

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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Laboratory Job ID: 240-130910-1
Client Project/Site: Ford LTP On-Site
Revision: 1

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



Authorized for release by:
6/15/2020 8:49:53 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 On-Site

Job ID: 240-130910-1

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.
X	Surrogate recovery exceeds control limits

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
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)
MQL	Method Quantitation Limit
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 On-Site

Job ID: 240-130910-1

Job ID: 240-130910-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 240-130910-1

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.

Report revised on 6/15/2020 to report as On-Site samples.

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 5/28/2020 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-130910-1), MW-69_052620 (240-130910-2), MW-64_052620 (240-130910-3) and MW-67_052620 (240-130910-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/03/2020.

Sample MW-67_052620 (240-130910-4)[3.33X] 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.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-69_052620 (240-130910-2), MW-64_052620 (240-130910-3) and MW-67_052620 (240-130910-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 06/08/2020 and 06/09/2020.

Case Narrative

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

Job ID: 240-130910-1

Job ID: 240-130910-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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 On-Site

Job ID: 240-130910-1

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 On-Site

Job ID: 240-130910-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-130910-1	TRIP BLANK	Water	05/26/20 00:00	05/28/20 09:20	
240-130910-2	MW-69_052620	Water	05/26/20 12:23	05/28/20 09:20	
240-130910-3	MW-64_052620	Water	05/26/20 14:01	05/28/20 09:20	
240-130910-4	MW-67_052620	Water	05/26/20 15:56	05/28/20 09:20	

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- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-130910-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130910-1

No Detections.

Client Sample ID: MW-69_052620

Lab Sample ID: 240-130910-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.1		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.28	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	5.0		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-64_052620

Lab Sample ID: 240-130910-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.20	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	1.3		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-67_052620

Lab Sample ID: 240-130910-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5.5		3.3	0.53	ug/L	3.33		8260B	Total/NA
Trichloroethene	49		3.3	0.33	ug/L	3.33		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 240-130910-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130910-1

Date Collected: 05/26/20 00:00

Matrix: Water

Date Received: 05/28/20 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			06/03/20 15:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/03/20 15:14	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/03/20 15:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/03/20 15:14	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/03/20 15:14	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/03/20 15:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		06/03/20 15:14	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/03/20 15:14	1
Toluene-d8 (Surr)	93		69 - 122		06/03/20 15:14	1
Dibromofluoromethane (Surr)	97		78 - 129		06/03/20 15:14	1

Client Sample Results

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

Job ID: 240-130910-1

Client Sample ID: MW-69_052620

Lab Sample ID: 240-130910-2

Date Collected: 05/26/20 12:23

Matrix: Water

Date Received: 05/28/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.1		2.0	0.86	ug/L			06/08/20 22:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133					06/08/20 22:53	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			06/03/20 18:09	1
cis-1,2-Dichloroethene	0.28	J	1.0	0.16	ug/L			06/03/20 18:09	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/03/20 18:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/03/20 18:09	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/03/20 18:09	1
Vinyl chloride	5.0		1.0	0.20	ug/L			06/03/20 18:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		75 - 130					06/03/20 18:09	1
4-Bromofluorobenzene (Surr)	102		47 - 134					06/03/20 18:09	1
Toluene-d8 (Surr)	95		69 - 122					06/03/20 18:09	1
Dibromofluoromethane (Surr)	96		78 - 129					06/03/20 18:09	1

Client Sample Results

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

Job ID: 240-130910-1

Client Sample ID: MW-64_052620

Lab Sample ID: 240-130910-3

Date Collected: 05/26/20 14:01

Matrix: Water

Date Received: 05/28/20 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	-		06/08/20 23:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		06/08/20 23:18	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	-		06/03/20 18:34	1
cis-1,2-Dichloroethene	0.20	J	1.0	0.16	ug/L	-		06/03/20 18:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/03/20 18:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/03/20 18:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		06/03/20 18:34	1
Vinyl chloride	1.3		1.0	0.20	ug/L	-		06/03/20 18:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		06/03/20 18:34	1
4-Bromofluorobenzene (Surr)	99		47 - 134		06/03/20 18:34	1
Toluene-d8 (Surr)	94		69 - 122		06/03/20 18:34	1
Dibromofluoromethane (Surr)	101		78 - 129		06/03/20 18:34	1

Client Sample Results

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

Job ID: 240-130910-1

Client Sample ID: MW-67_052620

Lab Sample ID: 240-130910-4

Date Collected: 05/26/20 15:56

Matrix: Water

Date Received: 05/28/20 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			06/09/20 07:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		06/09/20 07:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	3.3	U	3.3	0.63	ug/L			06/03/20 18:59	3.33
cis-1,2-Dichloroethene	5.5		3.3	0.53	ug/L			06/03/20 18:59	3.33
Tetrachloroethene	3.3	U	3.3	0.50	ug/L			06/03/20 18:59	3.33
trans-1,2-Dichloroethene	3.3	U	3.3	0.63	ug/L			06/03/20 18:59	3.33
Trichloroethene	49		3.3	0.33	ug/L			06/03/20 18:59	3.33
Vinyl chloride	3.3	U	3.3	0.67	ug/L			06/03/20 18:59	3.33

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		06/03/20 18:59	3.33
4-Bromofluorobenzene (Surr)	102		47 - 134		06/03/20 18:59	3.33
Toluene-d8 (Surr)	96		69 - 122		06/03/20 18:59	3.33
Dibromofluoromethane (Surr)	96		78 - 129		06/03/20 18:59	3.33

Surrogate Summary

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

Job ID: 240-130910-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-130908-C-2 MS	Matrix Spike	94	104	93	101
240-130908-F-2 MSD	Matrix Spike Duplicate	95	101	90	99
240-130910-1	TRIP BLANK	99	101	93	97
240-130910-2	MW-69_052620	97	102	95	96
240-130910-3	MW-64_052620	99	99	94	101
240-130910-4	MW-67_052620	99	102	96	96
LCS 240-436733/4	Lab Control Sample	92	100	92	96
MB 240-436733/7	Method Blank	96	103	96	101

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

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-130905-C-2 MS	Matrix Spike	93
240-130905-C-2 MSD	Matrix Spike Duplicate	95
240-130910-2	MW-69_052620	95
240-130910-3	MW-64_052620	95
240-130910-4	MW-67_052620	95
240-130976-C-5 MS	Matrix Spike	101
240-130976-C-5 MSD	Matrix Spike Duplicate	189 X
LCS 240-437309/4	Lab Control Sample	87
LCS 240-437419/4	Lab Control Sample	94
MB 240-437309/5	Method Blank	90
MB 240-437419/5	Method Blank	95

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-130910-1

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

Lab Sample ID: MB 240-436733/7
Matrix: Water
Analysis Batch: 436733

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			06/03/20 14:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/03/20 14:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/03/20 14:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/03/20 14:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/03/20 14:24	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/03/20 14:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 130		06/03/20 14:24	1
4-Bromofluorobenzene (Surr)	103		47 - 134		06/03/20 14:24	1
Toluene-d8 (Surr)	96		69 - 122		06/03/20 14:24	1
Dibromofluoromethane (Surr)	101		78 - 129		06/03/20 14:24	1

Lab Sample ID: LCS 240-436733/4
Matrix: Water
Analysis Batch: 436733

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	10.4		ug/L		104	73 - 129
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	75 - 124
Tetrachloroethene	10.0	11.1		ug/L		111	70 - 125
trans-1,2-Dichloroethene	10.0	10.0		ug/L		100	74 - 130
Trichloroethene	10.0	9.58		ug/L		96	71 - 121
Vinyl chloride	10.0	12.6		ug/L		126	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	92		69 - 122
Dibromofluoromethane (Surr)	96		78 - 129

Lab Sample ID: 240-130908-C-2 MS
Matrix: Water
Analysis Batch: 436733

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
1,1-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	68 - 121
Tetrachloroethene	1.0	U	10.0	11.2		ug/L		112	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	69 - 126
Trichloroethene	1.0	U	10.0	9.92		ug/L		99	56 - 124
Vinyl chloride	1.0	U F1	10.0	15.4	F1	ug/L		154	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	104		47 - 134
Toluene-d8 (Surr)	93		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-130910-1

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

Lab Sample ID: 240-130908-C-2 MS
Matrix: Water
Analysis Batch: 436733

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	101		78 - 129

Lab Sample ID: 240-130908-F-2 MSD
Matrix: Water
Analysis Batch: 436733

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
1,1-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	64 - 132	0	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.9		ug/L		109	68 - 121	4	35
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	52 - 129	10	35
trans-1,2-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	69 - 126	3	35
Trichloroethene	1.0	U	10.0	9.74		ug/L		97	56 - 124	2	35
Vinyl chloride	1.0	U F1	10.0	15.2	F1	ug/L		152	49 - 136	1	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	101		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	99		78 - 129

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

Lab Sample ID: MB 240-437309/5
Matrix: Water
Analysis Batch: 437309

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			06/08/20 13:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 133		06/08/20 13:19	1

Lab Sample ID: LCS 240-437309/4
Matrix: Water
Analysis Batch: 437309

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	9.88		ug/L		99	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		70 - 133

Lab Sample ID: 240-130905-C-2 MS
Matrix: Water
Analysis Batch: 437309

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	10.5		ug/L		105	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-130910-1

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

	MS	MS	
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	93		70 - 133

Lab Sample ID: 240-130905-C-2 MSD
Matrix: Water
Analysis Batch: 437309

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

<u>Analyte</u>	<u>Sample Result</u>	<u>Sample Qualifier</u>	<u>Spike Added</u>	<u>MSD Result</u>	<u>MSD Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec. Limits</u>	<u>RPD</u>	<u>RPD Limit</u>
1,4-Dioxane	2.0	U	10.0	10.0		ug/L		100	46 - 170	5	26

	MSD	MSD	
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	95		70 - 133

Lab Sample ID: MB 240-437419/5
Matrix: Water
Analysis Batch: 437419

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

<u>Analyte</u>	<u>MB Result</u>	<u>MB Qualifier</u>	<u>RL</u>	<u>MDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/09/20 06:44	1

	MB	MB		<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>			
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		06/09/20 06:44	1

Lab Sample ID: LCS 240-437419/4
Matrix: Water
Analysis Batch: 437419

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

<u>Analyte</u>	<u>Spike Added</u>	<u>LCS Result</u>	<u>LCS Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec. Limits</u>
1,4-Dioxane	10.0	8.71		ug/L		87	80 - 135

	LCS	LCS	
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	94		70 - 133

Lab Sample ID: 240-130976-C-5 MS
Matrix: Water
Analysis Batch: 437419

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

<u>Analyte</u>	<u>Sample Result</u>	<u>Sample Qualifier</u>	<u>Spike Added</u>	<u>MS Result</u>	<u>MS Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec. Limits</u>
1,4-Dioxane	11		10.0	20.0		ug/L		85	46 - 170

	MS	MS	
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	101		70 - 133

Lab Sample ID: 240-130976-C-5 MSD
Matrix: Water
Analysis Batch: 437419

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

<u>Analyte</u>	<u>Sample Result</u>	<u>Sample Qualifier</u>	<u>Spike Added</u>	<u>MSD Result</u>	<u>MSD Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec. Limits</u>	<u>RPD</u>	<u>RPD Limit</u>
1,4-Dioxane	11		10.0	19.3		ug/L		78	46 - 170	4	26

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-130910-1

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

Lab Sample ID: 240-130976-C-5 MSD

Matrix: Water

Analysis Batch: 437419

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	189	X	70 - 133

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Association Summary

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

Job ID: 240-130910-1

GC/MS VOA

Analysis Batch: 436733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130910-1	TRIP BLANK	Total/NA	Water	8260B	
240-130910-2	MW-69_052620	Total/NA	Water	8260B	
240-130910-3	MW-64_052620	Total/NA	Water	8260B	
240-130910-4	MW-67_052620	Total/NA	Water	8260B	
MB 240-436733/7	Method Blank	Total/NA	Water	8260B	
LCS 240-436733/4	Lab Control Sample	Total/NA	Water	8260B	
240-130908-C-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-130908-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 437309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130910-2	MW-69_052620	Total/NA	Water	8260B SIM	
240-130910-3	MW-64_052620	Total/NA	Water	8260B SIM	
MB 240-437309/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-437309/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-130905-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-130905-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 437419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130910-4	MW-67_052620	Total/NA	Water	8260B SIM	
MB 240-437419/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-437419/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-130976-C-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-130976-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

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

Job ID: 240-130910-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130910-1

Date Collected: 05/26/20 00:00

Matrix: Water

Date Received: 05/28/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436733	06/03/20 15:14	LRW	TAL CAN

Client Sample ID: MW-69_052620

Lab Sample ID: 240-130910-2

Date Collected: 05/26/20 12:23

Matrix: Water

Date Received: 05/28/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436733	06/03/20 18:09	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	437309	06/08/20 22:53	TJL2	TAL CAN

Client Sample ID: MW-64_052620

Lab Sample ID: 240-130910-3

Date Collected: 05/26/20 14:01

Matrix: Water

Date Received: 05/28/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436733	06/03/20 18:34	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	437309	06/08/20 23:18	TJL2	TAL CAN

Client Sample ID: MW-67_052620

Lab Sample ID: 240-130910-4

Date Collected: 05/26/20 15:56

Matrix: Water

Date Received: 05/28/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		3.33	436733	06/03/20 18:59	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	437419	06/09/20 07:36	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: 240-130910-1

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	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
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	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

3.9/46

Chain of Custody Record

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

Regulatory program: DW NPDES RCRA Other

Client Contact
 Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240
 Project Name: Ford LTP Off-Site
 Project Number: 30050315-402.04
 PO # 30050315-402.04 401.03

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

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

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

Sampler Name: Gary Scherer
 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					Special Specific Notes / Special Instructions		
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH			ZnOH	Ultraps	Other:	1,1-DCE 8260B	cis-1,2-DCE 8260B		Trans-1,2-DCE 8260B	PCE 8260B
TRIP BLANK	5/24/20																				1 trip blank
AW-72-052620	5/26/20	9:31	X	X				6													3 Vials for 8260B SIM 3 Vials for 8260 SIM
MW-69-052620	5/26/20	12:33	X	X				6													I
MW-64-052620	5/26/20	14:01	X	X				6													
MW-67-052620	5/26/20	15:54	X	X				6													
DUP-07	5/26/20		X	X				6													JM

240-130910 Chain of Custody

Possible Hazard Identification
 Non-Hazard Ignitable Corrosive Toxic Volatile Poison B Unknown

Special Instructions/OC Requirements & Comments:
 Archived longer than 1 month: _____ Months

Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203631
 Level IV Reporting requested.

Relinquished by: [Signature] Date/Time: 5/26/20 16:55
 Company: Arcadis

Relinquished by: [Signature] Date/Time: 5/26/20 16:44
 Company: Arcadis

Relinquished by: [Signature] Date/Time: 5/27/20 14:40
 Company: Arcadis

ETA 5-27-20 1945
 Adam Gajnos

Received by: [Signature] Date/Time: 5/27/20 16:05
 Company: Arcadis

Received by: [Signature] Date/Time: 5/27/20 16:44
 Company: Arcadis

Received in Laboratory by: [Signature] Date/Time: 5-27-20 1943
 Company: ETA

ETA 5-28-20 9:30
 Adam Gajnos

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 130910

Client Arcadis Site Name _____ Cooler unpacked by: Alexander
 Cooler Received on 5-28-20 Opened on 5-28-20
 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-10 (CF +0.7°C) Observed Cooler Temp. 39 °C Corrected Cooler Temp. 46 °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 _____ 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 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# HC902937
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. Yes No NA
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ 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: KC

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: _____