

ANALYTICAL REPORT

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Laboratory Job ID: 240-160449-1
Client Project/Site: Ford LTP - On-Site

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

Attn: Kristoffer Hinskey



Authorized for release by:
12/6/2021 8:38:37 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: 240-160449-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-160449-1

Job ID: 240-160449-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-160449-1

Comments

No additional comments.

Receipt

The samples were received on 11/19/2021 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3° C.

GC/MS VOA

Method 8260B: The laboratory control sample (LCS) for analytical batch 240-514886 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported: TRIP BLANK_178 (240-160449-1), MW-46_111621 (240-160449-2), MW-70_111621 (240-160449-3), MW-71_111621 (240-160449-5), DUP-03 (240-160449-6) and (LCS 240-514886/4).

Method 8260B: The MS/MSD for batch 514886 was not reported because the parent sample needed a different dilution: TRIP BLANK_178 (240-160449-1), MW-46_111621 (240-160449-2), MW-70_111621 (240-160449-3), MW-71_111621 (240-160449-5) and DUP-03 (240-160449-6).

Method 8260B: The laboratory control sample (LCS) for analytical batch 240-514992 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: MW-45_111621 (240-160449-4) and (LCS 240-514992/5).

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

VOA Prep

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

Method Summary

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

Job ID: 240-160449-1

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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- 11
- 12
- 13
- 14

Sample Summary

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

Job ID: 240-160449-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-160449-1	TRIP BLANK_178	Water	11/16/21 00:00	11/19/21 09:50
240-160449-2	MW-46_111621	Water	11/16/21 11:41	11/19/21 09:50
240-160449-3	MW-70_111621	Water	11/16/21 13:01	11/19/21 09:50
240-160449-4	MW-45_111621	Water	11/16/21 14:51	11/19/21 09:50
240-160449-5	MW-71_111621	Water	11/16/21 16:21	11/19/21 09:50
240-160449-6	DUP-03	Water	11/16/21 00:00	11/19/21 09:50

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- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-160449-1

Client Sample ID: TRIP BLANK_178

Lab Sample ID: 240-160449-1

No Detections.

Client Sample ID: MW-46_111621

Lab Sample ID: 240-160449-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.1		1.0	0.46	ug/L	1		8260B	Total/NA
Vinyl chloride	8.0		1.0	0.45	ug/L	1		8260B	Total/NA

Client Sample ID: MW-70_111621

Lab Sample ID: 240-160449-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.5		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	250		25	12	ug/L	25		8260B	Total/NA
Vinyl chloride	400		25	11	ug/L	25		8260B	Total/NA

Client Sample ID: MW-45_111621

Lab Sample ID: 240-160449-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	87		5.0	2.3	ug/L	5		8260B	Total/NA
Vinyl chloride	250		5.0	2.3	ug/L	5		8260B	Total/NA

Client Sample ID: MW-71_111621

Lab Sample ID: 240-160449-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.1		1.0	0.46	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-03

Lab Sample ID: 240-160449-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.7		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	230		10	4.6	ug/L	10		8260B	Total/NA
Vinyl chloride	380		10	4.5	ug/L	10		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 - On-Site

Job ID: 240-160449-1

Client Sample ID: TRIP BLANK_178

Lab Sample ID: 240-160449-1

Date Collected: 11/16/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

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	0.49	ug/L			11/29/21 18:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/21 18:08	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 18:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 18:08	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/29/21 18:08	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/21 18:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		62 - 137		11/29/21 18:08	1
4-Bromofluorobenzene (Surr)	98		56 - 136		11/29/21 18:08	1
Toluene-d8 (Surr)	84		78 - 122		11/29/21 18:08	1
Dibromofluoromethane (Surr)	92		73 - 120		11/29/21 18:08	1

Client Sample Results

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

Job ID: 240-160449-1

Client Sample ID: MW-46_111621

Lab Sample ID: 240-160449-2

Date Collected: 11/16/21 11:41

Matrix: Water

Date Received: 11/19/21 09:50

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			11/23/21 18:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		66 - 120					11/23/21 18:21	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			11/29/21 18:30	1
cis-1,2-Dichloroethene	3.1		1.0	0.46	ug/L			11/29/21 18:30	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 18:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 18:30	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			11/29/21 18:30	1
Vinyl chloride	8.0		1.0	0.45	ug/L			11/29/21 18:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		62 - 137					11/29/21 18:30	1
4-Bromofluorobenzene (Surr)	97		56 - 136					11/29/21 18:30	1
Toluene-d8 (Surr)	86		78 - 122					11/29/21 18:30	1
Dibromofluoromethane (Surr)	91		73 - 120					11/29/21 18:30	1

Client Sample Results

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

Job ID: 240-160449-1

Client Sample ID: MW-70_111621

Lab Sample ID: 240-160449-3

Date Collected: 11/16/21 13:01

Matrix: Water

Date Received: 11/19/21 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.5		2.0	0.86	ug/L			11/23/21 18:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		66 - 120					11/23/21 18:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	25	U	25	12	ug/L			11/29/21 18:53	25
cis-1,2-Dichloroethene	250		25	12	ug/L			11/29/21 18:53	25
Tetrachloroethene	25	U	25	11	ug/L			11/29/21 18:53	25
trans-1,2-Dichloroethene	25	U	25	13	ug/L			11/29/21 18:53	25
Trichloroethene	25	U *+	25	11	ug/L			11/29/21 18:53	25
Vinyl chloride	400		25	11	ug/L			11/29/21 18:53	25
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		62 - 137					11/29/21 18:53	25
4-Bromofluorobenzene (Surr)	97		56 - 136					11/29/21 18:53	25
Toluene-d8 (Surr)	83		78 - 122					11/29/21 18:53	25
Dibromofluoromethane (Surr)	91		73 - 120					11/29/21 18:53	25

Client Sample Results

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

Job ID: 240-160449-1

Client Sample ID: MW-45_111621

Lab Sample ID: 240-160449-4

Date Collected: 11/16/21 14:51

Matrix: Water

Date Received: 11/19/21 09:50

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			11/23/21 19:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		66 - 120		11/23/21 19:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/L			11/30/21 14:34	5
cis-1,2-Dichloroethene	87		5.0	2.3	ug/L			11/30/21 14:34	5
Tetrachloroethene	5.0	U	5.0	2.2	ug/L			11/30/21 14:34	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.6	ug/L			11/30/21 14:34	5
Trichloroethene	5.0	U *	5.0	2.2	ug/L			11/30/21 14:34	5
Vinyl chloride	250		5.0	2.3	ug/L			11/30/21 14:34	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		62 - 137		11/30/21 14:34	5
4-Bromofluorobenzene (Surr)	96		56 - 136		11/30/21 14:34	5
Toluene-d8 (Surr)	86		78 - 122		11/30/21 14:34	5
Dibromofluoromethane (Surr)	88		73 - 120		11/30/21 14:34	5

Client Sample Results

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

Job ID: 240-160449-1

Client Sample ID: MW-71_111621

Lab Sample ID: 240-160449-5

Date Collected: 11/16/21 16:21

Matrix: Water

Date Received: 11/19/21 09:50

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			11/23/21 19:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					11/23/21 19:32	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			11/29/21 19:39	1
cis-1,2-Dichloroethene	1.1		1.0	0.46	ug/L			11/29/21 19:39	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 19:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 19:39	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			11/29/21 19:39	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/21 19:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		62 - 137					11/29/21 19:39	1
4-Bromofluorobenzene (Surr)	94		56 - 136					11/29/21 19:39	1
Toluene-d8 (Surr)	81		78 - 122					11/29/21 19:39	1
Dibromofluoromethane (Surr)	89		73 - 120					11/29/21 19:39	1

Client Sample Results

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

Job ID: 240-160449-1

Client Sample ID: DUP-03

Lab Sample ID: 240-160449-6

Date Collected: 11/16/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.7		2.0	0.86	ug/L			11/23/21 19:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		66 - 120					11/23/21 19:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	10	U	10	4.9	ug/L			11/29/21 20:01	10
cis-1,2-Dichloroethene	230		10	4.6	ug/L			11/29/21 20:01	10
Tetrachloroethene	10	U	10	4.4	ug/L			11/29/21 20:01	10
trans-1,2-Dichloroethene	10	U	10	5.1	ug/L			11/29/21 20:01	10
Trichloroethene	10	U *+	10	4.4	ug/L			11/29/21 20:01	10
Vinyl chloride	380		10	4.5	ug/L			11/29/21 20:01	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		62 - 137					11/29/21 20:01	10
4-Bromofluorobenzene (Surr)	99		56 - 136					11/29/21 20:01	10
Toluene-d8 (Surr)	84		78 - 122					11/29/21 20:01	10
Dibromofluoromethane (Surr)	92		73 - 120					11/29/21 20:01	10

Surrogate Summary

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

Job ID: 240-160449-1

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 (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-160449-1	TRIP BLANK_178	83	98	84	92
240-160449-2	MW-46_111621	83	97	86	91
240-160449-3	MW-70_111621	82	97	83	91
240-160449-4	MW-45_111621	88	96	86	88
240-160449-4 MS	MW-45_111621	88	99	87	90
240-160449-4 MSD	MW-45_111621	85	95	83	90
240-160449-5	MW-71_111621	83	94	81	89
240-160449-6	DUP-03	82	99	84	92
LCS 240-514886/4	Lab Control Sample	80	99	82	95
LCS 240-514992/5	Lab Control Sample	89	101	89	94
MB 240-514886/7	Method Blank	77	91	78	84
MB 240-514992/8	Method Blank	88	96	86	87

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (66-120)
240-160449-2	MW-46_111621	96
240-160449-3	MW-70_111621	99
240-160449-4	MW-45_111621	97
240-160449-5	MW-71_111621	102
240-160449-6	DUP-03	101
240-160508-G-2 MS	Matrix Spike	100
240-160508-O-2 MSD	Matrix Spike Duplicate	100
LCS 240-514346/3	Lab Control Sample	97
MB 240-514346/4	Method Blank	96

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-160449-1

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

Lab Sample ID: MB 240-514886/7
Matrix: Water
Analysis Batch: 514886

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			11/29/21 15:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/21 15:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 15:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 15:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 15:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/21 15:16	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	77		62 - 137		11/29/21 15:16	1
4-Bromofluorobenzene (Surr)	91		56 - 136		11/29/21 15:16	1
Toluene-d8 (Surr)	78		78 - 122		11/29/21 15:16	1
Dibromofluoromethane (Surr)	84		73 - 120		11/29/21 15:16	1

Lab Sample ID: LCS 240-514886/4
Matrix: Water
Analysis Batch: 514886

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	20.0	19.1		ug/L		96	63 - 134
cis-1,2-Dichloroethene	20.0	22.3		ug/L		111	77 - 123
Tetrachloroethene	20.0	23.1		ug/L		116	76 - 123
trans-1,2-Dichloroethene	20.0	21.4		ug/L		107	75 - 124
Trichloroethene	20.0	27.9	*+	ug/L		140	70 - 122
Vinyl chloride	20.0	19.4		ug/L		97	60 - 144

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	80		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	82		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120

Lab Sample ID: MB 240-514992/8
Matrix: Water
Analysis Batch: 514992

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			11/30/21 12:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/21 12:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 12:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/21 12:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 12:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/21 12:45	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	88		62 - 137		11/30/21 12:45	1
4-Bromofluorobenzene (Surr)	96		56 - 136		11/30/21 12:45	1
Toluene-d8 (Surr)	86		78 - 122		11/30/21 12:45	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-160449-1

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

Lab Sample ID: MB 240-514992/8
Matrix: Water
Analysis Batch: 514992

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	87		73 - 120		11/30/21 12:45	1

Lab Sample ID: LCS 240-514992/5
Matrix: Water
Analysis Batch: 514992

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	20.0	21.8		ug/L		109	63 - 134	
cis-1,2-Dichloroethene	20.0	23.0		ug/L		115	77 - 123	
Tetrachloroethene	20.0	21.5		ug/L		108	76 - 123	
trans-1,2-Dichloroethene	20.0	23.9		ug/L		119	75 - 124	
Trichloroethene	20.0	27.0	*+	ug/L		135	70 - 122	
Vinyl chloride	20.0	22.6		ug/L		113	60 - 144	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	89		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	89		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

Lab Sample ID: 240-160449-4 MS
Matrix: Water
Analysis Batch: 514992

Client Sample ID: MW-45_111621
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
1,1-Dichloroethene	5.0	U	100	96.4		ug/L		96	56 - 135	
cis-1,2-Dichloroethene	87		100	186		ug/L		99	66 - 128	
Tetrachloroethene	5.0	U	100	90.9		ug/L		91	62 - 131	
trans-1,2-Dichloroethene	5.0	U	100	106		ug/L		106	56 - 136	
Trichloroethene	5.0	U *+	100	117		ug/L		117	61 - 124	
Vinyl chloride	250		100	334	E	ug/L		87	43 - 157	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	87		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

Lab Sample ID: 240-160449-4 MSD
Matrix: Water
Analysis Batch: 514992

Client Sample ID: MW-45_111621
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD Limit	
1,1-Dichloroethene	5.0	U	100	100		ug/L		100	56 - 135	4	26	
cis-1,2-Dichloroethene	87		100	185		ug/L		99	66 - 128	0	14	
Tetrachloroethene	5.0	U	100	91.7		ug/L		92	62 - 131	1	20	
trans-1,2-Dichloroethene	5.0	U	100	109		ug/L		109	56 - 136	3	15	
Trichloroethene	5.0	U *+	100	120		ug/L		120	61 - 124	2	15	

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-160449-1

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

Lab Sample ID: 240-160449-4 MSD
Matrix: Water
Analysis Batch: 514992

Client Sample ID: MW-45_111621
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	250		100	324	E	ug/L		76	43 - 157	3	24
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	85		62 - 137								
4-Bromofluorobenzene (Surr)	95		56 - 136								
Toluene-d8 (Surr)	83		78 - 122								
Dibromofluoromethane (Surr)	90		73 - 120								

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

Lab Sample ID: MB 240-514346/4
Matrix: Water
Analysis Batch: 514346

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			11/23/21 16:45	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		66 - 120					11/23/21 16:45	1

Lab Sample ID: LCS 240-514346/3
Matrix: Water
Analysis Batch: 514346

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	9.09		ug/L		91	80 - 122
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		66 - 120				

Lab Sample ID: 240-160508-G-2 MS
Matrix: Water
Analysis Batch: 514346

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	9.43		ug/L		94	51 - 153
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	100		66 - 120						

Lab Sample ID: 240-160508-O-2 MSD
Matrix: Water
Analysis Batch: 514346

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	9.76		ug/L		98	51 - 153	3	16

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-160449-1

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

Lab Sample ID: 240-160508-O-2 MSD
Matrix: Water
Analysis Batch: 514346

Client Sample ID: Matrix Spike Duplicate
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)	100		66 - 120

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

QC Association Summary

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

Job ID: 240-160449-1

GC/MS VOA

Analysis Batch: 514346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160449-2	MW-46_111621	Total/NA	Water	8260B SIM	
240-160449-3	MW-70_111621	Total/NA	Water	8260B SIM	
240-160449-4	MW-45_111621	Total/NA	Water	8260B SIM	
240-160449-5	MW-71_111621	Total/NA	Water	8260B SIM	
240-160449-6	DUP-03	Total/NA	Water	8260B SIM	
MB 240-514346/4	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-514346/3	Lab Control Sample	Total/NA	Water	8260B SIM	
240-160508-G-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-160508-O-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 514886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160449-1	TRIP BLANK_178	Total/NA	Water	8260B	
240-160449-2	MW-46_111621	Total/NA	Water	8260B	
240-160449-3	MW-70_111621	Total/NA	Water	8260B	
240-160449-5	MW-71_111621	Total/NA	Water	8260B	
240-160449-6	DUP-03	Total/NA	Water	8260B	
MB 240-514886/7	Method Blank	Total/NA	Water	8260B	
LCS 240-514886/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 514992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160449-4	MW-45_111621	Total/NA	Water	8260B	
MB 240-514992/8	Method Blank	Total/NA	Water	8260B	
LCS 240-514992/5	Lab Control Sample	Total/NA	Water	8260B	
240-160449-4 MS	MW-45_111621	Total/NA	Water	8260B	
240-160449-4 MSD	MW-45_111621	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-160449-1

Client Sample ID: TRIP BLANK_178

Lab Sample ID: 240-160449-1

Date Collected: 11/16/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514886	11/29/21 18:08	HMB	TAL CAN

Client Sample ID: MW-46_111621

Lab Sample ID: 240-160449-2

Date Collected: 11/16/21 11:41

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514886	11/29/21 18:30	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514346	11/23/21 18:21	CS	TAL CAN

Client Sample ID: MW-70_111621

Lab Sample ID: 240-160449-3

Date Collected: 11/16/21 13:01

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		25	514886	11/29/21 18:53	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514346	11/23/21 18:45	CS	TAL CAN

Client Sample ID: MW-45_111621

Lab Sample ID: 240-160449-4

Date Collected: 11/16/21 14:51

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	514992	11/30/21 14:34	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514346	11/23/21 19:08	CS	TAL CAN

Client Sample ID: MW-71_111621

Lab Sample ID: 240-160449-5

Date Collected: 11/16/21 16:21

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514886	11/29/21 19:39	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514346	11/23/21 19:32	CS	TAL CAN

Client Sample ID: DUP-03

Lab Sample ID: 240-160449-6

Date Collected: 11/16/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	514886	11/29/21 20:01	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514346	11/23/21 19:56	CS	TAL CAN

Laboratory References:

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

Eurofins TestAmerica, Canton

Accreditation/Certification Summary

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

Job ID: 240-160449-1

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

12/1/23

Chain of Custody Record

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

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 On-Site Project Number: 30080642-401.03 PO # 30080642-401.03		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kris@hinskey.com		Lab Contact: Mike DelMonico Telephone: 330-497-9396	
Sampler Name: <i>Kristy Schaefer</i>		Analysis Turnaround Time TAT if different from below: <input checked="" type="checkbox"/> 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Walk-in client Lab sampling Job/SDG No:	
Sample Identification		Sample Specific Notes / Special Instructions:	
TRIP BLANK_ 178	Sample Date: ---	Sample Time: ---	1 Trip Blank
MW-410-111621	11/14/21	1141	3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-570-111621	11/14/21	1301	
MW-45-111621	11/14/21	1451	
MW-71-111621	11/14/21	1621	
DUP-03	11/14/21	---	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained for) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at tomalia@cadena.com . Cadena #E203728 Level IV Reporting requested			
Relinquished by: <i>Tom Schaefer</i>		Company: Arcadis Date/Time: 11/18/21 9:26 AM Received by: <i>Tom Schaefer</i>	
Relinquished by: <i>Tom Schaefer</i>		Company: ARCADIS Date/Time: 11/18/21 / 1038 Received by: <i>Tom Schaefer</i>	
Relinquished by: <i>Tom Schaefer</i>		Company: ETA Date/Time: 11/18/21 1046 Received by: <i>Tom Schaefer</i>	



240-160449 Chain of Custody

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 160449

Canton Facility

Client ARCADIS Site Name _____

Cooler unpacked by: Danny Dyer

Cooler Received on 11-19-21 Opened on 11-19-21

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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. 1.2 °C Corrected Cooler Temp. 1.3 °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 1
-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 NA
4. Did custody papers accompany the sample(s)? Yes No NA
5. Were the custody papers relinquished & signed in the appropriate place? Yes No NA
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No NA
7. Did all bottles arrive in good condition (Unbroken)? Yes No NA

8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No NA
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No NA
10. Were correct bottle(s) used for the test(s) indicated? Yes No NA
11. Sufficient quantity received to perform indicated analyses? Yes No NA
12. Are these work share samples and all listed on the COC? Yes No NA

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 NA
15. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 59072 Yes No NA
17. Was a LL Hg or Me Hg trip blank present? Yes No NA

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. Saw 11/19/21

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: _____

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

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