

ANALYTICAL REPORT

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

Laboratory Job ID: 240-140743-1
Client Project/Site: Ford LTP - On Site

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

Attn: Kristoffer Hinskey



Authorized for release by:
12/3/2020 11:13:16 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

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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 - On Site

Job ID: 240-140743-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
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 - On Site

Job ID: 240-140743-1

Job ID: 240-140743-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - On Site

Report Number: 240-140743-1

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 11/21/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.2° C and 3.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-140743-1), MW-199S_111820 (240-140743-2), MW-197S_111820 (240-140743-3), MW-219S_111820 (240-140743-4) and MW-33_111820 (240-140743-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 12/01/2020.

1,1-Dichloroethene failed the recovery criteria low for LCS 240-463447/4. Refer to the QC report for details.

1,1-Dichloroethene failed the recovery criteria low for the MS of sample MW-33-MS_111820MS (240-140743-5) in batch 240-463447. Refer to the QC report for details.

Sample MW-197S_111820 (240-140743-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) for analytical batch 463447 exceeded control criteria for multiple compounds. The samples associated with this CCV were non-detect for the affected analytes. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compounds were detected; therefore the data has been reported. No further corrective action was required: TRIP BLANK (240-140743-1), MW-199S_111820 (240-140743-2), MW-197S_111820 (240-140743-3),

Case Narrative

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

Job ID: 240-140743-1

Job ID: 240-140743-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

MW-219S_111820 (240-140743-4) and MW-33_111820 (240-140743-5).

The Laboratory Control Sample (LCS) for analytical batch 463447 exceeded control criteria for one or multiple compounds. The samples associated with this LCS were non-detect for the affected analytes. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compounds were detected; therefore the data has been reported. No further corrective action was required: TRIP BLANK (240-140743-1), MW-199S_111820 (240-140743-2), MW-197S_111820 (240-140743-3), MW-219S_111820 (240-140743-4), MW-33_111820 (240-140743-5) and (LCS 240-463447/4).

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-199S_111820 (240-140743-2), MW-197S_111820 (240-140743-3), MW-219S_111820 (240-140743-4) and MW-33_111820 (240-140743-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/27/2020 and 11/30/2020.

No 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 - On Site

Job ID: 240-140743-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	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 - On Site

Job ID: 240-140743-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-140743-1	TRIP BLANK	Water	11/18/20 00:00	11/21/20 09:20	
240-140743-2	MW-199S_111820	Water	11/18/20 09:07	11/21/20 09:20	
240-140743-3	MW-197S_111820	Water	11/18/20 10:22	11/21/20 09:20	
240-140743-4	MW-219S_111820	Water	11/18/20 12:00	11/21/20 09:20	
240-140743-5	MW-33_111820	Water	11/18/20 13:47	11/21/20 09:20	

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Detection Summary

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

Job ID: 240-140743-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140743-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.21	J	1.0	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: MW-199S_111820

Lab Sample ID: 240-140743-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.6	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.19	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.23	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-197S_111820

Lab Sample ID: 240-140743-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	31		5.0	0.80	ug/L	5		8260B	Total/NA
trans-1,2-Dichloroethene	1.6	J	5.0	0.95	ug/L	5		8260B	Total/NA
Trichloroethene	93		5.0	0.50	ug/L	5		8260B	Total/NA
Vinyl chloride	2.5	J	5.0	1.0	ug/L	5		8260B	Total/NA

Client Sample ID: MW-219S_111820

Lab Sample ID: 240-140743-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.12	J	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: MW-33_111820

Lab Sample ID: 240-140743-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

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

Job ID: 240-140743-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140743-1

Date Collected: 11/18/20 00:00

Matrix: Water

Date Received: 11/21/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U *	1.0	0.19	ug/L			12/01/20 13:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/01/20 13:59	1
Tetrachloroethene	0.21	J	1.0	0.15	ug/L			12/01/20 13:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/01/20 13:59	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/01/20 13:59	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/01/20 13:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 130		12/01/20 13:59	1
4-Bromofluorobenzene (Surr)	78		47 - 134		12/01/20 13:59	1
Toluene-d8 (Surr)	100		69 - 122		12/01/20 13:59	1
Dibromofluoromethane (Surr)	90		78 - 129		12/01/20 13:59	1

Client Sample Results

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

Job ID: 240-140743-1

Client Sample ID: MW-199S_111820

Lab Sample ID: 240-140743-2

Date Collected: 11/18/20 09:07

Matrix: Water

Date Received: 11/21/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.6	J	2.0	0.86	ug/L			11/30/20 11:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 133		11/30/20 11:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U *	1.0	0.19	ug/L			12/01/20 14:21	1
cis-1,2-Dichloroethene	0.19	J	1.0	0.16	ug/L			12/01/20 14:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/01/20 14:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/01/20 14:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/01/20 14:21	1
Vinyl chloride	0.23	J	1.0	0.20	ug/L			12/01/20 14:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		75 - 130		12/01/20 14:21	1
4-Bromofluorobenzene (Surr)	76		47 - 134		12/01/20 14:21	1
Toluene-d8 (Surr)	97		69 - 122		12/01/20 14:21	1
Dibromofluoromethane (Surr)	91		78 - 129		12/01/20 14:21	1

Client Sample Results

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

Job ID: 240-140743-1

Client Sample ID: MW-197S_111820

Lab Sample ID: 240-140743-3

Date Collected: 11/18/20 10:22

Matrix: Water

Date Received: 11/21/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/27/20 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 133		11/27/20 17:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U *	5.0	0.95	ug/L			12/01/20 14:43	5
cis-1,2-Dichloroethene	31		5.0	0.80	ug/L			12/01/20 14:43	5
Tetrachloroethene	5.0	U	5.0	0.75	ug/L			12/01/20 14:43	5
trans-1,2-Dichloroethene	1.6	J	5.0	0.95	ug/L			12/01/20 14:43	5
Trichloroethene	93		5.0	0.50	ug/L			12/01/20 14:43	5
Vinyl chloride	2.5	J	5.0	1.0	ug/L			12/01/20 14:43	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 130		12/01/20 14:43	5
4-Bromofluorobenzene (Surr)	76		47 - 134		12/01/20 14:43	5
Toluene-d8 (Surr)	99		69 - 122		12/01/20 14:43	5
Dibromofluoromethane (Surr)	90		78 - 129		12/01/20 14:43	5

Client Sample Results

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

Job ID: 240-140743-1

Client Sample ID: MW-219S_111820

Lab Sample ID: 240-140743-4

Date Collected: 11/18/20 12:00

Matrix: Water

Date Received: 11/21/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/27/20 18:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 133		11/27/20 18:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U *	1.0	0.19	ug/L			12/01/20 15:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/01/20 15:04	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/01/20 15:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/01/20 15:04	1
Trichloroethene	0.12	J	1.0	0.10	ug/L			12/01/20 15:04	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/01/20 15:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		75 - 130		12/01/20 15:04	1
4-Bromofluorobenzene (Surr)	76		47 - 134		12/01/20 15:04	1
Toluene-d8 (Surr)	96		69 - 122		12/01/20 15:04	1
Dibromofluoromethane (Surr)	91		78 - 129		12/01/20 15:04	1

Client Sample Results

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

Job ID: 240-140743-1

Client Sample ID: MW-33_111820

Lab Sample ID: 240-140743-5

Date Collected: 11/18/20 13:47

Matrix: Water

Date Received: 11/21/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/27/20 18:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 133		11/27/20 18:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U F1 *	1.0	0.19	ug/L			12/01/20 15:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/01/20 15:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/01/20 15:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/01/20 15:26	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/01/20 15:26	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/01/20 15:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		75 - 130		12/01/20 15:26	1
4-Bromofluorobenzene (Surr)	75		47 - 134		12/01/20 15:26	1
Toluene-d8 (Surr)	97		69 - 122		12/01/20 15:26	1
Dibromofluoromethane (Surr)	90		78 - 129		12/01/20 15:26	1

Surrogate Summary

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

Job ID: 240-140743-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-140743-1	TRIP BLANK	93	78	100	90
240-140743-2	MW-199S_111820	95	76	97	91
240-140743-3	MW-197S_111820	94	76	99	90
240-140743-4	MW-219S_111820	97	76	96	91
240-140743-5	MW-33_111820	95	75	97	90
240-140743-5 MS	MW-33-MS_111820	83	98	107	81
240-140743-5 MSD	MW-33-MSD_111820	83	100	106	82
LCS 240-463447/4	Lab Control Sample	80	99	104	82
MB 240-463447/7	Method Blank	91	80	97	87

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (70-133)
240-140742-A-2 MS	Matrix Spike	97
240-140742-A-2 MSD	Matrix Spike Duplicate	99
240-140743-2	MW-199S_111820	98
240-140743-3	MW-197S_111820	97
240-140743-4	MW-219S_111820	97
240-140743-5	MW-33_111820	97
240-140743-5 MS	MW-33-MS_111820	100
240-140743-5 MSD	MW-33-MSD_111820	100
240-140875-A-4 MS	Matrix Spike	99
240-140875-A-4 MSD	Matrix Spike Duplicate	100
LCS 240-462974/4	Lab Control Sample	96
LCS 240-463229/4	Lab Control Sample	99
MB 240-462974/5	Method Blank	94
MB 240-463229/5	Method Blank	102

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-140743-1

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

Lab Sample ID: MB 240-463447/7
Matrix: Water
Analysis Batch: 463447

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	0.19	ug/L			12/01/20 11:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/01/20 11:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/01/20 11:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/01/20 11:45	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/01/20 11:45	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/01/20 11:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		12/01/20 11:45	1
4-Bromofluorobenzene (Surr)	80		47 - 134		12/01/20 11:45	1
Toluene-d8 (Surr)	97		69 - 122		12/01/20 11:45	1
Dibromofluoromethane (Surr)	87		78 - 129		12/01/20 11:45	1

Lab Sample ID: LCS 240-463447/4
Matrix: Water
Analysis Batch: 463447

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	10.0	7.21	*	ug/L		72	73 - 129
cis-1,2-Dichloroethene	10.0	10.5		ug/L		105	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	74 - 130
Trichloroethene	10.0	8.63		ug/L		86	71 - 121
Vinyl chloride	10.0	6.73		ug/L		67	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	80		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	104		69 - 122
Dibromofluoromethane (Surr)	82		78 - 129

Lab Sample ID: 240-140743-5 MS
Matrix: Water
Analysis Batch: 463447

Client Sample ID: MW-33-MS_111820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U F1 *	10.0	5.65	F1	ug/L		57	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.86		ug/L		89	68 - 121
Tetrachloroethene	1.0	U	10.0	8.98		ug/L		90	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.58		ug/L		86	69 - 126
Trichloroethene	1.0	U	10.0	7.17		ug/L		72	56 - 124
Vinyl chloride	1.0	U	10.0	5.81		ug/L		58	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		75 - 130
4-Bromofluorobenzene (Surr)	98		47 - 134
Toluene-d8 (Surr)	107		69 - 122

QC Sample Results

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

Job ID: 240-140743-1

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

Lab Sample ID: 240-140743-5 MS
Matrix: Water
Analysis Batch: 463447

Client Sample ID: MW-33-MS_111820
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	81		78 - 129

Lab Sample ID: 240-140743-5 MSD
Matrix: Water
Analysis Batch: 463447

Client Sample ID: MW-33-MSD_111820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U F1 *	10.0	6.54		ug/L		65	64 - 132	15	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.26		ug/L		93	68 - 121	4	35
Tetrachloroethene	1.0	U	10.0	9.96		ug/L		100	52 - 129	10	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.27		ug/L		93	69 - 126	8	35
Trichloroethene	1.0	U	10.0	7.62		ug/L		76	56 - 124	6	35
Vinyl chloride	1.0	U	10.0	7.10		ug/L		71	49 - 136	20	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	106		69 - 122
Dibromofluoromethane (Surr)	82		78 - 129

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

Lab Sample ID: MB 240-462974/5
Matrix: Water
Analysis Batch: 462974

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			11/27/20 13:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		11/27/20 13:15	1

Lab Sample ID: LCS 240-462974/4
Matrix: Water
Analysis Batch: 462974

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	10.5		ug/L		105	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		70 - 133

Lab Sample ID: 240-140742-A-2 MS
Matrix: Water
Analysis Batch: 462974

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
1,4-Dioxane	2.0	U	10.0	10.2		ug/L		102	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-140743-1

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 133

Lab Sample ID: 240-140742-A-2 MSD
Matrix: Water
Analysis Batch: 462974

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
1,4-Dioxane	2.0	U	10.0	10.8		ug/L		108	46 - 170	6	26

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		70 - 133

Lab Sample ID: 240-140743-5 MS
Matrix: Water
Analysis Batch: 462974

Client Sample ID: MW-33-MS_111820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	46 - 170

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 133

Lab Sample ID: 240-140743-5 MSD
Matrix: Water
Analysis Batch: 462974

Client Sample ID: MW-33-MSD_111820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	11.2		ug/L		112	46 - 170	7	26

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 133

Lab Sample ID: MB 240-463229/5
Matrix: Water
Analysis Batch: 463229

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			11/30/20 10:56	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		11/30/20 10:56	1

Lab Sample ID: LCS 240-463229/4
Matrix: Water
Analysis Batch: 463229

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	10.8		ug/L		108	80 - 135

QC Sample Results

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

Job ID: 240-140743-1

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

Lab Sample ID: LCS 240-463229/4
Matrix: Water
Analysis Batch: 463229

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

	LCS	LCS	
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	99		70 - 133

Lab Sample ID: 240-140875-A-4 MS
Matrix: Water
Analysis Batch: 463229

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

<u>Analyte</u>	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier	Added	Result	Qualifier				Limits	Limits
1,4-Dioxane	2.0	U	10.0	10.7		ug/L		107	46	170
<u>Surrogate</u>	MS	MS								
1,2-Dichloroethane-d4 (Surr)	99		70 - 133							

Lab Sample ID: 240-140875-A-4 MSD
Matrix: Water
Analysis Batch: 463229

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

<u>Analyte</u>	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	46	170	1	26
<u>Surrogate</u>	MSD	MSD										
1,2-Dichloroethane-d4 (Surr)	100		70 - 133									

QC Association Summary

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

Job ID: 240-140743-1

GC/MS VOA

Analysis Batch: 462974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140743-3	MW-197S_111820	Total/NA	Water	8260B SIM	
240-140743-4	MW-219S_111820	Total/NA	Water	8260B SIM	
240-140743-5	MW-33_111820	Total/NA	Water	8260B SIM	
MB 240-462974/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-462974/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-140742-A-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-140742-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	
240-140743-5 MS	MW-33-MS_111820	Total/NA	Water	8260B SIM	
240-140743-5 MSD	MW-33-MSD_111820	Total/NA	Water	8260B SIM	

Analysis Batch: 463229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140743-2	MW-199S_111820	Total/NA	Water	8260B SIM	
MB 240-463229/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-463229/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-140875-A-4 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-140875-A-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 463447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140743-1	TRIP BLANK	Total/NA	Water	8260B	
240-140743-2	MW-199S_111820	Total/NA	Water	8260B	
240-140743-3	MW-197S_111820	Total/NA	Water	8260B	
240-140743-4	MW-219S_111820	Total/NA	Water	8260B	
240-140743-5	MW-33_111820	Total/NA	Water	8260B	
MB 240-463447/7	Method Blank	Total/NA	Water	8260B	
LCS 240-463447/4	Lab Control Sample	Total/NA	Water	8260B	
240-140743-5 MS	MW-33-MS_111820	Total/NA	Water	8260B	
240-140743-5 MSD	MW-33-MSD_111820	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-140743-1

Client Sample ID: TRIP BLANK

Date Collected: 11/18/20 00:00

Date Received: 11/21/20 09:20

Lab Sample ID: 240-140743-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463447	12/01/20 13:59	LEE	TAL CAN

Client Sample ID: MW-199S_111820

Date Collected: 11/18/20 09:07

Date Received: 11/21/20 09:20

Lab Sample ID: 240-140743-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463447	12/01/20 14:21	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	463229	11/30/20 11:46	SAM	TAL CAN

Client Sample ID: MW-197S_111820

Date Collected: 11/18/20 10:22

Date Received: 11/21/20 09:20

Lab Sample ID: 240-140743-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	463447	12/01/20 14:43	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	462974	11/27/20 17:53	SAM	TAL CAN

Client Sample ID: MW-219S_111820

Date Collected: 11/18/20 12:00

Date Received: 11/21/20 09:20

Lab Sample ID: 240-140743-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463447	12/01/20 15:04	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	462974	11/27/20 18:18	SAM	TAL CAN

Client Sample ID: MW-33_111820

Date Collected: 11/18/20 13:47

Date Received: 11/21/20 09:20

Lab Sample ID: 240-140743-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463447	12/01/20 15:26	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	462974	11/27/20 18:43	SAM	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 - On Site

Job ID: 240-140743-1

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

Chain of Custody Record

MICHIGAN

TestAmerica

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

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Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com

Site Contact: Julia McClafferty
 Telephone: 734-644-5131

Lab Contact: Mike DelMonico
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377

Phone: 248-994-2240

Project Name: Ford LTP On-Site
 Project Number: 30050315.401.03
 PO # 30050315.401.03

Sampler Name: Xenia Chan
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix						Containers & Preservatives						Filtered Sample (Y/N)	Composite=C / Grab=G	Analyses						Sample Specific Notes / Special Instructions:							
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	Upters	Other:			H2SO4	HNO3	HCl	NaOH	ZnAc	Upters		Other:	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B
TRIP BLANK																														1 Trip Blank
MW-199S-111820	11/18/20	907																												3 Vials for 8260B 3 Vials for 8260B SIM
MW-197S-111820	11/18/20	1022																												
MW-219S-111820	11/18/20	1200																												
MW-33-111820	11/18/20	1347																												
MW-33-MS-111820	11/18/20	1347																												Run MS/MSD
MW-33-MSD-111820	11/18/20	1347																												Run MS/MSD



Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if san
 Return to Client Disposal By Lab

Special Instructions/QC Requirements & Comments:

Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203728
 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Kelvin	Arcadis	11/18/20 1445	Non Gold Spurge	Arcadis	11/18/20 1445
Charlytalen	ARCADIS	11/19/20 1055	Yanellgen et A	Company:	11/19/20 10:55
Charlytalen	ETA	11/19/20 1700	ETA	Company:	11-20-20 920



Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login #: 140743
Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Matthew Snyder
Cooler Received on 11-20-20 Opened on 11-21-20
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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


TestAmerica Cooler # 7A 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. _____ °C Corrected Cooler Temp. _____ °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 NA
-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: _____

