

11/29/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811416

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/20/2018 at Air Toxics Ltd.

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 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 #: 1811416

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/20/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/29/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400Belden-01_111518	Modified TO-15	4.1 "Hg	5.1 psi
02A	IAF-12400Belden-01_111518	Modified TO-15	5.7 "Hg	5.1 psi
03A	IAF-12400Belden-02_111518	Modified TO-15	4.3 "Hg	5 psi
04A	IAF-12400Belden-03_111518	Modified TO-15	6.9 "Hg	4.9 psi
05A	IAF-12400Belden-04_111518	Modified TO-15	1.8 "Hg	5.1 psi
06A	IAF-12400Belden-05_111518	Modified TO-15	4.5 "Hg	5.1 psi
07A	IAF-12400Belden-06_111518	Modified TO-15	5.5 "Hg	5.1 psi
08A	IAF-12400Belden-07_111518	Modified TO-15	7.1 "Hg	5.2 psi
09A	IAF-12400Belden-08_111518	Modified TO-15	8.6 "Hg	5.1 psi
10A	IAF-12400Belden-09_111518	Modified TO-15	4.3 "Hg	5.3 psi
11A	IAF-12400Belden-10_111518	Modified TO-15	5.9 "Hg	4.9 psi
12A	IAF-12400Belden-11_111518	Modified TO-15	4.5 "Hg	4.9 psi
13A	IAF-12400Belden-12_111518	Modified TO-15	4.7 "Hg	5.1 psi
14A	DUP-01	Modified TO-15	5.9 "Hg	5.1 psi
15A	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/29/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. 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
Arcadis U.S., Inc.
Workorder# 1811416

Fourteen 6 Liter Summa Canister (100% Certified) samples were received on November 20, 2018. The laboratory performed analysis via modified 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.

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

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on samples IAF-12400Belden-01_111518, IAF-12400Belden-02_111518, IAF-12400Belden-03_111518, IAF-12400Belden-04_111518, IAF-12400Belden-05_111518, IAF-12400Belden-06_111518, IAF-12400Belden-09_111518, IAF-12400Belden-10_111518, IAF-12400Belden-11_111518, IAF-12400Belden-12_111518 and DUP-01 due to the presence of high level target species.

Dilution was performed on samples IAF-12400Belden-07_111518 and IAF-12400Belden-08_111518 due to the presence of high level non-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

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400Belden-01_111518	Date/Time Analyzed:	11/21/18 10:14 AM
Lab ID:	1811416-01A	Dilution Factor:	1.56
Date/Time Collected:	11/15/18 03:43 PM	Instrument/Filename:	msd20.i / 20112106
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.32	0.56	0.62	Not Detected
1,4-Dioxane	123-91-1	0.43	0.50	0.56	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.25	0.56	0.62	Not Detected
Tetrachloroethene	127-18-4	0.60	0.95	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.56	0.62	Not Detected
Trichloroethene	79-01-6	0.33	0.75	0.84	Not Detected
Vinyl Chloride	75-01-4	0.23	0.36	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-01_111518	Date/Time Analyzed:	11/21/18 11:19 AM
Lab ID:	1811416-02A	Dilution Factor:	3.32
Date/Time Collected:	11/15/18 03:49 PM	Instrument/Filename:	msd20.i / 20112107
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.84	1.2	1.3	230
Trichloroethene	79-01-6	0.70	1.6	1.8	340
Vinyl Chloride	75-01-4	0.49	0.76	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	116
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-02_111518	Date/Time Analyzed:	11/21/18 12:14 PM
Lab ID:	1811416-03A	Dilution Factor:	3.12
Date/Time Collected:	11/15/18 04:24 PM	Instrument/Filename:	msd20.i / 20112108
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.65	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.86	1.0	1.1	0.87 J
cis-1,2-Dichloroethene	156-59-2	0.50	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.78	1.1	1.2	200
Trichloroethene	79-01-6	0.66	1.5	1.7	290
Vinyl Chloride	75-01-4	0.46	0.72	0.80	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	79
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-03_111518	Date/Time Analyzed:	11/21/18 01:08 PM
Lab ID:	1811416-04A	Dilution Factor:	3.46
Date/Time Collected:	11/15/18 04:29 PM	Instrument/Filename:	msd20.i / 20112109
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.72	1.2	1.4	Not Detected
1,4-Dioxane	123-91-1	0.95	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.2	1.4	Not Detected
Tetrachloroethene	127-18-4	1.3	2.1	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.87	1.2	1.4	220
Trichloroethene	79-01-6	0.73	1.7	1.8	320
Vinyl Chloride	75-01-4	0.51	0.80	0.88	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-04_111518	Date/Time Analyzed:	11/21/18 01:47 PM
Lab ID:	1811416-05A	Dilution Factor:	2.86
Date/Time Collected:	11/15/18 04:32 PM	Instrument/Filename:	msd20.i / 20112110
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.60	1.0	1.1	Not Detected
1,4-Dioxane	123-91-1	0.79	0.93	1.0	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.46	1.0	1.1	Not Detected
Tetrachloroethene	127-18-4	1.1	1.7	1.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.72	1.0	1.1	230
Trichloroethene	79-01-6	0.60	1.4	1.5	340
Vinyl Chloride	75-01-4	0.42	0.66	0.73	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	IAF-12400Belden-05_111518	Date/Time Analyzed:	11/21/18 02:26 PM
Lab ID:	1811416-06A	Dilution Factor:	3.16
Date/Time Collected:	11/15/18 04:34 PM	Instrument/Filename:	msd20.i / 20112111
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.87	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.51	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.2	220
Trichloroethene	79-01-6	0.66	1.5	1.7	320
Vinyl Chloride	75-01-4	0.47	0.73	0.81	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-06_111518	Date/Time Analyzed:	11/21/18 03:05 PM
Lab ID:	1811416-07A	Dilution Factor:	3.30
Date/Time Collected:	11/15/18 04:31 PM	Instrument/Filename:	msd20.i / 20112112
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.53	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.83	1.2	1.3	220
Trichloroethene	79-01-6	0.69	1.6	1.8	310
Vinyl Chloride	75-01-4	0.49	0.76	0.84	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	IAF-12400Belden-07_111518	Date/Time Analyzed:	11/21/18 03:44 PM
Lab ID:	1811416-08A	Dilution Factor:	3.56
Date/Time Collected:	11/15/18 04:35 PM	Instrument/Filename:	msd20.i / 20112113
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.74	1.3	1.4	Not Detected
1,4-Dioxane	123-91-1	0.98	1.2	1.3	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.58	1.3	1.4	Not Detected
Tetrachloroethene	127-18-4	1.4	2.2	2.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.90	1.3	1.4	190
Trichloroethene	79-01-6	0.75	1.7	1.9	270
Vinyl Chloride	75-01-4	0.52	0.82	0.91	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-08_111518	Date/Time Analyzed:	11/21/18 04:23 PM
Lab ID:	1811416-09A	Dilution Factor:	3.76
Date/Time Collected:	11/15/18 04:35 PM	Instrument/Filename:	msd20.i / 20112114
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.78	1.3	1.5	Not Detected
1,4-Dioxane	123-91-1	1.0	1.2	1.4	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.61	1.3	1.5	Not Detected
Tetrachloroethene	127-18-4	1.4	2.3	2.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.95	1.3	1.5	210
Trichloroethene	79-01-6	0.79	1.8	2.0	290
Vinyl Chloride	75-01-4	0.56	0.86	0.96	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	117
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-09_111518	Date/Time Analyzed:	11/21/18 05:02 PM
Lab ID:	1811416-10A	Dilution Factor:	3.18
Date/Time Collected:	11/15/18 04:37 PM	Instrument/Filename:	msd20.i / 20112115
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.3	Not Detected
1,4-Dioxane	123-91-1	0.87	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.1	1.3	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.3	220
Trichloroethene	79-01-6	0.67	1.5	1.7	310
Vinyl Chloride	75-01-4	0.47	0.73	0.81	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-10_111518	Date/Time Analyzed:	11/21/18 05:41 PM
Lab ID:	1811416-11A	Dilution Factor:	3.32
Date/Time Collected:	11/15/18 03:57 PM	Instrument/Filename:	msd20.i / 20112116
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.84	1.2	1.3	240
Trichloroethene	79-01-6	0.70	1.6	1.8	320
Vinyl Chloride	75-01-4	0.49	0.76	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-11_111518	Date/Time Analyzed:	11/21/18 06:20 PM
Lab ID:	1811416-12A	Dilution Factor:	3.14
Date/Time Collected:	11/15/18 04:09 PM	Instrument/Filename:	msd20.i / 20112117
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.86	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.51	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.79	1.1	1.2	210
Trichloroethene	79-01-6	0.66	1.5	1.7	300
Vinyl Chloride	75-01-4	0.46	0.72	0.80	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-12_111518	Date/Time Analyzed:	11/21/18 07:28 PM
Lab ID:	1811416-13A	Dilution Factor:	3.20
Date/Time Collected:	11/15/18 04:15 PM	Instrument/Filename:	msd20.i / 20112118
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.1	1.3	Not Detected
1,4-Dioxane	123-91-1	0.88	1.0	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.1	1.3	Not Detected
Tetrachloroethene	127-18-4	1.2	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.3	230
Trichloroethene	79-01-6	0.67	1.5	1.7	330
Vinyl Chloride	75-01-4	0.47	0.74	0.82	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-01	Date/Time Analyzed:	11/21/18 08:08 PM
Lab ID:	1811416-14A	Dilution Factor:	3.36
Date/Time Collected:	11/15/18 04:15 PM	Instrument/Filename:	msd20.i / 20112119
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.70	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.92	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.85	1.2	1.3	230
Trichloroethene	79-01-6	0.70	1.6	1.8	320
Vinyl Chloride	75-01-4	0.50	0.77	0.86	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	81
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/21/18 08:33 AM
Lab ID:	1811416-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112105
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.21	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.27	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.16	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.38	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.25	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.21	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.15	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/21/18 05:54 AM
Lab ID:	1811416-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	82
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	79

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	115
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/21/18 06:51 AM
Lab ID:	1811416-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	76
Tetrachloroethene	127-18-4	110
trans-1,2-Dichloroethene	156-60-5	97
Trichloroethene	79-01-6	109
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	76
4-Bromofluorobenzene	460-00-4	70-130	117
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/21/18 07:30 AM
Lab ID:	1811416-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	83
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	78
Tetrachloroethene	127-18-4	108
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	105
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	77
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



November 29, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1811416
Sample date: 2018-11-15
Report received by CADENA: 2018-11-29
Initial Data Verification completed by CADENA: 2018-11-29

14 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Qualifiers added during verification have been added to the electronic data which is available for download from the CADENA CLMS. Refer to the attached table of analytical results that have been qualified during verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

11/29/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811417

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/20/2018 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 #: 1811417

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/20/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/29/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	DUP-02	TO-15	3.1 "Hg	15 psi
02A	SSMP-12400Belden-02_111518	TO-15	3.1 "Hg	15 psi
03A	SSMP-12400Belden-04_111518	TO-15	5.5 "Hg	15 psi
04A	SSMP-12400Belden-06_111518	TO-15	3.7 "Hg	15 psi
05A	SSMP-12400Belden-08_111518	TO-15	3.9 "Hg	15 psi
06A	SSMP-12400Belden-10_111518	TO-15	3.3 "Hg	15 psi
07A	SSMP-12400Belden-12_111518	TO-15	3.3 "Hg	15 psi
08A	SSMP-12400Belden-03_111518	TO-15	4.1 "Hg	15 psi
09A	SSMP-12400Belden-05_111518	TO-15	3.5 "Hg	15 psi
10A	SSMP-12400Belden-07_111518	TO-15	4.3 "Hg	15 psi
11A	SSMP-12400Belden-09_111518	TO-15	5.1 "Hg	15 psi
12A	SSMP-12400Belden-11_111518	TO-15	3.7 "Hg	15 psi
13A	SSMP-12400Belden-01_111518	TO-15	3.3 "Hg	15 psi
14A	Lab Blank	TO-15	NA	NA
15A	CCV	TO-15	NA	NA
16A	LCS	TO-15	NA	NA
16AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/29/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

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

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1811417

Thirteen 1 Liter Summa Canister samples were received on November 20, 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

The Chain of Custody (COC) was not relinquished properly. A signature, date and time were not provided by the field sampler.

The Chain of Custody (COC) information for sample SSMP_12400Belden-10_111518 did not match the information on the canister with regard to canister barcode. The sample labeled 40866 on the COC is labeled as 40865 on the canister. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Dilution was performed on sample SSMP-12400Belden-11_111518 due to the presence of high level target species.

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

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-02	Date/Time Analyzed:	11/26/18 03:27 PM
Lab ID:	1811417-01A	Dilution Factor:	2.25
Date/Time Collected:	11/15/20 10:28 AM	Instrument/Filename:	msd17.i / 17112607
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.71	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.1	6.1	7.6	25
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	420
Trichloroethene	79-01-6	2.3	4.8	6.0	1100
Vinyl Chloride	75-01-4	0.69	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-02_111518	Date/Time Analyzed:	11/26/18 03:56 PM
Lab ID:	1811417-02A	Dilution Factor:	2.25
Date/Time Collected:	11/15/20 11:13 AM	Instrument/Filename:	msd17.i / 17112608
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.71	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.1	6.1	7.6	9.5
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	47
Trichloroethene	79-01-6	2.3	4.8	6.0	160
Vinyl Chloride	75-01-4	0.69	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-04_111518	Date/Time Analyzed:	11/26/18 04:24 PM
Lab ID:	1811417-03A	Dilution Factor:	2.47
Date/Time Collected:	11/15/20 11:53 AM	Instrument/Filename:	msd17.i / 17112609
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	3.9	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.78	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	6.7	8.4	2.7 J
trans-1,2-Dichloroethene	156-60-5	1.5	3.9	4.9	50
Trichloroethene	79-01-6	2.5	5.3	6.6	75
Vinyl Chloride	75-01-4	0.76	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	110

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-06_111518	Date/Time Analyzed:	11/26/18 04:52 PM
Lab ID:	1811417-04A	Dilution Factor:	2.30
Date/Time Collected:	11/15/20 12:27 PM	Instrument/Filename:	msd17.i / 17112610
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.6	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.73	3.6	4.6	Not Detected
Tetrachloroethene	127-18-4	1.1	6.2	7.8	20
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.6	190
Trichloroethene	79-01-6	2.3	4.9	6.2	520
Vinyl Chloride	75-01-4	0.70	2.4	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-08_111518	Date/Time Analyzed:	11/26/18 05:21 PM
Lab ID:	1811417-05A	Dilution Factor:	2.32
Date/Time Collected:	11/15/20 12:53 PM	Instrument/Filename:	msd17.i / 17112611
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.7	12	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.74	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.1	6.3	7.9	20
trans-1,2-Dichloroethene	156-60-5	1.4	3.7	4.6	260
Trichloroethene	79-01-6	2.4	5.0	6.2	730
Vinyl Chloride	75-01-4	0.71	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-10_111518	Date/Time Analyzed:	11/26/18 05:49 PM
Lab ID:	1811417-06A	Dilution Factor:	2.27
Date/Time Collected:	11/15/20 01:29 PM	Instrument/Filename:	msd17.i / 17112612
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.72	3.6	4.5	1.8 J
Tetrachloroethene	127-18-4	1.1	6.2	7.7	27
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	990
Trichloroethene	79-01-6	2.3	4.9	6.1	1700
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-12_111518	Date/Time Analyzed:	11/26/18 06:17 PM
Lab ID:	1811417-07A	Dilution Factor:	2.27
Date/Time Collected:	11/15/20 02:09 PM	Instrument/Filename:	msd17.i / 17112613
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.72	3.6	4.5	1.3 J
Tetrachloroethene	127-18-4	1.1	6.2	7.7	10
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	890
Trichloroethene	79-01-6	2.3	4.9	6.1	1700
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-03_111518	Date/Time Analyzed:	11/26/18 06:46 PM
Lab ID:	1811417-08A	Dilution Factor:	2.34
Date/Time Collected:	11/15/20 11:17 AM	Instrument/Filename:	msd17.i / 17112614
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.7	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.74	3.7	4.6	0.75 J
Tetrachloroethene	127-18-4	1.1	6.3	7.9	9.6
trans-1,2-Dichloroethene	156-60-5	1.4	3.7	4.6	160
Trichloroethene	79-01-6	2.4	5.0	6.3	380
Vinyl Chloride	75-01-4	0.72	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-05_111518	Date/Time Analyzed:	11/26/18 07:14 PM
Lab ID:	1811417-09A	Dilution Factor:	2.29
Date/Time Collected:	11/15/20 11:54 AM	Instrument/Filename:	msd17.i / 17112615
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.73	3.6	4.5	0.96 J
Tetrachloroethene	127-18-4	1.1	6.2	7.8	1.3 J
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	71
Trichloroethene	79-01-6	2.3	4.9	6.2	55
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-07_111518	Date/Time Analyzed:	11/26/18 10:38 PM
Lab ID:	1811417-10A	Dilution Factor:	2.36
Date/Time Collected:	11/15/20 12:23 PM	Instrument/Filename:	msd17.i / 17112617
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.7	4.7	Not Detected
1,4-Dioxane	123-91-1	3.7	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.75	3.7	4.7	Not Detected
Tetrachloroethene	127-18-4	1.1	6.4	8.0	8.8
trans-1,2-Dichloroethene	156-60-5	1.4	3.7	4.7	72
Trichloroethene	79-01-6	2.4	5.1	6.3	440
Vinyl Chloride	75-01-4	0.72	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-09_111518	Date/Time Analyzed:	11/26/18 11:06 PM
Lab ID:	1811417-11A	Dilution Factor:	2.43
Date/Time Collected:	11/15/20 12:56 PM	Instrument/Filename:	msd17.i / 17112618
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	3.3 J
1,4-Dioxane	123-91-1	3.8	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	3.8	4.8	52
Tetrachloroethene	127-18-4	1.2	6.6	8.2	1800
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	850
Trichloroethene	79-01-6	2.5	5.2	6.5	2000
Vinyl Chloride	75-01-4	0.74	2.5	3.1	2.4 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-11_111518	Date/Time Analyzed:	11/26/18 07:40 PM
Lab ID:	1811417-12A	Dilution Factor:	7.68
Date/Time Collected:	11/15/20 01:29 PM	Instrument/Filename:	msd17.i / 17112616
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	6.7	12	15	Not Detected
1,4-Dioxane	123-91-1	12	42	55	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.4	12	15	3.1 J
Tetrachloroethene	127-18-4	3.6	21	26	9.8 J
trans-1,2-Dichloroethene	156-60-5	4.6	12	15	3600
Trichloroethene	79-01-6	7.8	16	21	3300
Vinyl Chloride	75-01-4	2.4	7.8	9.8	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-01_111518	Date/Time Analyzed:	11/26/18 11:34 PM
Lab ID:	1811417-13A	Dilution Factor:	2.27
Date/Time Collected:	11/15/18 10:28 AM	Instrument/Filename:	msd17.i / 17112619
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.72	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.1	6.2	7.7	26
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	400
Trichloroethene	79-01-6	2.3	4.9	6.1	1200
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/26/18 01:12 PM
Lab ID:	1811417-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112606c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.47	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.31	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/26/18 10:57 AM
Lab ID:	1811417-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	87
1,4-Dioxane	123-91-1	126
cis-1,2-Dichloroethene	156-59-2	100
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	121
Vinyl Chloride	75-01-4	79

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	114

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/26/18 11:37 AM
Lab ID:	1811417-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	82
1,4-Dioxane	123-91-1	123
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	116
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	113

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/26/18 12:04 PM
Lab ID:	1811417-16AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112605
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	84
1,4-Dioxane	123-91-1	118
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	78

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	110

* % Recovery is calculated using unrounded analytical results.



November 29, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1811417
Sample date: 2018-11-15
Report received by CADENA: 2018-11-29
Initial Data Verification completed by CADENA: 2018-11-29

13 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Qualifiers added during verification have been added to the electronic data which is available for download from the CADENA CLMS. Refer to the attached table of analytical results that have been qualified during verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.