

SUPPLEMENTAL TECHNICAL MEMORANDUM

Date: March 10, 2015

To: Max Shahbazian, PG
Regional Water Quality Control Board, San Francisco Bay Region

Copies to: Melanie Morash, United States Environmental Protection Agency
Hector Vargas and Elma Fung, Texas Instruments, Incorporated
Robert Ettinger, David Folks, and Jackie Lanzon, Geosyntec Consultants

From: Eric Lovenduski, Project Geologist

Subject: Updated Results of Indoor Air Testing – December 2014, Former Building 39
2999 San Ysidro Way
Santa Clara, California Project. No. SB0695

Geosyntec Consultants (Geosyntec), on behalf of Texas Instruments Incorporated (TI), has completed indoor air testing at 2999 San Ysidro Way in Santa Clara, California, formerly known as Building 39 (Building 39) on TI's Santa Clara campus (site) (Figure 1). This building and property was purchased by RREF II 3689 Kifer, LLC, a subsidiary of Rialto Capital Management, LLC and affiliate of Lennar Commercial Investors, LLC, on December 12, 2014.

The indoor air testing was completed to evaluate performance of a vapor intrusion mitigation system (VIMS) that was recently installed in the restroom area of Building 39. The VIMS commenced operation on 5 November 2014. This technical memorandum presents the results of indoor air testing conducted approximately one month after VIMS startup on 14 December 2014.

Indoor air samples were previously collected from three locations and pathway samples were collected from the men's and women's bathrooms in Building 39. Samples were collected by Langan Treadwell Rollo in December 2012, January and April 2013, and March 2014. Results of these previous pathway samples collected in the bathrooms indicated that concentrations of certain volatile organic compounds (VOCs) (i.e., tetrachloroethylene (PCE), trichloroethene (TCE), and chloroform) exceeded their respective United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) and/or Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) in the restroom areas.^{1,2}

A building evaluation in May 2014 indicated that exhaust fans in the restrooms were likely depressurizing the restrooms and contributing to vapor intrusion migration into the bathrooms. TI replaced the solid restroom doors with louvered panel doors to equalize the pressure gradient in the restrooms and installed air-purification units in both restrooms as an interim vapor

¹ Treadwell & Rollo, 2013. *Updated Results of Indoor Air Testing – Buildings 9, 19, 39, C, E, F, and G*. 19 July, 2014.

² Langan Treadwell Rollo, 2014. *Results of Indoor Air Testing March 2014 – Buildings 39, C, and G*. 23 April, 2014.

intrusion mitigation measure. TI then installed a single suction-point active VIMS with negative pressures covering the restroom area of Building 39 as a long term measure to mitigate the vapor intrusion pathway.

SUMMARY OF SAMPLING METHOD/APPROACH

Previous air sampling events consisted of two types of samples, including “indoor air” (from normally occupied areas of the building, i.e. offices and cubicles) and “pathway samples” (areas not normally occupied for extended periods, i.e. mechanical rooms and restrooms). Previous sampling events indicated no exceedances of RSLs or ESLs for indoor air samples. As a result, only pathway sample locations were selected for this sampling event.

Air samples were collected with heating, ventilation, and air conditioning (HVAC) units and air-purification units off, and restroom exhaust fans on to create a “worst case” scenario relative to the vapor intrusion pathway.

Sample results were compared to both the USEPA RSLs and the RWQCB ESLs. Sample locations are shown on Figure 2, and results of the testing are provided on Table 1. Laboratory analytical data is presented in Attachment 1.

Building 39 - Pathway Air Sample Results

Two pathway air samples (PS1-39-2014-12-14 and PS2-39-2014-12-14) were collected from Building 39 during this sampling event. Air samples were collected using individually certified clean six-liter passivated inert Summa[®] canisters equipped with eight-hour flow regulators. Samples were submitted to Eurofins Air Toxics laboratory in Folsom, California for analysis of VOCs via USEPA Method TO-15 in selective ion monitoring (SIM) mode.

PCE, TCE, and chloroform were not detected in the air samples above the laboratory reporting limits. All other compounds were either not detected or detected at concentrations below the RWQCB commercial ESLs and the USEPA commercial/industrial RSLs.

DISCUSSION AND RECOMMENDATION

Results of the air testing presented in this memorandum indicate that the VIMS is operating as designed and that the vapor intrusion pathway has been mitigated. Continued operation of the VIMS in accordance with the Construction Completion Report³ is recommended.

Table 1 – Indoor Air Sample Results

Figure 1 – Site Location Map

Figure 2 – Building 39 Post Mitigation Pathway Air Sample Locations

Attachment 1 - Laboratory Analytical Data

³ Geosyntec Consultants, 2015, *Construction Completion Report Vapor Intrusion Mitigation System*, February, 2015.

TABLE

Table 1
Indoor Air Sample Results
 2999 San Ysidro Way - Former Building 39, Santa Clara, California

Chemical of Concern	Sample Date	Vinyl Chloride	Chloroethane	Freon 11	1,1-DCE	Methylene Chloride	1,1-DCA	cis-1,2-DCE	Chloroform	1,2-DCA	1,1,1-TCA	Chlorobenzene	1,2-DCB	1,4-DCB	1,1,2-TCA	Toluene	TCE	PCE	Ethylbenzene	Total Xylenes	trans-1,2-DCE	Freon 113
Sample ^{1,2}		(µg/m ³)																				
PS1-39-2014-12-14	12/14/2014	< 0.042	< 2.2	0.98	< 0.065	< 1.1	< 0.13	< 0.13	< 0.80	< 0.13	< 0.18	< 0.75	< 0.98	< 0.98	< 0.18	0.96	< 0.18	< 0.22	0.18	0.79	< 0.65	< 1.2
PS2-39-2014-12-14	12/14/2014	< 0.043	< 2.2	0.99	< 0.067	< 1.2	< 0.14	< 0.13	< 0.82	< 0.14	< 0.18	< 0.77	< 1.0	< 1.0	< 0.18	0.90	< 0.18	< 0.23	0.17	0.82	< 0.67	< 1.3
DUP-39-2014-12-14 ³	12/14/2014	< 0.043	< 2.2	1.0	< 0.067	< 1.2	< 0.14	< 0.13	< 0.83	< 0.14	< 0.18	< 0.78	< 1.0	< 1.0	< 0.18	0.90	< 0.18	< 0.23	0.18	0.75	< 0.67	< 1.3
RWQCB Environmental Screening Level⁴																						
Commercial		0.16	130,000	NE	880	26	7.7	31	2.3	0.58	22,000	4,400	880	1.1	0.77	1,300	3.0	2.1	4.9	440	260	NE
USEPA Regional Screening Level⁵																						
Commercial/Industrial		2.8	44,000	3,100	880	1,200	7.7	NE	0.53	0.47	22,000	220	880	1.1	0.77	22,000	3.0	0.47	4.9	440	NE	130,000

Notes

- 1) Heating, ventilating, and air conditioning (HVAC) system was off for 36 hours prior to and during sample collection. Vapor intrusion mitigation system operation was uninterrupted.
- 2) Samples analyzed using EPA Method TO-15 GC/MS in selective ion monitoring (SIM) mode
- 3) Duplicate sample (DUP) collected concurrently with PS2-39-2014-12-14.
- 4) RWQCB Environmental Screening Level (ESL) indoor air from Table E, Interim Final - December 2013.
- 5) Long-term health risk based screening criteria obtained from the United States Environmental Protection Agency (USEPA), Regional Screening (RSLs) for chemical contaminants (January 2015). http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/docs/master_sl_table_run_JAN2015.pdf

< = Non-detect results reported as less than ("<") laboratory reporting limit

µg/m³ = micrograms per cubic meter

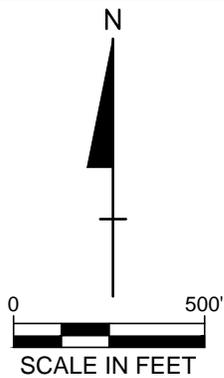
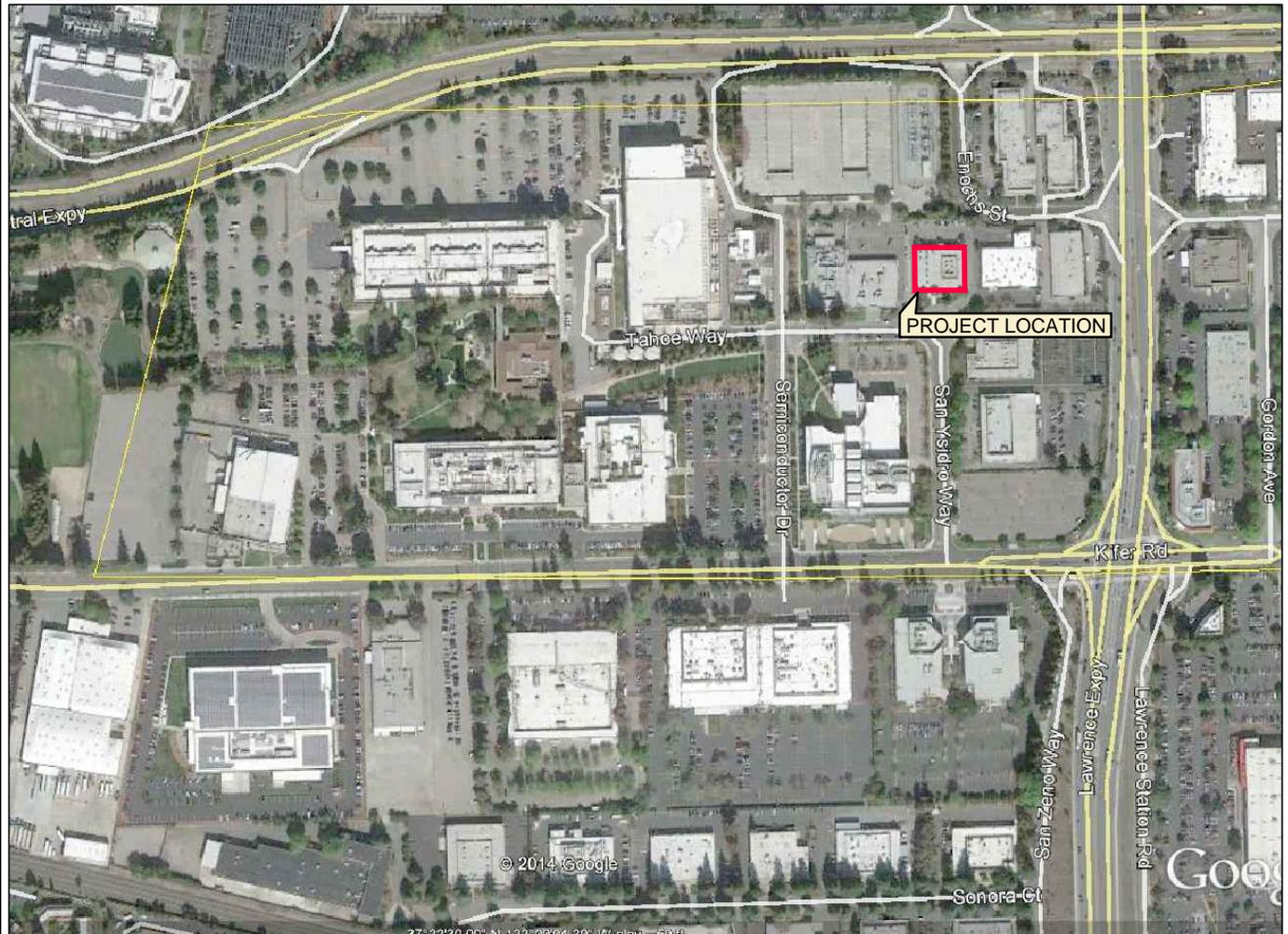
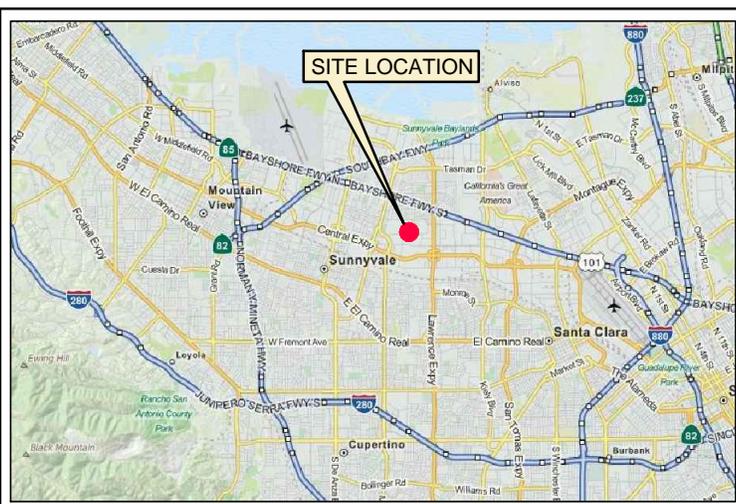
EPA = Environmental Protection Agency

NE = Not Established

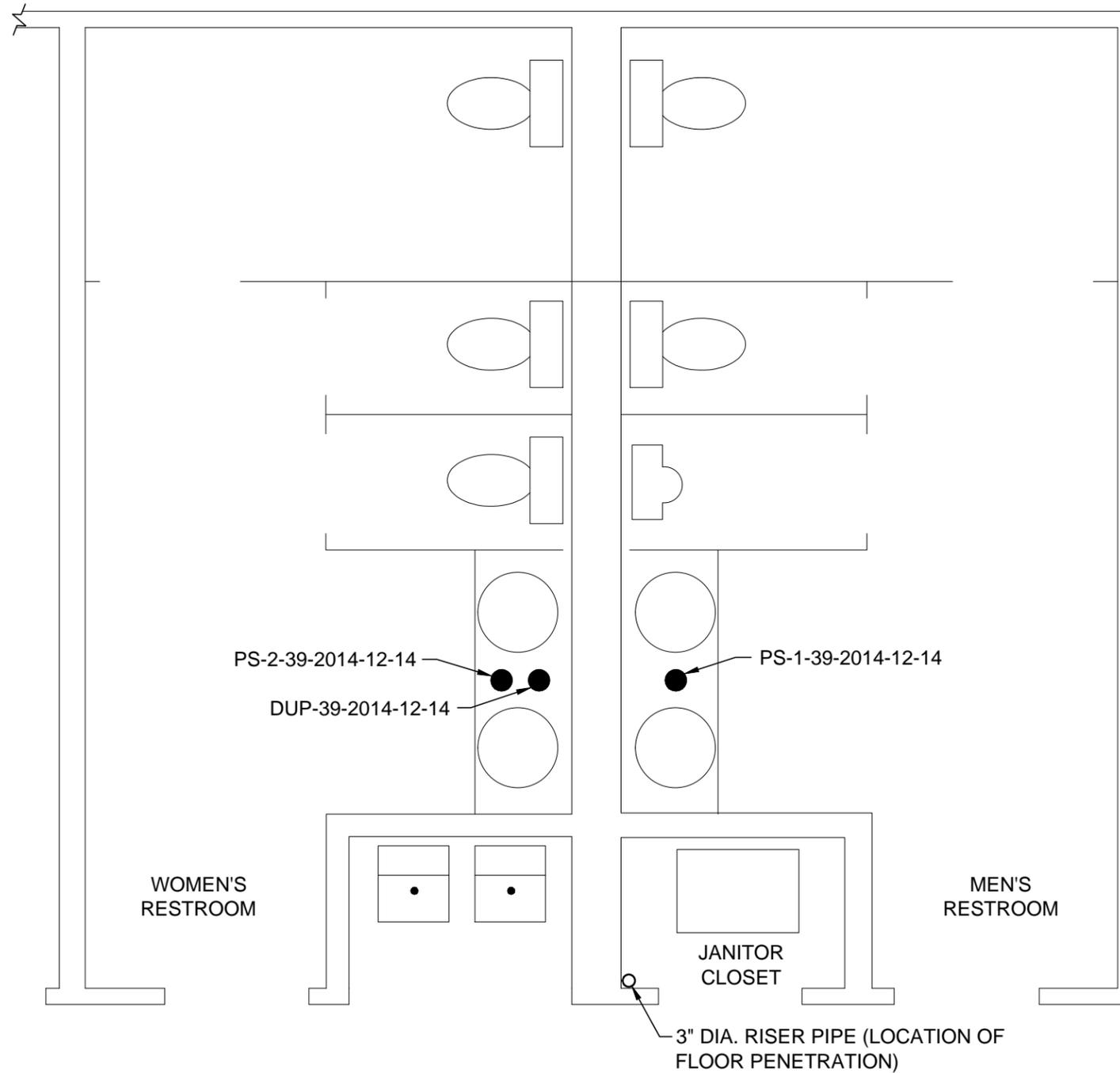
RWQCB = Regional Water Quality Control Board, San Francisco

- | | |
|--|---|
| 1,1-DCA = 1,1-Dichloroethane | 1,1,1-TCA = 1,1,1-Trichloroethane |
| 1,2-DCA = 1,2-Dichloroethane | 1,1,2-TCA = 1,1,2-Trichloroethane |
| 1,1-DCE = 1,1-Dichloroethene | Freon 11 = Trichlorofluoromethane |
| cis-1,2-DCE = cis-1,2-Dichloroethene | Freon 113 = 1,1,2-Trichloro-1,2,2-Trifluoroethane |
| trans-1,2-DCE = trans-1,2-Dichloroethene | PCE = Tetrachloroethene |
| 1,2-DCB = 1,2-Dichlorobenzene | TCE = Trichloroethene |
| 1,4-DCB = 1,4-Dichlorobenzene | |

FIGURES



<p>TEXAS INSTRUMENTS Santa Clara, California</p>	
<p>BUILDING 39 SITE LOCATION MAP</p>	
<p>Geosyntec consultants</p>	<p>FIGURE 1</p>
	<p>JAN. 2015</p>
<p>SB-0695</p>	



LEGEND:

PS-1-39-2014-12-14 ● PATHWAY AIR SAMPLE

NOTE:

1. DRAWING IS NOT TO SCALE.
PATHWAY AIR SAMPLE, LOCATIONS ARE APPROXIMATE.

TEXAS INSTRUMENTS Santa Clara, California		
BUILDING 39 POST MITIGATION PATHWAY AIR SAMPLE LOCATIONS		
	FIGURE 2	JAN. 2015
	SB-0695	

ATTACHMENT

12/30/2014
Mr. Gesha Uminskiy
GeoSyntec Consultants
1111 Broadway
6th Floor
Oakland CA 94607

Project Name: TI-SANTA CLARA
Project #: SB0695
Workorder #: 1412271

Dear Mr. Gesha Uminskiy

The following report includes the data for the above referenced project for sample(s) received on 12/16/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified 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 #: 1412271

Work Order Summary

CLIENT:	Mr. Gesha Uminskiy GeoSyntec Consultants 1111 Broadway 6th Floor Oakland, CA 94607	BILL TO:	Mr. Gesha Uminskiy GeoSyntec Consultants 1111 Broadway 6th Floor Oakland, CA 94607
PHONE:	510-836-3034	P.O. #	
FAX:	510-836-3036	PROJECT #	SB0695 TI-SANTA CLARA
DATE RECEIVED:	12/16/2014	CONTACT:	Kyle Vagadori
DATE COMPLETED:	12/30/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	PS1-39-2014-12-14	Modified TO-15	5.5 "Hg	4.9 psi
01B	PS1-39-2014-12-14	Modified TO-15	5.5 "Hg	4.9 psi
02A	PS2-39-2014-12-14	Modified TO-15	6.1 "Hg	4.9 psi
02B	PS2-39-2014-12-14	Modified TO-15	6.1 "Hg	4.9 psi
03A	DUP-39-2014-12-14	Modified TO-15	6.3 "Hg	5 psi
03B	DUP-39-2014-12-14	Modified TO-15	6.3 "Hg	5 psi
04A	Lab Blank	Modified TO-15	NA	NA
04B	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
05B	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA
06B	LCS	Modified TO-15	NA	NA
06BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

Technical Director

DATE: 12/30/14

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 TO-15 Full Scan/SIM
GeoSyntec Consultants
Workorder# 1412271

Three 6 Liter Summa Canister (SIM Certified) samples were received on December 16, 2014. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

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.

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>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	For Full Scan: 30% RSD with 4 compounds allowed out to <math>< 40\%</math> RSD For SIM: Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to <math>< 40\%</math> RSD
Daily Calibration	+/- 30% Difference	For Full Scan: $\leq 30\%$ Difference with four allowed out up to $\leq 40\%$; flag and narrate outliers For SIM: Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

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.

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
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

Client Sample ID: PS1-39-2014-12-14

Lab ID#: 1412271-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.16	0.17	0.92	0.98

Client Sample ID: PS1-39-2014-12-14

Lab ID#: 1412271-01B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	0.033	0.26	0.12	0.96
Ethyl Benzene	0.033	0.041	0.14	0.18
m,p-Xylene	0.065	0.13	0.28	0.58
o-Xylene	0.033	0.048	0.14	0.21

Client Sample ID: PS2-39-2014-12-14

Lab ID#: 1412271-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.18	0.94	0.99

Client Sample ID: PS2-39-2014-12-14

Lab ID#: 1412271-02B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	0.034	0.24	0.13	0.90
Ethyl Benzene	0.034	0.039	0.14	0.17
m,p-Xylene	0.067	0.13	0.29	0.55
o-Xylene	0.034	0.062	0.14	0.27

Client Sample ID: DUP-39-2014-12-14

Lab ID#: 1412271-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.19	0.96	1.0

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

Client Sample ID: DUP-39-2014-12-14

Lab ID#: 1412271-03B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	0.034	0.24	0.13	0.90
Ethyl Benzene	0.034	0.042	0.15	0.18
m,p-Xylene	0.068	0.13	0.30	0.55
o-Xylene	0.034	0.047	0.15	0.20



Air Toxics

Client Sample ID: PS1-39-2014-12-14

Lab ID#: 1412271-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122413	Date of Collection:	12/14/14 4:45:00 PM
Dil. Factor:	1.63	Date of Analysis:	12/24/14 03:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroethane	0.82	Not Detected	2.2	Not Detected
Freon 11	0.16	0.17	0.92	0.98
Freon 113	0.16	Not Detected	1.2	Not Detected
Methylene Chloride	0.33	Not Detected	1.1	Not Detected
Chloroform	0.16	Not Detected	0.80	Not Detected
Chlorobenzene	0.16	Not Detected	0.75	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.98	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.98	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130



Client Sample ID: PS1-39-2014-12-14

Lab ID#: 1412271-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122413sim	Date of Collection: 12/14/14 4:45:00 PM
Dil. Factor:	1.63	Date of Analysis: 12/24/14 03:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.065	Not Detected
1,1-Dichloroethane	0.033	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.033	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	Not Detected	0.22	Not Detected
Toluene	0.033	0.26	0.12	0.96
Ethyl Benzene	0.033	0.041	0.14	0.18
m,p-Xylene	0.065	0.13	0.28	0.58
o-Xylene	0.033	0.048	0.14	0.21
trans-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: PS2-39-2014-12-14

Lab ID#: 1412271-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122414	Date of Collection:	12/14/14 4:45:00 PM
Dil. Factor:	1.68	Date of Analysis:	12/24/14 04:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroethane	0.84	Not Detected	2.2	Not Detected
Freon 11	0.17	0.18	0.94	0.99
Freon 113	0.17	Not Detected	1.3	Not Detected
Methylene Chloride	0.34	Not Detected	1.2	Not Detected
Chloroform	0.17	Not Detected	0.82	Not Detected
Chlorobenzene	0.17	Not Detected	0.77	Not Detected
1,4-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: PS2-39-2014-12-14

Lab ID#: 1412271-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122414sim	Date of Collection:	12/14/14 4:45:00 PM
Dil. Factor:	1.68	Date of Analysis:	12/24/14 04:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
Toluene	0.034	0.24	0.13	0.90
Ethyl Benzene	0.034	0.039	0.14	0.17
m,p-Xylene	0.067	0.13	0.29	0.55
o-Xylene	0.034	0.062	0.14	0.27
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: DUP-39-2014-12-14

Lab ID#: 1412271-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122415	Date of Collection:	12/14/14 4:45:00 PM
Dil. Factor:	1.70	Date of Analysis:	12/24/14 05:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroethane	0.85	Not Detected	2.2	Not Detected
Freon 11	0.17	0.19	0.96	1.0
Freon 113	0.17	Not Detected	1.3	Not Detected
Methylene Chloride	0.34	Not Detected	1.2	Not Detected
Chloroform	0.17	Not Detected	0.83	Not Detected
Chlorobenzene	0.17	Not Detected	0.78	Not Detected
1,4-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: DUP-39-2014-12-14

Lab ID#: 1412271-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122415sim	Date of Collection:	12/14/14 4:45:00 PM
Dil. Factor:	1.70	Date of Analysis:	12/24/14 05:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
Toluene	0.034	0.24	0.13	0.90
Ethyl Benzene	0.034	0.042	0.15	0.18
m,p-Xylene	0.068	0.13	0.30	0.55
o-Xylene	0.034	0.047	0.15	0.20
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: Lab Blank

Lab ID#: 1412271-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122406	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	12/24/14 09:40 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	92	70-130



Client Sample ID: Lab Blank

Lab ID#: 1412271-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122406sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/24/14 09:40 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1412271-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/24/14 06:21 AM

Compound	%Recovery
Chloroethane	90
Freon 11	100
Freon 113	96
Methylene Chloride	92
Chloroform	99
Chlorobenzene	94
1,4-Dichlorobenzene	88
1,2-Dichlorobenzene	84

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1412271-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122402sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/24/14 06:21 AM

Compound	%Recovery
Vinyl Chloride	89
1,1-Dichloroethene	92
1,1-Dichloroethane	96
cis-1,2-Dichloroethene	106
1,1,1-Trichloroethane	101
1,2-Dichloroethane	101
Trichloroethene	88
1,1,2-Trichloroethane	93
Tetrachloroethene	97
Toluene	97
Ethyl Benzene	114
m,p-Xylene	120
o-Xylene	119
trans-1,2-Dichloroethene	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: LCS

Lab ID#: 1412271-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122403	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/24/14 07:03 AM

Compound	%Recovery	Method Limits
Chloroethane	81	70-130
Freon 11	91	70-130
Freon 113	91	70-130
Methylene Chloride	87	70-130
Chloroform	90	70-130
Chlorobenzene	90	70-130
1,4-Dichlorobenzene	104	70-130
1,2-Dichlorobenzene	110	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1412271-06AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/24/14 07:45 AM

Compound	%Recovery	Method Limits
Chloroethane	81	70-130
Freon 11	88	70-130
Freon 113	89	70-130
Methylene Chloride	85	70-130
Chloroform	89	70-130
Chlorobenzene	88	70-130
1,4-Dichlorobenzene	102	70-130
1,2-Dichlorobenzene	107	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: LCS

Lab ID#: 1412271-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122403sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/24/14 07:03 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	86	70-130
1,1-Dichloroethene	91	70-130
1,1-Dichloroethane	90	70-130
cis-1,2-Dichloroethene	100	70-130
1,1,1-Trichloroethane	94	70-130
1,2-Dichloroethane	95	70-130
Trichloroethene	82	70-130
1,1,2-Trichloroethane	86	70-130
Tetrachloroethene	90	70-130
Toluene	91	70-130
Ethyl Benzene	108	70-130
m,p-Xylene	115	70-130
o-Xylene	114	70-130
trans-1,2-Dichloroethene	93	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1412271-06BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e122404sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/24/14 07:45 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	85	70-130
1,1-Dichloroethene	90	70-130
1,1-Dichloroethane	89	70-130
cis-1,2-Dichloroethene	100	70-130
1,1,1-Trichloroethane	94	70-130
1,2-Dichloroethane	94	70-130
Trichloroethene	81	70-130
1,1,2-Trichloroethane	84	70-130
Tetrachloroethene	89	70-130
Toluene	90	70-130
Ethyl Benzene	107	70-130
m,p-Xylene	115	70-130
o-Xylene	112	70-130
trans-1,2-Dichloroethene	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130