

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP

JOB NUMBER

240-205039-1

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Job Notes

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Authorization



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Definitions/Glossary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

Qualifiers

GC/MS VOA

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

Case Narrative

Client: Arcadis U.S., Inc.
Project: Ford LTP

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Job Narrative 240-205039-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 5/23/2024 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 1.8°C and 3.4°C.

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-614817 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260D_SIM: The method blank for analytical batch 240-615070 contained 1,4-Dioxane above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

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

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Method Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

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 U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205039-1	TRIP BLANK_92	Water	05/21/24 00:00	05/23/24 08:00
240-205039-2	MW-234_052124	Water	05/21/24 12:25	05/23/24 08:00
240-205039-3	MW-235_052124	Water	05/21/24 14:00	05/23/24 08:00

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

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

Client Sample ID: TRIP BLANK_92

Lab Sample ID: 240-205039-1

No Detections.

Client Sample ID: MW-234_052124

Lab Sample ID: 240-205039-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.0	J B	2.0	0.86	ug/L	1		8260D SIM	Total/NA

Client Sample ID: MW-235_052124

Lab Sample ID: 240-205039-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.1	J B	2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	2.5		1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	4.5		1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

Client Sample ID: TRIP BLANK_92

Lab Sample ID: 240-205039-1

Date Collected: 05/21/24 00:00

Matrix: Water

Date Received: 05/23/24 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			05/30/24 20:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/24 20:00	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 20:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 20:00	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 20:00	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/24 20:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		62 - 137		05/30/24 20:00	1
4-Bromofluorobenzene (Surr)	95		56 - 136		05/30/24 20:00	1
Toluene-d8 (Surr)	100		78 - 122		05/30/24 20:00	1
Dibromofluoromethane (Surr)	102		73 - 120		05/30/24 20:00	1

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

Client Sample ID: MW-234_052124

Lab Sample ID: 240-205039-2

Date Collected: 05/21/24 12:25

Matrix: Water

Date Received: 05/23/24 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	1.0	J B	2.0	0.86	ug/L			05/31/24 21:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127					05/31/24 21:13	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			05/31/24 02:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/31/24 02:14	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/31/24 02:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/31/24 02:14	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/31/24 02:14	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/31/24 02:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		62 - 137					05/31/24 02:14	1
4-Bromofluorobenzene (Surr)	93		56 - 136					05/31/24 02:14	1
Toluene-d8 (Surr)	100		78 - 122					05/31/24 02:14	1
Dibromofluoromethane (Surr)	105		73 - 120					05/31/24 02:14	1

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

Client Sample ID: MW-235_052124

Lab Sample ID: 240-205039-3

Date Collected: 05/21/24 14:00

Matrix: Water

Date Received: 05/23/24 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	1.1	J B	2.0	0.86	ug/L			05/31/24 21:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		68 - 127					05/31/24 21:37	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			05/30/24 22:55	1
cis-1,2-Dichloroethene	2.5		1.0	0.46	ug/L			05/30/24 22:55	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 22:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 22:55	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 22:55	1
Vinyl chloride	4.5		1.0	0.45	ug/L			05/31/24 12:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		62 - 137					05/30/24 22:55	1
1,2-Dichloroethane-d4 (Surr)	117		62 - 137					05/31/24 12:56	1
4-Bromofluorobenzene (Surr)	95		56 - 136					05/30/24 22:55	1
4-Bromofluorobenzene (Surr)	92		56 - 136					05/31/24 12:56	1
Toluene-d8 (Surr)	99		78 - 122					05/30/24 22:55	1
Toluene-d8 (Surr)	99		78 - 122					05/31/24 12:56	1
Dibromofluoromethane (Surr)	106		73 - 120					05/30/24 22:55	1
Dibromofluoromethane (Surr)	104		73 - 120					05/31/24 12:56	1

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

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)
240-205039-1	TRIP BLANK_92	116	95	100	102
240-205039-2	MW-234_052124	120	93	100	105
240-205039-3	MW-235_052124	116	95	99	106
240-205039-3	MW-235_052124	117	92	99	104
240-205042-B-5 MS	Matrix Spike	109	109	103	102
240-205042-B-5 MSD	Matrix Spike Duplicate	107	109	103	102
240-205106-C-5 MS	Matrix Spike	107	110	103	102
240-205106-C-5 MSD	Matrix Spike Duplicate	107	110	103	102
LCS 240-614817/3	Lab Control Sample	108	110	102	102
LCS 240-614997/4	Lab Control Sample	106	109	103	102
MB 240-614817/5	Method Blank	114	97	101	102
MB 240-614997/6	Method Blank	116	96	99	103

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 (68-127)
240-205035-A-2 MS	Matrix Spike	102
240-205035-A-2 MSD	Matrix Spike Duplicate	102
240-205039-2	MW-234_052124	104
240-205039-3	MW-235_052124	103
LCS 240-615070/4	Lab Control Sample	106
MB 240-615070/6	Method Blank	106

Surrogate Legend

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

QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

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

Lab Sample ID: MB 240-614817/5

Matrix: Water

Analysis Batch: 614817

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			05/30/24 17:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/24 17:56	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 17:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 17:56	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 17:56	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/24 17:56	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	114		62 - 137		05/30/24 17:56	1
4-Bromofluorobenzene (Surr)	97		56 - 136		05/30/24 17:56	1
Toluene-d8 (Surr)	101		78 - 122		05/30/24 17:56	1
Dibromofluoromethane (Surr)	102		73 - 120		05/30/24 17:56	1

Lab Sample ID: LCS 240-614817/3

Matrix: Water

Analysis Batch: 614817

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	25.0	25.6		ug/L		102	77 - 123
Tetrachloroethene	25.0	24.8		ug/L		99	76 - 123
trans-1,2-Dichloroethene	25.0	25.6		ug/L		103	75 - 124
Trichloroethene	25.0	25.1		ug/L		100	70 - 122
Vinyl chloride	12.5	9.10		ug/L		73	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	108		62 - 137
4-Bromofluorobenzene (Surr)	110		56 - 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-205042-B-5 MS

Matrix: Water

Analysis Batch: 614817

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
	Result	Qualifier							
1,1-Dichloroethene	1.0	U F2	25.0	25.7		ug/L		103	56 - 135
cis-1,2-Dichloroethene	1.0	U F2	25.0	23.8		ug/L		95	66 - 128
Tetrachloroethene	1.0	U F2	25.0	23.2		ug/L		93	62 - 131
trans-1,2-Dichloroethene	1.0	U F2	25.0	23.8		ug/L		95	56 - 136
Trichloroethene	1.0	U F2	25.0	22.2		ug/L		89	61 - 124
Vinyl chloride	1.0	U F2	12.5	9.88		ug/L		79	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	109		62 - 137
4-Bromofluorobenzene (Surr)	109		56 - 136
Toluene-d8 (Surr)	103		78 - 122

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QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

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

Lab Sample ID: 240-205042-B-5 MS
Matrix: Water
Analysis Batch: 614817

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

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	102		73 - 120

Lab Sample ID: 240-205042-B-5 MSD
Matrix: Water
Analysis Batch: 614817

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

Analyte	Sample		Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier		Result	Qualifier				Limits	RPD	Limit	
1,1-Dichloroethene	1.0	U F2	25.0	19.1	F2	ug/L		76	56 - 135	29	26	
cis-1,2-Dichloroethene	1.0	U F2	25.0	17.6	F2	ug/L		71	66 - 128	30	14	
Tetrachloroethene	1.0	U F2	25.0	17.3	F2	ug/L		69	62 - 131	29	20	
trans-1,2-Dichloroethene	1.0	U F2	25.0	17.9	F2	ug/L		72	56 - 136	29	15	
Trichloroethene	1.0	U F2	25.0	16.9	F2	ug/L		67	61 - 124	27	15	
Vinyl chloride	1.0	U F2	12.5	5.62	F2	ug/L		45	43 - 157	55	24	

	<i>MSD</i>	<i>MSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	107		62 - 137
<i>4-Bromofluorobenzene (Surr)</i>	109		56 - 136
<i>Toluene-d8 (Surr)</i>	103		78 - 122
<i>Dibromofluoromethane (Surr)</i>	102		73 - 120

Lab Sample ID: MB 240-614997/6
Matrix: Water
Analysis Batch: 614997

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L		05/31/24 10:26	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L		05/31/24 10:26	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L		05/31/24 10:26	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L		05/31/24 10:26	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L		05/31/24 10:26	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L		05/31/24 10:26	1	

	<i>MB</i>	<i>MB</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>1,2-Dichloroethane-d4 (Surr)</i>	116		62 - 137		05/31/24 10:26	1
<i>4-Bromofluorobenzene (Surr)</i>	96		56 - 136		05/31/24 10:26	1
<i>Toluene-d8 (Surr)</i>	99		78 - 122		05/31/24 10:26	1
<i>Dibromofluoromethane (Surr)</i>	103		73 - 120		05/31/24 10:26	1

Lab Sample ID: LCS 240-614997/4
Matrix: Water
Analysis Batch: 614997

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

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	
1,1-Dichloroethene	25.0	26.9		ug/L		108	63 - 134	
cis-1,2-Dichloroethene	25.0	25.3		ug/L		101	77 - 123	
Tetrachloroethene	25.0	25.5		ug/L		102	76 - 123	
trans-1,2-Dichloroethene	25.0	25.5		ug/L		102	75 - 124	
Trichloroethene	25.0	24.8		ug/L		99	70 - 122	

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QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

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

Lab Sample ID: LCS 240-614997/4

Matrix: Water

Analysis Batch: 614997

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	12.5	9.60		ug/L		77	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	109		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-205106-C-5 MS

Matrix: Water

Analysis Batch: 614997

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
Vinyl chloride	1.0	U	12.5	9.36		ug/L		75	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		62 - 137
4-Bromofluorobenzene (Surr)	110		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-205106-C-5 MSD

Matrix: Water

Analysis Batch: 614997

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
Vinyl chloride	1.0	U	12.5	9.76		ug/L		78	43 - 157	4	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		62 - 137
4-Bromofluorobenzene (Surr)	110		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

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

Lab Sample ID: MB 240-615070/6

Matrix: Water

Analysis Batch: 615070

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	1.66	J	2.0	0.86	ug/L			05/31/24 13:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		68 - 127		05/31/24 13:58	1

Eurofins Cleveland

QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

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

Lab Sample ID: LCS 240-615070/4

Matrix: Water

Analysis Batch: 615070

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	75 - 121
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	106		68 - 127				

Lab Sample ID: 240-205035-A-2 MS

Matrix: Water

Analysis Batch: 615070

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	3.3	B	10.0	13.3		ug/L		100	20 - 180
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	102		68 - 127						

Lab Sample ID: 240-205035-A-2 MSD

Matrix: Water

Analysis Batch: 615070

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	3.3	B	10.0	13.4		ug/L		101	20 - 180	1	20
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		68 - 127								

QC Association Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

GC/MS VOA

Analysis Batch: 614817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205039-1	TRIP BLANK_92	Total/NA	Water	8260D	
240-205039-2	MW-234_052124	Total/NA	Water	8260D	
240-205039-3	MW-235_052124	Total/NA	Water	8260D	
MB 240-614817/5	Method Blank	Total/NA	Water	8260D	
LCS 240-614817/3	Lab Control Sample	Total/NA	Water	8260D	
240-205042-B-5 MS	Matrix Spike	Total/NA	Water	8260D	
240-205042-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 614997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205039-3	MW-235_052124	Total/NA	Water	8260D	
MB 240-614997/6	Method Blank	Total/NA	Water	8260D	
LCS 240-614997/4	Lab Control Sample	Total/NA	Water	8260D	
240-205106-C-5 MS	Matrix Spike	Total/NA	Water	8260D	
240-205106-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 615070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205039-2	MW-234_052124	Total/NA	Water	8260D SIM	
240-205039-3	MW-235_052124	Total/NA	Water	8260D SIM	
MB 240-615070/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-615070/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-205035-A-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-205035-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

Client Sample ID: TRIP BLANK_92

Lab Sample ID: 240-205039-1

Date Collected: 05/21/24 00:00

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614817	TJL2	EET CLE	05/30/24 20:00

Client Sample ID: MW-234_052124

Lab Sample ID: 240-205039-2

Date Collected: 05/21/24 12:25

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614817	TJL2	EET CLE	05/31/24 02:14
Total/NA	Analysis	8260D SIM		1	615070	MDH	EET CLE	05/31/24 21:13

Client Sample ID: MW-235_052124

Lab Sample ID: 240-205039-3

Date Collected: 05/21/24 14:00

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614817	TJL2	EET CLE	05/30/24 22:55
Total/NA	Analysis	8260D		1	614997	TJL2	EET CLE	05/31/24 12:56
Total/NA	Analysis	8260D SIM		1	615070	MDH	EET CLE	05/31/24 21:37

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-205039-1

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	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

Chain of Custody Record

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

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 Hinsky				Site Contact: Christina Weaver				Lab Contact: Mike DeMosico				COC No:															
Address: 28550 Cabot Drive, Suite 500		Telephone: 248-994-2240				Telephone: 248-994-2240				Telephone: 330-497-9396				1 of 1 COCs															
City/State/Zip: Novi, MI, 48377		Email: kristoffer.hinsky@arcadis.com				Analysis Turnaround Time				Analyses				For lab use only															
Phone: 248-994-2240		Sampler Name: <u>Garrett Link</u>				TAT if differs from below 10 day <input checked="" type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Walk-in client															
Project Name: Ford LTP On-Site		Method of Shipment/Carrier:				Filtered Sample (Y/N) Composite=C / Grab=G				1,1-DCE 82600 cis-1,2-DCE 82600 Trans-1,2-DCE 82600 PCE 82600 TCE 82600 Vinyl Chloride 82600 1,4-Dioxane 82600 SIM				Lab sampling															
Project Number: 30167538.401.03		Shipping/Tracking No:												Job/SDG No:															
PO # 30167538.401.03		Sample Identification		Sample Date	Sample Time	Matrix					Containers & Preservatives					Sample Specific Notes / Special Instructions:													
		Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Upres	Other:															
✓ TRIP BLANK_92		---	---			X																				1 Trip Blank			
✓ MW-234_052124		5/21/24	1225			G																				3 VOAs for 82600 3 VOAs for 82600 SIM			
✓ MW-235_052124		5/21/24	1440			G																				↓			
Possible Hazard Identification		<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																	
												<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For					Months												
Special Instructions/QC Requirements & Comments:																													
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728 Level IV Reporting requested.																													
Relinquished by: <u>Garrett Link</u>					Company: <u>ARCADIS</u>					Date/Time: <u>5/21/24 1640</u>					Received by: <u>Novi cold storage</u>					Company: <u>ARCADIS</u>					Date/Time: <u>5/21/24 1640</u>				
Relinquished by: <u>Jamie Link</u>					Company: <u>Arcadis</u>					Date/Time: <u>5/22/24 1440</u>					Received by: <u>QAZ</u>					Company: <u>MTA</u>					Date/Time: <u>5/22/24 1440</u>				
Relinquished by: <u>QAZ</u>					Company: <u>MTA</u>					Date/Time: <u>5/22/24 1500</u>					Received in Laboratory by: <u>JESSICA RIGDON</u>					Company: <u>BETNL</u>					Date/Time: <u>5-23-24 0800</u>				



Environ - Cleveland Sample Receipt Form/Narrative
 Barberon Facility
 Login # 205034

Client Acadis Site Name LTP Cooler unpacked by: (IME)

Cooler Received on 5-23-24 Opened on 5-23-24

FedEx: 1st Grd Exp UPS FAS (Waypoint) Client Drop Off Eurofins Courier Other
 Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC 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 18 (C) 0.0 (C) Observed Cooler Temp. 18 (C) Corrected Cooler Temp. 18 (C)
 IR GUN # 18 (C) 0.0 (C) See Multiple Cooler Form

2 Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 16 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 NA
 - 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# HC439975
 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 # 2041301E 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 _____

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. _____

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

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

Login # : 205037

Eurofins Cleveland Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
FC Client box Other	IR GUN #: 18	3.4	3.4	Water Blue Ice Dry Ice
FC Client box Other	IR GUN #: 18	1.8	1.8	Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
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FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice
FC Client box Other	IR GUN #:			Water Blue Ice Dry Ice

See Temperature Excursion Form



5/23/2024

Login Container Summary Report

240-205039

6/5/2024

Temperature readings

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> pH	<u>Preservation</u> Temp	<u>Preservation</u> Added	<u>Preservation</u> Lot Number
TRIP BLANK_92	240-205039-A-1	Voa Vial 40ml - Hydrochloric Acid				
MW-234_052124	240-205039-A-2	Voa Vial 40ml - Hydrochloric Acid				
MW-234_052124	240-205039-B-2	Voa Vial 40ml - Hydrochloric Acid				
MW-234_052124	240-205039-C-2	Voa Vial 40ml - Hydrochloric Acid				
MW-234_052124	240-205039-D-2	Voa Vial 40ml - Hydrochloric Acid				
MW-234_052124	240-205039-E-2	Voa Vial 40ml - Hydrochloric Acid				
MW-234_052124	240-205039-F-2	Voa Vial 40ml - Hydrochloric Acid				
MW-235_052124	240-205039-A-3	Voa Vial 40ml - Hydrochloric Acid				
MW-235_052124	240-205039-B-3	Voa Vial 40ml - Hydrochloric Acid				
MW-235_052124	240-205039-C-3	Voa Vial 40ml - Hydrochloric Acid				
MW-235_052124	240-205039-D-3	Voa Vial 40ml - Hydrochloric Acid				
MW-235_052124	240-205039-E-3	Voa Vial 40ml - Hydrochloric Acid				
MW-235_052124	240-205039-F-3	Voa Vial 40ml - Hydrochloric Acid				

DATA VERIFICATION REPORT



June 05, 2024

Megan Meckley
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI US 48377

CADENA project ID: E203728

Project: Ford Livonia Transmission Plant - Soil Gas, Ground Water and Soil

Project number: 30206169.401.03

Event Specific Scope of Work References: Sample COC

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 205039-1

Sample date: 2024-05-21

Report received by CADENA: 2024-06-05

Initial Data Verification completed by CADENA: 2024-06-05

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.

The following minor QC exceptions or missing information were noted:

MBK - GCMS VOC SIM QC batch method blank had a detection below the RL for the following analyte: 1,4-DIOXANE. The following client sample results should be considered to be non-detect at the concentration reported and qualified with UB flags: -002, -003.

GCMS VOC QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, 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 Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

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.

Qualified Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 205039-1

Sample Name:	MW-234_052124	MW-235_052124
Lab Sample ID:	2402050392	2402050393
Sample Date:	5/21/2024	5/21/2024

Analyte	Cas No.	Report		Valid	Report		Valid
		Result	Limit	Units	Qualifier	Result	Limit

GC/MS VOC

OSW-8260DSIM

1,4-Dioxane	123-91-1	1.0	2.0	ug/l	UB	1.1	2.0	ug/l	UB
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Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 205039-1

Sample Name: TRIP BLANK_92	MW-234_052124	MW-235_052124
Lab Sample ID: 2402050391	2402050392	2402050393
Sample Date: 5/21/2024	5/21/2024	5/21/2024

Analyte	Cas No.	TRIP BLANK_92				MW-234_052124				MW-235_052124			
		Report	Valid	Report	Valid	Report	Valid	Report	Valid				
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier

GC/MS VOC

OSW-8260D

1,1-Dichloroethene	75-35-4	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	---	2.5	1.0	ug/l	---
Tetrachloroethene	127-18-4	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	---
Trichloroethene	79-01-6	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	---	4.5	1.0	ug/l	---

OSW-8260DSIM

1,4-Dioxane	123-91-1					1.0	2.0	ug/l	UB	1.1	2.0	ug/l	UB
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