

3/1/2024

Mr. Lucas Henry

GeoSyntec Consultants

920 SW Sixth Avenue, Suite 600

Portland OR 97204

Project Name: Cascade

Project #: PNG0564S23/02/01

Workorder #: 2402340

Dear Mr. Lucas Henry

The following report includes the data for the above referenced project for sample(s) received on 2/14/2024 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 #: 2402340

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 #	PNG0564S23/02/01 Cascade
DATE RECEIVED:	02/14/2024	CONTACT:	Monica Tran
DATE COMPLETED:	02/24/2024		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVE-EFF-021324	Modified TO-15	4.9 "Hg	10 psi
02A	VW-17d-95.5-021324	Modified TO-15	3.7 "Hg	9.9 psi
03A	VMWE-021324	Modified TO-15	4.3 "Hg	10 psi
04A	VMWF-021324	Modified TO-15	4.3 "Hg	9.9 psi
05A	VMWG-021324	Modified TO-15	5.3 "Hg	9.9 psi
06A	VMWJ2-021324	Modified TO-15	7.8 "Hg	10 psi
07A	VMWK-021324	Modified TO-15	5.1 "Hg	10 psi
08A	VMWC-021324	Modified TO-15	4.3 "Hg	10 psi
09A	VMWH-021324	Modified TO-15	5.1 "Hg	9.8 psi
10A	Lab Blank	Modified TO-15	NA	NA
10B	Lab Blank	Modified TO-15	NA	NA
11A	CCV	Modified TO-15	NA	NA
11B	CCV	Modified TO-15	NA	NA
12A	LCS	Modified TO-15	NA	NA
12AA	LCSD	Modified TO-15	NA	NA
12B	LCS	Modified TO-15	NA	NA
12BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 02/24/24

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

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 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000

LABORATORY NARRATIVE
Modified TO-15
GeoSyntec Consultants
Workorder# 2402340

Nine 1 Liter Summa Canister (100% Certified) samples were received on February 14, 2024. 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-021324, VMWE-021324, VMWJ2-021324 and VMWK-021324 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-021324

Lab ID#: 2402340-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.40	8.6	1.6	34
Trichloroethene	0.40	91	2.2	490
Tetrachloroethene	0.40	4.2	2.7	28

Client Sample ID: VW-17d-95.5-021324

Lab ID#: 2402340-02A

No Detections Were Found.

Client Sample ID: VMWE-021324

Lab ID#: 2402340-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.98	12	3.9	50
Trichloroethene	0.98	180	5.3	970
Tetrachloroethene	0.98	8.7	6.6	59

Client Sample ID: VMWF-021324

Lab ID#: 2402340-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.20	1.1	0.77	4.4
Trichloroethene	0.20	6.0	1.0	32
Tetrachloroethene	0.20	2.0	1.3	14

Client Sample ID: VMWG-021324

Lab ID#: 2402340-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.25	7.3	1.0	29
Trichloroethene	0.25	48	1.4	260
Tetrachloroethene	0.25	3.3	1.7	23

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

Client Sample ID: VMWJ2-021324

Lab ID#: 2402340-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.38	6.6	1.5	26
Trichloroethene	0.38	83	2.0	450
Tetrachloroethene	0.38	3.7	2.6	25

Client Sample ID: VMWK-021324

Lab ID#: 2402340-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.0	26	4.0	100
Trichloroethene	1.0	250	5.4	1300
Tetrachloroethene	1.0	8.7	6.8	59

Client Sample ID: VMWC-021324

Lab ID#: 2402340-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.20	0.71	0.78	2.8
Trichloroethene	0.20	9.2	1.0	50
Tetrachloroethene	0.20	1.2	1.3	8.1

Client Sample ID: VMWH-021324

Lab ID#: 2402340-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.20	2.4	0.80	9.6
Trichloroethene	0.20	7.6	1.1	41
Tetrachloroethene	0.20	0.27	1.4	1.8



Air Toxics

Client Sample ID: SVE-EFF-021324

Lab ID#: 2402340-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022011	Date of Collection:	2/13/24 10:15:00 AM
Dil. Factor:	4.02	Date of Analysis:	2/20/24 04:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.40	Not Detected	1.0	Not Detected
1,1-Dichloroethene	0.40	Not Detected	1.6	Not Detected
cis-1,2-Dichloroethene	0.40	8.6	1.6	34
Trichloroethene	0.40	91	2.2	490
Tetrachloroethene	0.40	4.2	2.7	28

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	109	70-130
4-Bromofluorobenzene	82	70-130



Air Toxics

Client Sample ID: VW-17d-95.5-021324

Lab ID#: 2402340-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022012	Date of Collection:	2/13/24 10:34:00 AM	
Dil. Factor:	1.91	Date of Analysis:	2/20/24 05:03 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.19	Not Detected	0.49	Not Detected
1,1-Dichloroethene	0.19	Not Detected	0.76	Not Detected
cis-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected
Trichloroethene	0.19	Not Detected	1.0	Not Detected
Tetrachloroethene	0.19	Not Detected	1.3	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	82	70-130

Client Sample ID: VMWE-021324

Lab ID#: 2402340-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022110	Date of Collection:	2/13/24 11:10:00 AM
Dil. Factor:	9.81	Date of Analysis:	2/21/24 03:29 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	12	3.9	50
Trichloroethene	0.98	180	5.3	970
Tetrachloroethene	0.98	8.7	6.6	59

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	78	70-130

Client Sample ID: VMWF-021324

Lab ID#: 2402340-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022107	Date of Collection: 2/13/24 11:18:00 AM
Dil. Factor:	1.95	Date of Analysis: 2/21/24 12:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.20	Not Detected	0.50	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.77	Not Detected
cis-1,2-Dichloroethene	0.20	1.1	0.77	4.4
Trichloroethene	0.20	6.0	1.0	32
Tetrachloroethene	0.20	2.0	1.3	14

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	79	70-130

Client Sample ID: VMWG-021324

Lab ID#: 2402340-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022111	Date of Collection:	2/13/24 11:42:00 AM
Dil. Factor:	2.54	Date of Analysis:	2/21/24 04:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.25	Not Detected	0.65	Not Detected
1,1-Dichloroethene	0.25	Not Detected	1.0	Not Detected
cis-1,2-Dichloroethene	0.25	7.3	1.0	29
Trichloroethene	0.25	48	1.4	260
Tetrachloroethene	0.25	3.3	1.7	23

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	79	70-130

Client Sample ID: VMWJ2-021324

Lab ID#: 2402340-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022113	Date of Collection: 2/13/24 12:00:00 PM
Dil. Factor:	3.78	Date of Analysis: 2/21/24 05:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.38	Not Detected	0.97	Not Detected
1,1-Dichloroethene	0.38	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.38	6.6	1.5	26
Trichloroethene	0.38	83	2.0	450
Tetrachloroethene	0.38	3.7	2.6	25

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	80	70-130

Client Sample ID: VMWK-021324

Lab ID#: 2402340-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022112	Date of Collection: 2/13/24 12:26:00 PM
Dil. Factor:	10.1	Date of Analysis: 2/21/24 04:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
cis-1,2-Dichloroethene	1.0	26	4.0	100
Trichloroethene	1.0	250	5.4	1300
Tetrachloroethene	1.0	8.7	6.8	59

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	88	70-130

Client Sample ID: VMWC-021324

Lab ID#: 2402340-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022108	Date of Collection:	2/13/24 12:54:00 PM
Dil. Factor:	1.96	Date of Analysis:	2/21/24 02:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.20	Not Detected	0.50	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.78	Not Detected
cis-1,2-Dichloroethene	0.20	0.71	0.78	2.8
Trichloroethene	0.20	9.2	1.0	50
Tetrachloroethene	0.20	1.2	1.3	8.1

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	77	70-130

Client Sample ID: VMWH-021324

Lab ID#: 2402340-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022109	Date of Collection:	2/13/24 1:20:00 PM
Dil. Factor:	2.01	Date of Analysis:	2/21/24 02:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.20	Not Detected	0.51	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.80	Not Detected
cis-1,2-Dichloroethene	0.20	2.4	0.80	9.6
Trichloroethene	0.20	7.6	1.1	41
Tetrachloroethene	0.20	0.27	1.4	1.8

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	80	70-130

Client Sample ID: Lab Blank

Lab ID#: 2402340-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022006c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/20/24 11:55 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	110	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	83	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2402340-10B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022106d	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/21/24 11:52 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	109	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	84	70-130

Client Sample ID: CCV

Lab ID#: 2402340-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/20/24 08:30 AM

Compound	%Recovery
Vinyl Chloride	103
1,1-Dichloroethene	107
cis-1,2-Dichloroethene	103
Trichloroethene	108
Tetrachloroethene	95

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2402340-11B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022102	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/21/24 08:30 AM

Compound	%Recovery
Vinyl Chloride	100
1,1-Dichloroethene	107
cis-1,2-Dichloroethene	105
Trichloroethene	103
Tetrachloroethene	89

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCS

Lab ID#: 2402340-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/20/24 09:18 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	99	70-130
1,1-Dichloroethene	105	70-130
cis-1,2-Dichloroethene	101	70-130
Trichloroethene	104	70-130
Tetrachloroethene	94	70-130

Container Type: NA - Not Applicable

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

Client Sample ID: LCSD

Lab ID#: 2402340-12AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/20/24 09:57 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	100	70-130
1,1-Dichloroethene	103	70-130
cis-1,2-Dichloroethene	100	70-130
Trichloroethene	102	70-130
Tetrachloroethene	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: LCS

Lab ID#: 2402340-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/21/24 09:36 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	99	70-130
1,1-Dichloroethene	106	70-130
cis-1,2-Dichloroethene	103	70-130
Trichloroethene	98	70-130
Tetrachloroethene	87	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: LCSD

Lab ID#: 2402340-12BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20022104	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/21/24 10:14 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	101	70-130
1,1-Dichloroethene	108	70-130
cis-1,2-Dichloroethene	103	70-130
Trichloroethene	98	70-130
Tetrachloroethene	88	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	102	70-130