

ANALYTICAL REPORT

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

Laboratory Job ID: 240-159739-1
Client Project/Site: Ford LTP - Off-Site

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

Attn: Kristoffer Hinskey



Authorized for release by:
11/24/2021 1:54:51 PM

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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: 240-159739-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-159739-1

Job ID: 240-159739-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-159739-1

Comments

No additional comments.

Receipt

The samples were received on 11/10/2021 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.7° C and 0.8° C.

GC/MS VOA

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

VOA Prep

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

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- 10
- 11
- 12
- 13
- 14

Method Summary

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

Job ID: 240-159739-1

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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- 10
- 11
- 12
- 13
- 14

Sample Summary

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

Job ID: 240-159739-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-159739-1	TRIP BLANK_93	Water	11/08/21 00:00	11/10/21 08:00
240-159739-2	MW-84_110821	Water	11/08/21 16:10	11/10/21 08:00
240-159739-3	MW-81_110821	Water	11/08/21 11:10	11/10/21 08:00
240-159739-4	MW-81S_110821	Water	11/08/21 12:50	11/10/21 08:00

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

Detection Summary

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

Job ID: 240-159739-1

Client Sample ID: TRIP BLANK_93

Lab Sample ID: 240-159739-1

No Detections.

Client Sample ID: MW-84_110821

Lab Sample ID: 240-159739-2

No Detections.

Client Sample ID: MW-81_110821

Lab Sample ID: 240-159739-3

No Detections.

Client Sample ID: MW-81S_110821

Lab Sample ID: 240-159739-4

No Detections.

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

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: 240-159739-1

Client Sample ID: TRIP BLANK_93

Lab Sample ID: 240-159739-1

Date Collected: 11/08/21 00:00

Matrix: Water

Date Received: 11/10/21 08:00

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	0.49	ug/L			11/17/21 19:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/21 19:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 19:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/21 19:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 19:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/21 19:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		62 - 137		11/17/21 19:11	1
4-Bromofluorobenzene (Surr)	81		56 - 136		11/17/21 19:11	1
Toluene-d8 (Surr)	97		78 - 122		11/17/21 19:11	1
Dibromofluoromethane (Surr)	103		73 - 120		11/17/21 19:11	1

Client Sample Results

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

Job ID: 240-159739-1

Client Sample ID: MW-84_110821

Lab Sample ID: 240-159739-2

Date Collected: 11/08/21 16:10

Matrix: Water

Date Received: 11/10/21 08:00

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			11/18/21 01:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		66 - 120					11/18/21 01:33	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	0.49	ug/L			11/17/21 21:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/21 21:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 21:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/21 21:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 21:17	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/21 21:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		62 - 137					11/17/21 21:17	1
4-Bromofluorobenzene (Surr)	82		56 - 136					11/17/21 21:17	1
Toluene-d8 (Surr)	98		78 - 122					11/17/21 21:17	1
Dibromofluoromethane (Surr)	108		73 - 120					11/17/21 21:17	1

Client Sample Results

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

Job ID: 240-159739-1

Client Sample ID: MW-81_110821

Lab Sample ID: 240-159739-3

Date Collected: 11/08/21 11:10

Matrix: Water

Date Received: 11/10/21 08:00

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 F1	2.0	0.86	ug/L			11/18/21 20:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		66 - 120		11/18/21 20:31	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	0.49	ug/L			11/17/21 19:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/21 19:36	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 19:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/21 19:36	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 19:36	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/21 19:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		62 - 137		11/17/21 19:36	1
4-Bromofluorobenzene (Surr)	82		56 - 136		11/17/21 19:36	1
Toluene-d8 (Surr)	97		78 - 122		11/17/21 19:36	1
Dibromofluoromethane (Surr)	103		73 - 120		11/17/21 19:36	1

Client Sample Results

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

Job ID: 240-159739-1

Client Sample ID: MW-81S_110821

Lab Sample ID: 240-159739-4

Date Collected: 11/08/21 12:50

Matrix: Water

Date Received: 11/10/21 08:00

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			11/18/21 01:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		66 - 120					11/18/21 01:57	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	0.49	ug/L			11/17/21 21:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/21 21:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 21:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/21 21:42	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 21:42	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/21 21:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137					11/17/21 21:42	1
4-Bromofluorobenzene (Surr)	84		56 - 136					11/17/21 21:42	1
Toluene-d8 (Surr)	100		78 - 122					11/17/21 21:42	1
Dibromofluoromethane (Surr)	102		73 - 120					11/17/21 21:42	1

Surrogate Summary

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

Job ID: 240-159739-1

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 (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-159739-1	TRIP BLANK_93	114	81	97	103
240-159739-2	MW-84_110821	116	82	98	108
240-159739-3	MW-81_110821	112	82	97	103
240-159739-3 MS	MW-81-MS_110821	103	96	98	96
240-159739-3 MSD	MW-81-MSD_110821	102	101	102	100
240-159739-4	MW-81S_110821	111	84	100	102
LCS 240-513438/9	Lab Control Sample	105	99	96	102
MB 240-513438/7	Method Blank	112	82	95	102

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
		(66-120)
240-159642-H-3 MS	Matrix Spike	87
240-159642-M-3 MSD	Matrix Spike Duplicate	87
240-159739-2	MW-84_110821	88
240-159739-3	MW-81_110821	75
240-159739-3 MS	MW-81-MS_110821	74
240-159739-3 MSD	MW-81-MSD_110821	75
240-159739-4	MW-81S_110821	88
LCS 240-513480/3	Lab Control Sample	84
LCS 240-513700/4	Lab Control Sample	75
MB 240-513480/4	Method Blank	84
MB 240-513700/5	Method Blank	77

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-159739-1

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

Lab Sample ID: MB 240-513438/7
Matrix: Water
Analysis Batch: 513438

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/17/21 13:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/21 13:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 13:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/21 13:28	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/21 13:28	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/21 13:28	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	112		62 - 137		11/17/21 13:28	1
4-Bromofluorobenzene (Surr)	82		56 - 136		11/17/21 13:28	1
Toluene-d8 (Surr)	95		78 - 122		11/17/21 13:28	1
Dibromofluoromethane (Surr)	102		73 - 120		11/17/21 13:28	1

Lab Sample ID: LCS 240-513438/9
Matrix: Water
Analysis Batch: 513438

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	25.0	26.4		ug/L		106	63 - 134
cis-1,2-Dichloroethene	25.0	24.2		ug/L		97	77 - 123
Tetrachloroethene	25.0	30.7		ug/L		123	76 - 123
trans-1,2-Dichloroethene	25.0	25.7		ug/L		103	75 - 124
Trichloroethene	25.0	25.0		ug/L		100	70 - 122
Vinyl chloride	25.0	24.9		ug/L		100	60 - 144

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	105		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-159739-3 MS
Matrix: Water
Analysis Batch: 513438

Client Sample ID: MW-81-MS_110821
Prep Type: Total/NA

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	25.0	22.7		ug/L		91	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	21.7		ug/L		87	66 - 128
Tetrachloroethene	1.0	U	25.0	29.7		ug/L		119	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	23.3		ug/L		93	56 - 136
Trichloroethene	1.0	U	25.0	24.1		ug/L		96	61 - 124
Vinyl chloride	1.0	U	25.0	21.0		ug/L		84	43 - 157

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	96		56 - 136
Toluene-d8 (Surr)	98		78 - 122

QC Sample Results

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

Job ID: 240-159739-1

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

Lab Sample ID: 240-159739-3 MS
Matrix: Water
Analysis Batch: 513438

Client Sample ID: MW-81-MS_110821
Prep Type: Total/NA

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	96		73 - 120

Lab Sample ID: 240-159739-3 MSD
Matrix: Water
Analysis Batch: 513438

Client Sample ID: MW-81-MSD_110821
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	25.0	24.5		ug/L		98	56 - 135	7	26
cis-1,2-Dichloroethene	1.0	U	25.0	22.4		ug/L		90	66 - 128	3	14
Tetrachloroethene	1.0	U	25.0	29.4		ug/L		118	62 - 131	1	20
trans-1,2-Dichloroethene	1.0	U	25.0	24.2		ug/L		97	56 - 136	4	15
Trichloroethene	1.0	U	25.0	23.4		ug/L		94	61 - 124	3	15
Vinyl chloride	1.0	U	25.0	23.5		ug/L		94	43 - 157	11	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

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

Lab Sample ID: MB 240-513480/4
Matrix: Water
Analysis Batch: 513480

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			11/17/21 19:58	1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	84		66 - 120		11/17/21 19:58	1			

Lab Sample ID: LCS 240-513480/3
Matrix: Water
Analysis Batch: 513480

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	9.37		ug/L		94	80 - 122

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		66 - 120

Lab Sample ID: 240-159642-H-3 MS
Matrix: Water
Analysis Batch: 513480

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 F1	10.0	10.3		ug/L		103	51 - 153

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QC Sample Results

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

Job ID: 240-159739-1

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

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	87		66 - 120

Lab Sample ID: 240-159642-M-3 MSD
Matrix: Water
Analysis Batch: 513480

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U F1	10.0	9.57		ug/L		96	51 - 153	7	16

	<i>MSD</i>	<i>MSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	87		66 - 120

Lab Sample ID: MB 240-513700/5
Matrix: Water
Analysis Batch: 513700

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

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/18/21 19:41	1

	<i>MB</i>	<i>MB</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
1,2-Dichloroethane-d4 (Surr)	77		66 - 120		11/18/21 19:41	1

Lab Sample ID: LCS 240-513700/4
Matrix: Water
Analysis Batch: 513700

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
1,4-Dioxane	10.0	10.4		ug/L		104	80 - 122

	<i>LCS</i>	<i>LCS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	75		66 - 120

Lab Sample ID: 240-159739-3 MS
Matrix: Water
Analysis Batch: 513700

Client Sample ID: MW-81-MS_110821
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
1,4-Dioxane	2.0	U F1	10.0	10.4		ug/L		104	51 - 153

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	74		66 - 120

Lab Sample ID: 240-159739-3 MSD
Matrix: Water
Analysis Batch: 513700

Client Sample ID: MW-81-MSD_110821
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U F1	10.0	10.6		ug/L		106	51 - 153	2	16

QC Sample Results

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

Job ID: 240-159739-1

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

Lab Sample ID: 240-159739-3 MSD
Matrix: Water
Analysis Batch: 513700

Client Sample ID: MW-81-MSD_110821
Prep Type: Total/NA

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
1,2-Dichloroethane-d4 (Surr)	75		66 - 120

- 1
- 2
- 3
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- 13
- 14

QC Association Summary

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

Job ID: 240-159739-1

GC/MS VOA

Analysis Batch: 513438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159739-1	TRIP BLANK_93	Total/NA	Water	8260B	
240-159739-2	MW-84_110821	Total/NA	Water	8260B	
240-159739-3	MW-81_110821	Total/NA	Water	8260B	
240-159739-4	MW-81S_110821	Total/NA	Water	8260B	
MB 240-513438/7	Method Blank	Total/NA	Water	8260B	
LCS 240-513438/9	Lab Control Sample	Total/NA	Water	8260B	
240-159739-3 MS	MW-81-MS_110821	Total/NA	Water	8260B	
240-159739-3 MSD	MW-81-MSD_110821	Total/NA	Water	8260B	

Analysis Batch: 513480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159739-2	MW-84_110821	Total/NA	Water	8260B SIM	
240-159739-4	MW-81S_110821	Total/NA	Water	8260B SIM	
MB 240-513480/4	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-513480/3	Lab Control Sample	Total/NA	Water	8260B SIM	
240-159642-H-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-159642-M-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 513700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159739-3	MW-81_110821	Total/NA	Water	8260B SIM	
MB 240-513700/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-513700/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-159739-3 MS	MW-81-MS_110821	Total/NA	Water	8260B SIM	
240-159739-3 MSD	MW-81-MSD_110821	Total/NA	Water	8260B SIM	

Lab Chronicle

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

Job ID: 240-159739-1

Client Sample ID: TRIP BLANK_93

Lab Sample ID: 240-159739-1

Date Collected: 11/08/21 00:00

Matrix: Water

Date Received: 11/10/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513438	11/17/21 19:11	SAM	TAL CAN

Client Sample ID: MW-84_110821

Lab Sample ID: 240-159739-2

Date Collected: 11/08/21 16:10

Matrix: Water

Date Received: 11/10/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513438	11/17/21 21:17	SAM	TAL CAN
Total/NA	Analysis	8260B SIM		1	513480	11/18/21 01:33	CS	TAL CAN

Client Sample ID: MW-81_110821

Lab Sample ID: 240-159739-3

Date Collected: 11/08/21 11:10

Matrix: Water

Date Received: 11/10/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513438	11/17/21 19:36	SAM	TAL CAN
Total/NA	Analysis	8260B SIM		1	513700	11/18/21 20:31	CS	TAL CAN

Client Sample ID: MW-81S_110821

Lab Sample ID: 240-159739-4

Date Collected: 11/08/21 12:50

Matrix: Water

Date Received: 11/10/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513438	11/17/21 21:42	SAM	TAL CAN
Total/NA	Analysis	8260B SIM		1	513480	11/18/21 01:57	CS	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: 240-159739-1

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	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

Chain of Custody Record

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

Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinesky		Site Contact: Julia McClafferty		Lab Contact: Mike DelMonico		TestAmerica Laboratories, Inc. COC No: _____	
Telephone: 248-994-2240		Telephone: 734-644-5131		Telephone: 330-497-9396				1 of 1 COCs For lab use only	
Email: kristoffer.hinesky@arcadis.com		Analysis Turnaround Time		Analytes				Walk-in client Lab sampling	
Sampler Name: <i>SUN KIMBY</i>		TAT if different from below		1,4-Dioxane 8260B SIM				Job/SDG No:	
Method of Shipment/Carrier: <i>COURIER: CHRISTINA WIEBERER</i>		10 day		TCE 8260B				Sample Specific Notes / Special Instructions:	
Shipping/Tracking No:		Containers & Preservatives		PCE 8260B				1 Trip Blank	
		Matrix		Trans-1,2-DCE 8260B				3 VOAs for 8260B 3 VOAs for 8260B SIM	
		Air		cis-1,2-DCE 8260B				Spin MSB Spin MSB	
		Aqueous		Composite C/Grab-G					
		Sediment		Filtered Sample (Y/N)					
		Solid		1,1-DCE 8260B					
		Other:		VINYL CHLORIDE 8260B					
		Sample Date		HN3					
		Sample Time		HN04					
				HN05					
				HN06					
				HN07					
				HN08					
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Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retail) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab	
Special Instructions/QC Requirements & Comments:		240-159739 Chain of Custody	
Submit all results through Cadena at homalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.			
Requisitioned by: <i>Shi Chatterjee</i>	Company: <i>Arcadis</i>	Date/Time: <i>11/8/21 17:30</i>	Received by: <i>NOVI COLO STORAGE</i>
Requisitioned by: <i>Jennifer Heale</i>	Company: <i>ARCADIS</i>	Date/Time: <i>11/9/21 1040</i>	Received by: <i>Jen Heale</i>
Requisitioned by: <i>Jen Heale</i>	Company: <i>ETA</i>	Date/Time: <i>11/9/21 1055</i>	Registered in Laboratory by: <i>Mindy Black</i>
	Company: <i>ARCADIS</i>	Date/Time: <i>11/8/21 17:30</i>	Company: <i>ARCADIS</i>
	Company: <i>ETA</i>	Date/Time: <i>11/9/21 1040</i>	Company: <i>ETA</i>
	Company: <i>ETA</i>	Date/Time: <i>11/9/21 1040</i>	Company: <i>ETA</i>

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 159439

Client Arcadis Site Name _____
 Cooler Received on 11-10-21 Opened on 11-10-21
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Cooler unpacked by:
Mandy Blue

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

TestAmerica Cooler # TA 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-14 (CF +0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-15 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ 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# HC157842
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

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

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

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by:
No SIM on TB per corrected COC. ~~one~~ 11/10/21

19. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 159739

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
<input checked="" type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input checked="" type="radio"/> IR-14 <input type="radio"/> IR-15	0-6	0-7	<input checked="" type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input checked="" type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input checked="" type="radio"/> IR-14 <input type="radio"/> IR-15	0-7	0-8	<input checked="" type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
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<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None
<input type="radio"/> TA <input type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	<input type="radio"/> IR-14 <input type="radio"/> IR-15			<input type="radio"/> Wet Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice Water None

See Temperature Excursion Form