



February 17, 2021

Mr. Valeriy Bizyayev
On-Scene Coordinator
U.S. Environmental Protection Agency (EPA), Region 8
1595 Wynkoop Street, SEM-EM-RS
Denver, CO 80202

**Subject: Emergency Response Trip Report
 Libby Creek Seep
 Libby, Lincoln County, Montana
 EPA Contract No. 68HE0820D001
 TD No. 63-2101-13**

Dear Mr. Bizyayev:

The Tetra Tech Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) is submitting this Emergency Response Trip report generated for the Libby Creek Seep located in Libby, Lincoln County, Montana. This report summarizes field activities conducted at the site during the emergency response. The overall scope of this TDD, monitored by On-Scene Coordinator (OSC) Valeriy Bizyayev, was to provide sampling assistance, analytical services, and documenting on-site conditions with photographs. Specific elements of this TDD included conducting surface water and sediment sampling, generating site figures (Enclosure 1), generating summary of analyte detections (Enclosure 2), and presenting the findings of the validated laboratory data package (Enclosure 3), and maintaining files on the site-specific website.

SITE BACKGROUND

A complaint spill report was filed with Montana's Department of Environmental Quality on January 15, 2021. The complainant submitted photographs and described observing a substance coming out of the ground that had a strong chemical odor and produced a sheen and appeared to be running into Libby Creek. The seep location is near a historical landfill and a superfund site that operated between 1946 and 1969 as a lumber and plywood mill. START was tasked with collecting samples of the substance and provided the findings to determine any hazards it may pose to the human health and the environment.

PHYSICAL LOCATION

The area inspected is in Libby, Montana along the banks of Libby Creek which is a tributary of the Kootenai River. The initial seep complaint was located on the east side bank of Libby Creek at 48.3826125 degrees north latitude and 115.5348681 degrees west longitude (LCS01). Upon further investigation a second similar seep was observed approximately 150 yards downstream on the west side of Libby Creek at 48.3797340 degrees north latitude and 115.5336515 degrees west longitude (LCS02). The seeps seem to originate from the banks and the cause of the seep is unknown at this time. A historical landfill is identified on the east side of Libby Creek and a former lumber mill on the west side of Libby Creek.

EMERGENCY RESPONSE ACTIVITIES

At the request of EPA, Tetra Tech START procured a laboratory and traveled to the site on January 29, 2021, to collect surface water and sediment samples and document site conditions. START member met with EPA Remedial Project Manager (RPM) who directed START to the seep locations. At 1200 the team collected the first water and sediment grab sample (LCS01-SW-01, LCS01-SD-01) at the location identified in the complaint. At 1230, the RPM contacted OSC Bizyayev to report another seep on the west side of Libby Creek downstream approximately 150 yards downstream. The OSC decided to have START collect samples at the second location. The sampling team hiked to the second seep located on the west side of Libby Creek and around 1330 collected a surface water and sediment grab sample (LCS02-SW-01, LCS02-SD-01). Once arriving back to the vehicles, a surface water DRO container was discovered broken, possibly due to the steep bank incline traversed to get to creek access points. An additional sample container was collected before leaving the site and returning to the START office in Helena, Montana.

SAMPLE EXCEPTIONS

All samples were placed on ice after collection and delivery to the lab at around 0900 on Saturday, January 30, 2021. START requested analysis of volatile organic compounds (VOC), gasoline range organics, diesel range organics, semivolatile organic compounds (SVOC), pesticides, ammonia, nitrate, target analyte list metals, and pH.

The sediment samples were not analyzed for VOCs after sample preservation concerns resulting from frozen containers with high moisture content breaking in the laboratory freezer were discussed with OSC Bizyayev. This issue is discussed in the case narrative of the laboratory report.

Due to high moisture in the sediment samples, the lab was requested to dry a portion of the samples and report the true dry weight concentration of arsenic. The arsenic values for the dried aliquots were higher than the wet ones, likely due to variability in moisture across the sample, so the higher, dried values were reported in the summary tables.

ANALYTICAL RESULTS

A summary of detections is presented in enclosure 2. Analytes were screened against EPA removal management levels (RMLs, November 2020), regional screening levels (RSLs, November 2020), and Montana risk-based screening levels (RBSLs, May 2018).

Analytes Detected Above Screening Levels	
Surface Water	Sediment
Arsenic	Arsenic
Bis(2-ethylhexyl)phthalate	Iron

Discrete grab samples were collected in the areas most visibly similar to the impacted area shown in photographs submitted by the complainant on January 15, 2021. They are not representation of the entire seep.

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With the exception of two samples for total purgeable hydrocarbons that were non-detect for gasoline range organics (GRO), whose surrogate spikes had low recoveries due to interference in the sample matrix, all surrogates and spikes in the data set pass QC advisory limits and the data can be considered of overall high quality.

Please contact me at if you have any questions regarding this trip report.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ella Lunny', with a long, sweeping horizontal line extending to the right.

Ella Lunny
START V Project Manager

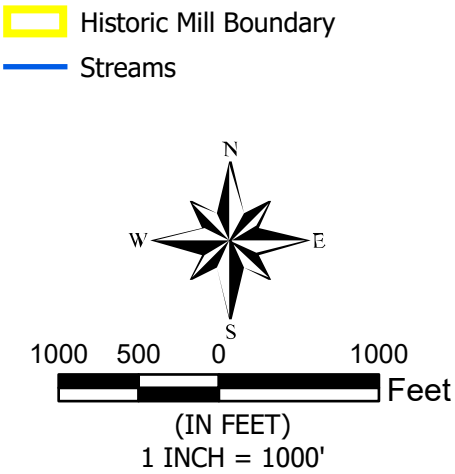
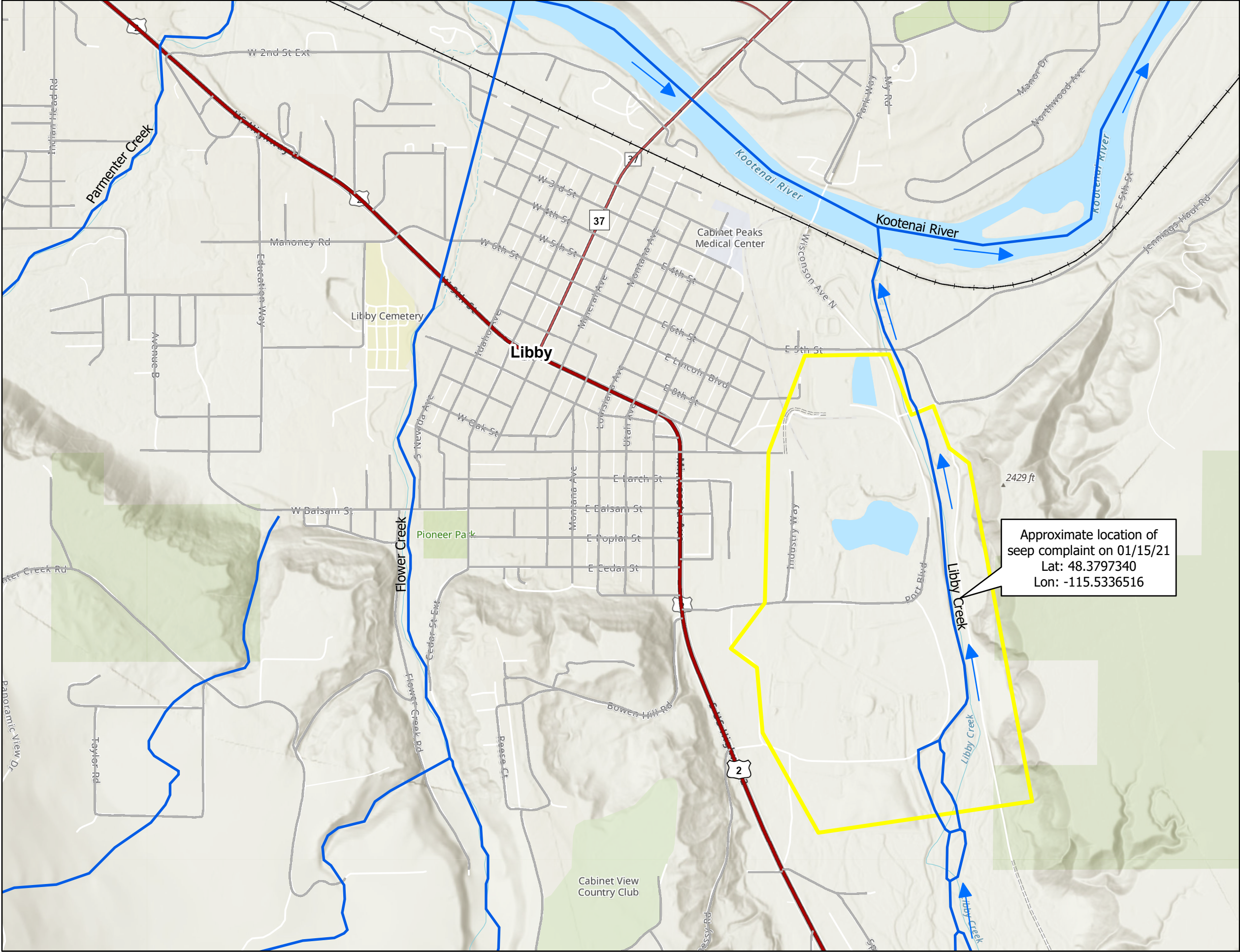
Enclosures (3)

cc: Kevin Scott, START V Program Manager
Clayton Longest, START V Document Control Coordinator

ENCLOSURE 1

SITE LOCATION AND SAMPLE LOCATION FIGURE

(Two Pages)



Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary
Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere



United States
Environmental Protection Agency
Region 8





FIGURE 1
Site Location
Libby Creek Seep
TD No. 63-2101-13

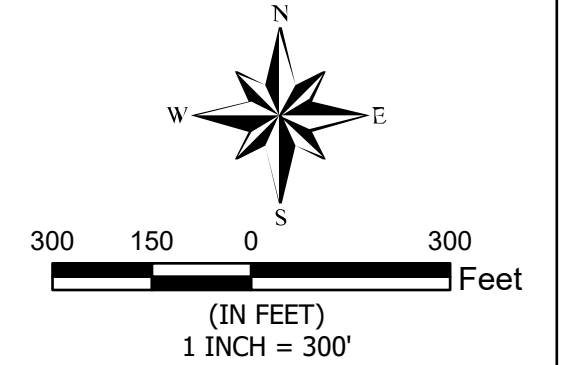
City:	County:	State:
Lincoln	Libby	Montana



Analyst: E.J.L.
Date: 2/11/2021



-  Surface Water & Sediment Sample
-  Libby Creek
-  Historic Mill Boundary
-  Historic Landfill Boundary



Spatial Reference
Name: NAD 1983 CORS96 StatePlane Montana
FIPS 2500 Ft Intl
Datum: NAD 1983 CORS96
Projection: Lambert Conformal Conic



United States
Environmental Protection Agency
Region 8

FIGURE 2
Sample Locations
Libby Creek Seep
TD No. 63-2101-13

City:	County:	State:
Lincoln	Libby	Montana



Analyst: EJJ
Date: 2/11/2021

Montana State Library, USDA FSA, GeoEye, Maxar

ENCLOSURE 2

ANALYTICAL SUMMARY OF DETECTIONS

(Four Pages)

Table 1: Libby Creek Seep VOC/SVOC Detections

	Sediment					Surface Water					
Analyte	RSL RESIDENTAL SOIL (mg/kg)	RML RESIDENTAL SOIL (mg/kg)	LCS01- SD-01	LCS02- SD-01	Units	RSL TAP WATER (ug/L)	RML TAP WATER (ug/L)	RBSL TAP WATER (ug/L)	LCS01- SW-01	LCS02- SW-01	Units
VOC											
Surr: 1,2-Dichloroethane-d4	-	-	N/A	N/A	%REC	-	-	-	102	101	%REC
Surr: Dibromofluoromethane	-	-	N/A	N/A	%REC	-	-	-	102	101	%REC
Surr: p-Bromofluorobenzene	-	-	N/A	N/A	%REC	4.6	14	-	106	107	%REC
Surr: Toluene-d8	-	-	N/A	N/A	%REC	-	-	-	99	102	%REC
SVOC											
Acenaphthene	-	-	8.3 U	0.91 U	mg/kg	530	1600	70	9.4	ND	ug/L
bis(2-ethylhexyl)Phthalate	-	-	8.3 U	0.91 U	mg/kg	5.6	560	-	38	ND	ug/L
Surr: 2,4,6-Tribromophenol	570	1700	89	87	%REC	120	360	-	94	83	%REC
Surr: 2-Fluorobiphenyl	-	-	65	70	%REC	-	-	-	66	65	%REC
Surr: 2-Fluorophenol	-	-	65	69	%REC	-	-	-	60	54	%REC
Surr: Nitrobenzene-d5	-	-	60	70	%REC	-	-	-	85	88	%REC
Surr: Phenol-d5	-	-	68	74	%REC	-	-	-	51	46	%REC
Surr: Terphenyl-d14	-	-	96	100	%REC	-	-	-	101	82	%REC

NOTES: Table only shows analytes that were detected in either surface water or sediment at either sample location. Analytes that were not detected in the surface water or sediment at LCS01 or LCS02 are not shown. Samples were collected on 1/29/2021.

RSL, RML and RBSL screening levels are shown if screening levels were available

- No screening levels available

%REC Percent recovery

mg/kg Milligrams per kilogram

ug/L Microgram per Liter

N/A Not Analyzed

RSL Regional Screening Level

RML Regional Removal Management Levels

U Analyte is not present at or above the reporting limit

Bold Result above RSL

Table 2: Libby Creek Seep GRO/DRO Detections

	Sediment				Surface Water			
Analyte	MT RBSL RESIDENTIAL SOIL (mg/kg)	LCS01- SD-01	LCS02- SD-01	Units	MT RBSL GROUNDW ATER (mg/L)	LCS01- SW-01	LCS02- SW-01	Units
DRO								
Diesel Range Organics (DRO)	-	10 U	10 U	mg/kg	-	0.18	0.3 U	mg/L
Total Extractable Hydrocarbons	200	9.7	19	mg/kg	1	0.33	0.24	mg/L
Surr: o-Terphenyl	-	99	107	%REC	-	97	105	%REC
GRO								
Total Purgeable Hydrocarbons	-	50 U	5.4 U	mg/kg	-	49	20 U	ug/L
Surr: Trifluorotoluene	-	47*	59*	%REC	-	88	86	%REC

NOTES: Table only shows analytes that were detected in either surface water or sediment at either sample location. Analytes that were not detected in the surface water or sediment at LCS01 or LCS02 are not shown. Samples were collected on 1/29/2021.

RSL, RML and RBSL screening levels are shown if screening levels were available.

- No screening levels available

%REC Percent recovery

mg/kg Milligrams per kilogram

mg/L Milligrams per Liter

ug/L Microgram per Liter

DRO Diesel Range Organics

GRO Gasoline Range Organics

RSL Regional Screening Level

RBSL Montana Risk-Based Screening levels

U Analyte is not present at or above the reporting limit

* Recovery outside QC advisory limits due to sample matrix interference

Table 3: Libby Creek Seep Metals Detections

	Sediment					Surface Water (Dissolved)				
Analyte	RSL RESIDENTAL SOIL (mg/kg)	RML RESIDENTAL SOIL (mg/kg)	LCS01- SD-01	LCS02- SD-01	Units	RSL TAP WATER (mg/L)	RML TAP WATER (mg/L)	LCS01- SW-01	LCS02- SW-01	Units
Metals										
Aluminum	77,000	230,000	2,240	11,100	mg/kg	20	60	0.044	0.009 U	mg/L
Arsenic	0.68	68	546	57	mg/kg	0.000052	0.0052	0.001	0.001 U	mg/L
Barium	15,000	46,000	592	175	mg/kg	3.8	11	0.11	0.06	mg/L
Cadmium	71	210	1 U	1	mg/kg	-	-	0.00003 U	0.00003 U	mg/L
Calcium	-	-	9,940	2,790	mg/kg	-	-	30	17	mg/L
Chromium	-	-	3 U	12	mg/kg	-	-	0.005 U	0.005 U	mg/L
Cobalt	23	70	3	7	mg/kg	0.006	0.018	0.005 U	0.005 U	mg/L
Copper	3,100	9,400	ND	14	mg/kg	0.8	2.4	0.002 U	0.002 U	mg/L
Iron	55,000	160,000	339,000	47,400	mg/kg	14	42	0.79	0.02 U	mg/L
Lead	400	400	7	64	mg/kg	0.015	0.015	0.0003 U	0.0003 U	mg/L
Magnesium	-	-	1,990	5,090	mg/kg	-	-	11	5	mg/L
Manganese	-	-	788	1,100	mg/kg	-	-	0.857	0.559	mg/L
Nickel	1,500	4,600	2	12	mg/kg	0.39	1.2	0.0002	0.0002 U	mg/L
Potassium	-	-	1,310	2,150	mg/kg	-	-	17	1	mg/L
Sodium	-	-	539	62	mg/kg	-	-	15	2	mg/L
Vanadium	390	1200	4	16	mg/kg	0.086	0.026	0.01 U	0.01 U	mg/L
Zinc	23,000	70,000	31	125	mg/kg	6	18	0.008 U	0.008 U	mg/L

NOTES: Table only shows analytes that were detected in either surface water or sediment at either sample location. Analytes that were not detected in the surface water or sediment at LCS01 or LCS02 are not shown. Samples were collected on 1/29/2021.

RSL, RML and RBSL screening levels are shown if screening levels were available

- No concentration levels available

mg/kg Milligrams per kilogram

mg/L Milligrams per liter

RSL Regional Screening Level

RML Regional Removal Management Levels

U Analyte is not present at or above the reporting limit

Bold Result above RSL

Table 4: Libby Creek Seep pH, Pesticide, and Nutrient Detections

	Sediment					Water				
Analyte	RSL RESIDENTAL SOIL (mg/kg)	RML RESIDENTAL SOIL (mg/kg)	LCS01- SD-01	LCS02- SD-01	Units	RSL TAP WATER (mg/L)	RML TAP WATER (mg/L)	LCS01- SW-01	LCS02- SW-01	Units
pH										
pH	-	-	6.9	7.1	s.u.	-	-	6.6	6.5	s.u.
pH Measurement Temp	-	-	-	-	°C	-	-	16.2	16.6	°C
PESTICIDES										
Surr: Decachlorobiphenyl	-	-	74	65	%REC	-	-	50	54	%REC
Surr: Tetrachloro-m-xylene	-	-	58	81	%REC	-	-	56	67	%REC
NUTRIENTS										
Nitrate as N, KCL Extract	380,000	130,000	5.3	1 U	mg/kg	-	-	N/A	N/A	mg/L
Ammonia as N, KCL Extract	-	-	6 U	1.5	mg/kg	-	-	N/A	N/A	mg/L
Nitrogen, Ammonia as N			N/A	N/A	mg/kg			0.05 U	0.05 U	mg/L
Nitrogen, Nitrate+Nitrite as N	-	-	N/A	N/A	mg/kg	-	-	0.01 U	0.01 U	mg/L

NOTES: Table only shows analytes that were detected in either surface water or sediment at either sample location. Analytes that were not detected in the surface water or sediment at LCS01 or LCS02 are not shown. Samples were collected on 1/29/2021.

RSL, RML and RBSL screening levels are shown if screening levels were available

-	No screening levels available
°C	Celsius
%REC	Percent recovery
mg/L	Milligrams per liter
N/A	Not Analyzed
ND	Not Detected
RSL	Regional Screening Level
RML	Regional Removal Management Levels
s.u.	Standard Unit
U	Analyte is not present at or above the reporting limit

ENCLOSURE 3

ANALYTICAL DATA PACKAGE

(103 Pages)



ANALYTICAL SUMMARY REPORT

February 10, 2021

Tetra Tech EMI
825 W Custer Ave
Helena, MT 59602-0226

Work Order: H21020001 Quote ID: H2157

Project Name: Libby Creek Seep

Energy Laboratories Inc Helena MT received the following 4 samples for Tetra Tech EMI on 1/30/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H21020001-001	LCS01-SW-01	01/29/21 12:00	01/30/21	Aqueous	Metals by ICP/ICPMS, Dissolved Mercury, Dissolved Services Provided by Lab DRO-Sep Funnel Extraction SW3510C Diesel Range Organics Gasoline Range Organics Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration MCAWW Mercury Digestion by SW7470A Separatory Funnel Liquid Liquid Ext. SW3510C 8081-Organochlorine Pesticides Separatory Funnel SW3510C Liquid- Liquid Ext. Semi-Volatile Organic Compounds 8260-Volatile Organic Compounds- Extended List
H21020001-002	LCS01-SD-01	01/29/21 12:00	01/30/21	Soil	Metals by ICP/ICPMS, Total Mercury in Solid By CVAA DRO-Ultrasonic Extraction SW3550C Methanol Extraction for Volatiles SW5035 Diesel Range Organics Gasoline Range Organics Moisture Ammonia as N, KCL Extract Nitrate as N, KCL Extract pH of Soil and Waste Total Metals Digestion by SW3050B Mercury Digestion by SW7471B KCL Soil Extract ASA33-3 Sonication Extraction SW3550C 8081-Organochlorine Pesticides Soil Preparation USDA1 Soil Sonication SW3550C Extraction Semi-Volatile Organic Compounds



ANALYTICAL SUMMARY REPORT

H21020001-003	LCS02-SW-02	01/29/21 13:30	01/30/21	Aqueous	Metals by ICP/ICPMS, Dissolved Mercury, Dissolved Services Provided by Lab DRO-Sep Funnel Extraction SW3510C Diesel Range Organics Gasoline Range Organics Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration MCAWW Mercury Digestion by SW7470A Separatory Funnel Liquid Liquid Ext. SW3510C 8081-Organochlorine Pesticides Separatory Funnel SW3510C Liquid- Liquid Ext. Semi-Volatile Organic Compounds 8260-Volatile Organic Compounds- Extended List
H21020001-004	LCS02-SD-02	01/29/21 13:30	01/30/21	Soil	Metals by ICP/ICPMS, Total Mercury in Solid By CVAA DRO-Ultrasonic Extraction SW3550C Methanol Extraction for Volatiles SW5035 Diesel Range Organics Gasoline Range Organics Moisture Ammonia as N, KCL Extract Nitrate as N, KCL Extract pH of Soil and Waste Total Metals Digestion by SW3050B Mercury Digestion by SW7471B KCL Soil Extract ASA33-3 Sonication Extraction SW3550C 8081-Organochlorine Pesticides Soil Preparation USDA1 Soil Sonication SW3550C Extraction Semi-Volatile Organic Compounds

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Samples were received 1/30/2021. Upon receipt, one container per sample for VOC analysis was placed in a freezer per client request. Due to the high moisture content in the samples, on Monday when the samples were processed, the containers in the freezer for VOC analysis were found with the glass container broken for LCS01-SD-01 and the lid expanded off the container for LCS02-SD-02. Client was contacted regarding this issue. Per email from Yuen-Chang (Didi) Fung, cancel VOC analysis on the sediment samples due to broken sample containers. abc 2/1/21

All samples were analyzed as-received then moisture corrected based on the percent moisture.

Sample LCS01-SD-01 had a moisture content of 96%. The four sample containers (excluding the broken VOC container) appeared similar in composition. The sample matrix appeared to be very hygroscopic. An aliquot of sample was dried, and the sample was a light, fine particulate.



When digested for metals, the sample was digested using 1 gram of sample. Because of the high percent moisture, the sample was re-digested 2/7/2021, using approximately 5 grams of sample. Per conversation with Yuen-Chang (Didi) Fung 2/9/2021, the dried aliquot of sample was digested to confirm the arsenic value. The report includes the arsenic values for the dry weight corrected analysis, and from the aliquot which was dried, then analyzed. This is designated in the PDF report package with a header of 3050 Extractable Metals-Dried.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-001
Client Sample ID: LCS01-SW-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.6	s.u.	H	0.1		A4500-H B	02/01/21 14:34 / JAR
pH Measurement Temp	16.2	°C				A4500-H B	02/01/21 14:34 / JAR
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/02/21 10:49 / eeh
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	02/01/21 14:03 / eeh
METALS, DISSOLVED							
Aluminum	0.044	mg/L		0.009		SW6020	02/05/21 16:46 / dck
Antimony	ND	mg/L		0.0005		SW6020	02/05/21 16:46 / dck
Arsenic	0.001	mg/L		0.001		SW6020	02/05/21 16:46 / dck
Barium	0.11	mg/L		0.05		SW6020	02/05/21 16:46 / dck
Beryllium	ND	mg/L		0.0008		SW6020	02/05/21 16:46 / dck
Cadmium	ND	mg/L		0.00003		SW6020	02/05/21 16:46 / dck
Calcium	30	mg/L		1		SW6010B	02/03/21 02:16 / sld
Chromium	ND	mg/L		0.005		SW6020	02/05/21 16:46 / dck
Cobalt	ND	mg/L		0.005		SW6020	02/05/21 16:46 / dck
Copper	ND	mg/L		0.002		SW6020	02/05/21 16:46 / dck
Iron	0.79	mg/L		0.02		SW6010B	02/03/21 02:16 / sld
Lead	ND	mg/L		0.0003		SW6020	02/05/21 16:46 / dck
Magnesium	11	mg/L		1		SW6010B	02/03/21 02:16 / sld
Manganese	0.857	mg/L		0.001		SW6010B	02/03/21 02:16 / sld
Mercury	ND	ug/L		0.005		SW7470A	02/08/21 12:47 / iej
Nickel	0.0002	mg/L		0.0002		SW6020	02/05/21 16:46 / dck
Potassium	17	mg/L		1		SW6010B	02/03/21 02:16 / sld
Selenium	ND	mg/L		0.001		SW6020	02/05/21 16:46 / dck
Silver	ND	mg/L		0.0002		SW6020	02/05/21 16:46 / dck
Sodium	15	mg/L		1		SW6010B	02/03/21 02:16 / sld
Thallium	ND	mg/L		0.0005		SW6020	02/05/21 16:46 / dck
Vanadium	ND	mg/L		0.01		SW6020	02/05/21 16:46 / dck
Zinc	ND	mg/L		0.008		SW6020	02/05/21 16:46 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	02/03/21 15:38 / eli-b
Acetonitrile	ND	ug/L		20		SW8260B	02/03/21 15:38 / eli-b
Acrolein	ND	ug/L		20		SW8260B	02/03/21 15:38 / eli-b
Acrylonitrile	ND	ug/L		20		SW8260B	02/03/21 15:38 / eli-b
Benzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Bromobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Bromochloromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Bromodichloromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Bromoform	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Bromomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
n-Butylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
H - Analysis performed past the method holding time

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-001
Client Sample ID: LCS01-SW-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
DateReceived: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Carbon disulfide	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Chlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Chloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Chloroform	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Chloromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Dibromomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Ethylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	02/03/21 15:38 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Isopropylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	02/03/21 15:38 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	02/03/21 15:38 / eli-b
Methylene chloride	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Naphthalene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
n-Propylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Styrene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-001
Client Sample ID: LCS01-SW-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Tetrachloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Toluene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Trichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Vinyl chloride	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
m+p-Xylenes	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
o-Xylene	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Xylenes, Total	ND	ug/L		1.0		SW8260B	02/03/21 15:38 / eli-b
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	02/03/21 15:38 / eli-b
Surr: Dibromofluoromethane	102	%REC		77-126		SW8260B	02/03/21 15:38 / eli-b
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	02/03/21 15:38 / eli-b
Surr: Toluene-d8	99.0	%REC		79-122		SW8260B	02/03/21 15:38 / eli-b
- There were Tentatively Identified Compounds reported for this sample. See the Tentatively Identified Compound Report following the QA/QC Summary Report.							
PETROLEUM HYDROCARBONS-VOLATILE							
Gasoline Range Organics (GRO)	ND	ug/L		20		SW8015C	02/03/21 20:29 / kmd
Total Purgeable Hydrocarbons	49	ug/L		20		SW8015C	02/03/21 20:29 / kmd
Surr: Trifluorotoluene	88.0	%REC		70-130		SW8015C	02/03/21 20:29 / kmd
- Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene. - Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
PETROLEUM HYDROCARBONS-SEMI-VOLATILE							
Diesel Range Organics (DRO)	0.18	mg/L	J	0.30		SW8015C	02/03/21 05:22 / kmm
Total Extractable Hydrocarbons	0.33	mg/L		0.30		SW8015C	02/03/21 05:22 / kmm
Surr: o-Terphenyl	97.0	%REC		50-150		SW8015C	02/03/21 05:22 / kmm
- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28. - Note 3: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.							
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
1,2-Dichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
1,3-Dichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
1,4-Dichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
1-Methylnaphthalene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-001
Client Sample ID: LCS01-SW-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4,5-Trichlorophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2,4,6-Trichlorophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2,4-Dichlorophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2,4-Dimethylphenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2,4-Dinitrophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2,4-Dinitrotoluene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2,6-Dinitrotoluene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2-Chloronaphthalene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2-Chlorophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2-Methylnaphthalene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
2-Nitrophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
3,3'-Dichlorobenzidine	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
4,6-Dinitro-2-methylphenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
4-Bromophenyl phenyl ether	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
4-Chloro-3-methylphenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
4-Chlorophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
4-Chlorophenyl phenyl ether	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
4-Nitrophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Acenaphthene	9.4	ug/L	J	10		SW8270C	02/03/21 16:59 / eli-b
Acenaphthylene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Anthracene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Azobenzene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Benzidine	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Benzo(a)anthracene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Benzo(a)pyrene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Benzo(b)fluoranthene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Benzo(g,h,i)perylene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Benzo(k)fluoranthene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
bis(-2-chloroethoxy)Methane	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
bis(-2-chloroethyl)Ether	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
bis(2-chloroisopropyl)Ether	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
bis(2-ethylhexyl)Phthalate	38	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Butylbenzylphthalate	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Chrysene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Di-n-butyl phthalate	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Di-n-octyl phthalate	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Dibenzo(a,h)anthracene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Diethyl phthalate	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Dimethyl phthalate	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Fluoranthene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Fluorene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Hexachlorobenzene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Hexachlorobutadiene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-001
Client Sample ID: LCS01-SW-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Hexachlorocyclopentadiene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Hexachloroethane	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Indeno(1,2,3-cd)pyrene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Isophorone	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
m+p-Cresols	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
n-Nitroso-di-n-propylamine	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
n-Nitrosodimethylamine	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
n-Nitrosodiphenylamine	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Naphthalene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Nitrobenzene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
o-Cresol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Pentachlorophenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Phenanthrene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Phenol	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Pyrene	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Pyridine	ND	ug/L		10		SW8270C	02/03/21 16:59 / eli-b
Surr: 2,4,6-Tribromophenol	94.0	%REC		25-140		SW8270C	02/03/21 16:59 / eli-b
Surr: 2-Fluorobiphenyl	66.0	%REC		28-107		SW8270C	02/03/21 16:59 / eli-b
Surr: 2-Fluorophenol	60.0	%REC		10-75		SW8270C	02/03/21 16:59 / eli-b
Surr: Nitrobenzene-d5	85.0	%REC		32-94		SW8270C	02/03/21 16:59 / eli-b
Surr: Phenol-d5	51.0	%REC		10-65		SW8270C	02/03/21 16:59 / eli-b
Surr: Terphenyl-d14	101	%REC		32-122		SW8270C	02/03/21 16:59 / eli-b
- There were no Tentatively Identified Compounds present in the sample.							
ORGANOCHLORINE PESTICIDES							
4,4'-DDD	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
4,4'-DDE	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
4,4'-DDT	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Aldrin	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
alpha-BHC	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
alpha-Chlordane	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
beta-BHC	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Chlordane	ND	ug/L		0.25		SW8081B	02/05/21 17:11 / eli-b34
delta-BHC	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Dieldrin	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Endosulfan I	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Endosulfan II	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Endosulfan sulfate	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Endrin	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Endrin aldehyde	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Endrin ketone	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
gamma-BHC (Lindane)	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
gamma-Chlordane	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-001
Client Sample ID: LCS01-SW-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
ORGANOCHLORINE PESTICIDES							
Heptachlor	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Heptachlor epoxide	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Methoxychlor	ND	ug/L		0.010		SW8081B	02/05/21 17:11 / eli-b34
Toxaphene	ND	ug/L		1.2		SW8081B	02/05/21 17:11 / eli-b34
Surr: Decachlorobiphenyl	50.0	%REC		43-130		SW8081B	02/05/21 17:11 / eli-b34
Surr: Tetrachloro-m-xylene	56.0	%REC		40-110		SW8081B	02/05/21 17:11 / eli-b34

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-002
Client Sample ID: LCS01-SD-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture	96.0	wt%		0.2		SW3550C	02/02/21 09:51 / kmd
NUTRIENTS							
Ammonia as N, KCL Extract	ND	mg/kg-dry		6		ASA33-7	02/03/21 16:27 / eeh
Nitrate as N, KCL Extract	5.3	mg/kg-dry		2.5		ASA33-8	02/03/21 12:36 / eeh
3050 EXTRACTABLE METALS							
Aluminum	2240	mg/kg-dry	D	500		SW6010B	02/07/21 17:20 / sld
Antimony	ND	mg/kg-dry		1		SW6020	02/10/21 17:14 / eli-b
Arsenic	376	mg/kg-dry		1		SW6020	02/08/21 15:45 / dck
Barium	592	mg/kg-dry		30		SW6020	02/08/21 16:10 / dck
Beryllium	ND	mg/kg-dry		1		SW6020	02/08/21 15:47 / dck
Cadmium	ND	mg/kg-dry		1		SW6020	02/08/21 15:45 / dck
Calcium	9940	mg/kg-dry	D	2000		SW6010B	02/07/21 17:20 / sld
Chromium	ND	mg/kg-dry		3		SW6020	02/08/21 15:47 / dck
Cobalt	3	mg/kg-dry		2		SW6020	02/08/21 15:47 / dck
Copper	ND	mg/kg-dry		3		SW6020	02/08/21 15:47 / dck
Iron	339000	mg/kg-dry	D	3000		SW6010B	02/07/21 17:20 / sld
Lead	7	mg/kg-dry		3		SW6020	02/08/21 15:45 / dck
Magnesium	1990	mg/kg-dry	D	700		SW6010B	02/07/21 17:20 / sld
Manganese	788	mg/kg-dry		20		SW6010B	02/07/21 17:20 / sld
Nickel	2	mg/kg-dry		1		SW6020	02/08/21 15:47 / dck
Potassium	1310	mg/kg-dry	D	600		SW6010B	02/07/21 17:20 / sld
Selenium	ND	mg/kg-dry		1		SW6020	02/08/21 15:45 / dck
Silver	ND	mg/kg-dry		2		SW6020	02/08/21 17:02 / dck
Sodium	539	mg/kg-dry	D	200		SW6020	02/08/21 15:47 / dck
Thallium	ND	mg/kg-dry		1		SW6020	02/08/21 15:45 / dck
Vanadium	4	mg/kg-dry		1		SW6020	02/08/21 15:47 / dck
Zinc	31	mg/kg-dry		20		SW6020	02/08/21 15:45 / dck
3050 EXTRACTABLE METALS-DRIED							
Arsenic	546	mg/kg-dry		1		SW6020	02/10/21 11:48 / dck
METALS, TOTAL							
Mercury	ND	mg/kg-dry		0.50		SW7471B	02/06/21 17:01 / dck
CORROSIVITY							
pH	6.9	s.u.		0.1		SW9045D	02/04/21 11:57 / sah
PETROLEUM HYDROCARBONS-VOLATILE							
Gasoline Range Organics (GRO)	ND	mg/kg-dry		50		SW8015C	02/04/21 01:09 / kmd
Total Purgeable Hydrocarbons	ND	mg/kg-dry		50		SW8015C	02/04/21 01:09 / kmd
Surr: Trifluorotoluene	47.0	%REC	S	70-130		SW8015C	02/04/21 01:09 / kmd

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
S - Spike recovery outside of advisory limits



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-002
Client Sample ID: LCS01-SD-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
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PETROLEUM HYDROCARBONS-VOLATILE

- Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.
- Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.
- S=Surrogate recovery outside QC advisory limits due to sample matrix interference.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	ND	mg/kg-dry		10		SW8015C	02/03/21 06:05 / kmm
Total Extractable Hydrocarbons	9.7	mg/kg-dry	J	10		SW8015C	02/03/21 06:05 / kmm
Surr: o-Terphenyl	99.0	%REC		50-150		SW8015C	02/03/21 06:05 / kmm

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.
- Note 3: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

SEMI-VOLATILE ORGANIC COMPOUNDS

1,2,4-Trichlorobenzene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
1,2-Dichlorobenzene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
1,3-Dichlorobenzene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
1,4-Dichlorobenzene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
1-Methylnaphthalene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2,4,5-Trichlorophenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2,4,6-Trichlorophenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2,4-Dichlorophenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2,4-Dimethylphenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2,4-Dinitrophenol	ND	mg/kg-dry		33		SW8270C	02/05/21 00:21 / eli-b
2,4-Dinitrotoluene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2,6-Dinitrotoluene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2-Chloronaphthalene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2-Chlorophenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2-Methylnaphthalene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
2-Nitrophenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
3,3'-Dichlorobenzidine	ND	mg/kg-dry		16		SW8270C	02/05/21 00:21 / eli-b
4,6-Dinitro-2-methylphenol	ND	mg/kg-dry		33		SW8270C	02/05/21 00:21 / eli-b
4-Bromophenyl phenyl ether	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
4-Chloro-3-methylphenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
4-Chlorophenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
4-Chlorophenyl phenyl ether	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
4-Nitrophenol	ND	mg/kg-dry		33		SW8270C	02/05/21 00:21 / eli-b
Acenaphthene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Acenaphthylene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Anthracene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Azobenzene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Benzidine	ND	mg/kg-dry		16		SW8270C	02/05/21 00:21 / eli-b
Benzo(a)anthracene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Benzo(a)pyrene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Benzo(b)fluoranthene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Benzo(g,h,i)perylene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-002
Client Sample ID: LCS01-SD-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Benzo(k)fluoranthene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
bis-(2-chloroethoxy)Methane	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
bis-(2-chloroethyl)Ether	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
bis(2-chloroisopropyl)Ether	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
bis(2-ethylhexyl)Phthalate	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Butylbenzylphthalate	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Chrysene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Dibenzo(a,h)anthracene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Diethyl phthalate	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Dimethyl phthalate	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Di-n-butyl phthalate	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Di-n-octyl phthalate	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Fluoranthene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Fluorene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Hexachlorobenzene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Hexachlorobutadiene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Hexachlorocyclopentadiene	ND	mg/kg-dry		16		SW8270C	02/05/21 00:21 / eli-b
Hexachloroethane	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Indeno(1,2,3-cd)pyrene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Isophorone	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
m+p-Cresols	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Naphthalene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Nitrobenzene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
n-Nitrosodimethylamine	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
n-Nitroso-di-n-propylamine	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
n-Nitrosodiphenylamine	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
o-Cresol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Pentachlorophenol	ND	mg/kg-dry		33		SW8270C	02/05/21 00:21 / eli-b
Phenanthrene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Phenol	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Pyrene	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Pyridine	ND	mg/kg-dry		8.3		SW8270C	02/05/21 00:21 / eli-b
Surr: 2,4,6-Tribromophenol	89.0	%REC		53-141		SW8270C	02/05/21 00:21 / eli-b
Surr: 2-Fluorobiphenyl	65.0	%REC		63-98		SW8270C	02/05/21 00:21 / eli-b
Surr: 2-Fluorophenol	65.0	%REC		53-101		SW8270C	02/05/21 00:21 / eli-b
Surr: Nitrobenzene-d5	60.0	%REC		53-101		SW8270C	02/05/21 00:21 / eli-b
Surr: Phenol-d5	68.0	%REC		55-100		SW8270C	02/05/21 00:21 / eli-b
Surr: Terphenyl-d14	96.0	%REC		71-118		SW8270C	02/05/21 00:21 / eli-b
- The sample extract was diluted 2 times at analysis due to non-target compound sample matrix interference. The Reporting Limit reflects this dilution. - There were no Tentatively Identified Compounds present in the sample.							
ORGANOCHLORINE PESTICIDES							
4,4'-DDD	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-002
Client Sample ID: LCS01-SD-01

Report Date: 02/10/21
Collection Date: 01/29/21 12:00
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
ORGANOCHLORINE PESTICIDES							
4,4'-DDE	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
4,4'-DDT	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Aldrin	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
alpha-BHC	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
alpha-Chlordane	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
beta-BHC	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Chlordane	ND	mg/kg-dry		0.41		SW8081B	02/04/21 22:21 / eli-b28
delta-BHC	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Dieldrin	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Endosulfan I	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Endosulfan II	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Endosulfan sulfate	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Endrin	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Endrin aldehyde	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Endrin ketone	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
gamma-BHC (Lindane)	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
gamma-Chlordane	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Heptachlor	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Heptachlor epoxide	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Methoxychlor	ND	mg/kg-dry		0.017		SW8081B	02/04/21 22:21 / eli-b28
Toxaphene	ND	mg/kg-dry		2.1		SW8081B	02/04/21 22:21 / eli-b28
Surr: Decachlorobiphenyl	74.0	%REC		50-126		SW8081B	02/04/21 22:21 / eli-b28
Surr: Tetrachloro-m-xylene	58.0	%REC		40-110		SW8081B	02/04/21 22:21 / eli-b28

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-003
Client Sample ID: LCS02-SW-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	6.5	s.u.	H	0.1		A4500-H B	02/01/21 14:37 / JAR
pH Measurement Temp	16.6	°C				A4500-H B	02/01/21 14:37 / JAR
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/02/21 10:42 / eeh
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	02/01/21 14:04 / eeh
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		SW6020	02/05/21 16:51 / dck
Antimony	ND	mg/L		0.0005		SW6020	02/05/21 16:51 / dck
Arsenic	ND	mg/L		0.001		SW6020	02/05/21 16:51 / dck
Barium	0.06	mg/L		0.05		SW6020	02/05/21 16:51 / dck
Beryllium	ND	mg/L		0.0008		SW6020	02/05/21 16:51 / dck
Cadmium	ND	mg/L		0.00003		SW6020	02/05/21 16:51 / dck
Calcium	17	mg/L		1		SW6010B	02/03/21 02:20 / sld
Chromium	ND	mg/L		0.005		SW6020	02/05/21 16:51 / dck
Cobalt	ND	mg/L		0.005		SW6020	02/05/21 16:51 / dck
Copper	ND	mg/L		0.002		SW6020	02/05/21 16:51 / dck
Iron	ND	mg/L		0.02		SW6010B	02/03/21 02:20 / sld
Lead	ND	mg/L		0.0003		SW6020	02/05/21 16:51 / dck
Magnesium	5	mg/L		1		SW6010B	02/03/21 02:20 / sld
Manganese	0.559	mg/L		0.001		SW6010B	02/03/21 02:20 / sld
Mercury	ND	ug/L		0.005		SW7470A	02/08/21 13:05 / iej
Nickel	ND	mg/L		0.0002		SW6020	02/05/21 16:51 / dck
Potassium	1	mg/L		1		SW6010B	02/03/21 02:20 / sld
Selenium	ND	mg/L		0.001		SW6020	02/05/21 16:51 / dck
Silver	ND	mg/L		0.0002		SW6020	02/05/21 16:51 / dck
Sodium	2	mg/L		1		SW6010B	02/03/21 02:20 / sld
Thallium	ND	mg/L		0.0005		SW6020	02/05/21 16:51 / dck
Vanadium	ND	mg/L		0.01		SW6020	02/05/21 16:51 / dck
Zinc	ND	mg/L		0.008		SW6020	02/05/21 16:51 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	02/03/21 15:11 / eli-b
Acetonitrile	ND	ug/L		20		SW8260B	02/03/21 15:11 / eli-b
Acrolein	ND	ug/L		20		SW8260B	02/03/21 15:11 / eli-b
Acrylonitrile	ND	ug/L		20		SW8260B	02/03/21 15:11 / eli-b
Benzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Bromobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Bromochloromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Bromodichloromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Bromoform	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Bromomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
n-Butylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit
H - Analysis performed past the method holding time

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-003
Client Sample ID: LCS02-SW-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Carbon disulfide	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Chlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Chloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Chloroform	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Chloromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Dibromomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Ethylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	02/03/21 15:11 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Isopropylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	02/03/21 15:11 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	02/03/21 15:11 / eli-b
Methylene chloride	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Naphthalene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
n-Propylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Styrene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-003
Client Sample ID: LCS02-SW-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Tetrachloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Toluene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Trichloroethene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Vinyl chloride	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
m+p-Xylenes	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
o-Xylene	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Xylenes, Total	ND	ug/L		1.0		SW8260B	02/03/21 15:11 / eli-b
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	02/03/21 15:11 / eli-b
Surr: Dibromofluoromethane	101	%REC		77-126		SW8260B	02/03/21 15:11 / eli-b
Surr: p-Bromofluorobenzene	107	%REC		76-127		SW8260B	02/03/21 15:11 / eli-b
Surr: Toluene-d8	102	%REC		79-122		SW8260B	02/03/21 15:11 / eli-b
- There were no Tentatively Identified Compounds present in the sample.							
PETROLEUM HYDROCARBONS-VOLATILE							
Gasoline Range Organics (GRO)	ND	ug/L		20		SW8015C	02/03/21 21:00 / kmd
Total Purgeable Hydrocarbons	ND	ug/L		20		SW8015C	02/03/21 21:00 / kmd
Surr: Trifluorotoluene	86.0	%REC		70-130		SW8015C	02/03/21 21:00 / kmd
- Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.							
- Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
PETROLEUM HYDROCARBONS-SEMI-VOLATILE							
Diesel Range Organics (DRO)	ND	mg/L		0.30		SW8015C	02/03/21 06:49 / kmm
Total Extractable Hydrocarbons	0.24	mg/L	J	0.30		SW8015C	02/03/21 06:49 / kmm
Surr: o-Terphenyl	105	%REC		50-150		SW8015C	02/03/21 06:49 / kmm
- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.							
- Note 3: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.							
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
1,2-Dichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
1,3-Dichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
1,4-Dichlorobenzene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
1-Methylnaphthalene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2,4,5-Trichlorophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b

Report RL - Analyte Reporting Limit

Definitions: QCL - Quality Control Limit

J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level

ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-003
Client Sample ID: LCS02-SW-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4,6-Trichlorophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2,4-Dichlorophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2,4-Dimethylphenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2,4-Dinitrophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2,4-Dinitrotoluene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2,6-Dinitrotoluene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2-Chloronaphthalene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2-Chlorophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2-Methylnaphthalene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
2-Nitrophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
3,3'-Dichlorobenzidine	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
4,6-Dinitro-2-methylphenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
4-Bromophenyl phenyl ether	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
4-Chloro-3-methylphenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
4-Chlorophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
4-Chlorophenyl phenyl ether	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
4-Nitrophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Acenaphthene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Acenaphthylene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Anthracene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Azobenzene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Benzidine	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Benzo(a)anthracene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Benzo(a)pyrene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Benzo(b)fluoranthene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Benzo(g,h,i)perylene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Benzo(k)fluoranthene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
bis(-2-chloroethoxy)Methane	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
bis(-2-chloroethyl)Ether	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
bis(2-chloroisopropyl)Ether	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
bis(2-ethylhexyl)Phthalate	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Butylbenzylphthalate	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Chrysene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Di-n-butyl phthalate	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Di-n-octyl phthalate	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Dibenzo(a,h)anthracene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Diethyl phthalate	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Dimethyl phthalate	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Fluoranthene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Fluorene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Hexachlorobenzene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Hexachlorobutadiene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Hexachlorocyclopentadiene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-003
Client Sample ID: LCS02-SW-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Hexachloroethane	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Indeno(1,2,3-cd)pyrene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Isophorone	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
m+p-Cresols	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
n-Nitroso-di-n-propylamine	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
n-Nitrosodimethylamine	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
n-Nitrosodiphenylamine	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Naphthalene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Nitrobenzene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
o-Cresol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Pentachlorophenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Phenanthrene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Phenol	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Pyrene	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Pyridine	ND	ug/L		10		SW8270C	02/03/21 17:30 / eli-b
Surr: 2,4,6-Tribromophenol	83.0	%REC		25-140		SW8270C	02/03/21 17:30 / eli-b
Surr: 2-Fluorobiphenyl	65.0	%REC		28-107		SW8270C	02/03/21 17:30 / eli-b
Surr: 2-Fluorophenol	54.0	%REC		10-75		SW8270C	02/03/21 17:30 / eli-b
Surr: Nitrobenzene-d5	88.0	%REC		32-94		SW8270C	02/03/21 17:30 / eli-b
Surr: Phenol-d5	46.0	%REC		10-65		SW8270C	02/03/21 17:30 / eli-b
Surr: Terphenyl-d14	82.0	%REC		32-122		SW8270C	02/03/21 17:30 / eli-b
- There were no Tentatively Identified Compounds present in the sample.							
ORGANOCHLORINE PESTICIDES							
4,4'-DDD	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
4,4'-DDE	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
4,4'-DDT	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Aldrin	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
alpha-BHC	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
alpha-Chlordane	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
beta-BHC	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Chlordane	ND	ug/L		0.25		SW8081B	02/05/21 17:39 / eli-b34
delta-BHC	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Dieldrin	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Endosulfan I	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Endosulfan II	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Endosulfan sulfate	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Endrin	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Endrin aldehyde	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Endrin ketone	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
gamma-BHC (Lindane)	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
gamma-Chlordane	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Heptachlor	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-003
Client Sample ID: LCS02-SW-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
ORGANOCHLORINE PESTICIDES							
Heptachlor epoxide	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Methoxychlor	ND	ug/L		0.010		SW8081B	02/05/21 17:39 / eli-b34
Toxaphene	ND	ug/L		1.2		SW8081B	02/05/21 17:39 / eli-b34
Surr: Decachlorobiphenyl	54.0	%REC		43-130		SW8081B	02/05/21 17:39 / eli-b34
Surr: Tetrachloro-m-xylene	67.0	%REC		40-110		SW8081B	02/05/21 17:39 / eli-b34

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-004
Client Sample ID: LCS02-SD-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture	62.6	wt%		0.2		SW3550C	02/02/21 09:51 / kmd
NUTRIENTS							
Ammonia as N, KCL Extract	1.5	mg/kg-dry		0.7		ASA33-7	02/03/21 16:29 / eeh
Nitrate as N, KCL Extract	ND	mg/kg-dry		1.0		ASA33-8	02/03/21 12:37 / eeh
3050 EXTRACTABLE METALS							
Aluminum	11100	mg/kg-dry	D	50		SW6010B	02/07/21 17:24 / sld
Antimony	ND	mg/kg-dry		1		SW6020	02/10/21 17:18 / eli-b
Arsenic	55	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Barium	175	mg/kg-dry	D	7		SW6020	02/08/21 16:59 / dck
Beryllium	ND	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Cadmium	1	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Calcium	2790	mg/kg-dry	D	200		SW6010B	02/07/21 17:24 / sld
Chromium	12	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Cobalt	7	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Copper	14	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Iron	47400	mg/kg-dry	D	300		SW6010B	02/07/21 17:24 / sld
Lead	64	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Magnesium	5090	mg/kg-dry	D	100		SW6010B	02/07/21 17:24 / sld
Manganese	1100	mg/kg-dry		2		SW6010B	02/07/21 17:24 / sld
Nickel	12	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Potassium	2150	mg/kg-dry	D	60		SW6010B	02/07/21 17:24 / sld
Selenium	ND	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Silver	ND	mg/kg-dry		1		SW6020	02/08/21 17:04 / dck
Sodium	62	mg/kg-dry	D	50		SW6020	02/08/21 15:51 / dck
Thallium	ND	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Vanadium	16	mg/kg-dry		1		SW6020	02/08/21 15:51 / dck
Zinc	125	mg/kg-dry	D	9		SW6010B	02/07/21 17:24 / sld
3050 EXTRACTABLE METALS-DRIED							
Arsenic	57	mg/kg-dry		1		SW6020	02/10/21 11:50 / dck
METALS, TOTAL							
Mercury	ND	mg/kg-dry		0.50		SW7471B	02/06/21 17:04 / dck
CORROSIVITY							
pH	7.1	s.u.		0.1		SW9045D	02/04/21 11:59 / sah
PETROLEUM HYDROCARBONS-VOLATILE							
Gasoline Range Organics (GRO)	ND	mg/kg-dry		5.4		SW8015C	02/04/21 00:07 / kmd
Total Purgeable Hydrocarbons	ND	mg/kg-dry		5.4		SW8015C	02/04/21 00:07 / kmd
Surr: Trifluorotoluene	59.0	%REC	S	70-130		SW8015C	02/04/21 00:07 / kmd

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
S - Spike recovery outside of advisory limits



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-004
Client Sample ID: LCS02-SD-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
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PETROLEUM HYDROCARBONS-VOLATILE

- Gasoline Range Organics(GRO) are defined as all hydrocarbons eluting between 2-Methylpentane and 1,2,4-Trimethylbenzene.
- Total Purgeable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.
- S=Surrogate recovery outside QC advisory limits due to sample matrix interference.

PETROLEUM HYDROCARBONS-SEMI-VOLATILE

Diesel Range Organics (DRO)	ND	mg/kg-dry		10		SW8015C	02/03/21 07:32 / kmm
Total Extractable Hydrocarbons	19	mg/kg-dry		10		SW8015C	02/03/21 07:32 / kmm
Surr: o-Terphenyl	107	%REC		50-150		SW8015C	02/03/21 07:32 / kmm

- Note 1: Diesel Range Organics are defined as all hydrocarbons eluting between C10 and C28.
- Note 3: Total Extractable Hydrocarbons are defined as the total hydrocarbon response regardless of elution time.

SEMI-VOLATILE ORGANIC COMPOUNDS

1,2,4-Trichlorobenzene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
1,2-Dichlorobenzene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
1,3-Dichlorobenzene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
1,4-Dichlorobenzene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
1-Methylnaphthalene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2,4,5-Trichlorophenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2,4,6-Trichlorophenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2,4-Dichlorophenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2,4-Dimethylphenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2,4-Dinitrophenol	ND	mg/kg-dry		3.6		SW8270C	02/05/21 00:52 / eli-b
2,4-Dinitrotoluene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2,6-Dinitrotoluene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2-Chloronaphthalene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2-Chlorophenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2-Methylnaphthalene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
2-Nitrophenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
3,3'-Dichlorobenzidine	ND	mg/kg-dry		1.8		SW8270C	02/05/21 00:52 / eli-b
4,6-Dinitro-2-methylphenol	ND	mg/kg-dry		3.6		SW8270C	02/05/21 00:52 / eli-b
4-Bromophenyl phenyl ether	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
4-Chloro-3-methylphenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
4-Chlorophenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
4-Chlorophenyl phenyl ether	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
4-Nitrophenol	ND	mg/kg-dry		3.6		SW8270C	02/05/21 00:52 / eli-b
Acenaphthene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Acenaphthylene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Anthracene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Azobenzene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Benzidine	ND	mg/kg-dry		1.8		SW8270C	02/05/21 00:52 / eli-b
Benzo(a)anthracene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Benzo(a)pyrene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Benzo(b)fluoranthene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Benzo(g,h,i)perylene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-004
Client Sample ID: LCS02-SD-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Benzo(k)fluoranthene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
bis(-2-chloroethoxy)Methane	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
bis(-2-chloroethyl)Ether	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
bis(2-chloroisopropyl)Ether	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
bis(2-ethylhexyl)Phthalate	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Butylbenzylphthalate	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Chrysene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Dibenzo(a,h)anthracene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Diethyl phthalate	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Dimethyl phthalate	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Di-n-butyl phthalate	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Di-n-octyl phthalate	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Fluoranthene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Fluorene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Hexachlorobenzene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Hexachlorobutadiene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Hexachlorocyclopentadiene	ND	mg/kg-dry		1.8		SW8270C	02/05/21 00:52 / eli-b
Hexachloroethane	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Indeno(1,2,3-cd)pyrene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Isophorone	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
m+p-Cresols	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Naphthalene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Nitrobenzene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
n-Nitrosodimethylamine	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
n-Nitroso-di-n-propylamine	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
n-Nitrosodiphenylamine	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
o-Cresol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Pentachlorophenol	ND	mg/kg-dry		3.6		SW8270C	02/05/21 00:52 / eli-b
Phenanthrene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Phenol	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Pyrene	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Pyridine	ND	mg/kg-dry		0.91		SW8270C	02/05/21 00:52 / eli-b
Surr: 2,4,6-Tribromophenol	87.0	%REC		53-141		SW8270C	02/05/21 00:52 / eli-b
Surr: 2-Fluorobiphenyl	70.0	%REC		63-98		SW8270C	02/05/21 00:52 / eli-b
Surr: 2-Fluorophenol	69.0	%REC		53-101		SW8270C	02/05/21 00:52 / eli-b
Surr: Nitrobenzene-d5	70.0	%REC		53-101		SW8270C	02/05/21 00:52 / eli-b
Surr: Phenol-d5	74.0	%REC		55-100		SW8270C	02/05/21 00:52 / eli-b
Surr: Terphenyl-d14	100	%REC		71-118		SW8270C	02/05/21 00:52 / eli-b
- The sample extract was diluted 2 times at analysis due to non-target compound sample matrix interference. The Reporting Limit reflects this dilution. - There were no Tentatively Identified Compounds present in the sample.							
ORGANOCHLORINE PESTICIDES							
4,4'-DDD	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tetra Tech EMI
Project: Libby Creek Seep
Lab ID: H21020001-004
Client Sample ID: LCS02-SD-02

Report Date: 02/10/21
Collection Date: 01/29/21 13:30
Date Received: 01/30/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
ORGANOCHLORINE PESTICIDES							
4,4'-DDE	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
4,4'-DDT	ND	mg/kg-dry	D	0.0044		SW8081B	02/04/21 23:44 / eli-b28
Aldrin	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
alpha-BHC	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
alpha-Chlordane	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
beta-BHC	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Chlordane	ND	mg/kg-dry		0.045		SW8081B	02/04/21 23:44 / eli-b28
delta-BHC	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Dieldrin	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Endosulfan I	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Endosulfan II	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Endosulfan sulfate	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Endrin	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Endrin aldehyde	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Endrin ketone	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
gamma-BHC (Lindane)	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
gamma-Chlordane	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Heptachlor	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Heptachlor epoxide	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Methoxychlor	ND	mg/kg-dry		0.0018		SW8081B	02/04/21 23:44 / eli-b28
Toxaphene	ND	mg/kg-dry		0.22		SW8081B	02/04/21 23:44 / eli-b28
Surr: Decachlorobiphenyl	81.0	%REC		50-126		SW8081B	02/04/21 23:44 / eli-b28
Surr: Tetrachloro-m-xylene	65.0	%REC		40-110		SW8081B	02/04/21 23:44 / eli-b28

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B										
Analytical Run: PHSC_101-H_210201A										
Lab ID: pH 7	2	Initial Calibration Verification Standard								02/01/21 09:03
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		18.9	°C			0	0			
Lab ID: CCV - pH 7										
2 Continuing Calibration Verification Standard										
02/01/21 12:12										
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		19.2	°C			0	0			
Method: A4500-H B										
Batch: R162088										
Lab ID: H21020004-001ADUP	2	Sample Duplicate								02/01/21 12:09
Run: PHSC_101-H_210201A										
pH		7.2	s.u.	0.1				0.0	3	
pH Measurement Temp		12.5	°C							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA33-7								Analytical Run: FIA203-HE_210203F		
Lab ID: ICV	Initial Calibration Verification Standard									02/03/21 16:17
Ammonia as N, KCL Extract		1.05	mg/kg	0.50	105	90	110			
Method: ASA33-7								Batch: 55050		
Lab ID: MB-55050	Method Blank									02/03/21 16:22
Ammonia as N, KCL Extract		0.1	mg/kg	0.1				Run: FIA203-HE_210203F		
Lab ID: LCS-55050	Laboratory Control Sample									02/03/21 16:23
Ammonia as N, KCL Extract		4.92	mg/kg	0.50	86	70	130			
Lab ID: H21020001-002AMS	Sample Matrix Spike									02/03/21 16:28
Ammonia as N, KCL Extract		124	mg/kg-dry	34	100	80	120			
Lab ID: H21020001-004ADUP	Sample Duplicate									02/03/21 16:30
Ammonia as N, KCL Extract		0.388	mg/kg-dry	0.67				Run: FIA203-HE_210203F		20

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA33-8										Analytical Run: FIA203-HE_210203C
Lab ID: ICV										02/03/21 11:02
Initial Calibration Verification Standard										
Nitrate as N, KCL Extract		1.0	mg/kg-dry	1.0	100	90	110			
Lab ID: CCV										02/03/21 12:26
Continuing Calibration Verification Standard										
Nitrate as N, KCL Extract		0.45	mg/kg-dry	1.0	91	90	110			
Method: ASA33-8										Batch: 55050
Lab ID: MB-55050										02/03/21 12:10
Method Blank										Run: FIA203-HE_210203C
Nitrate as N, KCL Extract		0.3	mg/kg	0.1						
Lab ID: LCS-55050										02/03/21 12:11
Laboratory Control Sample										Run: FIA203-HE_210203C
Nitrate as N, KCL Extract		5.88	mg/kg	1.0	87	70	130			
Lab ID: H21020001-004ADUP										02/03/21 12:38
Sample Duplicate										Run: FIA203-HE_210203C
Nitrate as N, KCL Extract		0.61	mg/kg-dry	1.0						30

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1										Analytical Run: FIA203-HE_210202A
Lab ID: ICV										02/02/21 10:26
Initial Calibration Verification Standard										
Nitrogen, Ammonia as N		1.05	mg/L	0.050	105	90	110			
Lab ID: CCV										02/02/21 10:29
Continuing Calibration Verification Standard										
Nitrogen, Ammonia as N		0.489	mg/L	0.050	98	90	110			
Lab ID: CCV										02/02/21 10:45
Continuing Calibration Verification Standard										
Nitrogen, Ammonia as N		0.488	mg/L	0.050	98	90	110			
Method: E350.1										Batch: R162161
Lab ID: MBLK										02/02/21 10:27
Method Blank										Run: FIA203-HE_210202A
Nitrogen, Ammonia as N		ND	mg/L	0.03						
Lab ID: LFB										02/02/21 10:30
Laboratory Fortified Blank										Run: FIA203-HE_210202A
Nitrogen, Ammonia as N		0.992	mg/L	0.050	99	90	110			
Lab ID: H21010312-001AMS										02/02/21 10:32
Sample Matrix Spike										Run: FIA203-HE_210202A
Nitrogen, Ammonia as N		1.05	mg/L	0.050	101	80	120			
Lab ID: H21010312-001AMSD										02/02/21 10:33
Sample Matrix Spike Duplicate										Run: FIA203-HE_210202A
Nitrogen, Ammonia as N		1.05	mg/L	0.050	101	80	120	0.0	10	
Lab ID: H21020013-001EMS										02/02/21 10:53
Sample Matrix Spike										Run: FIA203-HE_210202A
Nitrogen, Ammonia as N		1.05	mg/L	0.050	98	80	120			
Lab ID: H21020013-001EMSD										02/02/21 10:55
Sample Matrix Spike Duplicate										Run: FIA203-HE_210202A
Nitrogen, Ammonia as N		1.04	mg/L	0.050	98	80	120	0.8	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2										Analytical Run: FIA203-HE_210201A
Lab ID: ICV	Initial Calibration Verification Standard									
Nitrogen, Nitrate+Nitrite as N		0.997	mg/L	0.010	100	90	110			02/01/21 12:22
Lab ID: CCV										Continuing Calibration Verification Standard
Nitrogen, Nitrate+Nitrite as N		0.466	mg/L	0.010	93	90	110			02/01/21 13:49
Method: E353.2										Batch: R162130
Lab ID: MBLK	Method Blank									
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009				Run: FIA203-HE_210201A		02/01/21 12:24
Lab ID: LFB										Laboratory Fortified Blank
Nitrogen, Nitrate+Nitrite as N		0.961	mg/L	0.011	96	90	110	Run: FIA203-HE_210201A		02/01/21 12:25
Lab ID: H21020007-001DMS	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N		1.06	mg/L	0.011	93	90	110	Run: FIA203-HE_210201A		02/01/21 14:10
Lab ID: H21020007-001DMSD	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N		1.06	mg/L	0.011	94	90	110	0.7	10	02/01/21 14:12

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW3550C								Batch: PMOIST_210202_A		
Lab ID: H21010607-001A DUP		Sample Duplicate		Run: EXTRACT OV 2_210202A				02/02/21 09:17		
Moisture		8.78	wt%	0.20				6.1	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B		Analytical Run: ICP2-HE_210202B								
Lab ID: ICV	6	Initial Calibration Verification Standard							02/02/21 20:06	
Calcium		40.4	mg/L	1.0	101	90	110			
Iron		4.00	mg/L	0.030	100	90	110			
Magnesium		39.9	mg/L	1.0	100	90	110			
Manganese		3.96	mg/L	0.010	99	90	110			
Potassium		40.1	mg/L	1.0	100	90	110			
Sodium		39.9	mg/L	1.0	100	90	110			
Lab ID: ICSA	6	Interference Check Sample A							02/02/21 21:52	
Calcium		488	mg/L	1.0	98	80	120			
Iron		192	mg/L	0.030	96	80	120			
Magnesium		537	mg/L	1.0	107	80	120			
Manganese		-0.00856	mg/L	0.010		0	0			
Potassium		0.0507	mg/L	1.0		0	0			
Sodium		0.0216	mg/L	1.0		0	0			
Lab ID: ICSAB	6	Interference Check Sample AB							02/02/21 21:56	
Calcium		495	mg/L	1.0	99	80	120			
Iron		194	mg/L	0.030	97	80	120			
Magnesium		545	mg/L	1.0	109	80	120			
Manganese		0.491	mg/L	0.010	98	80	120			
Potassium		20.8	mg/L	1.0	104	80	120			
Sodium		20.8	mg/L	1.0	104	80	120			
Method: SW6010B		Batch: R162173								
Lab ID: MB	6	Method Blank							Run: ICP2-HE_210202B 02/02/21 22:08	
Calcium		ND	mg/L	0.08						
Iron		ND	mg/L	0.006						
Magnesium		0.02	mg/L	0.01						
Manganese		ND	mg/L	0.001						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.05						
Lab ID: LFB	6	Laboratory Fortified Blank							Run: ICP2-HE_210202B 02/02/21 22:12	
Calcium		51.7	mg/L	1.0	103	85	115			
Iron		5.16	mg/L	0.030	103	85	115			
Magnesium		51.2	mg/L	1.0	102	85	115			
Manganese		5.05	mg/L	0.010	101	85	115			
Potassium		52.1	mg/L	1.0	104	85	115			
Sodium		51.8	mg/L	1.0	104	85	115			
Lab ID: MB-55097	6	Method Blank							Run: ICP2-HE_210202B 02/03/21 02:12	
Calcium		ND	mg/L	0.08						
Iron		ND	mg/L	0.006						
Magnesium		ND	mg/L	0.01						
Manganese		ND	mg/L	0.001						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.05						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: R162173
Lab ID: MB-55097	6	Method Blank					Run: ICP2-HE_210202B			02/03/21 02:12
Lab ID: H21020001-003CMS2	6	Sample Matrix Spike					Run: ICP2-HE_210202B			02/03/21 02:35
Calcium		67.7	mg/L	1.0	102	75	125			
Iron		5.03	mg/L	0.020	101	75	125			
Magnesium		55.8	mg/L	1.0	102	75	125			
Manganese		5.50	mg/L	0.0014	99	75	125			
Potassium		51.5	mg/L	1.0	101	75	125			
Sodium		52.1	mg/L	1.0	100	75	125			
Lab ID: H21020001-003CMSD	6	Sample Matrix Spike Duplicate					Run: ICP2-HE_210202B			02/03/21 02:38
Calcium		66.6	mg/L	1.0	99	75	125	1.7	20	
Iron		4.93	mg/L	0.020	99	75	125	1.9	20	
Magnesium		54.7	mg/L	1.0	99	75	125	2.0	20	
Manganese		5.39	mg/L	0.0014	97	75	125	2.1	20	
Potassium		51.0	mg/L	1.0	100	75	125	1.0	20	
Sodium		51.5	mg/L	1.0	99	75	125	1.2	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B		Analytical Run: ICP2-HE_210207D								
Lab ID: ICV	8	Initial Calibration Verification Standard							02/07/21 11:50	
Aluminum		4.00	mg/L	0.10	100	90	110			
Calcium		40.3	mg/L	1.0	101	90	110			
Iron		4.00	mg/L	0.030	100	90	110			
Magnesium		40.1	mg/L	1.0	100	90	110			
Manganese		3.91	mg/L	0.010	98	90	110			
Potassium		39.9	mg/L	1.0	100	90	110			
Uranium		2.07	mg/L	0.17	104	90	110			
Zinc		0.787	mg/L	0.010	98	90	110			
Lab ID: ICSA	8	Interference Check Sample A							02/07/21 12:05	
Aluminum		530	mg/L	0.10	106	80	120			
Calcium		488	mg/L	1.0	98	80	120			
Iron		192	mg/L	0.030	96	80	120			
Magnesium		543	mg/L	1.0	109	80	120			
Manganese		-0.00457	mg/L	0.010		0	0			
Potassium		0.00961	mg/L	1.0		0	0			
Uranium		0.170	mg/L	0.17		0	0			
Zinc		0.00396	mg/L	0.010		0	0			
Lab ID: ICSAB	8	Interference Check Sample AB							02/07/21 12:09	
Aluminum		544	mg/L	0.10	109	80	120			
Calcium		489	mg/L	1.0	98	80	120			
Iron		193	mg/L	0.030	96	80	120			
Magnesium		544	mg/L	1.0	109	80	120			
Manganese		0.481	mg/L	0.010	96	80	120			
Potassium		20.4	mg/L	1.0	102	80	120			
Uranium		1.19	mg/L	0.17	119	80	120			
Zinc		1.01	mg/L	0.010	101	80	120			
Method: SW6010B		Batch: 55145								
Lab ID: MB-55145	7	Method Blank					Run: ICP2-HE_210207D		02/07/21 16:13	
Aluminum		ND	mg/kg	4						
Calcium		ND	mg/kg	7						
Iron		ND	mg/kg	20						
Magnesium		ND	mg/kg	6						
Manganese		ND	mg/kg	0.2						
Potassium		ND	mg/kg	5						
Zinc		ND	mg/kg	0.7						
Lab ID: LFB-55145	7	Laboratory Fortified Blank					Run: ICP2-HE_210207D		02/07/21 16:17	
Aluminum		269	mg/kg	5.0	105	80	120			
Calcium		2540	mg/kg	13	100	80	120			
Iron		260	mg/kg	20	102	80	120			
Magnesium		2500	mg/kg	11	98	80	120			
Manganese		251	mg/kg	1.0	98	80	120			
Potassium		2640	mg/kg	5.0	103	80	120			
Zinc		50.2	mg/kg	1.0	99	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 55145
Lab ID: LFB-55145	7	Laboratory Fortified Blank				Run: ICP2-HE_210207D				02/07/21 16:17
Lab ID: LCS-55145	7	Laboratory Control Sample				Run: ICP2-HE_210207D				02/07/21 16:21
Aluminum		8840	mg/kg	18	90	46.3	130.2			
Calcium		5950	mg/kg	64	94	78.9	113.5			
Iron		14500	mg/kg	99	89	51.7	131.9			
Magnesium		2930	mg/kg	53	89	72.9	116.2			
Manganese		391	mg/kg	1.0	90	81.1	116.6			
Potassium		3090	mg/kg	25	97	70.3	120.6			
Zinc		230	mg/kg	3.4	100	75.3	111.7			
Lab ID: H21020116-001ADIL	7	Serial Dilution				Run: ICP2-HE_210207D				02/07/21 17:06
Aluminum		6160	mg/kg-dry	100		0	0	3.1	10	
Calcium		1860	mg/kg-dry	350		0	0		10	N
Iron		8730	mg/kg-dry	550		0	0	5.2	10	
Magnesium		2070	mg/kg-dry	290		0	0		10	N
Manganese		136	mg/kg-dry	4.9		0	0	3.5	10	
Potassium		1700	mg/kg-dry	140		0	0	4.1	10	
Zinc		242	mg/kg-dry	19		0	0	11	10	R
Lab ID: H21020116-001APDS	7	Post Digestion/Distillation Spike				Run: ICP2-HE_210207D				02/07/21 17:09
Aluminum		7760	mg/kg-dry	21		75	125			A
Calcium		15800	mg/kg-dry	73	96	75	125			
Iron		9940	mg/kg-dry	110		75	125			A
Magnesium		16000	mg/kg-dry	60	97	75	125			
Manganese		1500	mg/kg-dry	1.0	94	75	125			
Potassium		15900	mg/kg-dry	28	97	75	125			
Zinc		501	mg/kg-dry	3.9	98	75	125			
Lab ID: H21020116-001AMS	7	Sample Matrix Spike				Run: ICP2-HE_210207D				02/07/21 17:13
Aluminum		9530	mg/kg-dry	20		75	125			A
Calcium		4410	mg/kg-dry	70	97	75	125			
Iron		10200	mg/kg-dry	110		75	125			A
Magnesium		4970	mg/kg-dry	58	112	75	125			
Manganese		418	mg/kg-dry	1.0	103	75	125			
Potassium		5510	mg/kg-dry	27	134	75	125			S
Zinc		290	mg/kg-dry	3.8	133	75	125			S
- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.										
Lab ID: H21020116-001AMSD	7	Sample Matrix Spike Duplicate				Run: ICP2-HE_210207D				02/07/21 17:16
Aluminum		9930	mg/kg-dry	20		75	125	4.1	20	A
Calcium		4530	mg/kg-dry	70	102	75	125	2.7	20	
Iron		10900	mg/kg-dry	110		75	125	6.7	20	A
Magnesium		5260	mg/kg-dry	58	122	75	125	5.7	20	
Manganese		423	mg/kg-dry	1.0	104	75	125	1.3	20	
Potassium		5590	mg/kg-dry	27	137	75	125	1.5	20	S
Zinc		297	mg/kg-dry	3.7	144	75	125	2.2	20	S
- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.										

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated
N - Analyte concentration was not sufficiently high to calculate a Relative Percent Difference (RPD) for the serial dilution test

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020		Analytical Run: ICPMS205-H_210205B								
Lab ID: ICV	16 Initial Calibration Verification Standard									02/05/21 16:15
Aluminum		0.322	mg/L	0.0033	107	90	110			
Antimony		0.0540	mg/L	0.0010	90	90	110			
Arsenic		0.0624	mg/L	0.0010	104	90	110			
Barium		0.0609	mg/L	0.0010	102	90	110			
Beryllium		0.0300	mg/L	0.0010	100	90	110			
Cadmium		0.0312	mg/L	0.0010	104	90	110			
Chromium		0.0625	mg/L	0.0010	104	90	110			
Cobalt		0.0624	mg/L	0.0010	104	90	110			
Copper		0.0626	mg/L	0.0010	104	90	110			
Lead		0.0610	mg/L	0.0010	102	90	110			
Nickel		0.0621	mg/L	0.0010	104	90	110			
Selenium		0.0608	mg/L	0.0010	101	90	110			
Silver		0.0308	mg/L	0.0010	103	90	110			
Thallium		0.0617	mg/L	0.0010	103	90	110			
Vanadium		0.0620	mg/L	0.0010	103	90	110			
Zinc		0.0636	mg/L	0.0013	106	90	110			
Lab ID: ICSA	16 Interference Check Sample A									02/05/21 16:20
Aluminum		45.5	mg/L	0.0033	114	70	130			
Antimony		0.000594	mg/L	0.0010						
Arsenic		8.64E-05	mg/L	0.0010						
Barium		8.11E-05	mg/L	0.0010						
Beryllium		-1.13E-05	mg/L	0.0010						
Cadmium		0.000119	mg/L	0.0010						
Chromium		0.000982	mg/L	0.0010						
Cobalt		0.000261	mg/L	0.0010						
Copper		-0.000144	mg/L	0.0010						
Lead		7.18E-06	mg/L	0.0010						
Nickel		0.000183	mg/L	0.0010		0	0			
Selenium		0.000171	mg/L	0.0010						
Silver		7.59E-06	mg/L	0.0010						
Thallium		4.27E-05	mg/L	0.0010						
Vanadium		-0.000476	mg/L	0.0010		0	0			
Zinc		0.000185	mg/L	0.0013						
Lab ID: ICSAB	16 Interference Check Sample AB									02/05/21 16:22
Aluminum		43.0	mg/L	0.0033	108	70	130			
Antimony		0.000217	mg/L	0.0010		0	0			
Arsenic		0.0101	mg/L	0.0010	101	70	130			
Barium		7.16E-05	mg/L	0.0010		0	0			
Beryllium		2.76E-06	mg/L	0.0010		0	0			
Cadmium		0.00999	mg/L	0.0010	100	70	130			
Chromium		0.0211	mg/L	0.0010	106	70	130			
Cobalt		0.0203	mg/L	0.0010	102	70	130			
Copper		0.0196	mg/L	0.0010	98	70	130			
Lead		2.58E-05	mg/L	0.0010		0	0			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020								Analytical Run: ICPMS205-H_210205B		
Lab ID: ICSAB	16 Interference Check Sample AB								02/05/21 16:22	
Nickel		0.0199	mg/L	0.0010	100	70	130			
Selenium		0.0102	mg/L	0.0010	102	70	130			
Silver		0.0195	mg/L	0.0010	98	70	130			
Thallium		3.74E-05	mg/L	0.0010		0	0			
Vanadium		0.0199	mg/L	0.0010	99	70	130			
Zinc		0.0106	mg/L	0.0013	105	70	130			
Method: SW6020								Batch: R162277		
Lab ID: LRB	16 Method Blank								Run: ICPMS205-H_210205B	
Aluminum		ND	mg/L	0.003						02/05/21 16:35
Antimony		ND	mg/L	0.0002						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.0002						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.0005						
Copper		ND	mg/L	0.0001						
Lead		ND	mg/L	0.0001						
Nickel		ND	mg/L	0.0002						
Selenium		ND	mg/L	0.0001						
Silver		ND	mg/L	9E-05						
Thallium		ND	mg/L	8E-05						
Vanadium		ND	mg/L	0.00010						
Zinc		ND	mg/L	0.001						
Lab ID: LFB	16 Laboratory Fortified Blank								Run: ICPMS205-H_210205B	
Aluminum		0.0540	mg/L	0.0033	108	80	120			02/05/21 16:37
Antimony		0.0511	mg/L	0.0010	102	80	120			
Arsenic		0.0524	mg/L	0.0010	105	80	120			
Barium		0.0504	mg/L	0.0010	101	80	120			
Beryllium		0.0472	mg/L	0.0010	95	80	120			
Cadmium		0.0509	mg/L	0.0010	102	80	120			
Chromium		0.0523	mg/L	0.0010	105	80	120			
Cobalt		0.0530	mg/L	0.0010	106	80	120			
Copper		0.0524	mg/L	0.0010	105	80	120			
Lead		0.0512	mg/L	0.0010	102	80	120			
Nickel		0.0524	mg/L	0.0010	105	80	120			
Selenium		0.0504	mg/L	0.0010	101	80	120			
Silver		0.0203	mg/L	0.0010	101	80	120			
Thallium		0.0513	mg/L	0.0010	103	80	120			
Vanadium		0.0518	mg/L	0.0010	104	80	120			
Zinc		0.0552	mg/L	0.0013	110	80	120			
Lab ID: MB-55097	16 Method Blank								Run: ICPMS205-H_210205B	
Aluminum		ND	mg/L	0.003						02/05/21 16:44

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: R162277
Lab ID: MB-55097	16	Method Blank		Run: ICPMS205-H_210205B				02/05/21 16:44		
Antimony		ND	mg/L	0.0002						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.0002						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	0.0005						
Copper	0.0004		mg/L	0.0001						
Lead		ND	mg/L	0.0001						
Nickel		ND	mg/L	0.0002						
Selenium		ND	mg/L	0.0001						
Silver		ND	mg/L	9E-05						
Thallium		ND	mg/L	8E-05						
Vanadium		ND	mg/L	0.00010						
Zinc		ND	mg/L	0.001						
Lab ID: H21020001-001CDIL	16	Serial Dilution		Run: ICPMS205-H_210205B				02/05/21 16:48		
Aluminum		ND	mg/L	0.030		0	0			10
Antimony		ND	mg/L	0.0010		0	0			10
Arsenic		ND	mg/L	0.0010		0	0			10
Barium	0.108		mg/L	0.050		0	0	4.8		10
Beryllium		ND	mg/L	0.0010		0	0			10
Cadmium		ND	mg/L	0.0010		0	0			10
Chromium		ND	mg/L	0.0050		0	0			10
Cobalt		ND	mg/L	0.0050		0	0			10
Copper		ND	mg/L	0.0050		0	0			10
Lead		ND	mg/L	0.0010		0	0			10
Nickel		ND	mg/L	0.0050		0	0			10
Selenium		ND	mg/L	0.0010		0	0			10
Silver		ND	mg/L	0.0010		0	0			10
Thallium		ND	mg/L	0.00050		0	0			10
Vanadium		ND	mg/L	0.010		0	0			10
Zinc		ND	mg/L	0.010		0	0			10
Lab ID: H21020001-001CMS	16	Sample Matrix Spike		Run: ICPMS205-H_210205B				02/05/21 16:53		
Aluminum	0.0508		mg/L	0.030	13	75	125			S
Antimony	0.0508		mg/L	0.0010	102	75	125			
Arsenic	0.0560		mg/L	0.0010	109	75	125			
Barium	0.162		mg/L	0.050	97	75	125			
Beryllium	0.0489		mg/L	0.0010	98	75	125			
Cadmium	0.0493		mg/L	0.0010	99	75	125			
Chromium	0.0513		mg/L	0.0050	103	75	125			
Cobalt	0.0514		mg/L	0.0050	101	75	125			
Copper	0.0524		mg/L	0.0050	105	75	125			
Lead	0.0509		mg/L	0.0010	102	75	125			
Nickel	0.0514		mg/L	0.0050	102	75	125			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: R162277
Lab ID: H21020001-001CMS	16	Sample Matrix Spike			Run: ICPMS205-H_210205B				02/05/21 16:53	
Selenium		0.0554	mg/L	0.0010	111	75	125			
Silver		0.0196	mg/L	0.0010	98	75	125			
Thallium		0.0512	mg/L	0.00050	102	75	125			
Vanadium		0.0523	mg/L	0.010	105	75	125			
Zinc		0.0566	mg/L	0.010	110	75	125			
Lab ID: H21020001-001CMSD	16	Sample Matrix Spike Duplicate			Run: ICPMS205-H_210205B				02/05/21 16:55	
Aluminum		0.0529	mg/L	0.030	17	75	125	4.0	20	S
Antimony		0.0515	mg/L	0.0010	103	75	125	1.4	20	
Arsenic		0.0547	mg/L	0.0010	107	75	125	2.4	20	
Barium		0.166	mg/L	0.050	104	75	125	2.3	20	
Beryllium		0.0482	mg/L	0.0010	97	75	125	1.4	20	
Cadmium		0.0506	mg/L	0.0010	101	75	125	2.7	20	
Chromium		0.0510	mg/L	0.0050	102	75	125	0.6	20	
Cobalt		0.0518	mg/L	0.0050	101	75	125	0.7	20	
Copper		0.0516	mg/L	0.0050	103	75	125	1.5	20	
Lead		0.0512	mg/L	0.0010	102	75	125	0.7	20	
Nickel		0.0512	mg/L	0.0050	102	75	125	0.5	20	
Selenium		0.0559	mg/L	0.0010	112	75	125	0.9	20	
Silver		0.0199	mg/L	0.0010	99	75	125	1.3	20	
Thallium		0.0519	mg/L	0.00050	104	75	125	1.5	20	
Vanadium		0.0510	mg/L	0.010	102	75	125	2.6	20	
Zinc		0.0539	mg/L	0.010	105	75	125	4.8	20	

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020		Analytical Run: ICPMS205-H_210208A								
Lab ID: ICV	16 Initial Calibration Verification Standard									02/08/21 15:08
Arsenic		0.0631	mg/L	0.0010	105	90	110			
Barium		0.0620	mg/L	0.0010	103	90	110			
Beryllium		0.0315	mg/L	0.0010	105	90	110			
Cadmium		0.0311	mg/L	0.0010	104	90	110			
Calcium		2.94	mg/L	0.26	98	90	110			
Chromium		0.0624	mg/L	0.0010	104	90	110			
Cobalt		0.0631	mg/L	0.0010	105	90	110			
Copper		0.0631	mg/L	0.0010	105	90	110			
Lead		0.0605	mg/L	0.0010	101	90	110			
Nickel		0.0626	mg/L	0.0010	104	90	110			
Selenium		0.0610	mg/L	0.0010	102	90	110			
Silver		0.0312	mg/L	0.0010	104	90	110			
Sodium		3.08	mg/L	0.039	103	90	110			
Thallium		0.0613	mg/L	0.0010	102	90	110			
Vanadium		0.0612	mg/L	0.0010	102	90	110			
Zinc		0.0626	mg/L	0.0013	104	90	110			
Lab ID: ICSA	16 Interference Check Sample A									02/08/21 15:13
Arsenic		0.000156	mg/L	0.0010						
Barium		2.57E-05	mg/L	0.0010						
Beryllium		-1.73E-05	mg/L	0.0010						
Cadmium		0.000103	mg/L	0.0010						
Calcium		120	mg/L	0.26	100	70	130			
Chromium		0.000918	mg/L	0.0010						
Cobalt		0.000201	mg/L	0.0010						
Copper		-0.000200	mg/L	0.0010						
Lead		1.34E-05	mg/L	0.0010						
Nickel		0.000125	mg/L	0.0010		0	0			
Selenium		0.000223	mg/L	0.0010						
Silver		4.97E-06	mg/L	0.0010						
Sodium		98.3	mg/L	0.039	98	70	130			
Thallium		2.52E-05	mg/L	0.0010						
Vanadium		-0.000249	mg/L	0.0010		0	0			
Zinc		-0.00107	mg/L	0.0013						
Lab ID: ICSAB	16 Interference Check Sample AB									02/08/21 15:15
Arsenic		0.0103	mg/L	0.0010	103	70	130			
Barium		4.71E-05	mg/L	0.0010		0	0			
Beryllium		-4.07E-05	mg/L	0.0010		0	0			
Cadmium		0.0103	mg/L	0.0010	103	70	130			
Calcium		117	mg/L	0.26	98	70	130			
Chromium		0.0214	mg/L	0.0010	107	70	130			
Cobalt		0.0204	mg/L	0.0010	102	70	130			
Copper		0.0197	mg/L	0.0010	98	70	130			
Lead		6.82E-06	mg/L	0.0010		0	0			
Nickel		0.0207	mg/L	0.0010	103	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020							Analytical Run: ICPMS205-H_210208A			
Lab ID: ICSAB	16 Interference Check Sample AB							02/08/21 15:15		
Selenium		0.0100	mg/L	0.0010	100	70	130			
Silver		0.0205	mg/L	0.0010	103	70	130			
Sodium		97.6	mg/L	0.039	98	70	130			
Thallium		1.08E-05	mg/L	0.0010		0	0			
Vanadium		0.0202	mg/L	0.0010	101	70	130			
Zinc		0.00875	mg/L	0.0013	88	70	130			
Lab ID: ICV	16 Initial Calibration Verification Standard							02/08/21 17:31		
Arsenic		0.0621	mg/L	0.0050	103	90	110			
Barium		0.0625	mg/L	0.10	104	90	110			
Beryllium		0.0309	mg/L	0.0010	103	90	110			
Cadmium		0.0311	mg/L	0.0010	104	90	110			
Calcium		3.05	mg/L	0.50	102	90	110			
Chromium		0.0605	mg/L	0.010	101	90	110			
Cobalt		0.0617	mg/L	0.010	103	90	110			
Copper		0.0619	mg/L	0.010	103	90	110			
Lead		0.0604	mg/L	0.010	101	90	110			
Nickel		0.0624	mg/L	0.010	104	90	110			
Selenium		0.0625	mg/L	0.0050	104	90	110			
Silver		0.0310	mg/L	0.0050	103	90	110			
Sodium		3.11	mg/L	0.50	104	90	110			
Thallium		0.0611	mg/L	0.10	102	90	110			
Vanadium		0.0604	mg/L	0.10	101	90	110			
Zinc		0.0626	mg/L	0.010	104	90	110			
Lab ID: ICSA	16 Interference Check Sample A							02/08/21 17:33		
Arsenic		0.000142	mg/L	0.0050						
Barium		6.12E-05	mg/L	0.10						
Beryllium		2.49E-05	mg/L	0.0010						
Cadmium		0.000126	mg/L	0.0010						
Calcium		119	mg/L	0.50	99	70	130			
Chromium		0.000870	mg/L	0.010						
Cobalt		0.000225	mg/L	0.010						
Copper		8.32E-06	mg/L	0.010						
Lead		0.000195	mg/L	0.010						
Nickel		0.000152	mg/L	0.010						
Selenium		0.000477	mg/L	0.0050						
Silver		1.36E-05	mg/L	0.0050						
Sodium		101	mg/L	0.50	101	70	130			
Thallium		0.000119	mg/L	0.10						
Vanadium		-0.000183	mg/L	0.10						
Zinc		-8.27E-06	mg/L	0.010						
Lab ID: ICSAB	16 Interference Check Sample AB							02/08/21 17:35		
Arsenic		0.0100	mg/L	0.0050	101	70	130			
Barium		8.39E-05	mg/L	0.10		0	0			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method:	SW6020								Analytical Run: ICPMS205-H_210208A		
Lab ID:	ICSAB	16 Interference Check Sample AB							02/08/21 17:35		
Beryllium		-5.61E-06	mg/L	0.0010			0	0			
Cadmium		0.0103	mg/L	0.0010	103	70	130				
Calcium		120	mg/L	0.50	100	70	130				
Chromium		0.0210	mg/L	0.010	105	70	130				
Cobalt		0.0203	mg/L	0.010	101	70	130				
Copper		0.0196	mg/L	0.010	98	70	130				
Lead		9.56E-05	mg/L	0.010		0	0				
Nickel		0.0204	mg/L	0.010	102	70	130				
Selenium		0.0101	mg/L	0.0050	101	70	130				
Silver		0.0201	mg/L	0.0050	101	70	130				
Sodium		101	mg/L	0.50	101	70	130				
Thallium		7.92E-05	mg/L	0.10		0	0				
Vanadium		0.0204	mg/L	0.10	102	70	130				
Zinc		0.0101	mg/L	0.010	101	70	130				
Method:	SW6020								Batch: 55160		
Lab ID:	MB-55160	16 Method Blank				Run: ICPMS205-H_210208A			02/08/21 15:36		
Arsenic		ND	mg/kg	0.2							
Barium		ND	mg/kg	0.3							
Beryllium		ND	mg/kg	0.4							
Cadmium		ND	mg/kg	0.04							
Calcium		ND	mg/kg	200							
Chromium		ND	mg/kg	1							
Cobalt		ND	mg/kg	0.7							
Copper		ND	mg/kg	1							
Lead		ND	mg/kg	0.5							
Nickel		ND	mg/kg	0.5							
Selenium		ND	mg/kg	0.1							
Silver		ND	mg/kg	0.7							
Sodium		ND	mg/kg	100							
Thallium		ND	mg/kg	0.10							
Vanadium		ND	mg/kg	0.3							
Zinc		ND	mg/kg	3							
Lab ID:	LCS-55160	15 Laboratory Control Sample				Run: ICPMS205-H_210208A			02/08/21 15:38		
Arsenic		159	mg/kg	1.0	81	71.4	105.1				
Barium		186	mg/kg	1.0	100	78.6	112.8				
Beryllium		71.0	mg/kg	1.0	85	76.2	108				
Cadmium		104	mg/kg	1.0	105	73.9	106.1				
Calcium		5910	mg/kg	210	93	78.9	113.5				
Chromium		109	mg/kg	1.2	93	73.5	108.5				
Cobalt		110	mg/kg	1.0	102	74.2	105.6				
Copper		125	mg/kg	1.3	91	76.6	108.8				
Nickel		79.8	mg/kg	1.0	93	72.3	105				
Selenium		194	mg/kg	1.0	95	71.2	110.2				
Silver		45.4	mg/kg	1.0	108	70.8	111.9				

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 55160
Lab ID: LCS-55160	15	Laboratory Control Sample				Run: ICPMS205-H_210208A			02/08/21 15:38	
Sodium		441	mg/kg	96	85	71.3	122.5			
Thallium		102	mg/kg	1.0	103	71.4	107.9			
Vanadium		104	mg/kg	1.0	91	67	107			
Zinc		224	mg/kg	3.1	97	75.3	111.7			
Lab ID: LFB-55160	16	Laboratory Fortified Blank				Run: ICPMS205-H_210208A			02/08/21 15:40	
Arsenic		54.3	mg/kg	1.0	109	80	120			
Barium		54.0	mg/kg	1.0	108	80	120			
Beryllium		29.2	mg/kg	1.0	117	80	120			
Cadmium		27.4	mg/kg	1.0	109	80	120			
Calcium		2490	mg/kg	200	99	80	120			
Chromium		55.7	mg/kg	1.2	111	80	120			
Cobalt		57.5	mg/kg	1.0	115	80	120			
Copper		57.0	mg/kg	1.3	114	80	120			
Lead		59.0	mg/kg	1.0	118	80	120			
Nickel		56.7	mg/kg	1.0	113	80	120			
Selenium		52.0	mg/kg	1.0	104	80	120			
Silver		28.8	mg/kg	1.0	115	80	120			
Sodium		2820	mg/kg	95	113	80	120			
Thallium		57.1	mg/kg	1.0	114	80	120			
Vanadium		54.9	mg/kg	1.0	110	80	120			
Zinc		54.1	mg/kg	3.1	108	80	120			
Lab ID: H21020001-004ADIL	16	Serial Dilution				Run: ICPMS205-H_210208A			02/08/21 15:56	
Arsenic		58.4	mg/kg-dry	1.0		0	0	5.4	10	
Barium		147	mg/kg-dry	1.0		0	0	9.9	10	
Beryllium		ND	mg/kg-dry	1.2		0	0		10	
Cadmium		1.26	mg/kg-dry	1.0		0	0	5.0	10	
Calcium		2600	mg/kg-dry	540		0	0		10	N
Chromium		12.2	mg/kg-dry	3.3		0	0		10	N
Cobalt		7.41	mg/kg-dry	1.9		0	0		10	N
Copper		14.7	mg/kg-dry	3.4		0	0		10	N
Lead		57.9	mg/kg-dry	1.4		0	0	9.5	10	
Nickel		12.7	mg/kg-dry	1.3		0	0		10	N
Selenium		ND	mg/kg-dry	1.0		0	0		10	
Silver		ND	mg/kg-dry	1.9		0	0		10	
Sodium		ND	mg/kg-dry	250		0	0		10	
Thallium		ND	mg/kg-dry	1.0		0	0		10	
Vanadium		15.6	mg/kg-dry	1.0		0	0	0.6	10	
Zinc		124	mg/kg-dry	8.2		0	0	7.4	10	
Lab ID: H21020001-004APDS1	16	Post Digestion/Distillation Spike				Run: ICPMS205-H_210208A			02/08/21 15:58	
Arsenic		58.3	mg/kg-dry	1.0		75	125			A
Barium		176	mg/kg-dry	1.0		75	125			A
Beryllium		2.28	mg/kg-dry	1.0	73	75	125			S
Cadmium		3.98	mg/kg-dry	1.0	101	75	125			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated
N - Analyte concentration was not sufficiently high to calculate a Relative Percent Difference (RPD) for the serial dilution test

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 55160
Lab ID: H21020001-004APDS1	16 Post Digestion/Distillation Spike					Run: ICPMS205-H_210208A			02/08/21 15:58	
Calcium		2810	mg/kg-dry	110		75	125			A
Chromium		14.4	mg/kg-dry	1.0		75	125			A
Cobalt		9.42	mg/kg-dry	1.0	88	75	125			
Copper		16.3	mg/kg-dry	1.0		75	125			A
Lead		68.7	mg/kg-dry	1.0		75	125			A
Nickel		14.4	mg/kg-dry	1.0		75	125			A
Selenium		2.34	mg/kg-dry	1.0	82	75	125			
Silver		1.28	mg/kg-dry	1.0	122	75	125			
Sodium		106	mg/kg-dry	50	83	75	125			
Thallium		2.66	mg/kg-dry	1.0	94	75	125			
Vanadium		17.9	mg/kg-dry	1.0		75	125			A
Zinc		118	mg/kg-dry	1.6		75	125			A
Lab ID: H21020001-004AMS	16 Sample Matrix Spike					Run: ICPMS205-H_210208A			02/08/21 16:00	
Arsenic		76.4	mg/kg-dry	1.0	80	75	125			
Barium		209	mg/kg-dry	1.0		75	125			A
Beryllium		10.8	mg/kg-dry	1.0	79	75	125			
Cadmium		16.3	mg/kg-dry	1.0	113	75	125			
Calcium		3960	mg/kg-dry	110	101	75	125			
Chromium		40.4	mg/kg-dry	1.0	107	75	125			
Cobalt		33.1	mg/kg-dry	1.0	98	75	125			
Copper		40.3	mg/kg-dry	1.0	99	75	125			
Lead		96.5	mg/kg-dry	1.0	124	75	125			
Nickel		36.8	mg/kg-dry	1.0	93	75	125			
Selenium		23.8	mg/kg-dry	1.0	89	75	125			
Silver		15.7	mg/kg-dry	1.0	118	75	125			
Sodium		1180	mg/kg-dry	51	85	75	125			
Thallium		29.8	mg/kg-dry	1.0	112	75	125			
Vanadium		42.0	mg/kg-dry	1.0	100	75	125			
Zinc		138	mg/kg-dry	1.6		75	125			A
Lab ID: H21020001-004AMSD	16 Sample Matrix Spike Duplicate					Run: ICPMS205-H_210208A			02/08/21 16:02	
Arsenic		77.1	mg/kg-dry	1.0	82	75	125	0.8	20	
Barium		211	mg/kg-dry	1.0		75	125	0.6	20	A
Beryllium		10.6	mg/kg-dry	1.0	77	75	125	2.3	20	
Cadmium		16.0	mg/kg-dry	1.0	110	75	125	1.7	20	
Calcium		4020	mg/kg-dry	110	104	75	125	1.4	20	
Chromium		41.2	mg/kg-dry	1.0	109	75	125	1.9	20	
Cobalt		33.0	mg/kg-dry	1.0	97	75	125	0.5	20	
Copper		41.2	mg/kg-dry	1.0	102	75	125	2.3	20	
Lead		102	mg/kg-dry	1.0	145	75	125	5.9	20	S
Nickel		37.4	mg/kg-dry	1.0	94	75	125	1.5	20	
Selenium		24.1	mg/kg-dry	1.0	90	75	125	1.1	20	
Silver		15.6	mg/kg-dry	1.0	117	75	125	0.7	20	
Sodium		1180	mg/kg-dry	51	84	75	125	0.0	20	
Thallium		31.5	mg/kg-dry	1.0	118	75	125	5.7	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated
S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	SW6020								Batch: 55160	
Lab ID:	H21020001-004AMSD	16	Sample Matrix Spike Duplicate			Run: ICPMS205-H_210208A			02/08/21 16:02	
Vanadium		43.2	mg/kg-dry	1.0	104	75	125	2.8	20	
Zinc		139	mg/kg-dry	1.6		75	125	0.6	20	A
Method:	SW6020						Analytical Run: ICPMS205-H_210210A			
Lab ID:	ICV	Initial Calibration Verification Standard						02/10/21 11:17		
Arsenic		0.0612	mg/L	0.0010	102	90	110			
Lab ID:	ICSA	Interference Check Sample A						02/10/21 11:20		
Arsenic		0.000254	mg/L	0.0010						
Lab ID:	ICSAB	Interference Check Sample AB						02/10/21 11:22		
Arsenic		0.0109	mg/L	0.0010	109	70	130			
Method:	SW6020								Batch: 55208	
Lab ID:	MB-55208	Method Blank			Run: ICPMS205-H_210210A			02/10/21 11:46		
Arsenic		ND	mg/kg	0.4						
Lab ID:	H21020001-004CDIL	Serial Dilution			Run: ICPMS205-H_210210A			02/10/21 11:53		
Arsenic		60.4	mg/kg-dry	1.9		0	0	6.3	10	
Lab ID:	H21020001-004CPDS1	Post Digestion/Distillation Spike			Run: ICPMS205-H_210210A			02/10/21 11:55		
Arsenic		67.4	mg/kg-dry	1.0		75	125			A
Lab ID:	LCS-55208	Laboratory Control Sample			Run: ICPMS205-H_210210A			02/10/21 11:57		
Arsenic		168	mg/kg	1.0	86	71.4	105.1			
Lab ID:	LFB-55208	Laboratory Fortified Blank			Run: ICPMS205-H_210210A			02/10/21 11:59		
Arsenic		51.7	mg/kg	1.0	104	80	120			
Lab ID:	H21020001-004CMS	Sample Matrix Spike			Run: ICPMS205-H_210210A			02/10/21 12:01		
Arsenic		106	mg/kg-dry	1.0	98	75	125			
Lab ID:	H21020001-004CMSD	Sample Matrix Spike Duplicate			Run: ICPMS205-H_210210A			02/10/21 12:04		
Arsenic		105	mg/kg-dry	1.0	99	75	125	1.4	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7470A										Analytical Run: HGCV203-H_210208A
Lab ID: ICV		Initial Calibration Verification Standard								02/08/21 12:18
Mercury		0.0935	ug/L	0.0050	94	90	110			
Lab ID: CCV1		Continuing Calibration Verification Standard								02/08/21 12:22
Mercury		0.0983	ug/L	0.0050	98	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								02/08/21 13:08
Mercury		0.101	ug/L	0.0050	101	90	110			
Method: SW7470A										Batch: 55153
Lab ID: MB-55153		Method Blank					Run: HGCV203-H_210208A			02/08/21 12:37
Mercury		ND	ug/L	0.001						
Lab ID: LCS-55153		Laboratory Control Sample					Run: HGCV203-H_210208A			02/08/21 12:40
Mercury		0.0465	ug/L	0.0050	93	90	110			
Lab ID: H21020001-001CMS		Sample Matrix Spike					Run: HGCV203-H_210208A			02/08/21 12:59
Mercury		0.0490	ug/L	0.0050	95	85	115			
Lab ID: H21020001-001CMSD		Sample Matrix Spike Duplicate					Run: HGCV203-H_210208A			02/08/21 13:02
Mercury		0.0472	ug/L	0.0050	92	85	115	3.7	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7471B										Analytical Run: HGCV203-H_210206A
Lab ID: ICV		Initial Calibration Verification Standard								02/06/21 16:47
Mercury		0.00097	mg/kg	0.50	97	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								02/06/21 16:49
Mercury		0.0025	mg/kg	0.50	100	90	110			
Method: SW7471B										Batch: 55095
Lab ID: MB-55095		Method Blank					Run: HGCV203-H_210206A			02/06/21 16:55
Mercury		ND	mg/kg	0.003						
Lab ID: LCS-55095		Laboratory Control Sample					Run: HGCV203-H_210206A			02/06/21 16:57
Mercury		5.2	mg/kg	0.50	103	71	126.4			
Lab ID: LFB-55095		Laboratory Fortified Blank					Run: HGCV203-H_210206A			02/06/21 16:59
Mercury		0.21	mg/kg	0.50	106	80	120			
Lab ID: H21010544-001AMS		Sample Matrix Spike					Run: HGCV203-H_210206A			02/06/21 17:10
Mercury		0.25	mg/kg-dry	0.50	102	80	120			
Lab ID: H21010544-001AMSD		Sample Matrix Spike Duplicate					Run: HGCV203-H_210206A			02/06/21 17:12
Mercury		0.25	mg/kg-dry	0.50	104	80	120	0.9	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015C										Batch: 55068
Lab ID: LCS-55068	3	Laboratory Control Sample				Run: HHP_210202A				02/02/21 19:56
Diesel Range Organics (DRO)		483	mg/kg	10	97	60	140			
Total Extractable Hydrocarbons		509	mg/kg	10	102	60	140			
Surr: o-Terphenyl				0.17	114	50	150			
Lab ID: H21010593-001AMS	3	Sample Matrix Spike				Run: HHP_210202A				02/02/21 21:24
Diesel Range Organics (DRO)		616	mg/kg	10	98	60	140			
Total Extractable Hydrocarbons		904	mg/kg	10	114	60	140			
Surr: o-Terphenyl				0.17	96	50	150			
Lab ID: H21010593-001AMSD	3	Sample Matrix Spike Duplicate				Run: HHP_210202A				02/02/21 22:07
Diesel Range Organics (DRO)		614	mg/kg	10	97	60	140	0.4	20	
Total Extractable Hydrocarbons		906	mg/kg	10	114	60	140	0.2	20	
Surr: o-Terphenyl				0.17	103	50	150			
Lab ID: MB-55068	3	Method Blank				Run: HHP_210202A				02/03/21 01:01
Diesel Range Organics (DRO)		ND	mg/kg	10						
Total Extractable Hydrocarbons		ND	mg/kg	10						
Surr: o-Terphenyl				0.17	99	50	150			
Method: SW8015C										Batch: 55096
Lab ID: MB-55096	3	Method Blank				Run: GC2_210203B				02/03/21 18:55
Gasoline Range Organics (GRO)		ND	mg/kg	2.0						
Total Purgeable Hydrocarbons		ND	mg/kg	2.0						
Surr: Trifluorotoluene				0.010	93	70	130			
Lab ID: LCS-55096	3	Laboratory Control Sample				Run: GC2_210203B				02/03/21 19:26
Gasoline Range Organics (GRO)		19.6	mg/kg	2.0	114	70	130			
Total Purgeable Hydrocarbons		22.2	mg/kg	2.0	111	70	130			
Surr: Trifluorotoluene				0.010	122	70	130			
Lab ID: H21020001-004AMS	3	Sample Matrix Spike				Run: GC2_210203B				02/03/21 22:33
Gasoline Range Organics (GRO)		25.5	mg/kg-dry	5.4	55	70	130			S
Total Purgeable Hydrocarbons		28.5	mg/kg-dry	5.4	53	70	130			S
Surr: Trifluorotoluene				0.027	72	70	130			
Lab ID: H21020001-004AMSD	3	Sample Matrix Spike Duplicate				Run: GC2_210203B				02/03/21 23:04
Gasoline Range Organics (GRO)		25.6	mg/kg-dry	5.4	55	70	130	0.1	20	S
Total Purgeable Hydrocarbons		28.7	mg/kg-dry	5.4	54	70	130	0.8	20	S
Surr: Trifluorotoluene				0.027	72	70	130			

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015C										Batch: 55100
Lab ID: LCS-55100	3	Laboratory Control Sample				Run: HHP_210202B				02/02/21 20:40
Diesel Range Organics (DRO)		12.7	mg/L	0.30	85	60	140			
Total Extractable Hydrocarbons		13.2	mg/L	0.30	88	60	140			
Surr: o-Terphenyl				0.0040	104	50	150			
Lab ID: H21020001-001EMS	3	Sample Matrix Spike				Run: HHP_210202B				02/02/21 22:51
Diesel Range Organics (DRO)		26.2	mg/L	0.60	87	60	140			
Total Extractable Hydrocarbons		27.9	mg/L	0.60	92	60	140			
Surr: o-Terphenyl				0.0080	101	50	150			
Lab ID: H21020001-001EMSD	3	Sample Matrix Spike Duplicate				Run: HHP_210202B				02/02/21 23:34
Diesel Range Organics (DRO)		26.3	mg/L	0.60	87	60	140	0.4	20	
Total Extractable Hydrocarbons		27.6	mg/L	0.60	91	60	140	1.0	20	
Surr: o-Terphenyl				0.0080	100	50	150			
Lab ID: MB-55100	3	Method Blank				Run: HHP_210202B				02/03/21 01:45
Diesel Range Organics (DRO)		ND	mg/L	0.30						
Total Extractable Hydrocarbons		ND	mg/L	0.30						
Surr: o-Terphenyl				0.0040	111	50	150			
Method: SW8015C										Analytical Run: R162187
Lab ID: CCV_0202GC114r	2	Continuing Calibration Verification Standard								02/03/21 03:12
Total Extractable Hydrocarbons		528	mg/kg	10	106	80	120			
Surr: o-Terphenyl				0.17	101	80	120			
Method: SW8015C										Analytical Run: R162192
Lab ID: CCV_0202GC114r	2	Continuing Calibration Verification Standard								02/03/21 03:12
Total Extractable Hydrocarbons		15.8	mg/L	0.30	106	80	120			
Surr: o-Terphenyl				0.0040	101	80	120			
Method: SW8015C										Analytical Run: R162235
Lab ID: CCV_0203GC208r	3	Continuing Calibration Verification Standard								02/03/21 16:43
Gasoline Range Organics (GRO)		17.9	mg/kg	2.0	106	80	120			
Total Purgeable Hydrocarbons		22.6	mg/kg	2.0	113	80	120			
Surr: Trifluorotoluene				0.010	114	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015C										Analytical Run: R162236
Lab ID: CCV_0203GC208r	2	Continuing Calibration Verification Standard								02/03/21 16:43
Total Purgeable Hydrocarbons		226	ug/L	20	113	80	120			
Surr: Trifluorotoluene				1.0	114	80	120			
Method: SW8015C										Batch: R162236
Lab ID: LCS_0203GC209r	2	Laboratory Control Sample								02/03/21 17:14
Total Purgeable Hydrocarbons		220	ug/L	20	110	70	130			
Surr: Trifluorotoluene				1.0	120	70	130			
Lab ID: MBLK_0203GC211r	3	Method Blank								02/03/21 18:24
Gasoline Range Organics (GRO)		ND	ug/L	20						
Total Purgeable Hydrocarbons		ND	ug/L	20						
Surr: Trifluorotoluene				1.0	90	70	130			
Lab ID: H21020001-003DMS	2	Sample Matrix Spike								02/03/21 21:31
Total Purgeable Hydrocarbons		188	ug/L	20	94	70	130			
Surr: Trifluorotoluene				1.0	111	70	130			
Lab ID: H21020001-003DMSD	2	Sample Matrix Spike Duplicate								02/03/21 22:02
Total Purgeable Hydrocarbons		212	ug/L	20	106	70	130	12	20	
Surr: Trifluorotoluene				1.0	119	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B										Batch: B_152627
Lab ID: MB-152627	24	Method Blank		Run: SUB-B355965			02/04/21 20:58			
4,4'-DDD		ND	mg/kg	0.00067						
4,4'-DDE		ND	mg/kg	0.00067						
4,4'-DDT		ND	mg/kg	0.00067						
Aldrin		ND	mg/kg	0.00067						
alpha-BHC		ND	mg/kg	0.00067						
alpha-Chlordane		ND	mg/kg	0.00067						
beta-BHC		ND	mg/kg	0.00067						
Chlordane		ND	mg/kg	0.017						
delta-BHC		ND	mg/kg	0.00067						
Dieldrin		ND	mg/kg	0.00067						
Endosulfan I		ND	mg/kg	0.00067						
Endosulfan II		ND	mg/kg	0.00067						
Endosulfan sulfate		ND	mg/kg	0.00067						
Endrin		ND	mg/kg	0.00067						
Endrin aldehyde		ND	mg/kg	0.00067						
Endrin ketone		ND	mg/kg	0.00067						
gamma-BHC (Lindane)		ND	mg/kg	0.00067						
gamma-Chlordane		ND	mg/kg	0.00067						
Heptachlor		ND	mg/kg	0.00067						
Heptachlor epoxide		ND	mg/kg	0.00067						
Methoxychlor		ND	mg/kg	0.00067						
Toxaphene		ND	mg/kg	0.083						
Surr: Decachlorobiphenyl				0.0017	80	50	126			
Surr: Tetrachloro-m-xylene				0.0017	59	40	110			
Lab ID: LCS-152627	22	Laboratory Control Sample		Run: SUB-B355965			02/04/21 21:26			
4,4'-DDD		0.0295	mg/kg	0.00067	89	61	135			
4,4'-DDE		0.0301	mg/kg	0.00067	90	60	135			
4,4'-DDT		0.0308	mg/kg	0.00067	93	57	139			
Aldrin		0.0269	mg/kg	0.00067	81	53	120			
alpha-BHC		0.0276	mg/kg	0.00067	83	43	120			
alpha-Chlordane		0.0285	mg/kg	0.00067	86	60	125			
beta-BHC		0.0282	mg/kg	0.00067	85	56	120			
delta-BHC		0.0313	mg/kg	0.00067	94	49	120			
Dieldrin		0.0283	mg/kg	0.00067	85	64	120			
Endosulfan I		0.0253	mg/kg	0.00067	76	60	120			
Endosulfan II		0.0287	mg/kg	0.00067	86	67	130			
Endosulfan sulfate		0.0316	mg/kg	0.00067	95	63	135			
Endrin		0.0319	mg/kg	0.00067	96	61	135			
Endrin aldehyde		0.0271	mg/kg	0.00067	82	47	130			
Endrin ketone		0.0296	mg/kg	0.00067	89	63	140			
gamma-BHC (Lindane)		0.0292	mg/kg	0.00067	88	51	120			
gamma-Chlordane		0.0286	mg/kg	0.00067	86	62	120			
Heptachlor		0.0268	mg/kg	0.00067	81	49	120			
Heptachlor epoxide		0.0286	mg/kg	0.00067	86	59	120			
Methoxychlor		0.0319	mg/kg	0.00067	96	50	140			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B										Batch: B_152627
Lab ID: LCS-152627	22	Laboratory Control Sample				Run: SUB-B355965				02/04/21 21:26
Surr: Decachlorobiphenyl				0.0017	79	50	126			
Surr: Tetrachloro-m-xylene				0.0017	65	42	114			
Lab ID: CLD-152627	3	Laboratory Control Sample				Run: SUB-B355965				02/04/21 21:53
Chlordane		0.0649	mg/kg	0.017	78	52	108			
Surr: Decachlorobiphenyl				0.0017	78	50	126			
Surr: Tetrachloro-m-xylene				0.0017	56	42	114			
Lab ID: H21020001-002A	22	Sample Matrix Spike				Run: SUB-B355965				02/04/21 22:48
4,4'-DDD		0.686	mg/kg-dry	0.016	84	61	135			
4,4'-DDE		0.692	mg/kg-dry	0.016	84	60	135			
4,4'-DDT		0.739	mg/kg-dry	0.016	90	57	139			
Aldrin		0.591	mg/kg-dry	0.016	72	53	120			
alpha-BHC		0.602	mg/kg-dry	0.016	73	43	120			
alpha-Chlordane		0.653	mg/kg-dry	0.016	80	60	125			
beta-BHC		0.658	mg/kg-dry	0.016	80	56	120			
delta-BHC		0.730	mg/kg-dry	0.016	89	49	120			
Dieldrin		0.650	mg/kg-dry	0.016	79	64	120			
Endosulfan I		0.563	mg/kg-dry	0.016	69	60	120			
Endosulfan II		0.698	mg/kg-dry	0.016	85	67	130			
Endosulfan sulfate		0.830	mg/kg-dry	0.016	101	63	135			
Endrin		0.740	mg/kg-dry	0.016	90	61	135			
Endrin aldehyde		0.665	mg/kg-dry	0.016	81	47	130			
Endrin ketone		0.726	mg/kg-dry	0.016	88	63	140			
gamma-BHC (Lindane)		0.651	mg/kg-dry	0.016	79	51	120			
gamma-Chlordane		0.641	mg/kg-dry	0.016	78	62	120			
Heptachlor		0.586	mg/kg-dry	0.016	71	49	120			
Heptachlor epoxide		0.722	mg/kg-dry	0.016	88	59	120			
Methoxychlor		0.896	mg/kg-dry	0.016	109	50	140			
Surr: Decachlorobiphenyl				0.041	78	50	126			
Surr: Tetrachloro-m-xylene				0.041	55	40	110			
Lab ID: H21020001-002A	22	Sample Matrix Spike Duplicate				Run: SUB-B355965				02/04/21 23:16
4,4'-DDD		0.668	mg/kg-dry	0.016	81	61	135	2.6	40	
4,4'-DDE		0.666	mg/kg-dry	0.016	81	60	135	3.9	40	
4,4'-DDT		0.733	mg/kg-dry	0.016	89	57	139	0.9	40	
Aldrin		0.513	mg/kg-dry	0.016	63	53	120	14	40	
alpha-BHC		0.510	mg/kg-dry	0.016	62	43	120	17	40	
alpha-Chlordane		0.622	mg/kg-dry	0.016	76	60	125	4.9	40	
beta-BHC		0.617	mg/kg-dry	0.016	75	56	120	6.5	40	
delta-BHC		0.688	mg/kg-dry	0.016	84	49	120	5.9	40	
Dieldrin		0.631	mg/kg-dry	0.016	77	64	120	3.0	40	
Endosulfan I		0.553	mg/kg-dry	0.016	67	60	120	1.9	40	
Endosulfan II		0.683	mg/kg-dry	0.016	83	67	130	2.1	40	
Endosulfan sulfate		0.820	mg/kg-dry	0.016	100	63	135	1.3	40	
Endrin		0.709	mg/kg-dry	0.016	86	61	135	4.3	40	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B									Batch: B_152627	
Lab ID: H21020001-002A		22 Sample Matrix Spike Duplicate				Run: SUB-B355965			02/04/21 23:16	
Endrin aldehyde		0.625	mg/kg-dry	0.016	76	47	130	6.2	40	
Endrin ketone		0.724	mg/kg-dry	0.016	88	63	140	0.2	40	
gamma-BHC (Lindane)		0.574	mg/kg-dry	0.016	70	51	120	13	40	
gamma-Chlordane		0.616	mg/kg-dry	0.016	75	62	120	4.1	40	
Heptachlor		0.537	mg/kg-dry	0.016	65	49	120	8.8	40	
Heptachlor epoxide		0.657	mg/kg-dry	0.016	80	59	120	9.4	40	
Methoxychlor		0.812	mg/kg-dry	0.016	99	50	140	9.9	40	
Surr: Decachlorobiphenyl				0.041	77	50	126			
Surr: Tetrachloro-m-xylene				0.041	51	40	110			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B										Batch: B_152628
Lab ID: MB-152628	24 Method Blank			Run: SUB-B355982				02/05/21 15:21		
4,4'-DDD		ND	ug/L	0.0040						
4,4'-DDE		ND	ug/L	0.0040						
4,4'-DDT		ND	ug/L	0.0040						
Aldrin		ND	ug/L	0.0040						
alpha-BHC		ND	ug/L	0.0040						
alpha-Chlordane		ND	ug/L	0.0040						
beta-BHC		ND	ug/L	0.0040						
Chlordane		ND	ug/L	0.10						
delta-BHC		ND	ug/L	0.0040						
Dieldrin		ND	ug/L	0.0040						
Endosulfan I		ND	ug/L	0.0040						
Endosulfan II		ND	ug/L	0.0040						
Endosulfan sulfate		ND	ug/L	0.0040						
Endrin		ND	ug/L	0.0040						
Endrin aldehyde		ND	ug/L	0.0040						
Endrin ketone		ND	ug/L	0.0040						
gamma-BHC (Lindane)		ND	ug/L	0.0040						
gamma-Chlordane		ND	ug/L	0.0040						
Heptachlor		ND	ug/L	0.0040						
Heptachlor epoxide		ND	ug/L	0.0040						
Methoxychlor		ND	ug/L	0.0040						
Toxaphene		ND	ug/L	0.50						
Surr: Decachlorobiphenyl				0.010	70	43	130			
Surr: Tetrachloro-m-xylene				0.010	59	40	110			
Lab ID: LCS-152628	22 Laboratory Control Sample			Run: SUB-B355982				02/05/21 15:49		
4,4'-DDD		0.171	ug/L	0.0040	85	69	125			
4,4'-DDE		0.173	ug/L	0.0040	86	52	137			
4,4'-DDT		0.195	ug/L	0.0040	97	69	131			
Aldrin		0.149	ug/L	0.0040	75	58	111			
alpha-BHC		0.173	ug/L	0.0040	86	63	114			
alpha-Chlordane		0.164	ug/L	0.0040	82	68	115			
beta-BHC		0.170	ug/L	0.0040	85	62	121			
delta-BHC		0.185	ug/L	0.0040	93	52	110			
Dieldrin		0.164	ug/L	0.0040	82	75	130			
Endosulfan I		0.147	ug/L	0.0040	74	62	129			
Endosulfan II		0.165	ug/L	0.0040	83	72	124			
Endosulfan sulfate		0.182	ug/L	0.0040	91	67	124			
Endrin		0.187	ug/L	0.0040	93	63	127			
Endrin aldehyde		0.152	ug/L	0.0040	76	50	124			
Endrin ketone		0.168	ug/L	0.0040	84	68	134			
gamma-BHC (Lindane)		0.177	ug/L	0.0040	88	64	118			
gamma-Chlordane		0.163	ug/L	0.0040	81	68	117			
Heptachlor		0.151	ug/L	0.0040	76	57	118			
Heptachlor epoxide		0.167	ug/L	0.0040	84	70	120			
Methoxychlor		0.175	ug/L	0.0040	87	63	137			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B										Batch: B_152628
Lab ID: LCS-152628	22	Laboratory Control Sample			Run: SUB-B355982			02/05/21 15:49		
Surr: Decachlorobiphenyl				0.010	71	43	130			
Surr: Tetrachloro-m-xylene				0.010	61	40	110			
Lab ID: LCSDUP-152628	22	Laboratory Control Sample Duplicate			Run: SUB-B355982			02/05/21 16:16		
4,4´-DDD		0.165	ug/L	0.0040	83	69	125	3.3	40	
4,4´-DDE		0.168	ug/L	0.0040	84	52	137	2.6	40	
4,4´-DDT		0.168	ug/L	0.0040	84	69	131	15	40	
Aldrin		0.142	ug/L	0.0040	71	58	111	4.9	40	
alpha-BHC		0.172	ug/L	0.0040	86	63	114	0.2	40	
alpha-Chlordane		0.161	ug/L	0.0040	81	68	115	1.7	40	
beta-BHC		0.167	ug/L	0.0040	83	62	121	1.7	40	
delta-BHC		0.185	ug/L	0.0040	92	52	110	0.3	40	
Dieldrin		0.161	ug/L	0.0040	81	75	130	2.1	40	
Endosulfan I		0.146	ug/L	0.0040	73	62	129	1.1	40	
Endosulfan II		0.160	ug/L	0.0040	80	72	124	3.1	40	
Endosulfan sulfate		0.178	ug/L	0.0040	89	67	124	2.4	40	
Endrin		0.183	ug/L	0.0040	91	63	127	2.2	40	
Endrin aldehyde		0.152	ug/L	0.0040	76	50	124	0.3	40	
Endrin ketone		0.162	ug/L	0.0040	81	68	134	3.6	40	
gamma-BHC (Lindane)		0.176	ug/L	0.0040	88	64	118	0.5	40	
gamma-Chlordane		0.160	ug/L	0.0040	80	68	117	1.5	40	
Heptachlor		0.145	ug/L	0.0040	73	57	118	4.2	40	
Heptachlor epoxide		0.164	ug/L	0.0040	82	70	120	1.8	40	
Methoxychlor		0.171	ug/L	0.0040	86	63	137	2.2	40	
Surr: Decachlorobiphenyl				0.010	69	43	130			
Surr: Tetrachloro-m-xylene				0.010	60	40	110			
- Insufficient sample was available to perform a Matrix Spike Duplicate, so a Laboratory Control Sample Duplicate is included in the reporting package to assess precision.										
Lab ID: TOX-152628	3	Laboratory Control Sample			Run: SUB-B355982			02/05/21 16:44		
Toxaphene		0.856	ug/L	0.50	86	51	119			
Surr: Decachlorobiphenyl				0.010	71	43	130			
Surr: Tetrachloro-m-xylene				0.010	61	40	110			
Lab ID: H21020001-003H	22	Sample Matrix Spike			Run: SUB-B355982			02/05/21 18:06		
4,4´-DDD		0.403	ug/L	0.010	81	69	125			
4,4´-DDE		0.408	ug/L	0.010	82	52	137			
4,4´-DDT		0.417	ug/L	0.010	83	69	131			
Aldrin		0.363	ug/L	0.010	73	58	111			
alpha-BHC		0.413	ug/L	0.010	83	63	114			
alpha-Chlordane		0.396	ug/L	0.010	79	68	115			
beta-BHC		0.413	ug/L	0.010	83	62	121			
delta-BHC		0.458	ug/L	0.010	92	52	110			
Dieldrin		0.400	ug/L	0.010	80	75	130			
Endosulfan I		0.356	ug/L	0.010	71	62	129			
Endosulfan II		0.404	ug/L	0.010	81	72	124			
Endosulfan sulfate		0.476	ug/L	0.010	95	67	124			
Endrin		0.446	ug/L	0.010	89	63	127			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B									Batch: B_152628	
Lab ID: H21020001-003H	22	Sample Matrix Spike			Run: SUB-B355982			02/05/21 18:06		
Endrin aldehyde		0.379	ug/L	0.010	76	50	124			
Endrin ketone		0.412	ug/L	0.010	83	68	134			
gamma-BHC (Lindane)		0.428	ug/L	0.010	86	64	118			
gamma-Chlordane		0.377	ug/L	0.010	75	68	117			
Heptachlor		0.375	ug/L	0.010	75	57	118			
Heptachlor epoxide		0.403	ug/L	0.010	81	70	120			
Methoxychlor		0.432	ug/L	0.010	86	63	137			
Surr: Decachlorobiphenyl				0.025	53	43	130			
Surr: Tetrachloro-m-xylene				0.025	62	40	110			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B								Analytical Run: B_R355965		
Lab ID: 8081CK5	22 Continuing Calibration Verification Standard							02/04/21 19:35		
4,4´-DDD		0.0347	mg/kg	0.00067	104	80	120			
4,4´-DDE		0.0343	mg/kg	0.00067	103	80	120			
4,4´-DDT		0.0347	mg/kg	0.00067	104	80	120			
Aldrin		0.0350	mg/kg	0.00067	105	80	120			
alpha-BHC		0.0370	mg/kg	0.00067	111	80	120			
alpha-Chlordane		0.0326	mg/kg	0.00067	98	80	120			
beta-BHC		0.0332	mg/kg	0.00067	100	80	120			
delta-BHC		0.0370	mg/kg	0.00067	111	80	120			
Dieldrin		0.0343	mg/kg	0.00067	103	80	120			
Endosulfan I		0.0333	mg/kg	0.00067	100	80	120			
Endosulfan II		0.0347	mg/kg	0.00067	104	80	120			
Endosulfan sulfate		0.0350	mg/kg	0.00067	105	80	120			
Endrin		0.0363	mg/kg	0.00067	109	80	120			
Endrin aldehyde		0.0343	mg/kg	0.00067	103	80	120			
Endrin ketone		0.0347	mg/kg	0.00067	104	80	120			
gamma-BHC (Lindane)		0.0357	mg/kg	0.00067	107	80	120			
gamma-Chlordane		0.0327	mg/kg	0.00067	98	80	120			
Heptachlor		0.0333	mg/kg	0.00067	100	80	120			
Heptachlor epoxide		0.0337	mg/kg	0.00067	101	80	120			
Methoxychlor		0.0340	mg/kg	0.00067	102	80	120			
Surr: Decachlorobiphenyl				0.0017	86	80	120			
Surr: Tetrachloro-m-xylene				0.0017	101	80	120			
Lab ID: TOX	3 Continuing Calibration Verification Standard							02/04/21 20:30		
Toxaphene		0.177	mg/kg	0.083	106	80	120			
Surr: Decachlorobiphenyl				0.0017	88	80	120			
Surr: Tetrachloro-m-xylene				0.0017	91	80	120			
Lab ID: 8081CK5	22 Continuing Calibration Verification Standard							02/05/21 01:06		
4,4´-DDD		0.0363	mg/kg	0.00067	109	80	120			
4,4´-DDE		0.0353	mg/kg	0.00067	106	80	120			
4,4´-DDT		0.0316	mg/kg	0.00067	95	80	120			
Aldrin		0.0360	mg/kg	0.00067	108	80	120			
alpha-BHC		0.0377	mg/kg	0.00067	113	80	120			
alpha-Chlordane		0.0333	mg/kg	0.00067	100	80	120			
beta-BHC		0.0325	mg/kg	0.00067	97	80	120			
delta-BHC		0.0360	mg/kg	0.00067	108	80	120			
Dieldrin		0.0353	mg/kg	0.00067	106	80	120			
Endosulfan I		0.0347	mg/kg	0.00067	104	80	120			
Endosulfan II		0.0357	mg/kg	0.00067	107	80	120			
Endosulfan sulfate		0.0357	mg/kg	0.00067	107	80	120			
Endrin		0.0367	mg/kg	0.00067	110	80	120			
Endrin aldehyde		0.0347	mg/kg	0.00067	104	80	120			
Endrin ketone		0.0357	mg/kg	0.00067	107	80	120			
gamma-BHC (Lindane)		0.0360	mg/kg	0.00067	108	80	120			
gamma-Chlordane		0.0337	mg/kg	0.00067	101	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B								Analytical Run: B_R355965		
Lab ID: 8081CK5	22 Continuing Calibration Verification Standard								02/05/21 01:06	
Heptachlor		0.0343	mg/kg	0.00067	103	80	120			
Heptachlor epoxide		0.0347	mg/kg	0.00067	104	80	120			
Methoxychlor		0.0303	mg/kg	0.00067	91	80	120			
Surr: Decachlorobiphenyl				0.0017	88	80	120			
Surr: Tetrachloro-m-xylene				0.0017	103	80	120			
Lab ID: TOX	3 Continuing Calibration Verification Standard								02/05/21 02:01	
Toxaphene		0.176	mg/kg	0.083	105	80	120			
Surr: Decachlorobiphenyl				0.0017	92	80	120			
Surr: Tetrachloro-m-xylene				0.0017	98	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B								Analytical Run: B_R355982		
Lab ID: 8081CK3	22 Continuing Calibration Verification Standard								02/05/21 14:26	
4,4'-DDD		0.0364	ug/L	0.0040	91	80	120			
4,4'-DDE		0.0348	ug/L	0.0040	87	80	120			
4,4'-DDT		0.0382	ug/L	0.0040	96	80	120			
Aldrin		0.0360	ug/L	0.0040	90	80	120			
alpha-BHC		0.0358	ug/L	0.0040	89	80	120			
alpha-Chlordane		0.0372	ug/L	0.0040	93	80	120			
beta-BHC		0.0376	ug/L	0.0040	94	80	120			
delta-BHC		0.0326	ug/L	0.0040	82	80	120			
Dieldrin		0.0356	ug/L	0.0040	89	80	120			
Endosulfan I		0.0372	ug/L	0.0040	93	80	120			
Endosulfan II		0.0362	ug/L	0.0040	91	80	120			
Endosulfan sulfate		0.0348	ug/L	0.0040	87	80	120			
Endrin		0.0374	ug/L	0.0040	94	80	120			
Endrin aldehyde		0.0356	ug/L	0.0040	89	80	120			
Endrin ketone		0.0350	ug/L	0.0040	88	80	120			
gamma-BHC (Lindane)		0.0368	ug/L	0.0040	92	80	120			
gamma-Chlordane		0.0372	ug/L	0.0040	93	80	120			
Heptachlor		0.0382	ug/L	0.0040	96	80	120			
Heptachlor epoxide		0.0372	ug/L	0.0040	93	80	120			
Methoxychlor		0.0394	ug/L	0.0040	98	80	120			
Surr: Decachlorobiphenyl				0.010	94	80	120			
Surr: Tetrachloro-m-xylene				0.010	100	80	120			
Lab ID: TOX	3 Continuing Calibration Verification Standard								02/05/21 14:54	
Toxaphene		1.01	ug/L	0.50	101	80	120			
Surr: Decachlorobiphenyl				0.010	84	80	120			
Surr: Tetrachloro-m-xylene				0.010	92	80	120			
Lab ID: 8081CK5	22 Continuing Calibration Verification Standard								02/05/21 19:01	
4,4'-DDD		0.199	ug/L	0.0040	100	80	120			
4,4'-DDE		0.196	ug/L	0.0040	98	80	120			
4,4'-DDT		0.189	ug/L	0.0040	94	80	120			
Aldrin		0.200	ug/L	0.0040	100	80	120			
alpha-BHC		0.212	ug/L	0.0040	106	80	120			
alpha-Chlordane		0.187	ug/L	0.0040	93	80	120			
beta-BHC		0.191	ug/L	0.0040	96	80	120			
delta-BHC		0.210	ug/L	0.0040	105	80	120			
Dieldrin		0.196	ug/L	0.0040	98	80	120			
Endosulfan I		0.192	ug/L	0.0040	96	80	120			
Endosulfan II		0.199	ug/L	0.0040	99	80	120			
Endosulfan sulfate		0.196	ug/L	0.0040	98	80	120			
Endrin		0.204	ug/L	0.0040	102	80	120			
Endrin aldehyde		0.192	ug/L	0.0040	96	80	120			
Endrin ketone		0.197	ug/L	0.0040	98	80	120			
gamma-BHC (Lindane)		0.206	ug/L	0.0040	103	80	120			
gamma-Chlordane		0.187	ug/L	0.0040	93	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8081B										Analytical Run: B_R355982
Lab ID: 8081CK5										02/05/21 19:01
22 Continuing Calibration Verification Standard										
Heptachlor		0.186	ug/L	0.0040	93	80	120			
Heptachlor epoxide		0.192	ug/L	0.0040	96	80	120			
Methoxychlor		0.184	ug/L	0.0040	92	80	120			
Surr: Decachlorobiphenyl				0.010	81	80	120			
Surr: Tetrachloro-m-xylene				0.010	95	80	120			
Lab ID: TOX										02/05/21 19:29
3 Continuing Calibration Verification Standard										
Toxaphene		1.04	ug/L	0.50	104	80	120			
Surr: Decachlorobiphenyl				0.010	86	80	120			
Surr: Tetrachloro-m-xylene				0.010	95	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Analytical Run: B_R355960		
Lab ID: CCV020321	73 Continuing Calibration Verification Standard							02/03/21 12:16		
Acetone		48.6	ug/L	10	97	70	130			
Acrolein		47.2	ug/L	20	94	70	130			
Acrylonitrile		47.9	ug/L	10	96	70	130			
Benzene		5.22	ug/L	0.50	104	70	130			
Bromobenzene		5.39	ug/L	0.50	108	70	130			
Bromochloromethane		5.48	ug/L	0.50	110	70	130			
Bromodichloromethane		5.14	ug/L	0.50	103	70	130			
Bromoform		5.28	ug/L	0.50	106	70	130			
Bromomethane		4.27	ug/L	0.50	85	70	130			
n-Butylbenzene		5.60	ug/L	0.50	112	70	130			
sec-Butylbenzene		5.27	ug/L	0.50	105	70	130			
tert-Butylbenzene		5.50	ug/L	0.50	110	70	130			
Carbon tetrachloride		5.80	ug/L	0.50	116	70	130			
Chlorobenzene		5.16	ug/L	0.50	103	70	130			
Chlorodibromomethane		5.23	ug/L	0.50	105	70	130			
Chloroethane		4.85	ug/L	0.50	97	70	130			
2-Chloroethyl vinyl ether		4.07	ug/L	0.50	81	70	130			
Chloroform		5.41	ug/L	0.50	108	80	120			
Chloromethane		5.54	ug/L	0.50	111	70	130			
2-Chlorotoluene		5.35	ug/L	0.50	107	70	130			
4-Chlorotoluene		5.60	ug/L	0.50	112	70	130			
1,2-Dibromo-3-chloropropane		4.67	ug/L	1.0	93	70	130			
1,2-Dibromoethane		5.15	ug/L	0.50	103	70	130			
Dibromomethane		5.20	ug/L	0.50	104	70	130			
1,2-Dichlorobenzene		5.22	ug/L	0.50	104	70	130			
1,3-Dichlorobenzene		5.39	ug/L	0.50	108	70	130			
1,4-Dichlorobenzene		5.14	ug/L	0.50	103	70	130			
Dichlorodifluoromethane		5.54	ug/L	0.50	111	70	130			
1,1-Dichloroethane		5.41	ug/L	0.50	108	70	130			
1,2-Dichloroethane		5.10	ug/L	0.50	102	70	130			
1,1-Dichloroethene		5.36	ug/L	0.50	107	80	120			
cis-1,2-Dichloroethene		5.33	ug/L	0.50	107	70	130			
trans-1,2-Dichloroethene		5.44	ug/L	0.50	109	70	130			
1,2-Dichloropropane		5.22	ug/L	0.50	104	80	120			
1,3-Dichloropropane		5.26	ug/L	0.50	105	70	130			
2,2-Dichloropropane		5.48	ug/L	0.50	110	70	130			
1,1-Dichloropropene		5.63	ug/L	0.50	113	70	130			
cis-1,3-Dichloropropene		5.39	ug/L	0.50	108	70	130			
trans-1,3-Dichloropropene		4.89	ug/L	0.50	98	70	130			
Ethylbenzene		5.20	ug/L	0.50	104	80	120			
Hexachlorobutadiene		5.01	ug/L	0.50	100	70	130			
2-Hexanone		50.4	ug/L	10	101	70	130			
Isopropylbenzene		5.25	ug/L	0.50	105	70	130			
p-Isopropyltoluene		5.50	ug/L	0.50	110	70	130			
Methyl tert-butyl ether (MTBE)		4.99	ug/L	0.50	100	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Analytical Run: B_R355960
Lab ID: CCV020321	73 Continuing Calibration Verification Standard									02/03/21 12:16
Methyl ethyl ketone		52.6	ug/L	10	105	70	130			
Methyl isobutyl ketone		51.8	ug/L	10	104	70	130			
Methylene chloride		4.92	ug/L	0.50	98	70	130			
Naphthalene		4.65	ug/L	0.50	93	70	130			
n-Propylbenzene		5.26	ug/L	0.50	105	70	130			
Styrene		5.28	ug/L	0.50	106	70	130			
1,1,1,2-Tetrachloroethane		5.37	ug/L	0.50	107	70	130			
1,1,2,2-Tetrachloroethane		5.36	ug/L	0.50	107	70	130			
Tetrachloroethene		5.42	ug/L	0.50	108	70	130			
Toluene		5.18	ug/L	0.50	104	80	120			
1,2,3-Trichlorobenzene		4.03	ug/L	0.50	81	70	130			
1,2,4-Trichlorobenzene		5.07	ug/L	0.50	101	70	130			
1,1,1-Trichloroethane		5.53	ug/L	0.50	111	70	130			
1,1,2-Trichloroethane		5.33	ug/L	0.50	107	70	130			
Trichloroethene		5.22	ug/L	0.50	104	70	130			
Trichlorofluoromethane		5.12	ug/L	0.50	102	70	130			
1,2,3-Trichloropropane		5.37	ug/L	0.50	107	70	130			
1,2,4-Trimethylbenzene		5.36	ug/L	0.50	107	70	130			
1,3,5-Trimethylbenzene		5.53	ug/L	0.50	111	70	130			
Vinyl acetate		5.19	ug/L	1.0	104	70	130			
Vinyl chloride		5.27	ug/L	0.50	105	80	120			
m+p-Xylenes		10.5	ug/L	0.50	105	70	130			
o-Xylene		5.20	ug/L	0.50	104	70	130			
Xylenes, Total		15.7	ug/L	0.50	105	70	130			
Surr: 1,2-Dichloroethane-d4				0.50	102	70	130			
Surr: Dibromofluoromethane				0.50	104	77	126			
Surr: p-Bromofluorobenzene				0.50	105	76	127			
Surr: Toluene-d8				0.50	104	79	122			
Lab ID: LX_CCV020321	7 Continuing Calibration Verification Standard									02/03/21 12:43
Acetonitrile		52.1	ug/L	20	104	70	130			
Carbon disulfide		5.84	ug/L	0.50	117	70	130			
Iodomethane		1.84	ug/L	1.0	37	70	130			S
Surr: 1,2-Dichloroethane-d4				0.50	103	70	130			
Surr: Dibromofluoromethane				0.50	104	77	126			
Surr: p-Bromofluorobenzene				0.50	107	76	127			
Surr: Toluene-d8				0.50	104	79	122			
Method: SW8260B										Batch: B_R355960
Lab ID: LCS020321	73 Laboratory Control Sample									Run: SUB-B355960
										02/03/21 13:11
Acetone		48.0	ug/L	10	96	62	130			
Acrolein		53.7	ug/L	20	107	22	203			
Acrylonitrile		49.7	ug/L	10	99	60	130			
Benzene		5.28	ug/L	0.50	106	71	133			
Bromobenzene		5.30	ug/L	0.50	106	78	133			
Bromochloromethane		5.23	ug/L	0.50	105	68	131			

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B		Batch: B_R355960								
Lab ID: LCS020321	73 Laboratory Control Sample				Run: SUB-B355960				02/03/21 13:11	
Bromodichloromethane		5.10	ug/L	0.50	102	67	138			
Bromoform		5.24	ug/L	0.50	105	64	136			
Bromomethane		4.12	ug/L	0.50	82	60	138			
n-Butylbenzene		5.53	ug/L	0.50	111	72	135			
sec-Butylbenzene		5.52	ug/L	0.50	110	73	135			
tert-Butylbenzene		5.53	ug/L	0.50	111	69	137			
Carbon tetrachloride		5.37	ug/L	0.50	107	61	144			
Chlorobenzene		5.26	ug/L	0.50	105	78	136			
Chlorodibromomethane		4.98	ug/L	0.50	100	72	136			
Chloroethane		4.73	ug/L	0.50	95	64	136			
2-Chloroethyl vinyl ether		4.51	ug/L	0.50	90	64	132			
Chloroform		5.20	ug/L	0.50	104	69	133			
Chloromethane		4.91	ug/L	0.50	98	63	149			
2-Chlorotoluene		5.29	ug/L	0.50	106	74	135			
4-Chlorotoluene		5.62	ug/L	0.50	112	79	135			
1,2-Dibromo-3-chloropropane		4.85	ug/L	1.0	97	63	125			
1,2-Dibromoethane		5.22	ug/L	0.50	104	75	131			
Dibromomethane		5.17	ug/L	0.50	103	72	133			
1,2-Dichlorobenzene		5.26	ug/L	0.50	105	78	129			
1,3-Dichlorobenzene		5.42	ug/L	0.50	108	79	132			
1,4-Dichlorobenzene		5.25	ug/L	0.50	105	78	131			
Dichlorodifluoromethane		6.45	ug/L	0.50	129	55	141			
1,1-Dichloroethane		5.41	ug/L	0.50	108	72	130			
1,2-Dichloroethane		5.21	ug/L	0.50	104	57	146			
1,1-Dichloroethene		5.43	ug/L	0.50	109	66	142			
cis-1,2-Dichloroethene		5.64	ug/L	0.50	113	74	133			
trans-1,2-Dichloroethene		5.57	ug/L	0.50	111	76	138			
1,2-Dichloropropane		5.17	ug/L	0.50	103	72	135			
1,3-Dichloropropane		5.09	ug/L	0.50	102	75	134			
2,2-Dichloropropane		5.62	ug/L	0.50	112	42	167			
1,1-Dichloropropene		5.18	ug/L	0.50	104	72	140			
cis-1,3-Dichloropropene		5.23	ug/L	0.50	105	75	132			
trans-1,3-Dichloropropene		5.01	ug/L	0.50	100	77	145			
Ethylbenzene		5.51	ug/L	0.50	110	78	131			
Hexachlorobutadiene		5.56	ug/L	0.50	111	65	141			
2-Hexanone		52.0	ug/L	10	104	72	131			
Isopropylbenzene		5.25	ug/L	0.50	105	72	135			
p-Isopropyltoluene		5.58	ug/L	0.50	112	71	134			
Methyl tert-butyl ether (MTBE)		5.31	ug/L	0.50	106	58	151			
Methyl ethyl ketone		54.3	ug/L	10	109	55	145			
Methyl isobutyl ketone		52.8	ug/L	10	106	73	129			
Methylene chloride		4.72	ug/L	0.50	94	73	126			
Naphthalene		5.35	ug/L	0.50	107	55	139			
n-Propylbenzene		5.22	ug/L	0.50	104	70	139			
Styrene		5.49	ug/L	0.50	110	76	134			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: B_R355960
Lab ID: LCS020321	73 Laboratory Control Sample				Run: SUB-B355960				02/03/21 13:11	
1,1,1,2-Tetrachloroethane		5.38	ug/L	0.50	108	75	135			
1,1,2,2-Tetrachloroethane		5.24	ug/L	0.50	105	72	132			
Tetrachloroethene		5.32	ug/L	0.50	106	78	137			
Toluene		5.30	ug/L	0.50	106	78	134			
1,2,3-Trichlorobenzene		5.18	ug/L	0.50	104	42	152			
1,2,4-Trichlorobenzene		5.35	ug/L	0.50	107	58	142			
1,1,1-Trichloroethane		5.39	ug/L	0.50	108	64	141			
1,1,2-Trichloroethane		5.27	ug/L	0.50	105	72	133			
Trichloroethene		5.30	ug/L	0.50	106	75	138			
Trichlorofluoromethane		5.05	ug/L	0.50	101	58	139			
1,2,3-Trichloropropane		5.16	ug/L	0.50	103	67	133			
1,2,4-Trimethylbenzene		5.48	ug/L	0.50	110	71	129			
1,3,5-Trimethylbenzene		5.50	ug/L	0.50	110	68	135			
Vinyl acetate		4.79	ug/L	1.0	96	31	124			
Vinyl chloride		5.14	ug/L	0.50	103	66	140			
m+p-Xylenes		10.3	ug/L	0.50	103	78	133			
o-Xylene		5.36	ug/L	0.50	107	79	136			
Xylenes, Total		15.7	ug/L	0.50	104	78	136			
Surr: 1,2-Dichloroethane-d4				0.50	101	70	130			
Surr: Dibromofluoromethane				0.50	102	77	126			
Surr: p-Bromofluorobenzene				0.50	103	76	127			
Surr: Toluene-d8				0.50	103	79	122			
Lab ID: LX_LCS020321	7 Laboratory Control Sample				Run: SUB-B355960				02/03/21 13:38	
Acetonitrile		47.0	ug/L	20	94	54	142			
Carbon disulfide		4.90	ug/L	0.50	98	46	145			
Iodomethane		3.01	ug/L	1.0	60	66	132			S
Surr: 1,2-Dichloroethane-d4				0.50	101	70	130			
Surr: Dibromofluoromethane				0.50	103	77	126			
Surr: p-Bromofluorobenzene				0.50	108	76	127			
Surr: Toluene-d8				0.50	104	79	122			
Lab ID: MBLK020321	76 Method Blank				Run: SUB-B355960				02/03/21 14:33	
Acetonitrile		ND	ug/L	20						
Acetone		ND	ug/L	10						
Acrolein		ND	ug/L	20						
Acrylonitrile		ND	ug/L	10						
Benzene		ND	ug/L	0.50						
Bromobenzene		ND	ug/L	0.50						
Bromochloromethane		ND	ug/L	0.50						
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Bromomethane		ND	ug/L	0.50						
n-Butylbenzene		ND	ug/L	0.50						
sec-Butylbenzene		ND	ug/L	0.50						
tert-Butylbenzene		ND	ug/L	0.50						

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: B_R355960
Lab ID: MBLK020321	76 Method Blank			Run: SUB-B355960				02/03/21 14:33		
Carbon disulfide		ND	ug/L	0.50						
Carbon tetrachloride		ND	ug/L	0.50						
Chlorobenzene		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroethane		ND	ug/L	0.50						
2-Chloroethyl vinyl ether		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Chloromethane		ND	ug/L	0.50						
2-Chlorotoluene		ND	ug/L	0.50						
4-Chlorotoluene		ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane		ND	ug/L	1.0						
1,2-Dibromoethane		ND	ug/L	0.50						
Dibromomethane		ND	ug/L	0.50						
1,2-Dichlorobenzene		ND	ug/L	0.50						
1,3-Dichlorobenzene		ND	ug/L	0.50						
1,4-Dichlorobenzene		ND	ug/L	0.50						
Dichlorodifluoromethane		ND	ug/L	0.50						
1,1-Dichloroethane		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
1,1-Dichloroethene		ND	ug/L	0.50						
cis-1,2-Dichloroethene		ND	ug/L	0.50						
trans-1,2-Dichloroethene		ND	ug/L	0.50						
1,2-Dichloropropane		ND	ug/L	0.50						
1,3-Dichloropropane		ND	ug/L	0.50						
2,2-Dichloropropane		ND	ug/L	0.50						
1,1-Dichloropropene		ND	ug/L	0.50						
cis-1,3-Dichloropropene		ND	ug/L	0.50						
trans-1,3-Dichloropropene		ND	ug/L	0.50						
Ethylbenzene		ND	ug/L	0.50						
Hexachlorobutadiene		ND	ug/L	0.50						
2-Hexanone		ND	ug/L	10						
Iodomethane		ND	ug/L	1.0						
Isopropylbenzene		ND	ug/L	0.50						
p-Isopropyltoluene		ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)		ND	ug/L	0.50						
Methyl ethyl ketone		ND	ug/L	10						
Methyl isobutyl ketone		ND	ug/L	10						
Methylene chloride		ND	ug/L	0.50						
Naphthalene		ND	ug/L	0.50						
n-Propylbenzene		ND	ug/L	0.50						
Styrene		ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane		ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane		ND	ug/L	0.50						
Tetrachloroethene		ND	ug/L	0.50						
Toluene		ND	ug/L	0.50						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: B_R355960
Lab ID: MBLK020321	76	Method Blank		Run: SUB-B355960			02/03/21 14:33			
1,2,3-Trichlorobenzene		ND	ug/L	0.50						
1,2,4-Trichlorobenzene		ND	ug/L	0.50						
1,1,1-Trichloroethane		ND	ug/L	0.50						
1,1,2-Trichloroethane		ND	ug/L	0.50						
Trichloroethene		ND	ug/L	0.50						
Trichlorofluoromethane		ND	ug/L	0.50						
1,2,3-Trichloropropane		ND	ug/L	0.50						
1,2,4-Trimethylbenzene		ND	ug/L	0.50						
1,3,5-Trimethylbenzene		ND	ug/L	0.50						
Vinyl acetate		ND	ug/L	1.0						
Vinyl chloride		ND	ug/L	0.50						
m+p-Xylenes		ND	ug/L	0.50						
o-Xylene		ND	ug/L	0.50						
Xylenes, Total		ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4				0.50	100	70	130			
Surr: Dibromofluoromethane				0.50	103	77	126			
Surr: p-Bromofluorobenzene				0.50	98	76	127			
Surr: Toluene-d8				0.50	106	79	122			
Lab ID: H21020001-003F	76	Sample Matrix Spike		Run: SUB-B355960			02/03/21 18:49			
Acetonitrile		51.1	ug/L	20	102	54	142			
Acetone		46.2	ug/L	10	92	62	130			
Acrolein		45.9	ug/L	20	92	22	203			
Acrylonitrile		48.4	ug/L	10	97	60	130			
Benzene		5.17	ug/L	0.50	103	71	133			
Bromobenzene		5.31	ug/L	0.50	106	78	133			
Bromochloromethane		4.79	ug/L	0.50	96	68	131			
Bromodichloromethane		5.37	ug/L	0.50	107	67	138			
Bromoform		5.11	ug/L	0.50	102	64	136			
Bromomethane		5.76	ug/L	0.50	115	60	138			
n-Butylbenzene		5.66	ug/L	0.50	113	72	135			
sec-Butylbenzene		5.53	ug/L	0.50	111	73	135			
tert-Butylbenzene		5.59	ug/L	0.50	112	69	137			
Carbon disulfide		4.23	ug/L	0.50	85	46	145			
Carbon tetrachloride		5.44	ug/L	0.50	109	61	144			
Chlorobenzene		5.40	ug/L	0.50	108	78	136			
Chlorodibromomethane		5.06	ug/L	0.50	101	72	136			
Chloroethane		4.62	ug/L	0.50	92	64	136			
2-Chloroethyl vinyl ether		5.51	ug/L	0.50	110	64	132			
Chloroform		4.94	ug/L	0.50	99	69	133			
Chloromethane		5.27	ug/L	0.50	105	63	149			
2-Chlorotoluene		5.56	ug/L	0.50	111	74	135			
4-Chlorotoluene		5.63	ug/L	0.50	113	79	135			
1,2-Dibromo-3-chloropropane		4.67	ug/L	1.0	93	63	125			
1,2-Dibromoethane		5.32	ug/L	0.50	106	75	131			
Dibromomethane		5.36	ug/L	0.50	107	72	133			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B		Batch: B_R355960								
Lab ID: H21020001-003F	76 Sample Matrix Spike		Run: SUB-B355960		02/03/21 18:49					
1,2-Dichlorobenzene		5.43	ug/L	0.50	109	78	129			
1,3-Dichlorobenzene		5.58	ug/L	0.50	112	79	132			
1,4-Dichlorobenzene		5.40	ug/L	0.50	108	78	131			
Dichlorodifluoromethane		6.29	ug/L	0.50	126	55	141			
1,1-Dichloroethane		5.26	ug/L	0.50	105	72	130			
1,2-Dichloroethane		5.03	ug/L	0.50	101	57	146			
1,1-Dichloroethene		5.06	ug/L	0.50	101	66	142			
cis-1,2-Dichloroethene		5.28	ug/L	0.50	106	74	133			
trans-1,2-Dichloroethene		5.33	ug/L	0.50	107	76	138			
1,2-Dichloropropane		5.50	ug/L	0.50	110	72	135			
1,3-Dichloropropane		5.35	ug/L	0.50	107	75	134			
2,2-Dichloropropane		5.52	ug/L	0.50	110	42	167			
1,1-Dichloropropene		5.20	ug/L	0.50	104	72	140			
cis-1,3-Dichloropropene		5.38	ug/L	0.50	108	75	132			
trans-1,3-Dichloropropene		5.25	ug/L	0.50	105	77	145			
Ethylbenzene		5.76	ug/L	0.50	115	78	131			
Hexachlorobutadiene		5.18	ug/L	0.50	104	65	141			
2-Hexanone		54.0	ug/L	10	108	72	131			
Iodomethane		5.15	ug/L	1.0	103	66	132			
Isopropylbenzene		5.27	ug/L	0.50	105	72	135			
p-Isopropyltoluene		5.77	ug/L	0.50	115	71	134			
Methyl tert-butyl ether (MTBE)		5.23	ug/L	0.50	105	58	151			
Methyl ethyl ketone		48.8	ug/L	10	98	55	145			
Methyl isobutyl ketone		55.1	ug/L	10	110	73	129			
Methylene chloride		4.97	ug/L	0.50	99	73	126			
Naphthalene		7.32	ug/L	0.50	146	55	139			S
n-Propylbenzene		5.48	ug/L	0.50	110	70	139			
Styrene		5.90	ug/L	0.50	118	76	134			
1,1,1,2-Tetrachloroethane		5.67	ug/L	0.50	113	75	135			
1,1,2,2-Tetrachloroethane		5.13	ug/L	0.50	103	72	132			
Tetrachloroethene		5.69	ug/L	0.50	114	78	137			
Toluene		5.65	ug/L	0.50	113	78	134			
1,2,3-Trichlorobenzene		3.23	ug/L	0.50	65	42	152			
1,2,4-Trichlorobenzene		4.95	ug/L	0.50	99	58	142			
1,1,1-Trichloroethane		5.30	ug/L	0.50	106	64	141			
1,1,2-Trichloroethane		5.48	ug/L	0.50	110	72	133			
Trichloroethene		5.40	ug/L	0.50	108	75	138			
Trichlorofluoromethane		5.01	ug/L	0.50	100	58	139			
1,2,3-Trichloropropane		4.88	ug/L	0.50	98	67	133			
1,2,4-Trimethylbenzene		5.88	ug/L	0.50	118	71	129			
1,3,5-Trimethylbenzene		5.61	ug/L	0.50	112	68	135			
Vinyl acetate		4.79	ug/L	1.0	96	31	124			
Vinyl chloride		5.12	ug/L	0.50	102	66	140			
m+p-Xylenes		11.0	ug/L	0.50	110	78	133			
o-Xylene		5.73	ug/L	0.50	115	79	136			

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: B_R355960	
Lab ID: H21020001-003F	76 Sample Matrix Spike			Run: SUB-B355960				02/03/21 18:49		
Xylenes, Total		16.7	ug/L	0.50	112	78	136			
Surr: 1,2-Dichloroethane-d4				0.50	101	70	130			
Surr: Dibromofluoromethane				0.50	102	77	126			
Surr: p-Bromofluorobenzene				0.50	106	76	127			
Surr: Toluene-d8				0.50	111	79	122			
Lab ID: H21020001-003F	76 Sample Matrix Spike Duplicate			Run: SUB-B355960				02/03/21 19:17		
Acetonitrile		54.4	ug/L	20	109	54	142	6.2	20	
Acetone		46.8	ug/L	10	94	62	130	1.3	20	
Acrolein		50.4	ug/L	20	101	22	203	9.4	20	
Acrylonitrile		49.4	ug/L	10	99	60	130	2.0	20	
Benzene		5.29	ug/L	0.50	106	71	133	2.4	20	
Bromobenzene		5.55	ug/L	0.50	111	78	133	4.4	20	
Bromochloromethane		5.01	ug/L	0.50	100	68	131	4.6	20	
Bromodichloromethane		5.26	ug/L	0.50	105	67	138	2.0	20	
Bromoform		5.32	ug/L	0.50	106	64	136	4.0	20	
Bromomethane		6.04	ug/L	0.50	121	60	138	4.8	20	
n-Butylbenzene		5.89	ug/L	0.50	118	72	135	3.9	20	
sec-Butylbenzene		5.61	ug/L	0.50	112	73	135	1.4	20	
tert-Butylbenzene		5.84	ug/L	0.50	117	69	137	4.2	20	
Carbon disulfide		4.60	ug/L	0.50	92	46	145	8.2	20	
Carbon tetrachloride		5.41	ug/L	0.50	108	61	144	0.6	20	
Chlorobenzene		5.32	ug/L	0.50	106	78	136	1.5	20	
Chlorodibromomethane		5.11	ug/L	0.50	102	72	136	1.1	20	
Chloroethane		4.66	ug/L	0.50	93	64	136	0.8	20	
2-Chloroethyl vinyl ether		4.57	ug/L	0.50	91	64	132	18	20	
Chloroform		5.04	ug/L	0.50	101	69	133	2.1	20	
Chloromethane		5.08	ug/L	0.50	102	63	149	3.6	20	
2-Chlorotoluene		5.49	ug/L	0.50	110	74	135	1.2	20	
4-Chlorotoluene		5.70	ug/L	0.50	114	79	135	1.2	20	
1,2-Dibromo-3-chloropropane		5.32	ug/L	1.0	106	63	125	13	20	
1,2-Dibromoethane		5.31	ug/L	0.50	106	75	131	0.2	20	
Dibromomethane		5.17	ug/L	0.50	103	72	133	3.6	20	
1,2-Dichlorobenzene		5.64	ug/L	0.50	113	78	129	3.8	20	
1,3-Dichlorobenzene		5.73	ug/L	0.50	115	79	132	2.8	20	
1,4-Dichlorobenzene		5.36	ug/L	0.50	107	78	131	0.7	20	
Dichlorodifluoromethane		6.32	ug/L	0.50	126	55	141	0.5	20	
1,1-Dichloroethane		5.46	ug/L	0.50	109	72	130	3.7	20	
1,2-Dichloroethane		5.15	ug/L	0.50	103	57	146	2.5	20	
1,1-Dichloroethene		5.36	ug/L	0.50	107	66	142	5.7	20	
cis-1,2-Dichloroethene		5.47	ug/L	0.50	109	74	133	3.5	20	
trans-1,2-Dichloroethene		5.56	ug/L	0.50	111	76	138	4.2	20	
1,2-Dichloropropane		5.31	ug/L	0.50	106	72	135	3.4	20	
1,3-Dichloropropane		5.25	ug/L	0.50	105	75	134	1.8	20	
2,2-Dichloropropane		5.52	ug/L	0.50	110	42	167	0.0	20	
1,1-Dichloropropene		5.23	ug/L	0.50	105	72	140	0.6	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B		Batch: B_R355960								
Lab ID: H21020001-003F	76 Sample Matrix Spike Duplicate		Run: SUB-B355960		02/03/21 19:17					
cis-1,3-Dichloropropene		5.37	ug/L	0.50	107	75	132	0.3	20	
trans-1,3-Dichloropropene		5.17	ug/L	0.50	103	77	145	1.5	20	
Ethylbenzene		5.55	ug/L	0.50	111	78	131	3.6	20	
Hexachlorobutadiene		7.68	ug/L	0.50	154	65	141	39	20	SR
2-Hexanone		54.4	ug/L	10	109	72	131	0.7	20	
Iodomethane		5.42	ug/L	1.0	108	66	132	5.2	20	
Isopropylbenzene		5.60	ug/L	0.50	112	72	135	6.0	20	
p-Isopropyltoluene		5.84	ug/L	0.50	117	71	134	1.2	20	
Methyl tert-butyl ether (MTBE)		5.18	ug/L	0.50	104	58	151	1.0	20	
Methyl ethyl ketone		51.5	ug/L	10	103	55	145	5.5	20	
Methyl isobutyl ketone		52.6	ug/L	10	105	73	129	4.7	20	
Methylene chloride		4.93	ug/L	0.50	99	73	126	0.7	20	
Naphthalene		6.71	ug/L	0.50	134	55	139	8.6	20	
n-Propylbenzene		5.60	ug/L	0.50	112	70	139	2.2	20	
Styrene		5.62	ug/L	0.50	112	76	134	4.8	20	
1,1,1,2-Tetrachloroethane		5.36	ug/L	0.50	107	75	135	5.7	20	
1,1,2,2-Tetrachloroethane		5.50	ug/L	0.50	110	72	132	7.0	20	
Tetrachloroethene		5.46	ug/L	0.50	109	78	137	4.2	20	
Toluene		5.54	ug/L	0.50	111	78	134	2.1	20	
1,2,3-Trichlorobenzene		5.65	ug/L	0.50	113	42	152	54	20	R
1,2,4-Trichlorobenzene		6.25	ug/L	0.50	125	58	142	23	20	R
1,1,1-Trichloroethane		5.35	ug/L	0.50	107	64	141	0.9	20	
1,1,2-Trichloroethane		5.19	ug/L	0.50	104	72	133	5.3	20	
Trichloroethene		5.42	ug/L	0.50	108	75	138	0.4	20	
Trichlorofluoromethane		5.07	ug/L	0.50	101	58	139	1.2	20	
1,2,3-Trichloropropane		5.26	ug/L	0.50	105	67	133	7.6	20	
1,2,4-Trimethylbenzene		5.98	ug/L	0.50	120	71	129	1.7	20	
1,3,5-Trimethylbenzene		5.64	ug/L	0.50	113	68	135	0.5	20	
Vinyl acetate		4.63	ug/L	1.0	93	31	124	3.2	20	
Vinyl chloride		5.21	ug/L	0.50	104	66	140	1.8	20	
m+p-Xylenes		10.6	ug/L	0.50	106	78	133	3.5	20	
o-Xylene		5.56	ug/L	0.50	111	79	136	3.0	20	
Xylenes, Total		16.2	ug/L	0.50	108	78	136	3.3	20	
Surr: 1,2-Dichloroethane-d4				0.50	100	70	130			
Surr: Dibromofluoromethane				0.50	103	77	126			
Surr: p-Bromofluorobenzene				0.50	109	76	127			
Surr: Toluene-d8				0.50	106	79	122			

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152532
Lab ID: MB-152532	70	Method Blank				Run: SUB-B355882				02/03/21 12:51
1,2,4-Trichlorobenzene		ND	ug/L	10						
1,2-Dichlorobenzene		ND	ug/L	10						
1,3-Dichlorobenzene		ND	ug/L	10						
1,4-Dichlorobenzene		ND	ug/L	10						
1-Methylnaphthalene		ND	ug/L	10						
2,4,5-Trichlorophenol		ND	ug/L	10						
2,4,6-Trichlorophenol		ND	ug/L	10						
2,4-Dichlorophenol		ND	ug/L	10						
2,4-Dimethylphenol		ND	ug/L	10						
2,4-Dinitrophenol		ND	ug/L	10						
2,4-Dinitrotoluene		ND	ug/L	10						
2,6-Dinitrotoluene		ND	ug/L	10						
2-Chloronaphthalene		ND	ug/L	10						
2-Chlorophenol		ND	ug/L	10						
2-Methylnaphthalene		ND	ug/L	10						
2-Nitrophenol		ND	ug/L	10						
3,3'-Dichlorobenzidine		ND	ug/L	10						
4,6-Dinitro-2-methylphenol		ND	ug/L	10						
4-Bromophenyl phenyl ether		ND	ug/L	10						
4-Chloro-3-methylphenol		ND	ug/L	10						
4-Chlorophenol		ND	ug/L	10						
4-Chlorophenyl phenyl ether		ND	ug/L	10						
4-Nitrophenol		ND	ug/L	10						
Acenaphthene		ND	ug/L	10						
Acenaphthylene		ND	ug/L	10						
Anthracene		ND	ug/L	10						
Azobenzene		ND	ug/L	10						
Benzidine		ND	ug/L	10						
Benzo(a)anthracene		ND	ug/L	10						
Benzo(a)pyrene		ND	ug/L	10						
Benzo(b)fluoranthene		ND	ug/L	10						
Benzo(g,h,i)perylene		ND	ug/L	10						
Benzo(k)fluoranthene		ND	ug/L	10						
bis(-2-chloroethoxy)Methane		ND	ug/L	10						
bis(-2-chloroethyl)Ether		ND	ug/L	10						
bis(2-chloroisopropyl)Ether		ND	ug/L	10						
bis(2-ethylhexyl)Phthalate		ND	ug/L	10						
Butylbenzylphthalate		ND	ug/L	10						
Chrysene		ND	ug/L	10						
Dibenzo(a,h)anthracene		ND	ug/L	10						
Diethyl phthalate		ND	ug/L	10						
Dimethyl phthalate		ND	ug/L	10						
Di-n-butyl phthalate		ND	ug/L	10						
Di-n-octyl phthalate		ND	ug/L	10						
Fluoranthene		ND	ug/L	10						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152532
Lab ID: MB-152532	70 Method Blank			Run: SUB-B355882				02/03/21 12:51		
Fluorene		ND	ug/L	10						
Hexachlorobenzene		ND	ug/L	10						
Hexachlorobutadiene		ND	ug/L	10						
Hexachlorocyclopentadiene		ND	ug/L	10						
Hexachloroethane		ND	ug/L	10						
Indeno(1,2,3-cd)pyrene		ND	ug/L	10						
Isophorone		ND	ug/L	10						
m+p-Cresols		ND	ug/L	10						
Naphthalene		ND	ug/L	10						
Nitrobenzene		ND	ug/L	10						
n-Nitrosodimethylamine		ND	ug/L	10						
n-Nitroso-di-n-propylamine		ND	ug/L	10						
n-Nitrosodiphenylamine		ND	ug/L	10						
o-Cresol		ND	ug/L	10						
Pentachlorophenol		ND	ug/L	10						
Phenanthrene		ND	ug/L	10						
Phenol		ND	ug/L	10						
Pyrene		ND	ug/L	10						
Pyridine		ND	ug/L	10						
Surr: 2,4,6-Tribromophenol				10	82	25	140			
Surr: 2-Fluorobiphenyl				10	58	44	91			
Surr: 2-Fluorophenol				10	51	10	75			
Surr: Nitrobenzene-d5				10	76	48	103			
Surr: Phenol-d5				10	41	10	65			
Surr: Terphenyl-d14				10	87	66	117			
Lab ID: LCS-152532	70 Laboratory Control Sample			Run: SUB-B355882				02/03/21 13:23		
1,2,4-Trichlorobenzene		79.3	ug/L	10	79	48	98	0.0	40	
1,2-Dichlorobenzene		72.1	ug/L	10	72	48	91	0.0	40	
1,3-Dichlorobenzene		67.8	ug/L	10	68	46	89	0.0	40	
1,4-Dichlorobenzene		69.3	ug/L	10	69	46	90	0.0	40	
1-Methylnaphthalene		79.7	ug/L	10	80	52	97	0.0	40	
2,4,5-Trichlorophenol		83.5	ug/L	10	83	27	123	0.0	40	
2,4,6-Trichlorophenol		83.3	ug/L	10	83	24	120	0.0	40	
2,4-Dichlorophenol		74.0	ug/L	10	74	24	107	0.0	40	
2,4-Dimethylphenol		72.5	ug/L	10	72	39	96	0.0	40	
2,4-Dinitrophenol		78.8	ug/L	10	79	16	105	0.0	40	
2,4-Dinitrotoluene		98.0	ug/L	10	98	64	116	0.0	40	
2,6-Dinitrotoluene		86.3	ug/L	10	86	56	116	0.0	40	
2-Chloronaphthalene		85.3	ug/L	10	85	55	104	0.0	40	
2-Chlorophenol		69.7	ug/L	10	70	22	97	0.0	40	
2-Methylnaphthalene		83.4	ug/L	10	83	55	103	0.0	40	
2-Nitrophenol		78.9	ug/L	10	79	30	105	0.0	40	
3,3'-Dichlorobenzidine		89.5	ug/L	10	89	36	120	0.0	40	
4,6-Dinitro-2-methylphenol		95.1	ug/L	10	95	19	128	0.0	40	
4-Bromophenyl phenyl ether		84.1	ug/L	10	84	60	113	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152532
Lab ID: LCS-152532	70 Laboratory Control Sample				Run: SUB-B355882				02/03/21 13:23	
4-Chloro-3-methylphenol		82.3	ug/L	10	82	35	101	0.0	40	
4-Chlorophenol		73.4	ug/L	10	73	16	98	0.0	40	
4-Chlorophenyl phenyl ether		87.2	ug/L	10	87	60	108	0.0	40	
4-Nitrophenol		38.0	ug/L	10	38	10	77	0.0	40	
Acenaphthene		85.3	ug/L	10	85	62	105	0.0	40	
Acenaphthylene		78.1	ug/L	10	78	58	97	0.0	40	
Anthracene		88.9	ug/L	10	89	61	108	0.0	40	
Azobenzene		87.3	ug/L	10	87	58	107	0.0	40	
Benzidine		35.8	ug/L	10	36	10	121	0.0	40	
Benzo(a)anthracene		95.0	ug/L	10	95	62	111	0.0	40	
Benzo(a)pyrene		86.0	ug/L	10	86	56	109	0.0	40	
Benzo(b)fluoranthene		84.7	ug/L	10	85	53	123	0.0	40	
Benzo(g,h,i)perylene		75.9	ug/L	10	76	62	122	0.0	40	
Benzo(k)fluoranthene		78.5	ug/L	10	78	55	116	0.0	40	
bis(-2-chloroethoxy)Methane		72.2	ug/L	10	72	54	102	0.0	40	
bis(-2-chloroethyl)Ether		74.4	ug/L	10	74	45	92	0.0	40	
bis(2-chloroisopropyl)Ether		61.2	ug/L	10	61	43	85	0.0	40	
bis(2-ethylhexyl)Phthalate		107	ug/L	10	107	44	128	0.0	40	
Butylbenzylphthalate		90.8	ug/L	10	91	57	121	0.0	40	
Chrysene		92.9	ug/L	10	93	66	107	0.0	40	
Dibenzo(a,h)anthracene		78.2	ug/L	10	78	61	115	0.0	40	
Diethyl phthalate		94.0	ug/L	10	94	56	115	0.0	40	
Dimethyl phthalate		90.9	ug/L	10	91	46	115	0.0	40	
Di-n-butyl phthalate		88.2	ug/L	10	88	57	121	0.0	40	
Di-n-octyl phthalate		88.7	ug/L	10	89	45	106	0.0	40	
Fluoranthene		76.5	ug/L	10	76	60	111	0.0	40	
Fluorene		93.7	ug/L	10	94	60	106	0.0	40	
Hexachlorobenzene		83.3	ug/L	10	83	57	106	0.0	40	
Hexachlorobutadiene		69.1	ug/L	10	69	38	95	0.0	40	
Hexachlorocyclopentadiene		75.5	ug/L	10	75	44	95	0.0	40	
Hexachloroethane		66.3	ug/L	10	66	39	98	0.0	40	
Indeno(1,2,3-cd)pyrene		77.5	ug/L	10	78	50	109	0.0	40	
Isophorone		85.5	ug/L	10	86	51	97	0.0	40	
m+p-Cresols		70.1	ug/L	10	70	25	98	0.0	40	
Naphthalene		70.4	ug/L	10	70	50	99	0.0	40	
Nitrobenzene		89.6	ug/L	10	90	49	110	0.0	40	
n-Nitrosodimethylamine		48.0	ug/L	10	48	21	65	0.0	40	
n-Nitroso-di-n-propylamine		81.4	ug/L	10	81	55	106	0.0	40	
n-Nitrosodiphenylamine		87.4	ug/L	10	87	58	117	0.0	40	
o-Cresol		75.3	ug/L	10	75	34	98	0.0	40	
Pentachlorophenol		86.3	ug/L	10	86	24	130	0.0	40	
Phenanthrene		82.5	ug/L	10	82	60	107	0.0	40	
Phenol		52.4	ug/L	10	52	10	62	0.0	40	
Pyrene		70.2	ug/L	10	70	61	113	0.0	40	
Pvridine		30.5	ug/L	10	31	10	65	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152532
Lab ID: LCS-152532	70	Laboratory Control Sample		Run: SUB-B355882				02/03/21 13:23		
Surr: 2,4,6-Tribromophenol				10	89	25	140			
Surr: 2-Fluorobiphenyl				10	65	28	107			
Surr: 2-Fluorophenol				10	54	10	75			
Surr: Nitrobenzene-d5				10	73	32	94			
Surr: Phenol-d5				10	50	10	65			
Surr: Terphenyl-d14				10	85	32	122			
Lab ID: B21011885-001CMS	70	Sample Matrix Spike		Run: SUB-B355882				02/03/21 15:26		
1,2,4-Trichlorobenzene		65.9	ug/L	10	66	49	85	0.0	40	
1,2-Dichlorobenzene		57.1	ug/L	10	57	43	81	0.0	40	
1,3-Dichlorobenzene		56.6	ug/L	10	57	41	79	0.0	40	
1,4-Dichlorobenzene		56.6	ug/L	10	57	42	79	0.0	40	
1-Methylnaphthalene		64.6	ug/L	10	65	53	94	0.0	40	
2,4,5-Trichlorophenol		75.8	ug/L	10	76	50	96	0.0	40	
2,4,6-Trichlorophenol		60.9	ug/L	10	61	47	99	0.0	40	
2,4-Dichlorophenol		73.1	ug/L	10	73	49	90	0.0	40	
2,4-Dimethylphenol		69.9	ug/L	10	70	45	89	0.0	40	
2,4-Dinitrophenol		82.0	ug/L	20	82	27	81	0.0	40	S
2,4-Dinitrotoluene		88.7	ug/L	10	89	63	110	0.0	40	
2,6-Dinitrotoluene		84.7	ug/L	10	85	60	107	0.0	40	
2-Chloronaphthalene		74.3	ug/L	10	74	56	95	0.0	40	
2-Chlorophenol		63.7	ug/L	10	64	47	76	0.0	40	
2-Methylnaphthalene		69.8	ug/L	10	70	59	97	0.0	40	
2-Nitrophenol		65.2	ug/L	10	65	51	96	0.0	40	
3,3'-Dichlorobenzidine		63.4	ug/L	20	63	51	93	0.0	40	
4,6-Dinitro-2-methylphenol		73.1	ug/L	20	73	37	105	0.0	40	
4-Bromophenyl phenyl ether		70.7	ug/L	10	71	57	105	0.0	40	
4-Chloro-3-methylphenol		79.6	ug/L	10	80	53	92	0.0	40	
4-Chlorophenol		73.2	ug/L	10	73	41	81	0.0	40	
4-Chlorophenyl phenyl ether		71.6	ug/L	10	72	58	99	0.0	40	
4-Nitrophenol		39.0	ug/L	20	39	15	36	0.0	40	S
Acenaphthene		76.0	ug/L	10	76	58	99	0.0	40	
Acenaphthylene		71.4	ug/L	10	71	57	96	0.0	40	
Anthracene		81.8	ug/L	10	82	60	107	0.0	40	
Azobenzene		73.9	ug/L	10	74	56	100	0.0	40	
Benzidine		ND	ug/L	20	0	10	100	0.0	40	S1
Benzo(a)anthracene		82.7	ug/L	10	83	62	114	0.0	40	
Benzo(a)pyrene		68.4	ug/L	10	68	62	108	0.0	40	
Benzo(b)fluoranthene		71.3	ug/L	10	71	48	127	0.0	40	
Benzo(g,h,i)perylene		69.0	ug/L	10	69	62	121	0.0	40	
Benzo(k)fluoranthene		65.2	ug/L	10	65	55	111	0.0	40	
bis(-2-chloroethoxy)Methane		68.7	ug/L	10	69	50	92	0.0	40	
bis(-2-chloroethyl)Ether		68.7	ug/L	10	69	44	82	0.0	40	
bis(2-chloroisopropyl)Ether		53.6	ug/L	10	54	46	87	0.0	40	
bis(2-ethylhexyl)Phthalate		83.7	ug/L	10	84	56	108	0.0	40	
Butylbenzylphthalate		81.9	ug/L	10	82	60	113	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152532
Lab ID: B21011885-001CMS	70 Sample Matrix Spike				Run: SUB-B355882				02/03/21 15:26	
Chrysene		73.6	ug/L	10	74	63	106	0.0	40	
Di-n-butyl phthalate		80.8	ug/L	10	81	61	110	0.0	40	
Di-n-octyl phthalate		69.2	ug/L	10	69	56	110	0.0	40	
Dibenzo(a,h)anthracene		68.8	ug/L	10	69	61	111	0.0	40	
Diethyl phthalate		85.1	ug/L	10	85	58	103	0.0	40	
Dimethyl phthalate		87.2	ug/L	10	87	58	104	0.0	40	
Fluoranthene		77.9	ug/L	10	78	63	110	0.0	40	
Fluorene		75.6	ug/L	10	76	60	99	0.0	40	
Hexachlorobenzene		65.3	ug/L	10	65	57	103	0.0	40	
Hexachlorobutadiene		62.5	ug/L	10	63	39	83	0.0	40	
Hexachlorocyclopentadiene		49.1	ug/L	10	49	39	91	0.0	40	
Hexachloroethane		50.8	ug/L	10	51	37	75	0.0	40	
Indeno(1,2,3-cd)pyrene		73.1	ug/L	10	73	59	109	0.0	40	
Isophorone		64.3	ug/L	10	64	42	102	0.0	40	
m+p-Cresols		64.0	ug/L	10	64	43	76	0.0	40	
n-Nitroso-di-n-propylamine		77.2	ug/L	10	77	49	98	0.0	40	
n-Nitrosodimethylamine		58.5	ug/L	10	59	20	45	0.0	40	S
n-Nitrosodiphenylamine		77.3	ug/L	10	77	61	108	0.0	40	
Naphthalene		69.0	ug/L	10	69	48	96	0.0	40	
Nitrobenzene		74.1	ug/L	10	74	51	91	0.0	40	
o-Cresol		67.1	ug/L	10	67	43	80	0.0	40	
Pentachlorophenol		72.1	ug/L	20	72	53	109	0.0	40	
Phenanthrene		78.6	ug/L	10	79	58	104	0.0	40	
Phenol		45.7	ug/L	10	46	27	45	0.0	40	S
Pyrene		75.7	ug/L	10	76	64	108	0.0	40	
Pyridine		25.1	ug/L	10	25	16	45	0.0	40	
Surr: 2,4,6-Tribromophenol				10	74	25	140			
Surr: 2-Fluorobiphenyl				10	60	28	107			
Surr: 2-Fluorophenol				10	47	10	75			
Surr: Nitrobenzene-d5				10	62	32	94			
Surr: Phenol-d5				10	42	10	65			
Surr: Terphenyl-d14				10	85	32	122			
- 1 = This is a known very reactive compound. The recovery of this compound was normal in the Laboratory Control Sample (LCS). The compound appears to have reacted with the sample matrix.										
Lab ID: B21011887-001CMS	70 Sample Matrix Spike				Run: SUB-B355882				02/03/21 16:28	
1,2,4-Trichlorobenzene		71.6	ug/L	20	72	49	85	0.0	40	
1,2-Dichlorobenzene		68.3	ug/L	20	68	43	81	0.0	40	
1,3-Dichlorobenzene		65.4	ug/L	20	65	41	79	0.0	40	
1,4-Dichlorobenzene		67.2	ug/L	20	67	42	79	0.0	40	
1-Methylnaphthalene		72.9	ug/L	20	73	53	94	0.0	40	
2,4,5-Trichlorophenol		91.0	ug/L	20	91	50	96	0.0	40	
2,4,6-Trichlorophenol		82.1	ug/L	20	82	47	99	0.0	40	
2,4-Dichlorophenol		87.2	ug/L	20	87	49	90	0.0	40	
2,4-Dimethylphenol		80.7	ug/L	20	81	45	89	0.0	40	
2,4-Dinitrophenol		97.0	ug/L	40	97	27	81	0.0	40	S
2,4-Dinitrotoluene		94.7	ug/L	20	95	63	110	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152532
Lab ID: B21011887-001CMS	70	Sample Matrix Spike		Run: SUB-B355882				02/03/21 16:28		
2,6-Dinitrotoluene		97.9	ug/L	20	98	60	107	0.0	40	
2-Chloronaphthalene		94.6	ug/L	20	95	56	95	0.0	40	
2-Chlorophenol		73.8	ug/L	20	74	47	76	0.0	40	
2-Methylnaphthalene		81.4	ug/L	20	81	59	97	0.0	40	
2-Nitrophenol		92.2	ug/L	20	92	51	96	0.0	40	
3,3'-Dichlorobenzidine		60.3	ug/L	40	60	51	93	0.0	40	
4,6-Dinitro-2-methylphenol		97.4	ug/L	40	97	37	105	0.0	40	
4-Bromophenyl phenyl ether		85.5	ug/L	20	86	57	105	0.0	40	
4-Chloro-3-methylphenol		75.9	ug/L	20	76	53	92	0.0	40	
4-Chlorophenol		72.0	ug/L	20	72	41	81	0.0	40	
4-Chlorophenyl phenyl ether		91.3	ug/L	20	91	58	99	0.0	40	
4-Nitrophenol		58.7	ug/L	40	59	15	36	0.0	40	S
Acenaphthene		96.2	ug/L	20	96	58	99	0.0	40	
Acenaphthylene		86.6	ug/L	20	87	57	96	0.0	40	
Anthracene		93.5	ug/L	20	93	60	107	0.0	40	
Azobenzene		79.4	ug/L	20	79	56	100	0.0	40	
Benzidine		20.4	ug/L	40	20	10	100	0.0	40	
Benzo(a)anthracene		91.0	ug/L	20	91	62	114	0.0	40	
Benzo(a)pyrene		76.6	ug/L	20	77	62	108	0.0	40	
Benzo(b)fluoranthene		74.6	ug/L	20	75	48	127	0.0	40	
Benzo(g,h,i)perylene		71.9	ug/L	20	72	62	121	0.0	40	
Benzo(k)fluoranthene		65.2	ug/L	20	65	55	111	0.0	40	
bis(-2-chloroethoxy)Methane		76.9	ug/L	20	77	50	92	0.0	40	
bis(-2-chloroethyl)Ether		73.0	ug/L	20	73	44	82	0.0	40	
bis(2-chloroisopropyl)Ether		62.4	ug/L	20	62	46	87	0.0	40	
bis(2-ethylhexyl)Phthalate		94.9	ug/L	20	95	56	108	0.0	40	
Butylbenzylphthalate		104	ug/L	20	104	60	113	0.0	40	
Chrysene		84.8	ug/L	20	85	63	106	0.0	40	
Di-n-butyl phthalate		88.1	ug/L	20	88	61	110	0.0	40	
Di-n-octyl phthalate		74.8	ug/L	20	75	56	110	0.0	40	
Dibenzo(a,h)anthracene		73.6	ug/L	20	74	61	111	0.0	40	
Diethyl phthalate		101	ug/L	20	101	58	103	0.0	40	
Dimethyl phthalate		100	ug/L	20	100	58	104	0.0	40	
Fluoranthene		92.7	ug/L	20	93	63	110	0.0	40	
Fluorene		91.1	ug/L	20	91	60	99	0.0	40	
Hexachlorobenzene		79.8	ug/L	20	80	57	103	0.0	40	
Hexachlorobutadiene		61.4	ug/L	20	61	39	83	0.0	40	
Hexachlorocyclopentadiene		24.0	ug/L	20	24	39	91	0.0	40	S
Hexachloroethane		75.5	ug/L	20	75	37	75	0.0	40	
Indeno(1,2,3-cd)pyrene		74.9	ug/L	20	75	59	109	0.0	40	
Isophorone		80.0	ug/L	20	80	42	102	0.0	40	
m+p-Cresols		79.3	ug/L	20	19	43	76	0.0	40	S
n-Nitroso-di-n-propylamine		82.3	ug/L	20	82	49	98	0.0	40	
n-Nitrosodimethylamine		46.5	ug/L	20	46	20	45	0.0	40	S
n-Nitrosodiphenylamine		90.0	ug/L	20	90	61	108	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C		Batch: B_152532								
Lab ID: B21011887-001CMS	70	Sample Matrix Spike		Run: SUB-B355882				02/03/21 16:28		
Naphthalene		75.7	ug/L	20	76	48	96	0.0	40	
Nitrobenzene		93.7	ug/L	20	94	51	91	0.0	40	S
o-Cresol		76.9	ug/L	20	77	43	80	0.0	40	
Pentachlorophenol		88.6	ug/L	40	89	53	109	0.0	40	
Phenanthrene		88.3	ug/L	20	88	58	104	0.0	40	
Phenol		55.3	ug/L	20	34	27	45	0.0	40	
Pyrene		88.1	ug/L	20	88	64	108	0.0	40	
Pyridine		33.2	ug/L	20	33	16	45	0.0	40	
Surr: 2,4,6-Tribromophenol				20	95	25	140			
Surr: 2-Fluorobiphenyl				20	74	28	107			
Surr: 2-Fluorophenol				20	50	10	75			
Surr: Nitrobenzene-d5				20	75	32	94			
Surr: Phenol-d5				20	48	10	65			
Surr: Terphenyl-d14				20	95	32	122			

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152576
Lab ID: MB-152576	70 Method Blank				Run: SUB-B355947				02/04/21 16:40	
1,2,4-Trichlorobenzene		ND	mg/kg	0.33						
1,2-Dichlorobenzene		ND	mg/kg	0.33						
1,3-Dichlorobenzene		ND	mg/kg	0.33						
1,4-Dichlorobenzene		ND	mg/kg	0.33						
1-Methylnaphthalene		ND	mg/kg	0.33						
2,4,5-Trichlorophenol		ND	mg/kg	0.33						
2,4,6-Trichlorophenol		ND	mg/kg	0.33						
2,4-Dichlorophenol		ND	mg/kg	0.33						
2,4-Dimethylphenol		ND	mg/kg	0.33						
2,4-Dinitrophenol		ND	mg/kg	0.67						
2,4-Dinitrotoluene		ND	mg/kg	0.33						
2,6-Dinitrotoluene		ND	mg/kg	0.33						
2-Chloronaphthalene		ND	mg/kg	0.33						
2-Chlorophenol		ND	mg/kg	0.33						
2-Methylnaphthalene		ND	mg/kg	0.33						
2-Nitrophenol		ND	mg/kg	0.33						
3,3'-Dichlorobenzidine		ND	mg/kg	0.67						
4,6-Dinitro-2-methylphenol		ND	mg/kg	0.67						
4-Bromophenyl phenyl ether		ND	mg/kg	0.33						
4-Chloro-3-methylphenol		ND	mg/kg	0.33						
4-Chlorophenol		ND	mg/kg	0.33						
4-Chlorophenyl phenyl ether		ND	mg/kg	0.33						
4-Nitrophenol		ND	mg/kg	0.67						
Acenaphthene		ND	mg/kg	0.33						
Acenaphthylene		ND	mg/kg	0.33						
Anthracene		ND	mg/kg	0.33						
Azobenzene		ND	mg/kg	0.33						
Benzidine		ND	mg/kg	0.33						
Benzo(a)anthracene		ND	mg/kg	0.33						
Benzo(a)pyrene		ND	mg/kg	0.33						
Benzo(b)fluoranthene		ND	mg/kg	0.33						
Benzo(g,h,i)perylene		ND	mg/kg	0.33						
Benzo(k)fluoranthene		ND	mg/kg	0.33						
bis(-2-chloroethoxy)Methane		ND	mg/kg	0.33						
bis(-2-chloroethyl)Ether		ND	mg/kg	0.33						
bis(2-chloroisopropyl)Ether		ND	mg/kg	0.33						
bis(2-ethylhexyl)Phthalate		ND	mg/kg	0.33						
Butylbenzylphthalate		ND	mg/kg	0.33						
Chrysene		ND	mg/kg	0.33						
Dibenzo(a,h)anthracene		ND	mg/kg	0.33						
Diethyl phthalate		ND	mg/kg	0.33						
Dimethyl phthalate		ND	mg/kg	0.33						
Di-n-butyl phthalate		ND	mg/kg	0.33						
Di-n-octyl phthalate		ND	mg/kg	0.33						
Fluoranthene		ND	mg/kg	0.33						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152576
Lab ID: MB-152576	70 Method Blank			Run: SUB-B355947				02/04/21 16:40		
Fluorene		ND	mg/kg	0.33						
Hexachlorobenzene		ND	mg/kg	0.33						
Hexachlorobutadiene		ND	mg/kg	0.33						
Hexachlorocyclopentadiene		ND	mg/kg	0.33						
Hexachloroethane		ND	mg/kg	0.33						
Indeno(1,2,3-cd)pyrene		ND	mg/kg	0.33						
Isophorone		ND	mg/kg	0.33						
m+p-Cresols		ND	mg/kg	0.33						
Naphthalene		ND	mg/kg	0.33						
Nitrobenzene		ND	mg/kg	0.33						
n-Nitrosodimethylamine		ND	mg/kg	0.33						
n-Nitroso-di-n-propylamine		ND	mg/kg	0.33						
n-Nitrosodiphenylamine		ND	mg/kg	0.33						
o-Cresol		ND	mg/kg	0.33						
Pentachlorophenol		ND	mg/kg	6.7						
Phenanthrene		ND	mg/kg	0.33						
Phenol		ND	mg/kg	0.33						
Pyrene		ND	mg/kg	0.33						
Pyridine		ND	mg/kg	0.33						
Surr: 2,4,6-Tribromophenol				0.33	84	53	141			
Surr: 2-Fluorobiphenyl				0.33	70	63	98			
Surr: 2-Fluorophenol				0.33	76	53	101			
Surr: Nitrobenzene-d5				0.33	72	53	101			
Surr: Phenol-d5				0.33	69	55	100			
Surr: Terphenyl-d14				0.33	99	71	118			
Lab ID: LCS-152576	70 Laboratory Control Sample			Run: SUB-B355947				02/04/21 17:42		
1,2,4-Trichlorobenzene	2.78	mg/kg	0.33	83	63	93	0.0	40		
1,2-Dichlorobenzene	2.55	mg/kg	0.33	76	59	85	0.0	40		
1,3-Dichlorobenzene	2.30	mg/kg	0.33	69	57	83	0.0	40		
1,4-Dichlorobenzene	2.42	mg/kg	0.33	73	58	83	0.0	40		
1-Methylnaphthalene	2.51	mg/kg	0.33	75	63	97	0.0	40		
2,4,5-Trichlorophenol	2.78	mg/kg	0.33	83	68	120	0.0	40		
2,4,6-Trichlorophenol	2.69	mg/kg	0.33	81	65	117	0.0	40		
2,4-Dichlorophenol	3.05	mg/kg	0.33	92	61	110	0.0	40		
2,4-Dimethylphenol	2.70	mg/kg	0.33	81	62	100	0.0	40		
2,4-Dinitrophenol	3.21	mg/kg	0.67	96	47	115	0.0	40		
2,4-Dinitrotoluene	3.60	mg/kg	0.33	108	72	122	0.0	40		
2,6-Dinitrotoluene	2.88	mg/kg	0.33	87	60	126	0.0	40		
2-Chloronaphthalene	2.65	mg/kg	0.33	80	63	106	0.0	40		
2-Chlorophenol	2.51	mg/kg	0.33	75	61	103	0.0	40		
2-Methylnaphthalene	2.85	mg/kg	0.33	85	68	103	0.0	40		
2-Nitrophenol	2.86	mg/kg	0.33	86	58	102	0.0	40		
3,3'-Dichlorobenzidine	2.17	mg/kg	0.67	65	35	117	0.0	40		
4,6-Dinitro-2-methylphenol	3.64	mg/kg	0.67	109	55	121	0.0	40		
4-Bromophenyl phenyl ether	2.92	mg/kg	0.33	88	72	113	0.0	40		

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152576
Lab ID: LCS-152576	70 Laboratory Control Sample				Run: SUB-B355947				02/04/21 17:42	
4-Chloro-3-methylphenol		2.78	mg/kg	0.33	84	68	107	0.0	40	
4-Chlorophenol		2.66	mg/kg	0.33	80	61	109	0.0	40	
4-Chlorophenyl phenyl ether		3.02	mg/kg	0.33	91	71	110	0.0	40	
4-Nitrophenol		3.23	mg/kg	0.67	97	62	118	0.0	40	
Acenaphthene		2.95	mg/kg	0.33	89	73	104	0.0	40	
Acenaphthylene		2.75	mg/kg	0.33	83	64	101	0.0	40	
Anthracene		3.03	mg/kg	0.33	91	72	110	0.0	40	
Azobenzene		2.86	mg/kg	0.33	86	68	108	0.0	40	
Benzidine		0.360	mg/kg	0.33	11	10	80	0.0	40	
Benzo(a)anthracene		3.17	mg/kg	0.33	95	75	112	0.0	40	
Benzo(a)pyrene		2.77	mg/kg	0.33	83	71	106	0.0	40	
Benzo(b)fluoranthene		2.47	mg/kg	0.33	74	65	121	0.0	40	
Benzo(g,h,i)perylene		2.53	mg/kg	0.33	76	79	117	0.0	40	S
Benzo(k)fluoranthene		2.29	mg/kg	0.33	69	64	118	0.0	40	
bis(-2-chloroethoxy)Methane		2.43	mg/kg	0.33	73	63	104	0.0	40	
bis(-2-chloroethyl)Ether		2.30	mg/kg	0.33	69	56	94	0.0	40	
bis(2-chloroisopropyl)Ether		2.01	mg/kg	0.33	60	51	84	0.0	40	
bis(2-ethylhexyl)Phthalate		3.18	mg/kg	0.33	96	65	132	0.0	40	
Butylbenzylphthalate		3.41	mg/kg	0.33	102	68	131	0.0	40	
Chrysene		2.97	mg/kg	0.33	89	76	109	0.0	40	
Dibenzo(a,h)anthracene		2.54	mg/kg	0.33	76	75	111	0.0	40	
Diethyl phthalate		3.40	mg/kg	0.33	102	70	119	0.0	40	
Dimethyl phthalate		3.06	mg/kg	0.33	92	70	118	0.0	40	
Di-n-butyl phthalate		2.96	mg/kg	0.33	89	72	126	0.0	40	
Di-n-octyl phthalate		2.52	mg/kg	0.33	76	68	127	0.0	40	
Fluoranthene		2.83	mg/kg	0.33	85	76	109	0.0	40	
Fluorene		3.16	mg/kg	0.33	95	67	108	0.0	40	
Hexachlorobenzene		2.71	mg/kg	0.33	81	71	107	0.0	40	
Hexachlorobutadiene		2.59	mg/kg	0.33	78	62	91	0.0	40	
Hexachlorocyclopentadiene		2.50	mg/kg	0.33	75	56	108	0.0	40	
Hexachloroethane		2.33	mg/kg	0.33	70	54	95	0.0	40	
Indeno(1,2,3-cd)pyrene		2.65	mg/kg	0.33	79	63	112	0.0	40	
Isophorone		2.81	mg/kg	0.33	84	63	95	0.0	40	
m+p-Cresols		2.50	mg/kg	0.33	75	64	109	0.0	40	
Naphthalene		2.63	mg/kg	0.33	79	60	99	0.0	40	
Nitrobenzene		2.45	mg/kg	0.33	74	57	110	0.0	40	
n-Nitrosodimethylamine		2.68	mg/kg	0.33	80	43	106	0.0	40	
n-Nitroso-di-n-propylamine		2.42	mg/kg	0.33	73	61	107	0.0	40	
n-Nitrosodiphenylamine		2.91	mg/kg	0.33	87	71	119	0.0	40	
o-Cresol		2.56	mg/kg	0.33	77	65	111	0.0	40	
Pentachlorophenol		2.96	mg/kg	6.7	89	60	121	0.0	40	
Phenanthrene		2.93	mg/kg	0.33	88	73	104	0.0	40	
Phenol		2.64	mg/kg	0.33	79	57	99	0.0	40	
Pyrene		2.75	mg/kg	0.33	83	77	111	0.0	40	
Pyridine		1.32	mg/kg	0.33	40	18	76	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152576
Lab ID: LCS-152576	70	Laboratory Control Sample			Run: SUB-B355947			02/04/21 17:42		
Surr: 2,4,6-Tribromophenol				0.33	90	53	141			
Surr: 2-Fluorobiphenyl				0.33	72	63	98			
Surr: 2-Fluorophenol				0.33	75	53	101			
Surr: Nitrobenzene-d5				0.33	66	53	101			
Surr: Phenol-d5				0.33	75	55	100			
Surr: Terphenyl-d14				0.33	87	71	118			
Lab ID: H21020001-004A	70	Sample Matrix Spike			Run: SUB-B355947			02/05/21 01:23		
1,2,4-Trichlorobenzene	6.17	mg/kg-dry	0.87	71	63	93	0.0	40		
1,2-Dichlorobenzene	5.59	mg/kg-dry	0.87	64	59	85	0.0	40		
1,3-Dichlorobenzene	4.77	mg/kg-dry	0.87	55	57	83	0.0	40		S
1,4-Dichlorobenzene	5.03	mg/kg-dry	0.87	58	58	83	0.0	40		
1-Methylnaphthalene	6.38	mg/kg-dry	0.87	73	63	97	0.0	40		
2,4,5-Trichlorophenol	7.43	mg/kg-dry	0.87	85	68	120	0.0	40		
2,4,6-Trichlorophenol	6.43	mg/kg-dry	0.87	74	65	117	0.0	40		
2,4-Dichlorophenol	7.25	mg/kg-dry	0.87	83	61	110	0.0	40		
2,4-Dimethylphenol	7.03	mg/kg-dry	0.87	81	62	100	0.0	40		
2,4-Dinitrophenol	5.55	mg/kg-dry	1.7	64	47	115	0.0	40		
2,4-Dinitrotoluene	7.80	mg/kg-dry	0.87	89	72	122	0.0	40		
2,6-Dinitrotoluene	7.47	mg/kg-dry	0.87	86	60	126	0.0	40		
2-Chloronaphthalene	6.81	mg/kg-dry	0.87	78	63	106	0.0	40		
2-Chlorophenol	5.90	mg/kg-dry	0.87	68	61	103	0.0	40		
2-Methylnaphthalene	7.03	mg/kg-dry	0.87	81	68	103	0.0	40		
2-Nitrophenol	6.69	mg/kg-dry	0.87	77	58	102	0.0	40		
3,3'-Dichlorobenzidine	4.96	mg/kg-dry	3.5	57	35	117	0.0	40		
4,6-Dinitro-2-methylphenol	6.73	mg/kg-dry	1.7	77	55	121	0.0	40		
4-Bromophenyl phenyl ether	7.73	mg/kg-dry	0.87	89	72	113	0.0	40		
4-Chloro-3-methylphenol	6.22	mg/kg-dry	0.87	71	68	107	0.0	40		
4-Chlorophenol	7.51	mg/kg-dry	0.87	86	61	109	0.0	40		
4-Chlorophenyl phenyl ether	7.39	mg/kg-dry	0.87	85	71	110	0.0	40		
4-Nitrophenol	6.26	mg/kg-dry	1.7	72	62	118	0.0	40		
Acenaphthene	7.17	mg/kg-dry	0.87	82	73	104	0.0	40		
Acenaphthylene	6.46	mg/kg-dry	0.87	74	64	101	0.0	40		
Anthracene	7.53	mg/kg-dry	0.87	86	72	110	0.0	40		
Azobenzene	6.98	mg/kg-dry	0.87	80	68	108	0.0	40		
Benzidine	ND	mg/kg-dry	1.7	0	10	80	0.0	40		S1
Benzo(a)anthracene	8.18	mg/kg-dry	0.87	94	75	112	0.0	40		
Benzo(a)pyrene	6.79	mg/kg-dry	0.87	78	71	106	0.0	40		
Benzo(b)fluoranthene	6.53	mg/kg-dry	0.87	75	65	121	0.0	40		
Benzo(g,h,i)perylene	6.66	mg/kg-dry	0.87	76	79	117	0.0	40		S
Benzo(k)fluoranthene	6.27	mg/kg-dry	0.87	72	64	118	0.0	40		
bis(-2-chloroethoxy)Methane	6.05	mg/kg-dry	0.87	69	63	104	0.0	40		
bis(-2-chloroethyl)Ether	5.36	mg/kg-dry	0.87	61	56	94	0.0	40		
bis(2-chloroisopropyl)Ether	4.82	mg/kg-dry	0.87	55	51	84	0.0	40		
bis(2-ethylhexyl)Phthalate	8.00	mg/kg-dry	0.87	92	65	132	0.0	40		
Butylbenzylphthalate	8.29	mg/kg-dry	1.7	95	68	131	0.0	40		

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152576
Lab ID: H21020001-004A	70	Sample Matrix Spike			Run: SUB-B355947				02/05/21 01:23	
Chrysene		7.53	mg/kg-dry	0.87	86	76	109	0.0	40	
Dibenzo(a,h)anthracene		6.65	mg/kg-dry	0.87	76	75	111	0.0	40	
Diethyl phthalate		7.91	mg/kg-dry	0.87	91	70	119	0.0	40	
Dimethyl phthalate		7.28	mg/kg-dry	0.87	83	70	118	0.0	40	
Di-n-butyl phthalate		7.38	mg/kg-dry	0.87	85	72	126	0.0	40	
Di-n-octyl phthalate		6.51	mg/kg-dry	0.87	75	68	127	0.0	40	
Fluoranthene		7.23	mg/kg-dry	0.87	83	76	109	0.0	40	
Fluorene		7.04	mg/kg-dry	0.87	81	67	108	0.0	40	
Hexachlorobenzene		7.28	mg/kg-dry	0.87	83	71	107	0.0	40	
Hexachlorobutadiene		6.38	mg/kg-dry	0.87	73	62	91	0.0	40	
Hexachlorocyclopentadiene		5.62	mg/kg-dry	1.7	64	56	108	0.0	40	
Hexachloroethane		5.82	mg/kg-dry	0.87	67	54	95	0.0	40	
Indeno(1,2,3-cd)pyrene		6.82	mg/kg-dry	0.87	78	63	112	0.0	40	
Isophorone		6.33	mg/kg-dry	0.87	73	63	95	0.0	40	
m+p-Cresols		6.38	mg/kg-dry	0.87	73	64	109	0.0	40	
Naphthalene		6.23	mg/kg-dry	0.87	71	60	99	0.0	40	
Nitrobenzene		6.82	mg/kg-dry	0.87	78	57	110	0.0	40	
n-Nitrosodimethylamine		5.54	mg/kg-dry	0.87	64	43	106	0.0	40	
n-Nitroso-di-n-propylamine		6.51	mg/kg-dry	0.87	75	61	107	0.0	40	
n-Nitrosodiphenylamine		7.46	mg/kg-dry	0.87	86	71	119	0.0	40	
o-Cresol		6.35	mg/kg-dry	0.87	73	65	111	0.0	40	
Pentachlorophenol		6.43	mg/kg-dry	6.7	74	60	121	0.0	40	
Phenanthrene		7.50	mg/kg-dry	0.87	86	73	104	0.0	40	
Phenol		5.91	mg/kg-dry	0.87	68	57	99	0.0	40	
Pyrene		6.89	mg/kg-dry	0.87	79	77	111	0.0	40	
Pyridine		3.22	mg/kg-dry	0.87	37	18	76	0.0	40	
Surr: 2,4,6-Tribromophenol				0.87	82	53	141			
Surr: 2-Fluorobiphenyl				0.87	64	63	98			
Surr: 2-Fluorophenol				0.87	63	53	101			
Surr: Nitrobenzene-d5				0.87	59	53	101			
Surr: Phenol-d5				0.87	64	55	100			
Surr: Terphenyl-d14				0.87	87	71	118			
- 1 = This is a known very reactive compound. The recovery of this compound was normal in the Laboratory Control Sample (LCS). The compound appears to have reacted with the sample matrix.										
Lab ID: H21020001-004A	70	Sample Matrix Spike Duplicate			Run: SUB-B355947				02/05/21 01:53	
1,2,4-Trichlorobenzene		7.57	mg/kg-dry	0.91	84	63	93	20	40	
1,2-Dichlorobenzene		6.08	mg/kg-dry	0.91	67	59	85	8.4	40	
1,3-Dichlorobenzene		5.12	mg/kg-dry	0.91	57	57	83	7.0	40	
1,4-Dichlorobenzene		5.73	mg/kg-dry	0.91	63	58	83	13	40	
1-Methylnaphthalene		6.99	mg/kg-dry	0.91	77	63	97	9.1	40	
2,4,5-Trichlorophenol		7.35	mg/kg-dry	0.91	81	68	120	1.1	40	
2,4,6-Trichlorophenol		6.04	mg/kg-dry	0.91	67	65	117	6.3	40	
2,4-Dichlorophenol		8.07	mg/kg-dry	0.91	89	61	110	11	40	
2,4-Dimethylphenol		7.58	mg/kg-dry	0.91	84	62	100	7.5	40	
2,4-Dinitrophenol		6.84	mg/kg-dry	1.8	76	47	115	21	40	
2,4-Dinitrotoluene		7.64	mg/kg-dry	0.91	84	72	122	2.1	40	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C										Batch: B_152576
Lab ID: H21020001-004A	70 Sample Matrix Spike Duplicate				Run: SUB-B355947				02/05/21 01:53	
2,6-Dinitrotoluene		8.17	mg/kg-dry	0.91	90	60	126	8.9	40	
2-Chloronaphthalene		7.42	mg/kg-dry	0.91	82	63	106	8.5	40	
2-Chlorophenol		6.41	mg/kg-dry	0.91	71	61	103	8.2	40	
2-Methylnaphthalene		7.44	mg/kg-dry	0.91	82	68	103	5.7	40	
2-Nitrophenol		7.49	mg/kg-dry	0.91	83	58	102	11	40	
3,3'-Dichlorobenzidine		6.45	mg/kg-dry	3.6	71	35	117	26	40	
4,6-Dinitro-2-methylphenol		7.56	mg/kg-dry	1.8	84	55	121	12	40	
4-Bromophenyl phenyl ether		8.89	mg/kg-dry	0.91	98	72	113	14	40	
4-Chloro-3-methylphenol		7.20	mg/kg-dry	0.91	80	68	107	15	40	
4-Chlorophenol		8.26	mg/kg-dry	0.91	91	61	109	9.6	40	
4-Chlorophenyl phenyl ether		8.05	mg/kg-dry	0.91	89	71	110	8.6	40	
4-Nitrophenol		6.77	mg/kg-dry	1.8	75	62	118	7.9	40	
Acenaphthene		7.45	mg/kg-dry	0.91	82	73	104	3.8	40	
Acenaphthylene		6.80	mg/kg-dry	0.91	75	64	101	5.1	40	
Anthracene		8.13	mg/kg-dry	0.91	90	72	110	7.6	40	
Azobenzene		7.54	mg/kg-dry	0.91	83	68	108	7.7	40	
Benzidine		ND	mg/kg-dry	1.8	0	10	80		40	S1
Benzo(a)anthracene		8.48	mg/kg-dry	0.91	94	75	112	3.7	40	
Benzo(a)pyrene		7.61	mg/kg-dry	0.91	84	71	106	11	40	
Benzo(b)fluoranthene		7.32	mg/kg-dry	0.91	81	65	121	12	40	
Benzo(g,h,i)perylene		7.69	mg/kg-dry	0.91	85	79	117	14	40	
Benzo(k)fluoranthene		7.07	mg/kg-dry	0.91	78	64	118	12	40	
bis(-2-chloroethoxy)Methane		7.20	mg/kg-dry	0.91	80	63	104	17	40	
bis(-2-chloroethyl)Ether		6.26	mg/kg-dry	0.91	69	56	94	16	40	
bis(2-chloroisopropyl)Ether		5.06	mg/kg-dry	0.91	56	51	84	4.9	40	
bis(2-ethylhexyl)Phthalate		8.22	mg/kg-dry	0.91	91	65	132	2.7	40	
Butylbenzylphthalate		8.53	mg/kg-dry	1.8	94	68	131	2.9	40	
Chrysene		7.91	mg/kg-dry	0.91	87	76	109	4.9	40	
Dibenzo(a,h)anthracene		7.84	mg/kg-dry	0.91	87	75	111	17	40	
Diethyl phthalate		7.99	mg/kg-dry	0.91	88	70	119	1.0	40	
Dimethyl phthalate		8.04	mg/kg-dry	0.91	89	70	118	9.9	40	
Di-n-butyl phthalate		7.68	mg/kg-dry	0.91	85	72	126	4.0	40	
Di-n-octyl phthalate		7.54	mg/kg-dry	0.91	83	68	127	15	40	
Fluoranthene		7.74	mg/kg-dry	0.91	86	76	109	6.7	40	
Fluorene		7.55	mg/kg-dry	0.91	83	67	108	7.0	40	
Hexachlorobenzene		7.50	mg/kg-dry	0.91	83	71	107	3.0	40	
Hexachlorobutadiene		6.43	mg/kg-dry	0.91	71	62	91	0.7	40	
Hexachlorocyclopentadiene		5.85	mg/kg-dry	1.8	65	56	108	4.1	40	
Hexachloroethane		6.31	mg/kg-dry	0.91	70	54	95	8.0	40	
Indeno(1,2,3-cd)pyrene		8.05	mg/kg-dry	0.91	89	63	112	16	40	
Isophorone		7.11	mg/kg-dry	0.91	79	63	95	11	40	
m+p-Cresols		6.97	mg/kg-dry	0.91	77	64	109	8.9	40	
Naphthalene		7.02	mg/kg-dry	0.91	78	60	99	12	40	
Nitrobenzene		7.37	mg/kg-dry	0.91	81	57	110	7.7	40	
n-Nitrosodimethylamine		5.06	mg/kg-dry	0.91	56	43	106	9.1	40	

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: B_152576	
Lab ID: H21020001-004A	70 Sample Matrix Spike Duplicate				Run: SUB-B355947				02/05/21 01:53	
n-Nitroso-di-n-propylamine		6.71	mg/kg-dry	0.91	74	61	107	3.1	40	
n-Nitrosodiphenylamine		7.99	mg/kg-dry	0.91	88	71	119	6.9	40	
o-Cresol		7.00	mg/kg-dry	0.91	77	65	111	9.7	40	
Pentachlorophenol		7.46	mg/kg-dry	6.7	82	60	121		40	
Phenanthrene		7.85	mg/kg-dry	0.91	87	73	104	4.6	40	
Phenol		6.65	mg/kg-dry	0.91	74	57	99	12	40	
Pyrene		7.38	mg/kg-dry	0.91	82	77	111	6.8	40	
Pyridine		2.80	mg/kg-dry	0.91	31	18	76	14	40	
Surr: 2,4,6-Tribromophenol				0.91	86	53	141			
Surr: 2-Fluorobiphenyl				0.91	69	63	98			
Surr: 2-Fluorophenol				0.91	70	53	101			
Surr: Nitrobenzene-d5				0.91	72	53	101			
Surr: Phenol-d5				0.91	75	55	100			
Surr: Terphenyl-d14				0.91	92	71	118			

- 1 = This is a known very reactive compound. The recovery of this compound was normal in the Laboratory Control Sample (LCS). The compound appears to have reacted with the sample matrix.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C								Analytical Run: B_R355882		
Lab ID: 03-Feb-21_CCV_2	70	Continuing Calibration Verification Standard							02/03/21 10:16	
1,2,4-Trichlorobenzene		70.3	ug/L	10	94	70	130	0.0	40	
1,2-Dichlorobenzene		75.4	ug/L	10	101	70	130	0.0	40	
1,3-Dichlorobenzene		74.8	ug/L	10	100	70	130	0.0	40	
1,4-Dichlorobenzene		71.1	ug/L	10	95	80	120	0.0	40	
1-Methylnaphthalene		62.4	ug/L	10	83	70	130	0.0	40	
2,4,5-Trichlorophenol		74.4	ug/L	10	99	70	130	0.0	40	
2,4,6-Trichlorophenol		66.7	ug/L	10	89	80	120	0.0	40	
2,4-Dichlorophenol		72.1	ug/L	10	96	80	120	0.0	40	
2,4-Dimethylphenol		69.1	ug/L	10	92	70	130	0.0	40	
2,4-Dinitrophenol		77.3	ug/L	10	103	70	130	0.0	40	
2,4-Dinitrotoluene		78.8	ug/L	10	105	70	130	0.0	40	
2,6-Dinitrotoluene		65.4	ug/L	10	87	70	130	0.0	40	
2-Chloronaphthalene		72.1	ug/L	10	96	70	130	0.0	40	
2-Chlorophenol		68.9	ug/L	10	92	70	130	0.0	40	
2-Methylnaphthalene		61.7	ug/L	10	82	70	130	0.0	40	
2-Nitrophenol		68.7	ug/L	10	92	80	120	0.0	40	
3,3'-Dichlorobenzidine		71.1	ug/L	10	95	70	130	0.0	40	
4,6-Dinitro-2-methylphenol		77.3	ug/L	10	103	70	130	0.0	40	
4-Bromophenyl phenyl ether		68.8	ug/L	10	92	70	130	0.0	40	
4-Chloro-3-methylphenol		66.0	ug/L	10	88	80	120	0.0	40	
4-Chlorophenol		74.3	ug/L	10	99	70	130	0.0	40	
4-Chlorophenyl phenyl ether		71.0	ug/L	10	95	70	130	0.0	40	
4-Nitrophenol		70.3	ug/L	10	94	70	130	0.0	40	
Acenaphthene		69.7	ug/L	10	93	80	120	0.0	40	
Acenaphthylene		68.4	ug/L	10	91	70	130	0.0	40	
Anthracene		70.0	ug/L	10	93	70	130	0.0	40	
Azobenzene		73.4	ug/L	10	98	70	130	0.0	40	
Benzidine		62.5	ug/L	10	83	70	130	0.0	40	
Benzo(a)anthracene		72.5	ug/L	10	97	70	130	0.0	40	
Benzo(a)pyrene		69.2	ug/L	10	92	80	120	0.0	40	
Benzo(b)fluoranthene		67.5	ug/L	10	90	70	130	0.0	40	
Benzo(g,h,i)perylene		64.3	ug/L	10	86	70	130	0.0	40	
Benzo(k)fluoranthene		68.4	ug/L	10	91	70	130	0.0	40	
bis(-2-chloroethoxy)Methane		74.5	ug/L	10	99	70	130	0.0	40	
bis(-2-chloroethyl)Ether		70.5	ug/L	10	94	70	130	0.0	40	
bis(2-chloroisopropyl)Ether		77.3	ug/L	10	103	70	130	0.0	40	
bis(2-ethylhexyl)Phthalate		71.7	ug/L	10	96	70	130	0.0	40	
Butylbenzylphthalate		73.4	ug/L	10	98	70	130	0.0	40	
Chrysene		67.7	ug/L	10	90	70	130	0.0	40	
Dibenzo(a,h)anthracene		64.1	ug/L	10	85	70	130	0.0	40	
Diethyl phthalate		71.2	ug/L	10	95	70	130	0.0	40	
Dimethyl phthalate		70.0	ug/L	10	93	70	130	0.0	40	
Di-n-butyl phthalate		66.5	ug/L	10	89	70	130	0.0	40	
Di-n-octyl phthalate		67.6	ug/L	10	90	80	120	0.0	40	
Fluoranthene		65.4	ug/L	10	87	80	120	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C								Analytical Run: B_R355882		
Lab ID: 03-Feb-21_CCV_2	70 Continuing Calibration Verification Standard								02/03/21 10:16	
Fluorene		75.5	ug/L	10	101	70	130	0.0	40	
Hexachlorobenzene		70.8	ug/L	10	94	70	130	0.0	40	
Hexachlorobutadiene		73.2	ug/L	10	98	80	120	0.0	40	
Hexachlorocyclopentadiene		72.0	ug/L	10	96	70	130	0.0	40	
Hexachloroethane		72.2	ug/L	10	96	70	130	0.0	40	
Indeno(1,2,3-cd)pyrene		64.5	ug/L	10	86	70	130	0.0	40	
Isophorone		74.6	ug/L	10	100	70	130	0.0	40	
m+p-Cresols		72.9	ug/L	10	97	70	130	0.0	40	
Naphthalene		65.5	ug/L	10	87	70	130	0.0	40	
Nitrobenzene		71.4	ug/L	10	95	70	130	0.0	40	
n-Nitrosodimethylamine		89.2	ug/L	10	119	70	130	0.0	40	
n-Nitroso-di-n-propylamine		69.5	ug/L	10	93	70	130	0.0	40	
n-Nitrosodiphenylamine		70.0	ug/L	10	93	80	120	0.0	40	
o-Cresol		72.0	ug/L	10	96	70	130	0.0	40	
Pentachlorophenol		71.2	ug/L	10	95	80	120	0.0	40	
Phenanthrene		69.9	ug/L	10	93	70	130	0.0	40	
Phenol		75.6	ug/L	10	101	80	120	0.0	40	
Pyrene		60.0	ug/L	10	80	70	130	0.0	40	
Pyridine		75.6	ug/L	10	101	70	130	0.0	40	
Surr: 2,4,6-Tribromophenol				10	94	70	130	0.0	40	
Surr: 2-Fluorobiphenyl				10	86	70	130	0.0	40	
Surr: 2-Fluorophenol				10	102	70	130	0.0	40	
Surr: Nitrobenzene-d5				10	96	70	130	0.0	40	
Surr: Phenol-d5				10	103	70	130	0.0	40	
Surr: Terphenyl-d14				10	92	70	130	0.0	40	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C								Analytical Run: B_R355947		
Lab ID: 04-Feb-21_CCV_3	70	Continuing Calibration Verification Standard						02/04/21 15:39		
1,2,4-Trichlorobenzene		2.39	mg/kg	0.33	96	70	130			
1,2-Dichlorobenzene		2.57	mg/kg	0.33	103	70	130			
1,3-Dichlorobenzene		2.35	mg/kg	0.33	94	70	130			
1,4-Dichlorobenzene		2.32	mg/kg	0.33	93	80	120			
1-Methylnaphthalene		2.23	mg/kg	0.33	89	70	130			
2,4,5-Trichlorophenol		2.53	mg/kg	0.33	101	70	130			
2,4,6-Trichlorophenol		2.15	mg/kg	0.33	86	80	120			
2,4-Dichlorophenol		2.58	mg/kg	0.33	103	80	120			
2,4-Dimethylphenol		2.36	mg/kg	0.33	94	70	130			
2,4-Dinitrophenol		2.43	mg/kg	0.67	97	70	130			
2,4-Dinitrotoluene		2.47	mg/kg	0.33	99	70	130			
2,6-Dinitrotoluene		2.44	mg/kg	0.33	98	70	130			
2-Chloronaphthalene		2.46	mg/kg	0.33	98	70	130			
2-Chlorophenol		2.34	mg/kg	0.33	93	70	130			
2-Methylnaphthalene		2.27	mg/kg	0.33	91	70	130			
2-Nitrophenol		2.30	mg/kg	0.33	92	80	120			
3,3'-Dichlorobenzidine		2.29	mg/kg	0.67	92	70	130			
4,6-Dinitro-2-methylphenol		2.63	mg/kg	0.67	105	70	130			
4-Bromophenyl phenyl ether		2.46	mg/kg	0.33	98	70	130			
4-Chloro-3-methylphenol		2.34	mg/kg	0.33	94	80	120			
4-Chlorophenol		2.57	mg/kg	0.33	103	70	130			
4-Chlorophenyl phenyl ether		2.30	mg/kg	0.33	92	70	130			
4-Nitrophenol		2.49	mg/kg	0.67	100	70	130			
Acenaphthene		2.30	mg/kg	0.33	92	80	120			
Acenaphthylene		2.32	mg/kg	0.33	93	70	130			
Anthracene		2.30	mg/kg	0.33	92	70	130			
Azobenzene		2.38	mg/kg	0.33	95	70	130			
Benzidine		1.82	mg/kg	0.33	73	70	130			
Benzo(a)anthracene		2.29	mg/kg	0.33	91	70	130			
Benzo(a)pyrene		2.28	mg/kg	0.33	91	80	120			
Benzo(b)fluoranthene		2.20	mg/kg	0.33	88	70	130			
Benzo(g,h,i)perylene		2.25	mg/kg	0.33	90	70	130			
Benzo(k)fluoranthene		2.17	mg/kg	0.33	87	70	130			
bis(-2-chloroethoxy)Methane		2.31	mg/kg	0.33	92	70	130			
bis(-2-chloroethyl)Ether		2.50	mg/kg	0.33	100	70	130			
bis(2-chloroisopropyl)Ether		2.28	mg/kg	0.33	91	70	130			
bis(2-ethylhexyl)Phthalate		2.37	mg/kg	0.33	95	70	130			
Butylbenzylphthalate		2.25	mg/kg	0.33	90	70	130			
Chrysene		2.18	mg/kg	0.33	87	70	130			
Dibenzo(a,h)anthracene		2.13	mg/kg	0.33	85	70	130			
Diethyl phthalate		2.40	mg/kg	0.33	96	70	130			
Dimethyl phthalate		2.36	mg/kg	0.33	94	70	130			
Di-n-butyl phthalate		2.32	mg/kg	0.33	93	70	130			
Di-n-octyl phthalate		2.21	mg/kg	0.33	88	80	120			
Fluoranthene		2.25	mg/kg	0.33	90	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C								Analytical Run: B_R355947		
Lab ID: 04-Feb-21_CCV_3	70 Continuing Calibration Verification Standard								02/04/21 15:39	
Fluorene		2.42	mg/kg	0.33	97	70	130			
Hexachlorobenzene		2.29	mg/kg	0.33	92	70	130			
Hexachlorobutadiene		2.44	mg/kg	0.33	98	80	120			
Hexachlorocyclopentadiene		2.42	mg/kg	0.33	97	70	130			
Hexachloroethane		2.47	mg/kg	0.33	99	70	130			
Indeno(1,2,3-cd)pyrene		2.27	mg/kg	0.33	91	70	130			
Isophorone		2.53	mg/kg	0.33	101	70	130			
m+p-Cresols		2.32	mg/kg	0.33	93	70	130			
Naphthalene		2.44	mg/kg	0.33	98	70	130			
Nitrobenzene		2.42	mg/kg	0.33	97	70	130			
n-Nitrosodimethylamine		2.58	mg/kg	0.33	103	70	130			
n-Nitroso-di-n-propylamine		2.66	mg/kg	0.33	106	70	130			
n-Nitrosodiphenylamine		2.26	mg/kg	0.33	91	80	120			
o-Cresol		2.34	mg/kg	0.33	94	70	130			
Pentachlorophenol		2.20	mg/kg	6.7	88	80	120			
Phenanthrene		2.36	mg/kg	0.33	94	70	130			
Phenol		2.40	mg/kg	0.33	96	80	120			
Pyrene		2.23	mg/kg	0.33	89	70	130			
Pyridine		2.76	mg/kg	0.33	110	70	130			
Surr: 2,4,6-Tribromophenol				0.33	96	70	130			
Surr: 2-Fluorobiphenyl				0.33	86	70	130			
Surr: 2-Fluorophenol				0.33	99	70	130			
Surr: Nitrobenzene-d5				0.33	101	70	130			
Surr: Phenol-d5				0.33	103	70	130			
Surr: Terphenyl-d14				0.33	93	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/10/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW9045D										al Run: SOIL PH METER - ORION A211_210204A
Lab ID: ICV_1_210204_1		Initial Calibration Verification Standard								02/04/21 11:52
pH		10.0	s.u.	0.10	100	98	101			
Lab ID: CCV_1_210204_1		Continuing Calibration Verification Standard								02/04/21 11:53
pH		7.07	s.u.	0.10	101	98	102			
Lab ID: CCV1_1_210204_1		Continuing Calibration Verification Standard								02/04/21 11:55
pH		4.00	s.u.	0.10	100	98	102			
Lab ID: CCV_3_210204_1		Continuing Calibration Verification Standard								02/04/21 12:01
pH		7.04	s.u.	0.10	101	98	102			
Method: SW9045D										Batch: 210204_1_PH-ORG-S
Lab ID: LCS-55121		Laboratory Control Sample								Run: SOIL PH METER - ORION A2 02/04/21 11:56
pH		8.37	s.u.	0.10	100	95	105			
Lab ID: H21020001-004ADUP		Sample Duplicate								Run: SOIL PH METER - ORION A2 02/04/21 12:00
pH		7.06	s.u.	0.10						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Tetra Tech EMI

Work Order: H21020001

Report Date: 02/09/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020					Analytical Run: ICPMS208-B_210210A				
Lab ID: ICSA	Interference Check Sample A								02/10/21 14:20
Antimony	0.0000952	mg/L	0.0010						
Lab ID: ICSAB	Interference Check Sample AB								02/10/21 14:24
Antimony	0.0000487	mg/L	0.0010						
Lab ID: QCS	Initial Calibration Verification Standard								02/10/21 13:43
Antimony	0.0479	mg/L	0.0010	96	90	110			
Method: SW6020					Batch: 152782				
Lab ID: MB-152782	Method Blank								02/10/21 17:02
Antimony	ND	mg/kg	0.010						
Lab ID: SRM-152782	Standard Reference Material								02/10/21 17:06
Antimony	18.1	mg/kg	1.0	43	0	300			
Lab ID: B21020616-001ADIL	Serial Dilution								02/10/21 17:26
Antimony	ND	mg/kg	1.0						10
Lab ID: B21020616-001APDS1	Post Digestion/Distillation Spike								02/10/21 17:30
Antimony	4.76	mg/kg	1.0	98	75	125			
Lab ID: B21020616-001AMS3	Sample Matrix Spike								02/10/21 17:34
Antimony	24.4	mg/kg	1.0	52	75	125			S
Lab ID: B21020616-001AMSD3	Sample Matrix Spike Duplicate								02/10/21 17:38
Antimony	27.3	mg/kg	1.0	57	75	125	11	20	S

Qualifiers:

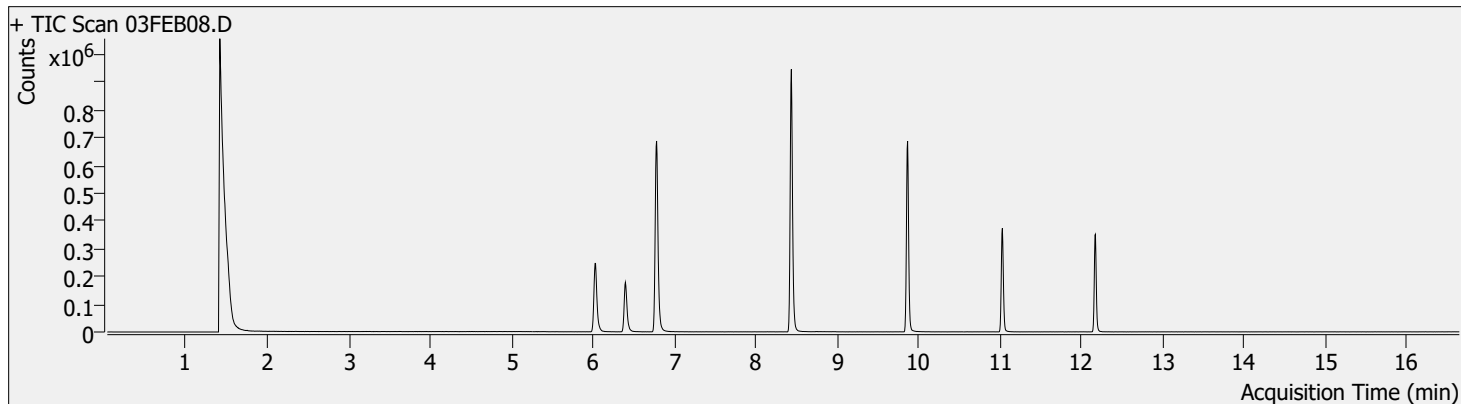
RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

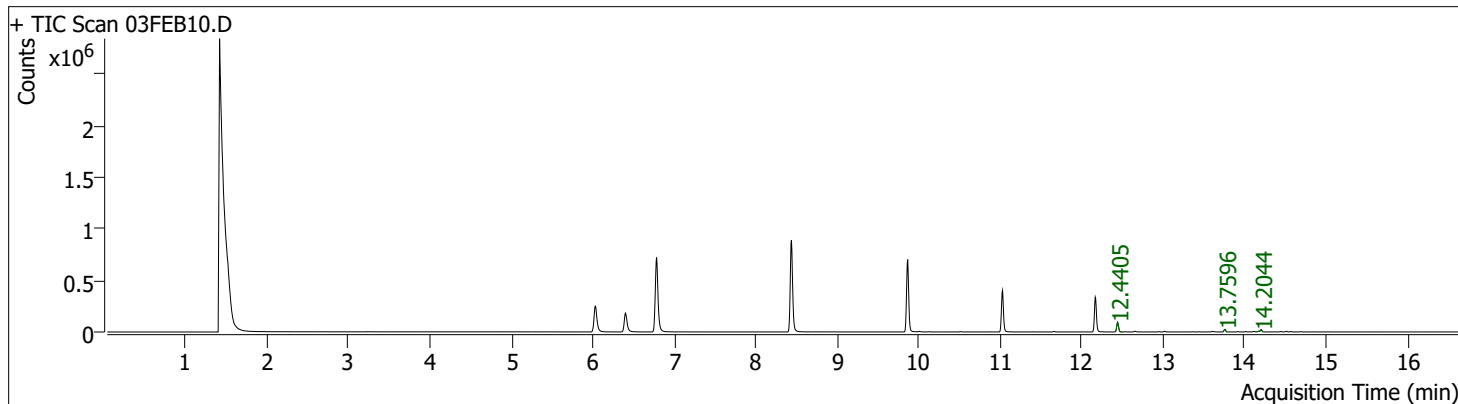
Unknown Analysis Report - Best Hits

Batch Path	\\MASSHUNTER\Org\Data\5971A.I\VA020321_TIC_Only		
Analysis File Name	B21020097.uaf		
Analyst Name	mchavez		
Analysis Time	2/9/2021 9:13:11 AM		
Data File Name	03FEB08.D	Data Path Name	\\MASSHUNTER\Org\Data\5971A.I\VA020321_TIC_Only
Sample Name	MBLK020321	Sample Type	Sample
Acq Method File	5971ACQS	Acq Method Path	
Acq Time	2/3/2021 2:33:00 PM	Operator	JDB
Instrument Name	GC/MS	Dilution	1



Unknown Analysis Report - Best Hits

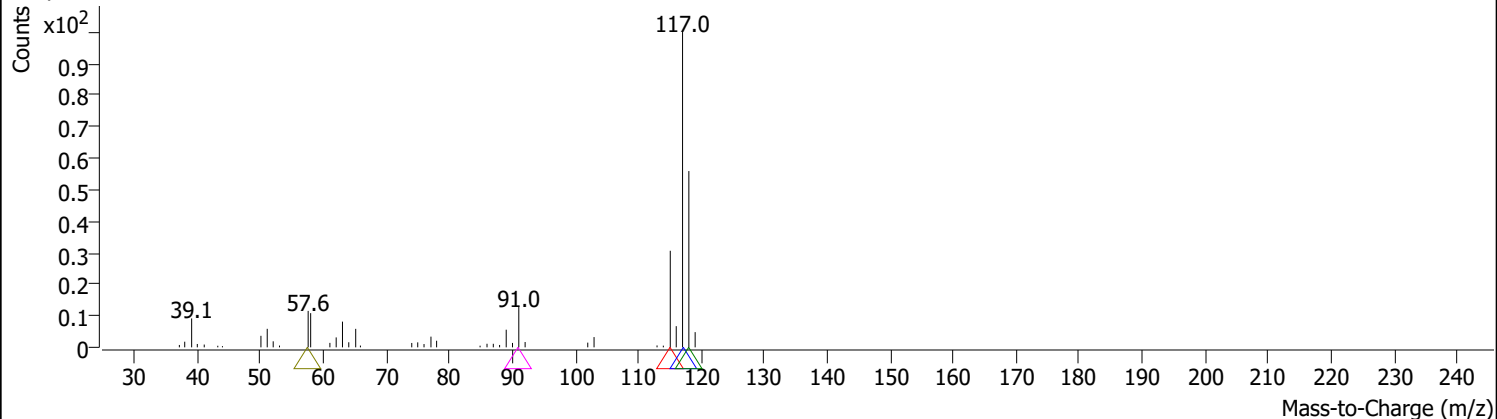
Batch Path	\\MASSHUNTER\Org\Data\5971A.I\VA020321_TIC_Only		
Analysis File Name	B21020097.uaf		
Analyst Name	mchavez		
Analysis Time	2/9/2021 9:13:11 AM		
Data File Name	03FEB10.D	Data Path Name	\\MASSHUNTER\Org\Data\5971A.I\VA020321_TIC_Only
Sample Name	B21020097-001F	Sample Type	Sample
Acq Method File	5971ACQS	Acq Method Path	
Acq Time	2/3/2021 3:38:00 PM	Operator	JDB
Instrument Name	GC/MS	Dilution	1



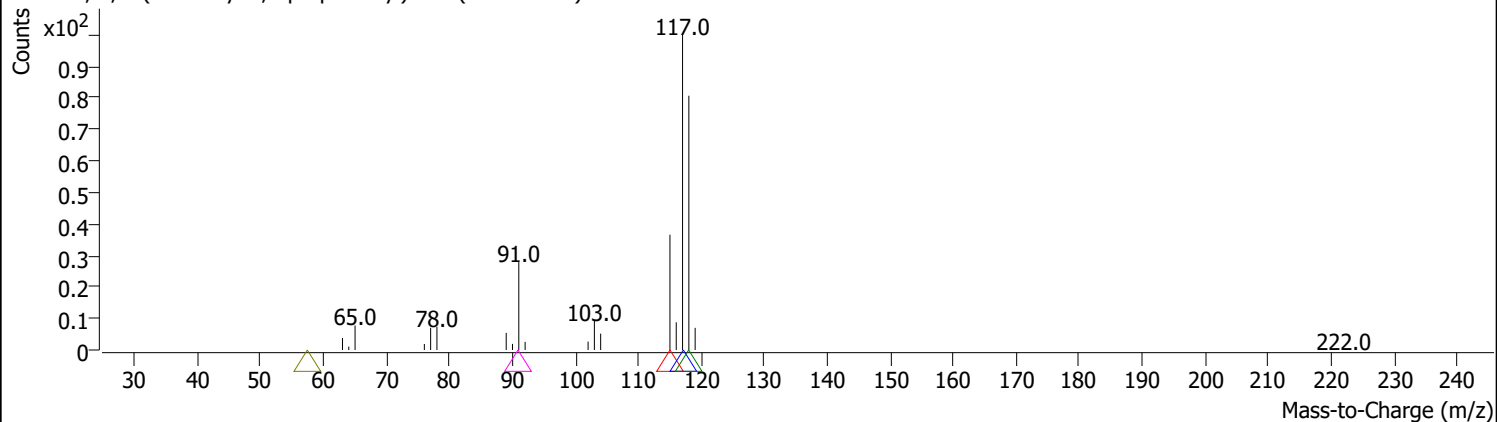
RT	Compound Name	CAS#	Formula	Area	MI	Match Score	Est. Conc. (µg/L)
12.4405	Benzene, 1,1'-(1-ethenyl-1,3-propanediyl)bis-	61141-97-7	C17H18	149559		88.7	2.56
13.7596	1H-Indene, 2,3-dihydro-5-methyl-	874-35-1	C10H12	35713		88.2	0.611
14.2044	1H-Indene, 2,3-dihydro-1,6-dimethyl-	17059-48-2	C11H14	42935		88.3	0.734

RT	Compound Name	CAS#	Formula	Area	MI	Match Score	Est. Conc. (µg/L)
12.4405	Benzene, 1,1'-(1-ethenyl-1,3-propanediyl)bis-	61141-97-7	C17H18	149559		88.7	2.56

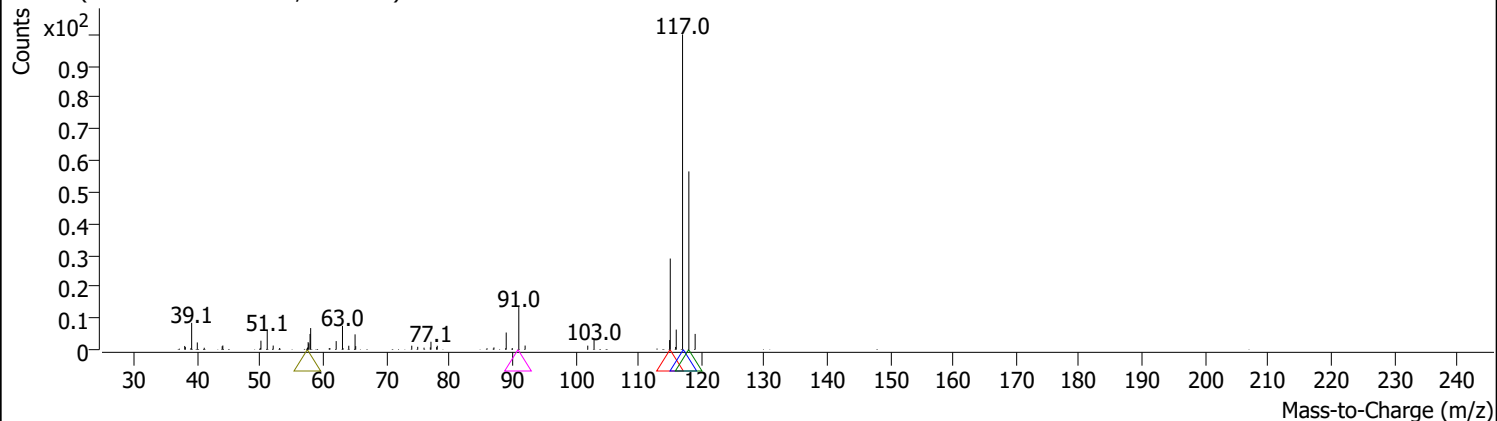
Component RT: 12.4405



Benzene, 1,1'-(1-ethenyl-1,3-propanediyl)bis- (NIST129K.L)

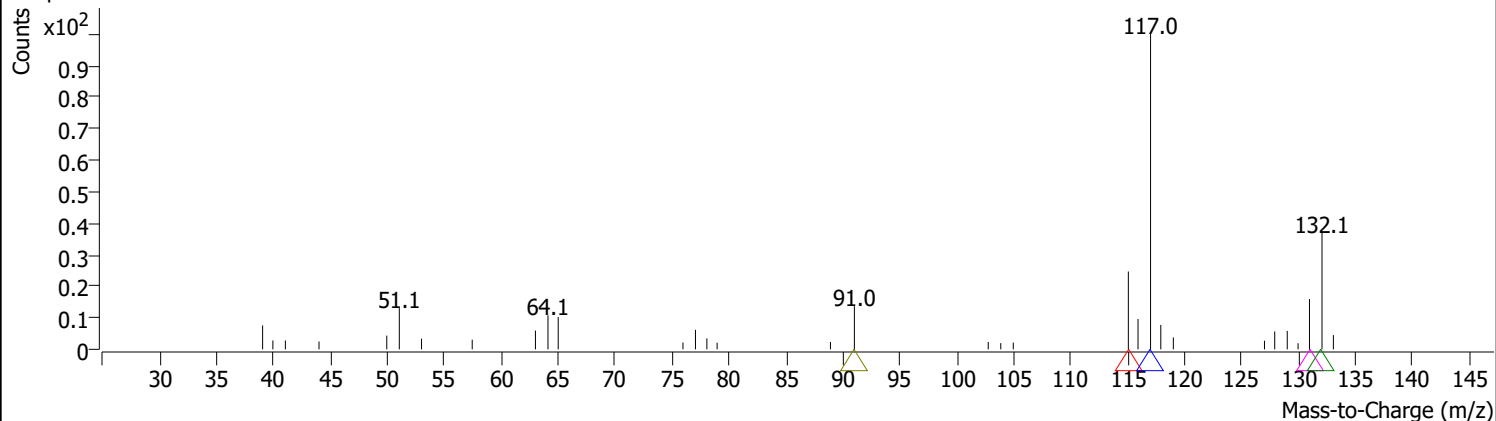


+ Scan (12.4146-12.4715 min, 12 scans) 03FEB10.D

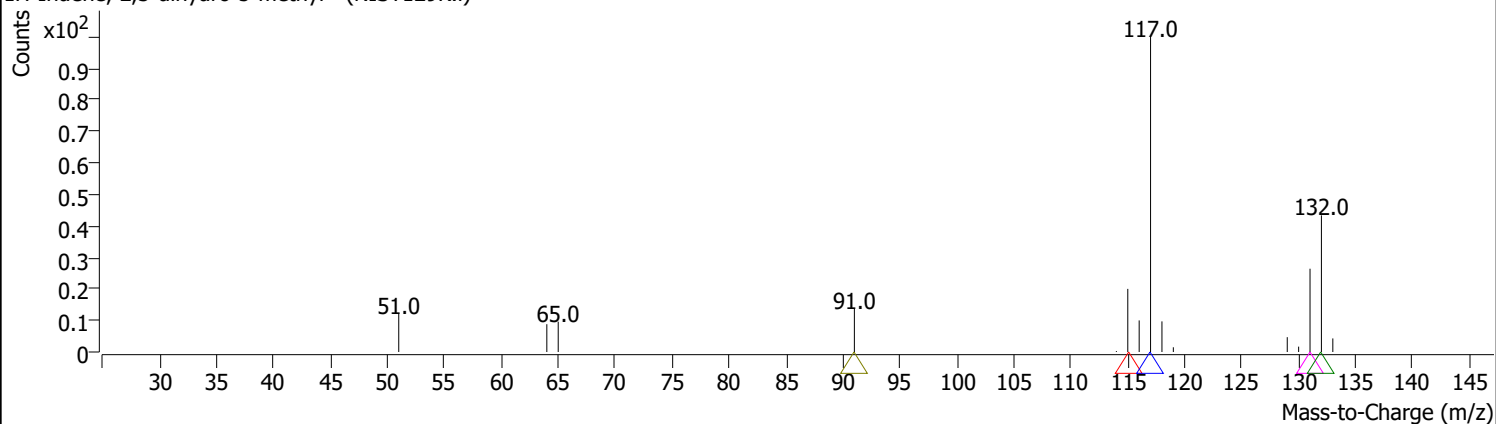


RT	Compound Name	CAS#	Formula	Area	MI	Match Score	Est. Conc. (µg/L)
13.7596	1H-Indene, 2,3-dihydro-5-methyl-	874-35-1	C10H12	35713		88.2	0.611

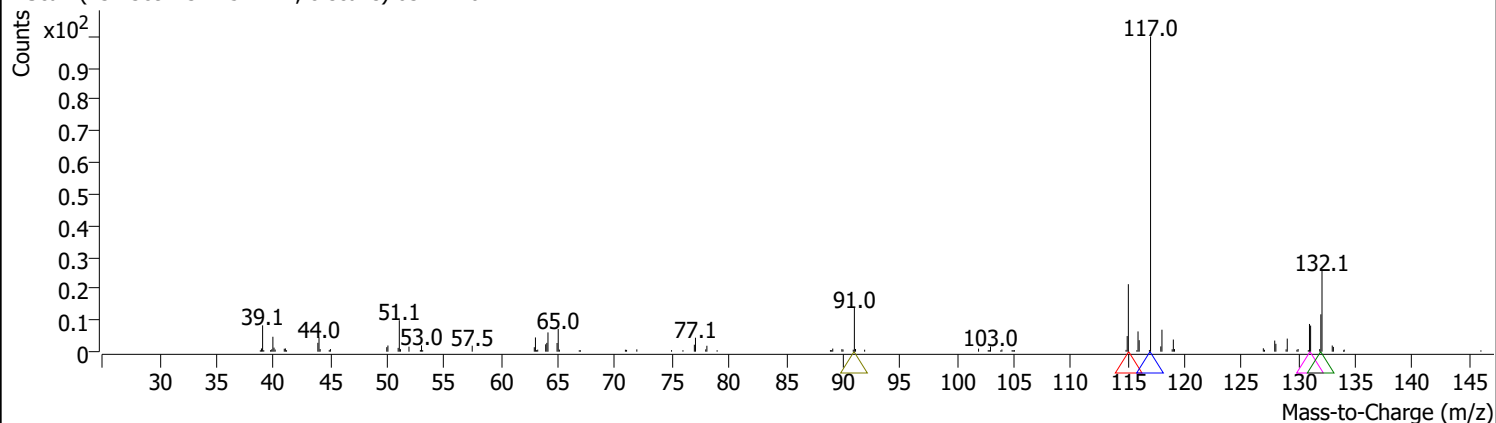
Component RT: 13.7596



1H-Indene, 2,3-dihydro-5-methyl- (NIST129K.I)

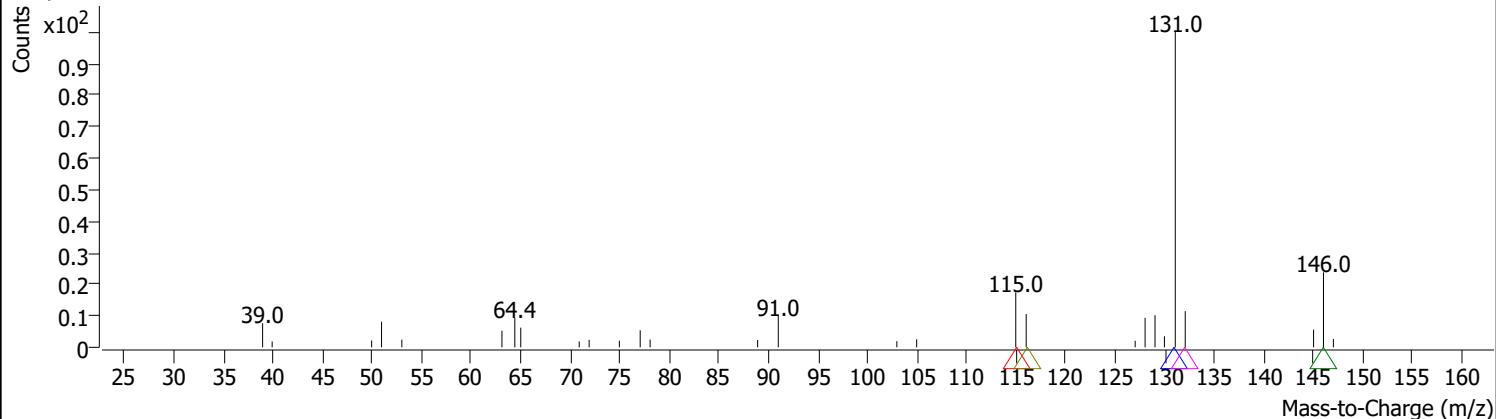


+ Scan (13.7389-13.7751 min, 8 scans) 03FEB10.D

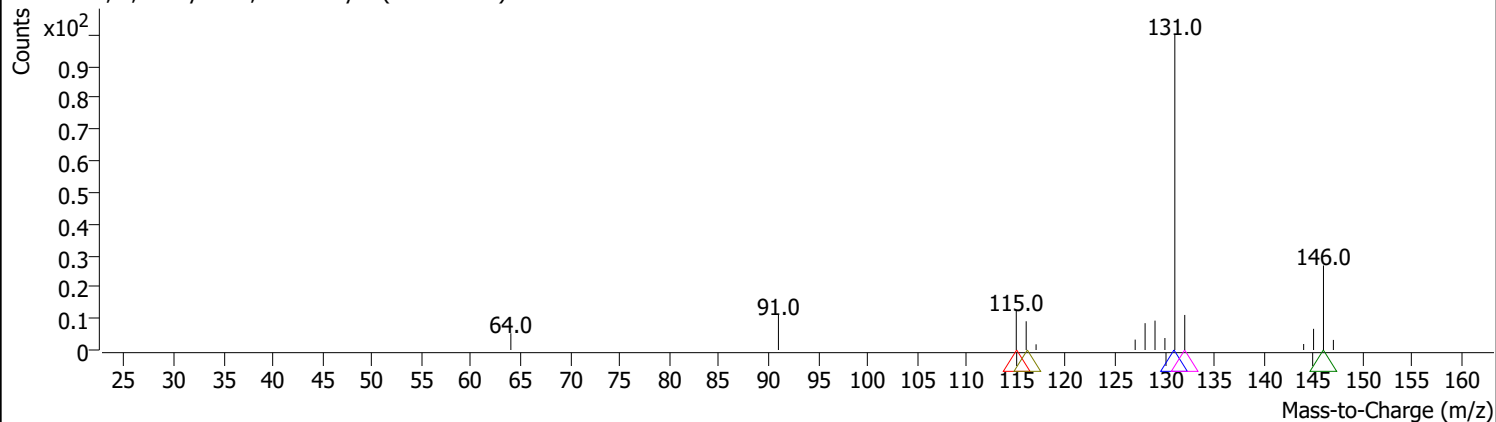


RT	Compound Name	CAS#	Formula	Area	MI	Match Score	Est. Conc. (µg/L)
14.2044	1H-Indene, 2,3-dihydro-1,6-dimethyl-	17059-48-2	C ₁₁ H ₁₄	42935		88.3	0.734

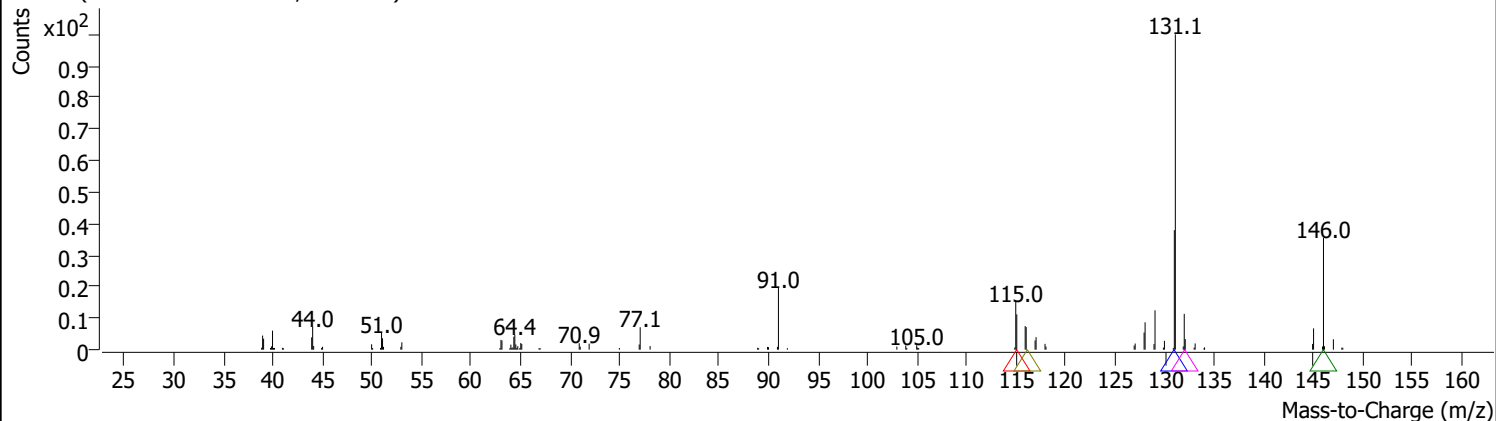
Component RT: 14.2044



1H-Indene, 2,3-dihydro-1,6-dimethyl- (NIST129K.L)

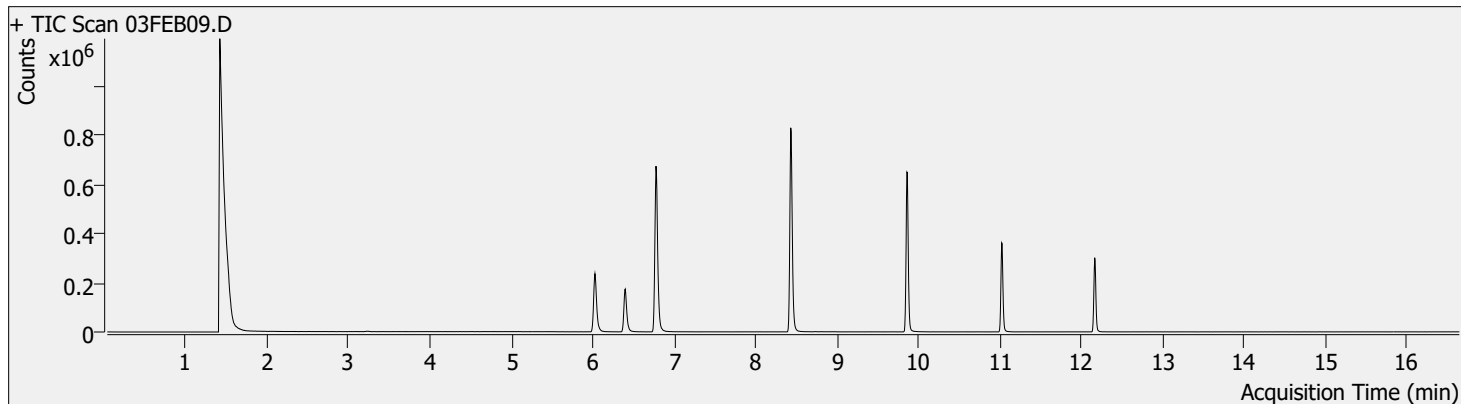


+ Scan (14.1631-14.2148 min, 11 scans) 03FEB10.D



Unknown Analysis Report - Best Hits

Batch Path	\\MASSHUNTER\Org\Data\5971A.I\VA020321_TIC_Only		
Analysis File Name	B21020097.uaf		
Analyst Name	mchavez		
Analysis Time	2/9/2021 9:13:11 AM		
Data File Name	03FEB09.D	Data Path Name	\\MASSHUNTER\Org\Data\5971A.I\VA020321_TIC_Only
Sample Name	B21020097-003F	Sample Type	Sample
Acq Method File	5971ACQS	Acq Method Path	
Acq Time	2/3/2021 3:11:00 PM	Operator	JDB
Instrument Name	GC/MS	Dilution	1



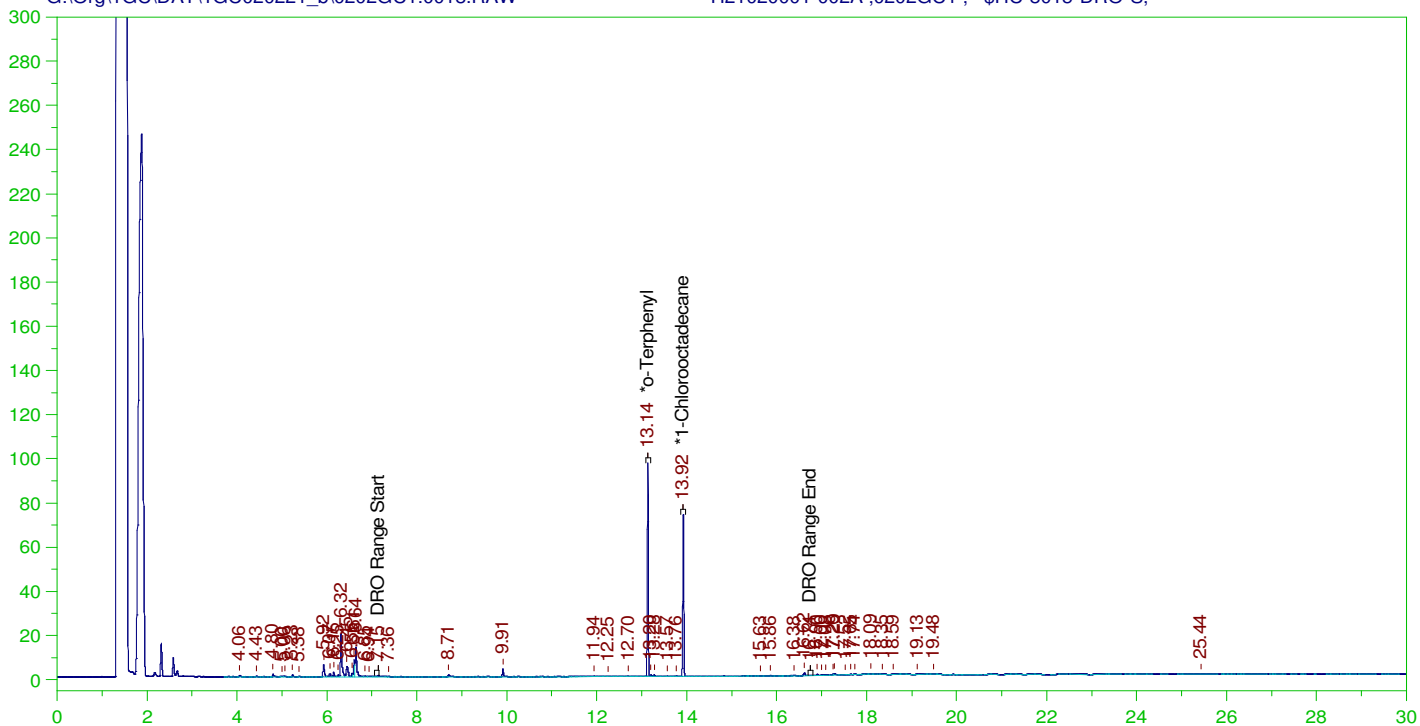
H21020001-001E ;0202GC1 , \$HC-8015-DRO-W,

— G:\Org\1GC\DAT\1GC020221 b\0202GC1.0017.RAW

Batch ID: 55068

H21020001-002A ;0202GC1 , \$HC-8015-DRO-S,

G:\Org\1GC\DAT\1GC020221_b\0202GC1.0018.RAW



DIESEL RANGE ORGANICS CHROMATOGRAM

Sample Name: H21020001-002A ;0202GC1 , \$HC-8015-DRO-S,
Raw File: G:\Org\1GC\DAT\1GC020221_b\0202GC1.0018.RAW
Date & Time Acquired: 2/3/2021 6:05:40 AM
Method File: G:\Org\1GC\Methods\DRO121020G.MET
Calibration File: G:\Org\1GC\Cals\DRO_121020G.CAL
Sample Weight: 30.16 Dilution: 1 S.A.: 1

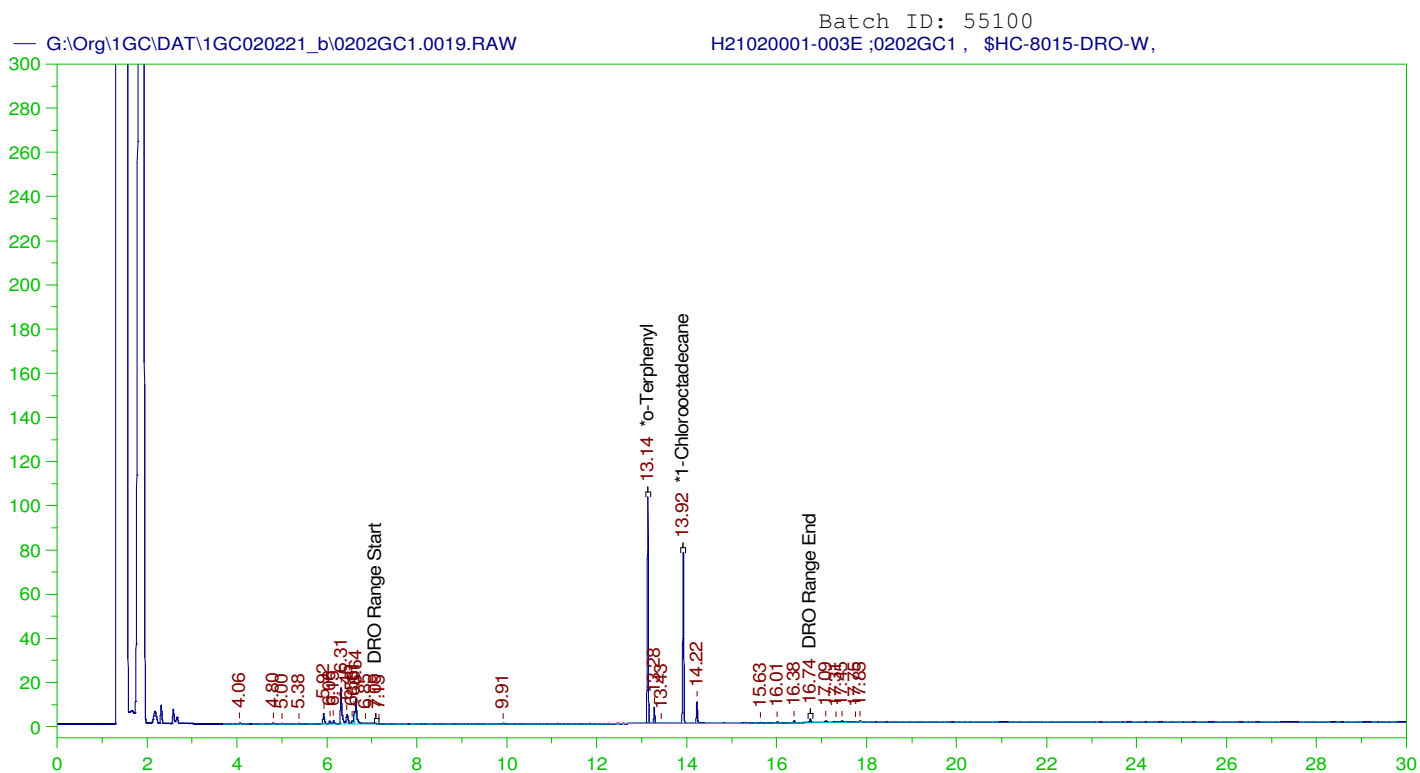
Mean RF for Hydrocarbon Range Calculations: 722.1262

Rt range for Diesel Range Organics (C10 to C28): 7.06 to 16.8

Rt range for Oil Range Organics (C28 to C40+): 16.7 to End Time

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.136	6.631	6.579	99.22	-
*1-Chlorooctadecane	13.921	6.631	5.282	79.65	-

DRO Area:42778.08 DRO AMOUNT: 1.96416
TEH Area:210299.1 TEH AMOUNT: 9.655905
Oil Area:20748.35 OIL AMOUNT: 0.9526626



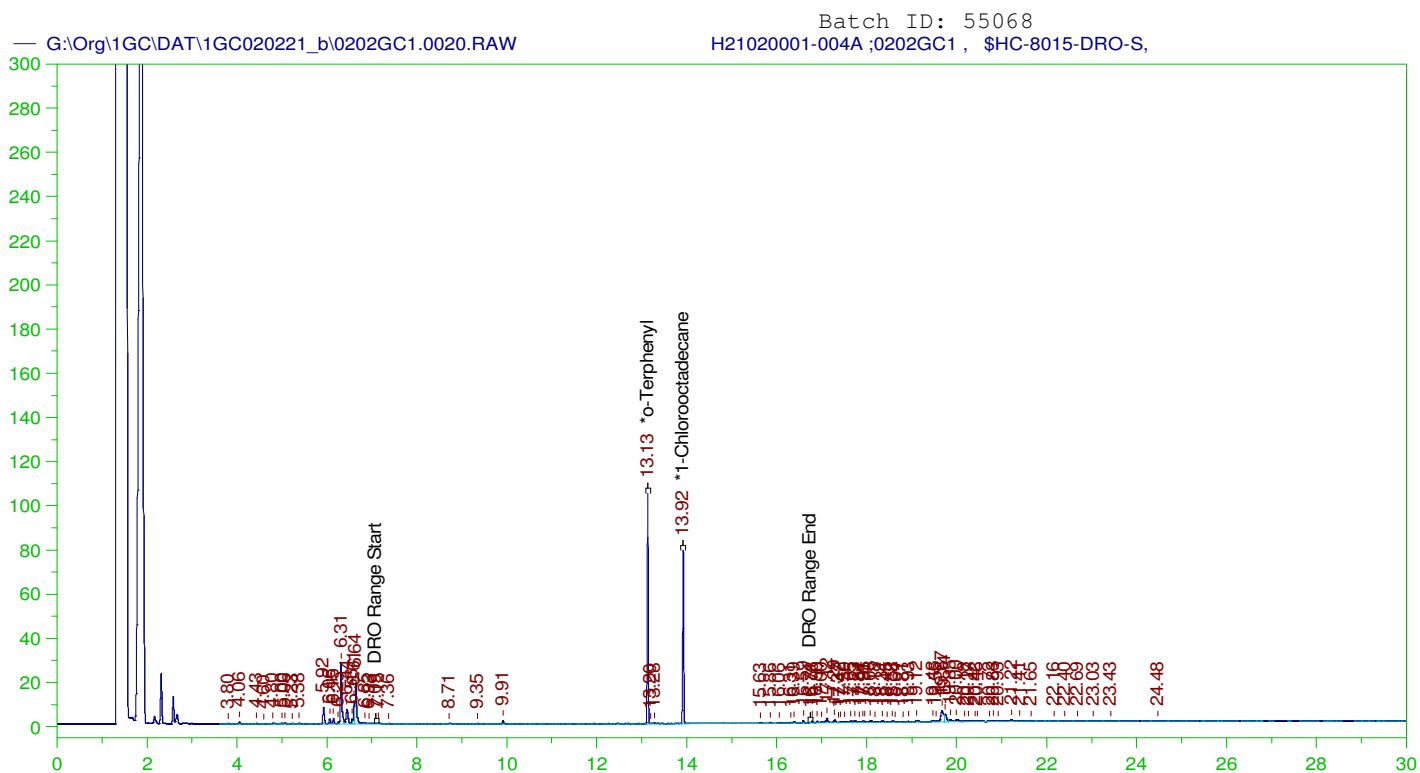
DIESEL RANGE ORGANICS CHROMATOGRAM

Sample Name: H21020001-003E ;0202GC1 , \$HC-8015-DRO-W,
Raw File: G:\Org\1GC\DAT\1GC020221_b\0202GC1.0019.RAW
Date & Time Acquired: 2/3/2021 6:49:03 AM
Method File: G:\Org\1GC\Methods\DRO121020G.MET
Calibration File: G:\Org\1GC\Cals\DRO_121020G.CAL
Sample Weight: 1017.5 Dilution: 1 S.A.: 1

Mean RF for Hydrocarbon Range Calculations: 722.1262
Rt range for Diesel Range Organics (C10 to C28): 7.06 to 16.8
Rt range for Oil Range Organics (C28 to C40+): 16.7 to End Time

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.135	.197	.207	105.38	-
*1-Chlorooctadecane	13.92	.197	.165	83.99	-

DRO Area:51129.32 DRO AMOUNT: 6.958611E-02
TEH Area:180011.2 TEH AMOUNT: 0.2449921
Oil Area:12854.63 OIL AMOUNT: 1.749492E-02



DIESEL RANGE ORGANICS CHROMATOGRAM

Sample Name: H21020001-004A ;0202GC1 , \$HC-8015-DRO-S,
Raw File: G:\Org\1GC\DAT\1GC020221_b\0202GC1.0020.RAW
Date & Time Acquired: 2/3/2021 7:32:24 AM
Method File: G:\Org\1GC\Methods\02022120.MET
Calibration File: G:\Org\1GC\Cals\DRO_121020G.CAL
Sample Weight: 30.11 Dilution: 1 S.A.: 1

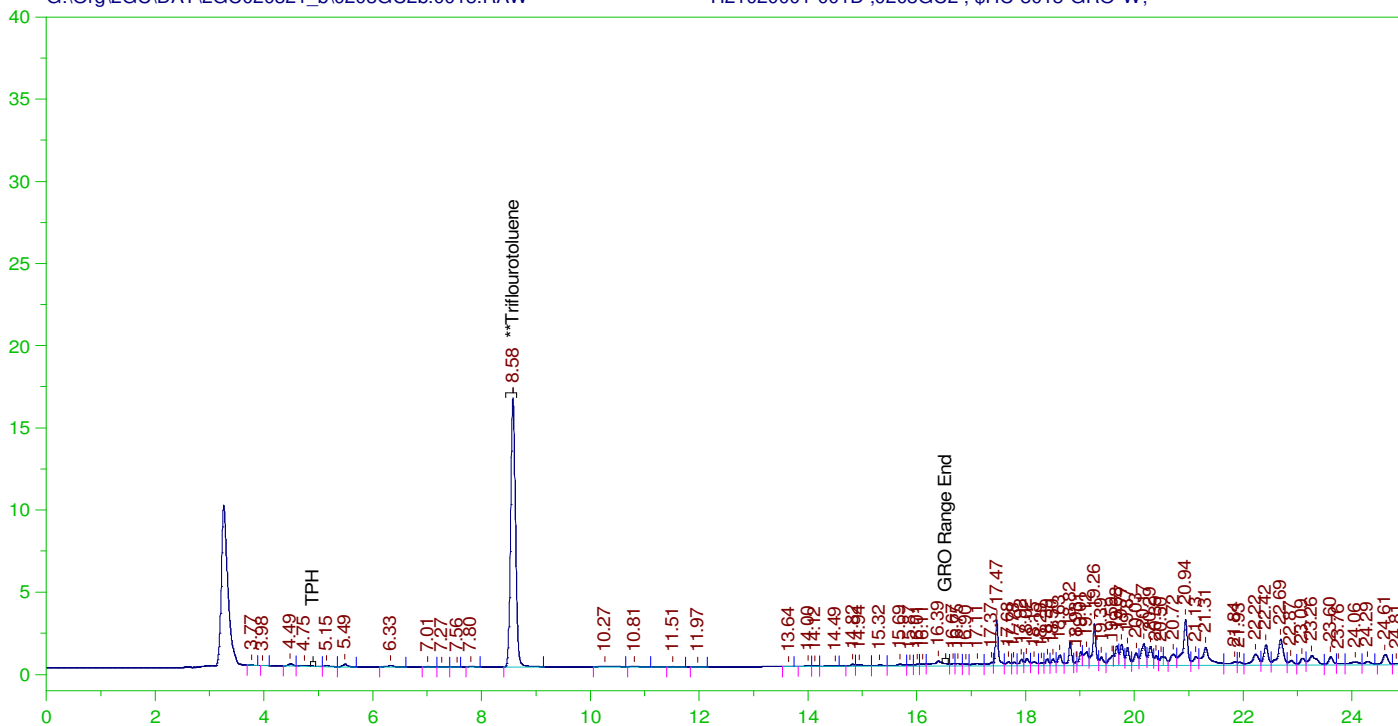
Mean RF for Hydrocarbon Range Calculations: 722.1262
Rt range for Diesel Range Organics (C10 to C28): 7.06 to 16.8
Rt range for Oil Range Organics (C28 to C40+): 16.7 to End Time

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.134	6.642	7.121	107.21	-
*1-Chlorooctadecane	13.919	6.642	5.64	84.9	-

DRO Area:42281.53 DRO AMOUNT: 1.944584
TEH Area:402671.6 TEH AMOUNT: 18.51941
Oil Area:166765.2 OIL AMOUNT: 7.669755

G:\Org\2GC\DAT\2GC020321_b\0203GC2b.0015.RAW

H21020001-001D ;0203GC2 , \$HC-8015-GRO-W,



GASOLINE RANGE ORGANICS CHROMATOGRAM REPORT

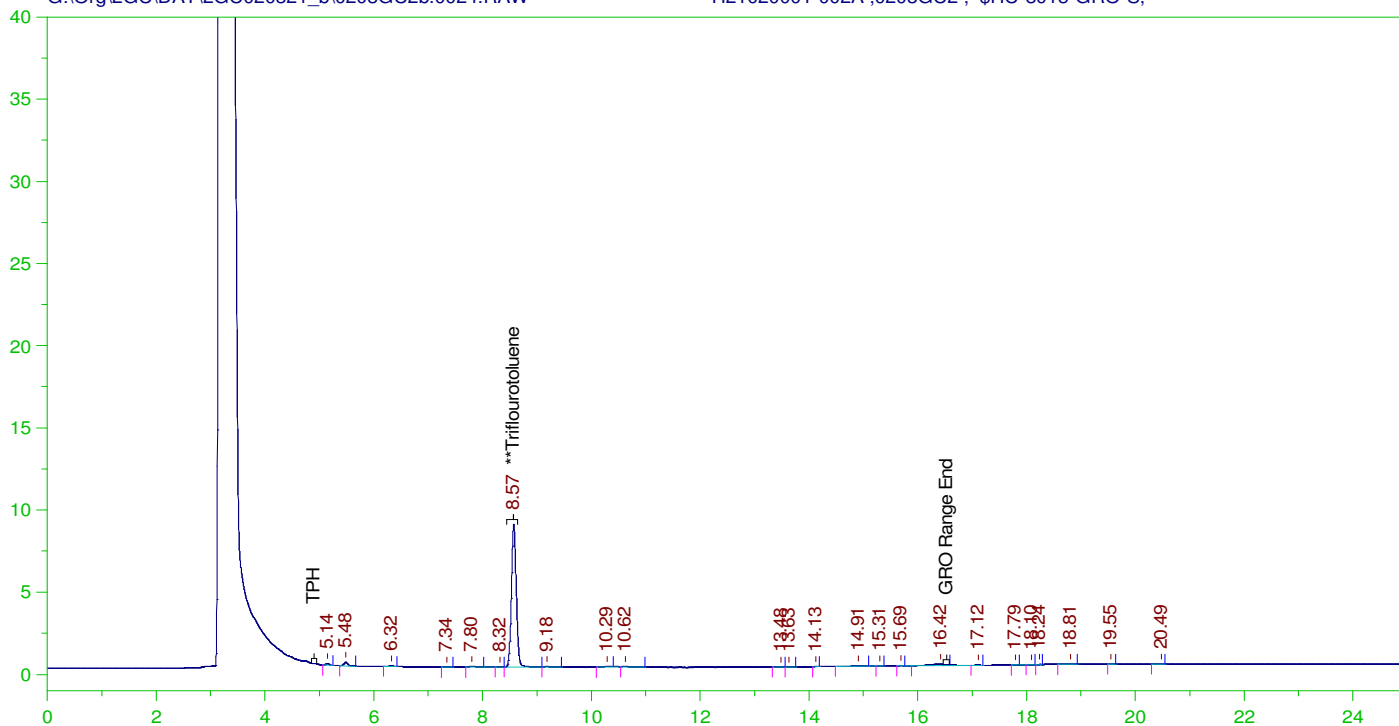
Sample Name: H21020001-001D ;0203GC2 , \$HC-8015-GRO-W,
Raw File: G:\Org\2GC\DAT\2GC020321_b\0203GC2b.0015.RAW
Date & Time Acquired: 2/3/2021 8:29:05 PM
Method File: G:\Org\2GC\Methods\GRO090820B.MET
Calibration File: G:\Org\2GC\Cals\GC2GRO090820B.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for GRO: 863.3343
Mean RF for TPH: 863.3343
Rt range for Gasoline Range Organics: 4.856 to 16.574

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
**Trifluorotoluene	8.578	25.	21.941	87.76	-

GRO Area:18572.23 GRO Amount: 4.302444
TPH Area:211371.7 TPH Amount: 48.96636

Batch ID: 55096
G:\Org\2GC\DAT\2GC020321_b\0203GC2b.0024.RAW H21020001-002A ;0203GC2 , \$HC-8015-GRO-S,



GASOLINE RANGE ORGANICS CHROMATOGRAM REPORT

Sample Name: H21020001-002A ;0203GC2 , \$HC-8015-GRO-S,
Raw File: G:\Org\2GC\DAT\2GC020321_b\0203GC2b.0024.RAW
Date & Time Acquired: 2/4/2021 1:09:36 AM
Method File: G:\Org\2GC\Methods\GRO090820B.MET
Calibration File: G:\Org\2GC\Cals\GC2GRO090820B.CAL
Sample Weight: 50 Dilution: 24.8 S.A.: 24.8

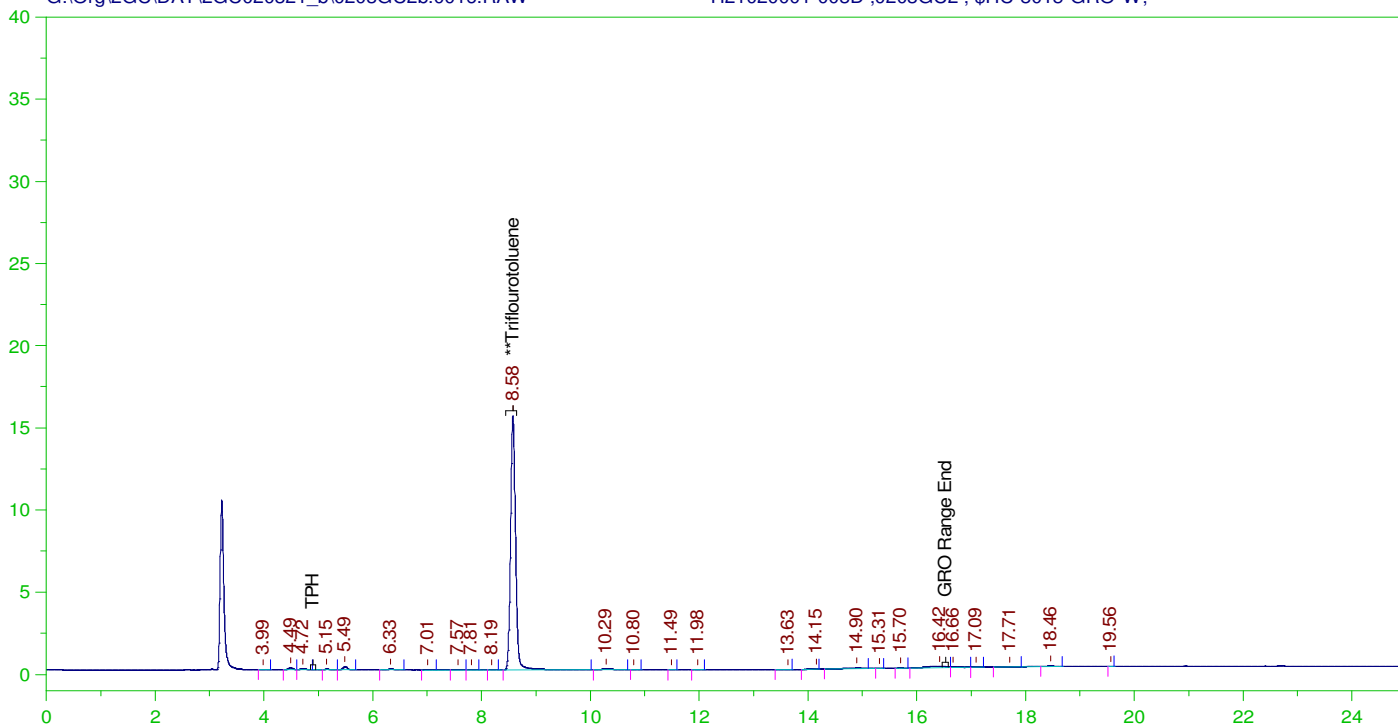
Mean RF for GRO: 863.3343
Mean RF for TPH: 863.3343
Rt range for Gasoline Range Organics: 4.856 to 16.574

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
**Triflourotoluene	8.575	62.	29.246	47.17	-

GRO Area:7003.188 GRO Amount: 4.023448
TPH Area:7403.46 TPH Amount: 4.253412

G:\Org\2GC\DAT\2GC020321_b\0203GC2b.0016.RAW

H21020001-003D ;0203GC2 , \$HC-8015-GRO-W,



GASOLINE RANGE ORGANICS CHROMATOGRAM REPORT

Sample Name: H21020001-003D ;0203GC2 , \$HC-8015-GRO-W,
Raw File: G:\Org\2GC\DAT\2GC020321_b\0203GC2b.0016.RAW
Date & Time Acquired: 2/3/2021 9:00:22 PM
Method File: G:\Org\2GC\Methods\GRO090820B.MET
Calibration File: G:\Org\2GC\Cals\GC2GRO090820B.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for GRO: 863.3343

Mean RF for TPH: 863.3343

Rt range for Gasoline Range Organics: 4.856 to 16.574

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
**Triflourotoluene	8.577	25.	21.431	85.72	-

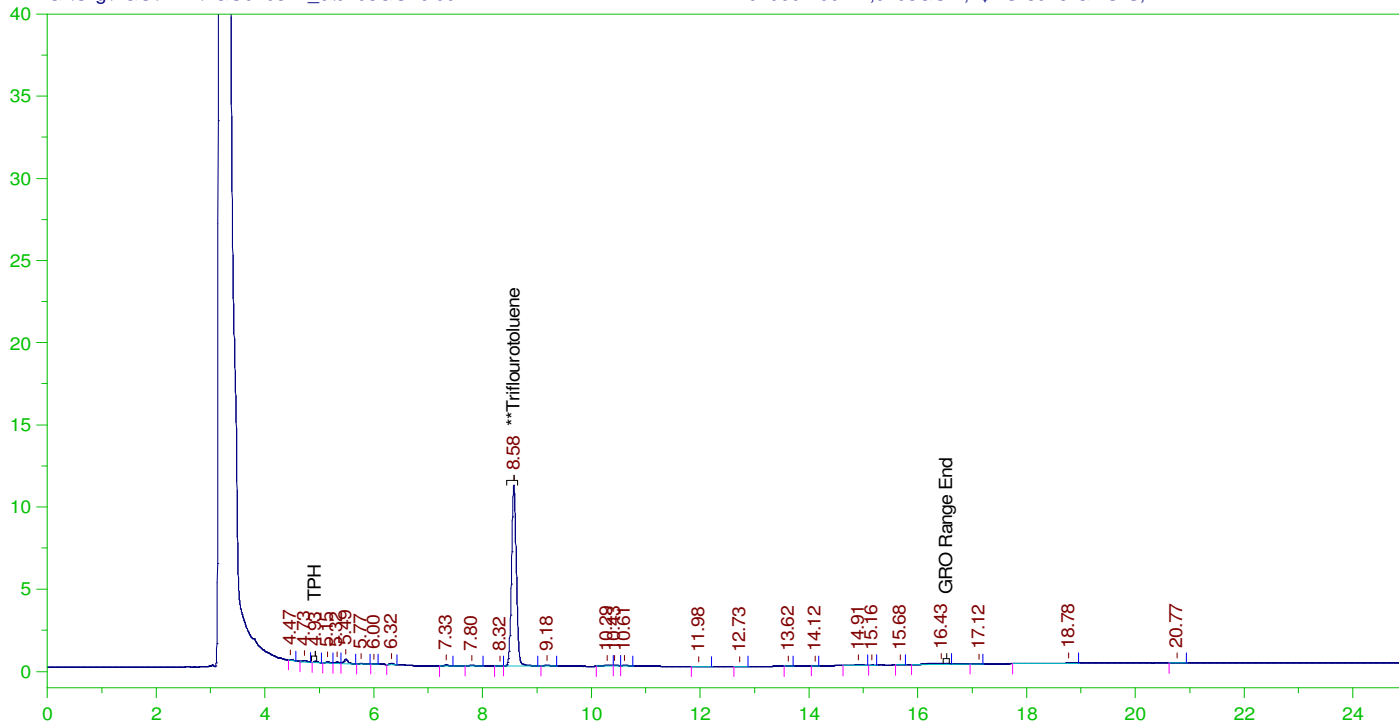
GRO Area:6614.508 GRO Amount: 1.532317

TPH Area:9038.502 TPH Amount: 2.093859

Batch ID: 55096

G:\Org\2GC\DAT\2GC020321_b\0203GC2b.0022.RAW

H21020001-004A ;0203GC2 , \$HC-8015-GRO-S,





Work Order Receipt Checklist

Tetra Tech EMI

H21020001

Login completed by: Kevin J. Kent

Date Received: 1/30/2021

Reviewed by: BL2000\rtooke

Received by: abc

Reviewed Date: 2/3/2021

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

Cooler 1 was received at 3.5 °C, Cooler 2 at 5.4 °C on ice. Sample for Dissolved Metals/Hardness was subsampled, filtered, and preserved to pH <2 with 2 mL of Nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection. 2/1/21 KK



Chain of Custody & Analytical Request Record

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Account Information (Billing Information)

Company/Name Tetra Tech
Contact _____
Phone 678-775-3095
Mailing Address 825 W. Center
City, State, Zip Helena, MT
Email Dr. Fung @ Tetra Tech
Receive Invoice ☐ Hard Copy ☐ Email ☐ Receive Report ☐ Hard Copy ☐ Email ☐
Purchase Order ☐ Quote ☐ Bottle Order ☐

Report Information (If different than Account Information)

Company/Name _____
Contact _____
Phone _____
Mailing Address _____
City, State, Zip _____
Email _____
Receive Report ☐ Hard Copy ☐ Email ☐
Special Report/Forms: ☐ LE/EL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Comments

Project Information

Project Name, PWSID, Permit, etc. Libby Creek Seep
Sampler Name Ellalunny Sampler Phone 406-594-4459
Sample Origin State MT EPA/State Compliance ☐ Yes ☐ No
MINING CLIENTS, please indicate sample type:
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes	
A - Air	
W - Water	
S - Solids	
V - Vegetation	
B - Bioassay	
O - Other	
DW - Drinking Water	

Analysis Requested	
VOC-TIC-8260	<input checked="" type="checkbox"/>
SUOC-TIC-8270	<input checked="" type="checkbox"/>
Tal Metal-dissolved	<input checked="" type="checkbox"/>
DEO/GRO-808	<input checked="" type="checkbox"/>
Pesticides-8081	<input checked="" type="checkbox"/>
Nitrates	<input checked="" type="checkbox"/>
Ammonia	<input checked="" type="checkbox"/>
Ph	<input checked="" type="checkbox"/>
Mercury	<input checked="" type="checkbox"/>
See Attached	<input checked="" type="checkbox"/>

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page

Sample Identification

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Codes Above)	Analysis Requested									
	Date	Time			VOC-TIC-8260	SUOC-TIC-8270	Tal Metal-dissolved	DEO/GRO-808	Pesticides-8081	Nitrates	Ammonia	Ph	Mercury	See Attached
1 LC S01-SW-01	1/29	12:00	17	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2 LC S01-SD-01	1/29	12:00	5	S	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3 LC S02-SW-02	1/29	13:30	17	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4 LC S02-SD-02	1/29	13:30	5	S	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5														
6														
7														
8														
9														
10														

Custody Record MUST be signed
Relinquished by (print) Ellalunny Date/Time 1/30 0900 Signature [Signature]

Received by (print) _____ Date/Time _____ Signature _____
Received by Laboratory (print) Amber Carlson Date/Time 1/30/24 900 Signature [Signature]

Shipped By Hand Del Cooler ID(s) Y Custody Seals Y (N) C B Y Intact Y N Receipt Temp 35°C Temp Blank N On Ice N CC Cash Y Payment Type Check Amount \$ _____ Receipt Number (cash/check only) _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.