

6/16/2021

Ms. Michelle Myers
GeoSyntec Consultants
3043 Gold Canal Drive, Suite 100

Rancho Cordova CA 95670

Project Name: Cascade SVE

Project #:

Workorder #: 2106089

Dear Ms. Michelle Myers

The following report includes the data for the above referenced project for sample(s) received on 6/3/2021 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 #: 2106089

Work Order Summary

CLIENT:	Ms. Michelle Myers GeoSyntec Consultants 3043 Gold Canal Drive, Suite 100 Rancho Cordova, CA 95670	BILL TO:	Accounts Payable Cascade Corporation 2201 NE 201st Avenue Fairview, OR 97024
PHONE:	916-637-8338	P.O. #	
FAX:		PROJECT #	Cascade SVE
DATE RECEIVED:	06/03/2021	CONTACT:	Monica Tran
DATE COMPLETED:	06/16/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMWI-060121	Modified TO-15	6.5 "Hg	9.8 psi
02A	VMWJ2-060121	Modified TO-15	6.7 "Hg	9.8 psi
03A	VMWK-060121	Modified TO-15	5.7 "Hg	10 psi
04A	VMWL-060121	Modified TO-15	5.9 "Hg	10 psi
05A	VMWM-060121	Modified TO-15	6.9 "Hg	10 psi
06A	VMWN-060121	Modified TO-15	6.5 "Hg	10 psi
07A	Lab Blank	Modified TO-15	NA	NA
07B	Lab Blank	Modified TO-15	NA	NA
07C	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
08B	CCV	Modified TO-15	NA	NA
08C	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA
09B	LCS	Modified TO-15	NA	NA
09BB	LCSD	Modified TO-15	NA	NA
09C	LCS	Modified TO-15	NA	NA
09CC	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/16/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.

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# 2106089

Six 1 Liter Summa Canister (100% Certified) samples were received on June 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	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> 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

Sample VMWK-060121 was transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

Dilution was performed on samples VMWJ2-060121, VMWK-060121 and VMWN-060121 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: VMWI-060121

Lab ID#: 2106089-01A

No Detections Were Found.

Client Sample ID: VMWJ2-060121

Lab ID#: 2106089-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	2.2	18	8.5	74
Trichloroethene	2.2	460	12	2500
Tetrachloroethene	2.2	35	14	240

Client Sample ID: VMWK-060121

Lab ID#: 2106089-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	10	110	41	450
Trichloroethene	10	1700	56	9300
Tetrachloroethene	10	91	70	620

Client Sample ID: VMWL-060121

Lab ID#: 2106089-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.21	0.28	0.53	0.73
cis-1,2-Dichloroethene	0.21	0.33	0.83	1.3
Trichloroethene	0.21	2.1	1.1	11
Tetrachloroethene	0.21	0.41	1.4	2.8

Client Sample ID: VMWM-060121

Lab ID#: 2106089-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.22	0.23	0.56	0.58
cis-1,2-Dichloroethene	0.22	5.6	0.86	22
Trichloroethene	0.22	53	1.2	280

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

Client Sample ID: VMWM-060121

Lab ID#: 2106089-05A

Tetrachloroethene	0.22	2.7	1.5	18
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Client Sample ID: VMWN-060121

Lab ID#: 2106089-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.36	7.5	1.4	30
Trichloroethene	0.36	78	1.9	420
Tetrachloroethene	0.36	4.5	2.4	30

Client Sample ID: VMWI-060121

Lab ID#: 2106089-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061108	Date of Collection: 6/1/21 1:20:00 PM
Dil. Factor:	2.13	Date of Analysis: 6/11/21 12:30 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.21	Not Detected	0.54	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.84	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Trichloroethene	0.21	Not Detected	1.1	Not Detected
Tetrachloroethene	0.21	Not Detected	1.4	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	93	70-130

Client Sample ID: VMWJ2-060121

Lab ID#: 2106089-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061109	Date of Collection:	6/1/21 1:52:00 PM
Dil. Factor:	21.5	Date of Analysis:	6/11/21 02:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	2.2	Not Detected	5.5	Not Detected
1,1-Dichloroethene	2.2	Not Detected	8.5	Not Detected
cis-1,2-Dichloroethene	2.2	18	8.5	74
Trichloroethene	2.2	460	12	2500
Tetrachloroethene	2.2	35	14	240

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	88	70-130

Client Sample ID: VMWK-060121

Lab ID#: 2106089-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a061427	Date of Collection:	6/1/21 2:12:00 PM
Dil. Factor:	20.7	Date of Analysis:	6/15/21 01:47 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	10	Not Detected	26	Not Detected
1,1-Dichloroethene	10	Not Detected	41	Not Detected
cis-1,2-Dichloroethene	10	110	41	450
Trichloroethene	10	1700	56	9300
Tetrachloroethene	10	91	70	620

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

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	92	70-130

Client Sample ID: VMWL-060121

Lab ID#: 2106089-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061407	Date of Collection:	6/1/21 2:38:00 PM
Dil. Factor:	2.09	Date of Analysis:	6/14/21 12:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.21	0.28	0.53	0.73
1,1-Dichloroethene	0.21	Not Detected	0.83	Not Detected
cis-1,2-Dichloroethene	0.21	0.33	0.83	1.3
Trichloroethene	0.21	2.1	1.1	11
Tetrachloroethene	0.21	0.41	1.4	2.8

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	89	70-130

Client Sample ID: VMWM-060121

Lab ID#: 2106089-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061408	Date of Collection:	6/1/21 3:04:00 PM
Dil. Factor:	2.18	Date of Analysis:	6/14/21 01:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.22	0.23	0.56	0.58
1,1-Dichloroethene	0.22	Not Detected	0.86	Not Detected
cis-1,2-Dichloroethene	0.22	5.6	0.86	22
Trichloroethene	0.22	53	1.2	280
Tetrachloroethene	0.22	2.7	1.5	18

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	88	70-130

Client Sample ID: VMWN-060121

Lab ID#: 2106089-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061409	Date of Collection:	6/1/21 3:30:00 PM
Dil. Factor:	3.58	Date of Analysis:	6/14/21 02:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.36	Not Detected	0.92	Not Detected
1,1-Dichloroethene	0.36	Not Detected	1.4	Not Detected
cis-1,2-Dichloroethene	0.36	7.5	1.4	30
Trichloroethene	0.36	78	1.9	420
Tetrachloroethene	0.36	4.5	2.4	30

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	93	70-130

Client Sample ID: Lab Blank

Lab ID#: 2106089-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061107a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/11/21 11:30 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	106	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	92	70-130

Client Sample ID: Lab Blank

Lab ID#: 2106089-07B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061406a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/14/21 10:55 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	103	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	87	70-130

Client Sample ID: Lab Blank

Lab ID#: 2106089-07C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a061407d	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/14/21 12:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	90	70-130

Client Sample ID: CCV

Lab ID#: 2106089-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061102	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/11/21 06:54 AM

Compound	%Recovery
Vinyl Chloride	94
1,1-Dichloroethene	101
cis-1,2-Dichloroethene	104
Trichloroethene	100
Tetrachloroethene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	91	70-130



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Client Sample ID: CCV

Lab ID#: 2106089-08B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/14/21 07:36 AM

Compound	%Recovery
Vinyl Chloride	89
1,1-Dichloroethene	98
cis-1,2-Dichloroethene	98
Trichloroethene	106
Tetrachloroethene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	112	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: CCV

Lab ID#: 2106089-08C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a061405	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/14/21 09:38 AM

Compound	%Recovery
Vinyl Chloride	114
1,1-Dichloroethene	96
cis-1,2-Dichloroethene	109
Trichloroethene	104
Tetrachloroethene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: LCS

Lab ID#: 2106089-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/11/21 08:03 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	98	70-130
1,1-Dichloroethene	107	70-130
cis-1,2-Dichloroethene	106	70-130
Trichloroethene	103	70-130
Tetrachloroethene	102	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: LCSD

Lab ID#: 2106089-09AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061104	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/11/21 08:41 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	99	70-130
1,1-Dichloroethene	104	70-130
cis-1,2-Dichloroethene	105	70-130
Trichloroethene	105	70-130
Tetrachloroethene	87	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	91	70-130

Client Sample ID: LCS

Lab ID#: 2106089-09B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061403	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/14/21 08:49 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	96	70-130
1,1-Dichloroethene	102	70-130
cis-1,2-Dichloroethene	102	70-130
Trichloroethene	108	70-130
Tetrachloroethene	109	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	93	70-130

Client Sample ID: LCSD

Lab ID#: 2106089-09BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21061404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/14/21 09:26 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	96	70-130
1,1-Dichloroethene	105	70-130
cis-1,2-Dichloroethene	104	70-130
Trichloroethene	104	70-130
Tetrachloroethene	107	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCS

Lab ID#: 2106089-09C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a061403	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/14/21 08:28 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	109	70-130
1,1-Dichloroethene	94	70-130
cis-1,2-Dichloroethene	107	70-130
Trichloroethene	102	70-130
Tetrachloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	94	70-130

Client Sample ID: LCSD

Lab ID#: 2106089-09CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a061404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/14/21 08:53 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	114	70-130
1,1-Dichloroethene	97	70-130
cis-1,2-Dichloroethene	110	70-130
Trichloroethene	102	70-130
Tetrachloroethene	103	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	96	70-130