

3/5/2018  
Mr. Gustan Taylor  
Arcadis U.S., Inc.  
28550 Cabot Dr.  
Suite 500  
Novi MI 48377

Project Name:  
Project #: MII001386.0001.00002  
Workorder #: 1802458

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 2/22/2018 at Air Toxics Ltd.

The data and associated QC analyzed by 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 Inc. 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: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott  
Project Manager

**WORK ORDER #: 1802458**

Work Order Summary

<b>CLIENT:</b>	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	<b>BILL TO:</b>	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
<b>PHONE:</b>	248.994.2294	<b>P.O. #</b>	MI001386.0001_AT_WA08
<b>FAX:</b>		<b>PROJECT #</b>	MII001386.0001.00002
<b>DATE RECEIVED:</b>	02/22/2018	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	03/05/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-01S-3.5 (021918)	TO-15	3.5 "Hg	15.2 psi
02A	SVMP-01D-7.0 (021918)	TO-15	3.3 "Hg	14.8 psi
03A	SVMP-07-3.5 (021918)	TO-15	3.5 "Hg	14.7 psi
04A	SVMP-19-3 (022018)	TO-15	0.6 "Hg	15.4 psi
05A	SVMP-18-3 (022018)	TO-15	3.5 "Hg	15.1 psi
06A	SVMP-23-3 (022018)	TO-15	1.6 "Hg	14.8 psi
07A	SVMP-24-4 (022118)	TO-15	5.3 "Hg	14.2 psi
08A	SVMP-06-4.5 (022118)	TO-15	3.9 "Hg	14.8 psi
09A	SVMP-05-4.5 (022118)	TO-15	1.4 "Hg	14.9 psi
10A	SVMP-04-3.5 (022118)	TO-15	4.9 "Hg	14.7 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 03/05/18  
 \_\_\_\_\_

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

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

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**Arcadis U.S., Inc.**  
**Workorder# 1802458**

Ten 1 Liter Summa Canister samples were received on February 22, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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.

**Receiving Notes**

There was a difference (greater than or equal to 5.0" Hg) between the measured canister receipt vacuum and that which was reported on the Chain of Custody (COC) for sample SVMP-19-3 (022018). A leak test indicated that the valve was functioning properly.

**Analytical Notes**

There were no analytical discrepancies.

**Definition of Data Qualifying Flags**

Ten 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.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

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 EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: SVMP-01S-3.5 (021918)**

**Lab ID#: 1802458-01A**

No Detections Were Found.

**Client Sample ID: SVMP-01D-7.0 (021918)**

**Lab ID#: 1802458-02A**

No Detections Were Found.

**Client Sample ID: SVMP-07-3.5 (021918)**

**Lab ID#: 1802458-03A**

No Detections Were Found.

**Client Sample ID: SVMP-19-3 (022018)**

**Lab ID#: 1802458-04A**

No Detections Were Found.

**Client Sample ID: SVMP-18-3 (022018)**

**Lab ID#: 1802458-05A**

No Detections Were Found.

**Client Sample ID: SVMP-23-3 (022018)**

**Lab ID#: 1802458-06A**

No Detections Were Found.

**Client Sample ID: SVMP-24-4 (022118)**

**Lab ID#: 1802458-07A**

No Detections Were Found.

**Client Sample ID: SVMP-06-4.5 (022118)**

**Lab ID#: 1802458-08A**

No Detections Were Found.

**Client Sample ID: SVMP-05-4.5 (022118)**

**Lab ID#: 1802458-09A**

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

**Client Sample ID: SVMP-05-4.5 (022118)**

**Lab ID#: 1802458-09A**

No Detections Were Found.

**Client Sample ID: SVMP-04-3.5 (022118)**

**Lab ID#: 1802458-10A**

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-01S-3.5 (021918)

Lab ID#: 1802458-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022317	Date of Collection:	2/19/18 9:40:00 AM
Dil. Factor:	2.30	Date of Analysis:	2/23/18 09:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-01D-7.0 (021918)

Lab ID#: 1802458-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022318	Date of Collection:	2/19/18 10:32:00 AM
Dil. Factor:	2.25	Date of Analysis:	2/23/18 10:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-07-3.5 (021918)

Lab ID#: 1802458-03A

EPA METHOD TO-15 GC/MS FULL SCAN

<b>File Name:</b>	<b>p022319</b>	<b>Date of Collection:</b> 2/19/18 12:25:00 PM
<b>Dil. Factor:</b>	<b>2.26</b>	<b>Date of Analysis:</b> 2/23/18 10:50 PM

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	96	70-130





Air Toxics

Client Sample ID: SVMP-19-3 (022018)

Lab ID#: 1802458-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022320	Date of Collection:	2/20/18 9:16:00 AM
Dil. Factor:	2.09	Date of Analysis:	2/23/18 11:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.6	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrachloroethene	1.0	Not Detected	7.1	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVMP-18-3 (022018)

Lab ID#: 1802458-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022321	Date of Collection:	2/20/18 10:52:00 AM
Dil. Factor:	2.29	Date of Analysis:	2/23/18 11:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: SVMP-23-3 (022018)

Lab ID#: 1802458-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022322	Date of Collection:	2/20/18 2:26:00 PM
Dil. Factor:	2.12	Date of Analysis:	2/24/18 12:08 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.2	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Trichloroethene	1.1	Not Detected	5.7	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.2	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-24-4 (022118)

Lab ID#: 1802458-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022323	Date of Collection:	2/21/18 8:52:00 AM
Dil. Factor:	2.39	Date of Analysis:	2/24/18 12:35 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: SVMP-06-4.5 (022118)

Lab ID#: 1802458-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022324	Date of Collection:	2/21/18 11:10:00 AM
Dil. Factor:	2.31	Date of Analysis:	2/24/18 01:01 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVMP-05-4.5 (022118)

Lab ID#: 1802458-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022325	Date of Collection:	2/21/18 12:11:00 PM
Dil. Factor:	2.11	Date of Analysis:	2/24/18 01:27 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.2	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.7	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Tetrachloroethene	1.0	Not Detected	7.2	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-04-3.5 (022118)

Lab ID#: 1802458-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022326	Date of Collection:	2/21/18 1:29:00 PM
Dil. Factor:	2.39	Date of Analysis:	2/24/18 01:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802458-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022306	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/23/18 01:12 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
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	94	70-130



Client Sample ID: CCV

Lab ID#: 1802458-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 09:57 AM

Compound	%Recovery
Vinyl Chloride	127
1,1-Dichloroethene	100
cis-1,2-Dichloroethene	91
Trichloroethene	108
trans-1,2-Dichloroethene	96
Tetrachloroethene	107
1,4-Dioxane	99

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1802458-13A

EPA METHOD TO-15 GC/MS FULL SCAN

<b>File Name:</b>	<b>p022303</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 2/23/18 10:21 AM</b>

<b>Compound</b>	<b>%Recovery</b>	<b>Method Limits</b>
Vinyl Chloride	125	70-130
1,1-Dichloroethene	103	70-130
cis-1,2-Dichloroethene	101	70-130
Trichloroethene	110	70-130
trans-1,2-Dichloroethene	85	70-130
Tetrachloroethene	107	70-130
1,4-Dioxane	103	70-130

Container Type: NA - Not Applicable

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCSD

Lab ID#: 1802458-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 10:47 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	130	70-130
1,1-Dichloroethene	103	70-130
cis-1,2-Dichloroethene	102	70-130
Trichloroethene	108	70-130
trans-1,2-Dichloroethene	85	70-130
Tetrachloroethene	107	70-130
1,4-Dioxane	105	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130