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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-140278-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey

Authorized for release by:
11/30/2020 8:46:14 AM

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

Job ID: 240-140278-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-140278-1

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

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/13/2020 9:25 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.4º C, 1.5º C, 2.3º C and 3.6º C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-140278-1), MW-108S_111120 (240-140278-2), MW-142S_111120 (240-140278-3), MW-85_111120 (240-140278-4), MW-85SR_111120 (240-140278-5) and DUP-09 (240-140278-6) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/24/2020.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-108S_111120 (240-140278-2), MW-142S_111120 (240-140278-3), MW-85_111120 (240-140278-4), MW-85SR_111120 (240-140278-5) and DUP-09 (240-140278-6) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/21/2020.

An MS/MSD was done in batch 240-462226 however not on this sample: DUP-09 (240-140278-6).

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-140278-1	TRIP BLANK	Water	11/11/20 00:00	11/13/20 09:25	
240-140278-2	MW-108S_111120	Water	11/11/20 14:20	11/13/20 09:25	
240-140278-3	MW-142S_111120	Water	11/11/20 13:15	11/13/20 09:25	
240-140278-4	MW-85_111120	Water	11/11/20 16:15	11/13/20 09:25	
240-140278-5	MW-85SR_111120	Water	11/11/20 17:20	11/13/20 09:25	
240-140278-6	DUP-09	Water	11/11/20 00:00	11/13/20 09:25	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-140278-1

No Detections.

Client Sample ID: MW-108S_111120 — Lab Sample ID: 240-140278-2

No Detections.

Client Sample ID: MW-142S_111120 — Lab Sample ID: 240-140278-3

No Detections.

Client Sample ID: MW-85_111120 — Lab Sample ID: 240-140278-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	5.4		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-85SR_111120 — Lab Sample ID: 240-140278-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	2.0		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-09 — Lab Sample ID: 240-140278-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.0	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	5.2		1.0	0.20	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: TRIP BLANK
Date Collected: 11/11/20 00:00
Date Received: 11/13/20 09:25

Lab Sample ID: 240-140278-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 15:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/24/20 15:36	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/24/20 15:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 15:36	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/24/20 15:36	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/24/20 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*125*		*75 - 130*		*11/24/20 15:36*	*1*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*		*11/24/20 15:36*	*1*
Toluene-d8 (Surr)	*102*		*69 - 122*		*11/24/20 15:36*	*1*
Dibromofluoromethane (Surr)	*100*		*78 - 129*		*11/24/20 15:36*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: MW-108S_111120
Date Collected: 11/11/20 14:20
Date Received: 11/13/20 09:25

Lab Sample ID: 240-140278-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/21/20 20:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 133*		*11/21/20 20:18*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 16:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/24/20 16:01	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/24/20 16:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 16:01	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/24/20 16:01	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/24/20 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*121*		*75 - 130*		*11/24/20 16:01*	*1*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*		*11/24/20 16:01*	*1*
Toluene-d8 (Surr)	*104*		*69 - 122*		*11/24/20 16:01*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 129*		*11/24/20 16:01*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: MW-142S_111120
Date Collected: 11/11/20 13:15
Date Received: 11/13/20 09:25

Lab Sample ID: 240-140278-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/21/20 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 133*		*11/21/20 20:43*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 16:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/24/20 16:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/24/20 16:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 16:26	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/24/20 16:26	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/24/20 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*120*		*75 - 130*		*11/24/20 16:26*	*1*
4-Bromofluorobenzene (Surr)	*101*		*47 - 134*		*11/24/20 16:26*	*1*
Toluene-d8 (Surr)	*103*		*69 - 122*		*11/24/20 16:26*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 129*		*11/24/20 16:26*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: MW-85_111120
Date Collected: 11/11/20 16:15
Date Received: 11/13/20 09:25

Lab Sample ID: 240-140278-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/21/20 21:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*11/21/20 21:08*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 16:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/24/20 16:51	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/24/20 16:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 16:51	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/24/20 16:51	1
Vinyl chloride	**5.4**		1.0	0.20	ug/L			11/24/20 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*121*		*75 - 130*		*11/24/20 16:51*	*1*
4-Bromofluorobenzene (Surr)	*99*		*47 - 134*		*11/24/20 16:51*	*1*
Toluene-d8 (Surr)	*102*		*69 - 122*		*11/24/20 16:51*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 129*		*11/24/20 16:51*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: MW-85SR_111120
Date Collected: 11/11/20 17:20
Date Received: 11/13/20 09:25

Lab Sample ID: 240-140278-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/21/20 21:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 133*		*11/21/20 21:33*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 17:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/24/20 17:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/24/20 17:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 17:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/24/20 17:16	1
Vinyl chloride	**2.0**		1.0	0.20	ug/L			11/24/20 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*118*		*75 - 130*		*11/24/20 17:16*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*11/24/20 17:16*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*11/24/20 17:16*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*11/24/20 17:16*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: DUP-09
Date Collected: 11/11/20 00:00
Date Received: 11/13/20 09:25

Lab Sample ID: 240-140278-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**1.0**	**J**	2.0	0.86	ug/L			11/21/20 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*132*		*70 - 133*		*11/21/20 15:57*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 17:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/24/20 17:40	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/24/20 17:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 17:40	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/24/20 17:40	1
Vinyl chloride	**5.2**		1.0	0.20	ug/L			11/24/20 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*75 - 130*		*11/24/20 17:40*	*1*
4-Bromofluorobenzene (Surr)	*99*		*47 - 134*		*11/24/20 17:40*	*1*
Toluene-d8 (Surr)	*103*		*69 - 122*		*11/24/20 17:40*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*11/24/20 17:40*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(75-130)	(47-134)	(69-122)	(78-129)
240-140259-D-6 MS	Matrix Spike	106	104	105	85
240-140259-E-6 MSD	Matrix Spike Duplicate	107	107	104	85
240-140278-1	TRIP BLANK	125	100	102	100
240-140278-2	MW-108S_111120	121	100	104	94
240-140278-3	MW-142S_111120	120	101	103	97
240-140278-4	MW-85_111120	121	99	102	94
240-140278-5	MW-85SR_111120	118	96	99	93
240-140278-6	DUP-09	119	99	103	92
LCS 240-462570/5	Lab Control Sample	104	106	103	82
MB 240-462570/8	Method Blank	121	100	102	95

Surrogate Legend

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

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCA
Lab Sample ID	Client Sample ID	(70-133)
240-140270-A-6 MS	Matrix Spike	92
240-140270-A-6 MSD	Matrix Spike Duplicate	90
240-140278-2	MW-108S_111120	89
240-140278-3	MW-142S_111120	88
240-140278-4	MW-85_111120	86
240-140278-5	MW-85SR_111120	85
240-140278-6	DUP-09	132
LCS 240-462172/4	Lab Control Sample	88
LCS 240-462226/4	Lab Control Sample	126
MB 240-462172/5	Method Blank	86
MB 240-462226/5	Method Blank	129

Surrogate Legend

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

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

Lab Sample ID: MB 240-462570/8
Matrix: Water
Analysis Batch: 462570

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 12:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/24/20 12:18	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/24/20 12:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/24/20 12:18	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/24/20 12:18	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/24/20 12:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*121*		*75 - 130*		*11/24/20 12:18*	*1*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*		*11/24/20 12:18*	*1*
Toluene-d8 (Surr)	*102*		*69 - 122*		*11/24/20 12:18*	*1*
Dibromofluoromethane (Surr)	*95*		*78 - 129*		*11/24/20 12:18*	*1*

Lab Sample ID: LCS 240-462570/5
Matrix: Water
Analysis Batch: 462570

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	18.9		ug/L		94	73 - 129
cis-1,2-Dichloroethene	20.0	19.0		ug/L		95	75 - 124
Tetrachloroethene	20.0	17.5		ug/L		88	70 - 125
trans-1,2-Dichloroethene	20.0	18.8		ug/L		94	74 - 130
Trichloroethene	20.0	16.0		ug/L		80	71 - 121
Vinyl chloride	20.0	22.5		ug/L		113	61 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 130*
4-Bromofluorobenzene (Surr)	*106*		*47 - 134*
Toluene-d8 (Surr)	*103*		*69 - 122*
Dibromofluoromethane (Surr)	*82*		*78 - 129*

Lab Sample ID: 240-140259-D-6 MS
Matrix: Water
Analysis Batch: 462570

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	20.0	18.1		ug/L		91	64 - 132
cis-1,2-Dichloroethene	1.0	U	20.0	18.2		ug/L		91	68 - 121
Tetrachloroethene	1.0	U	20.0	15.4		ug/L		77	52 - 129
trans-1,2-Dichloroethene	1.0	U	20.0	17.9		ug/L		90	69 - 126
Trichloroethene	1.0	U	20.0	14.5		ug/L		73	56 - 124
Vinyl chloride	1.0	U	20.0	22.2		ug/L		111	49 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*
4-Bromofluorobenzene (Surr)	*104*		*47 - 134*
Toluene-d8 (Surr)	*105*		*69 - 122*

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

Lab Sample ID: 240-140259-D-6 MS
Matrix: Water
Analysis Batch: 462570

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

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*85*		*78 - 129*

Lab Sample ID: 240-140259-E-6 MSD
Matrix: Water
Analysis Batch: 462570

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	20.0	20.5		ug/L		102	64 - 132	12	35
cis-1,2-Dichloroethene	1.0	U	20.0	20.3		ug/L		101	68 - 121	11	35
Tetrachloroethene	1.0	U	20.0	16.9		ug/L		85	52 - 129	9	35
trans-1,2-Dichloroethene	1.0	U	20.0	19.8		ug/L		99	69 - 126	10	35
Trichloroethene	1.0	U	20.0	16.3		ug/L		81	56 - 124	11	35
Vinyl chloride	1.0	U	20.0	22.6		ug/L		113	49 - 136	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*
4-Bromofluorobenzene (Surr)	*107*		*47 - 134*
Toluene-d8 (Surr)	*104*		*69 - 122*
Dibromofluoromethane (Surr)	*85*		*78 - 129*

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

Lab Sample ID: MB 240-462172/5
Matrix: Water
Analysis Batch: 462172

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/21/20 11:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*11/21/20 11:52*	*1*

Lab Sample ID: LCS 240-462172/4
Matrix: Water
Analysis Batch: 462172

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	10.3		ug/L		103	80 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 133*

Lab Sample ID: 240-140270-A-6 MS
Matrix: Water
Analysis Batch: 462172

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.6		ug/L		106	46 - 170

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

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		70 - 133

Lab Sample ID: 240-140270-A-6 MSD
Matrix: Water
Analysis Batch: 462172

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.7		ug/L		107	46 - 170	1	26

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		70 - 133

Lab Sample ID: MB 240-462226/5
Matrix: Water
Analysis Batch: 462226

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/21/20 14:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129		70 - 133		11/21/20 14:19	1

Lab Sample ID: LCS 240-462226/4
Matrix: Water
Analysis Batch: 462226

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	9.78		ug/L		98	80 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	126		70 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

GC/MS VOA

Analysis Batch: 462172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140278-2	MW-108S_111120	Total/NA	Water	8260B SIM	
240-140278-3	MW-142S_111120	Total/NA	Water	8260B SIM	
240-140278-4	MW-85_111120	Total/NA	Water	8260B SIM	
240-140278-5	MW-85SR_111120	Total/NA	Water	8260B SIM	
MB 240-462172/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-462172/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-140270-A-6 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-140270-A-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 462226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140278-6	DUP-09	Total/NA	Water	8260B SIM	
MB 240-462226/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-462226/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 462570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140278-1	TRIP BLANK	Total/NA	Water	8260B	
240-140278-2	MW-108S_111120	Total/NA	Water	8260B	
240-140278-3	MW-142S_111120	Total/NA	Water	8260B	
240-140278-4	MW-85_111120	Total/NA	Water	8260B	
240-140278-5	MW-85SR_111120	Total/NA	Water	8260B	
240-140278-6	DUP-09	Total/NA	Water	8260B	
MB 240-462570/8	Method Blank	Total/NA	Water	8260B	
LCS 240-462570/5	Lab Control Sample	Total/NA	Water	8260B	
240-140259-D-6 MS	Matrix Spike	Total/NA	Water	8260B	
240-140259-E-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Client Sample ID: TRIP BLANK
Lab Sample ID: 240-140278-1
Date Collected: 11/11/20 00:00
Matrix: Water
Date Received: 11/13/20 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462570	11/24/20 15:36	HMB	TAL CAN

Client Sample ID: MW-108S_111120
Lab Sample ID: 240-140278-2
Date Collected: 11/11/20 14:20
Matrix: Water
Date Received: 11/13/20 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462570	11/24/20 16:01	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462172	11/21/20 20:18	SAM	TAL CAN

Client Sample ID: MW-142S_111120
Lab Sample ID: 240-140278-3
Date Collected: 11/11/20 13:15
Matrix: Water
Date Received: 11/13/20 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462570	11/24/20 16:26	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462172	11/21/20 20:43	SAM	TAL CAN

Client Sample ID: MW-85_111120
Lab Sample ID: 240-140278-4
Date Collected: 11/11/20 16:15
Matrix: Water
Date Received: 11/13/20 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462570	11/24/20 16:51	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462172	11/21/20 21:08	SAM	TAL CAN

Client Sample ID: MW-85SR_111120
Lab Sample ID: 240-140278-5
Date Collected: 11/11/20 17:20
Matrix: Water
Date Received: 11/13/20 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462570	11/24/20 17:16	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462172	11/21/20 21:33	SAM	TAL CAN

Client Sample ID: DUP-09
Lab Sample ID: 240-140278-6
Date Collected: 11/11/20 00:00
Matrix: Water
Date Received: 11/13/20 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462570	11/24/20 17:40	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462226	11/21/20 15:57	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140278-1

Laboratory: Eurofins TestAmerica, Canton

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763 MICHIGAN 190

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
Company Name: Arcadis	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396	of COCs
Address: 28550 Cabot Drive, Suite 500	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time		For lab use only
City/State/Zip: Novi, MI, 48377	Sampler Name: Ellen Redner	TAT if different from below: ☐ 3 weeks ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day; 10 day		Walk-in client
Phone: 248-994-2240	Method of Shipment/Carrier:			Lab sampling
Project Name: Ford LTP Off-Site	Shipping/Tracking No:			Job/SDG No.
Project Number: 30050315.402.04				
PO # 30050315.402.04				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y / N)	Composite – C / Grab – G	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	Sample Specific Notes / Special Instructions:
TRIP BLANK	—	—		1						1					N	G	X	X	X	X	X	X	X	1 trip Blank
MW-108S_111120	11/11/20	1420		6						6														3 VOAs 8260B 3 VOAs 8260B SIM
MW-142S_111120		1315		6						6														
MW-85_111120		1615		6						6														
MW-85SR_111120		1720		6						6														
DUP-09		—		6						6														

11/11/20

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal By Lab ☐ Archive For ☐ Months

Special Instructions/QC Requirements & Comments:

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
Level IV Reporting requested.

	Company	Date/Time		Company	Date/Time
Relinquished by:	Arcadis	11/11/20 1900	Received by: NOVI cold storage	Arcadis	11/11/20 1900
Relinquished by: Julia McClafferty	Arcadis	11/12/20 1320	Received by:	ETA	11/12/20 1320
Relinquished by:	ETA	11/12/20 1700	Received in Laboratory by: Adam Jenney	ETA	11-13-20 925

240-140278 Chain of Custody

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 140278**
Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Matt Snyder

Cooler Received on 11-13-20 Opened on 11-14-20

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

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

TestAmerica Cooler # _____ 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

☒ See Multiple Cooler Form

1. Cooler temperature upon receipt
   IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
   IR GUN #IR-12 (CF +0.5°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels (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)?	6	6
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# HC907861
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

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

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: _____

WI-NC-099

Login # : 140278

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-11 IR-12	0.6	1.5	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12	2.7	3.6	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12	0.5	1.4	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12	1.4	2.3	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None

☐ See Temperature Excursion Form

WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers