dichloroethane	80	70-130
2-Butanone (Methyl Ethyl Ketone)	79	70-130
cis-1,2-Dichloroethene	90	70-130
Tetrahydrofuran	76	70-130
Chloroform	84	70-130
1,1,1-Trichloroethane	91	70-130
Cyclohexane	83	70-130
Carbon Tetrachloride	92	70-130
2,2,4-Trimethylpentane	88	70-130
Benzene	79	70-130
1,2-Dichloroethane	94	70-130
Heptane	72	70-130
Trichloroethene	84	70-130
1,2-Dichloropropane	87	70-130
1,4-Dioxane	87	70-130
Bromodichloromethane	88	70-130
cis-1,3-Dichloropropene	82	70-130
4-Methyl-2-pentanone	86	70-130
Toluene	85	70-130
trans-1,3-Dichloropropene	78	70-130
1,1,2-Trichloroethane	78	70-130
Tetrachloroethene	82	70-130
2-Hexanone	81	70-130



Client Sample ID: LCSD

Lab ID#: 1503280A-05AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p032005	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/15 11:51 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	86	70-130
1,2-Dibromoethane (EDB)	84	70-130
Chlorobenzene	83	70-130
Ethyl Benzene	81	70-130
m,p-Xylene	84	70-130
o-Xylene	87	70-130
Styrene	80	70-130
Bromoform	92	70-130
Cumene	85	70-130
1,1,2,2-Tetrachloroethane	85	70-130
Propylbenzene	86	70-130
4-Ethyltoluene	86	70-130
1,3,5-Trimethylbenzene	89	70-130
1,2,4-Trimethylbenzene	89	70-130
1,3-Dichlorobenzene	91	70-130
1,4-Dichlorobenzene	92	70-130
alpha-Chlorotoluene	94	70-130
1,2-Dichlorobenzene	92	70-130
1,2,4-Trichlorobenzene	106	70-130
Hexachlorobutadiene	101	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	107	70-130

3/21/2015

Mr. William Werner
Terraphase Engineering Inc.
1404 Franklin Street
Suite 600
Oakland CA 94612

Project Name: Peralta C. C.
Project #: 0034.002.001
Workorder #: 1503280B

Dear Mr. William Werner

The following report includes the data for the above referenced project for sample(s) received on 3/17/2015 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1503280B

Work Order Summary

CLIENT:	Mr. William Werner Terraphase Engineering Inc. 1404 Franklin Street Suite 600 Oakland, CA 94612	BILL TO:	Mr. William Werner Terraphase Engineering Inc. 1404 Franklin Street Suite 600 Oakland, CA 94612
PHONE:	510-645-1850	P.O. #	
FAX:		PROJECT #	0034.002.001 Peralta C. C.
DATE RECEIVED:	03/17/2015	CONTACT:	Kyle Vagadori
DATE COMPLETED:	03/21/2015		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	2118-SG-1	Modified ASTM D-1946	4.3 "Hg	14.8 psi
02A	2118-SG-2	Modified ASTM D-1946	2.6 "Hg	15 psi
03A	Lab Blank	Modified ASTM D-1946	NA	NA
03B	Lab Blank	Modified ASTM D-1946	NA	NA
04A	LCS	Modified ASTM D-1946	NA	NA
04AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 03/21/15

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
Terraphase Engineering Inc.
Workorder# 1503280B

Two 1 Liter Summa Canister samples were received on March 17, 2015. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections $> 5 X$'s the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: 2118-SG-1

Lab ID#: 1503280B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	20

Client Sample ID: 2118-SG-2

Lab ID#: 1503280B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	20
Helium	0.11	0.85



Air Toxics

Client Sample ID: 2118-SG-1

Lab ID#: 1503280B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9031912	Date of Collection:	3/13/15 4:22:00 PM
Dil. Factor:	2.34	Date of Analysis:	3/19/15 03:29 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	20
Methane	0.00023	Not Detected
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: 2118-SG-2

Lab ID#: 1503280B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9031913	Date of Collection:	3/13/15 5:25:00 PM
Dil. Factor:	2.22	Date of Analysis:	3/19/15 03:54 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	20
Methane	0.00022	Not Detected
Helium	0.11	0.85

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1503280B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9031905	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/19/15 10:31 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1503280B-03B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9031904b	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/19/15 10:09 AM

Compound	Rpt. Limit (%)	Amount (%)
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 1503280B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9031902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/19/15 09:14 AM

Compound	%Recovery	Method Limits
Oxygen	97	85-115
Methane	97	85-115
Helium	102	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1503280B-04AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9031924	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/19/15 09:42 PM

Compound	%Recovery	Method Limits
Oxygen	97	85-115
Methane	96	85-115
Helium	102	85-115

Container Type: NA - Not Applicable