

5/29/2024

Mr. Lucas Henry

GeoSyntec Consultants

920 SW Sixth Avenue, Suite 600

Portland OR 97204

Project Name: Cascade

Project #: PNG0564S23/02/01

Workorder #: 2405329

Dear Mr. Lucas Henry

The following report includes the data for the above referenced project for sample(s) received on 5/15/2024 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 #: 2405329

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. #	0564S24
FAX:	503-242-1416	PROJECT #	PNG0564S23/02/01 Cascade
DATE RECEIVED:	05/15/2024	CONTACT:	Monica Tran
DATE COMPLETED:	05/29/2024		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVE-EFF-051424	Modified TO-15	5.5 "Hg	9.7 psi
02A	VW17d-95.5-051424	Modified TO-15	6.1 "Hg	9.6 psi
03A	VMWJ2-051424	Modified TO-15	6.1 "Hg	10 psi
04A	VMWK-051424	Modified TO-15	6.5 "Hg	10.1 psi
05A	VMWC-051424	Modified TO-15	6.1 "Hg	10 psi
06A	VMWE-051424	Modified TO-15	5.9 "Hg	9.9 psi
07A	VMWF-051424	Modified TO-15	6.1 "Hg	9.8 psi
08A	VMWG-051424	Modified TO-15	6.5 "Hg	9.7 psi
09A	VMWH-051424	Modified TO-15	6.7 "Hg	9.9 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	LCS	Modified TO-15	NA	NA
12B	LCS	Modified TO-15	NA	NA
12BB	LCS	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 05/29/24

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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 (916) 985-1000

LABORATORY NARRATIVE
Modified TO-15
GeoSyntec Consultants
Workorder# 2405329

Nine 1 Liter Summa Canister (100% Certified) samples were received on May 15, 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-051424, VMWJ2-051424, VMWK-051424 and VMWE-051424 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-051424

Lab ID#: 2405329-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.51	9.5	2.0	38
Trichloroethene	0.51	73	2.7	390
Tetrachloroethene	0.51	4.8	3.4	32

Client Sample ID: VW17d-95.5-051424

Lab ID#: 2405329-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.21	0.92	1.1	5.0
Tetrachloroethene	0.21	0.26	1.4	1.8

Client Sample ID: VMWJ2-051424

Lab ID#: 2405329-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.35	6.2	1.4	25
Trichloroethene	0.35	51	1.9	280
Tetrachloroethene	0.35	3.3	2.4	23

Client Sample ID: VMWK-051424

Lab ID#: 2405329-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.1	23	4.3	90
Trichloroethene	1.1	200	5.8	1000
Tetrachloroethene	1.1	8.1	7.3	55

Client Sample ID: VMWC-051424

Lab ID#: 2405329-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.21	0.61	0.84	2.4

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

Client Sample ID: VMWC-051424

Lab ID#: 2405329-05A

Trichloroethene	0.21	6.9	1.1	37
Tetrachloroethene	0.21	1.2	1.4	8.3

Client Sample ID: VMWE-051424

Lab ID#: 2405329-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.69	15	2.8	61
Trichloroethene	0.69	170	3.7	930
Tetrachloroethene	0.69	9.8	4.7	66

Client Sample ID: VMWF-051424

Lab ID#: 2405329-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.21	1.5	0.83	5.9
Trichloroethene	0.21	9.0	1.1	48
Tetrachloroethene	0.21	2.3	1.4	16

Client Sample ID: VMWG-051424

Lab ID#: 2405329-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.21	0.44	1.4	3.0

Client Sample ID: VMWH-051424

Lab ID#: 2405329-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.22	2.2	0.85	8.8
Trichloroethene	0.22	5.8	1.2	31
Tetrachloroethene	0.22	0.31	1.4	2.1

Client Sample ID: SVE-EFF-051424

Lab ID#: 2405329-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052321	Date of Collection:	5/14/24 2:00:00 PM
Dil. Factor:	5.08	Date of Analysis:	5/23/24 09:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.51	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.51	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.51	9.5	2.0	38
Trichloroethene	0.51	73	2.7	390
Tetrachloroethene	0.51	4.8	3.4	32

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	91	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: VW17d-95.5-051424

Lab ID#: 2405329-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052316	Date of Collection:	5/14/24 2:12:00 PM
Dil. Factor:	2.07	Date of Analysis:	5/23/24 06:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.21	Not Detected	0.53	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.82	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.82	Not Detected
Trichloroethene	0.21	0.92	1.1	5.0
Tetrachloroethene	0.21	0.26	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	90	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: VMWJ2-051424

Lab ID#: 2405329-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052322	Date of Collection: 5/14/24 2:24:00 PM
Dil. Factor:	3.52	Date of Analysis: 5/23/24 10:35 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.35	Not Detected	0.90	Not Detected
1,1-Dichloroethene	0.35	Not Detected	1.4	Not Detected
cis-1,2-Dichloroethene	0.35	6.2	1.4	25
Trichloroethene	0.35	51	1.9	280
Tetrachloroethene	0.35	3.3	2.4	23

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: VMWK-051424

Lab ID#: 2405329-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	60052817	Date of Collection:	5/14/24 3:00:00 PM
Dil. Factor:	10.8	Date of Analysis:	5/28/24 11:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	23	4.3	90
Trichloroethene	1.1	200	5.8	1000
Tetrachloroethene	1.1	8.1	7.3	55

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	83	70-130

Client Sample ID: VMWC-051424

Lab ID#: 2405329-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052317	Date of Collection:	5/14/24 2:40:00 PM
Dil. Factor:	2.11	Date of Analysis:	5/23/24 07:01 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	0.61	0.84	2.4
Trichloroethene	0.21	6.9	1.1	37
Tetrachloroethene	0.21	1.2	1.4	8.3

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: VMWE-051424

Lab ID#: 2405329-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	60052816	Date of Collection:	5/14/24 3:45:00 PM
Dil. Factor:	6.94	Date of Analysis:	5/28/24 10:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.69	Not Detected	1.8	Not Detected
1,1-Dichloroethene	0.69	Not Detected	2.8	Not Detected
cis-1,2-Dichloroethene	0.69	15	2.8	61
Trichloroethene	0.69	170	3.7	930
Tetrachloroethene	0.69	9.8	4.7	66

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	94	70-130

Client Sample ID: VMWF-051424

Lab ID#: 2405329-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052318	Date of Collection:	5/14/24 4:00:00 PM
Dil. Factor:	2.09	Date of Analysis:	5/23/24 08:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.21	Not Detected	0.53	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.83	Not Detected
cis-1,2-Dichloroethene	0.21	1.5	0.83	5.9
Trichloroethene	0.21	9.0	1.1	48
Tetrachloroethene	0.21	2.3	1.4	16

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: VMWG-051424

Lab ID#: 2405329-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052319	Date of Collection:	5/14/24 4:20:00 PM
Dil. Factor:	2.12	Date of Analysis:	5/23/24 08:43 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	0.44	1.4	3.0

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	88	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: VMWH-051424

Lab ID#: 2405329-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052320	Date of Collection:	5/14/24 3:18:00 PM
Dil. Factor:	2.15	Date of Analysis:	5/23/24 09:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.22	Not Detected	0.55	Not Detected
1,1-Dichloroethene	0.22	Not Detected	0.85	Not Detected
cis-1,2-Dichloroethene	0.22	2.2	0.85	8.8
Trichloroethene	0.22	5.8	1.2	31
Tetrachloroethene	0.22	0.31	1.4	2.1

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	89	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2405329-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052306a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/23/24 11:43 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	107	70-130
Toluene-d8	87	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2405329-10B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	60052808c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/28/24 02:10 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	113	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	86	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2405329-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/23/24 08:45 AM

Compound	%Recovery
Vinyl Chloride	122
1,1-Dichloroethene	102
cis-1,2-Dichloroethene	103
Trichloroethene	97
Tetrachloroethene	89

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: CCV

Lab ID#: 2405329-11B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	60052803	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/28/24 09:54 AM

Compound	%Recovery
Vinyl Chloride	108
1,1-Dichloroethene	102
cis-1,2-Dichloroethene	102
Trichloroethene	102
Tetrachloroethene	105

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	110	70-130

Client Sample ID: LCS

Lab ID#: 2405329-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/23/24 09:31 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	120	70-130
1,1-Dichloroethene	100	70-130
cis-1,2-Dichloroethene	105	70-130
Trichloroethene	96	70-130
Tetrachloroethene	94	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2405329-12AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	22052304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/23/24 10:08 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	121	70-130
1,1-Dichloroethene	102	70-130
cis-1,2-Dichloroethene	107	70-130
Trichloroethene	96	70-130
Tetrachloroethene	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	91	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: LCS

Lab ID#: 2405329-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	60052804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/28/24 10:36 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	106	70-130
1,1-Dichloroethene	92	70-130
cis-1,2-Dichloroethene	97	70-130
Trichloroethene	102	70-130
Tetrachloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	104	70-130

Client Sample ID: LCSD

Lab ID#: 2405329-12BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	60052805	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/28/24 11:18 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	106	70-130
1,1-Dichloroethene	92	70-130
cis-1,2-Dichloroethene	100	70-130
Trichloroethene	100	70-130
Tetrachloroethene	97	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	99	70-130