

**Maudlin Gulch Remediation System**  
**7th Quarterly Report of Operations**  
**For the Period From**  
**February 1st, 2022 to April 30th, 2022**

1.0 Introduction

This report provides the seventh quarterly report of operations and monitoring of the Maudlin Gulch remediation system. This report is for the period from February 1<sup>st</sup>, 2022 to April 30<sup>th</sup>, 2022.

The remediation system was constructed during July and August, 2020. A location map and a site map are attached.

The remediation system began operations on August 26th, 2020. The SVE system operated during this quarter. In accordance with COGCC approval, the air sparge system did not operate during this quarter.

Work completed during this quarter included:

- The monitoring wells were gauged for depth to water and depth to product in April, 2022. The gauging schedule was changed from monthly to quarterly after approval from COGCC. The results are discussed below and the data is included with this report.
- COGCC selected monitoring wells sampled in April, 2022 in accordance with the COGCC request. The results are discussed below and the data is attached.
- An air sample was collected from the SVE exhaust stack for analysis in April, 2022. The results are discussed below and the analytical data is included with this report.
- The remediation system was monitored. The results are discussed below and the data is attached.
- The air sparge system continued to be shut off in accordance with COGCC approval.

## 2.0 Discussion

### 2.1 Gauging

The wells were gauged in April from top of the PVC casing (TOC) using an oil-water interface probe. The gauging data is attached to this report.

The results indicate significant upward movement of the water table on part of the site during this period. Groundwater elevations as measured at the monitoring wells increased at least from 0.03 to 5.12 feet between January, 2022 and April, 2022. The attached graph illustrates the upward movement of the water table at MW-1, 2 and 4. The graph tracks the water table elevation at MW-1, MW-2 and MW-4 from January, 2020 through April, 2022. These wells were chosen for the graph because they have the longest continuous gauging history of the monitoring wells at the site.

The results also indicate that no free product was measured at any of the monitoring wells during the monitoring conducted this quarter.

COGCC requested that Wesco submit a potentiometric surface map with this quarterly report and all future quarterly reports. A map based on the April data is attached. The map indicates a generally northward flow of the groundwater with a drop in groundwater elevation across the site of 13.84 feet from MW-12 to MW-5.

### 2.2 Applied Vacuums at Monitoring Wells

The vacuum data for the monitoring wells and SVE wells is attached. During April, 2022, vacuum was present at all of the monitoring wells but MW-3, MW-5 and MW-12 and all of the SVE wells except for SVE-9, H-1, H-2, H-3 and H-4.

### 2.3 Sparging

The sparge system began operation shortly after the SVE system. The sparge system consists of eleven sparge wells as discussed in the remediation plan. The sparge wells operate in three sections, with sparge wells 1-4 operating as zone 1, 5-8 as zone 2 and 9-11 as zone 3. The sparge system operated through October 25<sup>th</sup>, 2021, then in accordance with COGCC approval, the sparge system was shut off during the October, 2021 monitoring work. The sparge system did not operate during this quarter.

## 2.4 Groundwater Analysis

In accordance with the COGCC request, Wesco attempted to collect groundwater samples from MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-8 and MW-9. We were able to collect water samples from all but MW-6, which had insufficient water for sampling. The water samples were analyzed for Benzene, Toluene, Ethylbenzene and Xylene (BTEX), Naphthalene, 1,2,4 Trimethylbenzene and 1,3,5 Trimethylbenzene. Prior to sample collection, the wells were purged using dedicated bailers.

The analysis results are attached. The results indicates that all the constituents at all wells tested were below laboratory detection limits.

## 2.5 SVE Stack Analysis

In April, 2022, Wesco collected an SVE stack exhaust gas analysis. The SVE exhaust was also monitored using a PID. The PID data is summarized on the attached table. In accordance with the approved remediation plan, the sample was analyzed for BTEX and TVPH. Additionally, in accordance with the SVE system air permit issued by the CDPHE on April 2<sup>nd</sup>, 2021, N-Hexane is included in the exhaust analysis. The PID and analysis data are attached. The results of the analysis were submitted to our consultant to determine the quantity of hydrocarbons removed. The attached spreadsheet indicates that from system start-up through April 27th, 2022 approximately 7,540 pounds of TVPH had been removed by the SVE system.

## 3.0 Conclusions

Based on the data above, Wesco continues to meet the remediation standards for removal of free product from all wells and the reduction of groundwater Benzene concentrations to below table 910-1 standards. The remediation system continues to remove hydrocarbons from the soil and/or groundwater.

## 4.0 Planned Work

In accordance with COGCC approval, Wesco will continue to operate the SVE portion of the remediation system while the sparge portion remains shut down and the monitoring wells are gauged quarterly. Wesco will collect the next quarterly SVE exhaust stack sample, will gauge

all monitoring wells and will attempt monitoring well water sample collection in July, 2022 with a monitoring report subsequently submitted to the COGCC.

End of document

#### Attachments

Location Map

Site Map

Gauging data – April, 2022

Groundwater elevation graph

Potentiometric surface map – April, 2022 data

Vacuum data

Groundwater Analysis

PID Summary Table

SVE exhaust stack analysis

Emissions Estimate Summary

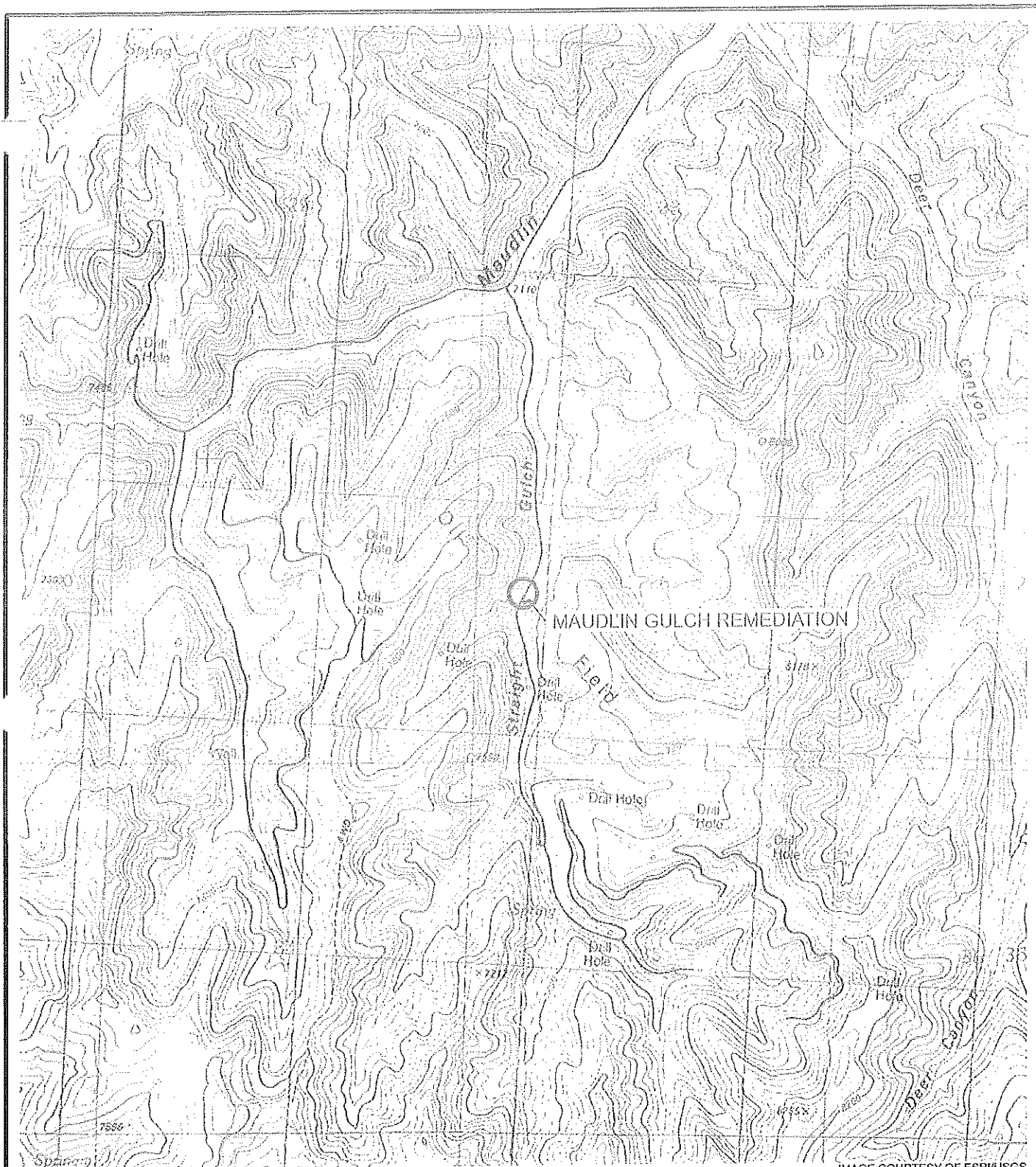
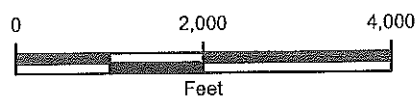


IMAGE COURTESY OF ESRI/USGS

# LEGEND

○ SITE LOCATION



COLORADO

FIGURE 1  
SITE LOCATION MAP  
MAUDLIN GULCH REMEDIATION  
NWSW SEC 26-T4N-R95W  
MOFFAT COUNTY, COLORADO  
WESCO OPERATING, LLC



# Maudlin Gulch Remediation System

safety pit #1 (liner installed 2020)

Remediation building (rented) -  
contains SVE and air sparge  
piping headers, SVE blower and  
air sparge compressor



SVE-1 HA-2

SVE-2

SVE-3

AS-1

AS-2

MW-2

MW-6

SVE-4

MW-7

AS-3

SVEH-1

SVE-5

MW-4

AS-4

AS-5

AS-6

SVEH-3

AS-7

MW-3

SVEH-4

MW-10

MW-1

SVE-7

AS-8

AS-9

MW-8

AS-10

MW-9

SVE-9

AS-11

SVE-10

MW-12

Google Earth



Monitoring Well Gauging Data  
 Data collected April 27th, 2022  
 Gauged By: Dave Weinert  
 All units are in feet.

Well #	TOC elevation	Depth to Product below TOC	Depth to Water below TOC	Total depth of well below TOC	Product thickness	*Groundwater elevation	Uncorrected Groundwater Elevation
MW-1	102.05	N/A	20.85	22.37	N/A	81.20	N/A
MW-2	99.75	N/A	22.93	25.35	N/A	76.82	N/A
MW-3	103.92	N/A	11.07	16.95	N/A	92.85	N/A
MW-4	100.24	N/A	21.77	23.20	N/A	78.47	N/A
MW-5	95.43	N/A	20.70	23.23	N/A	74.73	N/A
**MW-6	99.52	N/A	22.41	22.64	N/A	77.11	N/A
MW-7	99.84	n/a	22.25	23.23	N/A	77.59	N/A
MW-8	103.18	N/A	16.67	23.25	N/A	86.51	N/A
**MW-9	104.00	N/A	19.68	19.90	N/A	84.32	N/A
MW-10	101.74	N/A	20.35	24.70	N/A	81.39	N/A
MW-12	108.44	N/A	19.87	22.88	N/A	88.57	N/A

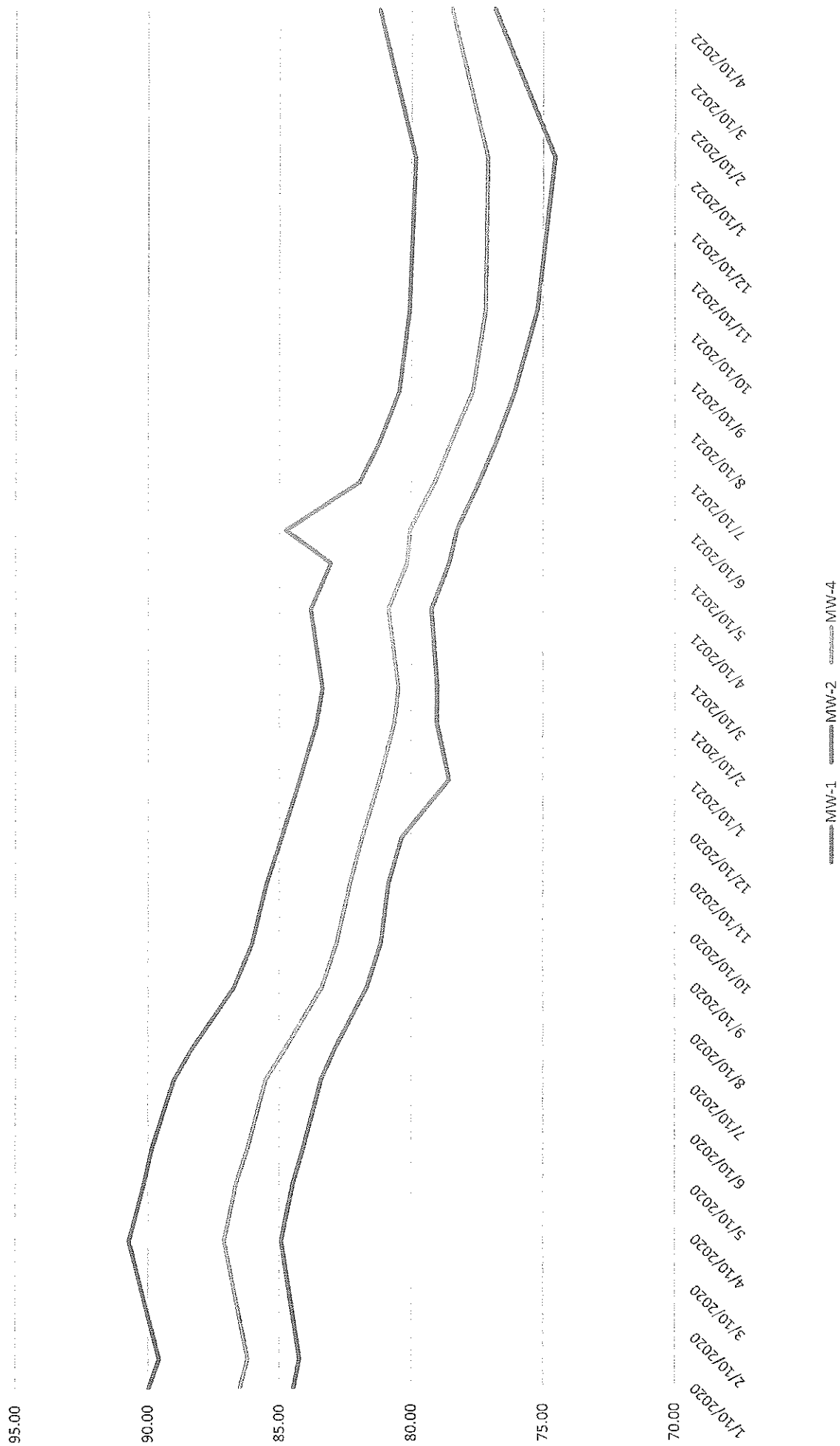
TOC - top of PVC well casing. Used as the measuring point for elevation survey, depth to water measurements and well total depth. The TOC is typically located 2 - 3 feet above surrounding ground surface.

MW-11 does not exist, planned as a well, but made completed as a boring (AKA SB-2)

N/A - no product present as measured with interface probe



# Groundwater Elevation Trends





# Maudlin Gulch Remediation System Groundwater Surface Map

Map based on data collected on April 27th, 2022

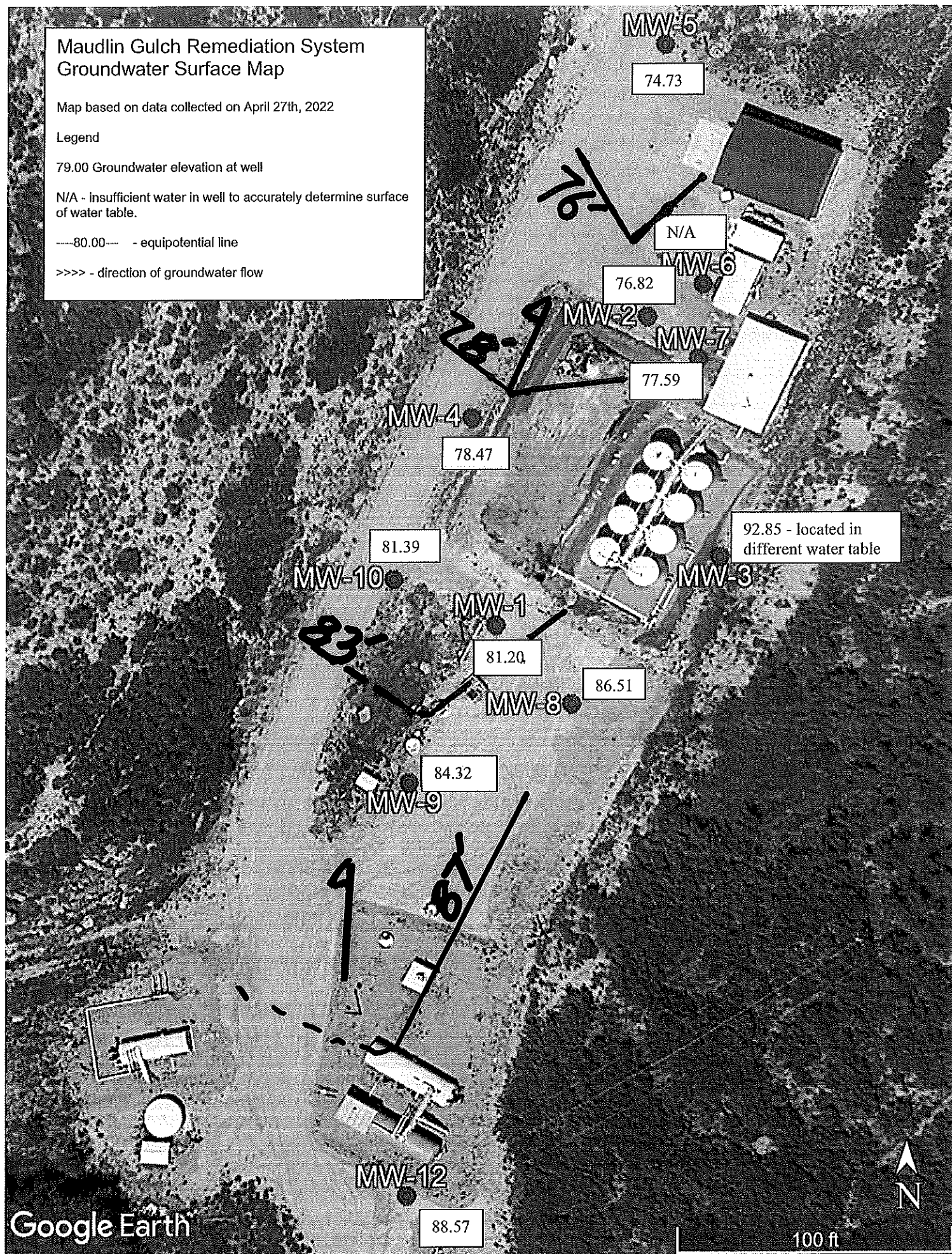
## Legend

79.00 Groundwater elevation at well

N/A - insufficient water in well to accurately determine surface of water table.

---80.00--- - equipotential line

>>>> - direction of groundwater flow



Maudlin Gulch Remediation System  
Vacuum Data Summary

Well #	Date									
	8/27/2020	9/10/2020	10/6/2020	1/14/2021	4/28/2021	7/14-15/2021	10/26/2021	1/27/2022	4/27/2022	
	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	Vacuum (-) or Pressure (+) inches of water	
MW-1	-1.10	-0.9	+1.2	0	+1.9	-0.5	-3.2	-1.9	-0.3	
MW-2	-1.85	-0.6	-0.4	-0.8	+1.2	-1.4	-1.6	-1.6	-0.6	
MW-3	NM	NM	0	NM	NM	0	0	0	0	
MW-4	-0.10	-0.1	-0.1	-0.5	-0.4	-0.7	-0.9	-0.8	-0.2	
MW-5	-0.20	0	0	-0.1	-0.1	-0.1	0	-0.1	0	
MW-6	-0.65	-0.7	-0.3	-0.45	-1.5	-0.7	-2.7	-1.6	-0.1	
MW-7	-0.70	-0.7	-0.3	-0.5	+1.1	-0.7	-2.8	-1.8	-0.2	
MW-8	-1.90	-1.5	-0.3	0	+1.7	-0.4	-1.1	-0.5	-0.3	
MW-9	-2.40	-2.7	+1.2	0	+0.5	-1.4	-2	-1.3	-2	
MW-10	-0.10	-0.1	0	-0.1	+0.3	-0.2	-0.5	-0.3	-0.2	
MW-12	0.00	0	0	0	0	-0.1	0	0	0	
SVE-1	-10.00	-1	0	-40	0	-45	-92	-26	-40	
SVE-2	-18.00	-5	0	-7	-80	-53	-52	-80	-92	
SVE-3	-26.00	-50	-40	-46	-79	-48	-92	-80	-90	
SVE-4	-25.00	-5	-10	-7	0	-44	-86	0	-30	
SVE-5	-128.00	-90	-90	-16	-24	-50	-42	0	-32	
SVE-6	-120.00	-120	-95	-8	-30	-90	-32	-46	-45	
SVE-7	-22.00	-30	-35	-32	-68	-47	-86	-74	-40	
SVE-8	-55.00	-58	-20	-5	0	-50	-90	-75	-80	
SVE-9	0.00	0	-75	-32	-10	-37	-52	0	0	
SVE-10	0.00	0	>100	-44	-76	-45	-95	-80	-90	
SVEH-1	5.00	-13	-7.5	-20	-38	-38	-73	-65	0	
SVEH-2	-5.00	-15	-10	-30	-52	-46	-64	-62	0	
SVEH-3	-7.00	-13	-10	-34	-32	-38	-15	-63	0	
SVEH-4	-5.00	-12	-8.5	-30	-26	-36	-62	-62	0	

7/14-15/2021 - zone 1 sparge system running  
1/27/2022 - sparge system shut off



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## ANALYTICAL SUMMARY REPORT

May 12, 2022

Wesco Operating Inc  
120 S Durbin St  
Casper, WY 82602-2512

Work Order: C22041031

Project Name: Maudlin Gulch Remediation

Energy Laboratories, Inc. Casper WY received the following 9 samples for Wesco Operating Inc on 4/29/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C22041031-001	MW-4	04/27/22 16:20	04/29/22	Aqueous	8260-Volatile Organic Compounds-Extended List
C22041031-002	MW-1	04/27/22 17:05	04/29/22	Aqueous	Same As Above
C22041031-003	MW-2	04/27/22 17:15	04/29/22	Aqueous	Same As Above
C22041031-004	MW-2 Dup	04/27/22 17:15	04/29/22	Aqueous	Same As Above
C22041031-005	MW-8	04/27/22 16:50	04/29/22	Aqueous	Same As Above
C22041031-006	MW-5	04/28/22 08:30	04/29/22	Aqueous	Same As Above
C22041031-007	MW-7	04/28/22 09:00	04/29/22	Aqueous	Same As Above
C22041031-008	MW-9	04/28/22 08:50	04/29/22	Aqueous	Same As Above
C22041031-009	Trip Blank-79732	04/27/22 16:20	04/29/22	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. 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:

*Julie Weisz*  
Gillette QA Officer

Digitally signed by  
Julie L. Weisz  
Date: 2022.05.12 16:07:24 -06:00



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**CLIENT:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Work Order:** C22041031

**Report Date:** 05/12/22

## **CASE NARRATIVE**

Tests associated with analyst identified as ELI-H were subcontracted to Energy Laboratories, 3161 E.Lyndale Ave., Helena, MT, EPA Number MT00945.

Per phone call from Dave Weinert on 5/3/2022, the project name is Maudlin Gulch Remediation.



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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-001  
**Client Sample ID:** MW-4

**Report Date:** 05/12/22  
**Collection Date:** 04/27/22 16:20  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 18:48 / eli-h
Surr: 1,2-Dichloroethane-d4	92.0	%REC		69-131		SW8260B	05/05/22 18:48 / eli-h
Surr: Dibromofluoromethane	97.0	%REC		70-125		SW8260B	05/05/22 18:48 / eli-h
Surr: p-Bromofluorobenzene	96.0	%REC		76-123		SW8260B	05/05/22 18:48 / eli-h
Surr: Toluene-d8	97.0	%REC		80-119		SW8260B	05/05/22 18:48 / eli-h

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

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



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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-002  
**Client Sample ID:** MW-1

**Report Date:** 05/12/22  
**Collection Date:** 04/27/22 17:05  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 19:20 / eli-h
Surr: 1,2-Dichloroethane-d4	93.0	%REC		69-131		SW8260B	05/05/22 19:20 / eli-h
Surr: Dibromofluoromethane	97.0	%REC		70-125		SW8260B	05/05/22 19:20 / eli-h
Surr: p-Bromofluorobenzene	94.0	%REC		76-123		SW8260B	05/05/22 19:20 / eli-h
Surr: Toluene-d8	99.0	%REC		80-119		SW8260B	05/05/22 19:20 / eli-h

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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-003  
**Client Sample ID:** MW-2

**Report Date:** 05/12/22  
**Collection Date:** 04/27/22 17:15  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 13:34 / eli-h
Surr: 1,2-Dichloroethane-d4	97.0	%REC		69-131		SW8260B	05/05/22 13:34 / eli-h
Surr: Dibromofluoromethane	99.0	%REC		70-125		SW8260B	05/05/22 13:34 / eli-h
Surr: p-Bromofluorobenzene	93.0	%REC		76-123		SW8260B	05/05/22 13:34 / eli-h
Surr: Toluene-d8	96.0	%REC		80-119		SW8260B	05/05/22 13:34 / eli-h

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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-004  
**Client Sample ID:** MW-2 Dup

**Report Date:** 05/12/22  
**Collection Date:** 04/27/22 17:15  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 20:57 / eli-h
Surr: 1,2-Dichloroethane-d4	94.0	%REC		69-131		SW8260B	05/05/22 20:57 / eli-h
Surr: Dibromofluoromethane	97.0	%REC		70-125		SW8260B	05/05/22 20:57 / eli-h
Surr: p-Bromofluorobenzene	95.0	%REC		76-123		SW8260B	05/05/22 20:57 / eli-h
Surr: Toluene-d8	97.0	%REC		80-119		SW8260B	05/05/22 20:57 / eli-h

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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-005  
**Client Sample ID:** MW-8

**Report Date:** 05/12/22  
**Collection Date:** 04/27/22 16:50  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 21:29 / eli-h
Surr: 1,2-Dichloroethane-d4	93.0	%REC		69-131		SW8260B	05/05/22 21:29 / eli-h
Surr: Dibromofluoromethane	97.0	%REC		70-125		SW8260B	05/05/22 21:29 / eli-h
Surr: p-Bromofluorobenzene	93.0	%REC		76-123		SW8260B	05/05/22 21:29 / eli-h
Surr: Toluene-d8	98.0	%REC		80-119		SW8260B	05/05/22 21:29 / eli-h

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

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



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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-006  
**Client Sample ID:** MW-5

**Report Date:** 05/12/22  
**Collection Date:** 04/28/22 08:30  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 19:52 / eli-h
Surr: 1,2-Dichloroethane-d4	95.0	%REC		69-131		SW8260B	05/05/22 19:52 / eli-h
Surr: Dibromofluoromethane	97.0	%REC		70-125		SW8260B	05/05/22 19:52 / eli-h
Surr: p-Bromofluorobenzene	97.0	%REC		76-123		SW8260B	05/05/22 19:52 / eli-h
Surr: Toluene-d8	96.0	%REC		80-119		SW8260B	05/05/22 19:52 / eli-h

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

MCL - Maximum Contaminant Level  
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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-007  
**Client Sample ID:** MW-7

**Report Date:** 05/12/22  
**Collection Date:** 04/28/22 09:00  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 20:25 / eli-h
Surr: 1,2-Dichloroethane-d4	96.0	%REC		69-131		SW8260B	05/05/22 20:25 / eli-h
Surr: Dibromofluoromethane	98.0	%REC		70-125		SW8260B	05/05/22 20:25 / eli-h
Surr: p-Bromofluorobenzene	94.0	%REC		76-123		SW8260B	05/05/22 20:25 / eli-h
Surr: Toluene-d8	96.0	%REC		80-119		SW8260B	05/05/22 20:25 / eli-h

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

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



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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-008  
**Client Sample ID:** MW-9

**Report Date:** 05/12/22  
**Collection Date:** 04/28/22 08:50  
**Date Received:** 04/29/22  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 22:01 / eli-h
Surr: 1,2-Dichloroethane-d4	96.0	%REC		69-131		SW8260B	05/05/22 22:01 / eli-h
Surr: Dibromofluoromethane	99.0	%REC		70-125		SW8260B	05/05/22 22:01 / eli-h
Surr: p-Bromofluorobenzene	92.0	%REC		76-123		SW8260B	05/05/22 22:01 / eli-h
Surr: Toluene-d8	96.0	%REC		80-119		SW8260B	05/05/22 22:01 / eli-h

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

MCL - Maximum Contaminant Level  
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## LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Wesco Operating Inc  
**Project:** Maudlin Gulch Remediation  
**Lab ID:** C22041031-009  
**Client Sample ID:** Trip Blank-79732

**Report Date:** 05/12/22  
**Collection Date:** 04/27/22 16:20  
**Date Received:** 04/29/22  
**Matrix:** Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
Ethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
Naphthalene	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
Toluene	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
m+p-Xylenes	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
o-Xylene	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
Xylenes, Total	ND	ug/L		1.0		SW8260B	05/05/22 17:44 / eli-h
Surr: 1,2-Dichloroethane-d4	95.0	%REC		69-131		SW8260B	05/05/22 17:44 / eli-h
Surr: Dibromofluoromethane	98.0	%REC		70-125		SW8260B	05/05/22 17:44 / eli-h
Surr: p-Bromofluorobenzene	95.0	%REC		76-123		SW8260B	05/05/22 17:44 / eli-h
Surr: Toluene-d8	98.0	%REC		80-119		SW8260B	05/05/22 17:44 / eli-h

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

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



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## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C22041031

Report Date: 05/07/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: SW8260B

Analytical Run: R174577

Lab ID: 05-May-22\_CCV\_3

Continuing Calibration Verification Standard

05/05/22 10:28

Benzene	4.54	ug/L	0.50	91	70	130			
Ethylbenzene	4.76	ug/L	0.50	95	80	120			
Naphthalene	3.50	ug/L	0.50	70	70	130			
Toluene	4.83	ug/L	0.50	97	80	120			
1,2,4-Trimethylbenzene	4.66	ug/L	0.50	93	70	130			
1,3,5-Trimethylbenzene	4.67	ug/L	0.50	93	70	130			
m+p-Xylenes	9.61	ug/L	0.50	96	70	130			
o-Xylene	4.63	ug/L	0.50	93	70	130			
Xylenes, Total	14.2	ug/L	0.50	95	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	87	69	131			
Surr: Dibromofluoromethane			1.0	95	70	125			
Surr: p-Bromofluorobenzene			1.0	96	76	123			
Surr: Toluene-d8			1.0	101	80	119			

Method: SW8260B

Batch: R174577

Lab ID: 05-May-22\_LCS\_4

Laboratory Control Sample

Run: 5973MSD2\_220505A

05/05/22 11:22

Benzene	5.37	ug/L	0.50	107	75	120			
Ethylbenzene	5.58	ug/L	0.50	112	74	125			
Naphthalene	4.12	ug/L	0.50	82	60	134			
Toluene	5.63	ug/L	0.50	113	82	125			
1,2,4-Trimethylbenzene	5.49	ug/L	0.50	110	86	131			
1,3,5-Trimethylbenzene	5.47	ug/L	0.50	109	84	130			
m+p-Xylenes	11.5	ug/L	0.50	115	84	128			
o-Xylene	5.41	ug/L	0.50	108	79	126			
Xylenes, Total	16.9	ug/L	0.50	113	81	127			
Surr: 1,2-Dichloroethane-d4			1.0	89	69	131			
Surr: Dibromofluoromethane			1.0	95	70	125			
Surr: p-Bromofluorobenzene			1.0	95	76	123			
Surr: Toluene-d8			1.0	100	80	119			

Lab ID: 05-May-22\_MBLK\_6

Method Blank

Run: 5973MSD2\_220505A

05/05/22 12:35

Benzene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,2,4-Trimethylbenzene	ND	ug/L	0.50						
1,3,5-Trimethylbenzene	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			1.0	95	69	131			
Surr: Dibromofluoromethane			1.0	97	70	125			
Surr: p-Bromofluorobenzene			1.0	96	76	123			
Surr: Toluene-d8			1.0	97	80	119			

### Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)





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## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C22041031

Report Date: 05/07/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Batch: R174577		
Lab ID: C22041031-003AMS	Sample Matrix Spike		Run: 5973MSD2_220505A				05/05/22 14:20		
Benzene	6.07	ug/L	0.50	121	75	120			S
Ethylbenzene	6.30	ug/L	0.50	126	74	125			S
Naphthalene	5.12	ug/L	0.50	102	60	134			
Toluene	6.36	ug/L	0.50	127	82	125			S
1,2,4-Trimethylbenzene	6.10	ug/L	0.50	122	86	131			
1,3,5-Trimethylbenzene	6.00	ug/L	0.50	120	84	130			
m+p-Xylenes	12.8	ug/L	0.50	128	84	128			
o-Xylene	6.16	ug/L	0.50	123	79	126			
Xylenes, Total	19.0	ug/L	0.50	127	81	127			
Surr: 1,2-Dichloroethane-d4			1.0	90	69	131			
Surr: Dibromofluoromethane			1.0	96	70	125			
Surr: p-Bromofluorobenzene			1.0	93	76	123			
Surr: Toluene-d8			1.0	99	80	119			
Lab ID: C22041031-003AMSD	Sample Matrix Spike Duplicate		Run: 5973MSD2_220505A				05/05/22 14:52		
Benzene	5.35	ug/L	0.50	107	75	120	13	20	
Ethylbenzene	5.57	ug/L	0.50	111	74	125	12	20	
Naphthalene	4.61	ug/L	0.50	92	60	134	10	20	
Toluene	5.49	ug/L	0.50	110	82	125	15	20	
1,2,4-Trimethylbenzene	5.62	ug/L	0.50	112	86	131	8.3	20	
1,3,5-Trimethylbenzene	5.55	ug/L	0.50	111	84	130	7.8	20	
m+p-Xylenes	11.5	ug/L	0.50	115	84	128	11	20	
o-Xylene	5.46	ug/L	0.50	109	79	126	12	20	
Xylenes, Total	16.9	ug/L	0.50	113	81	127	12	20	
Surr: 1,2-Dichloroethane-d4			1.0	89	69	131			
Surr: Dibromofluoromethane			1.0	95	70	125			
Surr: p-Bromofluorobenzene			1.0	98	76	123			
Surr: Toluene-d8			1.0	99	80	119			

### Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



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## Work Order Receipt Checklist

Wesco Operating Inc

C22041031

Login completed by: Kirsten L. Smith

Date Received: 4/29/2022

Reviewed by: Misty Stephens

Received by: mar

Reviewed Date: 5/2/2022

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" 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:	1.0°C On Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input 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.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

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### Contact and Corrective Action Comments:

None



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# Chain of Custody & Analytical Request Record

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## Account Information (Billing Information)

Company Name	WASCO Operating, Inc.		
Contact	Dave Wehner		
Phone	307-577-5329		
Mailing Address	P.O. Box 1650		
City, State, Zip	Casper, WY 82402		
Email	dave@wascooperating.com		
Receive Invoice	<input type="checkbox"/> Hard Copy	<input checked="" type="checkbox"/> Email	Receive Report
Purchase Order	Quote		Bottle Order

## Report Information (If different than Account Information)

Company Name			
Contact			
Phone			
Mailing Address			
City, State, Zip			
Email			
Receive Report	<input type="checkbox"/> Hard Copy	<input type="checkbox"/> Email	
Special Report Formats:	<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC <input type="checkbox"/> EDD/EDT (contact laboratory) <input type="checkbox"/> Other		

## Comments

Comments	
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## Project Information

Project Name, PWSID, Permit, etc.	Ward 4 Aqueduct		
Sampler Name	Ward 4		
Sample Origin State	CO	EPA/State Compliance	<input type="checkbox"/> Yes <input type="checkbox"/> No
URANIUM MINING CLIENTS MUST indicate sample type. <input type="checkbox"/> NOT Source or Byproduct Material <input type="checkbox"/> Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING <input type="checkbox"/> 11e (2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)			

## Matrix Codes

- A - Air
- W - Water
- S - Solids
- V - Vegetation
- B - Biossay
- O - Other
- DW - Drinking Water

## Analysis Requested

Analysis Requested	133 Twp Ward 4 New Horizon 133 Twp Ward 4 New Horizon		
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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 (Name, Location, Interval, etc.)	Collection		Matrix (See Codes Above)	Number of Containers	Date	Time	Signature
	Date	Time					
1 MW-2	4/27	1700	W	6	4/27	1700	
2 MW-2	4/27	1700	W	6	4/27	1700	
3 MW-2	4/27	1700	W	6	4/27	1700	
4 MW-2	4/27	1700	W	6	4/27	1700	
5 MW-2	4/27	1700	W	6	4/27	1700	
6 MW-2	4/27	1700	W	6	4/27	1700	
7 MW-2	4/27	1700	W	6	4/27	1700	
8 MW-2	4/27	1700	W	6	4/27	1700	
9							
10							

Sample Identification (Name, Location, Interval, etc.)	Collection		Matrix (See Codes Above)	Number of Containers	Date	Time	Signature
	Date	Time					
1 MW-2	4/27	1700	W	6	4/27	1700	
2 MW-2	4/27	1700	W	6	4/27	1700	
3 MW-2	4/27	1700	W	6	4/27	1700	
4 MW-2	4/27	1700	W	6	4/27	1700	
5 MW-2	4/27	1700	W	6	4/27	1700	
6 MW-2	4/27	1700	W	6	4/27	1700	
7 MW-2	4/27	1700	W	6	4/27	1700	
8 MW-2	4/27	1700	W	6	4/27	1700	
9							
10							

See Attached

ELI LAB ID  
RUSH  
TAT

Signature

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Received by (print)	Date/Time
Shipped By	Cooler ID(s)	Custody Seals	Receipt Temp	Receipt Number (attach 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.

Maudlin Gulch SVE System

PID Summary Table

PID data collected during SVE exhaust monitoring work.

Updated: 6/30/2022

Date Measured	PID (parts per million)	Flow (CFM)	SVE blower hour meter
8/26/2020	395	280	
9/11/2020	310	280	
10/7/2020	163	315	
1/14/2021	80	400	
4/26/2021	35.4	350	
5/26/2021	56	360	5994.2
6/10/2021	27.2	380	6306.5
7/14/2021	46	350	7098.8
8/6/2021	62	360	7641.6
9/7/2021	61	350	8374.4
10/26/2021	58	310	9512.5
11/22/2021	36	340	10063
12/20/2021	26	330	10725
1/27/2022	21	350	11529.1
2/22/2022	11	370	11950
3/30/2022	2	350	12438
4/26/2022	5	360	13071.9

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 10, 2022

Dave Weinert

Wesco Operations Inc.

120 S. Durbin

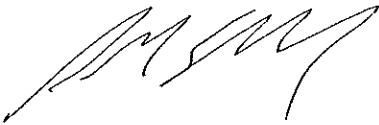
Casper, WY 82602

RE: Maudlin SVE System

Work Order #2205004

Enclosed are the results of analyses for samples received by Summit Scientific on 05/02/22 13:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President

# Summit Scientific

2205004

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: Wesco Operating, Inc

Project Manager: Weinert

Address: PO Box 1650

E-Mail: [davew@kirkwoodcompanies.com](mailto:davew@kirkwoodcompanies.com)

City/State/Zip: Casper, Wyoming 82602

Phone: 307-577-5329

Project Name: Maudlin SVE system

Sampler Name: Weinert

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTX	TPPH	N-Hexane		
1	SVE Exhaust	4/26/2022	1:55 PM	4			X					X	X	X			
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Relinquished by: <i>[Signature]</i>	Date/Time: <i>4/26/2022 1:55 PM</i>	Received by: <i>[Signature]</i>	Date/Time: <i>5/2/22 1345</i>	Turn Around Time (Check)	Notes:
Relinquished by: <i>[Signature]</i>	Date/Time: <i>4/26/2022 1:55 PM</i>	Received by: <i>[Signature]</i>	Date/Time: <i>5/2/22 1345</i>	Same Day <input type="checkbox"/>	72 hours <input checked="" type="checkbox"/>
				24 hours <input type="checkbox"/>	Standard <input checked="" type="checkbox"/>
				48 hours <input type="checkbox"/>	
Temperature Upon Receipt: <i>26.2</i>	IR gun correction: <i>26.2</i>	Corrected Temperature: <i>26.2</i>	HNO3 lot #	Sample Integrity: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		IR gun #: <i>2</i>			

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2205004Client: Wesco Operating, Inc Client Project ID: Mandlin SVE SystemShipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: 1Z 21W 98X 03 9709 1099

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------	--------------------------

Matrix (Check all that apply) Air ☒ Soil/Solid ☐ Water ☐ Other ☐Temp (°C) 26.2Thermometer # 2

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On ice.
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):  				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Jack Brar  
Custodian Printed Name

5/2/22  
Date/Time





*Environmental Chemistry Services, Inc.*  
755 South Perry Street, Suite 500  
Castle Rock, CO 80104-1926  
TEL: (303) 850-7606  
Website: [www.ecs-corp.com](http://www.ecs-corp.com)

May 10, 2022

Paul Shrewsbury  
Summit Scientific  
4653 Table Mountain Drive  
Golden, CO 80403  
TEL: (303) 277-9310

RE: Maudlin SVE System

Order No.: 2205006

Dear Paul Shrewsbury:

Environmental Chemistry Services, Inc. received 1 sample(s) on 5/4/2022 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report, 2205006, unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call or email.

TEL: (303) 850-7606  
[kris@ecs-corp.com](mailto:kris@ecs-corp.com)

Sincerely,

A handwritten signature in dark ink, appearing to be "Kris", with a stylized flourish at the end.

Kris Mascarenas  
Director of Client Services



Environmental Chemistry Services, Inc.  
755 South Perry Street, Suite 500  
Castle Rock, CO 80104-1926  
TEL: (303) 850-7606  
Website: www.ecs-corp.com

## Case Narrative

WO#: 2205006  
Date: 5/10/2022

---

**CLIENT:** Summit Scientific  
**Project:** Maudlin SVE System

---

### WorkOrder Narrative:

2205006: This report in its entirety consists of the documents listed below. All documents contain the Environmental Chemistry Services, Inc. Work Order Number assigned to this report.

1. Paginated Report including: A Cover Letter, Case Narrative, Analytical Results, and Applicable Quality Control Reports.
2. Copies of the Chain of Custody Document(s) supplied with this sample set.
3. Electronic Data Deliverables (EDD) if requested.

Samples were analyzed in accordance with "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air Second Edition." The method used is the Compendium Method TO-15 for the Determination of Volatile Organic Compounds (VOCs) in air collected in specially prepared canisters and analyzed by Gas Chromatography/Mass Spectrometry (GC/MS).

### REF:

Center for Environmental Research Information  
Office of Research and Development  
U.S. Environmental Protection Agency  
Cincinnati, OH 45268  
January 1999

Any comments or problems with the analytical events associated with this report are noted below.

---

Original

**Environmental Chemistry Services, Inc.**

Date: 10-May-22

**Client:** Summit Scientific  
**Work Order:** 2205006  
**Project:** Maudlin SVE System  
**Lab ID:** 2205006-01A

**Client Sample ID:** SVE Exhaust  
**Canister ID:**  
**Collection Date:** 4/26/2022 1:55:00 PM  
**Matrix:** AIR

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>BTEX, HEXANE, AND TVPH (GRO)</b>		Method: TO-15A				Analyst: TSM
TVPH	0.0099	0.00041		mg/L	1	5/6/2022 8:08:00 PM
Benzene	0.0000056	0.00000032		mg/L	1	5/6/2022 8:08:00 PM
Ethylbenzene	0.000027	0.00000043		mg/L	1	5/6/2022 8:08:00 PM
Toluene	0.000040	0.00000038		mg/L	1	5/6/2022 8:08:00 PM
Xylenes, Total	0.00013	0.00000039		mg/L	1	5/6/2022 8:08:00 PM
Hexane	0.00032	0.00000032		mg/L	1	5/6/2022 8:08:00 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	5/6/2022 8:08:00 PM
Surr: Toluene-d8	93.2	70-130		%Rec	1	5/6/2022 8:08:00 PM
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	5/6/2022 8:08:00 PM

**Qualifiers** D Dilution was required  
**Definitions:** E Value above Upper Quantitation Limit (UQL)  
J Analyte detected above MDL below RL  
ND Not Detected at or above RL  
S % Recovery outside limits

DF Dilution Factor  
H Holding time exceeded  
N Tentatively Identified Compounds (Values are estimated)  
RL Reporting Limit  
Surr Surrogate Standard



Environmental Chemistry Services, Inc.  
735 South Perry Street, Suite 500  
Castle Rock, CO 80104-1926  
TEL: (303) 850-7606  
Website: www.ecs-corp.com

# QC SUMMARY REPORT

Work Order: 2205006  
10-May-22

**Client:** Summit Scientific  
**Project:** Maudlin SVE System

**BatchID:** R7634

Sample ID: BTEX LCS	SampType: LCS	TestCode: BTEX_A	Units: mg/L	Prep Date: 5/6/2022	RunNo: 7634						
Client ID: LCSW	Batch ID: R7634	TestNo: TO-15A		Analysis Date: 5/6/2022	SeqNo: 94986						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.000032	0.00000032	0.000032	0	99.8	70	130	0			
Ethylbenzene	0.000043	0.00000043	0.000043	0	99.9	70	130	0			
Toluene	0.000038	0.00000038	0.000038	0	101	70	130	0			
Xylenes, Total	0.00013	0.00000039	0.00013	0	99.3	70	130	0			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130				
Surr: Toluene-d8	10		10.00		100	70	130				
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130				

Sample ID: BTEX LCSD	Sample Type: LCSD	TestCode: BTEX_A	Units: mg/L	Prep Date: 5/6/2022	RunNo: 7634						
Client ID: LCSW02	Batch ID: R7634	TestNo: TO-15A		Analysis Date: 5/6/2022	SeqNo: 94987						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.000032	0.00000032	0.000032	0	100	70	130	0.000032	0.300	30	
Ethylbenzene	0.000043	0.00000043	0.000043	0	99.9	70	130	0.000043	0	30	
Toluene	0.000038	0.00000038	0.000038	0	101	70	130	0.000038	0.297	30	
Xylenes, Total	0.00013	0.00000039	0.00013	0	99.3	70	130	0.00013	0.0336	30	
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130		0	30	
Surr: Toluene-d8	10		10.00		99.6	70	130		0	30	
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130		0	30	

**Qualifiers** H Holding time exceeded  
**Definitions:** S % Recovery outside limits

ND Not Detected at or above RL  
SPK Spike Value

RL Reporting Limit  
Surr Surrogate Standard



Environmental Chemistry Services, Inc.  
755 South Perry Street, Suite 500  
Castle Rock, CO 80104-1926  
TEL: (303) 850-7606  
Website: www.ecs-corp.com

# QC SUMMARY REPORT

Work Order: 2205006  
10-May-22

**Client:** Summit Scientific  
**Project:** Maudlin SVE System

**BatchID:** R7634

Sample ID: TVPH LCS	SampType: LCS	TestCode: BTEX_A	Units: mg/L	Prep Date: 5/6/2022	RunNo: 7634
Client ID: LCSW	Batch ID: R7634	TestNo: TO-15A		Analysis Date: 5/6/2022	SeqNo: 94990
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
TVPH	0.010	0.00041	0.010	0	97.4 70 130 0

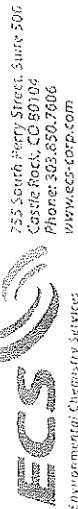
Sample ID: TVPH LCSD	SampType: LCSD	TestCode: BTEX_A	Units: mg/L	Prep Date: 5/6/2022	RunNo: 7634
Client ID: LCSW02	Batch ID: R7634	TestNo: TO-15A		Analysis Date: 5/6/2022	SeqNo: 94991
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
TVPH	0.0098	0.00041	0.010	0	96.2 70 130 0.010 1.24 30

Sample ID: MBLK	SampType: MBLK	TestCode: BTEX_A	Units: mg/L	Prep Date: 5/6/2022	RunNo: 7634
Client ID: PBW	Batch ID: R7634	TestNo: TO-15A		Analysis Date: 5/6/2022	SeqNo: 95037
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
TVPH	ND	0.00041	0	0	0
Benzene	ND	0.00000032	0	0	0
Ethylbenzene	ND	0.00000043	0	0	0
Toluene	ND	0.00000038	0	0	0
Xylenes, Total	ND	0.00000039	0	0	0
Surr: 1,2-Dichloroethane-d4	9.9	10.00			99.3 70 130
Surr: Toluene-d8	9.6	10.00			95.8 70 130
Surr: 4-Bromofluorobenzene	9.4	10.00			93.9 70 130

**Qualifiers** H Holding time exceeded  
**Definitions:** S % Recovery outside limits

ND Not Detected at or above RL  
SPK Spike Value

RL Reporting Limit  
Surr Surrogate Standard



**ACS**  
American Chemical Society  
Environmental Chemistry Services  
755 South Perry Street, Suite 500  
Castle Rock, CO 80104  
Phone: 303.850.7606  
[www.acs-corp.com](http://www.acs-corp.com)

## Chain of Custody Record (COC)

[illegible]

Matrix Key: AQ = Aqueous AR = Air SO = Soil WA = Waste OT = Other  
 Container Key: A = Amber B = Brass C = Clear Glass P = Plastic S = Soil Jar SU = Summa PF = PUF T = Teflon TU = Tube OT = Other  
 Preservative: H = HCl N = Nitric SF = Sulfuric  
 T = Teflon TU = Tube OT = Other

S<sub>2</sub>

Project:

Project Number:

Project Manager:

Reported:

### Notes and Definitions

DET      Analyte DETECTED  
ND      Analyte NOT DETECTED at or above the reporting limit  
NR      Not Reported  
dry      Sample results reported on a dry weight basis  
RPD      Relative Percent Difference

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



TABLE 1  
EMISSIONS ESTIMATE SUMMARY  
MAUDLIN GULCH  
MOFEAT COUNTY, COLORADO  
WESCO OPERATING INC.

Sample Information and Lab Analysis					
Date	Total Flow (cf)	Delta Flow (cf)	Benzene (ug/l)	Toluene (ug/l)	Ethyl Benzene (ug/l)
08/26/20	100,800	100,800	0.99	0.50	0.50
09/11/20	6,484,800	6,384,000	0.20	0.19	0.28
10/07/20	16,520,700	10,035,900	0.50	0.28	0.55
01/14/21	69,020,700	52,500,000	1.00	1.00	1.00
04/29/21	116,121,600	47,100,900	0.013	0.100	0.010
07/19/21	132,759,900	16,638,300	0.011	0.014	0.023
10/26/21	153,928,560	21,168,660	0.0073	0.0860	0.0062
01/27/22	170,814,660	16,886,100	2.40E-03	3.20E-02	8.10E-03
04/26/22	184,506,900	13,692,240	5.60E-03	4.00E-02	2.70E-02

Date	Flow Rate (cfm)	Emission Calculations									
		Benzene (lb/hr)	Benzene Average Rate (lb/hr)	Toluene (lb/hr)	Toluene Average Rate (lb/hr)	Ethyl Benzene (lb/hr)	Ethyl Benzene Average Rate (lb/hr)	Xylenes (lb/hr)	Xylenes Average Rate (lb/hr)	N-Hexane (lb/hr)	N-Hexane Average Rate (lb/hr)
08/26/20	280	1.04E-03	1.04E-03	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	NA	NA
09/11/20	280	2.09E-04	6.23E-04	1.99E-04	3.61E-04	2.93E-04	4.08E-04	1.36E-03	9.42E-04	NA	NA
10/07/20	315	5.89E-04	3.99E-04	3.30E-04	2.64E-04	6.48E-04	4.70E-04	3.18E-03	2.27E-03	NA	NA
01/14/21	400	1.50E-03	1.04E-03	1.50E-03	9.12E-04	1.50E-03	1.07E-03	1.50E-03	2.34E-03	NA	NA
04/29/21	350	1.70E-05	7.56E-04	1.31E-04	8.13E-04	1.31E-05	7.54E-04	6.54E-05	7.80E-04	7.20E-04	7.20E-04
05/26/21	360	1.75E-05	1.72E-05	1.35E-04	1.33E-04	1.35E-05	1.33E-05	6.73E-05	6.63E-05	7.40E-04	7.30E-04
06/10/21	380	1.85E-05	1.80E-05	1.42E-04	1.38E-04	1.42E-05	1.38E-05	7.10E-05	6.91E-05	7.81E-04	7.61E-04
07/14/21	350	1.44E-05	1.64E-05	1.83E-05	8.02E-05	3.01E-05	2.21E-05	1.96E-04	1.34E-04	4.71E-04	6.26E-04
08/06/21	360	1.48E-05	1.46E-05	1.88E-05	1.86E-05	3.09E-05	3.05E-05	2.02E-04	1.99E-04	4.84E-04	4.78E-04
09/07/21	350	1.44E-05	1.46E-05	1.83E-05	1.86E-05	3.01E-05	3.05E-05	1.96E-04	1.99E-04	4.71E-04	4.78E-04
10/26/21	310	8.46E-06	1.14E-05	9.96E-05	5.90E-05	7.18E-06	1.86E-05	4.52E-05	1.21E-04	9.85E-05	2.85E-04
11/22/21	340	9.28E-06	8.87E-06	1.09E-04	1.04E-04	7.88E-06	7.53E-06	4.96E-05	4.74E-05	1.08E-04	1.03E-04
12/20/21	330	9.00E-06	9.14E-06	1.06E-04	1.08E-04	7.65E-06	7.76E-06	4.81E-05	4.88E-05	1.03E-04	1.06E-04
01/27/22	350	3.14E-06	6.07E-06	4.19E-05	7.40E-05	1.06E-05	9.12E-06	1.70E-05	3.26E-05	1.37E-04	1.37E-04
02/22/22	370	3.32E-06	3.23E-06	4.43E-05	4.31E-05	1.12E-05	1.09E-05	1.80E-05	1.75E-05	1.80E-04	1.75E-04
03/30/22	350	3.14E-06	3.23E-06	4.19E-05	4.31E-05	1.06E-05	1.09E-05	1.70E-05	1.75E-05	1.70E-04	1.75E-04
04/26/22	360	7.54E-06	4.28E-06	5.38E-05	4.55E-05	3.63E-05	1.72E-05	1.75E-04	5.67E-05	4.31E-04	2.38E-04
05/26/22	260	5.44E-06	4.86E-06	3.89E-05	4.47E-05	2.62E-05	2.11E-05	1.26E-04	8.41E-05	3.11E-04	2.73E-04
06/15/22	250	5.23E-06	5.34E-06	3.74E-05	4.30E-05	2.52E-05	2.46E-05	1.21E-04	1.10E-04	2.99E-04	3.03E-04

Date	Flow Rate (cfm)	Emission Calculations									
		Benzene (lb/hr)	Benzene Average Rate (lb/hr)	Toluene (lb/hr)	Toluene Average Rate (lb/hr)	Ethyl Benzene (lb/hr)	Ethyl Benzene Average Rate (lb/hr)	Xylenes (lb/hr)	Xylenes Average Rate (lb/hr)	N-Hexane (lb/hr)	N-Hexane Average Rate (lb/hr)
08/26/20	280	1.04E-03	1.04E-03	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	NA	NA
09/11/20	280	2.09E-04	6.23E-04	1.99E-04	3.61E-04	2.93E-04	4.08E-04	1.36E-03	9.42E-04	NA	NA
10/07/20	315	5.89E-04	3.99E-04	3.30E-04	2.64E-04	6.48E-04	4.70E-04	3.18E-03	2.27E-03	NA	NA
01/14/21	400	1.50E-03	1.04E-03	1.50E-03	9.12E-04	1.50E-03	1.07E-03	1.50E-03	2.34E-03	NA	NA
04/29/21	350	1.70E-05	7.56E-04	1.31E-04	8.13E-04	1.31E-05	7.54E-04	6.54E-05	7.80E-04	7.20E-04	7.20E-04
05/26/21	360	1.75E-05	1.72E-05	1.35E-04	1.33E-04	1.35E-05	1.33E-05	6.73E-05	6.63E-05	7.40E-04	7.30E-04
06/10/21	380	1.85E-05	1.80E-05	1.42E-04	1.38E-04	1.42E-05	1.38E-05	7.10E-05	6.91E-05	7.81E-04	7.61E-04
07/14/21	350	1.44E-05	1.64E-05	1.83E-05	8.02E-05	3.01E-05	2.21E-05	1.96E-04	1.34E-04	4.71E-04	6.26E-04
08/06/21	360	1.48E-05	1.46E-05	1.88E-05	1.86E-05	3.09E-05	3.05E-05	2.02E-04	1.99E-04	4.84E-04	4.78E-04
09/07/21	350	1.44E-05	1.46E-05	1.83E-05	1.86E-05	3.01E-05	3.05E-05	1.96E-04	1.99E-04	4.71E-04	4.78E-04
10/26/21	310	8.46E-06	1.14E-05	9.96E-05	5.90E-05	7.18E-06	1.86E-05	4.52E-05	1.21E-04	9.85E-05	2.85E-04
11/22/21	340	9.28E-06	8.87E-06	1.09E-04	1.04E-04	7.88E-06	7.53E-06	4.96E-05	4.74E-05	1.08E-04	1.03E-04
12/20/21	330	9.00E-06	9.14E-06	1.06E-04	1.08E-04	7.65E-06	7.76E-06	4.81E-05	4.88E-05	1.03E-04	1.06E-04
01/27/22	350	3.14E-06	6.07E-06	4.19E-05	7.40E-05	1.06E-05	9.12E-06	1.70E-05	3.26E-05	1.37E-04	1.37E-04
02/22/22	370	3.32E-06	3.23E-06	4.43E-05	4.31E-05	1.12E-05	1.09E-05	1.80E-05	1.75E-05	1.80E-04	1.75E-04
03/30/22	350	3.14E-06	3.23E-06	4.19E-05	4.31E-05	1.06E-05	1.09E-05	1.70E-05	1.75E-05	1.70E-04	1.75E-04
04/26/22	360	7.54E-06	4.28E-06	5.38E-05	4.55E-05	3.63E-05	1.72E-05	1.75E-04	5.67E-05	4.31E-04	2.38E-04
05/26/22	260	5.44E-06	4.86E-06	3.89E-05	4.47E-05	2.62E-05	2.11E-05	1.26E-04	8.41E-05	3.11E-04	2.73E-04
06/15/22	250	5.23E-06	5.34E-06	3.74E-05	4.30E-05	2.52E-05	2.46E-05	1.21E-04	1.10E-04	2.99E-04	3.03E-04

Date	Flow Rate (cfm)	Emission Calculations									
		Benzene (lb/hr)	Benzene Average Rate (lb/hr)	Toluene (lb/hr)	Toluene Average Rate (lb/hr)	Ethyl Benzene (lb/hr)	Ethyl Benzene Average Rate (lb/hr)	Xylenes (lb/hr)	Xylenes Average Rate (lb/hr)	N-Hexane (lb/hr)	N-Hexane Average Rate (lb/hr)
08/26/20	280	1.04E-03	1.04E-03	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	NA	NA
09/11/20	280	2.09E-04	6.23E-04	1.99E-04	3.61E-04	2.93E-04	4.08E-04	1.36E-03	9.42E-04	NA	NA
10/07/20	315	5.89E-04	3.99E-04	3.30E-04	2.64E-04	6.48E-04	4.70E-04	3.18E-03	2.27E-03	NA	NA
01/14/21	400	1.50E-03	1.04E-03	1.50E-03	9.12E-04	1.50E-03	1.07E-03	1.50E-03	2.34E-03	NA	NA
04/29/21	350	1.70E-05	7.56E-04	1.31E-04	8.13E-04	1.31E-05	7.54E-04	6.54E-05	7.80E-04	7.20E-04	7.20E-04
05/26/21	360	1.75E-05	1.72E-05	1.35E-04	1.33E-04	1.35E-05	1.33E-05	6.73E-05	6.63E-05	7.40E-04	7.30E-04
06/10/21	380	1.85E-05	1.80E-05	1.42E-04	1.38E-04	1.42E-05	1.38E-05	7.10E-05	6.91E-05	7.81E-04	7.61E-04
07/14/21	350	1.44E-05	1.64E-05	1.83E-05	8.02E-05	3.01E-05	2.21E-05	1.96E-04	1.34E-04	4.71E-04	6.26E-04
08/06/21	360	1.48E-05	1.46E-05	1.88E-05	1.86E-05	3.09E-05	3.05E-05	2.02E-04	1.99E-04	4.84E-04	4.78E-04
09/07/21	350	1.44E-05	1.46E-05	1.83E-05	1.86E-05	3.01E-05	3.05E-05	1.96E-04	1.99E-04	4.71E-04	4.78E-04
10/26/21	310	8.46E-06	1.14E-05	9.96E-05	5.90E-05	7.18E-06	1.86E-05	4.52E-05	1.21E-04	9.85E-05	2.85E-04
11/22/21	340	9.28E-06	8.87E-06	1.09E-04	1.04E-04	7.88E-06	7.53E-06	4.96E-05	4.74E-05	1.08E-04	1.03E-04
12/20/21	330	9.00E-06	9.14E-06	1.06E-04	1.08E-04	7.65E-06	7.76E-06	4.81E-05	4.88E-05	1.03E-04	1.06E-04
01/27/22	350	3.14E-06	6.07E-06	4.19E-05	7.40E-05	1.06E-05	9.12E-06	1.70E-05	3.26E-05	1.37E-04	1.37E-04
02/22/22	370	3.32E-06	3.23E-06	4.43E-05	4.31E-05	1.12E-05	1.09E-05	1.80E-05	1.75E-05	1.80E-04	1.75E-04
03/30/22	350	3.14E-06	3.23E-06	4.19E-05	4.31E-05	1.06E-05	1.09E-05	1.70E-05	1.75E-05	1.70E-04	1.75E-04
04/26/22	360	7.54E-06	4.28E-06	5.38E-05	4.55E-05	3.63E-05	1.72E-05	1.75E-04	5.67E-05	4.31E-04	2.38E-04
05/26/22	260	5.44E-06	4.86E-06	3.89E-05	4.47E-05	2.62E-05	2.11E-05	1.26E-04	8.41E-05	3.11E-04	2.73E-04
06/15/22	250	5.23E-06	5.34E-06	3.74E-05	4.30E-05	2.52E-05	2.46E-05	1.21E-04	1.10E-04	2.99E-04	3.03E-04

Date	Flow Rate (cfm)	Benzene (lb/hr)	Benzene Average Rate (lb/hr)	Toluene (lb/hr)	Toluene Average Rate (lb/hr)	Ethyl Benzene (lb/hr)	Ethyl Benzene Average Rate (lb/hr)	Xylenes (lb/hr)	Xylenes Average Rate (lb/hr)	N-Hexane (lb/hr)	N-Hexane Average Rate (lb/hr)	VOCs TVPH (lb/hr)	VOC Average Rate (lb/hr)
08/26/20	280	1.04E-03	1.04E-03	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	5.23E-04	NA	NA	0.05024	0.05
09/11/20	280	2.09E-04	6.23E-04	1.99E-04	3.61E-04	2.93E-04	4.08E-04	1.36E-03	9.42E-04	NA	NA	3.44573	1.75
10/07/20	315	5.89E-04	3.99E-04	3.30E-04	2.64E-04	6.48E-04	4.70E-04	3.18E-03	2.27E-03	NA	NA	2.49763	2.97
01/14/21	400	1.50E-03	1.04E-03	1.50E-03	9.12E-04	1.50E-03	1.07E-03	1.50E-03	2.34E-03	NA	NA	0.77644	1.64
04/29/21	350	1.70E-05	7.56E-04	1.31E-04	8.13E-04	1.31E-05	7.54E-04	6.54E-05	7.80E-04	7.20E-04	7.20E-04	0.12567	0.45
05/26/21	360	1.75E-05	1.72E-05	1.35E-04	1.33E-04	1.35E-05	1.33E-05	6.73E-05	6.63E-05	7.40E-04	7.30E-04	0.12918	0.13
06/10/21	380	1.85E-05	1.80E-05	1.42E-04	1.38E-04	1.42E-05	1.38E-05	7.10E-05	6.91E-05	7.81E-04	7.61E-04	0.13635	0.13
07/14/21	350	1.44E-05	1.64E-05	1.83E-05	8.02E-05	3.01E-05	2.21E-05	1.96E-04	1.34E-04	4.71E-04	6.26E-04	0.10727	0.12
08/06/21	360	1.48E-05	1.46E-05	1.88E-05	1.86E-05	3.09E-05	3.05E-05	2.02E-04	1.99E-04	4.84E-04	4.78E-04	0.11034	0.11
09/07/21	350	1.44E-05	1.46E-05	1.83E-05	1.86E-05	3.01E-05	3.05E-05	1.96E-04	1.99E-04	4.71E-04	4.78E-04	0.10727	0.11
10/26/21	310	8.46E-06	1.14E-05	9.96E-05	5.90E-05	7.18E-06	1.86E-05	4.52E-05	1.21E-04	9.85E-05	2.85E-04	0.08574	0.10
11/22/21	340	9.28E-06	8.87E-06	1.09E-04	1.04E-04	7.88E-06	7.53E-06	4.96E-05	4.74E-05	1.08E-04	1.03E-04	0.09404	0.09
12/20/21	330	9.00E-06	9.14E-06	1.06E-04	1.08E-04	7.65E-06	7.76E-06	4.81E-05	4.88E-05	1.05E-04	1.06E-04	0.09128	0.09
01/27/22	350	3.14E-06	6.07E-06	4.19E-05	7.40E-05	1.06E-05	9.12E-06	1.70E-05	3.26E-05	1.70E-04	1.37E-04	0.03794	0.06
02/22/22	370	3.32E-06	3.23E-06	4.43E-05	4.31E-05	1.12E-05	1.09E-05	1.80E-05	1.75E-05	1.80E-04	1.75E-04	0.04011	0.04
03/30/22	350	3.14E-06	3.23E-06	4.19E-05	4.31E-05	1.06E-05	1.09E-05	1.70E-05	1.75E-05	1.70E-04	1.75E-04	0.03794	0.04
04/26/22	360	7.54E-06	4.28E-06	5.38E-05	4.55E-05	3.63E-05	1.72E-05	1.75E-04	5.67E-05	4.31E-04	2.38E-04	0.01332	0.03
05/26/22	260	5.44E-06	4.86E-06	3.89E-05	4.47E-05	2.62E-05	2.11E-05	1.26E-04	8.41E-05	3.11E-04	2.73E-04	0.00962	0.03
06/15/22	250	5.23E-06	5.34E-06	3.74E-05	4.30E-05	2.52E-05	2.46E-05	1.21E-04	1.10E-04	2.99E-04	3.03E-04	0.00925	0.02



**TABLE 1**  
**EMISSIONS ESTIMATE SUMMARY**  
**MAUDLIN GULCH**  
**MOFFAT COUNTY, COLORADO**  
**WESCO OPERATING INC.**

Date	Total Operational Hours	Delta Hours	Pounds/Tons emitted over total operating time										Cumulative TVPH (tons)	Cumulative TVPH (tons)	
			Benzene (lbs)	Cumulative Benzene (lbs)	Toluene (lbs)	Cumulative Toluene (lbs)	Ethyl Benzene (lbs)	Cumulative Ethylbenzene (lbs)	Xylenes (lbs)	Cumulative Xylenes (lbs)	N-Hexane (lbs)	Cumulative N-Hexane (lbs)			
Startup															
08/26/20															
08/26/20	26	6	0.0062	0.0062	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	NA	NA	0.0002	0.0002
09/11/20	406	380	0.2366	0.2428	0.1372	0.1403	0.1551	0.1582	0.3579	0.3611	0.3579	NA	NA	0.3321	0.3322
10/07/20	937	531	0.2119	0.4547	0.1403	0.2807	0.2497	0.4080	1.2052	1.5663	1.2052	NA	NA	0.7889	1.1212
01/14/21	3,125	2,188	2.2792	2.7339	1.9959	2.7339	2.3436	2.7515	5.1123	6.6786	5.1123	NA	NA	1.7905	2.9117
04/26/21	5,367.4	2,243	1.6958	4.4297	1.8234	4.0999	1.6914	4.4429	1.7501	8.4287	1.7501	1.6138	1.6138	0.5058	3.4175
05/26/21	5,994.2	627	0.0108	4.4405	0.0832	4.1831	0.0083	4.4512	0.0416	8.4703	0.0416	0.4639	2.0777	0.0399	3.4574
06/10/21	6,306.5	312	0.0056	4.4461	0.0432	4.2263	0.0043	4.4555	0.0216	8.4919	0.0216	0.2440	2.3217	0.0207	3.4782
07/14/21	7,098.8	792	0.0130	4.4591	0.0635	4.2898	0.0175	4.4731	0.1059	8.5977	0.1059	0.3731	2.6948	0.0483	3.5264
08/06/21	7,641.6	543	0.0079	4.4670	0.0101	4.2999	0.0166	4.4897	0.1080	8.7058	0.1080	0.2629	2.9578	0.0295	3.5560
09/07/21	8,374.4	733	0.0107	4.4777	0.0136	4.3135	0.0224	4.5120	0.1459	8.8516	0.1459	0.3451	3.3029	0.0399	3.5958
10/26/21	9,512.5	1,138	0.0130	4.4907	0.0671	4.3806	0.0212	4.5332	0.1374	8.9890	0.1374	0.1121	3.4150	0.0549	3.6507
11/22/21	10,063.0	551	0.0049	4.4956	0.0575	4.4382	0.0041	4.5374	0.0261	9.0151	0.0261	0.0595	3.4744	0.0247	3.6755
12/20/21	10,725.0	662	0.0061	4.5017	0.0713	4.5094	0.0051	4.5425	0.0323	9.0474	0.0323	0.0694	3.5438	0.0307	3.7062
01/27/22	11,529.1	804	0.0049	4.5065	0.0595	4.5689	0.0073	4.5499	0.0262	9.0736	0.0262	0.1368	3.6806	0.0260	3.7321
02/22/22	11,950.0	421	0.0014	4.5079	0.0181	4.5871	0.0046	4.5544	0.0074	9.0810	0.0074	0.0757	3.7563	0.0082	3.7404
03/30/22	12,438.0	488	0.0016	4.5095	0.0210	4.6081	0.0053	4.5598	0.0085	9.0895	0.0085	0.0830	3.8393	0.0095	3.7499
04/26/22	13,071.9	634	0.0027	4.5122	0.0288	4.6369	0.0109	4.5707	0.0360	9.1254	0.0360	0.2730	4.1122	0.0102	3.7601
5/26/2022	13,609.8	538	0.0026	4.5148	0.0240	4.6609	0.0113	4.5820	0.0452	9.1707	0.0452	0.1673	4.2795	0.0068	3.7669
6/15/2022	14,054.5	445	0.0024	4.5172	0.0191	4.6800	0.0109	4.5929	0.0489	9.2196	0.0489	0.1330	4.4125	0.0039	3.7708

**NOTES:**

cf - cubic feet  
 ug/l - micrograms per liter  
 VOCs - volatile organic compounds  
 TVPH - total volatile petroleum hydrocarbons - Gasoline Range Organics and Total Purgeable Hydrocarbons  
 cfm - cubic feet per minute  
 lb/hr - pounds per hour  
 lbs - pounds  
 PID - photo-ionization detector  
 ppm - part per million  
 Red font indicates sampling occurred on that date. Black font indicates hours and flow rate was collected but no sampling occurred. Yellow cells indicate data entry.  
 NA = Not analyzed