



Environmental Quality Office
Sustainability, Environment & Safety
Engineering

Ford Motor Company
Fairlane Plaza North
290 Town Center Drive, Suite 800
Dearborn, MI 48126

October 29, 2018

Catherine Coutts
Anthony Properties LLC
C/O Signature Associates, Inc.
1 Towne Square, Suite 1200
Southfield, MI 48076

**Re: Sampling Results for Anthony Properties LLC,
11889 Belden Court, Livonia, MI
Environmental Investigation
Ford Livonia Transmission Plant (LTP), Livonia, MI**

Dear Ms. Catherine Coutts:

Thank you for your cooperation in the environmental sampling being conducted by Ford Motor Company (Ford) under the oversight of the Michigan Department of Environmental Quality (MDEQ). This letter presents the results of the ambient air, indoor air, and sub-slab soil gas sampling that was conducted at **11889 Belden Court** on October 11 and 12, 2018.

Background: Environmental sampling was performed at **11889 Belden Court** in connection with the ongoing investigation at the Ford Livonia Transmission Plant located at 36200 Plymouth Road, Livonia, Michigan. The objective of the sampling was to evaluate the potential migration of vapors released from impacted groundwater into overlying buildings (a process called "vapor intrusion"). Samples were collected during normal business operations and analyzed for vinyl chloride (VC), 1,1-dichloroethene (1,1-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), trichloroethene (TCE), 1,4-dioxane (1,4-D) and tetrachloroethene (PCE). Please be aware that drinking water is not affected. Water comes from the Great Lakes Water Authority, not from groundwater in this area.

Your Sampling Results: The results for the ambient air (AA) and indoor air (IA) samples described below in **Table 1** indicate all samples are below nonresidential recommended interim action screening levels (RIASLs) from the MDEQ and are not considered to be harmful. A nonresidential indoor air screening value for 1,4-dioxane is not provided in the MDEQ RIASL table; a residential indoor air screening value provided by the MDEQ has been used in its place at this time. A nonresidential screening number for 1,4-dioxane has been requested from the MDEQ. Sample locations are identified on **Figure 1**.

We have also measured the soil gas under the foundation of the building (sub-slab soil gas). The results provided below in **Table 1** indicate that the samples collected are below the site-specific screening levels provided by the MDEQ. The locations of the sub-slab monitoring points (SSMPs) are provided in **Figure 1**.

The laboratory reports for the ambient air, indoor air, and sub-slab soil gas samples are included as **Attachment 1**.

TABLE 1 - SUMMARY OF SAMPLING RESULTS
11889 Belden Court
 October 11 and 12, 2018

All concentrations are presented in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Sample Location	VC	1,1-DCE	trans-1,2-DCE	cis-1,2-DCE	TCE	1,4-D	PCE
Ambient/Indoor Air Results							
AA-11889BELDENCT-01_101118	<0.38	<0.59	<0.59	<0.59	<0.80	<0.53	<1.0
IAF-11889BELDENCT-01_101118	0.24 J	<0.67	<0.67	2.0	<0.90	0.21 J	0.14 J
IAG-11889BELDENCT-01_101118	<0.43	<0.67	<0.67	<0.67	<0.91	0.14 J	<1.1
Comparison to Indoor Air Screening Levels (a)							
RIASL	14	310	790	12	2.0	5.1 (b)	41
Sub-Slab Soil Gas Results							
SSMP-11889BELDENCT-01_101118	<2.9	<4.5	<4.5	<4.5	<6.2	<16	2.0 J
SSMP-11889BELDENCT-02_101118	<3.0	<4.7	<4.7	<4.7	<6.4	<17	5.0 J
SSMP-11889BELDENCT-03_101218	<3.1	<4.8	<4.8	2.0 J	<6.5	<17	1.7 J
Comparison to Site-Specific Sub-Slab Screening Levels (c)							
Site-specific Screening Levels	450	10,000	26,000	410	67	400	1,400

Notes:

“<” indicates compound not detected above the presented detection limit.

RIASL = Recommended Interim Action Screening Level (based on 24-hour exposure)

J = Indicates an estimated value.

- (a) Indoor air screening levels are from the MDEQ Media-Specific Volatilization to Indoor Air Interim Action Screening Level table (August 2017).
- (b) A nonresidential indoor air screening value for 1,4-dioxane is not provided in the MDEQ RIASL table; a residential indoor air screening value provided by the MDEQ has been used in its place.
- (c) Site-specific sub-slab screening levels provided by the MDEQ August 9, 2017.

Next Steps: To fully evaluate the potential for vapor intrusion, the MDEQ has requested quarterly sampling to confirm these findings under different seasonal conditions. We believe this confirmation testing is important and, again, will be offered at no cost to you.

Please call Kris Hinskey with Arcadis of Michigan, LLC at 269-579-5402 if you have any questions and to schedule the confirmation sampling.

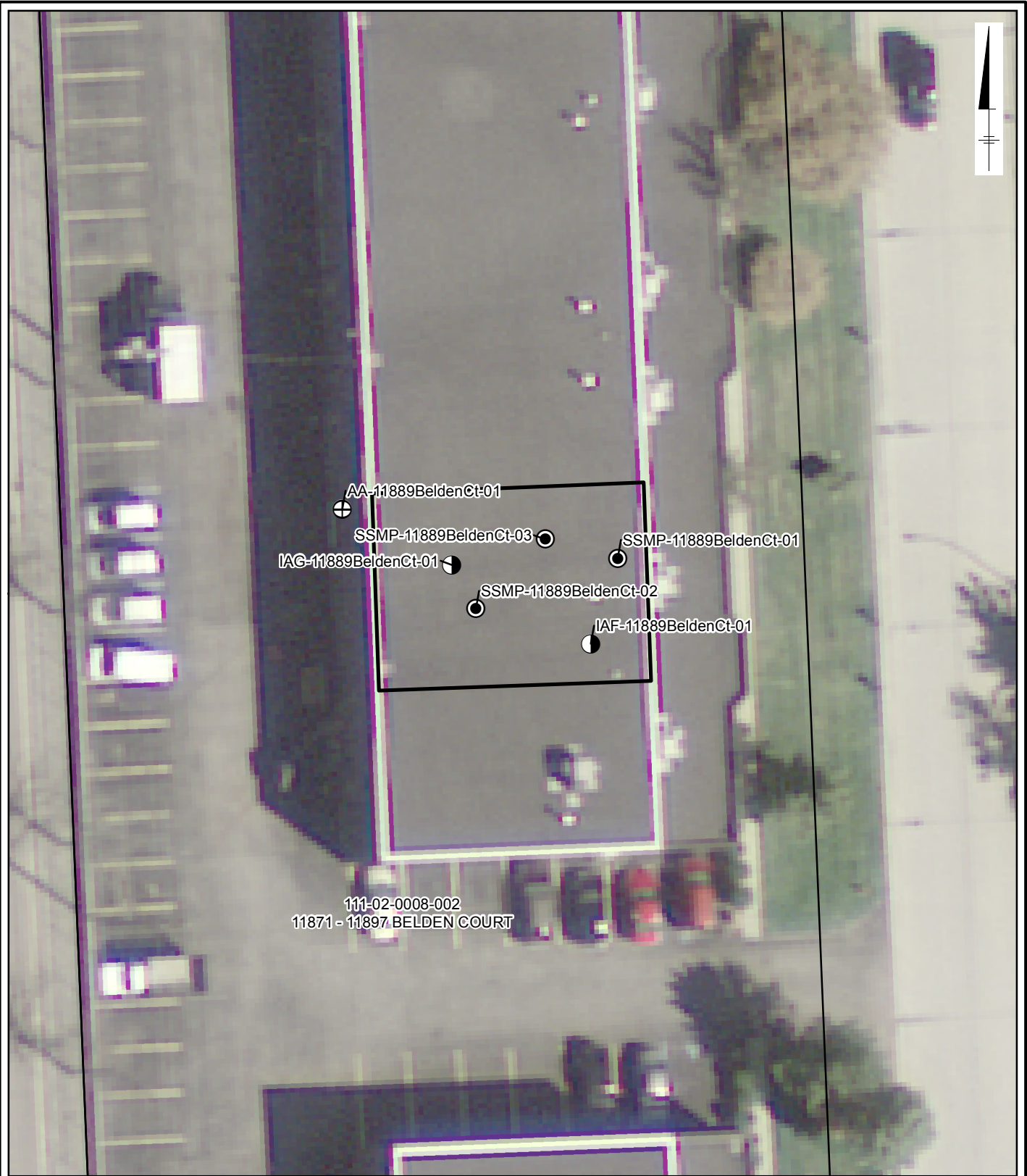
Sincerely,

Todd M. Walton
Manager, Global Site Assessment & Remediation






Figure 1 - Air Sampling Locations
Attachment 1 - Laboratory Report

cc: Brandon Alger, Michigan Department of Environmental Quality

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GISProjects\ENV\NoviBrighton_Mil\FordLivonia\GIS\docs\2018-10\11889_Belden_Ct_20181024.mxd PLOTTED: 10/24/2018 9:02:48 AM BY: mgress



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1

10/23/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1810349A

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/16/2018 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 #: 1810349A

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:	10/16/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	10/23/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
03A	IAF-11889BeldenCt-01_101118	Modified TO-15	5.7 "Hg	5.3 psi
04A	AA-11889BeldenCt-01_101118	Modified TO-15	3.1 "Hg	4.9 psi
05A	IAG-11889BeldenCt-01_101118	Modified TO-15	5.9 "Hg	5.3 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 10/23/18

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
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1810349A

Three 6 Liter Summa Canister (100% Certified) samples were received on October 16, 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.

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:	IAF-11889BeldenCt-01_101118	Date/Time Analyzed:	10/18/18 12:40 PM
Lab ID:	1810349A-03A	Dilution Factor:	1.68
Date/Time Collected:	10/11/18 08:36 PM	Instrument/Filename:	msd21.i / 21101807
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	0.080	0.33	0.67	Not Detected
1,4-Dioxane	123-91-1	0.090	0.30	0.60	0.21 J
cis-1,2-Dichloroethene	156-59-2	0.074	0.33	0.67	2.0
Tetrachloroethene	127-18-4	0.080	0.57	1.1	0.14 J
trans-1,2-Dichloroethene	156-60-5	0.052	0.33	0.67	Not Detected
Trichloroethene	79-01-6	0.12	0.45	0.90	Not Detected
Vinyl Chloride	75-01-4	0.034	0.21	0.43	0.24 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	114
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

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

Client ID:	AA-11889BeldenCt-01_101118	Date/Time Analyzed:	10/18/18 01:27 PM
Lab ID:	1810349A-04A	Dilution Factor:	1.48
Date/Time Collected:	10/11/18 08:36 PM	Instrument/Filename:	msd21.i / 21101808
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	0.070	0.29	0.59	Not Detected
1,4-Dioxane	123-91-1	0.080	0.27	0.53	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.065	0.29	0.59	Not Detected
Tetrachloroethene	127-18-4	0.071	0.50	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.046	0.29	0.59	Not Detected
Trichloroethene	79-01-6	0.11	0.40	0.80	Not Detected
Vinyl Chloride	75-01-4	0.030	0.19	0.38	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

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

Client ID:	IAG-11889BeldenCt-01_101118	Date/Time Analyzed:	10/18/18 02:48 PM
Lab ID:	1810349A-05A	Dilution Factor:	1.69
Date/Time Collected:	10/11/18 08:57 PM	Instrument/Filename:	msd21.i / 21101809
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	0.080	0.34	0.67	Not Detected
1,4-Dioxane	123-91-1	0.091	0.30	0.61	0.14 J
cis-1,2-Dichloroethene	156-59-2	0.074	0.34	0.67	Not Detected
Tetrachloroethene	127-18-4	0.081	0.57	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.052	0.34	0.67	Not Detected
Trichloroethene	79-01-6	0.12	0.45	0.91	Not Detected
Vinyl Chloride	75-01-4	0.034	0.22	0.43	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	115
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

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

Client ID:	Lab Blank	Date/Time Analyzed:	10/18/18 11:43 AM
Lab ID:	1810349A-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21101806a
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	0.047	0.20	0.40	Not Detected
1,4-Dioxane	123-91-1	0.054	0.18	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.044	0.20	0.40	Not Detected
Tetrachloroethene	127-18-4	0.048	0.34	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.031	0.20	0.40	Not Detected
Trichloroethene	79-01-6	0.074	0.27	0.54	Not Detected
Vinyl Chloride	75-01-4	0.020	0.13	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	117
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	98

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

Client ID:	CCV	Date/Time Analyzed:	10/18/18 08:44 AM
Lab ID:	1810349A-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21101802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

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

Client ID:	LCS	Date/Time Analyzed:	10/18/18 09:20 AM
Lab ID:	1810349A-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21101803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	93
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

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

Client ID:	LCSD	Date/Time Analyzed:	10/18/18 09:55 AM
Lab ID:	1810349A-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21101804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	101
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	93
trans-1,2-Dichloroethene	156-60-5	105
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.



October 23, 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: 1810349A
Sample date: 2018-10-11
Report received by CADENA: 2018-10-22
Initial Data Verification completed by CADENA: 2018-10-23

3 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.

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.

10/23/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1810349B

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/16/2018 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 #: 1810349B

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:	10/16/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	10/23/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-11889BeldenCt-01_101118	TO-15	3.5 "Hg	15 psi
02A	SSMP-11889BeldenCt-02_101118	TO-15	4.5 "Hg	15 psi
06A	SSMP-11889BeldenCt-03_101218	TO-15	5.0 "Hg	15 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 10/23/18

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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 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# 1810349B

Three 1 Liter Summa Canister samples were received on October 16, 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 were no receiving discrepancies.

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.

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:	SSMP-11889BeldenCt-01_101118	Date/Time Analyzed:	10/18/18 05:40 PM
Lab ID:	1810349B-01A	Dilution Factor:	2.29
Date/Time Collected:	10/11/18 09:51 AM	Instrument/Filename:	msd3.i / 3101812
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	1.6	2.7	4.5	Not Detected
1,4-Dioxane	123-91-1	1.5	8.2	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	2.7	4.5	Not Detected
Tetrachloroethene	127-18-4	1.6	4.7	7.8	2.0 J
trans-1,2-Dichloroethene	156-60-5	1.4	2.7	4.5	Not Detected
Trichloroethene	79-01-6	0.98	3.7	6.2	Not Detected
Vinyl Chloride	75-01-4	1.6	1.8	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	119
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101

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

Client ID:	SSMP-11889BeldenCt-02_101118	Date/Time Analyzed:	10/18/18 06:06 PM
Lab ID:	1810349B-02A	Dilution Factor:	2.38
Date/Time Collected:	10/11/18 10:25 AM	Instrument/Filename:	msd3.i / 3101813
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	1.7	2.8	4.7	Not Detected
1,4-Dioxane	123-91-1	1.5	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	2.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.6	4.8	8.1	5.0 J
trans-1,2-Dichloroethene	156-60-5	1.4	2.8	4.7	Not Detected
Trichloroethene	79-01-6	1.0	3.8	6.4	Not Detected
Vinyl Chloride	75-01-4	1.7	1.8	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	118
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	103

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

Client ID:	SSMP-11889BeldenCt-03_101218	Date/Time Analyzed:	10/18/18 06:33 PM
Lab ID:	1810349B-06A	Dilution Factor:	2.42
Date/Time Collected:	10/12/18 02:16 PM	Instrument/Filename:	msd3.i / 3101814
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	1.7	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	1.6	8.7	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	2.9	4.8	2.0 J
Tetrachloroethene	127-18-4	1.6	4.9	8.2	1.7 J
trans-1,2-Dichloroethene	156-60-5	1.4	2.9	4.8	Not Detected
Trichloroethene	79-01-6	1.0	3.9	6.5	Not Detected
Vinyl Chloride	75-01-4	1.7	1.8	3.1	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	118
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

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

Client ID:	Lab Blank	Date/Time Analyzed:	10/18/18 02:03 PM
Lab ID:	1810349B-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3101806c
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	0.71	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	0.65	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.44	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.68	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.43	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.72	0.77	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	115
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	103

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

Client ID:	CCV	Date/Time Analyzed:	10/18/18 10:29 AM
Lab ID:	1810349B-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3101802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	107
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	106
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

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

Client ID:	LCS	Date/Time Analyzed:	10/18/18 10:57 AM
Lab ID:	1810349B-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3101803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	97
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	121
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	114

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

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

Client ID:	LCSD	Date/Time Analyzed:	10/18/18 11:23 AM
Lab ID:	1810349B-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3101804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	118
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	113

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



October 23, 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: 1810349B
Sample date: 2018-10-11
Report received by CADENA: 2018-10-22
Initial Data Verification completed by CADENA: 2018-10-23

3 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.

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.