

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-139621-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
11/19/2020 9:47:47 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
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.
α	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

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

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Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-139621-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/5/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.1° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139621-1) and MW-204_110220 (240-139621-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/12/2020.

Sample MW-204_110220 (240-139621-2)[2.5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-139621-1	TRIP BLANK	Water	11/02/20 00:00	11/05/20 09:20	
240-139621-2	MW-204_110220	Water	11/02/20 15:00	11/05/20 09:20	

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139621-1

No Detections.

Client Sample ID: MW-204_110220

Lab Sample ID: 240-139621-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.6	J	2.5	0.40	ug/L	2.5		8260B	Total/NA
Trichloroethene	70		2.5	0.25	ug/L	2.5		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton



Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139621-1

Date Collected: 11/02/20 00:00

Matrix: Water

Date Received: 11/05/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/12/20 16:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/12/20 16:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/12/20 16:24	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/12/20 16:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		75 - 130		11/12/20 16:24	1
4-Bromofluorobenzene (Surr)	94		47 - 134		11/12/20 16:24	1
Toluene-d8 (Surr)	103		69 - 122		11/12/20 16:24	1
Dibromofluoromethane (Surr)	113		78 - 129		11/12/20 16:24	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Client Sample ID: MW-204_110220

Lab Sample ID: 240-139621-2

Date Collected: 11/02/20 15:00

Matrix: Water

Date Received: 11/05/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.6	J	2.5	0.40	ug/L			11/12/20 16:47	2.5
trans-1,2-Dichloroethene	2.5	U	2.5	0.48	ug/L			11/12/20 16:47	2.5
Trichloroethene	70		2.5	0.25	ug/L			11/12/20 16:47	2.5
Vinyl chloride	2.5	U	2.5	0.50	ug/L			11/12/20 16:47	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 130		11/12/20 16:47	2.5
4-Bromofluorobenzene (Surr)	101		47 - 134		11/12/20 16:47	2.5
Toluene-d8 (Surr)	107		69 - 122		11/12/20 16:47	2.5
Dibromofluoromethane (Surr)	122		78 - 129		11/12/20 16:47	2.5

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-139621-1	TRIP BLANK	103	94	103	113
240-139621-2	MW-204_110220	110	101	107	122
240-139675-B-1 MS	Matrix Spike	108	108	111	120
240-139675-B-1 MSD	Matrix Spike Duplicate	114	111	112	128
LCS 240-460598/4	Lab Control Sample	104	102	108	118
MB 240-460598/6	Method Blank	108	98	105	115

Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

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

Lab Sample ID: MB 240-460598/6
Matrix: Water
Analysis Batch: 460598

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/12/20 12:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/12/20 12:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/12/20 12:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/12/20 12:17	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	108		75 - 130		11/12/20 12:17	1
4-Bromofluorobenzene (Surr)	98		47 - 134		11/12/20 12:17	1
Toluene-d8 (Surr)	105		69 - 122		11/12/20 12:17	1
Dibromofluoromethane (Surr)	115		78 - 129		11/12/20 12:17	1

Lab Sample ID: LCS 240-460598/4
Matrix: Water
Analysis Batch: 460598

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
cis-1,2-Dichloroethene	10.0	10.7		ug/L		107	75 - 124
trans-1,2-Dichloroethene	10.0	11.3		ug/L		113	74 - 130
Trichloroethene	10.0	9.72		ug/L		97	71 - 121
Vinyl chloride	10.0	10.4		ug/L		104	61 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	104		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	108		69 - 122
Dibromofluoromethane (Surr)	118		78 - 129

Lab Sample ID: 240-139675-B-1 MS
Matrix: Water
Analysis Batch: 460598

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

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
cis-1,2-Dichloroethene	67	U F1	667	821	F1	ug/L		123	68 - 121
trans-1,2-Dichloroethene	57	J F1	667	848		ug/L		119	69 - 126
Trichloroethene	19	J	667	665		ug/L		97	56 - 124
Vinyl chloride	80	F1	667	1010	F1	ug/L		140	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	108		75 - 130
4-Bromofluorobenzene (Surr)	108		47 - 134
Toluene-d8 (Surr)	111		69 - 122
Dibromofluoromethane (Surr)	120		78 - 129

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

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

Lab Sample ID: 240-139675-B-1 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 460598

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	67	U F1	667	893	F1	ug/L		134	68 - 121	8	35
trans-1,2-Dichloroethene	57	J F1	667	926	F1	ug/L		130	69 - 126	9	35
Trichloroethene	19	J	667	708		ug/L		103	56 - 124	6	35
Vinyl chloride	80	F1	667	1070	F1	ug/L		148	49 - 136	5	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	114		75 - 130
4-Bromofluorobenzene (Surr)	111		47 - 134
Toluene-d8 (Surr)	112		69 - 122
Dibromofluoromethane (Surr)	128		78 - 129



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

GC/MS VOA

Analysis Batch: 460598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139621-1	TRIP BLANK	Total/NA	Water	8260B	
240-139621-2	MW-204_110220	Total/NA	Water	8260B	
MB 240-460598/6	Method Blank	Total/NA	Water	8260B	
LCS 240-460598/4	Lab Control Sample	Total/NA	Water	8260B	
240-139675-B-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-139675-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

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Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139621-1

Date Collected: 11/02/20 00:00

Matrix: Water

Date Received: 11/05/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	460598	11/12/20 16:24	LEE	TAL CAN

Client Sample ID: MW-204_110220

Lab Sample ID: 240-139621-2

Date Collected: 11/02/20 15:00

Matrix: Water

Date Received: 11/05/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2.5	460598	11/12/20 16:47	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139621-1

Laboratory: Eurofins TestAmerica, Canton

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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20



Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : 139621
Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Math Snyder
Cooler Received on 11-5-20 Opened on 11-5-20
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____
Receipt After-hours: Drop-off Date/Time Storage Location _____

TestAmerica Cooler # NA 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# IR-11 (CF +0.9 °C) Observed Cooler Temp. 0.2 °C Corrected Cooler Temp. 1.1 °C
IR GUN #IR-12 (CF +0.5 °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)?
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# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

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

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

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: _____