

## Analytical Report

Madison Ericson  
Tetra Tech  
1 South Wacker Drive, STE 3700  
Chicago, IL 60606

September 26, 2022

SDG: 22I0623

RE: EPA Region 8 START  
103X903520F0071220706

Dear Madison Ericson:

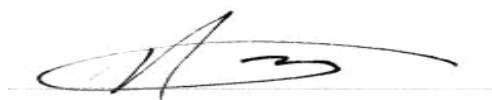
Enclosed are the analytical reports for the EMT Work Order listed. Also included with this analytical report is a copy of the chain of custody associated with these samples. If you have any questions, please contact me.

Sincerely,



Tim Witrzek  
Federal Program Manager  
847.967.6666  
[twitrzek@emt.com](mailto:twitrzek@emt.com)  
Approved for release: 9/26/2022 1:28:57PM

Approved by,



Nathan Fey  
Laboratory Operations Manager

The contents of this report apply to the sample(s) analyzed. No duplication is allowed except in its entirety. Detection and Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

State of Illinois, NELAP Accredited Lab No. 100256, Cert No. 1002562021-6



# Table of Contents

Cover Letter	1
Sample Summary	3
Case Narrative	4
Client Sample Results	5
Dates Report	7
Quality Control	8
Certified Analyses	15
List of Certifications	16
Qualifiers and Definitions	17
Chain of Custody	18

**Sample Summary**

<b>Sample ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>Date Sampled</b>	<b>Date Received</b>
VDS-WS-02	22I0623-01	Solid	09/15/22 14:30	09/19/22 09:00

## Case Narrative

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Date:** 09/26/2022

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

Refer to Qualifiers and Definitions for quality and analytical clarifications or deviations.

Sample results only relate to the sample(s) received at the laboratory and analytes of interest tested.

### Work Order: 22I0623

The samples were received on 09/19/22 09:00. The temperature of the cooler(s) at receipt was:

<u>Cooler</u>	<u>Temp C°</u>
Default Cooler	5.7

The samples were received in good condition and were properly preserved.

### Metals

#### Method 6010 TCLP

S2I0314-CCBs Ag was detected in the Continuing Calibration Blanks and subsequently the method blank (B2I0622-BLK1 & BLK2). The sample was sent for re-analysis.

S2I0314-CCV3,4,5,6,7 Pb was outside the limits, These are non bracketing CCVs samples are reportable.

B2I0622-BLK4 (TCLP Blank) shows a detect for Ag but sample is ND.

S2I0332-CCBs show detects for Ag but client sample is ND

S2I0332-CCV4,5,6,7 Ag was outside the limits, These are non bracketing CCVs samples are reportable.

## Client Sample Results

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Client Sample ID:** VDS-WS-02  
**Report Date:** 09/26/2022  
**Collection Date:** 09/15/2022 14:30  
**Matrix:** Solid  
**Lab ID:** 22I0623-01

Analyses	Result	EMT Reporting			MDL	Date/Time Analyzed	Batch	Analyst	DF
		Limit	Qual	Units					
Metals by ICP-AES									
Method: SW6010 D / SW3015 / SW1311									
Arsenic, TCLP	< 0.0500	0.0500	U	mg/L	0.0150	09/20/22 16:19	B2I0622	KJ1	1
Barium, TCLP	0.0426	0.0500	J	mg/L	0.00700	09/20/22 16:19	B2I0622	KJ1	1
Cadmium, TCLP	0.00200	0.00500	J	mg/L	0.00200	09/20/22 16:19	B2I0622	KJ1	1
Chromium, TCLP	< 0.0500	0.0500	U	mg/L	0.00600	09/20/22 16:19	B2I0622	KJ1	1
Lead, TCLP	0.0334	0.0500	J	mg/L	0.0100	09/20/22 16:19	B2I0622	KJ1	1
Selenium, TCLP	< 0.0500	0.0500	U	mg/L	0.0130	09/20/22 16:19	B2I0622	KJ1	1
Silver, TCLP	0.00300	0.00500	J, B	mg/L	0.00200	09/20/22 16:19	B2I0622	KJ1	1
Silver, TCLP	< 0.00500	0.00500	U	mg/L	0.00200	09/21/22 14:13	B2I0622	KJ1	1

### Mercury by CVAA

Method: SW7470A / SW1311

Mercury, TCLP	< 0.00050	0.00050	U	mg/L	0.00020	09/24/22 12:38	B2I0817	NS1	1
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### Wet Chemistry

Method: SW9095

Free Liquid	Fail		Pass/Fail		0	09/21/22 12:40	B2I0692	ZS1	1
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### Volatile Organic Compounds by GC/MS

Method: SW1311 / SW8260B / SW5030 / SW1311

1,1-Dichloroethene, TCLP	< 0.100	0.100	U	mg/L	0.0217	09/20/22 18:54	B2I0655	KS1	1
1,2-Dichloroethane, TCLP	< 0.100	0.100	U	mg/L	0.0205	09/20/22 18:54	B2I0655	KS1	1
1,4-Dichlorobenzene, TCLP	< 0.500	0.500	U	mg/L	0.0915	09/20/22 18:54	B2I0655	KS1	1
2-Butanone, TCLP	< 1.40	1.40	U	mg/L	0.340	09/20/22 18:54	B2I0655	KS1	1
Benzene, TCLP	< 0.100	0.100	U	mg/L	0.0144	09/20/22 18:54	B2I0655	KS1	1
Carbon tetrachloride, TCLP	<b>0.148</b>	1.00	J	mg/L	0.140	09/20/22 18:54	B2I0655	KS1	1
Chlorobenzene, TCLP	< 0.200	0.200	U	mg/L	0.0260	09/20/22 18:54	B2I0655	KS1	1
Chloroform, TCLP	< 0.200	0.200	U	mg/L	0.0366	09/20/22 18:54	B2I0655	KS1	1
Tetrachloroethene, TCLP	< 0.200	0.200	U	mg/L	0.0292	09/20/22 18:54	B2I0655	KS1	1
Trichloroethene, TCLP	< 0.100	0.100	U	mg/L	0.0243	09/20/22 18:54	B2I0655	KS1	1
Vinyl chloride, TCLP	< 0.200	0.200	U	mg/L	0.0357	09/20/22 18:54	B2I0655	KS1	1

Surrogate: Dibromofluoromethane, TCLP	Recovery: 98%	Limits: 78-119	09/20/22 18:54	B2I0655	KS1	1
Surrogate: 1,2-Dichloroethane-d4, TCLP	Recovery: 94%	Limits: 71-136	09/20/22 18:54	B2I0655	KS1	1
Surrogate: Fluorobenzene, TCLP	Recovery: 96%	Limits: 81-114	09/20/22 18:54	B2I0655	KS1	1
Surrogate: Toluene-d8, TCLP	Recovery: 96%	Limits: 85-116	09/20/22 18:54	B2I0655	KS1	1
Surrogate: 4-Bromofluorobenzene, TCLP	Recovery: 103%	Limits: 79-119	09/20/22 18:54	B2I0655	KS1	1
Surrogate: 1,2-Dichlorobenzene-d4, TCLP	Recovery: 103%	Limits: 80-120	09/20/22 18:54	B2I0655	KS1	1

### Semivolatile Organic Compounds by GC/MS

Method: SW1311 / SW8270D / SW3510 / SW1311

Cresols, Total, TCLP	<b>0.190</b>	0.146		mg/L	0.0333	09/21/22 19:36	B2I0631	LP	4
1,4-Dichlorobenzene, TCLP	< 0.0731	0.0731	U	mg/L	0.0102	09/21/22 19:36	B2I0631	LP	4
2,4,5-Trichlorophenol, TCLP	< 0.0365	0.0365	U	mg/L	0.0047	09/21/22 19:36	B2I0631	LP	4
2,4,6-Trichlorophenol, TCLP	< 0.0365	0.0365	U	mg/L	0.0089	09/21/22 19:36	B2I0631	LP	4

## Client Sample Results

(Continued)

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Client Sample ID:** VDS-WS-02  
**Report Date:** 09/26/2022  
**Collection Date:** 09/15/2022 14:30  
**Matrix:** Solid  
**Lab ID:** 22I0623-01 (Continued)

Analyses	Result	EMT Reporting			MDL	Date/Time Analyzed	Batch	Analyst	DF
		Limit	Qual	Units					
Semivolatile Organic Compounds by GC/MS (Continued)									
Method: SW1311 / SW8270D / SW3510 / SW1311 (Continued)									
2,4-Dinitrotoluene, TCLP	< 0.0731	0.0731	U	mg/L	0.0092	09/21/22 19:36	B2I0631	LP	4
2-Methylphenol, TCLP	0.0358	0.0365	J	mg/L	0.0067	09/21/22 19:36	B2I0631	LP	4
3 & 4-Methylphenol, TCLP	0.155	0.0365		mg/L	0.0065	09/21/22 19:36	B2I0631	LP	4
Hexachlorobenzene, TCLP	< 0.0365	0.0365	U	mg/L	0.0060	09/21/22 19:36	B2I0631	LP	4
Hexachlorobutadiene, TCLP	< 0.0365	0.0365	U	mg/L	0.0091	09/21/22 19:36	B2I0631	LP	4
Hexachloroethane, TCLP	< 0.0365	0.0365	U	mg/L	0.0080	09/21/22 19:36	B2I0631	LP	4
Nitrobenzene, TCLP	< 0.0219	0.0219	U	mg/L	0.0051	09/21/22 19:36	B2I0631	LP	4
Pentachlorophenol, TCLP	< 1.10	1.10	U	mg/L	0.0921	09/21/22 19:36	B2I0631	LP	4
Pyridine, TCLP	< 0.365	0.365	U	mg/L	0.0665	09/21/22 19:36	B2I0631	LP	4
Surrogate: 2-Fluorophenol, TCLP				Recovery: 71%	Limits: 10-85	09/21/22 19:36	B2I0631	LP	4
Surrogate: Phenol-d5, TCLP				Recovery: 55%	Limits: 10-62	09/21/22 19:36	B2I0631	LP	4
Surrogate: Nitrobenzene-d5, TCLP				Recovery: 86%	Limits: 25-126	09/21/22 19:36	B2I0631	LP	4
Surrogate: 2-Fluorobiphenyl, TCLP				Recovery: 86%	Limits: 21-113	09/21/22 19:36	B2I0631	LP	4
Surrogate: 2,4,6-Tribromophenol, TCLP				Recovery: 89%	Limits: 19-131	09/21/22 19:36	B2I0631	LP	4
Surrogate: 4-Terphenyl-d14, TCLP				Recovery: 103%	Limits: 32-133	09/21/22 19:36	B2I0631	LP	4

## Dates Report

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Report Date:** 09/26/2022

Sample ID	Client Sample ID	Collection	Matrix	Test Name	Leached Prep Date	Prep Date	Analysis Date	Batch ID	Sequence
22I0623-01	VDS-WS-02	09/15/22	Solid	Selenium, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/20/22 16:19	B2I0622	S2I0314
				Lead, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/20/22 16:19		
				Chromium, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/20/22 16:19		
				Cadmium, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/20/22 16:19		
				Barium, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/20/22 16:19		
				Arsenic, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/20/22 16:19		
				Silver, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/21/22 14:13		
				Silver, TCLP ICP-AES	09/19/22 12:14	09/20/22 10:53	09/20/22 16:19	B2I0631	S2I0332
				Semivolatile Organic Compounds TCLP by GC/MS	09/19/22 12:14	09/20/22 11:41	09/21/22 19:36		S2I0314
				Volatile Organic Compounds TCLP by GC/MS	09/19/22 13:53	09/20/22 13:30	09/20/22 18:54		S2I0328
				Paint Filter Test		09/21/22 12:30	09/21/22 12:40		S2I0306
				Mercury, TCLP CVAA	09/19/22 12:14	09/24/22 08:14	09/24/22 12:38		B2I0692
									B2I0817

### Quality Control

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Report Date:** 09/26/2022  
**Matrix:** Solid

### Wet Chemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
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#### Batch: B2I0692

**Duplicate (B2I0692-DUP1)**

**Source: 22I0531-12**

*Prepared: 09/21/2022 12:30 Analyzed: 09/21/2022 12:40*

Free Liquid	Pass	Pass/Fail	ND	200	1
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### Quality Control

(Continued)

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Report Date:** 09/26/2022**Matrix:** Water

### Metals by ICP-AES

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
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**Batch: B2I0622 - SW3015**
**Blank (B2I0622-BLK1)**

Prepared: 09/20/2022 10:53 Analyzed: 09/20/2022 16:07

Arsenic	< 0.0500	0.0500	mg/L							U	1
Barium	< 0.0500	0.0500	mg/L							U	1
Cadmium	0.00625	0.00500	mg/L								1
Chromium	< 0.0500	0.0500	mg/L							U	1
Lead	< 0.0500	0.0500	mg/L							U	1
Selenium	< 0.0500	0.0500	mg/L							U	1
Silver	0.00612	0.00500	mg/L								1

**TCLP Blank (B2I0622-BLK2)**

Prepared: 09/20/2022 10:53 Analyzed: 09/20/2022 16:15

Arsenic	< 0.0150	0.0500	mg/L							U	1
Barium	< 0.00700	0.0500	mg/L							U	1
Cadmium	< 0.00200	0.00500	mg/L							U	1
Chromium	< 0.00600	0.0500	mg/L							U	1
Lead	0.0116	0.0500	mg/L							J	1
Selenium	< 0.0130	0.0500	mg/L							U	1
Silver	0.00712	0.00500	mg/L								1

**TCLP Blank (B2I0622-BLK3)**

Prepared: 09/20/2022 10:53 Analyzed: 09/21/2022 13:52

Lead	< 0.0100	0.0500	mg/L							U	1
Silver	< 0.00200	0.00500	mg/L							U	1

**TCLP Blank (B2I0622-BLK4)**

Prepared: 09/20/2022 10:53 Analyzed: 09/21/2022 14:01

Lead	< 0.0100	0.0500	mg/L							U	1
Silver	0.00325	0.00500	mg/L							J	1

**LCS (B2I0622-BS1)**

Prepared: 09/20/2022 10:53 Analyzed: 09/20/2022 16:11

Arsenic	1.15	0.0500	mg/L	1.250		92.2	83.4-106				1
Barium	1.23	0.0500	mg/L	1.250		98.5	83-115				1
Cadmium	0.127	0.00500	mg/L	0.1250		101	89-116				1
Chromium	1.23	0.0500	mg/L	1.250		98.6	85.1-115				1
Lead	0.627	0.0500	mg/L	0.6250		100	88.8-111				1
Selenium	1.24	0.0500	mg/L	1.250		99.4	84.4-115				1
Silver	0.132	0.00500	mg/L	0.1250		105	80-120			B	1

**LCS (B2I0622-BS2)**

Prepared: 09/20/2022 10:53 Analyzed: 09/21/2022 13:57

Lead	0.632	0.0500	mg/L	0.6250		101	88.8-111				1
Silver	0.131	0.00500	mg/L	0.1250		105	80-120			B	1

**Quality Control**

(Continued)

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Report Date:** 09/26/2022**Matrix:** Water**Metals by ICP-AES**

(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
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**Batch: B2I0622 - SW3015 (Continued)****Serial Dilution (B2I0622-DUP1)****Source: 22I0579-04***Prepared: 09/20/2022 10:53 Analyzed: 09/20/2022 17:17*

Arsenic	< 0.250	0.250	mg/L		ND				10	U	5
Barium	0.403	0.250	mg/L		0.390			3.21	10		5
Cadmium	< 0.0250	0.0250	mg/L		ND				10	U	5
Chromium	< 0.250	0.250	mg/L		ND				10	U	5
Lead	< 0.250	0.250	mg/L		ND				10	U	5
Selenium	< 0.250	0.250	mg/L		ND				10	U	5
Silver	0.0106	0.0250	mg/L		ND				10	P, J, B	5

**Matrix Spike (B2I0622-MS1)****Source: 22I0579-04***Prepared: 09/20/2022 10:53 Analyzed: 09/20/2022 17:04*

Arsenic	1.12	0.0500	mg/L	1.250	ND	89.2	75-125				1
Barium	1.60	0.0500	mg/L	1.250	0.390	96.9	75-125				1
Cadmium	0.114	0.00500	mg/L	0.1250	ND	91.5	75-125				1
Chromium	1.17	0.0500	mg/L	1.250	ND	93.3	75-125				1
Lead	0.630	0.0500	mg/L	0.6250	ND	101	75-125				1
Selenium	1.36	0.0500	mg/L	1.250	ND	109	75-125				1
Silver	0.126	0.00500	mg/L	0.1250	0.00300	98.0	75-125			B	1

**Matrix Spike Dup (B2I0622-MSD1)****Source: 22I0579-04***Prepared: 09/20/2022 10:53 Analyzed: 09/20/2022 17:08*

Arsenic	1.13	0.0500	mg/L	1.250	ND	90.4	75-125	1.34	20		1
Barium	1.62	0.0500	mg/L	1.250	0.390	98.4	75-125	1.16	20		1
Cadmium	0.115	0.00500	mg/L	0.1250	ND	91.8	75-125	0.327	20		1
Chromium	1.18	0.0500	mg/L	1.250	ND	94.6	75-125	1.35	20		1
Lead	0.638	0.0500	mg/L	0.6250	ND	102	75-125	1.30	20		1
Selenium	1.37	0.0500	mg/L	1.250	ND	110	75-125	0.640	20		1
Silver	0.124	0.00500	mg/L	0.1250	0.00300	97.1	75-125	0.900	20	B	1

**Post Spike (B2I0622-PS1)****Source: 22I0579-04***Prepared: 09/20/2022 10:53 Analyzed: 09/20/2022 17:13*

Arsenic	0.676	0.0556	mg/L	0.6944	ND	97.3	80-120				1
Barium	1.11	0.0556	mg/L	0.6944	0.390	103	80-120				1
Cadmium	0.657	0.00556	mg/L	0.6944	ND	94.5	80-120				1
Chromium	0.663	0.0556	mg/L	0.6944	ND	95.4	80-120				1
Lead	0.742	0.0556	mg/L	0.6944	ND	107	80-120				1
Selenium	0.768	0.0556	mg/L	0.6944	ND	111	80-120				1
Silver	0.705	0.00556	mg/L	0.6944	0.00300	101	80-120			B	1

### Quality Control

(Continued)

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Report Date:** 09/26/2022**Matrix:** Water

### Volatile Organic Compounds by GC/MS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
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**Batch: B2I0655 - SW5030**
**Blank (B2I0655-BLK1)**

Prepared: 09/20/2022 10:30 Analyzed: 09/20/2022 15:34

1,1-Dichloroethene	< 0.00200	0.00200	mg/L							U	1
1,2-Dichloroethane	< 0.00200	0.00200	mg/L							U	1
1,4-Dichlorobenzene	< 0.0100	0.0100	mg/L							U	1
2-Butanone	< 0.0280	0.0280	mg/L							U	1
Benzene	< 0.00200	0.00200	mg/L							U	1
Carbon tetrachloride	< 0.0200	0.0200	mg/L							U	1
Chlorobenzene	< 0.00400	0.00400	mg/L							U	1
Chloroform	< 0.00400	0.00400	mg/L							U	1
Tetrachloroethene	< 0.00400	0.00400	mg/L							U	1
Trichloroethene	< 0.00200	0.00200	mg/L							U	1
Vinyl chloride	< 0.00400	0.00400	mg/L							U	1
Surrogate: Dibromofluoromethane	20.3		ug/L	20.00		101	78-119				1
Surrogate: 1,2-Dichloroethane-d4	19.3		ug/L	20.00		96	71-136				1
Surrogate: Fluorobenzene	19.5		ug/L	20.00		97	81-114				1
Surrogate: Toluene-d8	18.7		ug/L	20.00		93	85-116				1
Surrogate: 4-Bromofluorobenzene	10.6		ug/L	10.00		106	79-119				1
Surrogate: 1,2-Dichlorobenzene-d4	21.1		ug/L	20.00		105	80-120				1

**LCS (B2I0655-BS1)**

Prepared: 09/20/2022 10:30 Analyzed: 09/20/2022 11:20

1,1-Dichloroethene	0.0509	0.00200	mg/L	0.04000		127	71-131				1
1,2-Dichloroethane	0.0420	0.00200	mg/L	0.04000		105	73-128				1
1,4-Dichlorobenzene	0.0428	0.0100	mg/L	0.04000		107	84-129				1
2-Butanone	0.153	0.0280	mg/L	0.1400		109	71-119				1
Benzene	0.0446	0.00200	mg/L	0.04000		111	79-120				1
Carbon tetrachloride	0.0468	0.0200	mg/L	0.04000		117	75-125				1
Chlorobenzene	0.0445	0.00400	mg/L	0.04000		111	82-118				1
Chloroform	0.0430	0.00400	mg/L	0.04000		108	79-124				1
Tetrachloroethene	0.0398	0.00400	mg/L	0.04000		100	74-129				1
Trichloroethene	0.0451	0.00200	mg/L	0.04000		113	84-129				1
Vinyl chloride	0.0448	0.00400	mg/L	0.04000		112	58-137				1
Surrogate: Dibromofluoromethane	19.2		ug/L	20.00		96	78-119				1
Surrogate: 1,2-Dichloroethane-d4	17.9		ug/L	20.00		90	71-136				1
Surrogate: Fluorobenzene	19.6		ug/L	20.00		98	81-114				1
Surrogate: Toluene-d8	20.6		ug/L	20.00		103	85-116				1
Surrogate: 4-Bromofluorobenzene	10.2		ug/L	10.00		102	79-119				1
Surrogate: 1,2-Dichlorobenzene-d4	19.3		ug/L	20.00		96	80-120				1

**Matrix Spike (B2I0655-MS1)**

Source: 22I0506-01

Prepared: 09/20/2022 10:30 Analyzed: 09/20/2022 19:43

1,1-Dichloroethene	2.30	0.100	mg/L	2.000	ND	115	70-130				1
1,2-Dichloroethane	2.16	0.100	mg/L	2.000	ND	108	70-130				1
1,4-Dichlorobenzene	1.85	0.500	mg/L	2.000	ND	93	70-130				1
2-Butanone	8.66	1.40	mg/L	7.000	2.58	87	70-130				1

**Quality Control**

(Continued)

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 2210623

**Report Date:** 09/26/2022**Matrix:** Water**Volatile Organic Compounds by GC/MS**

(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
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**Batch: B210655 - SW5030 (Continued)****Matrix Spike (B210655-MS1) (Continued)****Source: 2210506-01***Prepared: 09/20/2022 10:30 Analyzed: 09/20/2022 19:43*

Benzene	2.06	0.100	mg/L	2.000	ND	103	70-130				1
Carbon tetrachloride	2.11	1.00	mg/L	2.000	ND	106	70-130				1
Chlorobenzene	1.98	0.200	mg/L	2.000	ND	99	70-130				1
Chloroform	2.12	0.200	mg/L	2.000	ND	106	70-130				1
Tetrachloroethene	1.64	0.200	mg/L	2.000	ND	82	70-130				1
Trichloroethene	1.97	0.100	mg/L	2.000	ND	99	70-130				1
Vinyl chloride	2.31	0.200	mg/L	2.000	ND	116	70-130				1
Surrogate: Dibromofluoromethane	19.4		ug/L	20.00		97	78-119				1
Surrogate: 1,2-Dichloroethane-d4	19.2		ug/L	20.00		96	71-136				1
Surrogate: Fluorobenzene	19.6		ug/L	20.00		98	81-114				1
Surrogate: Toluene-d8	20.5		ug/L	20.00		103	85-116				1
Surrogate: 4-Bromofluorobenzene	10.0		ug/L	10.00		100	79-119				1
Surrogate: 1,2-Dichlorobenzene-d4	19.0		ug/L	20.00		95	80-120				1

**Matrix Spike Dup (B210655-MSD1)****Source: 2210506-01***Prepared: 09/20/2022 10:30 Analyzed: 09/20/2022 20:08*

1,1-Dichloroethene	2.20	0.100	mg/L	2.000	ND	110	70-130	5	20		1
1,2-Dichloroethane	1.88	0.100	mg/L	2.000	ND	94	70-130	14	20		1
1,4-Dichlorobenzene	1.95	0.500	mg/L	2.000	ND	98	70-130	5	20		1
2-Butanone	8.73	1.40	mg/L	7.000	2.58	88	70-130	0.9	20		1
Benzene	2.09	0.100	mg/L	2.000	ND	105	70-130	1	20		1
Carbon tetrachloride	2.06	1.00	mg/L	2.000	ND	103	70-130	3	20		1
Chlorobenzene	1.95	0.200	mg/L	2.000	ND	97	70-130	2	20		1
Chloroform	2.02	0.200	mg/L	2.000	ND	101	70-130	5	20		1
Tetrachloroethene	1.62	0.200	mg/L	2.000	ND	81	70-130	1	20		1
Trichloroethene	2.04	0.100	mg/L	2.000	ND	102	70-130	3	20		1
Vinyl chloride	2.19	0.200	mg/L	2.000	ND	109	70-130	6	20		1
Surrogate: Dibromofluoromethane	19.0		ug/L	20.00		95	78-119				1
Surrogate: 1,2-Dichloroethane-d4	17.9		ug/L	20.00		90	71-136				1
Surrogate: Fluorobenzene	19.8		ug/L	20.00		99	81-114				1
Surrogate: Toluene-d8	20.3		ug/L	20.00		101	85-116				1
Surrogate: 4-Bromofluorobenzene	10.1		ug/L	10.00		101	79-119				1
Surrogate: 1,2-Dichlorobenzene-d4	20.8		ug/L	20.00		104	80-120				1

### Quality Control

(Continued)

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 2210623

**Report Date:** 09/26/2022**Matrix:** Water

### Semivolatile Organic Compounds by GC/MS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
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#### Batch: B210631 - SW3510

##### Blank (B210631-BLK1)

Prepared: 09/20/2022 11:41 Analyzed: 09/21/2022 17:52

Cresols, Total	< 0.0040	0.0040	mg/L							U	1
1,4-Dichlorobenzene	< 0.0020	0.0020	mg/L							U	1
2,4,5-Trichlorophenol	< 0.0010	0.0010	mg/L							U	1
2,4,6-Trichlorophenol	< 0.0010	0.0010	mg/L							U	1
2,4-Dinitrotoluene	< 0.0020	0.0020	mg/L							U	1
2-Methylphenol	< 0.0010	0.0010	mg/L							U	1
3 & 4-Methylphenol	< 0.0010	0.0010	mg/L							U	1
Hexachlorobenzene	< 0.0010	0.0010	mg/L							U	1
Hexachlorobutadiene	< 0.0010	0.0010	mg/L							U	1
Hexachloroethane	< 0.0010	0.0010	mg/L							U	1
Nitrobenzene	< 0.0006	0.0006	mg/L							U	1
Pentachlorophenol	< 0.0300	0.0300	mg/L							U	1
Pyridine	< 0.0100	0.0100	mg/L							U	1
Surrogate: 2-Fluorophenol	0.0260		mg/L	0.06667		39	10-85				1
Surrogate: Phenol-d5	0.0201		mg/L	0.06667		30	10-62				1
Surrogate: Nitrobenzene-d5	0.0332		mg/L	0.06667		50	25-126				1
Surrogate: 2-Fluorobiphenyl	0.0331		mg/L	0.06667		50	21-113				1
Surrogate: 2,4,6-Tribromophenol	0.0401		mg/L	0.06667		60	19-131				1
Surrogate: 4-Terphenyl-d14	0.0532		mg/L	0.06667		80	32-133				1

##### LCS (B210631-BS1)

Prepared: 09/20/2022 11:41 Analyzed: 09/21/2022 18:18

Cresols, Total	0.0664	0.0040	mg/L	0.1000		66	32-104				1
1,4-Dichlorobenzene	0.0249	0.0020	mg/L	0.05000		50	31-97				1
2,4,5-Trichlorophenol	0.0340	0.0010	mg/L	0.05000		68	38-126				1
2,4,6-Trichlorophenol	0.0346	0.0010	mg/L	0.05000		69	38-124				1
2,4-Dinitrotoluene	0.0357	0.0020	mg/L	0.05000		71	39-124				1
2-Methylphenol	0.0328	0.0010	mg/L	0.05000		66	34-105				1
3 & 4-Methylphenol	0.0335	0.0010	mg/L	0.05000		67	34-102				1
Hexachlorobenzene	0.0346	0.0010	mg/L	0.05000		69	44-112				1
Hexachlorobutadiene	0.0254	0.0010	mg/L	0.05000		51	32-100				1
Hexachloroethane	0.0225	0.0010	mg/L	0.05000		45	29-98				1
Nitrobenzene	0.0319	0.0006	mg/L	0.05000		64	42-111				1
Pentachlorophenol	0.0372	0.0300	mg/L	0.05000		74	29-120				1
Pyridine	0.0264	0.0100	mg/L	0.05000		53	24-89				1
Surrogate: 2-Fluorophenol	0.0337		mg/L	0.06667		51	10-85				1
Surrogate: Phenol-d5	0.0274		mg/L	0.06667		41	10-62				1
Surrogate: Nitrobenzene-d5	0.0417		mg/L	0.06667		62	25-126				1
Surrogate: 2-Fluorobiphenyl	0.0463		mg/L	0.06667		69	21-113				1
Surrogate: 2,4,6-Tribromophenol	0.0495		mg/L	0.06667		74	19-131				1
Surrogate: 4-Terphenyl-d14	0.0550		mg/L	0.06667		83	32-133				1

### Quality Control

(Continued)

**Client:** Tetra Tech  
**Project:** EPA Region 8 START  
103X903520F0071220706  
**SDG:** 22I0623

**Report Date:** 09/26/2022**Matrix:** Water

### Semivolatile Organic Compounds by GC/MS

(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
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**Batch: B2I0631 - SW3510 (Continued)**
**Matrix Spike (B2I0631-MS1)**

Source: 22I0623-01

Prepared: 09/20/2022 11:41 Analyzed: 09/21/2022 18:44

Cresols, Total	1.00	0.147	mg/L	0.9183	0.190	88	28-105				4
1,4-Dichlorobenzene	0.282	0.0735	mg/L	0.4591	ND	61	31-88				4
2,4,5-Trichlorophenol	0.426	0.0367	mg/L	0.4591	ND	93	54-120				4
2,4,6-Trichlorophenol	0.419	0.0367	mg/L	0.4591	ND	91	51-117				4
2,4-Dinitrotoluene	0.400	0.0735	mg/L	0.4591	ND	87	49-124				4
2-Methylphenol	0.455	0.0367	mg/L	0.4591	0.0358	91	32-107				4
3 & 4-Methylphenol	0.546	0.0367	mg/L	0.4591	0.155	85	20-115				4
Hexachlorobenzene	0.444	0.0367	mg/L	0.4591	ND	97	51-110				4
Hexachlorobutadiene	0.297	0.0367	mg/L	0.4591	ND	65	29-94				4
Hexachloroethane	0.274	0.0367	mg/L	0.4591	ND	60	25-89				4
Nitrobenzene	0.394	0.0220	mg/L	0.4591	ND	86	39-113				4
Pentachlorophenol	0.447	1.10	mg/L	0.4591	ND	97	12-122			J	4
Pyridine	0.314	0.367	mg/L	0.4591	ND	68	14-91			J	4
Surrogate: 2-Fluorophenol	0.450		mg/L	0.6122		73	10-85				4
Surrogate: Phenol-d5	0.363		mg/L	0.6122		59	10-62				4
Surrogate: Nitrobenzene-d5	0.511		mg/L	0.6122		84	25-126				4
Surrogate: 2-Fluorobiphenyl	0.551		mg/L	0.6122		90	21-113				4
Surrogate: 2,4,6-Tribromophenol	0.552		mg/L	0.6122		90	19-131				4
Surrogate: 4-Terphenyl-d14	0.660		mg/L	0.6122		108	32-133				4

**Matrix Spike Dup (B2I0631-MSD1)**

Source: 22I0623-01

Prepared: 09/20/2022 11:41 Analyzed: 09/21/2022 19:10

Cresols, Total	1.11	0.153	mg/L	0.9569	0.190	96	28-105	10	30		4
1,4-Dichlorobenzene	0.232	0.0766	mg/L	0.4785	ND	49	31-88	19	32		4
2,4,5-Trichlorophenol	0.447	0.0383	mg/L	0.4785	ND	94	54-120	5	22		4
2,4,6-Trichlorophenol	0.453	0.0383	mg/L	0.4785	ND	95	51-117	8	33		4
2,4-Dinitrotoluene	0.413	0.0766	mg/L	0.4785	ND	86	49-124	3	23		4
2-Methylphenol	0.483	0.0383	mg/L	0.4785	0.0358	93	32-107	6	32		4
3 & 4-Methylphenol	0.625	0.0383	mg/L	0.4785	0.155	98	20-115	14	32		4
Hexachlorobenzene	0.421	0.0383	mg/L	0.4785	ND	88	51-110	5	20		4
Hexachlorobutadiene	0.259	0.0383	mg/L	0.4785	ND	54	29-94	14	28		4
Hexachloroethane	0.223	0.0383	mg/L	0.4785	ND	47	25-89	21	32		4
Nitrobenzene	0.370	0.0230	mg/L	0.4785	ND	77	39-113	6	30		4
Pentachlorophenol	0.421	1.15	mg/L	0.4785	ND	88	12-122	6	46	J	4
Pyridine	0.318	0.383	mg/L	0.4785	ND	67	14-91	1	30	J	4
Surrogate: 2-Fluorophenol	0.444		mg/L	0.6380		70	10-85				4
Surrogate: Phenol-d5	0.399		mg/L	0.6380		63	10-62			S	4
Surrogate: Nitrobenzene-d5	0.518		mg/L	0.6380		81	25-126				4
Surrogate: 2-Fluorobiphenyl	0.522		mg/L	0.6380		82	21-113				4
Surrogate: 2,4,6-Tribromophenol	0.583		mg/L	0.6380		91	19-131				4
Surrogate: 4-Terphenyl-d14	0.704		mg/L	0.6380		110	32-133				4

**Certified Analyses included in this Report**

Analyte	CAS #	Certifications
<b>SW1311 / SW8260B in Water</b>		
1,1-Dichloroethene, TCLP	75-35-4	AKDEC,WDNR,DoD,ILEPA
1,2-Dichloroethane, TCLP	107-06-2	AKDEC,WDNR,DoD,ILEPA
1,4-Dichlorobenzene, TCLP	106-46-7	WDNR,DoD,ILEPA
2-Butanone, TCLP	78-93-3	WDNR,DoD,ILEPA
Benzene, TCLP	71-43-2	AKDEC,WDNR,DoD,ILEPA
Carbon tetrachloride, TCLP	56-23-5	AKDEC,WDNR,DoD,ILEPA
Chlorobenzene, TCLP	108-90-7	AKDEC,WDNR,DoD,ILEPA
Chloroform, TCLP	67-66-3	AKDEC,WDNR,DoD,ILEPA
Tetrachloroethene, TCLP	127-18-4	AKDEC,WDNR,DoD,ILEPA
Trichloroethene, TCLP	79-01-6	AKDEC,WDNR,DoD,ILEPA
Vinyl chloride, TCLP	75-01-4	AKDEC,WDNR,DoD,ILEPA
<b>SW1311 / SW8270D in Water</b>		
Cresols, Total, TCLP	1319-77-3	DoD,WDNR
1,4-Dichlorobenzene, TCLP	106-46-7	DoD,WDNR,ILEPA
2,4,5-Trichlorophenol, TCLP	95-95-4	DoD,WDNR,ILEPA
2,4,6-Trichlorophenol, TCLP	88-06-2	DoD,WDNR,ILEPA
2,4-Dinitrotoluene, TCLP	121-14-2	DoD,WDNR,ILEPA
2-Methylphenol, TCLP	95-48-7	DoD,WDNR,ILEPA
3 & 4-Methylphenol, TCLP	84989-04-8	DoD,WDNR,ILEPA
Hexachlorobenzene, TCLP	118-74-1	DoD,WDNR,ILEPA
Hexachlorobutadiene, TCLP	87-68-3	DoD,WDNR,ILEPA
Hexachloroethane, TCLP	67-72-1	DoD,WDNR,ILEPA
Nitrobenzene, TCLP	98-95-3	DoD,WDNR,ILEPA
Pentachlorophenol, TCLP	87-86-5	DoD,WDNR,ILEPA
Pyridine, TCLP	110-86-1	DoD,WDNR,ILEPA
<b>SW6010 D in Water</b>		
Arsenic, TCLP	7440-38-2	AKDEC,ISO,WDNR,DoD,ILEPA
Barium, TCLP	7440-39-3	AKDEC,ISO,WDNR,DoD,ILEPA
Cadmium, TCLP	7440-43-9	AKDEC,ISO,WDNR,DoD,ILEPA
Chromium, TCLP	7440-47-3	AKDEC,ISO,WDNR,DoD,ILEPA
Lead, TCLP	7439-92-1	AKDEC,ISO,WDNR,DoD,ILEPA
Selenium, TCLP	7782-49-2	ISO,WDNR,DoD,ILEPA
Silver, TCLP	7440-22-4	ISO,WDNR,DoD,ILEPA
<b>SW7470A in Water</b>		
Mercury, TCLP	7439-97-6	DoD,ILEPA,WDNR
<b>SW9095 in Solid</b>		
Free Liquid		ILEPA

## List of Certifications

Code	Description	Number	Expires
AKDEC	State of Alaska, Dept. Environmental Conservation	17-011	04/30/2024
CPSC	US Consumer Product Safety Commission, Accredited by PJLA Lab No. 1050	L18-184-R1	03/31/2024
DoD	Department of Defense, Accredited by PJLA	L20-164-R2	03/31/2024
ILEPA	State of Illinois, NELAP Accredited Lab No. 100256	1002562021-6	07/27/2023
ISO	ISO/IEC 17025:2017, Accredited by PJLA	L20-165	03/31/2024
NEFAP	TNI National Environmental Field Activities Program	L20-166	03/31/2024
TX	Texas Commission of Environmental Quality	T104704554-20-5	10/31/2022
WA	Washington State Department of Ecology	C1057	01/06/2023
WDNR	State of Wisconsin Dept of Natural Resources	999888890	08/31/2022



### Qualifiers and Definitions

Item	Description
B	Analyte was present in the method blank.
J	The reported result is an estimated value.
P	The quality control sample %RPD is above the laboratory control limit.
S	The quality control sample recovery is outside of the laboratory control limits.
U	Analyte included in the analysis, but not detected
%Rec	Percent Recovery



**Sample Receipt Checklist**

Printed: 9/19/2022 11:03:54AM

Work Order: 22I0623

Client: Tetra Tech

Project: EPA Region 8 START

Date Due: Monday, October 10, 2022

Received By: Agnieszka B. Zabawa

Logged In By: Agnieszka B. Zabawa

Date Received: 09/19/22 09:00

Date Logged In: 09/19/22 10:30

How were samples received? FedEx

Cooler temperature at or below 6 degrees Celsius Yes

Chain of Custody present and properly completed Yes

Turn Around Time is indicated and specified Yes

Chain of Custody agrees with sample labels Yes

Samples received within hold time Yes

Proper sample containers received intact Yes

Containers properly preserved Yes

Sufficient Sample Volume Yes

Custody seals present Yes Intact? Y / N

Volatile water vials received No

Sample Receipt Comments**Work Order: 22I0623**

The samples were received on 09/19/22 09:00. The temperature of the cooler(s) at receipt was:

Cooler Temp C°  
Default Cooler 5.7

The samples were received in good condition and were properly preserved.

Samples going out of hold time within 24 hours:

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Reviewed By:

ABZ

Date:

09/19/2022



