

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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Laboratory Job ID: 240-110825-1
Client Project/Site: Ford LTP Livonia MI - E203728

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



Authorized for release by:
4/25/2019 12:08:20 PM

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Job ID: 240-110825-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-110825-1

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

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 4/11/2019 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples HPT-219_15-19_040919 (240-110825-1), HPT-219_9-13_040919 (240-110825-2), HPT-219_4.5-8.5_040919 (240-110825-3) and TRIP BLANK (240-110825-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 04/18/2019 and 04/19/2019.

Samples HPT-219_9-13_040919 (240-110825-2)[66.67X] and HPT-219_4.5-8.5_040919 (240-110825-3)[33.33X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No MS/MSD in batch 377101 due to an incorrect dilution: HPT-219_15-19_040919 (240-110825-1), HPT-219_4.5-8.5_040919 (240-110825-3) and TRIP BLANK (240-110825-4).

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples HPT-219_15-19_040919 (240-110825-1), HPT-219_9-13_040919 (240-110825-2) and HPT-219_4.5-8.5_040919 (240-110825-3) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Job ID: 240-110825-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

samples were analyzed on 04/12/2019.

Samples HPT-219_9-13_040919 (240-110825-2)[10X] and HPT-219_4.5-8.5_040919 (240-110825-3)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

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 Livonia MI - E203728

Job ID: 240-110825-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-110825-1	HPT-219_15-19_040919	Water	04/09/19 13:15	04/11/19 08:30
240-110825-2	HPT-219_9-13_040919	Water	04/09/19 13:30	04/11/19 08:30
240-110825-3	HPT-219_4.5-8.5_040919	Water	04/09/19 13:45	04/11/19 08:30
240-110825-4	TRIP BLANK	Water	04/09/19 00:00	04/11/19 08:30

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- 11
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- 13
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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Client Sample ID: HPT-219_15-19_040919

Lab Sample ID: 240-110825-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.89	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	1.8		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	3.4		1.0	0.19	ug/L	1		8260B	Total/NA
Trichloroethene	0.77	J	1.0	0.10	ug/L	1		8260B	Total/NA
Vinyl chloride	0.20	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: HPT-219_9-13_040919

Lab Sample ID: 240-110825-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	110		67	11	ug/L	66.67		8260B	Total/NA
trans-1,2-Dichloroethene	210		67	13	ug/L	66.67		8260B	Total/NA
Trichloroethene	2000		67	6.7	ug/L	66.67		8260B	Total/NA

Client Sample ID: HPT-219_4.5-8.5_040919

Lab Sample ID: 240-110825-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	16	J	33	5.3	ug/L	33.33		8260B	Total/NA
trans-1,2-Dichloroethene	31	J	33	6.3	ug/L	33.33		8260B	Total/NA
Trichloroethene	730		33	3.3	ug/L	33.33		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110825-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.63	J	1.0	0.10	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 Livonia MI - E203728

Job ID: 240-110825-1

Client Sample ID: HPT-219_15-19_040919

Lab Sample ID: 240-110825-1

Date Collected: 04/09/19 13:15

Matrix: Water

Date Received: 04/11/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.89	J	2.0	0.86	ug/L			04/12/19 12:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		63 - 125		04/12/19 12:39	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			04/18/19 12:14	1
cis-1,2-Dichloroethene	1.8		1.0	0.16	ug/L			04/18/19 12:14	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/18/19 12:14	1
trans-1,2-Dichloroethene	3.4		1.0	0.19	ug/L			04/18/19 12:14	1
Trichloroethene	0.77	J	1.0	0.10	ug/L			04/18/19 12:14	1
Vinyl chloride	0.20	J	1.0	0.20	ug/L			04/18/19 12:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 121		04/18/19 12:14	1
4-Bromofluorobenzene (Surr)	101		59 - 120		04/18/19 12:14	1
Toluene-d8 (Surr)	112		70 - 123		04/18/19 12:14	1
Dibromofluoromethane (Surr)	103		75 - 128		04/18/19 12:14	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Client Sample ID: HPT-219_9-13_040919

Lab Sample ID: 240-110825-2

Date Collected: 04/09/19 13:30

Matrix: Water

Date Received: 04/11/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	20	U	20	8.6	ug/L			04/12/19 15:39	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		63 - 125		04/12/19 15:39	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	67	U	67	13	ug/L			04/19/19 13:11	66.67
cis-1,2-Dichloroethene	110		67	11	ug/L			04/19/19 13:11	66.67
Tetrachloroethene	67	U	67	10	ug/L			04/19/19 13:11	66.67
trans-1,2-Dichloroethene	210		67	13	ug/L			04/19/19 13:11	66.67
Trichloroethene	2000		67	6.7	ug/L			04/19/19 13:11	66.67
Vinyl chloride	67	U	67	13	ug/L			04/19/19 13:11	66.67

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 121		04/19/19 13:11	66.67
4-Bromofluorobenzene (Surr)	98		59 - 120		04/19/19 13:11	66.67
Toluene-d8 (Surr)	115		70 - 123		04/19/19 13:11	66.67
Dibromofluoromethane (Surr)	103		75 - 128		04/19/19 13:11	66.67

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Client Sample ID: HPT-219_4.5-8.5_040919

Lab Sample ID: 240-110825-3

Date Collected: 04/09/19 13:45

Matrix: Water

Date Received: 04/11/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	20	U	20	8.6	ug/L	-		04/12/19 16:04	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		63 - 125		04/12/19 16:04	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	33	U	33	6.3	ug/L	-		04/18/19 12:58	33.33
cis-1,2-Dichloroethene	16	J	33	5.3	ug/L			04/18/19 12:58	33.33
Tetrachloroethene	33	U	33	5.0	ug/L			04/18/19 12:58	33.33
trans-1,2-Dichloroethene	31	J	33	6.3	ug/L			04/18/19 12:58	33.33
Trichloroethene	730		33	3.3	ug/L			04/18/19 12:58	33.33
Vinyl chloride	33	U	33	6.7	ug/L			04/18/19 12:58	33.33

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 121		04/18/19 12:58	33.33
4-Bromofluorobenzene (Surr)	97		59 - 120		04/18/19 12:58	33.33
Toluene-d8 (Surr)	111		70 - 123		04/18/19 12:58	33.33
Dibromofluoromethane (Surr)	103		75 - 128		04/18/19 12:58	33.33

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110825-4

Date Collected: 04/09/19 00:00

Matrix: Water

Date Received: 04/11/19 08:30

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			04/18/19 13:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/18/19 13:20	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/18/19 13:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/18/19 13:20	1
Trichloroethene	0.63	J	1.0	0.10	ug/L			04/18/19 13:20	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/18/19 13:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		04/18/19 13:20	1
4-Bromofluorobenzene (Surr)	98		59 - 120		04/18/19 13:20	1
Toluene-d8 (Surr)	114		70 - 123		04/18/19 13:20	1
Dibromofluoromethane (Surr)	107		75 - 128		04/18/19 13:20	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-110825-1	HPT-219_15-19_040919	94	101	112	103
240-110825-2	HPT-219_9-13_040919	94	98	115	103
240-110825-2 MS	HPT-219_9-13_040919	89	111	116	99
240-110825-2 MSD	HPT-219_9-13_040919	89	109	115	100
240-110825-3	HPT-219_4.5-8.5_040919	91	97	111	103
240-110825-4	TRIP BLANK	96	98	114	107
LCS 240-377101/4	Lab Control Sample	87	111	117	97
LCS 240-377342/4	Lab Control Sample	90	107	115	96
MB 240-377101/6	Method Blank	93	98	109	100
MB 240-377342/6	Method Blank	95	98	108	102

Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(63-125)
240-110825-1	HPT-219_15-19_040919	98
240-110825-2	HPT-219_9-13_040919	109
240-110825-3	HPT-219_4.5-8.5_040919	106
240-110825-3 MS	HPT-219_4.5-8.5_040919	107
240-110825-3 MSD	HPT-219_4.5-8.5_040919	105
LCS 240-376210/4	Lab Control Sample	100
MB 240-376210/5	Method Blank	102

Surrogate Legend

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

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

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

Lab Sample ID: MB 240-377101/6
Matrix: Water
Analysis Batch: 377101

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/18/19 09:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/18/19 09:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/18/19 09:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/18/19 09:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/18/19 09:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/18/19 09:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		70 - 121		04/18/19 09:16	1
4-Bromofluorobenzene (Surr)	98		59 - 120		04/18/19 09:16	1
Toluene-d8 (Surr)	109		70 - 123		04/18/19 09:16	1
Dibromofluoromethane (Surr)	100		75 - 128		04/18/19 09:16	1

Lab Sample ID: LCS 240-377101/4
Matrix: Water
Analysis Batch: 377101

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	9.70		ug/L		97	65 - 139
cis-1,2-Dichloroethene	10.0	9.62		ug/L		96	76 - 128
Tetrachloroethene	10.0	8.68		ug/L		87	74 - 130
trans-1,2-Dichloroethene	10.0	9.22		ug/L		92	78 - 133
Trichloroethene	10.0	8.67		ug/L		87	76 - 125
Vinyl chloride	10.0	9.94		ug/L		99	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		70 - 121
4-Bromofluorobenzene (Surr)	111		59 - 120
Toluene-d8 (Surr)	117		70 - 123
Dibromofluoromethane (Surr)	97		75 - 128

Lab Sample ID: MB 240-377342/6
Matrix: Water
Analysis Batch: 377342

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/19/19 11:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/19/19 11:35	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/19/19 11:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/19/19 11:35	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/19/19 11:35	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/19/19 11:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		04/19/19 11:35	1
4-Bromofluorobenzene (Surr)	98		59 - 120		04/19/19 11:35	1
Toluene-d8 (Surr)	108		70 - 123		04/19/19 11:35	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

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

Lab Sample ID: MB 240-377342/6
Matrix: Water
Analysis Batch: 377342

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

Surrogate	MB MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)		102		75 - 128		04/19/19 11:35	1

Lab Sample ID: LCS 240-377342/4
Matrix: Water
Analysis Batch: 377342

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.2		ug/L		102	65 - 139
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
Tetrachloroethene	10.0	9.10		ug/L		91	74 - 130
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	78 - 133
Trichloroethene	10.0	9.39		ug/L		94	76 - 125
Vinyl chloride	10.0	10.1		ug/L		101	58 - 143

Surrogate	LCS LCS	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)		90		70 - 121
4-Bromofluorobenzene (Surr)		107		59 - 120
Toluene-d8 (Surr)		115		70 - 123
Dibromofluoromethane (Surr)		96		75 - 128

Lab Sample ID: 240-110825-2 MS
Matrix: Water
Analysis Batch: 377342

Client Sample ID: HPT-219_9-13_040919
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	67	U	667	588		ug/L		88	53 - 140
cis-1,2-Dichloroethene	110		667	743		ug/L		95	64 - 130
Tetrachloroethene	67	U	667	531		ug/L		80	51 - 136
trans-1,2-Dichloroethene	210		667	832		ug/L		93	68 - 133
Trichloroethene	2000		667	2430		ug/L		68	55 - 131
Vinyl chloride	67	U	667	557		ug/L		83	43 - 154

Surrogate	MS MS	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)		89		70 - 121
4-Bromofluorobenzene (Surr)		111		59 - 120
Toluene-d8 (Surr)		116		70 - 123
Dibromofluoromethane (Surr)		99		75 - 128

Lab Sample ID: 240-110825-2 MSD
Matrix: Water
Analysis Batch: 377342

Client Sample ID: HPT-219_9-13_040919
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	67	U	667	681		ug/L		102	53 - 140	15	35
cis-1,2-Dichloroethene	110		667	753		ug/L		96	64 - 130	1	21
Tetrachloroethene	67	U	667	606		ug/L		91	51 - 136	13	23
trans-1,2-Dichloroethene	210		667	858		ug/L		96	68 - 133	3	24
Trichloroethene	2000		667	2410		ug/L		66	55 - 131	1	23

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

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

Lab Sample ID: 240-110825-2 MSD

Client Sample ID: HPT-219_9-13_040919

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 377342

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vinyl chloride	67	U	667	618		ug/L		93	43 - 154	10	29
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	89		70 - 121								
4-Bromofluorobenzene (Surr)	109		59 - 120								
Toluene-d8 (Surr)	115		70 - 123								
Dibromofluoromethane (Surr)	100		75 - 128								

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

Lab Sample ID: MB 240-376210/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 376210

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			04/12/19 11:48	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		63 - 125					04/12/19 11:48	1

Lab Sample ID: LCS 240-376210/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 376210

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.9		ug/L		109	59 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	100		63 - 125				

Lab Sample ID: 240-110825-3 MS

Client Sample ID: HPT-219_4.5-8.5_040919

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 376210

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	20	U	100	94.8		ug/L		95	52 - 129
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	107		63 - 125						

Lab Sample ID: 240-110825-3 MSD

Client Sample ID: HPT-219_4.5-8.5_040919

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 376210

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	20	U	100	91.8		ug/L		92	52 - 129	3	13

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

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

Lab Sample ID: 240-110825-3 MSD

Matrix: Water

Analysis Batch: 376210

Client Sample ID: HPT-219_4.5-8.5_040919

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)	105		63 - 125

- 1
- 2
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- 14

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

GC/MS VOA

Analysis Batch: 376210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110825-1	HPT-219_15-19_040919	Total/NA	Water	8260B SIM	
240-110825-2	HPT-219_9-13_040919	Total/NA	Water	8260B SIM	
240-110825-3	HPT-219_4.5-8.5_040919	Total/NA	Water	8260B SIM	
MB 240-376210/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-376210/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-110825-3 MS	HPT-219_4.5-8.5_040919	Total/NA	Water	8260B SIM	
240-110825-3 MSD	HPT-219_4.5-8.5_040919	Total/NA	Water	8260B SIM	

Analysis Batch: 377101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110825-1	HPT-219_15-19_040919	Total/NA	Water	8260B	
240-110825-3	HPT-219_4.5-8.5_040919	Total/NA	Water	8260B	
240-110825-4	TRIP BLANK	Total/NA	Water	8260B	
MB 240-377101/6	Method Blank	Total/NA	Water	8260B	
LCS 240-377101/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 377342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110825-2	HPT-219_9-13_040919	Total/NA	Water	8260B	
MB 240-377342/6	Method Blank	Total/NA	Water	8260B	
LCS 240-377342/4	Lab Control Sample	Total/NA	Water	8260B	
240-110825-2 MS	HPT-219_9-13_040919	Total/NA	Water	8260B	
240-110825-2 MSD	HPT-219_9-13_040919	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-110825-1

Client Sample ID: HPT-219_15-19_040919

Lab Sample ID: 240-110825-1

Date Collected: 04/09/19 13:15

Matrix: Water

Date Received: 04/11/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	377101	04/18/19 12:14	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	376210	04/12/19 12:39	SAM	TAL CAN

Client Sample ID: HPT-219_9-13_040919

Lab Sample ID: 240-110825-2

Date Collected: 04/09/19 13:30

Matrix: Water

Date Received: 04/11/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		66.67	377342	04/19/19 13:11	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		10	376210	04/12/19 15:39	SAM	TAL CAN

Client Sample ID: HPT-219_4.5-8.5_040919

Lab Sample ID: 240-110825-3

Date Collected: 04/09/19 13:45

Matrix: Water

Date Received: 04/11/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		33.33	377101	04/18/19 12:58	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		10	376210	04/12/19 16:04	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110825-4

Date Collected: 04/09/19 00:00

Matrix: Water

Date Received: 04/11/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	377101	04/18/19 13:20	LEE	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 Livonia MI - E203728

Job ID: 240-110825-1

Laboratory: Eurofins TestAmerica, Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

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



TestAmerica Canton Sample Receipt Form/Narrative

Login # : 110925

Canton Facility

Client Arcadis Site Name Cooler unpacked by: Ryan Cribler
Cooler Received on 4-11-19 Opened on 4-11-19 830

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

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

TestAmerica Cooler # 7A Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 0.8 °C Corrected Cooler Temp. 0.6 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC861525
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # B834001VB Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

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

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RC

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) Trip Blank 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: