

ANALYTICAL REPORT

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Laboratory Job ID: 240-110362-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
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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 Livonia MI - E203631

Job ID: 240-110362-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery is outside acceptance 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.
X	Surrogate is outside control limits

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
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 - E203631

Job ID: 240-110362-1

Job ID: 240-110362-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-110362-1

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 4/3/2019 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples HPT-210-13-17_040119 (240-110362-1), HPT-210-8-12_040119 (240-110362-2), HPT-210-3-7_040119 (240-110362-3) and TRIP BLANK (240-110362-9) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 04/12/2019.

Trichloroethene failed the recovery criteria low for the MS of sample HPT-210-3-7_040119MS (240-110362-3) in batch 240-376204. Refer to the QC report for details.

Samples HPT-210-8-12_040119 (240-110362-2)[142.86X] and HPT-210-3-7_040119 (240-110362-3)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The pH of the sample was greater than 2. The sample was analyzed within the normal 14 day holding time; however, experimental evidence suggests that some aromatic compounds in wastewater samples, notably, Benzene, Toluene, and Ethylbenzene are susceptible to biological degradation if sample is not preserved to a pH of 2: HPT-210-13-17_040119 (240-110362-1).

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 Livonia MI - E203631

Job ID: 240-110362-1

Job ID: 240-110362-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

VOLATILE ORGANIC COMPOUNDS

Samples HPT-211-1-2_040119 (240-110362-4), HPT-211-2-3_040119 (240-110362-5), HPT-211-3-4_040119 (240-110362-6), HPT-211-4-5_040119 (240-110362-7) and HPT-211-5-6_040119 (240-110362-8) were analyzed for volatile organic compounds in accordance with EPA SW-846 Method 8260B. The samples were prepared on 04/09/2019 and analyzed on 04/11/2019.

The continuing calibration verification (CCV) associated with batch 240-376132 recovered above the upper control limit for vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. HPT-211-1-2_040119 (240-110362-4), HPT-211-2-3_040119 (240-110362-5), HPT-211-3-4_040119 (240-110362-6), HPT-211-4-5_040119 (240-110362-7), HPT-211-5-6_040119 (240-110362-8) and (CCV 240-376132/7)

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-210-13-17_040119 (240-110362-1), HPT-210-8-12_040119 (240-110362-2) and HPT-210-3-7_040119 (240-110362-3) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 04/10/2019 and 04/11/2019.

1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria high for HPT-210-8-12_040119 (240-110362-2). Refer to the QC report for details.

Surrogate recovery for the following sample was outside the upper control limit: HPT-210-8-12_040119 (240-110362-2). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The following sample was diluted due to the nature of the sample matrix: HPT-210-8-12_040119 (240-110362-2) and HPT-210-3-7_040119 (240-110362-3). Elevated reporting limits (RLs) are provided.

The pH is greater than 2 for the following samples: HPT-210-13-17_040119 (240-110362-1) and HPT-210-3-7_040119 (240-110362-3).

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

PERCENT SOLIDS

Samples HPT-211-1-2_040119 (240-110362-4), HPT-211-2-3_040119 (240-110362-5), HPT-211-3-4_040119 (240-110362-6), HPT-211-4-5_040119 (240-110362-7) and HPT-211-5-6_040119 (240-110362-8) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 04/04/2019.

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B MI	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN
5035	Closed System Purge and Trap	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

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 - E203631

Job ID: 240-110362-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-110362-1	HPT-210-13-17_040119	Water	04/01/19 18:25	04/03/19 08:30
240-110362-2	HPT-210-8-12_040119	Water	04/01/19 18:40	04/03/19 08:30
240-110362-3	HPT-210-3-7_040119	Water	04/01/19 18:55	04/03/19 08:30
240-110362-4	HPT-211-1-2_040119	Solid	04/01/19 17:00	04/03/19 08:30
240-110362-5	HPT-211-2-3_040119	Solid	04/01/19 17:00	04/03/19 08:30
240-110362-6	HPT-211-3-4_040119	Solid	04/01/19 17:00	04/03/19 08:30
240-110362-7	HPT-211-4-5_040119	Solid	04/01/19 17:00	04/03/19 08:30
240-110362-8	HPT-211-5-6_040119	Solid	04/01/19 17:00	04/03/19 08:30
240-110362-9	TRIP BLANK	Water	04/01/19 00:00	04/03/19 08:30



Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-210-13-17_040119

Lab Sample ID: 240-110362-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	7.1		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	1.8		1.0	0.19	ug/L	1		8260B	Total/NA
Trichloroethene	6.3		1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: HPT-210-8-12_040119

Lab Sample ID: 240-110362-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	230		140	23	ug/L	142.86		8260B	Total/NA
trans-1,2-Dichloroethene	260		140	27	ug/L	142.86		8260B	Total/NA
Trichloroethene	4400		140	14	ug/L	142.86		8260B	Total/NA

Client Sample ID: HPT-210-3-7_040119

Lab Sample ID: 240-110362-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	48	J	50	8.0	ug/L	50		8260B	Total/NA
trans-1,2-Dichloroethene	58		50	9.5	ug/L	50		8260B	Total/NA
Trichloroethene	1400	F1	50	5.0	ug/L	50		8260B	Total/NA
Vinyl chloride	11	J	50	10	ug/L	50		8260B	Total/NA

Client Sample ID: HPT-211-1-2_040119

Lab Sample ID: 240-110362-4

No Detections.

Client Sample ID: HPT-211-2-3_040119

Lab Sample ID: 240-110362-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	17	J	64	17	ug/Kg	1		8260B MI	Total/NA

Client Sample ID: HPT-211-3-4_040119

Lab Sample ID: 240-110362-6

No Detections.

Client Sample ID: HPT-211-4-5_040119

Lab Sample ID: 240-110362-7

No Detections.

Client Sample ID: HPT-211-5-6_040119

Lab Sample ID: 240-110362-8

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110362-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.24	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 - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-210-13-17_040119

Lab Sample ID: 240-110362-1

Date Collected: 04/01/19 18:25

Matrix: Water

Date Received: 04/03/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			04/10/19 13:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		63 - 125		04/10/19 13:13	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			04/12/19 17:18	1
cis-1,2-Dichloroethene	7.1		1.0	0.16	ug/L			04/12/19 17:18	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/12/19 17:18	1
trans-1,2-Dichloroethene	1.8		1.0	0.19	ug/L			04/12/19 17:18	1
Trichloroethene	6.3		1.0	0.10	ug/L			04/12/19 17:18	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/12/19 17:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 121		04/12/19 17:18	1
4-Bromofluorobenzene (Surr)	64		59 - 120		04/12/19 17:18	1
Toluene-d8 (Surr)	81		70 - 123		04/12/19 17:18	1
Dibromofluoromethane (Surr)	112		75 - 128		04/12/19 17:18	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-210-8-12_040119

Lab Sample ID: 240-110362-2

Date Collected: 04/01/19 18:40

Matrix: Water

Date Received: 04/03/19 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			04/10/19 22:38	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	126	X	63 - 125		04/10/19 22:38	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	140	U	140	27	ug/L			04/12/19 17:40	142.86
cis-1,2-Dichloroethene	230		140	23	ug/L			04/12/19 17:40	142.86
Tetrachloroethene	140	U	140	21	ug/L			04/12/19 17:40	142.86
trans-1,2-Dichloroethene	260		140	27	ug/L			04/12/19 17:40	142.86
Trichloroethene	4400		140	14	ug/L			04/12/19 17:40	142.86
Vinyl chloride	140	U	140	29	ug/L			04/12/19 17:40	142.86

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		04/12/19 17:40	142.86
4-Bromofluorobenzene (Surr)	64		59 - 120		04/12/19 17:40	142.86
Toluene-d8 (Surr)	81		70 - 123		04/12/19 17:40	142.86
Dibromofluoromethane (Surr)	115		75 - 128		04/12/19 17:40	142.86

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-210-3-7_040119

Lab Sample ID: 240-110362-3

Date Collected: 04/01/19 18:55

Matrix: Water

Date Received: 04/03/19 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			04/11/19 15:13	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		63 - 125		04/11/19 15:13	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	9.5	ug/L			04/12/19 18:01	50
cis-1,2-Dichloroethene	48	J	50	8.0	ug/L			04/12/19 18:01	50
Tetrachloroethene	50	U	50	7.5	ug/L			04/12/19 18:01	50
trans-1,2-Dichloroethene	58		50	9.5	ug/L			04/12/19 18:01	50
Trichloroethene	1400	F1	50	5.0	ug/L			04/12/19 18:01	50
Vinyl chloride	11	J	50	10	ug/L			04/12/19 18:01	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 121		04/12/19 18:01	50
4-Bromofluorobenzene (Surr)	64		59 - 120		04/12/19 18:01	50
Toluene-d8 (Surr)	83		70 - 123		04/12/19 18:01	50
Dibromofluoromethane (Surr)	118		75 - 128		04/12/19 18:01	50

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-211-1-2_040119

Lab Sample ID: 240-110362-4

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 87.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	20	ug/Kg	☼	04/09/19 12:37	04/11/19 21:48	1
cis-1,2-Dichloroethene	50	U	50	11	ug/Kg	☼	04/09/19 12:37	04/11/19 21:48	1
Tetrachloroethene	50	U	50	22	ug/Kg	☼	04/09/19 12:37	04/11/19 21:48	1
trans-1,2-Dichloroethene	50	U	50	12	ug/Kg	☼	04/09/19 12:37	04/11/19 21:48	1
Trichloroethene	50	U	50	14	ug/Kg	☼	04/09/19 12:37	04/11/19 21:48	1
Vinyl chloride	40	U	40	15	ug/Kg	☼	04/09/19 12:37	04/11/19 21:48	1
1,4-Dioxane	15000	U	15000	1400	ug/Kg	☼	04/09/19 12:37	04/11/19 21:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		53 - 155	04/09/19 12:37	04/11/19 21:48	1
4-Bromofluorobenzene (Surr)	94		48 - 151	04/09/19 12:37	04/11/19 21:48	1
Toluene-d8 (Surr)	97		49 - 147	04/09/19 12:37	04/11/19 21:48	1
Dibromofluoromethane (Surr)	76		49 - 138	04/09/19 12:37	04/11/19 21:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.4		0.1	0.1	%			04/04/19 14:22	1
Percent Moisture	12.6		0.1	0.1	%			04/04/19 14:22	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-211-2-3_040119

Lab Sample ID: 240-110362-5

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 83.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	64	U	64	25	ug/Kg	☼	04/09/19 12:37	04/11/19 22:10	1
cis-1,2-Dichloroethene	64	U	64	14	ug/Kg	☼	04/09/19 12:37	04/11/19 22:10	1
Tetrachloroethene	64	U	64	29	ug/Kg	☼	04/09/19 12:37	04/11/19 22:10	1
trans-1,2-Dichloroethene	64	U	64	16	ug/Kg	☼	04/09/19 12:37	04/11/19 22:10	1
Trichloroethene	17	J	64	17	ug/Kg	☼	04/09/19 12:37	04/11/19 22:10	1
Vinyl chloride	51	U	51	19	ug/Kg	☼	04/09/19 12:37	04/11/19 22:10	1
1,4-Dioxane	20000	U	20000	1700	ug/Kg	☼	04/09/19 12:37	04/11/19 22:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		53 - 155	04/09/19 12:37	04/11/19 22:10	1
4-Bromofluorobenzene (Surr)	96		48 - 151	04/09/19 12:37	04/11/19 22:10	1
Toluene-d8 (Surr)	97		49 - 147	04/09/19 12:37	04/11/19 22:10	1
Dibromofluoromethane (Surr)	84		49 - 138	04/09/19 12:37	04/11/19 22:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.4		0.1	0.1	%			04/04/19 14:22	1
Percent Moisture	16.6		0.1	0.1	%			04/04/19 14:22	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-211-3-4_040119

Lab Sample ID: 240-110362-6

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 81.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	65	U	65	26	ug/Kg	☼	04/09/19 12:37	04/11/19 22:32	1
cis-1,2-Dichloroethene	65	U	65	15	ug/Kg	☼	04/09/19 12:37	04/11/19 22:32	1
Tetrachloroethene	65	U	65	29	ug/Kg	☼	04/09/19 12:37	04/11/19 22:32	1
trans-1,2-Dichloroethene	65	U	65	16	ug/Kg	☼	04/09/19 12:37	04/11/19 22:32	1
Trichloroethene	65	U	65	18	ug/Kg	☼	04/09/19 12:37	04/11/19 22:32	1
Vinyl chloride	52	U	52	19	ug/Kg	☼	04/09/19 12:37	04/11/19 22:32	1
1,4-Dioxane	20000	U	20000	1800	ug/Kg	☼	04/09/19 12:37	04/11/19 22:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		53 - 155	04/09/19 12:37	04/11/19 22:32	1
4-Bromofluorobenzene (Surr)	103		48 - 151	04/09/19 12:37	04/11/19 22:32	1
Toluene-d8 (Surr)	105		49 - 147	04/09/19 12:37	04/11/19 22:32	1
Dibromofluoromethane (Surr)	87		49 - 138	04/09/19 12:37	04/11/19 22:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.2		0.1	0.1	%			04/04/19 14:22	1
Percent Moisture	18.8		0.1	0.1	%			04/04/19 14:22	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-211-4-5_040119

Lab Sample ID: 240-110362-7

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 79.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	67	U	67	27	ug/Kg	☼	04/09/19 12:37	04/11/19 22:54	1
cis-1,2-Dichloroethene	67	U	67	15	ug/Kg	☼	04/09/19 12:37	04/11/19 22:54	1
Tetrachloroethene	67	U	67	30	ug/Kg	☼	04/09/19 12:37	04/11/19 22:54	1
trans-1,2-Dichloroethene	67	U	67	17	ug/Kg	☼	04/09/19 12:37	04/11/19 22:54	1
Trichloroethene	67	U	67	18	ug/Kg	☼	04/09/19 12:37	04/11/19 22:54	1
Vinyl chloride	54	U	54	20	ug/Kg	☼	04/09/19 12:37	04/11/19 22:54	1
1,4-Dioxane	21000	U	21000	1800	ug/Kg	☼	04/09/19 12:37	04/11/19 22:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		53 - 155	04/09/19 12:37	04/11/19 22:54	1
4-Bromofluorobenzene (Surr)	98		48 - 151	04/09/19 12:37	04/11/19 22:54	1
Toluene-d8 (Surr)	101		49 - 147	04/09/19 12:37	04/11/19 22:54	1
Dibromofluoromethane (Surr)	85		49 - 138	04/09/19 12:37	04/11/19 22:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79.1		0.1	0.1	%			04/04/19 14:22	1
Percent Moisture	20.9		0.1	0.1	%			04/04/19 14:22	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-211-5-6_040119

Lab Sample ID: 240-110362-8

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 80.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	63	U	63	25	ug/Kg	☼	04/09/19 12:37	04/11/19 23:16	1
cis-1,2-Dichloroethene	63	U	63	14	ug/Kg	☼	04/09/19 12:37	04/11/19 23:16	1
Tetrachloroethene	63	U	63	28	ug/Kg	☼	04/09/19 12:37	04/11/19 23:16	1
trans-1,2-Dichloroethene	63	U	63	16	ug/Kg	☼	04/09/19 12:37	04/11/19 23:16	1
Trichloroethene	63	U	63	17	ug/Kg	☼	04/09/19 12:37	04/11/19 23:16	1
Vinyl chloride	50	U	50	19	ug/Kg	☼	04/09/19 12:37	04/11/19 23:16	1
1,4-Dioxane	20000	U	20000	1700	ug/Kg	☼	04/09/19 12:37	04/11/19 23:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		53 - 155	04/09/19 12:37	04/11/19 23:16	1
4-Bromofluorobenzene (Surr)	101		48 - 151	04/09/19 12:37	04/11/19 23:16	1
Toluene-d8 (Surr)	103		49 - 147	04/09/19 12:37	04/11/19 23:16	1
Dibromofluoromethane (Surr)	87		49 - 138	04/09/19 12:37	04/11/19 23:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.5		0.1	0.1	%			04/04/19 14:22	1
Percent Moisture	19.5		0.1	0.1	%			04/04/19 14:22	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110362-9

Date Collected: 04/01/19 00:00

Matrix: Water

Date Received: 04/03/19 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			04/12/19 18:23	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/12/19 18:23	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/12/19 18:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/12/19 18:23	1
Trichloroethene	0.24	J	1.0	0.10	ug/L			04/12/19 18:23	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/12/19 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 121		04/12/19 18:23	1
4-Bromofluorobenzene (Surr)	68		59 - 120		04/12/19 18:23	1
Toluene-d8 (Surr)	84		70 - 123		04/12/19 18:23	1
Dibromofluoromethane (Surr)	127		75 - 128		04/12/19 18:23	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

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)
240-110362-1	HPT-210-13-17_040119	100	64	81	112
240-110362-2	HPT-210-8-12_040119	105	64	81	115
240-110362-3	HPT-210-3-7_040119	104	64	83	118
240-110362-3 MS	HPT-210-3-7_040119	94	95	98	112
240-110362-3 MSD	HPT-210-3-7_040119	95	94	98	111
240-110362-9	TRIP BLANK	111	68	84	127
LCS 240-376204/4	Lab Control Sample	96	98	100	113
MB 240-376204/6	Method Blank	111	79	94	123

Surrogate Legend

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

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

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (53-155)	BFB (48-151)	TOL (49-147)	DBFM (49-138)
240-110362-4	HPT-211-1-2_040119	86	94	97	76
240-110362-5	HPT-211-2-3_040119	87	96	97	84
240-110362-6	HPT-211-3-4_040119	90	103	105	87
240-110362-7	HPT-211-4-5_040119	89	98	101	85
240-110362-8	HPT-211-5-6_040119	91	101	103	87
240-110665-B-18-A MS	Matrix Spike	91	95	102	87
240-110665-C-18-A MSD	Matrix Spike Duplicate	84	89	95	82
LCS 240-375550/2-A	Lab Control Sample	83	92	96	81
MB 240-375550/1-A	Method Blank	87	98	102	82

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)
240-110362-1	HPT-210-13-17_040119	116
240-110362-2	HPT-210-8-12_040119	126 X
240-110362-3	HPT-210-3-7_040119	102
240-110458-C-3 MS	Matrix Spike	122
240-110458-C-3 MSD	Matrix Spike Duplicate	117
240-110662-A-3 MS	Matrix Spike	102
240-110662-A-3 MSD	Matrix Spike Duplicate	101
LCS 240-375762/4	Lab Control Sample	116

Eurofins TestAmerica, Canton

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
LCS 240-376059/4	Lab Control Sample	99
MB 240-375762/5	Method Blank	116
MB 240-376059/5	Method Blank	101

Surrogate Legend

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

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

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

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

Lab Sample ID: MB 240-376204/6
Matrix: Water
Analysis Batch: 376204

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			04/12/19 10:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/12/19 10:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/12/19 10:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/12/19 10:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/12/19 10:24	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/12/19 10:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 121		04/12/19 10:24	1
4-Bromofluorobenzene (Surr)	79		59 - 120		04/12/19 10:24	1
Toluene-d8 (Surr)	94		70 - 123		04/12/19 10:24	1
Dibromofluoromethane (Surr)	123		75 - 128		04/12/19 10:24	1

Lab Sample ID: LCS 240-376204/4
Matrix: Water
Analysis Batch: 376204

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	9.87		ug/L		99	65 - 139
cis-1,2-Dichloroethene	10.0	11.4		ug/L		114	76 - 128
Tetrachloroethene	10.0	11.6		ug/L		116	74 - 130
trans-1,2-Dichloroethene	10.0	12.6		ug/L		126	78 - 133
Trichloroethene	10.0	10.4		ug/L		104	76 - 125
Vinyl chloride	10.0	11.0		ug/L		110	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		70 - 121
4-Bromofluorobenzene (Surr)	98		59 - 120
Toluene-d8 (Surr)	100		70 - 123
Dibromofluoromethane (Surr)	113		75 - 128

Lab Sample ID: 240-110362-3 MS
Matrix: Water
Analysis Batch: 376204

Client Sample ID: HPT-210-3-7_040119
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	50	U	500	451		ug/L		90	53 - 140
cis-1,2-Dichloroethene	48	J	500	569		ug/L		104	64 - 130
Tetrachloroethene	50	U	500	517		ug/L		103	51 - 136
trans-1,2-Dichloroethene	58		500	620		ug/L		112	68 - 133
Trichloroethene	1400	F1	500	1640	F1	ug/L		54	55 - 131
Vinyl chloride	11	J	500	524		ug/L		103	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		70 - 121
4-Bromofluorobenzene (Surr)	95		59 - 120
Toluene-d8 (Surr)	98		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

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

Lab Sample ID: 240-110362-3 MS
Matrix: Water
Analysis Batch: 376204

Client Sample ID: HPT-210-3-7_040119
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	112		75 - 128

Lab Sample ID: 240-110362-3 MSD
Matrix: Water
Analysis Batch: 376204

Client Sample ID: HPT-210-3-7_040119
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	50	U	500	467		ug/L		93	53 - 140	4	35
cis-1,2-Dichloroethene	48	J	500	581		ug/L		106	64 - 130	2	21
Tetrachloroethene	50	U	500	529		ug/L		106	51 - 136	2	23
trans-1,2-Dichloroethene	58		500	638		ug/L		116	68 - 133	3	24
Trichloroethene	1400	F1	500	1710		ug/L		67	55 - 131	4	23
Vinyl chloride	11	J	500	533		ug/L		104	43 - 154	2	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	111		75 - 128

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

Lab Sample ID: MB 240-375550/1-A
Matrix: Solid
Analysis Batch: 376132

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 375550

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		04/09/19 12:37	04/11/19 21:05	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		04/09/19 12:37	04/11/19 21:05	1
Tetrachloroethene	40	U	40	18	ug/Kg		04/09/19 12:37	04/11/19 21:05	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		04/09/19 12:37	04/11/19 21:05	1
Trichloroethene	40	U	40	11	ug/Kg		04/09/19 12:37	04/11/19 21:05	1
Vinyl chloride	32	U	32	12	ug/Kg		04/09/19 12:37	04/11/19 21:05	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		04/09/19 12:37	04/11/19 21:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		53 - 155	04/09/19 12:37	04/11/19 21:05	1
4-Bromofluorobenzene (Surr)	98		48 - 151	04/09/19 12:37	04/11/19 21:05	1
Toluene-d8 (Surr)	102		49 - 147	04/09/19 12:37	04/11/19 21:05	1
Dibromofluoromethane (Surr)	82		49 - 138	04/09/19 12:37	04/11/19 21:05	1

Lab Sample ID: LCS 240-375550/2-A
Matrix: Solid
Analysis Batch: 376132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 375550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	1080		ug/Kg		108	57 - 139
cis-1,2-Dichloroethene	1000	969		ug/Kg		97	74 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

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

Lab Sample ID: LCS 240-375550/2-A
Matrix: Solid
Analysis Batch: 376132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 375550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrachloroethene	1000	958		ug/Kg		96	76 - 120
trans-1,2-Dichloroethene	1000	1090		ug/Kg		109	71 - 133
Trichloroethene	1000	915		ug/Kg		91	73 - 126
Vinyl chloride	1000	1140		ug/Kg		114	52 - 130
1,4-Dioxane	20000	19700		ug/Kg		98	51 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		53 - 155
4-Bromofluorobenzene (Surr)	92		48 - 151
Toluene-d8 (Surr)	96		49 - 147
Dibromofluoromethane (Surr)	81		49 - 138

Lab Sample ID: 240-110665-B-18-A MS
Matrix: Solid
Analysis Batch: 376132

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 375550

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	62	U	1380	1480		ug/Kg	☼	107	36 - 150
cis-1,2-Dichloroethene	62	U	1380	1370		ug/Kg	☼	100	50 - 128
Tetrachloroethene	62	U	1380	1270		ug/Kg	☼	92	20 - 151
trans-1,2-Dichloroethene	62	U	1380	1540		ug/Kg	☼	111	44 - 141
Trichloroethene	62	U	1380	1270		ug/Kg	☼	92	25 - 148
Vinyl chloride	50	U	1380	1510		ug/Kg	☼	110	31 - 148
1,4-Dioxane	19000	U	27600	29800		ug/Kg	☼	108	62 - 158

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		53 - 155
4-Bromofluorobenzene (Surr)	95		48 - 151
Toluene-d8 (Surr)	102		49 - 147
Dibromofluoromethane (Surr)	87		49 - 138

Lab Sample ID: 240-110665-C-18-A MSD
Matrix: Solid
Analysis Batch: 376132

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 375550

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	62	U	1340	1370		ug/Kg	☼	102	36 - 150	8	40
cis-1,2-Dichloroethene	62	U	1340	1290		ug/Kg	☼	97	50 - 128	6	40
Tetrachloroethene	62	U	1340	1170		ug/Kg	☼	87	20 - 151	9	40
trans-1,2-Dichloroethene	62	U	1340	1400		ug/Kg	☼	105	44 - 141	9	40
Trichloroethene	62	U	1340	1150		ug/Kg	☼	86	25 - 148	10	40
Vinyl chloride	50	U	1340	1420		ug/Kg	☼	106	31 - 148	7	37
1,4-Dioxane	19000	U	26700	28200		ug/Kg	☼	106	62 - 158	5	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		53 - 155
4-Bromofluorobenzene (Surr)	89		48 - 151
Toluene-d8 (Surr)	95		49 - 147

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

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

Lab Sample ID: 240-110665-C-18-A MSD
Matrix: Solid
Analysis Batch: 376132

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 375550

Surrogate	%Recovery	MSD Qualifier	MSD Limits
Dibromofluoromethane (Surr)	82		49 - 138

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

Lab Sample ID: MB 240-375762/5
Matrix: Water
Analysis Batch: 375762

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			04/10/19 12:22	1

Surrogate	%Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		63 - 125		04/10/19 12:22	1

Lab Sample ID: LCS 240-375762/4
Matrix: Water
Analysis Batch: 375762

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	11.9		ug/L		119	59 - 131

Surrogate	%Recovery	LCS Qualifier	LCS Limits
1,2-Dichloroethane-d4 (Surr)	116		63 - 125

Lab Sample ID: 240-110458-C-3 MS
Matrix: Water
Analysis Batch: 375762

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	68		10.0	82.4	4	ug/L		142	52 - 129

Surrogate	%Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	122		63 - 125

Lab Sample ID: 240-110458-C-3 MSD
Matrix: Water
Analysis Batch: 375762

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	68		10.0	79.6	4	ug/L		113	52 - 129	4	13

Surrogate	%Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	117		63 - 125

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

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

Lab Sample ID: MB 240-376059/5
Matrix: Water
Analysis Batch: 376059

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	-		04/11/19 14:21	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		63 - 125					04/11/19 14:21	1

Lab Sample ID: LCS 240-376059/4
Matrix: Water
Analysis Batch: 376059

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	11.5		ug/L	-	115	59 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	99		63 - 125				

Lab Sample ID: 240-110662-A-3 MS
Matrix: Water
Analysis Batch: 376059

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	11.9		ug/L	-	119	52 - 129
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	102		63 - 125						

Lab Sample ID: 240-110662-A-3 MSD
Matrix: Water
Analysis Batch: 376059

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	11.8		ug/L	-	118	52 - 129	1	13
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	101		63 - 125								

Method: Moisture - Percent Moisture

Lab Sample ID: 240-110389-A-25 DU
Matrix: Solid
Analysis Batch: 374788

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	82.8		79.2		%	-	4	20
Percent Moisture	17.2		20.8		%	-	19	20

Eurofins TestAmerica, Canton

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

GC/MS VOA

Prep Batch: 375550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110362-4	HPT-211-1-2_040119	Total/NA	Solid	5035	
240-110362-5	HPT-211-2-3_040119	Total/NA	Solid	5035	
240-110362-6	HPT-211-3-4_040119	Total/NA	Solid	5035	
240-110362-7	HPT-211-4-5_040119	Total/NA	Solid	5035	
240-110362-8	HPT-211-5-6_040119	Total/NA	Solid	5035	
MB 240-375550/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-375550/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-110665-B-18-A MS	Matrix Spike	Total/NA	Solid	5035	
240-110665-C-18-A MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 375762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110362-1	HPT-210-13-17_040119	Total/NA	Water	8260B SIM	
240-110362-2	HPT-210-8-12_040119	Total/NA	Water	8260B SIM	
MB 240-375762/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-375762/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-110458-C-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-110458-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 376059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110362-3	HPT-210-3-7_040119	Total/NA	Water	8260B SIM	
MB 240-376059/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-376059/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-110662-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-110662-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 376132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110362-4	HPT-211-1-2_040119	Total/NA	Solid	8260B MI	375550
240-110362-5	HPT-211-2-3_040119	Total/NA	Solid	8260B MI	375550
240-110362-6	HPT-211-3-4_040119	Total/NA	Solid	8260B MI	375550
240-110362-7	HPT-211-4-5_040119	Total/NA	Solid	8260B MI	375550
240-110362-8	HPT-211-5-6_040119	Total/NA	Solid	8260B MI	375550
MB 240-375550/1-A	Method Blank	Total/NA	Solid	8260B MI	375550
LCS 240-375550/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	375550
240-110665-B-18-A MS	Matrix Spike	Total/NA	Solid	8260B MI	375550
240-110665-C-18-A MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B MI	375550

Analysis Batch: 376204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110362-1	HPT-210-13-17_040119	Total/NA	Water	8260B	
240-110362-2	HPT-210-8-12_040119	Total/NA	Water	8260B	
240-110362-3	HPT-210-3-7_040119	Total/NA	Water	8260B	
240-110362-9	TRIP BLANK	Total/NA	Water	8260B	
MB 240-376204/6	Method Blank	Total/NA	Water	8260B	
LCS 240-376204/4	Lab Control Sample	Total/NA	Water	8260B	
240-110362-3 MS	HPT-210-3-7_040119	Total/NA	Water	8260B	
240-110362-3 MSD	HPT-210-3-7_040119	Total/NA	Water	8260B	

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

General Chemistry

Analysis Batch: 374788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110362-4	HPT-211-1-2_040119	Total/NA	Solid	Moisture	
240-110362-5	HPT-211-2-3_040119	Total/NA	Solid	Moisture	
240-110362-6	HPT-211-3-4_040119	Total/NA	Solid	Moisture	
240-110362-7	HPT-211-4-5_040119	Total/NA	Solid	Moisture	
240-110362-8	HPT-211-5-6_040119	Total/NA	Solid	Moisture	
240-110389-A-25 DU	Duplicate	Total/NA	Solid	Moisture	

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-210-13-17_040119

Lab Sample ID: 240-110362-1

Date Collected: 04/01/19 18:25

Matrix: Water

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	376204	04/12/19 17:18	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 13:13	SAM	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 13:13	SAM	TAL CAN

Client Sample ID: HPT-210-8-12_040119

Lab Sample ID: 240-110362-2

Date Collected: 04/01/19 18:40

Matrix: Water

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		142.86	376204	04/12/19 17:40	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		10	375762	04/10/19 22:38	SAM	TAL CAN

Client Sample ID: HPT-210-3-7_040119

Lab Sample ID: 240-110362-3

Date Collected: 04/01/19 18:55

Matrix: Water

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	376204	04/12/19 18:01	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		10	376059	04/11/19 15:13	SAM	TAL CAN

Client Sample ID: HPT-211-1-2_040119

Lab Sample ID: 240-110362-4

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	374788	04/04/19 14:22	JMB	TAL CAN

Client Sample ID: HPT-211-1-2_040119

Lab Sample ID: 240-110362-4

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			375550	04/09/19 12:37	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/11/19 21:48	TJL1	TAL CAN

Client Sample ID: HPT-211-2-3_040119

Lab Sample ID: 240-110362-5

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	374788	04/04/19 14:22	JMB	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-211-2-3_040119

Lab Sample ID: 240-110362-5

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			375550	04/09/19 12:37	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/11/19 22:10	TJL1	TAL CAN

Client Sample ID: HPT-211-3-4_040119

Lab Sample ID: 240-110362-6

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	374788	04/04/19 14:22	JMB	TAL CAN

Client Sample ID: HPT-211-3-4_040119

Lab Sample ID: 240-110362-6

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 81.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			375550	04/09/19 12:37	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/11/19 22:32	TJL1	TAL CAN

Client Sample ID: HPT-211-4-5_040119

Lab Sample ID: 240-110362-7

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	374788	04/04/19 14:22	JMB	TAL CAN

Client Sample ID: HPT-211-4-5_040119

Lab Sample ID: 240-110362-7

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 79.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			375550	04/09/19 12:37	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/11/19 22:54	TJL1	TAL CAN

Client Sample ID: HPT-211-5-6_040119

Lab Sample ID: 240-110362-8

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	374788	04/04/19 14:22	JMB	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-110362-1

Client Sample ID: HPT-211-5-6_040119

Lab Sample ID: 240-110362-8

Date Collected: 04/01/19 17:00

Matrix: Solid

Date Received: 04/03/19 08:30

Percent Solids: 80.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			375550	04/09/19 12:37	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/11/19 23:16	TJL1	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110362-9

Date Collected: 04/01/19 00:00

Matrix: Water

Date Received: 04/03/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	376204	04/12/19 18:23	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 - E203631

Job ID: 240-110362-1

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.

3.8/3.6

Client Information Client Contact: Caitlin O'Neill Company: ARCADIS U.S. Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: 248-722-2411 Email: Caitlin.O'Neill@arcadis.com Project Name: Ford LTP Livonia MI - E203631 Site: Onsite		Lab PM: DeMonico, Michael E-Mail: michael.delmonico@testamericainc.com Carrier Tracking No(s): Lab No: 240-59411-25360.1 Page: Page 1 of 4 Job #:									
Due Date Requested: TAT Requested (days): 10-DAY (STD)		Analysis Requested 240-110362 Chain of Custody Barcode: [Barcode] Total Number of Containers:									
PO #: MI001318.0002.00002 WO #: Cadena #: E203631 Project #: 24015353 SSON#:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amelchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 X - EDA Z - other (specify)									
Sample Identification		Special Instructions/Note:									
Sample ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=other)	Field Filtered Sample (Yes or No)	8260B, 8260B_SIM	8260B, MI - VOCs (Short List)	8260B - VOCs (Short List)	Perform MS/MSD (Yes or No)	Analysis Requested	Special Instructions/Note
HPT-210-13-17-040119	4/1/19	1825	G	Water	X	3	0	3	0		Dry collected
HPT-210-8-12-040119	4/1/19	1840	G	Water	X	3	0	3	0		Dry collected
HPT-210-3-7-040119	4/1/19	1855	G	Water	X	3	0	3	0		Dry collected
HPT-211-1-2-040119	4/1/19	1700	G	Water	X	0	1	0	1		Dry collected
HPT-211-2-3-040119	4/1/19	1700	G	Water	X	0	1	0	1		Dry collected
HPT-211-3-4-040119	4/1/19	1700	G	Water	X	0	1	0	1		Dry collected
HPT-211-4-5-040119	4/1/19	1700	G	Solid	X	0	1	0	1		Dry collected
HPT-211-5-6-040119	4/1/19	1700	G	Solid	X	0	1	0	1		Dry collected
Trp Blank				Solid	X						
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Empty Kit Relinquished by:		Method of Shipment:									
Relinquished by: Christina Wearon Date/Time: 4/1/19 2000 Company: Arcadis		Received by: Novis cold storage Date/Time: 4/1/19 14:30 Company: Arcadis									
Relinquished by: Caitlin O'Neill Date/Time: 4/1/19 14:30 Company: Arcadis		Received by: [Signature] Date/Time: 4/1/19 14:30 Company: Arcadis									
Relinquished by: [Signature] Date/Time: 4/1/19 13:11 Company: Arcadis		Received by: [Signature] Date/Time: 4-3-19 8:90 Company: Arcadis									
Custody Seal No.: Δ Yes Δ No		Cooler Temperature: C and Other Remarks:									

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TestAmerica Canton Sample Receipt Form/Narrative

Login #: 110362

Canton Facility

Client Arcadi's Site Name

Cooler unpacked by:

Cooler Received on 4-3-19 Opened on 4-3-19

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
IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 3.8 °C Corrected Cooler Temp. 3.6 °C
IR GUN #36 (CF +0.7 °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
-Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels 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
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 No NA pH Strip Lot# HC861525
13. Were VOAs on the COC? Yes No DS 4/3/19
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 # B828801VB 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:

M5

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: