

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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Laboratory Job ID: 240-134645-1
Client Project/Site: Ford LTP On-Site
Revision: 1

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



Authorized for release by:
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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: 240-134645-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
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: 240-134645-1

Job ID: 240-134645-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 240-134645-1

Revision

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Report revised on 8/20/2020 to correct reported QC data for method 8260B.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/7/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134645-1), MW-65_080320 (240-134645-2) and MW-66_080320 (240-134645-3) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/14/2020 and 08/17/2020.

cis-1,2-Dichloroethene failed the recovery criteria high for LCS 240-447176/4. Refer to the QC report for details.

The laboratory control sample (LCS) for 447176 recovered outside control limits for one or multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: TRIP BLANK (240-134645-1), MW-66_080320 (240-134645-3) and (LCS 240-447176/4).

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

Case Narrative

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

Job ID: 240-134645-1

Job ID: 240-134645-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-65_080320 (240-134645-2) and MW-66_080320 (240-134645-3) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 08/11/2020.

An MS/MSD was done in 240-446478 however the sample and the MS/MSD could not be reported. The effected samples are MW-65_080320 (240-134645-2) and MW-66_080320 (240-134645-3).

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

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Method Summary

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

Job ID: 240-134645-1

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: 240-134645-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134645-1	TRIP BLANK	Water	08/03/20 00:00	08/08/20 09:20	
240-134645-2	MW-65_080320	Water	08/03/20 14:15	08/08/20 09:20	
240-134645-3	MW-66_080320	Water	08/03/20 16:45	08/07/20 09:20	

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- 13
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Detection Summary

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

Job ID: 240-134645-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134645-1

No Detections.

Client Sample ID: MW-65_080320

Lab Sample ID: 240-134645-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
1,4-Dioxane	2.0		2.0	0.86	ug/L	1			8260B SIM	Total/NA
cis-1,2-Dichloroethene	6.1		1.0	0.38	ug/L	1			8260B	Total/NA
Vinyl chloride	20		1.0	0.50	ug/L	1			8260B	Total/NA

Client Sample ID: MW-66_080320

Lab Sample ID: 240-134645-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
1,4-Dioxane	1.3	J	2.0	0.86	ug/L	1			8260B SIM	Total/NA
Vinyl chloride	3.5		1.0	0.50	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: 240-134645-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134645-1

Date Collected: 08/03/20 00:00

Matrix: Water

Date Received: 08/08/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/20 13:42	1
cis-1,2-Dichloroethene	1.0	U *	1.0	0.38	ug/L			08/14/20 13:42	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/14/20 13:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/14/20 13:42	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/14/20 13:42	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/14/20 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 130		08/14/20 13:42	1
4-Bromofluorobenzene (Surr)	96		47 - 134		08/14/20 13:42	1
Toluene-d8 (Surr)	103		69 - 122		08/14/20 13:42	1
Dibromofluoromethane (Surr)	115		78 - 129		08/14/20 13:42	1

Client Sample Results

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

Job ID: 240-134645-1

Client Sample ID: MW-65_080320

Lab Sample ID: 240-134645-2

Date Collected: 08/03/20 14:15

Matrix: Water

Date Received: 08/08/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0		2.0	0.86	ug/L			08/11/20 08:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		70 - 133		08/11/20 08:40	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	0.46	ug/L			08/17/20 12:34	1
cis-1,2-Dichloroethene	6.1		1.0	0.38	ug/L			08/17/20 12:34	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/17/20 12:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/17/20 12:34	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/17/20 12:34	1
Vinyl chloride	20		1.0	0.50	ug/L			08/17/20 12:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 130		08/17/20 12:34	1
4-Bromofluorobenzene (Surr)	79		47 - 134		08/17/20 12:34	1
Toluene-d8 (Surr)	97		69 - 122		08/17/20 12:34	1
Dibromofluoromethane (Surr)	86		78 - 129		08/17/20 12:34	1

Client Sample Results

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

Job ID: 240-134645-1

Client Sample ID: MW-66_080320

Lab Sample ID: 240-134645-3

Date Collected: 08/03/20 16:45

Matrix: Water

Date Received: 08/07/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.3	J	2.0	0.86	ug/L			08/11/20 09:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	74		70 - 133					08/11/20 09:05	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	0.46	ug/L			08/14/20 14:26	1
cis-1,2-Dichloroethene	1.0	U *	1.0	0.38	ug/L			08/14/20 14:26	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/14/20 14:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/14/20 14:26	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/14/20 14:26	1
Vinyl chloride	3.5		1.0	0.50	ug/L			08/14/20 14:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 130					08/14/20 14:26	1
4-Bromofluorobenzene (Surr)	100		47 - 134					08/14/20 14:26	1
Toluene-d8 (Surr)	105		69 - 122					08/14/20 14:26	1
Dibromofluoromethane (Surr)	120		78 - 129					08/14/20 14:26	1

Surrogate Summary

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

Job ID: 240-134645-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-134604-B-23 MS	Matrix Spike	95	95	103	86
240-134604-B-23 MSD	Matrix Spike Duplicate	94	96	102	84
240-134645-1	TRIP BLANK	100	96	103	115
240-134645-2	MW-65_080320	104	79	97	86
240-134645-3	MW-66_080320	101	100	105	120
240-134647-C-6 MS	Matrix Spike	103	107	105	125
240-134647-D-6 MSD	Matrix Spike Duplicate	103	103	105	124
LCS 240-447176/4	Lab Control Sample	102	102	107	123
LCS 240-447404/4	Lab Control Sample	92	96	102	87
MB 240-447176/6	Method Blank	102	103	105	120
MB 240-447404/7	Method Blank	102	80	96	86

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-134645-2	MW-65_080320	78
240-134645-3	MW-66_080320	74
LCS 240-446478/4	Lab Control Sample	77
MB 240-446478/5	Method Blank	79

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-134645-1

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

Lab Sample ID: MB 240-447176/6
Matrix: Water
Analysis Batch: 447176

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/20 09:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/14/20 09:38	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/14/20 09:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/14/20 09:38	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/14/20 09:38	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/14/20 09:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/14/20 09:38	1
4-Bromofluorobenzene (Surr)	103		47 - 134		08/14/20 09:38	1
Toluene-d8 (Surr)	105		69 - 122		08/14/20 09:38	1
Dibromofluoromethane (Surr)	120		78 - 129		08/14/20 09:38	1

Lab Sample ID: LCS 240-447176/4
Matrix: Water
Analysis Batch: 447176

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	12.4		ug/L		124	73 - 129
cis-1,2-Dichloroethene	10.0	12.5	*	ug/L		125	75 - 124
Tetrachloroethene	10.0	11.7		ug/L		117	70 - 125
trans-1,2-Dichloroethene	10.0	12.3		ug/L		123	74 - 130
Trichloroethene	10.0	11.4		ug/L		114	71 - 121
Vinyl chloride	10.0	11.8		ug/L		118	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	107		69 - 122
Dibromofluoromethane (Surr)	123		78 - 129

Lab Sample ID: 240-134647-C-6 MS
Matrix: Water
Analysis Batch: 447176

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	64 - 132
cis-1,2-Dichloroethene	1.0	U *	10.0	11.7		ug/L		117	68 - 121
Tetrachloroethene	1.0	U	10.0	9.90		ug/L		99	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	12.0		ug/L		120	69 - 126
Trichloroethene	1.0	U	10.0	10.8		ug/L		108	56 - 124
Vinyl chloride	4.7		10.0	16.3		ug/L		115	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		75 - 130
4-Bromofluorobenzene (Surr)	107		47 - 134
Toluene-d8 (Surr)	105		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-134645-1

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

Lab Sample ID: 240-134647-C-6 MS
Matrix: Water
Analysis Batch: 447176

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	125		78 - 129

Lab Sample ID: 240-134647-D-6 MSD
Matrix: Water
Analysis Batch: 447176

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	11.7		ug/L		117	64 - 132	4	35
cis-1,2-Dichloroethene	1.0	U *	10.0	11.9		ug/L		119	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	52 - 129	3	35
trans-1,2-Dichloroethene	1.0	U	10.0	11.5		ug/L		115	69 - 126	4	35
Trichloroethene	1.0	U	10.0	10.6		ug/L		106	56 - 124	1	35
Vinyl chloride	4.7		10.0	16.7		ug/L		120	49 - 136	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	105		69 - 122
Dibromofluoromethane (Surr)	124		78 - 129

Lab Sample ID: MB 240-447404/7
Matrix: Water
Analysis Batch: 447404

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/17/20 11:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/17/20 11:28	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/17/20 11:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/17/20 11:28	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/17/20 11:28	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/17/20 11:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/17/20 11:28	1
4-Bromofluorobenzene (Surr)	80		47 - 134		08/17/20 11:28	1
Toluene-d8 (Surr)	96		69 - 122		08/17/20 11:28	1
Dibromofluoromethane (Surr)	86		78 - 129		08/17/20 11:28	1

Lab Sample ID: LCS 240-447404/4
Matrix: Water
Analysis Batch: 447404

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.25		ug/L		82	73 - 129
cis-1,2-Dichloroethene	10.0	9.00		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.6		ug/L		106	70 - 125
trans-1,2-Dichloroethene	10.0	8.67		ug/L		87	74 - 130
Trichloroethene	10.0	9.04		ug/L		90	71 - 121

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QC Sample Results

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

Job ID: 240-134645-1

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

Lab Sample ID: LCS 240-447404/4
Matrix: Water
Analysis Batch: 447404

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	10.0	8.38		ug/L		84	61 - 134
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	92		75 - 130				
4-Bromofluorobenzene (Surr)	96		47 - 134				
Toluene-d8 (Surr)	102		69 - 122				
Dibromofluoromethane (Surr)	87		78 - 129				

Lab Sample ID: 240-134604-B-23 MS
Matrix: Water
Analysis Batch: 447404

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
cis-1,2-Dichloroethene	3200	F1	1430	4000	F1	ug/L		57	68 - 121
Tetrachloroethene	470		1430	1760		ug/L		90	52 - 129
trans-1,2-Dichloroethene	140	U	1430	1120		ug/L		78	69 - 126
Trichloroethene	150		1430	1310		ug/L		81	56 - 124
Vinyl chloride	870		1430	1880		ug/L		71	49 - 136
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	95		75 - 130						
4-Bromofluorobenzene (Surr)	95		47 - 134						
Toluene-d8 (Surr)	103		69 - 122						
Dibromofluoromethane (Surr)	86		78 - 129						

Lab Sample ID: 240-134604-B-23 MSD
Matrix: Water
Analysis Batch: 447404

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
cis-1,2-Dichloroethene	3200	F1	1430	3960	F1	ug/L		55	68 - 121	1	35
Tetrachloroethene	470		1430	1810		ug/L		93	52 - 129	3	35
trans-1,2-Dichloroethene	140	U	1430	1150		ug/L		81	69 - 126	3	35
Trichloroethene	150		1430	1330		ug/L		83	56 - 124	1	35
Vinyl chloride	870		1430	1880		ug/L		71	49 - 136	0	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	94		75 - 130								
4-Bromofluorobenzene (Surr)	96		47 - 134								
Toluene-d8 (Surr)	102		69 - 122								
Dibromofluoromethane (Surr)	84		78 - 129								

QC Sample Results

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

Job ID: 240-134645-1

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

Lab Sample ID: MB 240-446478/5
Matrix: Water
Analysis Batch: 446478

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	-		08/11/20 05:46	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	79		70 - 133					08/11/20 05:46	1

Lab Sample ID: LCS 240-446478/4
Matrix: Water
Analysis Batch: 446478

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	9.73		ug/L	-	97	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	77		70 - 133				

QC Association Summary

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

Job ID: 240-134645-1

GC/MS VOA

Analysis Batch: 446478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134645-2	MW-65_080320	Total/NA	Water	8260B SIM	
240-134645-3	MW-66_080320	Total/NA	Water	8260B SIM	
MB 240-446478/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-446478/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 447176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134645-1	TRIP BLANK	Total/NA	Water	8260B	
240-134645-3	MW-66_080320	Total/NA	Water	8260B	
MB 240-447176/6	Method Blank	Total/NA	Water	8260B	
LCS 240-447176/4	Lab Control Sample	Total/NA	Water	8260B	
240-134647-C-6 MS	Matrix Spike	Total/NA	Water	8260B	
240-134647-D-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 447404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134645-2	MW-65_080320	Total/NA	Water	8260B	
MB 240-447404/7	Method Blank	Total/NA	Water	8260B	
LCS 240-447404/4	Lab Control Sample	Total/NA	Water	8260B	
240-134604-B-23 MS	Matrix Spike	Total/NA	Water	8260B	
240-134604-B-23 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-134645-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134645-1

Date Collected: 08/03/20 00:00

Matrix: Water

Date Received: 08/08/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447176	08/14/20 13:42	LEE	TAL CAN

Client Sample ID: MW-65_080320

Lab Sample ID: 240-134645-2

Date Collected: 08/03/20 14:15

Matrix: Water

Date Received: 08/08/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447404	08/17/20 12:34	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	446478	08/11/20 08:40	SAM	TAL CAN

Client Sample ID: MW-66_080320

Lab Sample ID: 240-134645-3

Date Collected: 08/03/20 16:45

Matrix: Water

Date Received: 08/07/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447176	08/14/20 14:26	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	446478	08/11/20 09:05	SAM	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 240-134645-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

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

Eurofins TestAmerica, Canton

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: 30050315.401.03 PO # 30050315.401.03		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: kristoffer.hinskey@arcadis.com		Lab Contact: Mike DeMonico Telephone: 330-497-9396	
Sampler Name: Patrick Labadie Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below: <input checked="" 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	
Sample Identification Sample Date Sample Time 8-3-20 — MW-65-080320 8-3-20 14:15 MW-66-080320 8-3-20 16:45		Matrix Aqueous Sediment Solid Other: X X X X	
Containers & Preservatives H2SO4 HNO3 HCl NaOH ZnAc NiOH Other: X X X X X X		Filtered Sample (Y / N) Composite—C / Grab-G 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Sample Specific Notes / Special Instructions: TRIP BLANK 3 Vials for 8260B 3 Vials for 8260 SIM L		Walk-in client Lab sampling Job/SDG No:	



Possible Hazard Identification
 Non-Hazard Irritant Flammable Poison B Unknown

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

Special Instructions/OC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728
 Level IV Reporting requested.

Relinquished by: <i>Patrick Labadie</i>	Company: Arcadis	Date/Time: 8-3-20/18:15	Received by: <i>NOVI Cold Storage</i>	Company: Arcadis	Date/Time: 8-7-20 9:20
Relinquished by: <i>Antony Brannick</i>	Company: Arcadis	Date/Time: 8/6/20 12:45	Received by: <i>Che My</i>	Company: ERM	Date/Time: 8/6/20 12:50
Relinquished by: <i>Che My</i>	Company: ERM	Date/Time: 8/6/20 13:00	Received in Laboratory by: <i>[Signature]</i>	Company: ERM	Date/Time: 8-7-20 9:20

Eurofins TestAmerica Canton Sample Receipt Form/Narrative				Login # : <u>1346545</u>	
Canton Facility					
Client <u>Arcadis</u>		Site Name _____		Cooler unpacked by: <u>[Signature]</u>	
Cooler Received on <u>8-7-20</u>		Opened on <u>8-7-20</u>			
FedEx: 1 st <input checked="" type="checkbox"/> Grd <input type="checkbox"/> Exp <input type="checkbox"/> UPS <input type="checkbox"/> FAS <input type="checkbox"/> Clipper <input type="checkbox"/>		Client Drop Off <input type="checkbox"/>		TestAmerica Courier <input type="checkbox"/> Other <input type="checkbox"/>	
Receipt After-hours: Drop-off Date/Time			Storage Location		
TestAmerica Cooler # <u>74</u>		Foam Box <input type="checkbox"/>		Client Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other _____	
Packing material used: <u>Bubble Wrap</u>		Foam <input type="checkbox"/>		<u>Plastic Bag</u> None <input type="checkbox"/> Other _____	
COOLANT: <u>Wet Ice</u>		Blue Ice <input type="checkbox"/>		Dry Ice <input type="checkbox"/> Water <input type="checkbox"/> None <input type="checkbox"/>	
1. Cooler temperature upon receipt			<input checked="" type="checkbox"/> See Multiple Cooler Form		
IR GUN# IR-10 (CF +0.7 °C)		Observed Cooler Temp. _____ °C		Corrected Cooler Temp. _____ °C	
IR GUN #IR-11 (CF +0.9°C)		Observed Cooler Temp. _____ °C		Corrected Cooler Temp. _____ °C	
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>4</u>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
-Were the seals on the outside of the cooler(s) signed & dated?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA			
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
-Were tamper/custody seals intact and uncompromised?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA			
3. Shippers' packing slip attached to the cooler(s)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
4. Did custody papers accompany the sample(s)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
5. Were the custody papers relinquished & signed in the appropriate place?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
6. Was/were the person(s) who collected the samples clearly identified on the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
7. Did all bottles arrive in good condition (Unbroken)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
8. Could all bottle labels be reconciled with the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
9. Were correct bottle(s) used for the test(s) indicated?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
10. Sufficient quantity received to perform indicated analyses?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
11. Are these work share samples?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, Questions 12-16 have been checked at the originating laboratory.					
12. Were all preserved sample(s) at the correct pH upon receipt?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		pH Strip Lot# <u>HC911298</u>	
13. Were VOAs on the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
14. Were air bubbles >6 mm in any VOA vials? <input checked="" type="checkbox"/> Larger than this.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA			
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>NA</u>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
16. Was a LL Hg or Me Hg trip blank present?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____					
Concerning _____					
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES				Samples processed by:	

18. SAMPLE CONDITION					
Sample(s) _____ were received after the recommended holding time had expired.					
Sample(s) _____ were received in a broken container.					
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)					
19. SAMPLE PRESERVATION					
Sample(s) _____ were further preserved in the laboratory.					
Time preserved: _____ Preservative(s) added/Lot number(s): _____					
VOA Sample Preservation - Date/Time VOAs Frozen: _____					

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This lot only

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
TA	Client	Box	Other	IR-10 (IR-11)	3.1	4.0	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 (IR-11)	1.2	2.2	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 (IR-11)	1.3	2.2	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 (IR-11)	1.6	2.5	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	

See Temperature Excursion Form