

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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Laboratory Job ID: 240-149327-1
Client Project/Site: Ford LTP - On Site

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

Attn: Kristoffer Hinskey



Authorized for release by:
5/27/2021 11:12:25 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: 240-149327-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-149327-1

Job ID: 240-149327-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-149327-1

Comments

No additional comments.

Receipt

The samples were received on 5/13/2021 8:00 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 3.2° C.

GC/MS VOA

Method 8260B: The laboratory control sample (LCS) for analytical batch 240-486724 recovered outside control limits for the following analyte: Vinyl Chloride. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data has been reported: TRIP BLANK_38 (240-149327-1), MW-198_051121 (240-149327-2), MW-198S_051121 (240-149327-3), MW-197S_051121 (240-149327-4) and (LCS 240-486724/4).

Method 8260B: There was an MS/MSD analyzed in batch 240-486724 but could not be reported because the associated sample needed reanalyzed in a different batch: TRIP BLANK_38 (240-149327-1), MW-198_051121 (240-149327-2), MW-198S_051121 (240-149327-3) and MW-197S_051121 (240-149327-4).

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: 240-149327-1

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: 240-149327-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-149327-1	TRIP BLANK_38	Water	05/11/21 00:00	05/13/21 08:00	
240-149327-2	MW-198_051121	Water	05/11/21 12:05	05/13/21 08:00	
240-149327-3	MW-198S_051121	Water	05/11/21 12:50	05/13/21 08:00	
240-149327-4	MW-197S_051121	Water	05/11/21 13:45	05/13/21 08:00	
240-149327-5	MW-65_051121	Water	05/11/21 14:50	05/13/21 08:00	

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

Detection Summary

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

Job ID: 240-149327-1

Client Sample ID: TRIP BLANK_38

Lab Sample ID: 240-149327-1

No Detections.

Client Sample ID: MW-198_051121

Lab Sample ID: 240-149327-2

No Detections.

Client Sample ID: MW-198S_051121

Lab Sample ID: 240-149327-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.33	J	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: MW-197S_051121

Lab Sample ID: 240-149327-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	21		5.0	0.80	ug/L	5		8260B	Total/NA
trans-1,2-Dichloroethene	1.1	J	5.0	0.95	ug/L	5		8260B	Total/NA
Trichloroethene	66		5.0	0.50	ug/L	5		8260B	Total/NA
Vinyl chloride	3.6	J *+	5.0	1.0	ug/L	5		8260B	Total/NA

Client Sample ID: MW-65_051121

Lab Sample ID: 240-149327-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5.9		1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	14		1.0	0.20	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

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

Job ID: 240-149327-1

Client Sample ID: TRIP BLANK_38

Lab Sample ID: 240-149327-1

Date Collected: 05/11/21 00:00

Matrix: Water

Date Received: 05/13/21 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	0.19	ug/L			05/20/21 20:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/20/21 20:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/20/21 20:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/20/21 20:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/20/21 20:21	1
Vinyl chloride	1.0	U *+	1.0	0.20	ug/L			05/20/21 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	79		75 - 130		05/20/21 20:21	1
4-Bromofluorobenzene (Surr)	92		47 - 134		05/20/21 20:21	1
Toluene-d8 (Surr)	98		69 - 122		05/20/21 20:21	1
Dibromofluoromethane (Surr)	87		78 - 129		05/20/21 20:21	1

Client Sample Results

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

Job ID: 240-149327-1

Client Sample ID: MW-198_051121

Lab Sample ID: 240-149327-2

Date Collected: 05/11/21 12:05

Matrix: Water

Date Received: 05/13/21 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			05/18/21 17:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		70 - 133		05/18/21 17:49	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			05/20/21 20:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/20/21 20:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/20/21 20:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/20/21 20:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/20/21 20:46	1
Vinyl chloride	1.0	U *+	1.0	0.20	ug/L			05/20/21 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		75 - 130		05/20/21 20:46	1
4-Bromofluorobenzene (Surr)	94		47 - 134		05/20/21 20:46	1
Toluene-d8 (Surr)	96		69 - 122		05/20/21 20:46	1
Dibromofluoromethane (Surr)	86		78 - 129		05/20/21 20:46	1

Client Sample Results

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

Job ID: 240-149327-1

Client Sample ID: MW-198S_051121

Lab Sample ID: 240-149327-3

Date Collected: 05/11/21 12:50

Matrix: Water

Date Received: 05/13/21 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			05/18/21 18:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133					05/18/21 18:14	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			05/20/21 21:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/20/21 21:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/20/21 21:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/20/21 21:11	1
Trichloroethene	0.33	J	1.0	0.10	ug/L			05/20/21 21:11	1
Vinyl chloride	1.0	U *+	1.0	0.20	ug/L			05/20/21 21:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		75 - 130					05/20/21 21:11	1
4-Bromofluorobenzene (Surr)	95		47 - 134					05/20/21 21:11	1
Toluene-d8 (Surr)	97		69 - 122					05/20/21 21:11	1
Dibromofluoromethane (Surr)	87		78 - 129					05/20/21 21:11	1

Client Sample Results

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

Job ID: 240-149327-1

Client Sample ID: MW-197S_051121

Lab Sample ID: 240-149327-4

Date Collected: 05/11/21 13:45

Matrix: Water

Date Received: 05/13/21 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			05/18/21 18:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133					05/18/21 18:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	0.95	ug/L			05/20/21 21:36	5
cis-1,2-Dichloroethene	21		5.0	0.80	ug/L			05/20/21 21:36	5
Tetrachloroethene	5.0	U	5.0	0.75	ug/L			05/20/21 21:36	5
trans-1,2-Dichloroethene	1.1	J	5.0	0.95	ug/L			05/20/21 21:36	5
Trichloroethene	66		5.0	0.50	ug/L			05/20/21 21:36	5
Vinyl chloride	3.6	J**	5.0	1.0	ug/L			05/20/21 21:36	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		75 - 130					05/20/21 21:36	5
4-Bromofluorobenzene (Surr)	93		47 - 134					05/20/21 21:36	5
Toluene-d8 (Surr)	99		69 - 122					05/20/21 21:36	5
Dibromofluoromethane (Surr)	86		78 - 129					05/20/21 21:36	5

Client Sample Results

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

Job ID: 240-149327-1

Client Sample ID: MW-65_051121

Lab Sample ID: 240-149327-5

Date Collected: 05/11/21 14:50

Matrix: Water

Date Received: 05/13/21 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			05/18/21 19:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 133					05/18/21 19:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/21/21 13:55	1
cis-1,2-Dichloroethene	5.9		1.0	0.16	ug/L			05/21/21 13:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/21/21 13:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/21/21 13:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/21/21 13:55	1
Vinyl chloride	14		1.0	0.20	ug/L			05/21/21 13:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		75 - 130					05/21/21 13:55	1
4-Bromofluorobenzene (Surr)	92		47 - 134					05/21/21 13:55	1
Toluene-d8 (Surr)	98		69 - 122					05/21/21 13:55	1
Dibromofluoromethane (Surr)	84		78 - 129					05/21/21 13:55	1

Surrogate Summary

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

Job ID: 240-149327-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-149327-1	TRIP BLANK_38	79	92	98	87
240-149327-2	MW-198_051121	81	94	96	86
240-149327-3	MW-198S_051121	81	95	97	87
240-149327-4	MW-197S_051121	80	93	99	86
240-149327-5	MW-65_051121	80	92	98	84
240-149463-A-5 MS	Matrix Spike	79	97	97	83
240-149463-A-5 MSD	Matrix Spike Duplicate	77	96	97	87
LCS 240-486724/4	Lab Control Sample	83	96	94	89
LCS 240-486938/4	Lab Control Sample	80	95	99	90
MB 240-486724/7	Method Blank	79	92	99	86
MB 240-486938/7	Method Blank	81	90	96	87

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (70-133)
240-149327-2	MW-198_051121	92
240-149327-3	MW-198S_051121	94
240-149327-4	MW-197S_051121	94
240-149327-5	MW-65_051121	90
240-149329-H-3 MS	Matrix Spike	90
240-149329-N-3 MSD	Matrix Spike Duplicate	85
LCS 240-486344/4	Lab Control Sample	93
MB 240-486344/5	Method Blank	90

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-149327-1

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

Lab Sample ID: MB 240-486724/7
Matrix: Water
Analysis Batch: 486724

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	0.19	ug/L			05/20/21 15:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/20/21 15:20	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/20/21 15:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/20/21 15:20	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/20/21 15:20	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/20/21 15:20	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	79		75 - 130		05/20/21 15:20	1
4-Bromofluorobenzene (Surr)	92		47 - 134		05/20/21 15:20	1
Toluene-d8 (Surr)	99		69 - 122		05/20/21 15:20	1
Dibromofluoromethane (Surr)	86		78 - 129		05/20/21 15:20	1

Lab Sample ID: LCS 240-486724/4
Matrix: Water
Analysis Batch: 486724

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	10.0	8.85		ug/L		89	75 - 124
Tetrachloroethene	10.0	9.82		ug/L		98	70 - 125
trans-1,2-Dichloroethene	10.0	9.06		ug/L		91	74 - 130
Trichloroethene	10.0	8.84		ug/L		88	71 - 121
Vinyl chloride	10.0	13.9	*+	ug/L		139	61 - 134

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	83		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	94		69 - 122
Dibromofluoromethane (Surr)	89		78 - 129

Lab Sample ID: MB 240-486938/7
Matrix: Water
Analysis Batch: 486938

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	0.19	ug/L			05/21/21 13:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/21/21 13:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/21/21 13:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/21/21 13:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/21/21 13:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/21/21 13:30	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	81		75 - 130		05/21/21 13:30	1
4-Bromofluorobenzene (Surr)	90		47 - 134		05/21/21 13:30	1
Toluene-d8 (Surr)	96		69 - 122		05/21/21 13:30	1

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QC Sample Results

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

Job ID: 240-149327-1

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

Lab Sample ID: MB 240-486938/7
Matrix: Water
Analysis Batch: 486938

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	87		78 - 129		05/21/21 13:30	1

Lab Sample ID: LCS 240-486938/4
Matrix: Water
Analysis Batch: 486938

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	10.0	8.81		ug/L		88	73 - 129
cis-1,2-Dichloroethene	10.0	9.19		ug/L		92	75 - 124
Tetrachloroethene	10.0	10.4		ug/L		104	70 - 125
trans-1,2-Dichloroethene	10.0	8.87		ug/L		89	74 - 130
Trichloroethene	10.0	8.91		ug/L		89	71 - 121
Vinyl chloride	10.0	12.0		ug/L		120	61 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	80		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	99		69 - 122
Dibromofluoromethane (Surr)	90		78 - 129

Lab Sample ID: 240-149463-A-5 MS
Matrix: Water
Analysis Batch: 486938

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
1,1-Dichloroethene	5.0	U	50.0	44.1		ug/L		88	64 - 132
cis-1,2-Dichloroethene	130		50.0	172		ug/L		92	68 - 121
trans-1,2-Dichloroethene	3.6	J	50.0	47.1		ug/L		87	69 - 126
Trichloroethene	36		50.0	79.7		ug/L		88	56 - 124
Vinyl chloride	1.6	J F1	50.0	66.8		ug/L		130	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	79		75 - 130
4-Bromofluorobenzene (Surr)	97		47 - 134
Toluene-d8 (Surr)	97		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

Lab Sample ID: 240-149463-A-5 MSD
Matrix: Water
Analysis Batch: 486938

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
				Result	Qualifier						
1,1-Dichloroethene	5.0	U	50.0	44.4		ug/L		89	64 - 132	1	35
cis-1,2-Dichloroethene	130		50.0	174		ug/L		97	68 - 121	1	35
trans-1,2-Dichloroethene	3.6	J	50.0	48.2		ug/L		89	69 - 126	2	35
Trichloroethene	36		50.0	79.3		ug/L		87	56 - 124	0	35
Vinyl chloride	1.6	J F1	50.0	73.5	F1	ug/L		144	49 - 136	9	35

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-149327-1

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

Lab Sample ID: 240-149463-A-5 MSD
Matrix: Water
Analysis Batch: 486938

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	77		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	97		69 - 122
Dibromofluoromethane (Surr)	87		78 - 129

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

Lab Sample ID: MB 240-486344/5
Matrix: Water
Analysis Batch: 486344

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			05/18/21 14:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 133		05/18/21 14:01	1

Lab Sample ID: LCS 240-486344/4
Matrix: Water
Analysis Batch: 486344

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.2		ug/L		102	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 133

Lab Sample ID: 240-149329-H-3 MS
Matrix: Water
Analysis Batch: 486344

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	10.3		ug/L		103	46 - 170

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		70 - 133

Lab Sample ID: 240-149329-N-3 MSD
Matrix: Water
Analysis Batch: 486344

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.2		ug/L		102	46 - 170	1	26

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 133

QC Association Summary

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

Job ID: 240-149327-1

GC/MS VOA

Analysis Batch: 486344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-149327-2	MW-198_051121	Total/NA	Water	8260B SIM	
240-149327-3	MW-198S_051121	Total/NA	Water	8260B SIM	
240-149327-4	MW-197S_051121	Total/NA	Water	8260B SIM	
240-149327-5	MW-65_051121	Total/NA	Water	8260B SIM	
MB 240-486344/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-486344/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-149329-H-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-149329-N-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 486724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-149327-1	TRIP BLANK_38	Total/NA	Water	8260B	
240-149327-2	MW-198_051121	Total/NA	Water	8260B	
240-149327-3	MW-198S_051121	Total/NA	Water	8260B	
240-149327-4	MW-197S_051121	Total/NA	Water	8260B	
MB 240-486724/7	Method Blank	Total/NA	Water	8260B	
LCS 240-486724/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 486938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-149327-5	MW-65_051121	Total/NA	Water	8260B	
MB 240-486938/7	Method Blank	Total/NA	Water	8260B	
LCS 240-486938/4	Lab Control Sample	Total/NA	Water	8260B	
240-149463-A-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-149463-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-149327-1

Client Sample ID: TRIP BLANK_38

Lab Sample ID: 240-149327-1

Date Collected: 05/11/21 00:00

Matrix: Water

Date Received: 05/13/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	486724	05/20/21 20:21	LRW	TAL CAN

Client Sample ID: MW-198_051121

Lab Sample ID: 240-149327-2

Date Collected: 05/11/21 12:05

Matrix: Water

Date Received: 05/13/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	486724	05/20/21 20:46	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	486344	05/18/21 17:49	CS	TAL CAN

Client Sample ID: MW-198S_051121

Lab Sample ID: 240-149327-3

Date Collected: 05/11/21 12:50

Matrix: Water

Date Received: 05/13/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	486724	05/20/21 21:11	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	486344	05/18/21 18:14	CS	TAL CAN

Client Sample ID: MW-197S_051121

Lab Sample ID: 240-149327-4

Date Collected: 05/11/21 13:45

Matrix: Water

Date Received: 05/13/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	486724	05/20/21 21:36	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	486344	05/18/21 18:39	CS	TAL CAN

Client Sample ID: MW-65_051121

Lab Sample ID: 240-149327-5

Date Collected: 05/11/21 14:50

Matrix: Water

Date Received: 05/13/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	486938	05/21/21 13:55	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	486344	05/18/21 19:03	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 - On Site

Job ID: 240-149327-1

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	06-30-21
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21 *
Kentucky (UST)	State	112225	02-23-21 *
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

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



31132

Chain of Custody Record

MICHIGAN TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

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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		Site Contact: Julia McClafferty Telephone: 734-644-5131		Lab Contact: Mike DeMunico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: 1 of 1 COCs For lab use only	
Sampler Name: CHRISTINA WEAVER Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below: <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day 10 day		Containers & Preservatives H2SO4 HNO3 HCl NaOH NaCl Empres Other:		Analyses Composite C / Grab G Filtered Sample (Y / N)		Sample Specific Notes / Special Instructions: 1 Trip Blank 3 VOAs for 8260B 3 VOAs for 8260B SIM	
Sample Identification TRIP BLANK - 3B MW-198-051121 MW-198S-051121 MW-197S-051121 MW-65-051121		Matrix Air Aqueous Sediment Solid Other:		Containers & Preservatives H2SO4 HNO3 HCl NaOH NaCl Empres Other:		Analyses 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		Sample Specific Notes / Special Instructions: 1 Trip Blank 3 VOAs for 8260B 3 VOAs for 8260B SIM " " " " " "	
Sample Date 5/11/21 5/11/21 5/11/21 5/11/21		Sample Time 1205 1250 1345 1450		Matrix Air Aqueous Sediment Solid Other:		Containers & Preservatives H2SO4 HNO3 HCl NaOH NaCl Empres Other:		Analyses 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalina@cadenaco.com. Cadena #E203728 Level IV Reporting requested.		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Received by: ARCADIS Date/Time: 5/11/21 1600 Received by: <i>Christina Weaver</i>		Received by: ARCADIS Date/Time: 5/11/21 1600 Received by: <i>Archie Spore</i>		Company: ARCADIS Date/Time: 5/11/21 1600	
Relinquished by: ARCADIS Date/Time: 5/11/21 0950 Relinquished by: <i>Christina Weaver</i>		Relinquished by: ARCADIS Date/Time: 5/11/21 0950 Relinquished by: <i>Christina Weaver</i>		Relinquished by: ARCADIS Date/Time: 5/11/21 0950 Relinquished by: <i>Christina Weaver</i>		Relinquished by: ARCADIS Date/Time: 5/11/21 0950 Relinquished by: <i>Christina Weaver</i>		Company: ARCADIS Date/Time: 5/11/21 0950	
Relinquished by: ARCADIS Date/Time: 5/11/21 1337 Relinquished by: <i>Christina Weaver</i>		Relinquished by: ARCADIS Date/Time: 5/11/21 1337 Relinquished by: <i>Christina Weaver</i>		Relinquished by: ARCADIS Date/Time: 5/11/21 1337 Relinquished by: <i>Christina Weaver</i>		Relinquished by: ARCADIS Date/Time: 5/11/21 1337 Relinquished by: <i>Christina Weaver</i>		Company: ARCADIS Date/Time: 5/11/21 1337	



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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 49327

Client Arcadis Site Name Ford LTP

Cooler unpacked by:

Cooler Received on 5-13-21 Opened on 5-13-21

Jme

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-11 (CF +0.1 °C) Observed Cooler Temp. 3.1 °C Corrected Cooler Temp. 3.2 °C
 IR GUN #IR-12 (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 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? Yme Yes No NA

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

3. Shippers' packing slip attached to the cooler(s)? 5-13-21 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)? Yes No
 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# HC022887
 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 # Covered Yes No
 17. Was a LL Hg or Me Hg trip blank present? Yes No

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

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

19. SAMPLE CONDITION

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

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____