

ANALYTICAL REPORT

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Laboratory Job ID: 240-110665-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
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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: 240-110665-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
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.
F2	MS/MSD RPD 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
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: 240-110665-1

Job ID: 240-110665-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-110665-1

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 4/9/2019 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.6° C and 2.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-110665-11), HPT-216_18-22_040619 (240-110665-12), HPT-216_5-9_040619 (240-110665-13), HPT-215A_4-8_040619 (240-110665-14), DUP-02 (240-110665-15), HPT-215A_9-13_040619 (240-110665-16) and HPT-215A_14-18_040619 (240-110665-17) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 04/16/2019 and 04/17/2019.

Samples HPT-216_5-9_040619 (240-110665-13)[20X], HPT-215A_4-8_040619 (240-110665-14)[6.67X], DUP-02 (240-110665-15)[20X], HPT-215A_9-13_040619 (240-110665-16)[16.67X] and HPT-215A_14-18_040619 (240-110665-17)[14.28X] 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-216_18-22_040619 (240-110665-12).

Method 8260 stipulates a 12 hour sequence for the analysis of samples. Due to an instrument error, the MSD for sample (240-110670-B-9 MSD) exceeded the 12 hour time limit by 3 minutes. The MSD was reported for batch QC.

Case Narrative

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

Job ID: 240-110665-1

Job ID: 240-110665-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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

VOLATILE ORGANIC COMPOUNDS

Samples HPT-217_1-2_040619 (240-110665-1), HPT-217_2-3_040619 (240-110665-2), HPT-217_3-4_040619 (240-110665-3), HPT-217_4-5_040619 (240-110665-4), HPT-215A_28-29_040619 (240-110665-5), HPT-215A_0-1_040619 (240-110665-6), HPT-215A_3-4_040619 (240-110665-7), HPT-215A_2-3_040619 (240-110665-8), HPT-215A_4-5_040619 (240-110665-9), HPT-215A_1-2_040619 (240-110665-10), HPT-216_27-28_040619 (240-110665-18), HPT-216_3-4_040619 (240-110665-19), HPT-216_1-2_040619 (240-110665-20), HPT-216_2-3_040619 (240-110665-21) and HPT-216_4-5_040619 (240-110665-22) were analyzed for volatile organic compounds in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 04/11/2019, 04/12/2019 and 04/15/2019.

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-217_1-2_040619 (240-110665-1), HPT-217_2-3_040619 (240-110665-2), HPT-217_3-4_040619 (240-110665-3), HPT-217_4-5_040619 (240-110665-4), HPT-215A_0-1_040619 (240-110665-6), HPT-215A_3-4_040619 (240-110665-7), HPT-215A_2-3_040619 (240-110665-8), HPT-215A_4-5_040619 (240-110665-9), HPT-215A_1-2_040619 (240-110665-10), HPT-216_27-28_040619 (240-110665-18), HPT-216_3-4_040619 (240-110665-19), HPT-216_1-2_040619 (240-110665-20), HPT-216_2-3_040619 (240-110665-21), HPT-216_4-5_040619 (240-110665-22) and (CCV 240-376132/7).

The continuing calibration verification (CCV) associated with batch 240-376569 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. The following samples are impacted: HPT-215A_28-29_040619 (240-110665-5) and (CCVIS 240-376569/4).

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-216_18-22_040619 (240-110665-12), HPT-216_5-9_040619 (240-110665-13), HPT-215A_4-8_040619 (240-110665-14), DUP-02 (240-110665-15), HPT-215A_9-13_040619 (240-110665-16) and HPT-215A_14-18_040619 (240-110665-17) 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.

Internal standard responses were outside of acceptance limits for the following samples: HPT-216_5-9_040619 (240-110665-13), DUP-02 (240-110665-15) and HPT-215A_9-13_040619 (240-110665-16). The samples shows evidence of matrix interference.

The pH is greater than 2 for the following samples HPT-216_18-22_040619 (240-110665-12).

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

PERCENT SOLIDS

Samples HPT-217_1-2_040619 (240-110665-1), HPT-217_2-3_040619 (240-110665-2), HPT-217_3-4_040619 (240-110665-3), HPT-217_4-5_040619 (240-110665-4), HPT-215A_28-29_040619 (240-110665-5), HPT-215A_0-1_040619 (240-110665-6), HPT-215A_3-4_040619 (240-110665-7), HPT-215A_2-3_040619 (240-110665-8), HPT-215A_4-5_040619 (240-110665-9), HPT-215A_1-2_040619 (240-110665-10), HPT-216_27-28_040619 (240-110665-18), HPT-216_3-4_040619 (240-110665-19), HPT-216_1-2_040619 (240-110665-20), HPT-216_2-3_040619 (240-110665-21) and HPT-216_4-5_040619 (240-110665-22) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 04/09/2019.

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: 240-110665-1

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

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: 240-110665-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-110665-1	HPT-217_1-2_040619	Solid	04/06/19 17:45	04/09/19 08:30
240-110665-2	HPT-217_2-3_040619	Solid	04/06/19 17:45	04/09/19 08:30
240-110665-3	HPT-217_3-4_040619	Solid	04/06/19 17:45	04/09/19 08:30
240-110665-4	HPT-217_4-5_040619	Solid	04/06/19 17:45	04/09/19 08:30
240-110665-5	HPT-215A_28-29_040619	Solid	04/06/19 13:35	04/09/19 08:30
240-110665-6	HPT-215A_0-1_040619	Solid	04/06/19 09:10	04/09/19 08:30
240-110665-7	HPT-215A_3-4_040619	Solid	04/06/19 09:10	04/09/19 08:30
240-110665-8	HPT-215A_2-3_040619	Solid	04/06/19 09:10	04/09/19 08:30
240-110665-9	HPT-215A_4-5_040619	Solid	04/06/19 09:10	04/09/19 08:30
240-110665-10	HPT-215A_1-2_040619	Solid	04/06/19 09:10	04/09/19 08:30
240-110665-11	TRIP BLANK	Water	04/06/19 00:00	04/09/19 08:30
240-110665-12	HPT-216_18-22_040619	Water	04/06/19 17:20	04/09/19 08:30
240-110665-13	HPT-216_5-9_040619	Water	04/06/19 17:50	04/09/19 08:30
240-110665-14	HPT-215A_4-8_040619	Water	04/06/19 14:25	04/09/19 08:30
240-110665-15	DUP-02	Water	04/06/19 00:00	04/09/19 08:30
240-110665-16	HPT-215A_9-13_040619	Water	04/06/19 14:10	04/09/19 08:30
240-110665-17	HPT-215A_14-18_040619	Water	04/06/19 13:50	04/09/19 08:30
240-110665-18	HPT-216_27-28_040619	Solid	04/06/19 17:10	04/09/19 08:30
240-110665-19	HPT-216_3-4_040619	Solid	04/06/19 15:00	04/09/19 08:30
240-110665-20	HPT-216_1-2_040619	Solid	04/06/19 15:00	04/09/19 08:30
240-110665-21	HPT-216_2-3_040619	Solid	04/06/19 15:00	04/09/19 08:30
240-110665-22	HPT-216_4-5_040619	Solid	04/06/19 15:00	04/09/19 08:30

Detection Summary

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

Job ID: 240-110665-1

Client Sample ID: HPT-217_1-2_040619

Lab Sample ID: 240-110665-1

No Detections.

Client Sample ID: HPT-217_2-3_040619

Lab Sample ID: 240-110665-2

No Detections.

Client Sample ID: HPT-217_3-4_040619

Lab Sample ID: 240-110665-3

No Detections.

Client Sample ID: HPT-217_4-5_040619

Lab Sample ID: 240-110665-4

No Detections.

Client Sample ID: HPT-215A_28-29_040619

Lab Sample ID: 240-110665-5

No Detections.

Client Sample ID: HPT-215A_0-1_040619

Lab Sample ID: 240-110665-6

No Detections.

Client Sample ID: HPT-215A_3-4_040619

Lab Sample ID: 240-110665-7

No Detections.

Client Sample ID: HPT-215A_2-3_040619

Lab Sample ID: 240-110665-8

No Detections.

Client Sample ID: HPT-215A_4-5_040619

Lab Sample ID: 240-110665-9

No Detections.

Client Sample ID: HPT-215A_1-2_040619

Lab Sample ID: 240-110665-10

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110665-11

No Detections.

Client Sample ID: HPT-216_18-22_040619

Lab Sample ID: 240-110665-12

No Detections.

Client Sample ID: HPT-216_5-9_040619

Lab Sample ID: 240-110665-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	37		20	3.2	ug/L	20		8260B	Total/NA
trans-1,2-Dichloroethene	26		20	3.8	ug/L	20		8260B	Total/NA
Trichloroethene	450		20	2.0	ug/L	20		8260B	Total/NA

Client Sample ID: HPT-215A_4-8_040619

Lab Sample ID: 240-110665-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	46		6.7	1.1	ug/L	6.67		8260B	Total/NA
trans-1,2-Dichloroethene	3.9	J	6.7	1.3	ug/L	6.67		8260B	Total/NA
Trichloroethene	140		6.7	0.67	ug/L	6.67		8260B	Total/NA
Vinyl chloride	18		6.7	1.3	ug/L	6.67		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Detection Summary

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

Job ID: 240-110665-1

Client Sample ID: DUP-02

Lab Sample ID: 240-110665-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	210		20	3.2	ug/L	20		8260B	Total/NA
trans-1,2-Dichloroethene	17	J	20	3.8	ug/L	20		8260B	Total/NA
Trichloroethene	440		20	2.0	ug/L	20		8260B	Total/NA
Vinyl chloride	46		20	4.0	ug/L	20		8260B	Total/NA

Client Sample ID: HPT-215A_9-13_040619

Lab Sample ID: 240-110665-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	180		17	2.7	ug/L	16.67		8260B	Total/NA
trans-1,2-Dichloroethene	14	J	17	3.2	ug/L	16.67		8260B	Total/NA
Trichloroethene	410		17	1.7	ug/L	16.67		8260B	Total/NA
Vinyl chloride	48		17	3.3	ug/L	16.67		8260B	Total/NA

Client Sample ID: HPT-215A_14-18_040619

Lab Sample ID: 240-110665-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	320		14	2.3	ug/L	14.28		8260B	Total/NA
trans-1,2-Dichloroethene	3.0	J	14	2.7	ug/L	14.28		8260B	Total/NA
Trichloroethene	1.4	J	14	1.4	ug/L	14.28		8260B	Total/NA
Vinyl chloride	330		14	2.9	ug/L	14.28		8260B	Total/NA

Client Sample ID: HPT-216_27-28_040619

Lab Sample ID: 240-110665-18

No Detections.

Client Sample ID: HPT-216_3-4_040619

Lab Sample ID: 240-110665-19

No Detections.

Client Sample ID: HPT-216_1-2_040619

Lab Sample ID: 240-110665-20

No Detections.

Client Sample ID: HPT-216_2-3_040619

Lab Sample ID: 240-110665-21

No Detections.

Client Sample ID: HPT-216_4-5_040619

Lab Sample ID: 240-110665-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	16	J	68	15	ug/Kg	1	☼	8260B MI	Total/NA
Trichloroethene	30	J	68	19	ug/Kg	1	☼	8260B MI	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: 240-110665-1

Client Sample ID: HPT-217_1-2_040619

Lab Sample ID: 240-110665-1

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 82.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	61	U	61	24	ug/Kg	☼	04/09/19 21:13	04/11/19 23:37	1
1,4-Dioxane	19000	U	19000	1700	ug/Kg	☼	04/09/19 21:13	04/11/19 23:37	1
cis-1,2-Dichloroethene	61	U	61	14	ug/Kg	☼	04/09/19 21:13	04/11/19 23:37	1
Tetrachloroethene	61	U	61	27	ug/Kg	☼	04/09/19 21:13	04/11/19 23:37	1
trans-1,2-Dichloroethene	61	U	61	15	ug/Kg	☼	04/09/19 21:13	04/11/19 23:37	1
Trichloroethene	61	U	61	17	ug/Kg	☼	04/09/19 21:13	04/11/19 23:37	1
Vinyl chloride	49	U	49	18	ug/Kg	☼	04/09/19 21:13	04/11/19 23:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		53 - 155	04/09/19 21:13	04/11/19 23:37	1
4-Bromofluorobenzene (Surr)	105		48 - 151	04/09/19 21:13	04/11/19 23:37	1
Dibromofluoromethane (Surr)	93		49 - 138	04/09/19 21:13	04/11/19 23:37	1
Toluene-d8 (Surr)	112		49 - 147	04/09/19 21:13	04/11/19 23:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.5		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	17.5		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-217_2-3_040619

Lab Sample ID: 240-110665-2

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 88.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	53	U	53	21	ug/Kg	☼	04/09/19 21:13	04/11/19 23:59	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	04/09/19 21:13	04/11/19 23:59	1
cis-1,2-Dichloroethene	53	U	53	12	ug/Kg	☼	04/09/19 21:13	04/11/19 23:59	1
Tetrachloroethene	53	U	53	24	ug/Kg	☼	04/09/19 21:13	04/11/19 23:59	1
trans-1,2-Dichloroethene	53	U	53	13	ug/Kg	☼	04/09/19 21:13	04/11/19 23:59	1
Trichloroethene	53	U	53	14	ug/Kg	☼	04/09/19 21:13	04/11/19 23:59	1
Vinyl chloride	42	U	42	16	ug/Kg	☼	04/09/19 21:13	04/11/19 23:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		53 - 155	04/09/19 21:13	04/11/19 23:59	1
4-Bromofluorobenzene (Surr)	96		48 - 151	04/09/19 21:13	04/11/19 23:59	1
Dibromofluoromethane (Surr)	85		49 - 138	04/09/19 21:13	04/11/19 23:59	1
Toluene-d8 (Surr)	99		49 - 147	04/09/19 21:13	04/11/19 23:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.5		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	11.5		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-217_3-4_040619

Lab Sample ID: 240-110665-3

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 84.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	24	ug/Kg	☼	04/09/19 21:13	04/12/19 00:21	1
1,4-Dioxane	19000	U	19000	1600	ug/Kg	☼	04/09/19 21:13	04/12/19 00:21	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	04/09/19 21:13	04/12/19 00:21	1
Tetrachloroethene	59	U	59	27	ug/Kg	☼	04/09/19 21:13	04/12/19 00:21	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	04/09/19 21:13	04/12/19 00:21	1
Trichloroethene	59	U	59	16	ug/Kg	☼	04/09/19 21:13	04/12/19 00:21	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	04/09/19 21:13	04/12/19 00:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	57		53 - 155	04/09/19 21:13	04/12/19 00:21	1
4-Bromofluorobenzene (Surr)	65		48 - 151	04/09/19 21:13	04/12/19 00:21	1
Dibromofluoromethane (Surr)	56		49 - 138	04/09/19 21:13	04/12/19 00:21	1
Toluene-d8 (Surr)	67		49 - 147	04/09/19 21:13	04/12/19 00:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.9		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	15.1		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-217_4-5_040619

Lab Sample ID: 240-110665-4

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 81.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	80	U	80	32	ug/Kg	☼	04/09/19 21:13	04/12/19 00:43	1
1,4-Dioxane	25000	U	25000	2200	ug/Kg	☼	04/09/19 21:13	04/12/19 00:43	1
cis-1,2-Dichloroethene	80	U	80	18	ug/Kg	☼	04/09/19 21:13	04/12/19 00:43	1
Tetrachloroethene	80	U	80	36	ug/Kg	☼	04/09/19 21:13	04/12/19 00:43	1
trans-1,2-Dichloroethene	80	U	80	20	ug/Kg	☼	04/09/19 21:13	04/12/19 00:43	1
Trichloroethene	80	U	80	22	ug/Kg	☼	04/09/19 21:13	04/12/19 00:43	1
Vinyl chloride	64	U	64	24	ug/Kg	☼	04/09/19 21:13	04/12/19 00:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		53 - 155	04/09/19 21:13	04/12/19 00:43	1
4-Bromofluorobenzene (Surr)	109		48 - 151	04/09/19 21:13	04/12/19 00:43	1
Dibromofluoromethane (Surr)	95		49 - 138	04/09/19 21:13	04/12/19 00:43	1
Toluene-d8 (Surr)	114		49 - 147	04/09/19 21:13	04/12/19 00:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.8		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	18.2		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_28-29_040619

Lab Sample ID: 240-110665-5

Date Collected: 04/06/19 13:35

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 84.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	24	ug/Kg	☼	04/09/19 21:13	04/15/19 18:52	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	04/09/19 21:13	04/15/19 18:52	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	04/09/19 21:13	04/15/19 18:52	1
Tetrachloroethene	59	U	59	26	ug/Kg	☼	04/09/19 21:13	04/15/19 18:52	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	04/09/19 21:13	04/15/19 18:52	1
Trichloroethene	59	U	59	16	ug/Kg	☼	04/09/19 21:13	04/15/19 18:52	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	04/09/19 21:13	04/15/19 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		53 - 155	04/09/19 21:13	04/15/19 18:52	1
4-Bromofluorobenzene (Surr)	98		48 - 151	04/09/19 21:13	04/15/19 18:52	1
Dibromofluoromethane (Surr)	85		49 - 138	04/09/19 21:13	04/15/19 18:52	1
Toluene-d8 (Surr)	99		49 - 147	04/09/19 21:13	04/15/19 18:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.8		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	15.2		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_0-1_040619

Lab Sample ID: 240-110665-6

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 94.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	04/09/19 21:13	04/12/19 01:26	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	04/09/19 21:13	04/12/19 01:26	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	04/09/19 21:13	04/12/19 01:26	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	04/09/19 21:13	04/12/19 01:26	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	04/09/19 21:13	04/12/19 01:26	1
Trichloroethene	47	U	47	13	ug/Kg	☼	04/09/19 21:13	04/12/19 01:26	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	04/09/19 21:13	04/12/19 01:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		53 - 155	04/09/19 21:13	04/12/19 01:26	1
4-Bromofluorobenzene (Surr)	82		48 - 151	04/09/19 21:13	04/12/19 01:26	1
Dibromofluoromethane (Surr)	73		49 - 138	04/09/19 21:13	04/12/19 01:26	1
Toluene-d8 (Surr)	93		49 - 147	04/09/19 21:13	04/12/19 01:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.5		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	5.5		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_3-4_040619

Lab Sample ID: 240-110665-7

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 88.7

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 21:13	04/12/19 01:48	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	04/09/19 21:13	04/12/19 01:48	1
cis-1,2-Dichloroethene	50	U	50	11	ug/Kg	☼	04/09/19 21:13	04/12/19 01:48	1
Tetrachloroethene	50	U	50	23	ug/Kg	☼	04/09/19 21:13	04/12/19 01:48	1
trans-1,2-Dichloroethene	50	U	50	13	ug/Kg	☼	04/09/19 21:13	04/12/19 01:48	1
Trichloroethene	50	U	50	14	ug/Kg	☼	04/09/19 21:13	04/12/19 01:48	1
Vinyl chloride	40	U	40	15	ug/Kg	☼	04/09/19 21:13	04/12/19 01:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		53 - 155	04/09/19 21:13	04/12/19 01:48	1
4-Bromofluorobenzene (Surr)	99		48 - 151	04/09/19 21:13	04/12/19 01:48	1
Dibromofluoromethane (Surr)	85		49 - 138	04/09/19 21:13	04/12/19 01:48	1
Toluene-d8 (Surr)	104		49 - 147	04/09/19 21:13	04/12/19 01:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.7		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	11.3		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_2-3_040619

Lab Sample ID: 240-110665-8

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 89.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	04/09/19 21:13	04/12/19 02:10	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	04/09/19 21:13	04/12/19 02:10	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	04/09/19 21:13	04/12/19 02:10	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	04/09/19 21:13	04/12/19 02:10	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	04/09/19 21:13	04/12/19 02:10	1
Trichloroethene	55	U	55	15	ug/Kg	☼	04/09/19 21:13	04/12/19 02:10	1
Vinyl chloride	44	U	44	17	ug/Kg	☼	04/09/19 21:13	04/12/19 02:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		53 - 155	04/09/19 21:13	04/12/19 02:10	1
4-Bromofluorobenzene (Surr)	92		48 - 151	04/09/19 21:13	04/12/19 02:10	1
Dibromofluoromethane (Surr)	80		49 - 138	04/09/19 21:13	04/12/19 02:10	1
Toluene-d8 (Surr)	94		49 - 147	04/09/19 21:13	04/12/19 02:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.6		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	10.4		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_4-5_040619

Lab Sample ID: 240-110665-9

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 82.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	23	ug/Kg	☼	04/09/19 21:13	04/12/19 02:32	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	04/09/19 21:13	04/12/19 02:32	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	04/09/19 21:13	04/12/19 02:32	1
Tetrachloroethene	59	U	59	26	ug/Kg	☼	04/09/19 21:13	04/12/19 02:32	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	04/09/19 21:13	04/12/19 02:32	1
Trichloroethene	59	U	59	16	ug/Kg	☼	04/09/19 21:13	04/12/19 02:32	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	04/09/19 21:13	04/12/19 02:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		53 - 155	04/09/19 21:13	04/12/19 02:32	1
4-Bromofluorobenzene (Surr)	102		48 - 151	04/09/19 21:13	04/12/19 02:32	1
Dibromofluoromethane (Surr)	86		49 - 138	04/09/19 21:13	04/12/19 02:32	1
Toluene-d8 (Surr)	105		49 - 147	04/09/19 21:13	04/12/19 02:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.6		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	17.4		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_1-2_040619

Lab Sample ID: 240-110665-10

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 91.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	52	U	52	21	ug/Kg	☼	04/09/19 21:13	04/12/19 02:54	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	04/09/19 21:13	04/12/19 02:54	1
cis-1,2-Dichloroethene	52	U	52	12	ug/Kg	☼	04/09/19 21:13	04/12/19 02:54	1
Tetrachloroethene	52	U	52	24	ug/Kg	☼	04/09/19 21:13	04/12/19 02:54	1
trans-1,2-Dichloroethene	52	U	52	13	ug/Kg	☼	04/09/19 21:13	04/12/19 02:54	1
Trichloroethene	52	U	52	14	ug/Kg	☼	04/09/19 21:13	04/12/19 02:54	1
Vinyl chloride	42	U	42	16	ug/Kg	☼	04/09/19 21:13	04/12/19 02:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		53 - 155	04/09/19 21:13	04/12/19 02:54	1
4-Bromofluorobenzene (Surr)	93		48 - 151	04/09/19 21:13	04/12/19 02:54	1
Dibromofluoromethane (Surr)	78		49 - 138	04/09/19 21:13	04/12/19 02:54	1
Toluene-d8 (Surr)	96		49 - 147	04/09/19 21:13	04/12/19 02:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.0		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	9.0		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110665-11

Date Collected: 04/06/19 00:00

Matrix: Water

Date Received: 04/09/19 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			04/16/19 16:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/16/19 16:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/16/19 16:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/16/19 16:45	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/16/19 16:45	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/16/19 16:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 121		04/16/19 16:45	1
4-Bromofluorobenzene (Surr)	80		59 - 120		04/16/19 16:45	1
Toluene-d8 (Surr)	102		70 - 123		04/16/19 16:45	1
Dibromofluoromethane (Surr)	102		75 - 128		04/16/19 16:45	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_18-22_040619

Lab Sample ID: 240-110665-12

Date Collected: 04/06/19 17:20

Matrix: Water

Date Received: 04/09/19 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 19:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		63 - 125		04/10/19 19:13	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			04/16/19 17:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/16/19 17:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/16/19 17:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/16/19 17:08	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/16/19 17:08	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/16/19 17:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 121		04/16/19 17:08	1
4-Bromofluorobenzene (Surr)	75		59 - 120		04/16/19 17:08	1
Toluene-d8 (Surr)	97		70 - 123		04/16/19 17:08	1
Dibromofluoromethane (Surr)	96		75 - 128		04/16/19 17:08	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_5-9_040619

Lab Sample ID: 240-110665-13

Date Collected: 04/06/19 17:50

Matrix: Water

Date Received: 04/09/19 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 19:39	1

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

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	20	U	20	3.8	ug/L			04/17/19 15:01	20
cis-1,2-Dichloroethene	37		20	3.2	ug/L			04/17/19 15:01	20
Tetrachloroethene	20	U	20	3.0	ug/L			04/17/19 15:01	20
trans-1,2-Dichloroethene	26		20	3.8	ug/L			04/17/19 15:01	20
Trichloroethene	450		20	2.0	ug/L			04/17/19 15:01	20
Vinyl chloride	20	U	20	4.0	ug/L			04/17/19 15:01	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		70 - 121		04/17/19 15:01	20
4-Bromofluorobenzene (Surr)	90		59 - 120		04/17/19 15:01	20
Toluene-d8 (Surr)	105		70 - 123		04/17/19 15:01	20
Dibromofluoromethane (Surr)	98		75 - 128		04/17/19 15:01	20

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_4-8_040619

Lab Sample ID: 240-110665-14

Date Collected: 04/06/19 14:25

Matrix: Water

Date Received: 04/09/19 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 20:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		63 - 125		04/10/19 20:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	6.7	U	6.7	1.3	ug/L	-		04/16/19 17:53	6.67
cis-1,2-Dichloroethene	46		6.7	1.1	ug/L			04/16/19 17:53	6.67
Tetrachloroethene	6.7	U	6.7	1.0	ug/L	-		04/16/19 17:53	6.67
trans-1,2-Dichloroethene	3.9	J	6.7	1.3	ug/L			04/16/19 17:53	6.67
Trichloroethene	140		6.7	0.67	ug/L			04/16/19 17:53	6.67
Vinyl chloride	18		6.7	1.3	ug/L			04/16/19 17:53	6.67

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 121		04/16/19 17:53	6.67
4-Bromofluorobenzene (Surr)	83		59 - 120		04/16/19 17:53	6.67
Toluene-d8 (Surr)	105		70 - 123		04/16/19 17:53	6.67
Dibromofluoromethane (Surr)	93		75 - 128		04/16/19 17:53	6.67

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: DUP-02

Lab Sample ID: 240-110665-15

Date Collected: 04/06/19 00:00

Matrix: Water

Date Received: 04/09/19 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 20:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	124		63 - 125		04/10/19 20:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	20	U	20	3.8	ug/L	-		04/16/19 18:15	20
cis-1,2-Dichloroethene	210		20	3.2	ug/L			04/16/19 18:15	20
Tetrachloroethene	20	U	20	3.0	ug/L			04/16/19 18:15	20
trans-1,2-Dichloroethene	17	J	20	3.8	ug/L			04/16/19 18:15	20
Trichloroethene	440		20	2.0	ug/L			04/16/19 18:15	20
Vinyl chloride	46		20	4.0	ug/L			04/16/19 18:15	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		70 - 121		04/16/19 18:15	20
4-Bromofluorobenzene (Surr)	75		59 - 120		04/16/19 18:15	20
Toluene-d8 (Surr)	93		70 - 123		04/16/19 18:15	20
Dibromofluoromethane (Surr)	95		75 - 128		04/16/19 18:15	20

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_9-13_040619

Lab Sample ID: 240-110665-16

Date Collected: 04/06/19 14:10

Matrix: Water

Date Received: 04/09/19 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 20:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		63 - 125		04/10/19 20:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	17	U	17	3.2	ug/L	-		04/16/19 18:37	16.67
cis-1,2-Dichloroethene	180		17	2.7	ug/L			04/16/19 18:37	16.67
Tetrachloroethene	17	U	17	2.5	ug/L			04/16/19 18:37	16.67
trans-1,2-Dichloroethene	14	J	17	3.2	ug/L			04/16/19 18:37	16.67
Trichloroethene	410		17	1.7	ug/L			04/16/19 18:37	16.67
Vinyl chloride	48		17	3.3	ug/L			04/16/19 18:37	16.67

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 121		04/16/19 18:37	16.67
4-Bromofluorobenzene (Surr)	80		59 - 120		04/16/19 18:37	16.67
Toluene-d8 (Surr)	99		70 - 123		04/16/19 18:37	16.67
Dibromofluoromethane (Surr)	95		75 - 128		04/16/19 18:37	16.67

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_14-18_040619

Lab Sample ID: 240-110665-17

Date Collected: 04/06/19 13:50

Matrix: Water

Date Received: 04/09/19 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 21:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		63 - 125		04/10/19 21:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	14	U	14	2.7	ug/L	-		04/16/19 20:53	14.28
cis-1,2-Dichloroethene	320		14	2.3	ug/L			04/16/19 20:53	14.28
Tetrachloroethene	14	U	14	2.1	ug/L			04/16/19 20:53	14.28
trans-1,2-Dichloroethene	3.0	J	14	2.7	ug/L			04/16/19 20:53	14.28
Trichloroethene	1.4	J	14	1.4	ug/L			04/16/19 20:53	14.28
Vinyl chloride	330		14	2.9	ug/L			04/16/19 20:53	14.28

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		70 - 121		04/16/19 20:53	14.28
4-Bromofluorobenzene (Surr)	80		59 - 120		04/16/19 20:53	14.28
Toluene-d8 (Surr)	93		70 - 123		04/16/19 20:53	14.28
Dibromofluoromethane (Surr)	109		75 - 128		04/16/19 20:53	14.28

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_27-28_040619

Lab Sample ID: 240-110665-18

Date Collected: 04/06/19 17:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 80.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	62	U	62	25	ug/Kg	☼	04/09/19 21:13	04/12/19 04:42	1
1,4-Dioxane	19000	U	19000	1700	ug/Kg	☼	04/09/19 21:13	04/12/19 04:42	1
cis-1,2-Dichloroethene	62	U	62	14	ug/Kg	☼	04/09/19 21:13	04/12/19 04:42	1
Tetrachloroethene	62	U	62	28	ug/Kg	☼	04/09/19 21:13	04/12/19 04:42	1
trans-1,2-Dichloroethene	62	U	62	16	ug/Kg	☼	04/09/19 21:13	04/12/19 04:42	1
Trichloroethene	62	U	62	17	ug/Kg	☼	04/09/19 21:13	04/12/19 04:42	1
Vinyl chloride	50	U	50	19	ug/Kg	☼	04/09/19 21:13	04/12/19 04:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		53 - 155	04/09/19 21:13	04/12/19 04:42	1
4-Bromofluorobenzene (Surr)	99		48 - 151	04/09/19 21:13	04/12/19 04:42	1
Dibromofluoromethane (Surr)	90		49 - 138	04/09/19 21:13	04/12/19 04:42	1
Toluene-d8 (Surr)	106		49 - 147	04/09/19 21:13	04/12/19 04:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.7		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	19.3		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_3-4_040619

Lab Sample ID: 240-110665-19

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 92.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	24	ug/Kg	☼	04/09/19 21:13	04/12/19 03:15	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	04/09/19 21:13	04/12/19 03:15	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	04/09/19 21:13	04/12/19 03:15	1
Tetrachloroethene	59	U	59	27	ug/Kg	☼	04/09/19 21:13	04/12/19 03:15	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	04/09/19 21:13	04/12/19 03:15	1
Trichloroethene	59	U	59	16	ug/Kg	☼	04/09/19 21:13	04/12/19 03:15	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	04/09/19 21:13	04/12/19 03:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		53 - 155	04/09/19 21:13	04/12/19 03:15	1
4-Bromofluorobenzene (Surr)	98		48 - 151	04/09/19 21:13	04/12/19 03:15	1
Dibromofluoromethane (Surr)	87		49 - 138	04/09/19 21:13	04/12/19 03:15	1
Toluene-d8 (Surr)	102		49 - 147	04/09/19 21:13	04/12/19 03:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.9		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	7.1		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_1-2_040619

Lab Sample ID: 240-110665-20

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 97.4

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 21:13	04/12/19 03:37	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	04/09/19 21:13	04/12/19 03:37	1
cis-1,2-Dichloroethene	50	U	50	11	ug/Kg	☼	04/09/19 21:13	04/12/19 03:37	1
Tetrachloroethene	50	U	50	23	ug/Kg	☼	04/09/19 21:13	04/12/19 03:37	1
trans-1,2-Dichloroethene	50	U	50	13	ug/Kg	☼	04/09/19 21:13	04/12/19 03:37	1
Trichloroethene	50	U	50	14	ug/Kg	☼	04/09/19 21:13	04/12/19 03:37	1
Vinyl chloride	40	U	40	15	ug/Kg	☼	04/09/19 21:13	04/12/19 03:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		53 - 155	04/09/19 21:13	04/12/19 03:37	1
4-Bromofluorobenzene (Surr)	101		48 - 151	04/09/19 21:13	04/12/19 03:37	1
Dibromofluoromethane (Surr)	82		49 - 138	04/09/19 21:13	04/12/19 03:37	1
Toluene-d8 (Surr)	107		49 - 147	04/09/19 21:13	04/12/19 03:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.4		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	2.6		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_2-3_040619

Lab Sample ID: 240-110665-21

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 93.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	04/09/19 21:13	04/12/19 03:59	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	04/09/19 21:13	04/12/19 03:59	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	04/09/19 21:13	04/12/19 03:59	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	04/09/19 21:13	04/12/19 03:59	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	04/09/19 21:13	04/12/19 03:59	1
Trichloroethene	48	U	48	13	ug/Kg	☼	04/09/19 21:13	04/12/19 03:59	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	04/09/19 21:13	04/12/19 03:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		53 - 155	04/09/19 21:13	04/12/19 03:59	1
4-Bromofluorobenzene (Surr)	92		48 - 151	04/09/19 21:13	04/12/19 03:59	1
Dibromofluoromethane (Surr)	63		49 - 138	04/09/19 21:13	04/12/19 03:59	1
Toluene-d8 (Surr)	99		49 - 147	04/09/19 21:13	04/12/19 03:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93.9		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	6.1		0.1	0.1	%			04/09/19 17:09	1

Client Sample Results

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_4-5_040619

Lab Sample ID: 240-110665-22

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 96.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	68	U	68	27	ug/Kg	☼	04/09/19 21:13	04/12/19 04:20	1
1,4-Dioxane	21000	U	21000	1800	ug/Kg	☼	04/09/19 21:13	04/12/19 04:20	1
cis-1,2-Dichloroethene	16	J	68	15	ug/Kg	☼	04/09/19 21:13	04/12/19 04:20	1
Tetrachloroethene	68	U	68	30	ug/Kg	☼	04/09/19 21:13	04/12/19 04:20	1
trans-1,2-Dichloroethene	68	U	68	17	ug/Kg	☼	04/09/19 21:13	04/12/19 04:20	1
Trichloroethene	30	J	68	19	ug/Kg	☼	04/09/19 21:13	04/12/19 04:20	1
Vinyl chloride	54	U	54	20	ug/Kg	☼	04/09/19 21:13	04/12/19 04:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		53 - 155	04/09/19 21:13	04/12/19 04:20	1
4-Bromofluorobenzene (Surr)	89		48 - 151	04/09/19 21:13	04/12/19 04:20	1
Dibromofluoromethane (Surr)	86		49 - 138	04/09/19 21:13	04/12/19 04:20	1
Toluene-d8 (Surr)	94		49 - 147	04/09/19 21:13	04/12/19 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			04/09/19 17:09	1
Percent Moisture	3.6		0.1	0.1	%			04/09/19 17:09	1

Surrogate Summary

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

Job ID: 240-110665-1

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)
240-110529-F-12 MS	Matrix Spike	88	94	111	94
240-110529-F-12 MSD	Matrix Spike Duplicate	82	88	101	94
240-110665-11	TRIP BLANK	88	80	102	102
240-110665-12	HPT-216_18-22_040619	88	75	97	96
240-110665-13	HPT-216_5-9_040619	89	90	105	98
240-110665-14	HPT-215A_4-8_040619	87	83	105	93
240-110665-15	DUP-02	82	75	93	95
240-110665-16	HPT-215A_9-13_040619	86	80	99	95
240-110665-17	HPT-215A_14-18_040619	107	80	93	109
240-110670-B-9 MS	Matrix Spike	94	107	102	98
240-110670-B-9 MSD	Matrix Spike Duplicate	93	105	103	99
LCS 240-376652/4	Lab Control Sample	83	95	105	94
LCS 240-376671/4	Lab Control Sample	93	106	101	98
LCS 240-376934/4	Lab Control Sample	88	103	111	96
MB 240-376652/6	Method Blank	89	84	107	102
MB 240-376671/6	Method Blank	111	83	94	113
MB 240-376934/6	Method Blank	87	89	105	98

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)	DBFM (49-138)	TOL (49-147)
240-110665-1	HPT-217_1-2_040619	98	105	93	112
240-110665-2	HPT-217_2-3_040619	88	96	85	99
240-110665-3	HPT-217_3-4_040619	57	65	56	67
240-110665-4	HPT-217_4-5_040619	98	109	95	114
240-110665-5	HPT-215A_28-29_040619	88	98	85	99
240-110665-6	HPT-215A_0-1_040619	78	82	73	93
240-110665-7	HPT-215A_3-4_040619	89	99	85	104
240-110665-8	HPT-215A_2-3_040619	86	92	80	94
240-110665-9	HPT-215A_4-5_040619	92	102	86	105
240-110665-10	HPT-215A_1-2_040619	85	93	78	96
240-110665-18	HPT-216_27-28_040619	93	99	90	106
240-110665-18 MS	HPT-216_27-28_040619	91	95	87	102
240-110665-18 MSD	HPT-216_27-28_040619	84	89	82	95
240-110665-19	HPT-216_3-4_040619	93	98	87	102
240-110665-20	HPT-216_1-2_040619	94	101	82	107
240-110665-21	HPT-216_2-3_040619	86	92	63	99
240-110665-22	HPT-216_4-5_040619	90	89	86	94
LCS 240-375550/2-A	Lab Control Sample	83	92	81	96
MB 240-375550/1-A	Method Blank	87	98	82	102

Surrogate Legend

Eurofins TestAmerica, Canton

Surrogate Summary

Client: ARCADIS U.S., Inc.

Job ID: 240-110665-1

Project/Site: Ford LTP Livonia MI - E203631

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

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (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)
240-110458-C-3 MS	Matrix Spike	122
240-110458-C-3 MSD	Matrix Spike Duplicate	117
240-110665-12	HPT-216_18-22_040619	119
240-110665-13	HPT-216_5-9_040619	125
240-110665-14	HPT-215A_4-8_040619	120
240-110665-15	DUP-02	124
240-110665-16	HPT-215A_9-13_040619	121
240-110665-17	HPT-215A_14-18_040619	116
LCS 240-375762/4	Lab Control Sample	116
MB 240-375762/5	Method Blank	116

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-110665-1

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

Lab Sample ID: MB 240-376652/6
Matrix: Water
Analysis Batch: 376652

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			04/16/19 10:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/16/19 10:41	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/16/19 10:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/16/19 10:41	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/16/19 10:41	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/16/19 10:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		70 - 121		04/16/19 10:41	1
4-Bromofluorobenzene (Surr)	84		59 - 120		04/16/19 10:41	1
Toluene-d8 (Surr)	107		70 - 123		04/16/19 10:41	1
Dibromofluoromethane (Surr)	102		75 - 128		04/16/19 10:41	1

Lab Sample ID: LCS 240-376652/4
Matrix: Water
Analysis Batch: 376652

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	9.67		ug/L		97	65 - 139
cis-1,2-Dichloroethene	10.0	10.0		ug/L		100	76 - 128
Tetrachloroethene	10.0	8.87		ug/L		89	74 - 130
trans-1,2-Dichloroethene	10.0	9.88		ug/L		99	78 - 133
Trichloroethene	10.0	8.99		ug/L		90	76 - 125
Vinyl chloride	10.0	10.2		ug/L		102	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
4-Bromofluorobenzene (Surr)	95		59 - 120
Toluene-d8 (Surr)	105		70 - 123
Dibromofluoromethane (Surr)	94		75 - 128

Lab Sample ID: 240-110529-F-12 MS
Matrix: Water
Analysis Batch: 376652

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	5.0	U	50.0	34.9		ug/L		70	53 - 140
cis-1,2-Dichloroethene	32		50.0	67.3		ug/L		71	64 - 130
Tetrachloroethene	5.0	U F2	50.0	32.8		ug/L		66	51 - 136
trans-1,2-Dichloroethene	4.1	J	50.0	41.2		ug/L		74	68 - 133
Trichloroethene	120	F1	50.0	134	F1	ug/L		36	55 - 131
Vinyl chloride	5.0	U F2	50.0	34.7		ug/L		69	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	111		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-110665-1

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

Lab Sample ID: 240-110529-F-12 MS
Matrix: Water
Analysis Batch: 376652

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	94		75 - 128

Lab Sample ID: 240-110529-F-12 MSD
Matrix: Water
Analysis Batch: 376652

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	5.0	U	50.0	49.1		ug/L		98	53 - 140	34	35
cis-1,2-Dichloroethene	32		50.0	77.8		ug/L		92	64 - 130	14	21
Tetrachloroethene	5.0	U F2	50.0	44.2	F2	ug/L		88	51 - 136	30	23
trans-1,2-Dichloroethene	4.1	J	50.0	52.6		ug/L		97	68 - 133	24	24
Trichloroethene	120	F1	50.0	144		ug/L		57	55 - 131	7	23
Vinyl chloride	5.0	U F2	50.0	47.9	F2	ug/L		96	43 - 154	32	29

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	82		70 - 121
<i>4-Bromofluorobenzene (Surr)</i>	88		59 - 120
<i>Toluene-d8 (Surr)</i>	101		70 - 123
<i>Dibromofluoromethane (Surr)</i>	94		75 - 128

Lab Sample ID: MB 240-376671/6
Matrix: Water
Analysis Batch: 376671

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			04/16/19 14:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/16/19 14:17	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/16/19 14:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/16/19 14:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/16/19 14:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/16/19 14:17	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>MB MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	111		70 - 121		04/16/19 14:17	1
<i>4-Bromofluorobenzene (Surr)</i>	83		59 - 120		04/16/19 14:17	1
<i>Toluene-d8 (Surr)</i>	94		70 - 123		04/16/19 14:17	1
<i>Dibromofluoromethane (Surr)</i>	113		75 - 128		04/16/19 14:17	1

Lab Sample ID: LCS 240-376671/4
Matrix: Water
Analysis Batch: 376671

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	9.33		ug/L		93	65 - 139
cis-1,2-Dichloroethene	10.0	9.16		ug/L		92	76 - 128
Tetrachloroethene	10.0	9.77		ug/L		98	74 - 130
trans-1,2-Dichloroethene	10.0	9.64		ug/L		96	78 - 133
Trichloroethene	10.0	9.21		ug/L		92	76 - 125

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-110665-1

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

Lab Sample ID: LCS 240-376671/4

Matrix: Water

Analysis Batch: 376671

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	8.73		ug/L		87	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 121
4-Bromofluorobenzene (Surr)	106		59 - 120
Toluene-d8 (Surr)	101		70 - 123
Dibromofluoromethane (Surr)	98		75 - 128

Lab Sample ID: 240-110670-B-9 MS

Matrix: Water

Analysis Batch: 376671

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	25	U	250	234		ug/L		94	53 - 140
cis-1,2-Dichloroethene	17	J	250	241		ug/L		90	64 - 130
Tetrachloroethene	370		250	628		ug/L		105	51 - 136
trans-1,2-Dichloroethene	25	U	250	245		ug/L		98	68 - 133
Trichloroethene	39		250	261		ug/L		89	55 - 131
Vinyl chloride	25	U	250	238		ug/L		95	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		70 - 121
4-Bromofluorobenzene (Surr)	107		59 - 120
Toluene-d8 (Surr)	102		70 - 123
Dibromofluoromethane (Surr)	98		75 - 128

Lab Sample ID: 240-110670-B-9 MSD

Matrix: Water

Analysis Batch: 376671

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	25	U	250	247		ug/L		99	53 - 140	5	35
cis-1,2-Dichloroethene	17	J	250	255		ug/L		95	64 - 130	6	21
Tetrachloroethene	370		250	627		ug/L		104	51 - 136	0	23
trans-1,2-Dichloroethene	25	U	250	257		ug/L		103	68 - 133	5	24
Trichloroethene	39		250	278		ug/L		96	55 - 131	7	23
Vinyl chloride	25	U	250	237		ug/L		95	43 - 154	0	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 121
4-Bromofluorobenzene (Surr)	105		59 - 120
Toluene-d8 (Surr)	103		70 - 123
Dibromofluoromethane (Surr)	99		75 - 128

QC Sample Results

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

Job ID: 240-110665-1

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

Lab Sample ID: MB 240-376934/6
Matrix: Water
Analysis Batch: 376934

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			04/17/19 14:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			04/17/19 14:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			04/17/19 14:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			04/17/19 14:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			04/17/19 14:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			04/17/19 14:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 121		04/17/19 14:16	1
4-Bromofluorobenzene (Surr)	89		59 - 120		04/17/19 14:16	1
Toluene-d8 (Surr)	105		70 - 123		04/17/19 14:16	1
Dibromofluoromethane (Surr)	98		75 - 128		04/17/19 14:16	1

Lab Sample ID: LCS 240-376934/4
Matrix: Water
Analysis Batch: 376934

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	10.8		ug/L		108	65 - 139
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
Tetrachloroethene	10.0	9.47		ug/L		95	74 - 130
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	78 - 133
Trichloroethene	10.0	9.15		ug/L		92	76 - 125
Vinyl chloride	10.0	9.76		ug/L		98	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
4-Bromofluorobenzene (Surr)	103		59 - 120
Toluene-d8 (Surr)	111		70 - 123
Dibromofluoromethane (Surr)	96		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
1,4-Dioxane	13000	U	13000	1100	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

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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-110665-1

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

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	98		48 - 151	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
Toluene-d8 (Surr)	102		49 - 147	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	Limits
1,4-Dioxane	20000	19700		ug/Kg		98	51 - 140
cis-1,2-Dichloroethene	1000	969		ug/Kg		97	74 - 123
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

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

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

Client Sample ID: HPT-216_27-28_040619
Prep Type: Total/NA
Prep Batch: 375550

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	19000	U	27600	29800		ug/Kg	☼	108	62 - 158
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

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

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

Client Sample ID: HPT-216_27-28_040619
Prep Type: Total/NA
Prep Batch: 375550

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	
										Limit	Limit
1,1-Dichloroethene	62	U	1340	1370		ug/Kg	☼	102	36 - 150	8	40

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-110665-1

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

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

Client Sample ID: HPT-216_27-28_040619
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
1,4-Dioxane	19000	U	26700	28200		ug/Kg	☼	106	62 - 158	5	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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		53 - 155
4-Bromofluorobenzene (Surr)	89		48 - 151
Dibromofluoromethane (Surr)	82		49 - 138
Toluene-d8 (Surr)	95		49 - 147

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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-110665-1

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

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								

Method: Moisture - Percent Moisture

Lab Sample ID: 240-110665-4 DU
Matrix: Solid
Analysis Batch: 375590

Client Sample ID: HPT-217_4-5_040619
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	81.8		81.6		%		0.3	20
Percent Moisture	18.2		18.4		%		1	20

Lab Sample ID: 240-110665-18 DU
Matrix: Solid
Analysis Batch: 375590

Client Sample ID: HPT-216_27-28_040619
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	80.7		80.8		%		0	20
Percent Moisture	19.3		19.2		%		0.1	20

Lab Sample ID: 240-110665-20 DU
Matrix: Solid
Analysis Batch: 375590

Client Sample ID: HPT-216_1-2_040619
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	97.4		97.3		%		0	20
Percent Moisture	2.6		2.7		%		0.8	20

QC Association Summary

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

Job ID: 240-110665-1

GC/MS VOA

Prep Batch: 375550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-1	HPT-217_1-2_040619	Total/NA	Solid	5030B	
240-110665-2	HPT-217_2-3_040619	Total/NA	Solid	5030B	
240-110665-3	HPT-217_3-4_040619	Total/NA	Solid	5030B	
240-110665-4	HPT-217_4-5_040619	Total/NA	Solid	5030B	
240-110665-5	HPT-215A_28-29_040619	Total/NA	Solid	5030B	
240-110665-6	HPT-215A_0-1_040619	Total/NA	Solid	5030B	
240-110665-7	HPT-215A_3-4_040619	Total/NA	Solid	5030B	
240-110665-8	HPT-215A_2-3_040619	Total/NA	Solid	5030B	
240-110665-9	HPT-215A_4-5_040619	Total/NA	Solid	5030B	
240-110665-10	HPT-215A_1-2_040619	Total/NA	Solid	5030B	
240-110665-18	HPT-216_27-28_040619	Total/NA	Solid	5030B	
240-110665-19	HPT-216_3-4_040619	Total/NA	Solid	5030B	
240-110665-20	HPT-216_1-2_040619	Total/NA	Solid	5030B	
240-110665-21	HPT-216_2-3_040619	Total/NA	Solid	5030B	
240-110665-22	HPT-216_4-5_040619	Total/NA	Solid	5030B	
MB 240-375550/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-375550/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-110665-18 MS	HPT-216_27-28_040619	Total/NA	Solid	5030B	
240-110665-18 MSD	HPT-216_27-28_040619	Total/NA	Solid	5030B	

Analysis Batch: 375762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-12	HPT-216_18-22_040619	Total/NA	Water	8260B SIM	
240-110665-13	HPT-216_5-9_040619	Total/NA	Water	8260B SIM	
240-110665-14	HPT-215A_4-8_040619	Total/NA	Water	8260B SIM	
240-110665-15	DUP-02	Total/NA	Water	8260B SIM	
240-110665-16	HPT-215A_9-13_040619	Total/NA	Water	8260B SIM	
240-110665-17	HPT-215A_14-18_040619	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: 376132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-1	HPT-217_1-2_040619	Total/NA	Solid	8260B MI	375550
240-110665-2	HPT-217_2-3_040619	Total/NA	Solid	8260B MI	375550
240-110665-3	HPT-217_3-4_040619	Total/NA	Solid	8260B MI	375550
240-110665-4	HPT-217_4-5_040619	Total/NA	Solid	8260B MI	375550
240-110665-6	HPT-215A_0-1_040619	Total/NA	Solid	8260B MI	375550
240-110665-7	HPT-215A_3-4_040619	Total/NA	Solid	8260B MI	375550
240-110665-8	HPT-215A_2-3_040619	Total/NA	Solid	8260B MI	375550
240-110665-9	HPT-215A_4-5_040619	Total/NA	Solid	8260B MI	375550
240-110665-10	HPT-215A_1-2_040619	Total/NA	Solid	8260B MI	375550
240-110665-18	HPT-216_27-28_040619	Total/NA	Solid	8260B MI	375550
240-110665-19	HPT-216_3-4_040619	Total/NA	Solid	8260B MI	375550
240-110665-20	HPT-216_1-2_040619	Total/NA	Solid	8260B MI	375550
240-110665-21	HPT-216_2-3_040619	Total/NA	Solid	8260B MI	375550
240-110665-22	HPT-216_4-5_040619	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

Eurofins TestAmerica, Canton

QC Association Summary

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

Job ID: 240-110665-1

GC/MS VOA (Continued)

Analysis Batch: 376132 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-18 MS	HPT-216_27-28_040619	Total/NA	Solid	8260B MI	375550
240-110665-18 MSD	HPT-216_27-28_040619	Total/NA	Solid	8260B MI	375550

Analysis Batch: 376569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-5	HPT-215A_28-29_040619	Total/NA	Solid	8260B MI	375550

Analysis Batch: 376652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-11	TRIP BLANK	Total/NA	Water	8260B	
240-110665-12	HPT-216_18-22_040619	Total/NA	Water	8260B	
240-110665-14	HPT-215A_4-8_040619	Total/NA	Water	8260B	
240-110665-15	DUP-02	Total/NA	Water	8260B	
240-110665-16	HPT-215A_9-13_040619	Total/NA	Water	8260B	
MB 240-376652/6	Method Blank	Total/NA	Water	8260B	
LCS 240-376652/4	Lab Control Sample	Total/NA	Water	8260B	
240-110529-F-12 MS	Matrix Spike	Total/NA	Water	8260B	
240-110529-F-12 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 376671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-17	HPT-215A_14-18_040619	Total/NA	Water	8260B	
MB 240-376671/6	Method Blank	Total/NA	Water	8260B	
LCS 240-376671/4	Lab Control Sample	Total/NA	Water	8260B	
240-110670-B-9 MS	Matrix Spike	Total/NA	Water	8260B	
240-110670-B-9 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 376934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-13	HPT-216_5-9_040619	Total/NA	Water	8260B	
MB 240-376934/6	Method Blank	Total/NA	Water	8260B	
LCS 240-376934/4	Lab Control Sample	Total/NA	Water	8260B	

General Chemistry

Analysis Batch: 375590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-1	HPT-217_1-2_040619	Total/NA	Solid	Moisture	
240-110665-2	HPT-217_2-3_040619	Total/NA	Solid	Moisture	
240-110665-3	HPT-217_3-4_040619	Total/NA	Solid	Moisture	
240-110665-4	HPT-217_4-5_040619	Total/NA	Solid	Moisture	
240-110665-5	HPT-215A_28-29_040619	Total/NA	Solid	Moisture	
240-110665-6	HPT-215A_0-1_040619	Total/NA	Solid	Moisture	
240-110665-7	HPT-215A_3-4_040619	Total/NA	Solid	Moisture	
240-110665-8	HPT-215A_2-3_040619	Total/NA	Solid	Moisture	
240-110665-9	HPT-215A_4-5_040619	Total/NA	Solid	Moisture	
240-110665-10	HPT-215A_1-2_040619	Total/NA	Solid	Moisture	
240-110665-18	HPT-216_27-28_040619	Total/NA	Solid	Moisture	
240-110665-19	HPT-216_3-4_040619	Total/NA	Solid	Moisture	
240-110665-20	HPT-216_1-2_040619	Total/NA	Solid	Moisture	
240-110665-21	HPT-216_2-3_040619	Total/NA	Solid	Moisture	

Eurofins TestAmerica, Canton

QC Association Summary

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

Job ID: 240-110665-1

General Chemistry (Continued)

Analysis Batch: 375590 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-110665-22	HPT-216_4-5_040619	Total/NA	Solid	Moisture	
240-110665-4 DU	HPT-217_4-5_040619	Total/NA	Solid	Moisture	
240-110665-18 DU	HPT-216_27-28_040619	Total/NA	Solid	Moisture	
240-110665-20 DU	HPT-216_1-2_040619	Total/NA	Solid	Moisture	

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- 12
- 13
- 14

Lab Chronicle

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

Job ID: 240-110665-1

Client Sample ID: HPT-217_1-2_040619

Lab Sample ID: 240-110665-1

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-217_1-2_040619

Lab Sample ID: 240-110665-1

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/11/19 23:37	TJL1	TAL CAN

Client Sample ID: HPT-217_2-3_040619

Lab Sample ID: 240-110665-2

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-217_2-3_040619

Lab Sample ID: 240-110665-2

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/11/19 23:59	TJL1	TAL CAN

Client Sample ID: HPT-217_3-4_040619

Lab Sample ID: 240-110665-3

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-217_3-4_040619

Lab Sample ID: 240-110665-3

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 84.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 00:21	TJL1	TAL CAN

Client Sample ID: HPT-217_4-5_040619

Lab Sample ID: 240-110665-4

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

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Lab Chronicle

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

Job ID: 240-110665-1

Client Sample ID: HPT-217_4-5_040619

Lab Sample ID: 240-110665-4

Date Collected: 04/06/19 17:45

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 81.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 00:43	TJL1	TAL CAN

Client Sample ID: HPT-215A_28-29_040619

Lab Sample ID: 240-110665-5

Date Collected: 04/06/19 13:35

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-215A_28-29_040619

Lab Sample ID: 240-110665-5

Date Collected: 04/06/19 13:35

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376569	04/15/19 18:52	TJL1	TAL CAN

Client Sample ID: HPT-215A_0-1_040619

Lab Sample ID: 240-110665-6

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-215A_0-1_040619

Lab Sample ID: 240-110665-6

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 94.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 01:26	TJL1	TAL CAN

Client Sample ID: HPT-215A_3-4_040619

Lab Sample ID: 240-110665-7

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Lab Chronicle

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_3-4_040619

Lab Sample ID: 240-110665-7

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 01:48	TJL1	TAL CAN

Client Sample ID: HPT-215A_2-3_040619

Lab Sample ID: 240-110665-8

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-215A_2-3_040619

Lab Sample ID: 240-110665-8

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 89.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 02:10	TJL1	TAL CAN

Client Sample ID: HPT-215A_4-5_040619

Lab Sample ID: 240-110665-9

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-215A_4-5_040619

Lab Sample ID: 240-110665-9

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 02:32	TJL1	TAL CAN

Client Sample ID: HPT-215A_1-2_040619

Lab Sample ID: 240-110665-10

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Lab Chronicle

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_1-2_040619

Lab Sample ID: 240-110665-10

Date Collected: 04/06/19 09:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 91.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 02:54	TJL1	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-110665-11

Date Collected: 04/06/19 00:00

Matrix: Water

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	376652	04/16/19 16:45	LEE	TAL CAN

Client Sample ID: HPT-216_18-22_040619

Lab Sample ID: 240-110665-12

Date Collected: 04/06/19 17:20

Matrix: Water

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	376652	04/16/19 17:08	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 19:13	SAM	TAL CAN

Client Sample ID: HPT-216_5-9_040619

Lab Sample ID: 240-110665-13

Date Collected: 04/06/19 17:50

Matrix: Water

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	376934	04/17/19 15:01	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 19:39	SAM	TAL CAN

Client Sample ID: HPT-215A_4-8_040619

Lab Sample ID: 240-110665-14

Date Collected: 04/06/19 14:25

Matrix: Water

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		6.67	376652	04/16/19 17:53	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 20:05	SAM	TAL CAN

Client Sample ID: DUP-02

Lab Sample ID: 240-110665-15

Date Collected: 04/06/19 00:00

Matrix: Water

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	376652	04/16/19 18:15	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 20:30	SAM	TAL CAN

Lab Chronicle

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

Job ID: 240-110665-1

Client Sample ID: HPT-215A_9-13_040619

Lab Sample ID: 240-110665-16

Date Collected: 04/06/19 14:10

Matrix: Water

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		16.67	376652	04/16/19 18:37	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 20:56	SAM	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 20:56	SAM	TAL CAN

Client Sample ID: HPT-215A_14-18_040619

Lab Sample ID: 240-110665-17

Date Collected: 04/06/19 13:50

Matrix: Water

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		14.28	376671	04/16/19 20:53	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	375762	04/10/19 21:21	SAM	TAL CAN

Client Sample ID: HPT-216_27-28_040619

Lab Sample ID: 240-110665-18

Date Collected: 04/06/19 17:10

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-216_27-28_040619

Lab Sample ID: 240-110665-18

Date Collected: 04/06/19 17:10

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 80.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 04:42	TJL1	TAL CAN

Client Sample ID: HPT-216_3-4_040619

Lab Sample ID: 240-110665-19

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-216_3-4_040619

Lab Sample ID: 240-110665-19

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 92.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 03:15	TJL1	TAL CAN

Lab Chronicle

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

Job ID: 240-110665-1

Client Sample ID: HPT-216_1-2_040619

Lab Sample ID: 240-110665-20

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-216_1-2_040619

Lab Sample ID: 240-110665-20

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 03:37	TJL1	TAL CAN

Client Sample ID: HPT-216_2-3_040619

Lab Sample ID: 240-110665-21

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-216_2-3_040619

Lab Sample ID: 240-110665-21

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 03:59	TJL1	TAL CAN

Client Sample ID: HPT-216_4-5_040619

Lab Sample ID: 240-110665-22

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	375590	04/09/19 17:09	ACR	TAL CAN

Client Sample ID: HPT-216_4-5_040619

Lab Sample ID: 240-110665-22

Date Collected: 04/06/19 15:00

Matrix: Solid

Date Received: 04/09/19 08:30

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			375550	04/09/19 21:13	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	376132	04/12/19 04:20	TJL1	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: 240-110665-1

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.

Eurofins TestAmerica, Canton

Client Information		Lab P/N:		Carrier Tracking No(s)									
Company: ARCADIS U.S. Inc		DelMonico, Michael		240-59411-25360.1									
Address: 28550 Cabot Drive Suite 500		E-Mail: michael.delmonico@testamericainc.com		Page: Page 1 of 2									
City: Novi		Project: Christina Weaver		Job #:									
State, Zip: MI, 48377		Project Name: (989)-619-5009											
Phone: 248-722-2411		Company: ARCADIS											
Email: Caitlin.O'Neill@arcadis.com		Due Date Requested: 4/11/19		Analysis Requested									
Project Name: Ford LTP Livonia MI - E203631		TAT Requested (days): 10		Preservation Codes:									
Site:		PO #: MI001318.0002.00002		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)									
Sample Identification			Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B, 8260B_SIM	8260B MI - VOCs (Short List)	8260B - VOCs (Short List)	Total Number of Containers	Special Instructions/Note:
HPT-27-1-2-040619			4/6/19	1745	6	SOLID	N	N	0	0	0	2	Dry weight included
HPT-27-2-3-040619			4/6/19	1745	6	SOLID	N	N	0	0	0	2	Dry weight included
HPT-27-3-4-040619			4/6/19	1745	6	SOLID	N	N	0	0	0	2	Dry weight included
HPT-27-4-5-040619			4/6/19	1745	6	SOLID	N	N	0	0	0	2	Dry weight included
HPT-25A-28-29-040619			4/6/19	1335	6	SOLID	N	N	0	0	0	2	Dry weight included
HPT-25A-0-1-040619			4/6/19	0910	6	Solid	N	N	0	0	0	2	Dry weight included
HPT-25A-3-4-040619			4/6/19	0910	6	Solid	N	N	0	0	0	2	Dry weight included
HPT-25A-2-3-040619			4/6/19	0910	6	Solid	N	N	0	0	0	2	Dry weight included
HPT-25A-4-5-040619			4/6/19	0910	6	Solid	N	N	0	0	0	2	Dry weight included
HPT-25A-1-2-040619			4/6/19	0910	6	Solid	N	N	0	0	0	2	Dry weight included
Tip Blank			4/6/19			Solid	N	N	0	0	0	2	Dry weight included
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months													
<p>Special Instructions/QC Requirements: Submit all results through cadena out jim.farnalia@arcadis.com</p>													
<p>Empty Kit Relinquished by: _____ Date: _____</p>													
<p>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) _____ </p>													
<p>Relinquished by: <i>Christina Weaver</i> Date/Time: 4/6/19 2010 Company: Arcadis</p>													
<p>Relinquished by: <i>Caitlin O'Neill</i> Date/Time: 04/08/19 11:00 Company: Arcadis</p>													
<p>Relinquished by: <i>Christina Weaver</i> Date/Time: 4/17/19 1345 Company: Arcadis</p>													
<p>Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: _____</p>													
<p>Relinquished by: <i>Christina Weaver</i> Date/Time: 4/6/19 2010 Company: Arcadis</p>													
<p>Relinquished by: <i>Caitlin O'Neill</i> Date/Time: 4/18/19 1100 Company: Arcadis</p>													
<p>Relinquished by: <i>Christina Weaver</i> Date/Time: 4-9-19 830 Company: Arcadis</p>													
<p>Cooler Temperature(s) and Other Remarks: _____</p>													



TestAmerica Canton
 4101 Shuffel Street NW
 North Canton, OH 44720
 Phone (330) 497-9396 Fax (330) 497-0772

MICHIGAN
 190

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information			Lab PIA:			Carrier Tracking No(s):					
Company: ARCADIS U.S. Inc			DellMonico, Michael								
Address: 28550 Cabot Drive Suite 500			E-Mail: michael.dellmonico@testamericainc.com								
City: Novi			Phone: (989) 619-5009			Page 2 of 2					
State, Zip: MI, 48377			Due Date Requested: 4/11/14			Job #:					
Phone: 248-722-2411			TAT Requested (days): 14-20 days			Preservation Codes:					
Email: Caitlin.O'Neill@arcadis.com			PO #: MI001318.0002.00002			A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:					
Project Name: Ford LTP Livonia MI - E203631			WO #: Cadena #: E203631			Total Number of containers					
Site:			SSOW#:			Special Instructions/Note:					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W-water, S-solid, O-owable)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B, MI-VOCs (Short List)	8260B - VOCs (Short List)			Special Instructions/Note:
HPT-216-18-22-040619	4/6/19	1720	6	Water	X	X			6		
HPT-216-5-9-040619	4/6/19	1750	6	Water	X	X			6		
HPT-215A-4-B-040619	4/6/19	1425	6	Water	X	X			6		
DUP-02	4/6/19	---	6	Water	X	X			6		
HPT-215A-9-13-040619	4/6/19	1410	6	Water	X	X			6		
HPT-215A-14-18-040619	4/6/19	1350	6	Water	X	X			6		
HPT-216-27-28-040619	4/6/19	1710	6	Solid	X	X			6		MS/MSD Dry weight included
HPT-216-3-4-040619	4/6/19	1500	6	Solid	X	X			6		Dry weight included
HPT-216-1-2-040619	4/6/19	1500	6	Solid	X	X			6		Dry weight included
HPT-216-2-3-040619	4/6/19	1500	6	Solid	X	X			6		Dry weight included
HPT-216-4-5-040619	4/6/19	1500	6	Solid	X	X			6		Dry weight included

Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested: I, II, III (V) Other (specify)

Empty Kit Relinquished by: _____ Date: _____

Relinquished by: Caitlin O'Neill Date/Time: 4/16/19 20:10 Company: Arcadis

Relinquished by: Caitlin O'Neill Date/Time: 4/18/19 11:00 Company: TH

Relinquished by: [Signature] Date/Time: 4/19 830 Company: TH

Custody Seals Intact: Yes No Custody Seal No.: _____

Special 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/QC Requirements: Submit all results through cadena at j.m.taylor@arcadis.com

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TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 110665

Client Arcadis Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 4-9-19 Opened on 4-9-19
 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 See Multiple Cooler Form
 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °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 2 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
14. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # B83400ZVB 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: MS

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: _____

TestAmerica Canton Sample Receipt Multiple Cooler Form									
Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
<u>TA</u>	Client	Box	Other	<u>IR-8</u> #36	2.4	2.2	<u>Wet Ice</u>	Blue Ice	Dry Ice
							Water	None	
<u>TA</u>	Client	Box	Other	<u>IR-8</u> #36	1.8	1.6	<u>Wet Ice</u>	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
							Water	None	

See Temperature Excursion Form