

ANALYTICAL REPORT

PREPARED FOR

Attn: Kristoffer Hinskey
ARCADIS US Inc
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 8/24/2023 12:20:42 PM

JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-189966-1

Eurofins Cleveland

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Definitions/Glossary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Job ID: 240-189966-1

Laboratory: Eurofins Cleveland

Narrative

**Job Narrative
240-189966-1**

Receipt

The samples were received on 8/11/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1°C and 1.3°C

GC/MS VOA

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

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Method Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CLE
8260D SIM	Volatile Organic Compounds (GC/MS)	SW846	EET CLE
5030C	Purge and Trap	SW846	EET CLE

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396



Sample Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-189966-1	TRIP BLANK_70	Water	08/09/23 00:00	08/11/23 08:00
240-189966-2	MW-84_080923	Water	08/09/23 13:40	08/11/23 08:00
240-189966-3	MW-84S_080923	Water	08/09/23 15:10	08/11/23 08:00

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Detection Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Client Sample ID: TRIP BLANK_70

Lab Sample ID: 240-189966-1

No Detections.

Client Sample ID: MW-84_080923

Lab Sample ID: 240-189966-2

No Detections.

Client Sample ID: MW-84S_080923

Lab Sample ID: 240-189966-3

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Client Sample ID: TRIP BLANK_70

Lab Sample ID: 240-189966-1

Date Collected: 08/09/23 00:00

Matrix: Water

Date Received: 08/11/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/19/23 14:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/19/23 14:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 14:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/19/23 14:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 14:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/19/23 14:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137		08/19/23 14:12	1
4-Bromofluorobenzene (Surr)	103		56 - 136		08/19/23 14:12	1
Toluene-d8 (Surr)	103		78 - 122		08/19/23 14:12	1
Dibromofluoromethane (Surr)	111		73 - 120		08/19/23 14:12	1

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Client Sample ID: MW-84_080923

Lab Sample ID: 240-189966-2

Date Collected: 08/09/23 13:40

Matrix: Water

Date Received: 08/11/23 08:00

Method: SW846 8260D 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			08/17/23 17:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		66 - 120					08/17/23 17:24	1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/19/23 18:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/19/23 18:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/19/23 18:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/19/23 18:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137					08/19/23 18:05	1
4-Bromofluorobenzene (Surr)	99		56 - 136					08/19/23 18:05	1
Toluene-d8 (Surr)	100		78 - 122					08/19/23 18:05	1
Dibromofluoromethane (Surr)	107		73 - 120					08/19/23 18:05	1

Client Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Client Sample ID: MW-84S_080923

Lab Sample ID: 240-189966-3

Date Collected: 08/09/23 15:10

Matrix: Water

Date Received: 08/11/23 08:00

Method: SW846 8260D 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			08/17/23 11:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		66 - 120					08/17/23 11:02	1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/19/23 18:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/19/23 18:30	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/19/23 18:30	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:30	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/19/23 18:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		62 - 137					08/19/23 18:30	1
4-Bromofluorobenzene (Surr)	103		56 - 136					08/19/23 18:30	1
Toluene-d8 (Surr)	101		78 - 122					08/19/23 18:30	1
Dibromofluoromethane (Surr)	108		73 - 120					08/19/23 18:30	1

Surrogate Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-189966-1	TRIP BLANK_70	113	103	103	111
240-189966-2	MW-84_080923	113	99	100	107
240-189966-3	MW-84S_080923	112	103	101	108
240-189966-3 MS	MW-84S-MS_080923	111	102	102	103
240-189966-3 MSD	MW-84S-MSD_080923	113	99	99	113
LCS 240-584461/5	Lab Control Sample	99	100	103	101
MB 240-584461/9	Method Blank	117	103	108	116

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (66-120)
240-189966-2	MW-84_080923	89
240-189966-3	MW-84S_080923	95
240-189966-3 MS	MW-84S-MS_080923	97
240-189966-3 MSD	MW-84S-MSD_080923	93
LCS 240-584182/5	Lab Control Sample	99
MB 240-584182/7	Method Blank	100

Surrogate Legend

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

QC Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-584461/9
Matrix: Water
Analysis Batch: 584461

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/19/23 13:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/19/23 13:47	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 13:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/19/23 13:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 13:47	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/19/23 13:47	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	117		62 - 137		08/19/23 13:47	1
4-Bromofluorobenzene (Surr)	103		56 - 136		08/19/23 13:47	1
Toluene-d8 (Surr)	108		78 - 122		08/19/23 13:47	1
Dibromofluoromethane (Surr)	116		73 - 120		08/19/23 13:47	1

Lab Sample ID: LCS 240-584461/5
Matrix: Water
Analysis Batch: 584461

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1-Dichloroethene	20.0	24.5		ug/L		123	63 - 134
cis-1,2-Dichloroethene	20.0	19.2		ug/L		96	77 - 123
Tetrachloroethene	20.0	20.6		ug/L		103	76 - 123
trans-1,2-Dichloroethene	20.0	21.5		ug/L		107	75 - 124
Trichloroethene	20.0	20.1		ug/L		101	70 - 122
Vinyl chloride	20.0	19.8		ug/L		99	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120

Lab Sample ID: 240-189966-3 MS
Matrix: Water
Analysis Batch: 584461

Client Sample ID: MW-84S-MS_080923
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	20.0	22.3		ug/L		112	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	18.8		ug/L		94	66 - 128
Tetrachloroethene	1.0	U	20.0	20.3		ug/L		101	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	19.7		ug/L		99	56 - 136
Trichloroethene	1.0	U	20.0	20.0		ug/L		100	61 - 124
Vinyl chloride	1.0	U	20.0	17.4		ug/L		87	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	111		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	102		78 - 122

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QC Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

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

Lab Sample ID: 240-189966-3 MS
Matrix: Water
Analysis Batch: 584461

Client Sample ID: MW-84S-MS_080923
Prep Type: Total/NA

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	103		73 - 120

Lab Sample ID: 240-189966-3 MSD
Matrix: Water
Analysis Batch: 584461

Client Sample ID: MW-84S-MSD_080923
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
1,1-Dichloroethene	1.0	U	20.0	23.3		ug/L		116	56 - 135	4	26	
cis-1,2-Dichloroethene	1.0	U	20.0	20.0		ug/L		100	66 - 128	6	14	
Tetrachloroethene	1.0	U	20.0	19.5		ug/L		98	62 - 131	4	20	
trans-1,2-Dichloroethene	1.0	U	20.0	21.0		ug/L		105	56 - 136	6	15	
Trichloroethene	1.0	U	20.0	19.4		ug/L		97	61 - 124	3	15	
Vinyl chloride	1.0	U	20.0	18.4		ug/L		92	43 - 157	6	24	

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	113		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	113		73 - 120

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

Lab Sample ID: MB 240-584182/7
Matrix: Water
Analysis Batch: 584182

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L		08/17/23 10:38	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		66 - 120		08/17/23 10:38	1

Lab Sample ID: LCS 240-584182/5
Matrix: Water
Analysis Batch: 584182

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

Analyte	Spike	LCS		Unit	D	%Rec	%Rec
		Result	Qualifier				
1,4-Dioxane	10.0	9.77		ug/L		98	80 - 122

Surrogate	LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		66 - 120

Lab Sample ID: 240-189966-3 MS
Matrix: Water
Analysis Batch: 584182

Client Sample ID: MW-84S-MS_080923
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec
	Result	Qualifier		Result	Qualifier				
1,4-Dioxane	2.0	U	10.0	9.77		ug/L		98	51 - 153

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QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	97		66 - 120

Lab Sample ID: 240-189966-3 MSD
Matrix: Water
Analysis Batch: 584182

Client Sample ID: MW-84S-MSD_080923
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	9.51		ug/L		95	51 - 153	3	16

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	93		66 - 120

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QC Association Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

GC/MS VOA

Analysis Batch: 584182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189966-2	MW-84_080923	Total/NA	Water	8260D SIM	
240-189966-3	MW-84S_080923	Total/NA	Water	8260D SIM	
MB 240-584182/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-584182/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-189966-3 MS	MW-84S-MS_080923	Total/NA	Water	8260D SIM	
240-189966-3 MSD	MW-84S-MSD_080923	Total/NA	Water	8260D SIM	

Analysis Batch: 584461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189966-1	TRIP BLANK_70	Total/NA	Water	8260D	
240-189966-2	MW-84_080923	Total/NA	Water	8260D	
240-189966-3	MW-84S_080923	Total/NA	Water	8260D	
MB 240-584461/9	Method Blank	Total/NA	Water	8260D	
LCS 240-584461/5	Lab Control Sample	Total/NA	Water	8260D	
240-189966-3 MS	MW-84S-MS_080923	Total/NA	Water	8260D	
240-189966-3 MSD	MW-84S-MSD_080923	Total/NA	Water	8260D	

Lab Chronicle

Client: ARCADIS US Inc
 Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Client Sample ID: TRIP BLANK_70

Lab Sample ID: 240-189966-1

Date Collected: 08/09/23 00:00

Matrix: Water

Date Received: 08/11/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584461	AJS	EET CLE	08/19/23 14:12

Client Sample ID: MW-84_080923

Lab Sample ID: 240-189966-2

Date Collected: 08/09/23 13:40

Matrix: Water

Date Received: 08/11/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584461	AJS	EET CLE	08/19/23 18:05
Total/NA	Analysis	8260D SIM		1	584182	MRL	EET CLE	08/17/23 17:24

Client Sample ID: MW-84S_080923

Lab Sample ID: 240-189966-3

Date Collected: 08/09/23 15:10

Matrix: Water

Date Received: 08/11/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584461	AJS	EET CLE	08/19/23 18:30
Total/NA	Analysis	8260D SIM		1	584182	MRL	EET CLE	08/17/23 11:02

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396



Accreditation/Certification Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Laboratory: Eurofins Cleveland

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-24
Georgia	State	4062	02-27-24
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23 *
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-02-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-27-24
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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

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

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinsky
 Telephone: 248-994-2240
 Email: kristoffer.hinsky@arcadis.com

Site Contact: Christina Weaver
 Telephone: 248-994-2240

Lab Contact: Mike DeMonico
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240

Project Name: Ford LTP Off-Site
 Project Number: 30167538-402.04
 PO # 30167538-402.04

Sampler Name: *Keat Kasper*
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Analysis Turnaround Time
 TAT if different from below
 10 day 3 weeks
 1 week 2 weeks
 2 days 1 day
 1 day

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives				Filtered Sample (Y/N)	Composite (C/Grab/G)	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM	COCs		
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl											NaOH	ZnAc
TRIP BLANK 70			1																		1 of 1	
MW-84-080923	8/9/23	1340	6																			Walk in client
MW-845-080923	8/9/23	1510	6																			Lab sampling
MW-845-MS-080923	8/9/23	1510	6																			Job/SDG No:
MW-845-MSD-080923	8/9/23	1510	6																			Sample Specific Notes / Special Instructions:



Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Unknown
 Poison B Disposal By Lab Archive For Month

Special Instructions/QC Requirements & Comments:
 BEACON ROW
 Submit all results through Cadena at jtomalia@cadenaco.com, Cadena ME203631
 Level IV Reporting requested.

Relinquished by:	Relinquished by:	Relinquished by:	Date/Time:	Date/Time:	Date/Time:	Company:	Company:	Company:
<i>Keat Kasper</i>	<i>Keat Kasper</i>	<i>Keat Kasper</i>	8/9/23 1630	8/9/23 1630	8/10/23 1239	Arcadis	Arcadis	Arcadis
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	8/10/23 1239	8/10/23 1239	8/10/23 1239	Arcadis	Arcadis	Arcadis
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	8/10/23 1239	8/10/23 1239	8/10/23 1239	Arcadis	Arcadis	Arcadis

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Eurofins - Cleveland Sample Receipt Form/Narrative Login # : _____
Barberton Facility

Client ARCADIS Site Name _____ Cooler unpacked by: M. Green
Cooler Received on 8-11-23 Opened on 8-11-23
FedEx: 1st Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____

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

Eurofins Cooler # U 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 # _____ (CF _____ °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ 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 (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No

If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC312502
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

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

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

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

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

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: _____

Eurofins - Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC Client Box Other	IR GUN #: <u>22</u>	<u>1.2</u>	<u>1.1</u>	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: <u>22</u>	<u>1.4</u>	<u>1.3</u>	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
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EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

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

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240

Client Contact
 Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com

Regulatory program: NPDES RCRA Other
 Site Contact: Christina Weaver
 Telephone: 248-994-2240

Lab Contact: Mike DeMonico
 Telephone: 330-497-9396

Project Name: Ford LTP Off-Site
 Project Number: 30167538.402.04
 PO # 30167538.402.04

Sampler Name: *Keat Kasper*
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Analysis Turnaround Time
 TAT if different from below
 10 day 3 weeks
 2 weeks 1 week
 2 days 1 day

Containers & Preservatives
 H2SO4 HNO3 HCl NaOH ZnAc NaCl Other:
 1 6 6 6 6

Matrix
 Aqueous Solid Other:
 1 6 6 6 6

Filtered Sample (Y/N)
 Composite C/Grab G
 1,1-DCE 8260D
 1,2-DCE 8260D
 Trans-1,2-DCE 8260D
 PCE 8260D
 TCE 8260D
 Vinyl Chloride 8260D
 1,4-Dioxane 8260D SIM

Sample Date Sample Time
 --- ---
 8/9/23 1340
 8/9/23 1510
 8/9/23 1510
 8/9/23 1510

Sample Identification
 TRIP BLANK_ 70
 MW-84-080923
 MW-845-080923
 MW-845-MS-080923
 MW-845-MSD-080923

Job/SDG No:
 Walk-in client
 Lab sampling
 1 of 1 COCs
 For lab use only

Sample Specific Notes / Special Instructions:
 1 Trip Blank
 3 VOAs for 8260D
 3 VOAs for 8260D SIM
 Run MS/MSD
 Run MS/MSD



Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal (A fee may be assessed if samples are retained longer)
 Return to Client Disposal By Lab Archive For Month

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: *Keat Kasper*
 Relinquished by: *Keat Kasper*
 Relinquished by: *Justin*

Received by: *Alvin Cold Storage*
 Received by: *Alvin Cold Storage*
 Received in Laboratory by: *Alvin Cold Storage*

Date/Time: 8/9/23 1630
 Date/Time: 8/10/23 1231
 Date/Time: 8/10/23 1239

Company: Arcadis
 Company: Arcadis
 Company: Arcadis

Company: Arcadis
 Company: Arcadis
 Company: Arcadis



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Eurofins - Cleveland Sample Receipt Form/Narrative Login # : _____

Barberton Facility

Client ARCADIS Site Name _____ Cooler unpacked by: M. Hoen

Cooler Received on 8-11-23 Opened on 8-11-23

FedEx: 1st Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

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

Eurofins Cooler # U 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 # _____ (CF _____ °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 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 (ID/Date/Time) be reconciled with the COC? Yes No

9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No

10. Were correct bottle(s) used for the test(s) indicated? Yes No

11. Sufficient quantity received to perform indicated analyses? Yes No

12. Are these work share samples and all listed on the COC? Yes No

If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC312502

14. Were VOAs on the COC? Yes No

15. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.

16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No

17. Was a LL Hg or Me Hg trip blank present? Yes No

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

Concerning _____

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

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: _____

Eurofins - Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC Client Box Other <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	IR GUN #: 22	1.2	1.1	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	IR GUN #: 22	1.4	1.3	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
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EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

DATA VERIFICATION REPORT



August 24, 2023

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30167538.402.04 off-site
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory submittal: 189966-1
Sample date: 2023-08-09
Report received by CADENA: 2023-08-24
Initial Data Verification completed by CADENA: 2023-08-24
Number of Samples:3
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 189966-1

Sample Name: TRIP BLANK_70	MW-84_080923	MW-84S_080923
Lab Sample ID: 2401899661	2401899662	2401899663
Sample Date: 8/9/2023	8/9/2023	8/9/2023

Analyte	Cas No.	Report				Valid				Report				Valid			
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC																	
<u>OSW-8260D</u>																	
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
<u>OSW-8260DSIM</u>																	
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---				

Ford Motor Company – Livonia Transmission Project

Data Review

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-189966-1

CADENA Verification Report: 2023-08-24

Analyses Performed By:
Eurofins Cleveland
Barberton, Ohio

Report # 51136R
Review Level: Tier III
Project: 30167538.402.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-189966-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					VOC	VOC SIM
TRIP BLANK_70	240-189966-1	Water	08/09/2023		X	
MW-84_080923	240-189966-2	Water	08/09/2023		X	X
MW-84S_080923	240-189966-3	Water	08/09/2023		X	X

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D/8260D-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

DATA REVIEW

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD	X				X
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation


%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW

VALIDATION PERFORMED BY: Pruthvi Kumar C

SIGNATURE: 

DATE: September 13, 2023

PEER REVIEW: Andrew Korycinski

DATE: September 14, 2023

**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



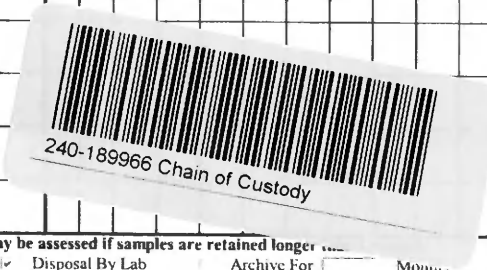
**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



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

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact			Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other			TestAmerica Laboratories, Inc.													
Company Name: Arcadis			Client Project Manager: Kris Hinskey		Site Contact: Christina Weaver		Lab Contact: Mike DelMonico												
Address: 28550 Cabot Drive, Suite 500			Telephone: 248-994-2240		Telephone: 248-994-2240		Telephone: 330-497-9396												
City/State/Zip: Novi, MI, 48377			Email: kristoffer.hinskey@arcadis.com		Analysis Turnaround Time		Analyses												
Phone: 248-994-2240			Sampler Name: <u>Kent Kasper</u>		TAT if different from below		<input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day												
Project Name: Ford LTP Off-Site			Method of Shipment/Carrier:		10 day														
Project Number: 30167538.402.04			Shipping/Tracking No:		Filtered Sample (Y/N)														
PO # 30167538.402.04					Composite-C / Grab-G														
			Matrix			Containers & Preservatives			<input type="checkbox"/> 1,1-DCE 8260D <input type="checkbox"/> cis-1,2-DCE 8260D <input type="checkbox"/> Trans-1,2-DCE 8260D <input type="checkbox"/> PCE 8260D <input type="checkbox"/> TCE 8260D <input type="checkbox"/> Vinyl Chloride 8260D <input type="checkbox"/> 1,4-Dioxane 8260D SIM										
Sample Identification			Sample Date	Sample Time	Air	Aqueous	Sediment	Solid		Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Upprs	Other:	
TRIP BLANK_ 70	--	--			1							1							1 Trip Blank
MW-84-080923	8/9/23	1340			6							6							3 VOAs for 8260D 3 VOAs for 8260D SIM
MW-845-080923	8/9/23	1510			6							6							Rin ms/msd
MW-845-MS-080923	8/9/23	1510			6							6							
MW-845-MSD-080923	8/9/23	1510			6							6							



Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 30 days)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:
 Sample Address: BEACON ROW
 Submit all results through Cadena at jtomalla@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: <u>Kent Kasper</u>	Company: <u>Arcadis</u>	Date/Time: <u>8/9/23 1630</u>	Received by: <u>Novi Cold Storage</u>	Company: <u>Arcadis</u>	Date/Time: <u>8/9/23 1630</u>
Relinquished by: <u>[Signature]</u>	Company: <u>ARCADIS</u>	Date/Time: <u>8/10/23/1239</u>	Received by: <u>[Signature]</u>	Company: <u>ETA</u>	Date/Time: <u>8/10/23/1239</u>
Relinquished by: <u>[Signature]</u>	Company: <u>ETA</u>	Date/Time: <u>8/10/23 1239</u>	Received in Laboratory by: <u>[Signature]</u>	Company: <u>ETA</u>	Date/Time: <u>8-11-23 8AM</u>

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08/24/2023

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

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Company Name: Arcadis		TestAmerica Laboratories, Inc.	
Address: 28550 Cabot Drive, Suite 500		Client Project Manager: Kris Hinskey	Site Contact: Christina Weaver
City/State/Zip: Novi, MI, 48377		Telephone: 248-994-2240	Telephone: 248-994-2240
Phone: 248-994-2240		Email: kristoffer.hinskey@arcadis.com	Lab Contact: Mike DelMonico
Project Name: Ford LTP Off-Site		Telephone: 330-497-9396	
Project Number: 30167538.402.04		COC No:	
PO # 30167538.402.04		1 of 1 COCs	
Shipping/Tracking No:		For lab use only	
Sampler Name: <i>Kent Kasper</i>		Walk-in client	
Method of Shipment/Carrier:		Lab sampling	
Analysis Turnaround Time: 10 day		Job/SDG No:	
TAT if different from below: 3 weeks 2 weeks 1 week 2 days 1 day		Sample Specific Notes / Special Instructions:	
Matrix		Containers & Preservatives	
Air Aqueous Sediment Solid Other:		H2SO4 HNO3 HCl NaOH ZnAc/NaOH Uppres Other:	
Sample Identification		Filtered Sample (Y/N)	
Sample Date Sample Time		Composite-C / Grab-G	
		1,1-DCE 8260D	
		cis-1,2-DCE 8260D	
		Trans-1,2-DCE 8260D	
		PCE 8260D	
		TCE 8260D	
		Vinyl Chloride 8260D	
		1,4-Dioxane 8260D SIM	

Sample Identification	Sample Date	Sample Time	Matrix	Containers & Preservatives	Filtered Sample (Y/N)	Composite-C / Grab-G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM	Notes
TRIP BLANK_ 70	--	--	1			NG	X	X	X	X	X			1 Trip Blank
MW-84-080923	8/9/23	1340	6			NG	X	X	X	X	X			3 VOAs for 8260D 3 VOAs for 8260D SIM
MW-845-080923	8/9/23	1510	6			NG	X	X	X	X	X			
MW-845-MS-080923	8/9/23	1510	6			NG	X	X	X	X	X			Run MS/MSD
MW-845-MSD-080923	8/9/23	1510	6			NG	X	X	X	X	X			Run MS/MSD



Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 30 days): Return to Client Disposal By Lab Archive For Months

Special Instructions/QC Requirements & Comments:
 Sample Address: **BEACON ROW**
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: <i>Kent Kasper</i>	Company: Arcadis	Date/Time: 8/9/23 1630	Received by: <i>Nov. Cold Storage</i>	Company: Arcadis	Date/Time: 8/9/23 1630
Relinquished by: <i>[Signature]</i>	Company: ARCADIS	Date/Time: 8/10/23/1239	Received by: <i>Jen Hal</i>	Company: EEA	Date/Time: 8/10/23/1239
Relinquished by: <i>[Signature]</i>	Company: EEA	Date/Time: 8/10/23 1239	Received in Laboratory by: <i>[Signature]</i>	Company: EEA	Date/Time: 8-11-23 8AM

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08/24/2023

Client Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Client Sample ID: TRIP BLANK_70

Lab Sample ID: 240-189966-1

Date Collected: 08/09/23 00:00

Matrix: Water

Date Received: 08/11/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/19/23 14:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/19/23 14:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 14:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/19/23 14:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 14:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/19/23 14:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137		08/19/23 14:12	1
4-Bromofluorobenzene (Surr)	103		56 - 136		08/19/23 14:12	1
Toluene-d8 (Surr)	103		78 - 122		08/19/23 14:12	1
Dibromofluoromethane (Surr)	111		73 - 120		08/19/23 14:12	1

Client Sample ID: MW-84_080923

Lab Sample ID: 240-189966-2

Date Collected: 08/09/23 13:40

Matrix: Water

Date Received: 08/11/23 08:00

Method: SW846 8260D 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			08/17/23 17:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		66 - 120		08/17/23 17:24	1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/19/23 18:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/19/23 18:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/19/23 18:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/19/23 18:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137		08/19/23 18:05	1
4-Bromofluorobenzene (Surr)	99		56 - 136		08/19/23 18:05	1
Toluene-d8 (Surr)	100		78 - 122		08/19/23 18:05	1
Dibromofluoromethane (Surr)	107		73 - 120		08/19/23 18:05	1

Client Sample ID: MW-84S_080923

Lab Sample ID: 240-189966-3

Date Collected: 08/09/23 15:10

Matrix: Water

Date Received: 08/11/23 08:00

Method: SW846 8260D 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			08/17/23 11:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		66 - 120		08/17/23 11:02	1

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - Off Site

Job ID: 240-189966-1

Client Sample ID: MW-84S_080923

Lab Sample ID: 240-189966-3

Date Collected: 08/09/23 15:10

Matrix: Water

Date Received: 08/11/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/19/23 18:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/19/23 18:30	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/19/23 18:30	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/19/23 18:30	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/19/23 18:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		62 - 137		08/19/23 18:30	1
4-Bromofluorobenzene (Surr)	103		56 - 136		08/19/23 18:30	1
Toluene-d8 (Surr)	101		78 - 122		08/19/23 18:30	1
Dibromofluoromethane (Surr)	108		73 - 120		08/19/23 18:30	1