

11/16/2021

Mr. Lucas Henry

GeoSyntec Consultants

920 SW Sixth Avenue, Suite 600

Portland OR 97204

Project Name: Cascade SVE

Project #: PNG0564519

Workorder #: 2111074

Dear Mr. Lucas Henry

The following report includes the data for the above referenced project for sample(s) received on 11/3/2021 at Eurofins Air Toxics LLC.

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 Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Monica Tran at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Monica Tran

Project Manager

WORK ORDER #: 2111074

Work Order Summary

CLIENT:	Mr. Lucas Henry GeoSyntec Consultants 920 SW Sixth Avenue, Suite 600 Portland, OR 97204	BILL TO:	Accounts Payable Cascade Corporation 2201 NE 201st Avenue Fairview, OR 97024
PHONE:	503-222-9518	P.O. #	
FAX:	503-242-1416	PROJECT #	PNG0564519 Cascade SVE
DATE RECEIVED:	11/03/2021	CONTACT:	Monica Tran
DATE COMPLETED:	11/16/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVE-EFF-110221	Modified TO-15	3.3 "Hg	9.8 psi
02A	VW-17d-95.5-110221	Modified TO-15	4.9 "Hg	9.9 psi
03A	VMWG-110221	Modified TO-15	5.3 "Hg	9.9 psi
04A	VMWF-110221	Modified TO-15	2 "Hg	10 psi
05A	VMWE-110221	Modified TO-15	2 "Hg	9.9 psi
06A	VMWC-110221	Modified TO-15	4.1 "Hg	10.1 psi
07A	VMWH-110221	Modified TO-15	4.3 "Hg	10 psi
08A	Lab Blank	Modified TO-15	NA	NA
08B	Lab Blank	Modified TO-15	NA	NA
09A	CCV	Modified TO-15	NA	NA
09B	CCV	Modified TO-15	NA	NA
10A	LCS	Modified TO-15	NA	NA
10AA	LCSD	Modified TO-15	NA	NA
10B	LCS	Modified TO-15	NA	NA
10BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/16/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209221, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-21-17, UT NELAP – CA009332021-13, VA NELAP - 10615, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-015, Effective date: 10/18/2021, Expiration date: 10/17/2022.

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

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LABORATORY NARRATIVE
Modified TO-15
GeoSyntec Consultants
Workorder# 2111074

Seven 1 Liter Summa Canister (100% Certified) samples were received on November 03, 2021. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

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

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on samples SVE-EFF-110221, VW-17d-95.5-110221, VMWE-110221, VMWC-110221 and VMWH-110221 due to the presence of high level target species.

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 MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVE-EFF-110221

Lab ID#: 2111074-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.47	11	1.8	44
Trichloroethene	0.47	130	2.5	700
Tetrachloroethene	0.47	7.1	3.2	48

Client Sample ID: VW-17d-95.5-110221

Lab ID#: 2111074-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.25	8.5	0.99	34
Trichloroethene	0.25	68	1.3	370
Tetrachloroethene	0.25	3.6	1.7	25

Client Sample ID: VMWG-110221

Lab ID#: 2111074-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.20	2.8	0.80	11
Trichloroethene	0.20	15	1.1	81
Tetrachloroethene	0.20	1.4	1.4	9.8

Client Sample ID: VMWF-110221

Lab ID#: 2111074-04A

No Detections Were Found.

Client Sample ID: VMWE-110221

Lab ID#: 2111074-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.90	15	3.6	59
Trichloroethene	0.90	220	4.8	1200
Tetrachloroethene	0.90	12	6.1	83

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

Client Sample ID: VMWC-110221

Lab ID#: 2111074-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.98	11	3.9	44
Trichloroethene	0.98	240	5.2	1300
Tetrachloroethene	0.98	13	6.6	86

Client Sample ID: VMWH-110221

Lab ID#: 2111074-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.39	18	1.6	72
Trichloroethene	0.39	110	2.1	590
Tetrachloroethene	0.39	3.1	2.6	21

Client Sample ID: SVE-EFF-110221

Lab ID#: 2111074-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111223	Date of Collection:	11/2/21 10:15:00 AM
Dil. Factor:	4.68	Date of Analysis:	11/12/21 11:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.47	Not Detected	1.2	Not Detected
1,1-Dichloroethene	0.47	Not Detected	1.8	Not Detected
cis-1,2-Dichloroethene	0.47	11	1.8	44
Trichloroethene	0.47	130	2.5	700
Tetrachloroethene	0.47	7.1	3.2	48

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	87	70-130

Client Sample ID: VW-17d-95.5-110221

Lab ID#: 2111074-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111314	Date of Collection:	11/2/21 10:30:00 AM
Dil. Factor:	2.50	Date of Analysis:	11/13/21 05:02 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.25	Not Detected	0.64	Not Detected
1,1-Dichloroethene	0.25	Not Detected	0.99	Not Detected
cis-1,2-Dichloroethene	0.25	8.5	0.99	34
Trichloroethene	0.25	68	1.3	370
Tetrachloroethene	0.25	3.6	1.7	25

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	81	70-130

Client Sample ID: VMWG-110221

Lab ID#: 2111074-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111315	Date of Collection:	11/2/21 10:50:00 AM
Dil. Factor:	2.03	Date of Analysis:	11/13/21 05:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.20	Not Detected	0.52	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.80	Not Detected
cis-1,2-Dichloroethene	0.20	2.8	0.80	11
Trichloroethene	0.20	15	1.1	81
Tetrachloroethene	0.20	1.4	1.4	9.8

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	88	70-130

Client Sample ID: VMWF-110221

Lab ID#: 2111074-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111316	Date of Collection:	11/2/21 11:10:00 AM
Dil. Factor:	1.80	Date of Analysis:	11/13/21 06:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.18	Not Detected	0.46	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.71	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
Trichloroethene	0.18	Not Detected	0.97	Not Detected
Tetrachloroethene	0.18	Not Detected	1.2	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	90	70-130

Client Sample ID: VMWE-110221

Lab ID#: 2111074-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111317	Date of Collection: 11/2/21 11:22:00 AM
Dil. Factor:	9.00	Date of Analysis: 11/13/21 06:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.90	Not Detected	2.3	Not Detected
1,1-Dichloroethene	0.90	Not Detected	3.6	Not Detected
cis-1,2-Dichloroethene	0.90	15	3.6	59
Trichloroethene	0.90	220	4.8	1200
Tetrachloroethene	0.90	12	6.1	83

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	91	70-130

Client Sample ID: VMWC-110221

Lab ID#: 2111074-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111318	Date of Collection:	11/2/21 11:45:00 AM
Dil. Factor:	9.75	Date of Analysis:	11/13/21 07:31 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.98	Not Detected	2.5	Not Detected
1,1-Dichloroethene	0.98	Not Detected	3.9	Not Detected
cis-1,2-Dichloroethene	0.98	11	3.9	44
Trichloroethene	0.98	240	5.2	1300
Tetrachloroethene	0.98	13	6.6	86

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	90	70-130

Client Sample ID: VMWH-110221

Lab ID#: 2111074-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111319	Date of Collection:	11/2/21 12:00:00 PM
Dil. Factor:	3.92	Date of Analysis:	11/13/21 08:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.39	Not Detected	1.0	Not Detected
1,1-Dichloroethene	0.39	Not Detected	1.6	Not Detected
cis-1,2-Dichloroethene	0.39	18	1.6	72
Trichloroethene	0.39	110	2.1	590
Tetrachloroethene	0.39	3.1	2.6	21

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	84	70-130

Client Sample ID: Lab Blank

Lab ID#: 2111074-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111207a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/12/21 10:58 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	86	70-130

Client Sample ID: Lab Blank

Lab ID#: 2111074-08B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111307c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/13/21 12:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	121	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	89	70-130

Client Sample ID: CCV

Lab ID#: 2111074-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/12/21 07:00 AM

Compound	%Recovery
Vinyl Chloride	103
1,1-Dichloroethene	106
cis-1,2-Dichloroethene	106
Trichloroethene	105
Tetrachloroethene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	111	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: CCV

Lab ID#: 2111074-09B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/13/21 10:11 AM

Compound	%Recovery
Vinyl Chloride	98
1,1-Dichloroethene	103
cis-1,2-Dichloroethene	102
Trichloroethene	111
Tetrachloroethene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	114	70-130
4-Bromofluorobenzene	93	70-130

Client Sample ID: LCS

Lab ID#: 2111074-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/12/21 07:37 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	109	70-130
1,1-Dichloroethene	110	70-130
cis-1,2-Dichloroethene	109	70-130
Trichloroethene	105	70-130
Tetrachloroethene	102	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: LCSD

Lab ID#: 2111074-10AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/12/21 08:15 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	105	70-130
1,1-Dichloroethene	104	70-130
cis-1,2-Dichloroethene	106	70-130
Trichloroethene	102	70-130
Tetrachloroethene	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 2111074-10B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/13/21 10:49 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	106	70-130
1,1-Dichloroethene	104	70-130
cis-1,2-Dichloroethene	105	70-130
Trichloroethene	105	70-130
Tetrachloroethene	106	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	112	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: LCSD

Lab ID#: 2111074-10BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21111305	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/13/21 11:26 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	107	70-130
1,1-Dichloroethene	110	70-130
cis-1,2-Dichloroethene	110	70-130
Trichloroethene	104	70-130
Tetrachloroethene	104	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	109	70-130
4-Bromofluorobenzene	94	70-130