TRANSMITTAL LETTER

ARCADIS

To:
Jeanne Schlaufman
Michigan Department of Environment, Great Lakes & Energy
27700 Donald Court
Warren, MI 48092

From:
Megan Meckley

Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240

Copies:

Date:
January 31, 2025

Subject:
Livonia Transmission Plant
EGLE Site ID No. 82002970
Schlaufmanj1@michigan.gov
Quarterly Residential Mitigation Update Letter

Arcadis Project No.:
30251157

We are sending you copies:

☒ **Attached** ☐ **Under Separate Cover Via _____ the Following Items:**

☐ Shop Drawings ☐ Plans ☐ Specifications ☐ Change Order
☐ Prints ☐ Samples ☐ Copy of Letter ☒ Reports
☐ Other: CD And Hardcopy

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	01/31/2025			Quarterly Residential Mitigation Update Letter 4Q2024	

Action*
☐ A Approved ☐ CR Correct and Resubmit ☐ Resubmit _____ Copies
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☒ Other: Electronic Submittal

SUBJECT
Ford Livonia Transmission Plant -
Quarterly Residential Mitigation Update Letter
36200 Plymouth Road, Livonia,
Wayne County, Michigan

EGLE Site ID No. 82002970

TO
Jeanne Schlaufman
Environmental Quality Specialist
EGLE Warren District Office
27700 Donald Court
Warren, Michigan 48092-2793
Schlaufmanj1@michigan.gov

DATE
January 31, 2025

PROJECT NUMBER
30251157.201.02

DEPARTMENT
Environment

NAME
Kris Hinskey
Kristoffer.Hinskey@arcadis.com

On behalf of Ford Motor Company (Ford), Arcadis of Michigan, LLC (Arcadis) has prepared this quarterly update letter to the interim preemptive mitigation (IPM) systems for the Livonia Transmission Plant (LTP) site (the Site) as requested by Michigan Department of Environment, Great Lakes, and Energy (EGLE) via email on May 26, 2019 and on July 26, 2019. As discussed during the meeting with EGLE on October 22, 2020 and documented in the November 30, 2020 letter from EGLE, Ford is providing the IPM updates on a quarterly basis, with this quarterly update covering the fourth quarter including October through December 2024.

As of December 31, 2024, the status of the 33 residential properties in the Alden Village subdivision is as follows:

- 31 of 33 of the IPMs are installed and operating. The status of the remaining 2 are described below:
    - 12124 Boston Post: Between 2018 and 2020, four rounds of sub-slab and indoor air samples were collected from this residence with results below EGLE residential sub-slab volatilization to indoor air criteria. The property owner refused the installation of the mitigation system because no vapor impacts were detected inside or under the residence by the vapor samples collected. Ford and Arcadis will follow the process outlined in the Consent Decree to request an alternative monitoring plan in lieu of mitigation in a remedial action plan.
    - 12121 Boston Post: Arcadis continues to be denied access to this property.
- 10 of 10 sheds where Retro-Coat™ has been proposed have had it applied to the floor.
- 10 of 10 garages have had Retro-Coat™ applied to the floor.

Ford has established an Electrical Reimbursement Program to reimburse residents for the electrical costs associated with the operation of IPM systems. The Electrical Reimbursement Program is administrated by Arcadis on behalf of Ford. Electrical reimbursements will continue to be processed and distributed on a quarterly basis.

As described in the EGLE letter dated February 1, 2019, EGLE required r the entirety of each residential structure floor to be depressurized to a minimum of -0.02 inches of water column (iwc) for the residential IPM systems. Due to various reasons such as competency of the slab and subgrade obstructions, -0.02 iwc could not be met for select homes. The issue was discussed with EGLE which ultimately recommended the installation of vacuum transmitters at these structures. The transmitters continuously monitor the presence of vacuum below the slab to confirm that a negative differential pressure is being maintained although it may not be meeting -0.02 iwc. The

graphs of the continuously monitored differential pressure at these structures are depicted below. Ford continues to work diligently to maintain the IPM systems.

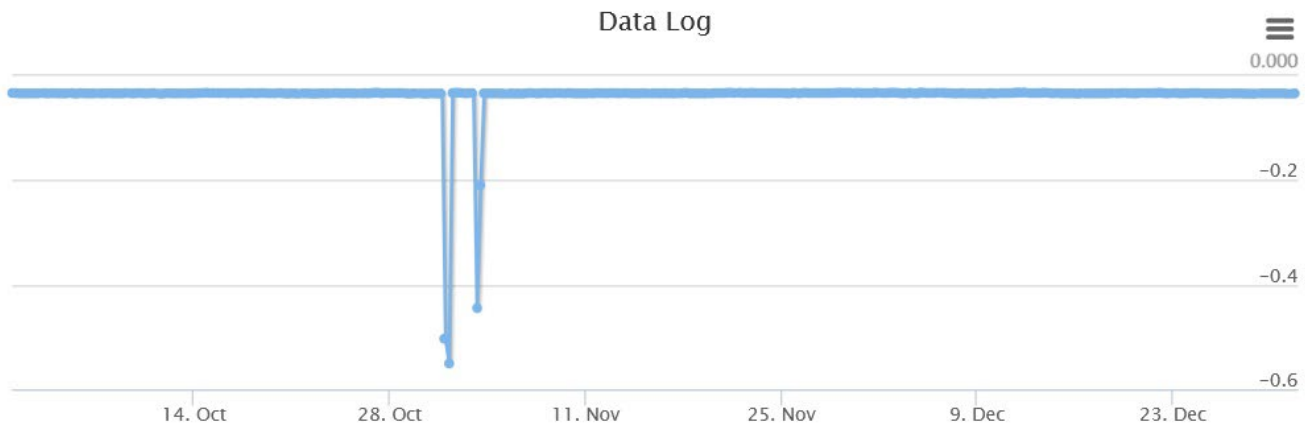
Details are provided below for all 33 locations.

Interim Preemptive Mitigation Systems Currently Operating

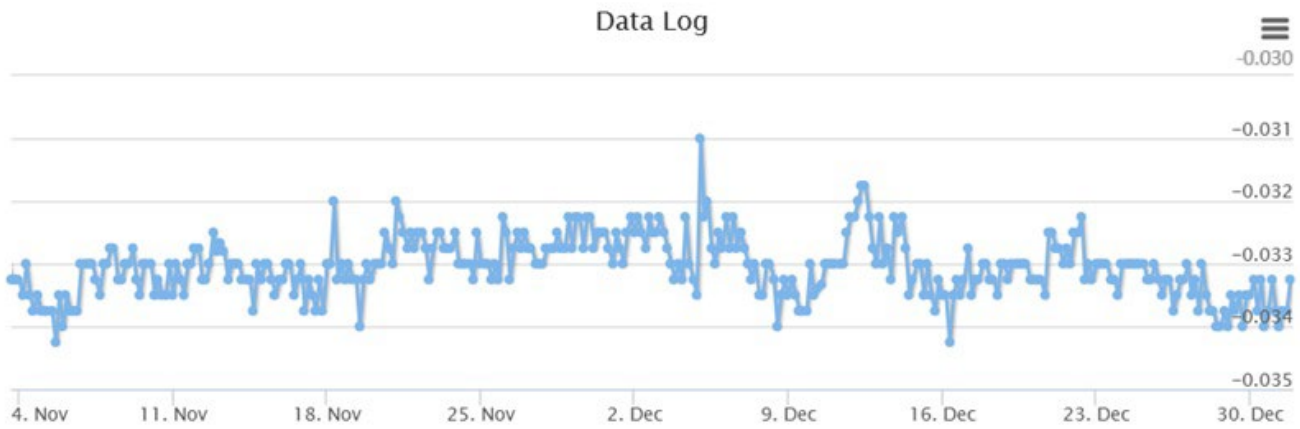
Throughout the fourth quarter, there were multiple power outages that affected the neighborhood which often occurr during storm events. During the power outages, the vacuum transmitter recorded stronger negative values than normal which can be observed on the data logs. During the power outages, Arcadis monitored the vacuum transmitters, and the vacuum readings returned to normal negative levels following restoration of power.

- **34380 Beacon –** The system is currently in operation and is being maintained and monitored.
- **34424 Beacon –** The system is currently in operation and is being maintained and monitored. Arcadis previously observed cracking in the concrete slab of the unoccupied shed resulting in damage to the Retro-Coat ™ which was outlined in the 2Q 2024 quarterly update letter. Ford and Arcadis continue to follow the guidance outlined in the Consent Decree and alterations to the mitigation system will be requested in the response activity plan
- **34450 Beacon –** The system is currently in operation and is being maintained and monitored.
- **34550 Beacon –** The system is currently in operation and is being maintained and monitored.
- **34591 Beacon –** The system is currently in operation and is being maintained and monitored.

An update of the data logged by the vacuum transmitter connected to SSMP-1 is presented below.

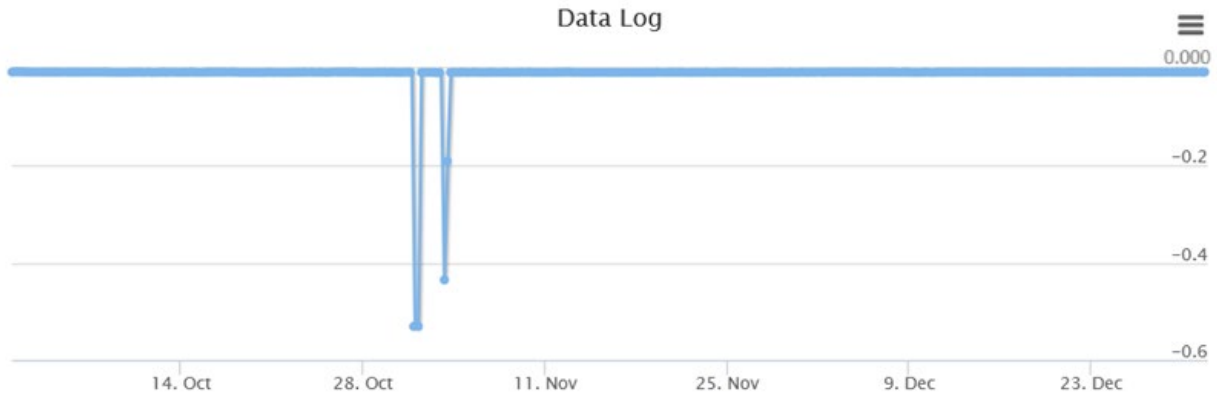


Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.

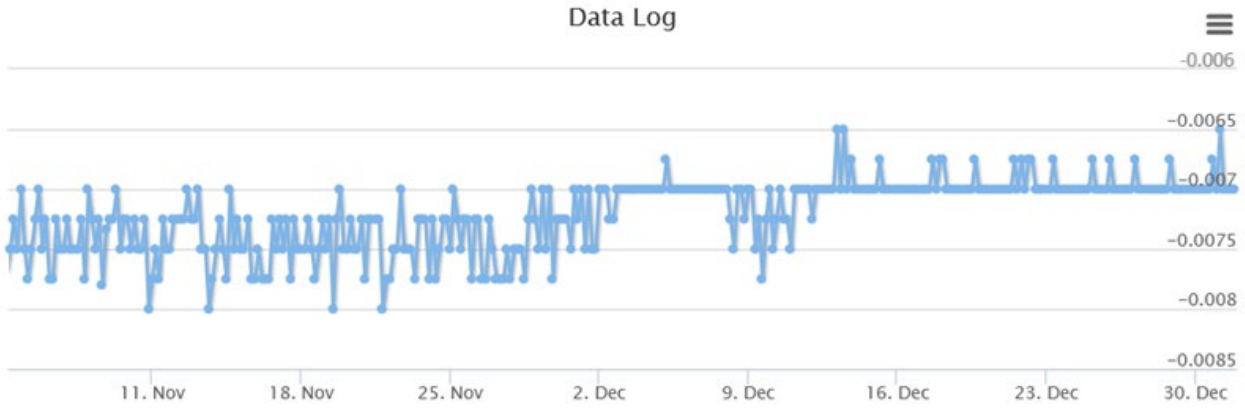


- **34600 Beacon –** The system is currently in operation and is being maintained and monitored.
- **34644 Beacon –** The system is currently in operation and is being maintained and monitored.
- **34682 Beacon –** The system is currently in operation and is being maintained and monitored.

An update of the data logged by the continuously monitored vacuum transmitter connected to sub-membrane monitoring point MP-5 is presented below.



Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.



Monitoring in accordance with the EGLE-approved property-specific monitoring program is ongoing. The fourth quarter 2024 groundwater sampling result for vinyl chloride was 1.3 µg/L at MW-115S and did not exceed the historical high of 3.9 µg/L observed in November 2019. The vinyl chloride concentrations at MW-154S and MW-155S were non-detect and did not exceed the groundwater screening level of 1.0 µg/L. Therefore, additional sub-slab sampling was not required.

- **34920 Beacon –** The system is currently in operation and is being maintained and monitored.
- **34940 Beacon –** The system is currently in operation and is being maintained and monitored.

On October 29, 2024, Arcadis conducted a site visit to inspect the Retro-Coat™ in the basement and to offer the homeowner an air purifying unit for the basement. The homeowner agreed and Arcadis deployed an air purifying unit in the basement. Arcadis inspected the Retro-Coat TM and observed three pinholes, these pin holes were sealed with plastic sheeting and tape.

Photograph 1 – Air purifying unit deployed in the basement.
Three Pinholes are sealed with plastic sheeting and red tape.

On November 7, 2024, Arcadis conducted a site visit with a local foundation contractor to evaluate the existing sub-slab perimeter drain and to determine potential methods to install additional dewatering features under the basement concrete slab to reduce hydrostatic pressure which is causing the Retro-Coat ™ delamination. The contractor confirmed that the existing sub-slab drain lines appear to be plugged with red

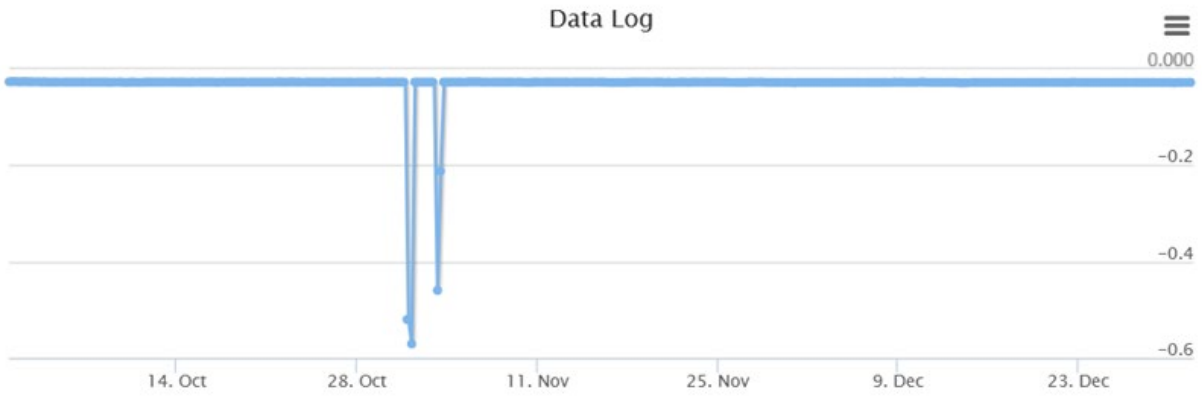
ochre. Arcadis has obtained a proposed scope of work and quote from the contractor for removing the existing sub-slab perimeter drain and replacing it with an equivalent system that has additional maintenance and cleanout ports for preventative maintenance to prevent the red ochre from returning.

Photograph 2 – The sump basin with clogged inlet pipes.

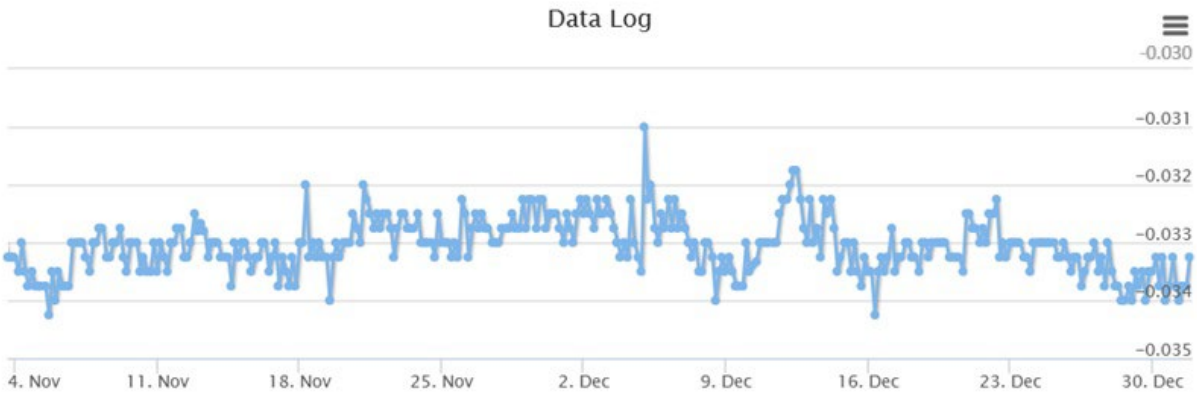
On December 3, 2024, through December 5, 2024, Arcadis completed indoor air and sump sampling at the property as requested by EGLE via electronic correspondence dated November 25, 2024. The 24-hour air samples were deployed on December 4, 2024, and collected on December 5, 2024. This event included collection of the following samples: an outdoor ambient air, first floor indoor air, garage indoor air, basement indoor air and a sump water sample. All air samples were non-detect for the seven site specific constituents. Attached is the data package for the sampling event. The sump water sample was below site-specific volatilization to indoor air criteria for the seven site specific constituents

On December 9, 2024, a Response Activity Plan for a Revised Interim Response Activity Plan – 34940 Beacon Street was submitted to EGLE with recommendations to resolve the delamination observed to date. EGLE approved the plan in a letter dated January 3, 2025 and coordination to implement the recommendations incorporating EGLE's comments is underway. In accordance with this letter, Arcadis will complete monthly indoor air sampling events until repairs at the IPM are completed. The next scheduled monthly indoor air sampling event will be completed during the week of January 27, 2025, based on the homeowner's request.

- **34950 Beacon –** The system is currently in operation and is being maintained and monitored.
- **34990 Beacon –** The system is currently in operation and is being maintained and monitored. An update of the data logged by the vacuum transmitter connected to MP-7 is presented below.

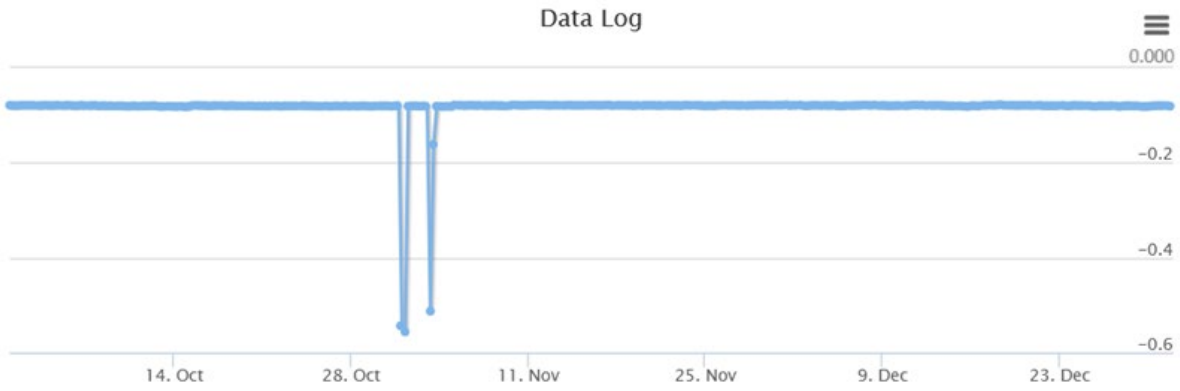


Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.

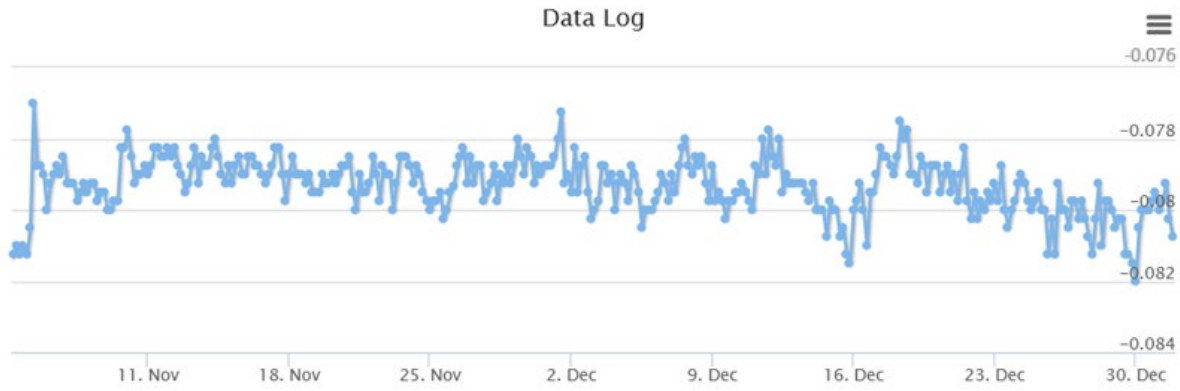


- **12066 Boston Post –** The system is currently in operation and is being maintained and monitored.
- **12067 Boston Post –** The system is currently in operation and is being maintained and monitored.

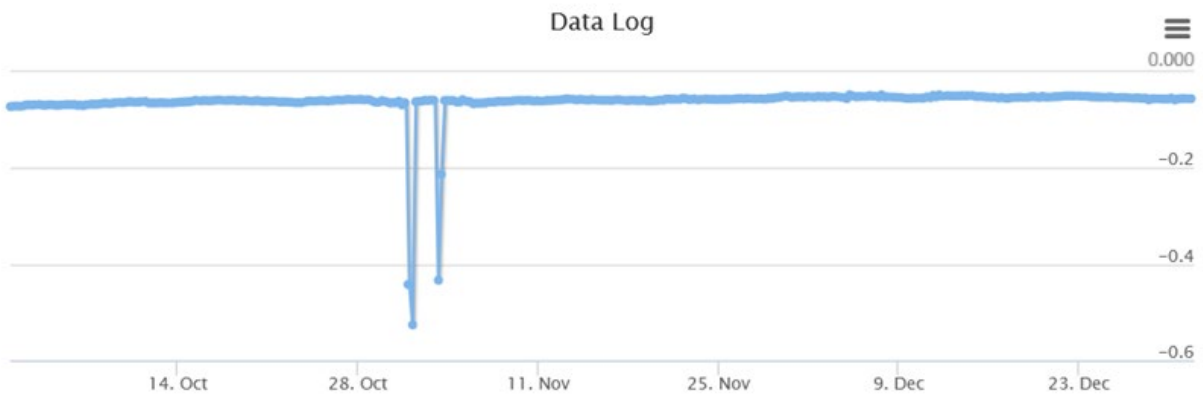
An update of the data logged by the vacuum transmitter connected to MP-1 is presented below.



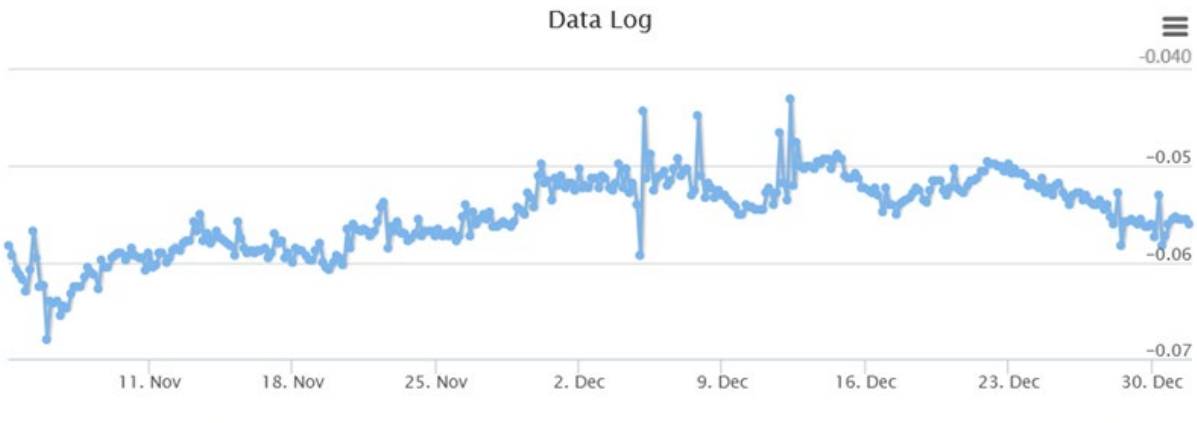
Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.



- **12070 Boston Post –** The system is currently in operation and is being maintained and monitored.
- **12089 Boston Post –** The system is currently in operation and is being maintained and monitored.
- **12100 Boston Post –** The system is currently in operation and is being maintained and monitored. An update of the data logged by the vacuum transmitter connected to sub-slab monitoring point SSMP-4 is presented below.



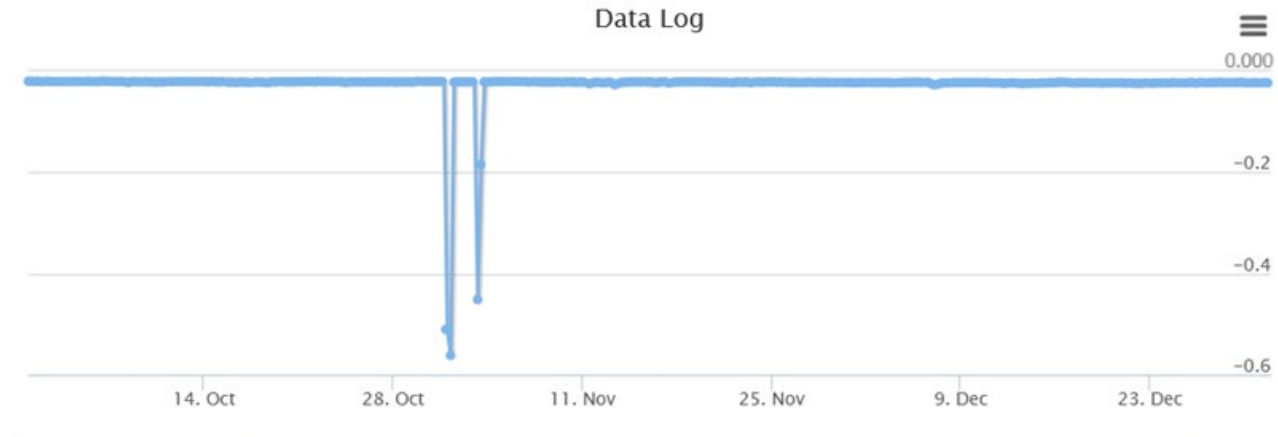
Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.



Monitoring in accordance with the EGLE-approved property-specific monitoring program is underway. The fourth quarter 2024 groundwater sampling result for vinyl chloride was 1.3 µg/L at MW-115S and did not exceed the historical high of 3.9 µg/L observed in November 2019. The vinyl chloride concentration was 1.1 µg/L at MW-79SR which did exceed the historical high of 1.5 µg/L observed in November 2023. The vinyl chloride concentration was non-detect at MW-156S and did not exceed the groundwater screening level of 1.0 µg/L.

- **12131 Boston Post** – The system is currently in operation and is being maintained and monitored.

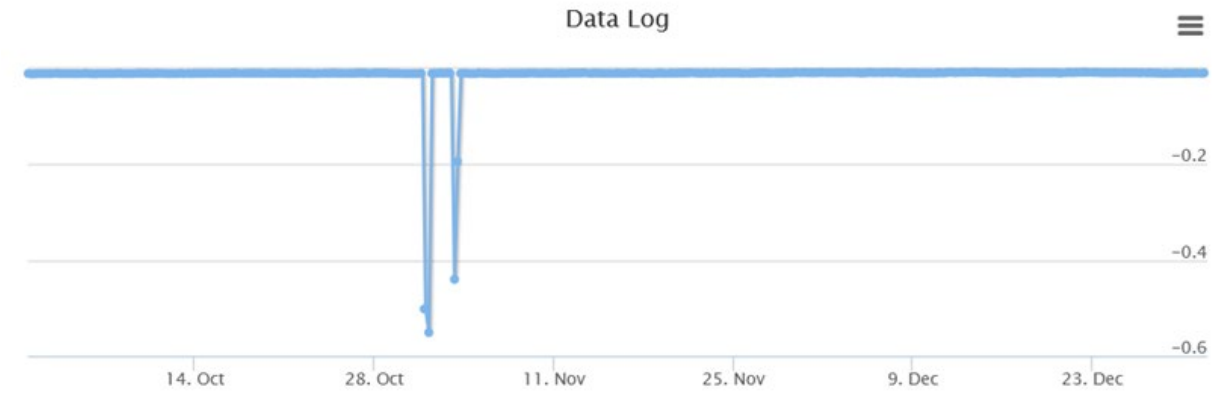
  The update of the data logged by the vacuum transmitter connected to MP-4 is presented below.



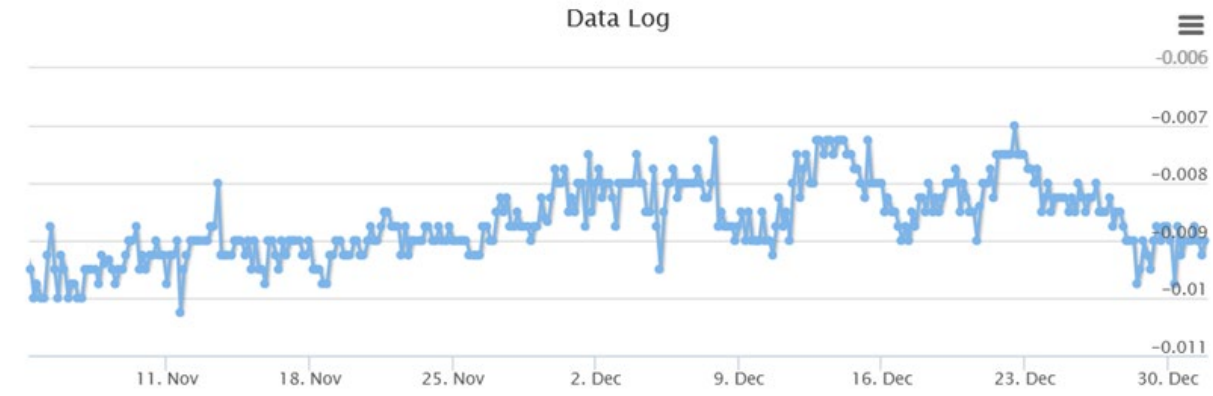
Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.

- **12141 Boston Post –** The system is currently in operation and is being maintained and monitored.

  An update of the data logged by the vacuum transmitter connected to MP-4 is presented below.

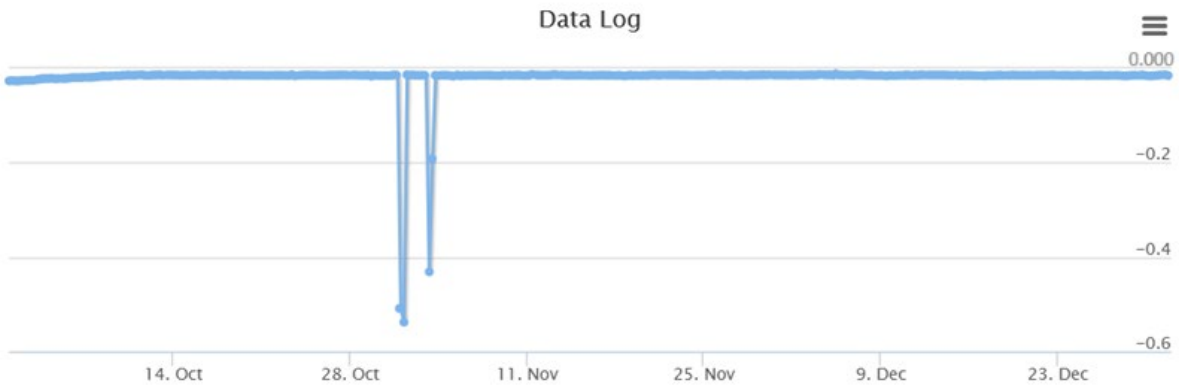


  Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.

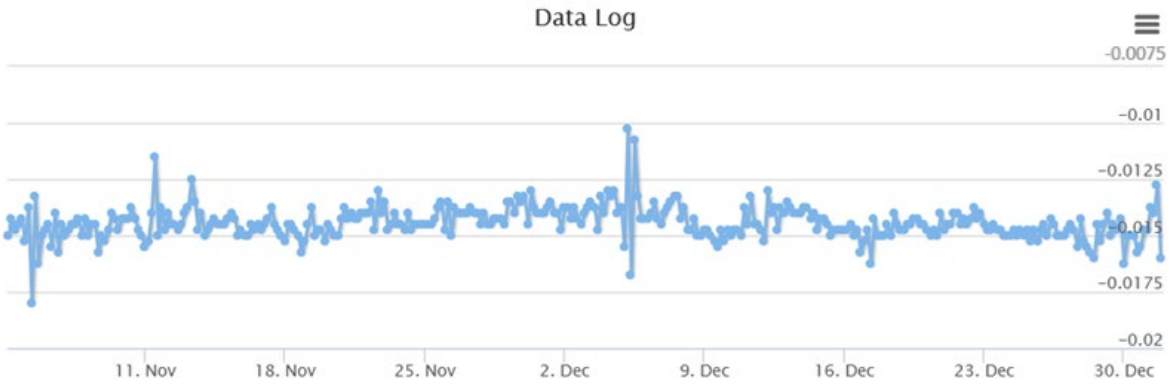


- **12017 Brewster –** The system is currently in operation and is being maintained and monitored.

- **12036 Brewster –** The system is currently in operation and is being maintained and monitored. An update of the data logged by the vacuum transmitter connected to SSMP-2 is presented below.



Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.



- **12075 Brewster –** The system is currently in operation and is being maintained and monitored.
- **12088 Brewster** – The system is currently in operation and is being maintained and monitored.
- **12091 Brewster –** The system is currently in operation and is being maintained and monitored.
- **12101 Brewster –** The system is currently in operation and is being maintained and monitored.
- **34367 Capitol Avenue –** The system is currently in operation and is being maintained and monitored.
- **34380 Capitol Avenue –** The system is currently in operation and is being maintained and monitored.
- **34401 Capitol Avenue –** The system is currently in operation and is being maintained and monitored.
- **34424 Capitol Avenue –** The system is currently in operation and is being maintained and monitored.

Monitoring in accordance with the EGLE-approved property-specific monitoring program is ongoing. The fourth quarter 2024 groundwater sampling results for vinyl chloride were non-detect at MW-90S, MW-103S, and MW-169S and did not exceed the groundwater screening level of 1.0 µg/L. The vinyl chloride concentration was 1.5 µg/L at MW-136S and did not exceed the historical high of 3.2 µg/L observed in

November 2020. The vinyl chloride concentration was 1.9 µg/L at MW-148S and did not exceed the historical high of 2.3 µg/L observed in November 2020. Therefore, additional sub-slab sampling was not required.

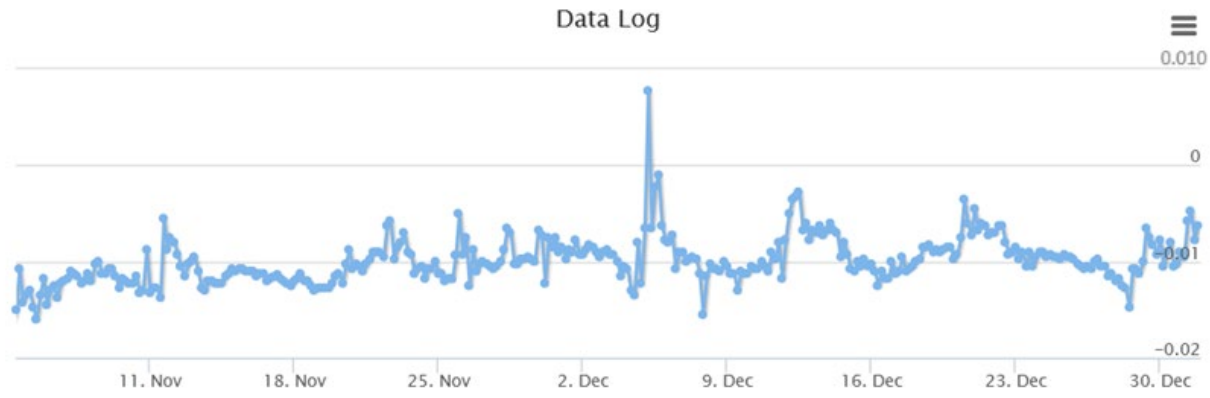
- **34450 Capitol Avenue** – The system is currently in operation and is being maintained and monitored.

  Monitoring in accordance with the EGLE-approved property-specific monitoring program is underway. Fourth quarter 2024 groundwater sampling results for vinyl chloride were non-detect at MW-108S, MW-168S, and MW-169S and did not exceed the groundwater screening level of 1.0 µg/L. The vinyl chloride concentration was 0.50 µg/L at MW-137S and did not exceed the historical high of 1.2 µg/L observed in August 2022. Therefore, additional sub-slab sampling was not required.

- **34480 Capitol Avenue** – The system is currently in operation and is being maintained and monitored.

  An update of the data logged by the vacuum transmitter connected to SSMP-2 is presented below.

Below is a zoomed in portion of the data plot showing the IPM system continuing to maintain vacuum level at the monitoring point which is typical of normal operation at this property.



Interim Preemptive Mitigation Systems Not Installed

- **12124 Boston Post –** Four rounds of pre-mitigation indoor air and sub-slab data were completed between 2018 and 2020. No detections of vinyl chloride were reported in any of the samples. Additionally, all groundwater samples collected to date from the closest upgradient monitoring well (MW-118S) have been

below the groundwater screening level of 1.0 µg/L, including the fourth quarter 2024 sample which was estimated at 0.56 ug/L.

- **12121 Boston Post** – Under the supervision of EGLE, Ford is continuing to monitor groundwater proximate to the home to accommodate the homeowner's refusal to grant access to their property for other investigation, characterization, or mitigation activities.

Attachments:

1. 34940 Beacon Vapor Intrusion Assessment Data Package

Attachment 1

34940 Beacon Vapor Intrusion Assessment Data Package

TRANSMITTAL LETTER

ARCADIS Design & Consultancy for natural and built assets

To:

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
January 27, 2025

Subject:
Vapor Intrusion Assessment Data Package – 34940 Beacon

Arcadis Project No.:
30206169

We are sending you copies:

☒ **Attached** ☐ **Under Separate Cover Via _____ the Following Items:**

☐ Shop Drawings ☐ Plans ☐ Specifications ☐ Change Order
☐ Prints ☒ Samples ☐ Copy of Letter ☐ Reports
☐ Other:

Copies	Electronic Delivery Date	Drawing No.	Rev.	Description	Action*
1	1/27/2025			Figure	
1	1/27/2025			Analytical Results	
1	1/27/2025			Field Notes and Drawings	

Action*

☐ A Approved
☐ AN Approved As Noted
☐ AS As Requested
☐ CR Correct and Resubmit
☐ F File
☐ FA For Approval
☐ Resubmit _____ Copies
☐ Return _____ Copies
☐ Review and Comment
☐ Other:

Mailing Method

☐ U.S. Postal Service 1st Class ☐ Courier/Hand Delivery ☐ FedEx Priority Overnight ☐ FedEx 2-Day Delivery
☐ Certified/Registered Mail ☐ United Parcel Service (UPS) ☐ FedEx Standard Overnight ☐ FedEx Economy
☒ Other: email

Thank you for cooperating with the air and sump sampling at your property on December 3, December 4, and 5, 2024. Attached is your data package.

LEGEND:

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

0 15 30
SCALE IN FEET

FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K_HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: MI001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GISProjects_ENV\NoviBrighton_MIFord\Livonia\GIS\docs\2018-10\34940_Beacon_Ave_20181102.mxd PLOTTED: 11/2/2018 2:27:45 PM BY: msmiller

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Megan Meckley
Arcadis US Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 12/16/2024 8:39:08 AM

JOB DESCRIPTION

Ford LTP

JOB NUMBER

240-216231-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

Generated
12/16/2024 8:39:08 AM

Authorized for release by
Michael DelMonico, Project Manager I
Michael.DelMonico@et.eurofinsus.com
(330)497-9396

Table of Contents

Definitions/Glossary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 240-216231-1 — Eurofins Cleveland

Job Narrative
240-216231-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/7/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.7°C and 2.9°C.

GC/MS VOA
Method 8260D_SIM: No MS and MSD in this batch due to re running at a lower dilution.
SUMP-34940 BEACON-01_120524 (240-216231-2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CLE
8260D SIM	Volatile Organic Compounds (GC/MS)	SW846	EET CLE
5030C	Purge and Trap	SW846	EET CLE

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-216231-1	TRIP BLANK_120	Water	12/05/24 00:00	12/07/24 08:00
240-216231-2	SUMP-34940 BEACON-01_120524	Water	12/05/24 13:30	12/07/24 08:00

Detection Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Client Sample ID: TRIP BLANK_120 — Lab Sample ID: 240-216231-1

No Detections.

Client Sample ID: SUMP-34940 BEACON-01_120524 — Lab Sample ID: 240-216231-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.1	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Client Sample ID: TRIP BLANK_120
Date Collected: 12/05/24 00:00
Date Received: 12/07/24 08:00

Lab Sample ID: 240-216231-1
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			12/12/24 09:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/12/24 09:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 09:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/12/24 09:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 09:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/12/24 09:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*62 - 137*		*12/12/24 09:52*	*1*
4-Bromofluorobenzene (Surr)	*98*		*56 - 136*		*12/12/24 09:52*	*1*
Toluene-d8 (Surr)	*96*		*78 - 122*		*12/12/24 09:52*	*1*
Dibromofluoromethane (Surr)	*97*		*73 - 120*		*12/12/24 09:52*	*1*

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Client Sample ID: SUMP-34940 BEACON-01_120524

Date Collected: 12/05/24 13:30
Date Received: 12/07/24 08:00

Lab Sample ID: 240-216231-2

Matrix: Water

Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.1	J	2.0	0.86	ug/L			12/11/24 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*68 - 127*		*12/11/24 15:11*	*1*

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			12/12/24 13:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/12/24 13:14	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 13:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/12/24 13:14	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 13:14	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/12/24 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*133*		*62 - 137*		*12/12/24 13:14*	*1*
4-Bromofluorobenzene (Surr)	*100*		*56 - 136*		*12/12/24 13:14*	*1*
Toluene-d8 (Surr)	*96*		*78 - 122*		*12/12/24 13:14*	*1*
Dibromofluoromethane (Surr)	*107*		*73 - 120*		*12/12/24 13:14*	*1*

Surrogate Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-216231-1	TRIP BLANK_120	117	98	96	97
240-216231-2	SUMP-34940 BEACON-01_120524	133	100	96	107
240-216270-B-2 MS	Matrix Spike	129	106	98	110
240-216270-B-2 MSD	Matrix Spike Duplicate	119	101	94	103
LCS 240-638478/5	Lab Control Sample	109	102	99	103
MB 240-638478/10	Method Blank	115	97	95	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260D SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		DCA
Lab Sample ID	Client Sample ID	(68-127)
240-216231-2	SUMP-34940 BEACON-01_120524	108
LCS 240-638325/5	Lab Control Sample	102
MB 240-638325/7	Method Blank	100

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-638478/10
Matrix: Water
Analysis Batch: 638478

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			12/12/24 09:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/12/24 09:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 09:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/12/24 09:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 09:32	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/12/24 09:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*62 - 137*		*12/12/24 09:32*	*1*
4-Bromofluorobenzene (Surr)	*97*		*56 - 136*		*12/12/24 09:32*	*1*
Toluene-d8 (Surr)	*95*		*78 - 122*		*12/12/24 09:32*	*1*
Dibromofluoromethane (Surr)	*96*		*73 - 120*		*12/12/24 09:32*	*1*

Lab Sample ID: LCS 240-638478/5
Matrix: Water
Analysis Batch: 638478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene			50.0	49.3		ug/L		99	63 - 134		
cis-1,2-Dichloroethene			50.0	47.5		ug/L		95	77 - 123		
Tetrachloroethene			50.0	49.0		ug/L		98	76 - 123		
trans-1,2-Dichloroethene			50.0	46.9		ug/L		94	75 - 124		
Trichloroethene			50.0	47.3		ug/L		95	70 - 122		
Vinyl chloride			50.0	44.4		ug/L		89	60 - 144		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*62 - 137*
4-Bromofluorobenzene (Surr)	*102*		*56 - 136*
Toluene-d8 (Surr)	*99*		*78 - 122*
Dibromofluoromethane (Surr)	*103*		*73 - 120*

Lab Sample ID: 240-216270-B-2 MS
Matrix: Water
Analysis Batch: 638478

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
cis-1,2-Dichloroethene	1.0	U	50.0	49.1		ug/L		98	66 - 128		
trans-1,2-Dichloroethene	1.0	U	50.0	48.3		ug/L		97	56 - 136		
Trichloroethene	1.0	U	50.0	48.0		ug/L		96	61 - 124		
Vinyl chloride	1.0	U	50.0	40.0		ug/L		80	43 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*129*		*62 - 137*
4-Bromofluorobenzene (Surr)	*106*		*56 - 136*
Toluene-d8 (Surr)	*98*		*78 - 122*
Dibromofluoromethane (Surr)	*110*		*73 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-216270-B-2 MSD
Matrix: Water
Analysis Batch: 638478

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	1.0	U	50.0	47.6		ug/L		95	66 - 128	3	14
trans-1,2-Dichloroethene	1.0	U	50.0	46.2		ug/L		92	56 - 136	4	15
Trichloroethene	1.0	U	50.0	46.3		ug/L		93	61 - 124	4	15
Vinyl chloride	1.0	U	50.0	39.1		ug/L		78	43 - 157	2	24

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*119*		*62 - 137*
4-Bromofluorobenzene (Surr)	*101*		*56 - 136*
Toluene-d8 (Surr)	*94*		*78 - 122*
Dibromofluoromethane (Surr)	*103*		*73 - 120*

Method: 8260D SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-638325/7
Matrix: Water
Analysis Batch: 638325

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			12/11/24 11:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*68 - 127*		*12/11/24 11:17*	*1*

Lab Sample ID: LCS 240-638325/5
Matrix: Water
Analysis Batch: 638325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			10.0	8.15		ug/L		81	75 - 121		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*68 - 127*

QC Association Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

GC/MS VOA

Analysis Batch: 638325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-216231-2	SUMP-34940 BEACON-01_120524	Total/NA	Water	8260D SIM	
MB 240-638325/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-638325/5	Lab Control Sample	Total/NA	Water	8260D SIM	

Analysis Batch: 638478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-216231-1	TRIP BLANK_120	Total/NA	Water	8260D	
240-216231-2	SUMP-34940 BEACON-01_120524	Total/NA	Water	8260D	
MB 240-638478/10	Method Blank	Total/NA	Water	8260D	
LCS 240-638478/5	Lab Control Sample	Total/NA	Water	8260D	
240-216270-B-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-216270-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Client Sample ID: TRIP BLANK_120

Lab Sample ID: 240-216231-1

Date Collected: 12/05/24 00:00

Matrix: Water

Date Received: 12/07/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	638478	MDH	EET CLE	12/12/24 09:52

Client Sample ID: SUMP-34940 BEACON-01_120524

Lab Sample ID: 240-216231-2

Date Collected: 12/05/24 13:30

Matrix: Water

Date Received: 12/07/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	638478	MDH	EET CLE	12/12/24 13:14
Total/NA	Analysis	8260D SIM		1	638325	R5XG	EET CLE	12/11/24 15:11

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-25
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24
Wisconsin	State	399167560	08-31-25

Chain of Custody Record

MICHIGAN 190

TestAmerica

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

TestAmerica Laboratories, Inc.

Client Contact	Regulatory program: DW NPDES RCRA Other			
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No:
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 248-994-2240	Telephone: 330-497-9396	1 of 1 COCs
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Analyses	For lab use only
Phone: 248-994-2240	Sampler Name: S. Turner	TAT if different from below: 10 day; 3 weeks / 2 weeks / 1 week / 2 days / 1 day		Walk-in client
Project Name: Ford LTP	Method of Shipment/Carrier:			Lab sampling
Project Number: 30206169.0401; ~~03~~ 04 ST	Shipping/Tracking No:			Job/SDG No:
PO # US3410018772				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM	Sample Specific Notes / Special Instructions:
TRIP BLANK_120	----	---		1						1					N	G	X	X	X	X	X	X		1 Trip Blank
SUmf-34940BEACON-dl_120524	12/5/24	1330		6						6					N	G	X	X	X	X	X	X	X	3 VOAs for 8260D 3 VOAs for 8260D SIM

240-216231 COC

Possible Hazard Identification: ✓ Non-Hazard; Flammable; Skin Irritant; Poison B; Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): Return to Client; ✓ Disposal By Lab; Archive For ____ Months

Special Instructions/QC Requirements & Comments:

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena ~~#E203724~~ E203631

Level IV Reporting requested.

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	Arcadis	12/6/24 1205	[signature]	EETA	12/6/24 1205
[signature]	EETA	12/6/24 1207	KATHARINE MÄRTJN	EUR	12/7/24 800
Relinquished by	Company	Date/Time	Received in Laboratory by:	Company:	Date/Time:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :** _____
Barberton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Martin

Cooler Received on 12/7/24 Opened on 12/7/24

FedEx. 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____

Receipt After-hours Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used. ~~Bubble Wrap~~ Foam Plastic Bag None Other _____

COOLANT ~~Wet Ice~~ Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☒ See Multiple Cooler Form

IR GUN # 21 (CF +0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3 Shippers' packing slip attached to the cooler(s)?	Yes	(No)
4. Did custody papers accompany the sample(s)?	(Yes)	No
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes)	No
7 Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?	(Y)	N
10 Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11 Sufficient quantity received to perform indicated analyses?	(Yes)	No
12 Are these work share samples and all listed on the COC?	Yes	(No)
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No (NA) pH Strip Lot# HC448976
14 Were VOAs on the COC?	(Yes)	No
15 Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this	Yes	(No) NA
16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A	(Yes)	No
17 Was a LL Hg or Me Hg trip blank present? _____	Yes	(No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

_____

_____

_____

_____

19 SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container

Sample(s) _____ were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory

Time preserved. _____ Preservative(s) added/Lot number(s) _____

VOA Sample Preservation - Date/Time VOAs Frozen _____

Login # : ____________

Eurofins - Cleveland Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
(EC) Client Box Other	IR GUN #: 21	25	27	(Wet Ice) Blue Ice Dry Ice Water None
(EC) Client Box Other	IR GUN #: 1	2.7	29	(Wet Ice) Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None

☐ See Temperature Excursion Form

WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

12/7/2024

Login Container Summary Report

240-216231

12/16/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
TRIP BLANK_120	240-216231-A-1	Voa Vial 40ml - Hydrochloric Acid				
SUMP-34940 BEACON-01_120524	240-216231-A-2	Voa Vial 40ml - Hydrochloric Acid				
SUMP-34940 BEACON-01_120524	240-216231-B-2	Voa Vial 40ml - Hydrochloric Acid				
SUMP-34940 BEACON-01_120524	240-216231-C-2	Voa Vial 40ml - Hydrochloric Acid				
SUMP-34940 BEACON-01_120524	240-216231-D-2	Voa Vial 40ml - Hydrochloric Acid				
SUMP-34940 BEACON-01_120524	240-216231-E-2	Voa Vial 40ml - Hydrochloric Acid				
SUMP-34940 BEACON-01_120524	240-216231-G-2	Voa Vial 40ml - Hydrochloric Acid				

DATA VERIFICATION REPORT

December 16, 2024

Megan Meckley
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI US 48377

CADENA project ID: E203728
Project: Ford Livonia Transmission Plant - Soil Gas, Ground Water and Soil
Project number: 30206169.0401.04_WA-03
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory submittal: 216231-1
Sample date: 2024-12-05
Report received by CADENA: 2024-12-16
Initial Data Verification completed by CADENA: 2024-12-16
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

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.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

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 contaminates) 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 contaminates) 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.

Analytical Results Summary

CADENA Project ID: E203728
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory Submittal: 216231-1

		Sample Name:	TRIP BLANK_120			SUMP-34940 BEACON-01_120524			
		Lab Sample ID:	2402162311			2402162312			
		Sample Date:	12/5/2024			12/5/2024			
Analyte	**Cas No.**	**Result**	**Report Limit**	**Units**	**Valid Qualifier**	**Result**	**Report Limit**	**Units**	**Valid Qualifier**
GC/MS VOC									
OSW-8260D									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
OSW-8260DSIM									
1,4-Dioxane	123-91-1					1.1	2.0	ug/l	J

Ford Motor Company – Livonia Transmission Project

Data Review

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-216231-1

CADENA Verification Report: 2024-12-16

Analyses Performed By:
Eurofins Cleveland
Barberton, Ohio

Report # 57295R
Review Level: Tier III
Project: 30206169.0201.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-216231-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					VOC	VOC SIM
TRIP BLANK_120_120524	240-216231-1	Water	12/05/2024		X	
SUMP-34940 BEACON-01_120524	240-216231-2	Water	12/05/2024		X	X

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

  UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D/8260D-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable, and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

DATA REVIEW

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD	X				X
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

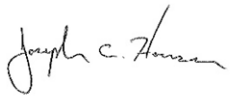
%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: December 23, 2024

PEER REVIEW: Andrew Korycinski

DATE: December 24, 2024

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Client Sample ID: TRIP BLANK_120
Date Collected: 12/05/24 00:00
Date Received: 12/07/24 08:00

Lab Sample ID: 240-216231-1
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			12/12/24 09:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/12/24 09:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 09:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/12/24 09:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 09:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/12/24 09:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*62 - 137*		*12/12/24 09:52*	*1*
4-Bromofluorobenzene (Surr)	*98*		*56 - 136*		*12/12/24 09:52*	*1*
Toluene-d8 (Surr)	*96*		*78 - 122*		*12/12/24 09:52*	*1*
Dibromofluoromethane (Surr)	*97*		*73 - 120*		*12/12/24 09:52*	*1*

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-216231-1

Client Sample ID: SUMP-34940 BEACON-01_120524

Date Collected: 12/05/24 13:30
Date Received: 12/07/24 08:00

Lab Sample ID: 240-216231-2

Matrix: Water

Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.1	J	2.0	0.86	ug/L			12/11/24 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*68 - 127*		*12/11/24 15:11*	*1*

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			12/12/24 13:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/12/24 13:14	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 13:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/12/24 13:14	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/12/24 13:14	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/12/24 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*133*		*62 - 137*		*12/12/24 13:14*	*1*
4-Bromofluorobenzene (Surr)	*100*		*56 - 136*		*12/12/24 13:14*	*1*
Toluene-d8 (Surr)	*96*		*78 - 122*		*12/12/24 13:14*	*1*
Dibromofluoromethane (Surr)	*107*		*73 - 120*		*12/12/24 13:14*	*1*

Chain of Custody Record

MICHIGAN 190

TestAmerica

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

TestAmerica Laboratories, Inc.

Client Contact	Regulatory program: DW NPDES RCRA Other			
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No:
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 248-994-2240	Telephone: 330-497-9396	1 of 1 COCs
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Analyses	For lab use only
Phone: 248-994-2240	Sampler Name: S. Turner	TAT if different from below: 10 day; 3 weeks / 2 weeks / 1 week / 2 days / 1 day		Walk-in client
Project Name: Ford LTP	Method of Shipment/Carrier:			Lab sampling
Project Number: 30206169.0401; ~~03~~ 04 ST	Shipping/Tracking No:			Job/SDG No:
PO # US3410018772				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM	Sample Specific Notes / Special Instructions:
TRIP BLANK_120	----	---		1						1					N	G	X	X	X	X	X	X		1 Trip Blank
SUmf-34940BEACON-dl_120524	12/5/24	1330		6						6					N	G	X	X	X	X	X	X	X	3 VOAs for 8260D 3 VOAs for 8260D SIM

240-216231 COC

Possible Hazard Identification: ✓ Non-Hazard; Flammable; Skin Irritant; Poison B; Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): Return to Client; ✓ Disposal By Lab; Archive For ____ Months

Special Instructions/QC Requirements & Comments:

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena ~~#E203724~~ E203631

Level IV Reporting requested.

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	Arcadis	12/6/24 1205	[signature]	EETA	12/6/24 1205
[signature]	EETA	12/6/24 1207	KATHARINE MÄRTJN	EUR	12/7/24 800
Relinquished by	Company	Date/Time	Received in Laboratory by:	Company:	Date/Time:

eurofins | Air Toxics

12/13/2024
Ms. Angela Paulson
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: 30206169
Workorder #: 2412163

Dear Ms. Angela Paulson

The following report includes the data for the above referenced project for sample(s) received on 12/6/2024 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Jade White at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Jade White

Project Manager

eurofins | Air Toxics

WORK ORDER #: 2412163

Work Order Summary

CLIENT:	Ms. Angela Paulson Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 200 Highlands Ranch, CO 80129
PHONE:	248 994 2259	**P.O. #**	30206169.0801.04
FAX:		**PROJECT #**	30206169 Ford LTP
DATE RECEIVED:	12/06/2024	**CONTACT:**	Jade White
DATE COMPLETED:	12/13/2024		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	AA-34940BEACON-01_120524	Modified TO-15	2.4 "Hg	2 psi
01B	AA-34940BEACON-01_120524	Modified TO-15	2.4 "Hg	2 psi
02A	IAF-34940BEACON-01_120524	Modified TO-15	6.7 "Hg	1.9 psi
02B	IAF-34940BEACON-01_120524	Modified TO-15	6.7 "Hg	1.9 psi
03A	DUP-34940BEACON-01_120524	Modified TO-15	6.9 "Hg	1.9 psi
03B	DUP-34940BEACON-01_120524	Modified TO-15	6.9 "Hg	1.9 psi
04A	IAG-34940BEACON-03_120524	Modified TO-15	6.5 "Hg	1.9 psi
04B	IAG-34940BEACON-03_120524	Modified TO-15	6.5 "Hg	1.9 psi
05A	IAB-34940BEACON-02_120524	Modified TO-15	8.4 "Hg	1.8 psi
05B	IAB-34940BEACON-02_120524	Modified TO-15	8.4 "Hg	1.8 psi
06A	Lab Blank	Modified TO-15	NA	NA
06B	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
07B	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA
08B	LCS	Modified TO-15	NA	NA
08BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 12/13/24

Technical Director

Cert. No.: AZ Licensure-AZ0775, FL NELAP-E87680, LA NELAP–02089, MN NELAP-2703122, NH NELAP–209223-B, NJ NELAP-CA016, NY NELAP-11291, TX NELAP-T104704434, UT NELAP-CA009332023-16, VA NELAP-12695, WA NELAP-C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-20
Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
Arcadis U.S., Inc.
Workorder# 2412163

Five 6 Liter Summa Canister (100% SIM Ambient) samples were received on December 06, 2024. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

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

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	For Full Scan: 30% RSD with 4 compounds allowed out to < 40% RSD For SIM: Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	For Full Scan: </= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers For SIM: Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

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 may be false positives.

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

Definition of Data Qualifying Flags

Nine 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.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN - See case narrative explanation

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

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

Client Sample ID: AA-34940BEACON-01_120524

Lab ID#: 2412163-01A

No Detections Were Found.

Client Sample ID: AA-34940BEACON-01_120524

Lab ID#: 2412163-01B

No Detections Were Found.

Client Sample ID: IAF-34940BEACON-01_120524

Lab ID#: 2412163-02A

No Detections Were Found.

Client Sample ID: IAF-34940BEACON-01_120524

Lab ID#: 2412163-02B

No Detections Were Found.

Client Sample ID: DUP-34940BEACON-01_120524

Lab ID#: 2412163-03A

No Detections Were Found.

Client Sample ID: DUP-34940BEACON-01_120524

Lab ID#: 2412163-03B

No Detections Were Found.

Client Sample ID: IAG-34940BEACON-03_120524

Lab ID#: 2412163-04A

No Detections Were Found.

Client Sample ID: IAG-34940BEACON-03_120524

Lab ID#: 2412163-04B

No Detections Were Found.

Client Sample ID: IAB-34940BEACON-02_120524

Lab ID#: 2412163-05A

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

Client Sample ID: IAB-34940BEACON-02_120524

Lab ID#: 2412163-05A

No Detections Were Found.

Client Sample ID: IAB-34940BEACON-02_120524

Lab ID#: 2412163-05B

No Detections Were Found.

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Client Sample ID: AA-34940BEACON-01_120524

Lab ID#: 2412163-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121217**	**Date of Collection: 12/5/24 12:59:00 PM**	
Dil. Factor:	**1.23**	**Date of Analysis: 12/12/24 06:28 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.12	Not Detected	0.44	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: AA-34940BEACON-01_120524

Lab ID#: 2412163-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121217sim**	**Date of Collection: 12/5/24 12:59:00 PM**	
Dil. Factor:	**1.23**	**Date of Analysis: 12/12/24 06:28 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.012	Not Detected	0.031	Not Detected
1,1-Dichloroethene	0.012	Not Detected	0.049	Not Detected
trans-1,2-Dichloroethene	0.12	Not Detected	0.49	Not Detected
cis-1,2-Dichloroethene	0.025	Not Detected	0.098	Not Detected
Trichloroethene	0.025	Not Detected	0.13	Not Detected
Tetrachloroethene	0.025	Not Detected	0.17	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	119	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: IAF-34940BEACON-01_120524

Lab ID#: 2412163-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121218**	**Date of Collection: 12/5/24 1:07:00 PM**	
Dil. Factor:	**1.45**	**Date of Analysis: 12/12/24 07:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.14	Not Detected	0.52	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: IAF-34940BEACON-01_120524

Lab ID#: 2412163-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121218sim**	**Date of Collection: 12/5/24 1:07:00 PM**	
Dil. Factor:	**1.45**	**Date of Analysis: 12/12/24 07:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.037	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.057	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.11	Not Detected
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	117	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: DUP-34940BEACON-01_120524

Lab ID#: 2412163-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121219**	**Date of Collection: 12/5/24**	
Dil. Factor:	**1.47**	**Date of Analysis: 12/12/24 08:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.15	Not Detected	0.53	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: DUP-34940BEACON-01_120524

Lab ID#: 2412163-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121219sim**	**Date of Collection: 12/5/24**	
Dil. Factor:	**1.47**	**Date of Analysis: 12/12/24 08:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.058	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.12	Not Detected
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	117	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: IAG-34940BEACON-03_120524

Lab ID#: 2412163-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121220**	**Date of Collection: 12/5/24 1:03:00 PM**	
Dil. Factor:	**1.44**	**Date of Analysis: 12/12/24 08:52 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.14	Not Detected	0.52	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: IAG-34940BEACON-03_120524

Lab ID#: 2412163-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121220sim**	**Date of Collection: 12/5/24 1:03:00 PM**	
Dil. Factor:	**1.44**	**Date of Analysis: 12/12/24 08:52 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.037	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.057	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.11	Not Detected
Trichloroethene	0.029	Not Detected	0.15	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	117	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: IAB-34940BEACON-02_120524

Lab ID#: 2412163-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121221**	**Date of Collection: 12/5/24 1:10:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 12/12/24 09:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.16	Not Detected	0.56	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: IAB-34940BEACON-02_120524

Lab ID#: 2412163-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121221sim**	**Date of Collection: 12/5/24 1:10:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 12/12/24 09:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.062	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.62	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
Trichloroethene	0.031	Not Detected	0.17	Not Detected
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	118	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: Lab Blank

Lab ID#: 2412163-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121208a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 12:31 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2412163-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121208sima**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 12:31 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	118	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: CCV

Lab ID#: 2412163-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121203**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 09:06 AM**	

Compound	**%Recovery**
1,4-Dioxane	121

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	114	70-130
4-Bromofluorobenzene	109	70-130

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Client Sample ID: CCV

Lab ID#: 2412163-07B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121203sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 09:06 AM**	

Compound	**%Recovery**
Vinyl Chloride	92
1,1-Dichloroethene	83
trans-1,2-Dichloroethene	92
cis-1,2-Dichloroethene	90
Trichloroethene	119
Tetrachloroethene	108

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	123	70-130
4-Bromofluorobenzene	112	70-130

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Client Sample ID: LCS

Lab ID#: 2412163-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 09:50 AM**	

Compound	%Recovery	Method Limits
1,4-Dioxane	116	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	110	70-130
4-Bromofluorobenzene	106	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2412163-08AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121205**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 10:29 AM**	

Compound	%Recovery	Method Limits
1,4-Dioxane	118	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	111	70-130
4-Bromofluorobenzene	106	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2412163-08B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121204sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 09:50 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	91	70-130
1,1-Dichloroethene	80	70-130
trans-1,2-Dichloroethene	90	70-130
cis-1,2-Dichloroethene	88	70-130
Trichloroethene	115	70-130
Tetrachloroethene	106	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	120	70-130
4-Bromofluorobenzene	109	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2412163-08BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121205sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/24 10:29 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	92	70-130
1,1-Dichloroethene	80	70-130
trans-1,2-Dichloroethene	90	70-130
cis-1,2-Dichloroethene	88	70-130
Trichloroethene	115	70-130
Tetrachloroethene	107	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	120	70-130
4-Bromofluorobenzene	110	70-130

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Method : _Modified TO-15 Hi/Lo (Sh)-1,1-DCE, 1,4-Dioxane, c/t-1,2-DCE, PCE, TCE & VC

CAS Number	Compound	Rpt. Limit (ppbv)
75-01-4	Vinyl Chloride	0.010
75-35-4	1,1-Dichloroethene	0.010
156-60-5	trans-1,2-Dichloroethene	0.10
156-59-2	cis-1,2-Dichloroethene	0.020
79-01-6	Trichloroethene	0.020
127-18-4	Tetrachloroethene	0.020
123-91-1	1,4-Dioxane	0.10

	Surrogate	Method Limits
17060-07-0	1,2-Dichloroethane-d4	70-130
2037-26-5	Toluene-d8	70-130
460-00-4	**4-Bromofluorobenzene**	**70-130**

DATA VERIFICATION REPORT

December 16, 2024

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: 30206169.0201.04
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Air Toxics
Laboratory submittal: 2412163
Sample date: 2024-12-04
Report received by CADENA: 2024-12-13
Initial Data Verification completed by CADENA: 2024-12-16
Number of Samples: 5
Sample Matrices: AIR
Test Categories:GCMS VOC TO-15
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

No qualifications were required.

Sample Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

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.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

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 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 contaminates) 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 contaminates) 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.

Ford Motor Company – Livonia Transmission Project

Data Review

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG # 2412163

CADENA Verification Report: 2024-12-16

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report # 57294R
Review Level: Tier III
Project: 30206169.0201.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2412163 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					TO-15 (Full Scan)	TO-15 (SIM)
AA-34940BEACON-01_120524	2412163-01A	Air	12/05/2024		X	
AA-34940BEACON-01_120524	2412163-01B	Air	12/05/2024			X
IAF-34940BEACON-01_120524	2412163-02A	Air	12/05/2024		X	
IAF-34940BEACON-01_120524	2412163-02B	Air	12/05/2024			X
DUP-34940BEACON-01_120524	2412163-03A	Air	12/05/2024	IAB-34940BEACON-02_120524	X	
DUP-34940BEACON-01_120524	2412163-03B	Air	12/05/2024	IAB-34940BEACON-02_120524		X
IAG-34940BEACON-03_120524	2412163-04A	Air	12/05/2024		X	
IAG-34940BEACON-03_120524	2412163-04B	Air	12/05/2024			X
IAB-34940BEACON-02_120524	2412163-05A	Air	12/05/2024		X	
IAB-34940BEACON-02_120524	2412163-05B	Air	12/05/2024			X

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan/SIM). Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999 as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

  UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15 (Full Scan / SIM)	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable, and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater

than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compounds	Sample Result (ug/m3)	Duplicate Result (ug/m3)	RPD
IAB-34940BEACON-02_120524 / DUP-34940BEACON-01_120524	All compounds	U	U	AC

Note:
AC - Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan / SIM)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2”Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

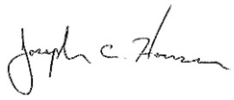
%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: December 23, 2024

PEER REVIEW: Andrew Korycinski

DATE: December 24, 2024

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

eurofins | Air Toxics

Client Sample ID: AA-34940BEACON-01_120524

Lab ID#: 2412163-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121217**	**Date of Collection: 12/5/24 12:59:00 PM**	
Dil. Factor:	**1.23**	**Date of Analysis: 12/12/24 06:28 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.12	Not Detected	0.44	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	92	70-130

eurofins | Air Toxics

Client Sample ID: AA-34940BEACON-01_120524

Lab ID#: 2412163-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121217sim**	**Date of Collection: 12/5/24 12:59:00 PM**	
Dil. Factor:	**1.23**	**Date of Analysis: 12/12/24 06:28 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.012	Not Detected	0.031	Not Detected
1,1-Dichloroethene	0.012	Not Detected	0.049	Not Detected
trans-1,2-Dichloroethene	0.12	Not Detected	0.49	Not Detected
cis-1,2-Dichloroethene	0.025	Not Detected	0.098	Not Detected
Trichloroethene	0.025	Not Detected	0.13	Not Detected
Tetrachloroethene	0.025	Not Detected	0.17	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	119	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: IAF-34940BEACON-01_120524

Lab ID#: 2412163-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121218**	**Date of Collection: 12/5/24 1:07:00 PM**	
Dil. Factor:	**1.45**	**Date of Analysis: 12/12/24 07:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.14	Not Detected	0.52	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: IAF-34940BEACON-01_120524

Lab ID#: 2412163-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121218sim**	**Date of Collection: 12/5/24 1:07:00 PM**	
Dil. Factor:	**1.45**	**Date of Analysis: 12/12/24 07:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.037	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.057	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.11	Not Detected
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	117	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: DUP-34940BEACON-01_120524

Lab ID#: 2412163-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121219**	**Date of Collection: 12/5/24**	
Dil. Factor:	**1.47**	**Date of Analysis: 12/12/24 08:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.15	Not Detected	0.53	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: DUP-34940BEACON-01_120524

Lab ID#: 2412163-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121219sim**	**Date of Collection: 12/5/24**	
Dil. Factor:	**1.47**	**Date of Analysis: 12/12/24 08:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.058	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.12	Not Detected
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	117	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: IAG-34940BEACON-03_120524

Lab ID#: 2412163-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121220**	**Date of Collection: 12/5/24 1:03:00 PM**	
Dil. Factor:	**1.44**	**Date of Analysis: 12/12/24 08:52 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.14	Not Detected	0.52	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: IAG-34940BEACON-03_120524

Lab ID#: 2412163-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121220sim**	**Date of Collection: 12/5/24 1:03:00 PM**	
Dil. Factor:	**1.44**	**Date of Analysis: 12/12/24 08:52 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.037	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.057	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.11	Not Detected
Trichloroethene	0.029	Not Detected	0.15	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	117	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: IAB-34940BEACON-02_120524

Lab ID#: 2412163-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121221**	**Date of Collection: 12/5/24 1:10:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 12/12/24 09:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,4-Dioxane	0.16	Not Detected	0.56	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: IAB-34940BEACON-02_120524

Lab ID#: 2412163-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**22121221sim**	**Date of Collection: 12/5/24 1:10:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 12/12/24 09:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.062	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.62	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
Trichloroethene	0.031	Not Detected	0.17	Not Detected
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	118	70-130
4-Bromofluorobenzene	98	70-130

Analysis Request /Canister Chain of Custody

2412163

For Laboratory Use Only VS 12/13/24

PID: _____ Workorder #: _____

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client:	Ford	PID:	NA
Project Name:	Ford LTP		30206169.0201.04
Project Manager:	Kris Hinskey	P.O.#	~~MI001454.0003-ST~~
Sampler:	Seth Turner, Kent Kasper		
Site Name:	34940 Beacon		

Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting

Turnaround Time (Rush surcharges may apply)
5 Day Turnaround Time

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	TO-15 (See Special Instructions/Notes)			
01A	AA-34940BEACON-01_120524	6L0797	26608	12/04/24	1405	12/05/24	1259	-29	-5.5			X			
02A	IAF-34940BEACON-01_120524	6L2331	27660	"	1414	"	1307	-29.5	-6.5			X			
03A	DUP-34940BEACON-01_120524	6L0966	26392	"	"	"	"	-29	-8.5			X			
04A	IAG-34940BEACON-03_120524	6L2982	26638	"	1427	"	1303	-29	-7			X			
05A	IAB-34940BEACON-02_120524	6L2465	21007	"	1422	"	1310	-29	-7.5			X			

Relinquished by: (Signature/Affiliation) Arcadis	Date 12/5/24	Time 1500	Received by: (Signature/Affiliation) FedEx	Date 12/5/24	Time 1500
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation) Earl	Date 12/6/24	Time 10:21
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only 12/6/24

Shipper Name: Fedex | Custody Seals Intact? (Yes) No (None)

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: 30206169

Site Location: 34940 beacon

Personnel Onsite: Seth Turner and Kent Kasper

Date	Time	Description of Activities
12/03/2024		Purpose: Round 6 visit 1 - Vapor Intrusion December 2024
		Weather: 35.06 degrees F and Mostly Cloudy
		Equipment: PID FA04702
	14:00	On site
	14:05	Conduct MDEQ survey
	14:15	Conduct chemical inventory
	14:45	Arcadis removes chemicals in bin from home. Off site.
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Visit 1 Checklist

Keeping windows & doors shut during IA/AA sampling was discussed? yes

Have background sources of VOCs been removed/isolated? yes

Is a sump pit present in the building? yes

Field Staff Signature: ST

Location of removed/isolated background VOCs: off site

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: 30206169

Site Location: 34940 Beacon

Personnel Onsite: Seth Turner and Kent Kasper

Date	Time	Description of Activities
12/04/2024		Purpose: Round 6 Visit 2 - Vapor Intrusion - December 2024
		Weather: 35 degrees F, Mostly Cloudy
		Equipment: PID FA04702
	14:00	Arcadis on site
	14:05	Deploy canisters
	14:40	Arcadis off site
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Visit 2 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 0

Number of indoor/ambient air samples collected: 5

Occupancy hours (for commercial properties only): --

Field Staff Signature: ST

Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: 30206169

Site Location: 34940 Beacon

Personnel Onsite: Seth Turner and Kent Kasper

Date	Time	Description of Activities
12/05/2024		Purpose: Round 6 Visit 3 - Vapor Intrusion - December 2024
		Weather: 24.08 degrees F and Mostly Cloudy, Windy
		Equipment: PID FA04702
	13:00	Arcadis on site
	13:30	Conduct sump sampling after basement canister closed
	14:00	Conduct canister collection
	14:05	Arcadis off site
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Visit 3 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 0

Number of indoor/ambient air samples collected: 5

Occupancy hours (for commercial properties only): --

Field Staff Signature: ST

Indoor/Outdoor Air Collection Log

Office Name & Address (Reporting Information): Novi, 28550 Cabot Dr, #500, Novi, MI,48377		Project Name: Ford LTP
Field Manager: Christina Weaver		Project Number: 30206169.0201.01
Phone: 248-832-0008	Special Instructions: Analyze for site-specific compounds of concern: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE, and VC. Submit all results through Cadena at jimtomalia@cadena.com Cadena #E203631. Level IV Reporting	Site Address: 34940 Beacon Livonia MI
		Sampler Name: Seth Turner — Phone Number:586-212-4017
Email Address for Result Reporting: Christina.Weaver@arcadis.com		Email:Seth.Turner@arcadis.com
Summa Canister Size (1L, 2.7 L, 6L): 6 L	Lab: Eurofins	Building Survey Completed? yes — Chemical Inventory Completed? yes — Background Sources Removed? yes

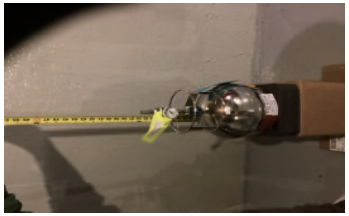
Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppm)	Date	Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure	Sample Collection End Time	Ending Canister Pressure	Sample Height	Heating, Ventilation, and Air Conditioning System Information						Duplicate ID	Notes
												HVAC Fan On?	Heat On?	Start Temperature Setting (°F)	Start Flow Rate (cfm)	End Temperature Setting (°F)	End Flow Rate (cfm)		
AA-34940Beacon-01_120524	Outside (ambient air)	Outdoor	0.0	12/04/2024	6L0797	26608	14:05	-29.0	12:59	-5.5	3.5	Yes	Yes	--	--	--	--	--	NA
IAB-34940Beacon-02_120524	Basement	Indoor	0.0	12/04/2024	6L2465	21007	14:22	-29.0	13:10	-7.50	3	Yes	Yes	72	3.5	72	3.5	--	NA
IAG-34940Beacon-03_120524	Garage	Indoor	0.0	12/04/2024	6L2982	26638	14:27	-29.0	13:03	-7.0	3	Yes	Yes	50	3.5	50	3.5	--	NA
DUP-34940Beacon-01_120524	Living Room	Indoor	--	12/04/2024	6L0966	26392	14:14	-29.0	13:07	-8.50	3	--	--	--	--	--	--	--	NA
IAF-34940Beacon-01_120524	Living Room	Indoor	0.0	12/04/2024	6L2331	27660	14:14	-29.5	13:07	-6.50	3	Yes	Yes	72	3.5	72	3.5	DUP-34940Beacon-01_120524	NA

Meteorological Data

Date	Time	Temp		Relative Humidity (%)	Barometric Pressure (in.Hg)	Weather source
		Indoor	Outdoor			
12/04/2024	13:53	72	32	64	29.58	32.0 degrees F and Cloudy and Windy. The wind is blowing undefined at 21.9 mph.
12/04/2024	13:53	50	32	64	29.58	
12/04/2024	13:53	34	32	64	29.58	
12/04/2024	13:53	72	32	64	29.58	
12/04/2024	13:53	72	32	64	29.58	

General Notes or Observations

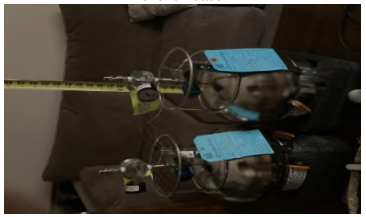
Photos



34940 Beacon

34940 Beacon

34940 Beacon



34940 Beacon

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date 10-3-18 Survey Performed by Hayden [illegible]

Re? 2-7-2? [illegible] [illegible]

1. OCCUPANT

R3 5/28/19 S. Johnson

Rent ____ Own X

Ray Julian

Resident Name Lynn Manley R2 Scott [illegible], R6: Kelsey Benito

R5: 2/27/2020
S. Johnson
X. Chan
no changes since last visit

Address 34940 Beacon Ave

Telephone Home 734 776-0750 Work. NA

How long have you lived at this location? Since 2009

R6: 12/3/24
S. Turner
K. Kasper

List current occupants/occupation below (attach additional pages if necessary).

Age (If under 18)	Sex (M/F)	Occupation
17	F	barista
16	F	Student / waitress
	~~M~~ ST	
	~~F~~ ST	

2. OWNER OR LANDLORD: (If same as occupant. check here ✓ and go to Item No. 3).

Last Name ____________ First Name ____________

Address ____________

City and State ____________

County ____________

Home Phone ____________ Office Phone: ____________

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: 2-story home Year Constructed: 1987

Number of floors at or above grade: 2

Number of floors below grade: 1 (full basement/crawl space/slab on grade)

Depth of structure below grade: ~7 ft. Basement size: 848 ft²

If the property is residential, what type? (Circle all appropriate responses.)

Ranch	(2-Family)	3-Family	Raised Ranch
Split Level	Colonial	Cape Cod	Contemporary
Mobile Home	Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: single family 2-story home	

If multiple units, how many? NA

If the property is commercial:

Business type(s) NA

Does it include residences (i.e., multi-use)? Yes No If yes, how many? ____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom (Almost Never)

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	Storage
1st Floor	Living use (Main Living)
2nd Floor	Living use (bedrooms)
3rd Floor	
4th Floor	

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction (Describe type): wood frame, concrete, stone, brick).

b. Basement Type: (Full) Crawlspace Slab Other: _____

c. Basement Floor: (Concrete) Dirt Stone Other: _____

d. Finished Basement Floor: (Uncovered) Covered

If covered, what with? U/F

e. Foundation Walls: (Poured) Block Stone Other: _____

f. Foundation Walls: Unsealed (Sealed) Sealed with: K-1-2

g. The Basement is: Wet Damp (Dry)

h. The Basement is: Finished (Unfinished) Partially Finished

i. Sump Present? (Y / N) If yes, how many? 1

Where Discharged? Sanitary Sewer

Water in Sump? (Yes) No Not Applicable

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Cracks along basement footers

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes (No)

Type of ground cover outside of building: (Grass) (Concrete) Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes (No)

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes (No)

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

(Hot Air Circulation)	Heat Pump	Hot Water Baseboard
Space Heaters	Steam Radiation	Radiant Floor
Electric Baseboard	Wood Stove	Outdoor Wood Boiler
Other: _____		

The primary type of fuel used is:

(Natural Gas)	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: Natural Gas

Location of Boiler/Furnace: (Basement) Outdoors Main Floor Other _____

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

RB

g) Have cleaning products been used recently? 5/28/19 **Yes** ~~No~~ (No)

If yes, when and what type? N/A 5 General Household Cleaners

h) Have cosmetic products been used recently? 5/24/19 **Yes** (No)

If yes, when and what type? N/A Hairspray

i) Has there been painting or staining in the last six months? **Yes** ~~No~~ HL No

If yes, when and where? Small scale craft painting on canvas

j) Is there new carpet, drapes, or other textiles? Yes **No**

If yes, when and where? N/A

k) Have air fresheners been used recently? **Yes** (No)

If yes, when and what type? Febreeze, Bathroom air freshener

l) Is there a kitchen exhaust fan? Yes **No**

If yes, where is it vented? N/A

m) Is there a clothes dryer? **Yes** No

If yes, is it vented outside? **Yes** No

n) Has there been a pesticide application? Yes **No**

If yes, when and what type? N/A

o) Are there odors in the building? Yes **No**

If yes, please describe: N/A

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes (No)

If yes, what types of solvents are used? NA

If yes, are their clothes washed at work? Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

(No) Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure? (Yes) No

If yes, what is date of installation? NA (Active) Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.)

NA

SUB/SLAB MITIGATION PARTIALLY COMPLETE mitigation System installed

R2 PID: 45 ppb (garage)

PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

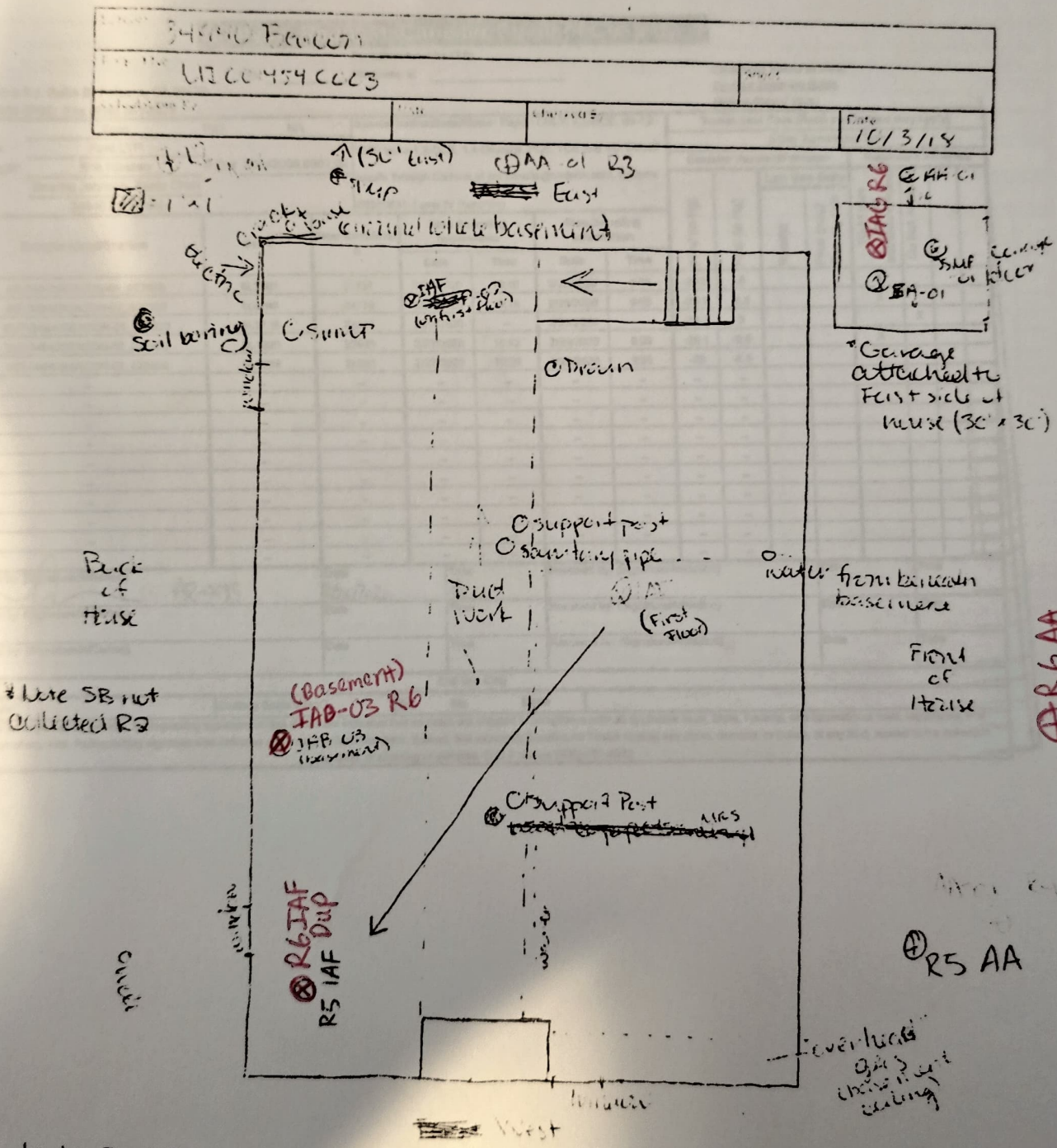
R3 5/28/19

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N	
Gasoline Storage Cans and Equipment	Throughout garage	2-5gal / 1-1gal	Gasoline	158 ppm	Yes	1400 PPB
Kerosene Storage Cans						
Paints/Thinners/Strippers	SE corner garage	~7gal	—	55 ppm	Y	NOT IN R3
Cleaning Solvents						
Hobby Supplies – Glue, Paint, Etc.						
Oven Cleaner						
Carpet/Upholstery Cleaners						
Household Cleaners (non-solvent)						
Moth Balls						
Polishes/Waxes						
Insecticides						
Furniture/Floor Polish	Front of garage	1 can	—	0.0	N	0 PPB
Hairspray						
Cologne/Perfume						
Air Fresheners						
Interior Fuel Tank						
Wood Stove/Fireplace						
New Furniture/Upholstery						
New Carpeting/Flooring						
Others (fill in below)						
PROPANE	GARAGE	10 CANS				
LAWN MOWER	GARAGE					25 PPB

*Chemicals isolated/removed in [illegible] [illegible] in the back yard shed. No new chemicals have been acquired [illegible]

R5: Garage PID: 0
House PID: 0

ARCADIS



Note. Soil Boring only collected R1

(SV) 2/27/20

IACS sample only collected in Round 1