

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-126349-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
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Attn: Kristoffer Hinskey



Authorized for release by:
2/28/2020 10:36:29 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: 240-126349-1

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.
X	Surrogate is outside control limits

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

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

Job ID: 240-126349-1

Job ID: 240-126349-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-126349-1

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 2/14/2020 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.6° C, 4.4° C and 4.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-126349-1), MW-87_021220 (240-126349-2), MW-87S_021220 (240-126349-3), MW-84S_021220 (240-126349-4) and MW-84_021220 (240-126349-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/21/2020.

1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria low for MW-87-MS_021220MS (240-126349-2MS).
1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria low for MW-84-MS_021220MS (240-126349-5MS).
1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria low for MW-87-MSD_021220MSD (240-126349-2MSD).
1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria low for MW-84-MSD_021220MSD (240-126349-5MSD). Refer to the QC report for details.

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-87_021220 (240-126349-2), MW-87S_021220 (240-126349-3), MW-84S_021220 (240-126349-4) and MW-84_021220 (240-126349-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The

Case Narrative

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

Job ID: 240-126349-1

Job ID: 240-126349-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

samples were analyzed on 02/22/2020 and 02/24/2020.

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

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Method Summary

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

Job ID: 240-126349-1

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



Sample Summary

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

Job ID: 240-126349-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-126349-1	TRIP BLANK	Water	02/12/20 00:00	02/14/20 08:50	
240-126349-2	MW-87_021220	Water	02/12/20 10:10	02/14/20 08:50	
240-126349-3	MW-87S_021220	Water	02/12/20 11:15	02/14/20 08:50	
240-126349-4	MW-84S_021220	Water	02/12/20 13:25	02/14/20 08:50	
240-126349-5	MW-84_021220	Water	02/12/20 12:20	02/14/20 08:50	

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- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-126349-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126349-1

No Detections.

Client Sample ID: MW-87_021220

Lab Sample ID: 240-126349-2

No Detections.

Client Sample ID: MW-87S_021220

Lab Sample ID: 240-126349-3

No Detections.

Client Sample ID: MW-84S_021220

Lab Sample ID: 240-126349-4

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-84_021220

Lab Sample ID: 240-126349-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.10	J	1.0	0.10	ug/L	1		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: 240-126349-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126349-1

Date Collected: 02/12/20 00:00

Matrix: Water

Date Received: 02/14/20 08:50

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			02/21/20 15:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/21/20 15:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/21/20 15:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/21/20 15:22	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/21/20 15:22	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/21/20 15:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		75 - 130		02/21/20 15:22	1
4-Bromofluorobenzene (Surr)	67		47 - 134		02/21/20 15:22	1
Toluene-d8 (Surr)	85		69 - 122		02/21/20 15:22	1
Dibromofluoromethane (Surr)	83		78 - 129		02/21/20 15:22	1

Client Sample Results

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

Job ID: 240-126349-1

Client Sample ID: MW-87_021220

Lab Sample ID: 240-126349-2

Date Collected: 02/12/20 10:10

Matrix: Water

Date Received: 02/14/20 08:50

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	-		02/22/20 08:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		70 - 133		02/22/20 08:31	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	-		02/21/20 15:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/21/20 15:44	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/21/20 15:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/21/20 15:44	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/21/20 15:44	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/21/20 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		75 - 130		02/21/20 15:44	1
4-Bromofluorobenzene (Surr)	62		47 - 134		02/21/20 15:44	1
Toluene-d8 (Surr)	78		69 - 122		02/21/20 15:44	1
Dibromofluoromethane (Surr)	82		78 - 129		02/21/20 15:44	1

Client Sample Results

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

Job ID: 240-126349-1

Client Sample ID: MW-87S_021220

Lab Sample ID: 240-126349-3

Date Collected: 02/12/20 11:15

Matrix: Water

Date Received: 02/14/20 08:50

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	-		02/22/20 10:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/22/20 10:02	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	-		02/21/20 16:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/21/20 16:49	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/21/20 16:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/21/20 16:49	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/21/20 16:49	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/21/20 16:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		75 - 130		02/21/20 16:49	1
4-Bromofluorobenzene (Surr)	66		47 - 134		02/21/20 16:49	1
Toluene-d8 (Surr)	84		69 - 122		02/21/20 16:49	1
Dibromofluoromethane (Surr)	89		78 - 129		02/21/20 16:49	1

Client Sample Results

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

Job ID: 240-126349-1

Client Sample ID: MW-84S_021220

Lab Sample ID: 240-126349-4

Date Collected: 02/12/20 13:25

Matrix: Water

Date Received: 02/14/20 08:50

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			02/22/20 10:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 133		02/22/20 10:27	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			02/21/20 17:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/21/20 17:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/21/20 17:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/21/20 17:11	1
Trichloroethene	0.12	J	1.0	0.10	ug/L			02/21/20 17:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/21/20 17:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		75 - 130		02/21/20 17:11	1
4-Bromofluorobenzene (Surr)	64		47 - 134		02/21/20 17:11	1
Toluene-d8 (Surr)	84		69 - 122		02/21/20 17:11	1
Dibromofluoromethane (Surr)	84		78 - 129		02/21/20 17:11	1

Client Sample Results

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

Job ID: 240-126349-1

Client Sample ID: MW-84_021220

Lab Sample ID: 240-126349-5

Date Collected: 02/12/20 12:20

Matrix: Water

Date Received: 02/14/20 08:50

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	-		02/24/20 12:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 133		02/24/20 12:03	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	-		02/21/20 17:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/21/20 17:33	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/21/20 17:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/21/20 17:33	1
Trichloroethene	0.10	J	1.0	0.10	ug/L	-		02/21/20 17:33	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/21/20 17:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		75 - 130		02/21/20 17:33	1
4-Bromofluorobenzene (Surr)	63		47 - 134		02/21/20 17:33	1
Toluene-d8 (Surr)	81		69 - 122		02/21/20 17:33	1
Dibromofluoromethane (Surr)	82		78 - 129		02/21/20 17:33	1

Surrogate Summary

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

Job ID: 240-126349-1

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)
240-126349-1	TRIP BLANK	83	67	85	83
240-126349-2	MW-87_021220	77	62	78	82
240-126349-2 MS	MW-87-MS_021220	70 X	70	82	78
240-126349-2 MSD	MW-87-MSD_021220	72 X	75	84	82
240-126349-3	MW-87S_021220	81	66	84	89
240-126349-4	MW-84S_021220	83	64	84	84
240-126349-5	MW-84_021220	83	63	81	82
240-126349-5 MS	MW-84-MS_021220	73 X	76	85	81
240-126349-5 MSD	MW-84-MSD_021220	72 X	75	85	79
LCS 240-423748/4	Lab Control Sample	75	77	87	81
MB 240-423748/7	Method Blank	78	60	81	80

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)
240-126349-2	MW-87_021220	92
240-126349-2 MS	MW-87-MS_021220	107
240-126349-2 MSD	MW-87-MSD_021220	99
240-126349-3	MW-87S_021220	102
240-126349-4	MW-84S_021220	100
240-126349-5	MW-84_021220	99
240-126349-5 MS	MW-84-MS_021220	103
240-126349-5 MSD	MW-84-MSD_021220	105
LCS 240-423839/4	Lab Control Sample	99
LCS 240-423939/4	Lab Control Sample	101
MB 240-423839/5	Method Blank	100
MB 240-423939/5	Method Blank	102

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-126349-1

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

Lab Sample ID: MB 240-423748/7
Matrix: Water
Analysis Batch: 423748

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			02/21/20 12:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/21/20 12:27	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/21/20 12:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/21/20 12:27	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/21/20 12:27	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/21/20 12:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		75 - 130		02/21/20 12:27	1
4-Bromofluorobenzene (Surr)	60		47 - 134		02/21/20 12:27	1
Toluene-d8 (Surr)	81		69 - 122		02/21/20 12:27	1
Dibromofluoromethane (Surr)	80		78 - 129		02/21/20 12:27	1

Lab Sample ID: LCS 240-423748/4
Matrix: Water
Analysis Batch: 423748

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	8.80		ug/L		88	73 - 129
cis-1,2-Dichloroethene	10.0	9.91		ug/L		99	75 - 124
Tetrachloroethene	10.0	11.1		ug/L		111	70 - 125
trans-1,2-Dichloroethene	10.0	9.67		ug/L		97	74 - 130
Trichloroethene	10.0	9.66		ug/L		97	71 - 121
Vinyl chloride	10.0	6.74		ug/L		67	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	75		75 - 130
4-Bromofluorobenzene (Surr)	77		47 - 134
Toluene-d8 (Surr)	87		69 - 122
Dibromofluoromethane (Surr)	81		78 - 129

Lab Sample ID: 240-126349-2 MS
Matrix: Water
Analysis Batch: 423748

Client Sample ID: MW-87-MS_021220
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	10.0	7.60		ug/L		76	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.16		ug/L		82	68 - 121
Tetrachloroethene	1.0	U	10.0	8.86		ug/L		89	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.05		ug/L		81	69 - 126
Trichloroethene	1.0	U	10.0	7.66		ug/L		77	56 - 124
Vinyl chloride	1.0	U	10.0	5.82		ug/L		58	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	70	X	75 - 130
4-Bromofluorobenzene (Surr)	70		47 - 134
Toluene-d8 (Surr)	82		69 - 122

QC Sample Results

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

Job ID: 240-126349-1

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

Lab Sample ID: 240-126349-2 MS
Matrix: Water
Analysis Batch: 423748

Client Sample ID: MW-87-MS_021220
Prep Type: Total/NA

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	78		78 - 129

Lab Sample ID: 240-126349-2 MSD
Matrix: Water
Analysis Batch: 423748

Client Sample ID: MW-87-MSD_021220
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	10.0	9.99		ug/L		100	64 - 132	27	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.11		ug/L		91	68 - 121	11	35
Tetrachloroethene	1.0	U	10.0	10.3		ug/L		103	52 - 129	15	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.17		ug/L		92	69 - 126	13	35
Trichloroethene	1.0	U	10.0	8.65		ug/L		87	56 - 124	12	35
Vinyl chloride	1.0	U	10.0	7.58		ug/L		76	49 - 136	26	35

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	72	X	75 - 130
<i>4-Bromofluorobenzene (Surr)</i>	75		47 - 134
<i>Toluene-d8 (Surr)</i>	84		69 - 122
<i>Dibromofluoromethane (Surr)</i>	82		78 - 129

Lab Sample ID: 240-126349-5 MS
Matrix: Water
Analysis Batch: 423748

Client Sample ID: MW-84-MS_021220
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	10.0	8.24		ug/L		82	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.57		ug/L		86	68 - 121
Tetrachloroethene	1.0	U	10.0	9.32		ug/L		93	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.57		ug/L		86	69 - 126
Trichloroethene	0.10	J	10.0	8.53		ug/L		84	56 - 124
Vinyl chloride	1.0	U	10.0	6.69		ug/L		67	49 - 136

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	73	X	75 - 130
<i>4-Bromofluorobenzene (Surr)</i>	76		47 - 134
<i>Toluene-d8 (Surr)</i>	85		69 - 122
<i>Dibromofluoromethane (Surr)</i>	81		78 - 129

Lab Sample ID: 240-126349-5 MSD
Matrix: Water
Analysis Batch: 423748

Client Sample ID: MW-84-MSD_021220
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	10.0	8.50		ug/L		85	64 - 132	3	35
cis-1,2-Dichloroethene	1.0	U	10.0	8.64		ug/L		86	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	9.84		ug/L		98	52 - 129	5	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.63		ug/L		86	69 - 126	1	35
Trichloroethene	0.10	J	10.0	8.39		ug/L		83	56 - 124	2	35

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-126349-1

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

Lab Sample ID: 240-126349-5 MSD
Matrix: Water
Analysis Batch: 423748

Client Sample ID: MW-84-MSD_021220
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vinyl chloride	1.0	U	10.0	6.87		ug/L		69	49 - 136	3	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	72	X	75 - 130								
4-Bromofluorobenzene (Surr)	75		47 - 134								
Toluene-d8 (Surr)	85		69 - 122								
Dibromofluoromethane (Surr)	79		78 - 129								

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

Lab Sample ID: MB 240-423839/5
Matrix: Water
Analysis Batch: 423839

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			02/22/20 07:35	1	
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac				
1,2-Dichloroethane-d4 (Surr)	100		70 - 133		02/22/20 07:35	1				

Lab Sample ID: LCS 240-423839/4
Matrix: Water
Analysis Batch: 423839

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	10.2		ug/L		102	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	99		70 - 133				

Lab Sample ID: 240-126349-2 MS
Matrix: Water
Analysis Batch: 423839

Client Sample ID: MW-87-MS_021220
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	7.74		ug/L		77	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	107		70 - 133						

Lab Sample ID: 240-126349-2 MSD
Matrix: Water
Analysis Batch: 423839

Client Sample ID: MW-87-MSD_021220
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	8.00		ug/L		80	46 - 170	3	26

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-126349-1

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

Lab Sample ID: 240-126349-2 MSD
Matrix: Water
Analysis Batch: 423839

Client Sample ID: MW-87-MSD_021220
Prep Type: Total/NA

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

Lab Sample ID: MB 240-423939/5
Matrix: Water
Analysis Batch: 423939

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	-		02/24/20 11:11	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133					02/24/20 11:11	1

Lab Sample ID: LCS 240-423939/4
Matrix: Water
Analysis Batch: 423939

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	9.41		ug/L	-	94	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	101		70 - 133				

Lab Sample ID: 240-126349-5 MS
Matrix: Water
Analysis Batch: 423939

Client Sample ID: MW-84-MS_021220
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	9.98		ug/L	-	100	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		70 - 133						

Lab Sample ID: 240-126349-5 MSD
Matrix: Water
Analysis Batch: 423939

Client Sample ID: MW-84-MSD_021220
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	10.2		ug/L	-	102	46 - 170	2	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	105		70 - 133								

QC Association Summary

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

Job ID: 240-126349-1

GC/MS VOA

Analysis Batch: 423748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126349-1	TRIP BLANK	Total/NA	Water	8260B	
240-126349-2	MW-87_021220	Total/NA	Water	8260B	
240-126349-3	MW-87S_021220	Total/NA	Water	8260B	
240-126349-4	MW-84S_021220	Total/NA	Water	8260B	
240-126349-5	MW-84_021220	Total/NA	Water	8260B	
MB 240-423748/7	Method Blank	Total/NA	Water	8260B	
LCS 240-423748/4	Lab Control Sample	Total/NA	Water	8260B	
240-126349-2 MS	MW-87-MS_021220	Total/NA	Water	8260B	
240-126349-2 MSD	MW-87-MSD_021220	Total/NA	Water	8260B	
240-126349-5 MS	MW-84-MS_021220	Total/NA	Water	8260B	
240-126349-5 MSD	MW-84-MSD_021220	Total/NA	Water	8260B	

Analysis Batch: 423839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126349-2	MW-87_021220	Total/NA	Water	8260B SIM	
240-126349-3	MW-87S_021220	Total/NA	Water	8260B SIM	
240-126349-4	MW-84S_021220	Total/NA	Water	8260B SIM	
MB 240-423839/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-423839/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-126349-2 MS	MW-87-MS_021220	Total/NA	Water	8260B SIM	
240-126349-2 MSD	MW-87-MSD_021220	Total/NA	Water	8260B SIM	

Analysis Batch: 423939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126349-5	MW-84_021220	Total/NA	Water	8260B SIM	
MB 240-423939/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-423939/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-126349-5 MS	MW-84-MS_021220	Total/NA	Water	8260B SIM	
240-126349-5 MSD	MW-84-MSD_021220	Total/NA	Water	8260B SIM	

Lab Chronicle

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

Job ID: 240-126349-1

Client Sample ID: TRIP BLANK

Date Collected: 02/12/20 00:00

Date Received: 02/14/20 08:50

Lab Sample ID: 240-126349-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423748	02/21/20 15:22	LEE	TAL CAN

Client Sample ID: MW-87_021220

Date Collected: 02/12/20 10:10

Date Received: 02/14/20 08:50

Lab Sample ID: 240-126349-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423748	02/21/20 15:44	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	423839	02/22/20 08:31	SAM	TAL CAN

Client Sample ID: MW-87S_021220

Date Collected: 02/12/20 11:15

Date Received: 02/14/20 08:50

Lab Sample ID: 240-126349-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423748	02/21/20 16:49	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	423839	02/22/20 10:02	SAM	TAL CAN

Client Sample ID: MW-84S_021220

Date Collected: 02/12/20 13:25

Date Received: 02/14/20 08:50

Lab Sample ID: 240-126349-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423748	02/21/20 17:11	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	423839	02/22/20 10:27	SAM	TAL CAN

Client Sample ID: MW-84_021220

Date Collected: 02/12/20 12:20

Date Received: 02/14/20 08:50

Lab Sample ID: 240-126349-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423748	02/21/20 17:33	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	423939	02/24/20 12:03	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 Off Site

Job ID: 240-126349-1

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	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Chain of Custody Record

MICHIGAN
190

TestAmerica
TestAmerica Laboratories, Inc.

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

Regulatory program: DW NPDES RCRA Other

Client Contact
Company Name: Arcadis
Address: 28540 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

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

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

Sample Name: Ford LTP Off-Site
Project Number: 30042006.0402.02
Shipping/Tracking No: 30042006.0402.02

Analysis Turnaround Time
TAT if different from below:
10 day 3 weeks
1 week 2 weeks
2 days 1 day

Containers & Preservatives
Matrix: Aqueous Sediment Solid Other
H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:

Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Other:	Filtered Sample (Y/N)	Composite C/Grab-G	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM
2-18-20		X	X											Y	G	X	X	X	X	X	X	X
MW-87-021220	1010	X	X											Y	G	X	X	X	X	X	X	X
MW-87-MS-021220	1010	X	X											Y	G	X	X	X	X	X	X	X
MW-87-MSD-021220	1010	X	X											Y	G	X	X	X	X	X	X	X
MW-87S-021220	1115	X	X											Y	G	X	X	X	X	X	X	X
MW-84S-021220	1325	X	X											Y	G	X	X	X	X	X	X	X
MW-84-021220	1220	X	X											Y	G	X	X	X	X	X	X	X
MW-84-MS-021220	1220	X	X											Y	G	X	X	X	X	X	X	X
MW-84-MSD-021220	1220	X	X											Y	G	X	X	X	X	X	X	X

240-126349 Chain of Custody

Possible Hazard Identification
 Non-hazard Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
Level IV Reporting requested.

Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
John J...	2-18-20 1500	Arcadis	Molly Maden	2-18-20 1545	ETAL-MI
John J...	2-18-20 1500	Arcadis	Molly Maden	2-18-20 1545	ETAL-MI
John J...	2-18-20 1500	Arcadis	Molly Maden	2-18-20 1545	ETAL-MI

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

30042006.0402.02
TestAmerica Laboratories, Inc. 48377 Novi, MI
TestAmerica (Group) is an affiliate of TestAmerica Laboratories, Inc.

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login #: 126349

Canton Facility

Client Arcadis Site Name
Cooler Received on 2-14-20 Opened on 2-14-20
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by: [Signature]

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # [Blank] 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
IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. B °C Corrected Cooler Temp. °C
IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 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 be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# HC995364
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. NA Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
16. 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

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: AG

18. 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)

19. 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:

