EMISSIONS TEST REPORT

MONTANA RESOURCES, LLC

PARTICULATE AND VISIBLE EMISSIONS TEST ON EIGHT SOURCES

Montana Air Quality Permit: 1749-14

Prepared for:

Montana Resource, LLC

600 Shields Avenue

Butte, Montana 59701

Prepared by:

Bison Engineering, Inc.
3143 E. Lyndale Avenue
Helena, Montana 59601
406-442-5768
www.bison-eng.com

Project Number: MTR224203
Test Date: June 24-28, 2024
Report Issued: August 12, 2024

STACK TESTING ACCREDITATION COUNCIL

ACCREDITED TO ASTM D7036 ONLY CERT #4675.01

BISON ENGINEERING, INC.

EXECUTIVE SUMMARY

Montana Resources, LLC contracted Bison Engineering, Inc. to perform emissions testing at their mining operation located in Butte, Montana. Testing was performed on the molybdenum dryer, four fine ore bins, primary crusher, secondary crusher, and coarse ore conveyor from June 24-28, 2024 to demonstrate compliance with Montana Air Quality Permit number 1749-14 This report presents emissions test data, describes the methods employed and details the quality assurance measures taken to ensure accurate data. Table 1 summarizes the test results.

Table 1 Montana Resources Results Summary

Source	Parameter	Units	Test Result	Permit Limit
Molybdenum Dryer	PM	lb/hr	0.013	NA[a]
	Visible Emissions	% opacity	0	15
Fine Ore Bin 1	PM	g/dscm	0.003	0.05
	Visible Emissions	% opacity	0	15
Fine Ore Bin 2	PM	g/dscm	0.000	0.05
	Visible Emissions	% opacity	0	15
Fine Ore Bin 3	PM	g/dscm	0.001	0.05
	Visible Emissions	% opacity	0	15
Fine Ore Bin 4	PM	g/dscm	0.001	0.05
	Visible emissions	% opacity	0	15
Primary Crusher	PM	g/dscm	0.001	0.05
	Visible Emissions	% opacity	0	10
Secondary Crusher	PM	g/dscm	0.005	0.05
	Visible Emissions	% opacity	0	15
Coarse Ore Conveyor	PM	g/dscm	0.001	0.05
	Visible Emissions	% opacity	0	10

[a] The Molybdenum Dryer has annual, seasonal, and daily emission limits. Bison has reported PM results in lb/hr for use by Montana Resources to determine on-going compliance with applicable limits.
PM – particulate matter
lb/hr – pounds per hour
g/dscm – grams per dry standard cubic meter

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CERTIFICATION FROM RESPONSIBLE OFFICIAL

I have reviewed the information being submitted in its entirety. Based on information and belief formed after reasonable inquiry, I certify that the statements and information contained in this submittal are true, accurate, and complete.

Signature

8/12/2024

Date

Jeremy Fleege

Name (printed)

Environmental Engineer

Title

Montana Resources, LLC

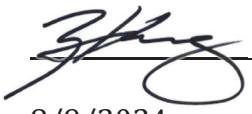
Company

REVIEW AND CERTIFICATION

All work, calculations, other activities, and tasks performed and documented in this report were carried out under my direction and supervision. This test project conforms to the requirements of Bison Engineering, Inc.'s quality manual and American Society for Testing and Materials (ASTM) D7036-04.

Project Manager: Zach Harding, QI

Title: Source Director

Signature: 

Date: 8/9/2024

I have reviewed all testing details, calculations, results, conclusions and other appropriate written material contained herein, and hereby certify that the presented material is authentic and accurate.

Reviewer: Jacob Amerman, QI

Title: Technical Manager

Signature: Jacob Amerman

Date: 8/9/2024

1.0 INTRODUCTION

1.1 Project Summary and Objectives

Montana Resources, LLC (Montana Resources) contracted Bison Engineering, Inc. (Bison) to perform emissions tests on the molybdenum dryer, four fine ore bins, primary crusher, secondary crusher, and coarse ore conveyor at their mine in Butte, Montana. Testing was conducted from June 24-28, 2024, to determine compliance with permit limits for emissions of PM and for visible emissions. Observations of visible emissions were performed by certified personnel.

Bison performed the emissions testing in accordance with the pre-test protocol dated April 25, 2024, that was submitted to the Montana Department of Environmental Quality (MDEQ). Testing was performed pursuant to Montana Air Quality Permit (MAQP) number 1749-14. Bison employed U.S. Environmental Protection Agency (EPA) test methods as described in the Code of Federal Regulations, Title 40 (40 CFR). Table 2 summarizes the test methods used during the test campaign.

Table 2 Montana Resources Project Matrix (All Sources)

EPA Method	Parameter	Test Plan and Comments
1	Sampling location and traverse points	Determined once per source, prior to testing.
2	Velocity/Flow/MW	Concurrent with PM sampling. An assumed MW for ambient sources was utilized per Method 2, Section 8.6.
3	MW	Assumed MW per Method 3, Section 1.3 for the molybdenum dryer.
4	Moisture	Three 90-minute test runs per source, with a minimum sample volume of 60 dscf.
5 w/MT back half	Total PM	
9	Opacity	Three 30-minute observation periods during PM testing.

MW – molecular weight
dscf – dry standard cubic feet

1.2 Project Contacts

Facility:	**Montana Resources, LLC**
Address:	600 Shields Avenue Butte, Montana 59701
Contact:	Jeremy Fleege
Phone:	(406) 496-3205
Email:	jfleege@montanaresources.com
Consultant:	**Bison Engineering, Inc.**
Address:	3143 E. Lyndale Avenue Helena, Montana 59601
Contact:	Zach Harding
Phone:	(406) 431-8930
Email:	zharding@bison-eng.com
State Authority:	**Montana Department of Environmental Quality**
Address:	1520 E. 6th Avenue Helena, Montana 59601
Contact:	Conor Fox
Phone:	(406) 444-4267
Email:	conor.fox@mt.gov

1.3 Testing Personnel

The Bison on-site testing team was led by Zach Harding, Qualified Individual (QI), Source Director. He was assisted during field testing by four additional members of the Bison Source Testing Team. Mr. Harding served as project manager, processed the test data, and authored this report. Jacob Amerman, QI, Technical Manager, performed a final quality assurance review of the data and test report.

Jeremy Fleege, Environmental Engineer, was the primary contact for Montana Resources. Mr. Fleege was on-site during testing. Montana Resources staff members were responsible for monitoring process parameters during testing.

Conor Fox and Benjamin Johnson from MDEQ were on-site during the test campaign and observed a portion of testing.

2.0 SOURCE DESCRIPTION

2.1 Facility Description

Montana Resources owns and operates an open pit copper and molybdenum mine, crushing facilities, a milling operation and concentrator in Butte, Montana.

2.2 Emission Source Description

The molybdenum dryer emissions are controlled using a high efficiency wet scrubber. The wet scrubber exhaust stack is 12 inches in diameter. Access to testing ports were accessed via a crane to a roof top.

Each of the four fine ore bins is equipped with a baghouse for control of particulate emissions. Each fine ore bin baghouse exhaust stack is 40 inches in diameter. All testing was completed using aerial lifts.

The primary crusher is equipped with a baghouse for control of particulate emissions. The baghouse exhaust stack is 72 inches in diameter. Access to test ports was made via aerial lift to a roof top.

The secondary crusher is equipped with a baghouse for control of particulate emissions. The baghouse exhaust stack is 67 inches in diameter. Bison noted in the Source Test Protocol that the secondary crusher baghouse exhaust stack does not meet the requirements of Method 1 for minimum upstream and downstream distances. After discussion prior to testing with MDEQ, Bison sampled at the existing location using the maximum number of traverse points.

The coarse ore conveyor is equipped with a baghouse for control of particulate emissions. The baghouse exhaust stack is 39.5 inches in diameter. Access to test ports was done via crane.

While on-site, Bison verified the exhaust stacks of all sources, except the secondary crusher, meet EPA Method 1 specifications; detailed Method 1 information is included in the appendices to this report for all sources.

3.0 EMISSION TEST RESULTS

3.1 Summary of Results

Tables 3-10 summarize the molybdenum dryer, four ore bins, primary crusher, secondary crusher, and coarse ore conveyor test results. Additional supporting material, including raw data, plant data, example calculations and calibration records, can be found in the appendices to this report.

Table 3 Molybdenum Dryer Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/24/2024				
Run start time		12:27	14:30	16:30		
Run end time		13:59	16:03	18:03		
Run duration	minutes	90	90	90		
Isokinetic Average	%	93.0	96.1	100.3	96.5	
Sample Volume	dscf	69.790	81.466	87.212	79.489	
	dscm	1.976	2.307	2.470	2.251	
Stack flow	dscfm	626	707	725	686	
Total PM	g/dscm	0.009	0.006	0.001	0.007	
Total PM	lb/hr	0.020	0.017	0.002	0.013	NA[a]
Visible emissions	% opacity	0	0	0	0	15

dscf – dry standard cubic feet
dscfm – dry standard cubic feet per minute
[a] The Molybdenum Dryer has annual, seasonal, and daily emission limits. Bison has reported PM results in lb/hr for use by Montana Resources to determine on-going compliance with applicable limits.

Table 4 Fine Ore Bin 1 Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/25/2024				
Run start time		8:30	10:32	12:27		
Run end time		10:07	12:06	14:00		
Run duration	minutes	90	90	90		
Isokinetic Average	%	98.4	100.2	99.3	99.3	
Sample Volume	dscf	57.271	67.522	68.937	64.577	
	dscm	1.622	1.912	1.952	1.829	
Stack flow	dscfm	15,549	12,885	13,274	13,903	
Total PM	g/dscm	0.002	0.008	0.001	0.003	0.05
Visible emissions	% opacity	0	0	0	0	15

Table 5 Fine Ore Bin 2 Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/25/2024				
Run start time		14:50	16:39	18:24		
Run end time		16:23	18:11	19:57		
Run duration	minutes	90	90	90		
Isokinetic Average	%	100.6	100.3	100.7	100.5	
Sample Volume	dscf	74.791	75.018	74.072	74.627	
	dscm	2.118	2.124	2.097	2.113	
Stack flow	dscfm	14,212	14,302	14,063	14,192	
Total PM	g/dscm	0.001	0.000	0.000	0.000	0.05
Visible emissions	% opacity	0	0	0	0	15

Table 6 Fine Ore Bin 3 Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/25/2024				
Run start time		8:00	10:10	12:22		
Run end time		9:41	12:00	13:58		
Run duration	minutes	90	90	90		
Isokinetic Average	%	100.4	100.5	100.0	100.3	
Sample Volume	dscf	60.311	60.133	60.265	60.236	
	dscm	1.708	1.703	1.707	1.706	
Stack flow	dscfm	15,326	15,262	15,378	15,322	
Total PM	g/dscm	0.002	0.001	0.000	0.001	0.05
Visible emissions	% opacity	0	0	0	0	15

Table 7 Fine Ore Bin 4 Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/24/2024				
Run start time		11:55	13:55	16:05		
Run end time		13:31	15:46	17:41		
Run duration	minutes	90	90	90		
Isokinetic Average	%	99.0	99.1	100.4	99.5	
Sample Volume	dscf	62.924	62.882	63.151	62.986	
	dscm	1.782	1.781	1.788	1.784	
Stack flow	dscfm	18,065	18,050	17,888	18,001	
Total PM	g/dscm	0.002	0.001	0.001	0.001	0.05
Visible emissions	% opacity	0	0	0	0	15

Table 8 Primary Crusher Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/27/2024				
Run start time		9:20	11:10	13:00		
Run end time		10:58	12:48	14:39		
Run duration	minutes	90	90	90		
Isokinetic Average	%	99.9	98.8	99.7	99.5	
Sample Volume	dscf	75.390	74.981	75.627	75.333	
	dscm	2.135	2.123	2.142	2.133	
Stack flow	dscfm	59,563	59,906	59,902	59,790	
Total PM	g/dscm	0.001	0.001	0.002	0.001	0.05
Visible emissions	% opacity	0	0	0	0	10

Table 9 Secondary Crusher Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/25/2024				
Run start time		15:12	17:18	19:21		
Run end time		16:51	18:58	20:59		
Run duration	minutes	90	90	90		
Isokinetic Average	%	99.7	100.5	99.1	99.8	
Sample Volume	dscf	90.439	88.738	84.888	88.022	
	dscm	2.561	2.513	2.404	2.493	
Stack flow	dscfm	46,449	45,257	43,893	45,200	
Total PM	g/dscm	0.005	0.005	0.005	0.005	0.05
Visible emissions	% opacity	0	0	0	0	15

Table 10 Coarse Ore Conveyor Results

Parameter	Units	Run 1	Run 2	Run 3	Average	Limit
Date		6/28/2024				
Run start time		8:52	10:44	12:35		
Run end time		10:30	12:22	14:12		
Run duration	minutes	90	90	90		
Isokinetic Average	%	100.0	100.8	101.2	100.7	
Sample Volume	dscf	72.496	72.132	72.543	72.390	
	dscm	2.053	2.043	2.054	2.050	
Stack flow	dscfm	17,903	17,660	17,700	17,754	
Total PM	g/dscm	0.002	0.001	0.000	0.001	0.05
Visible emissions	% opacity	0	0	0	0	10

3.2 Operating Conditions

Montana Resources personnel compiled the raw process data and details of plant operations during testing and provided them to Bison for use in this report. Process data is presented in the report appendices.

3.3 Field Observations

Testing was performed as outlined in the test protocol, with the exception that Run 1 on Fine Ore Bin 1 did not collect the required minimum 60 dscf of volume. The average volume collected over all three runs was over the minimum 60 dscf. Bison does not believe this had adverse outcome of the PM results of Fine Ore Bin 1 and therefore has reported all test runs. There were no other deviations from the test protocol.

4.0 EMISSION TEST METHODS AND PROCEDURES

4.1 Testing Methods and Procedures

Bison testing personnel performed the following EPA methods as described in 40 CFR.

EPA Reference Method 1, "Sample and Velocity Traverses for Stationary Sources." 40 CFR 60, Appendix A. The objective of Method 1 is to determine a suitable location for testing and to determine the velocity and/or sample points for the source. The results of Method 1 sampling location and sample or velocity point measurement locations are included in the appendices.

EPA Reference Method 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type-S Pitot Tube)." 40 CFR 60, Appendix A. The objective of Method 2 is to determine volumetric flow rate using the average stack velocity, temperature, static pressure, and cross-sectional area. This method is incorporated within the performance of Method 5. Method 2 Section 8.6 allows for the use of 29 lb/mol as dry molecular weight for ambient sources, in lieu of performing actual measurements.

EPA Reference Method 3, "Gas Analysis for the Determination of Dry Molecular Weight." 40 CFR 60, Appendix A. The objective of Method 3 is to determine the molecular weight of the source stream and to determine oxygen (O_2) and carbon dioxide (CO_2) concentrations in the stack gas stream. Method 3 Section 1.3 allows the use of an assumed dry molecular weight of 30 g/mol for combustion sources burning coal, oil or natural gas, in lieu of performing actual measurements. This assumed molecular weight was used on the molybdenum dryer.

EPA Reference Method 5, "Determination of Particulate Emissions from Stationary Sources" (Methods 2 & 4 Inclusive). 40 CFR 60, Appendix A. Method 5 is an isokinetic sampling method for determination of filterable PM emissions from a source. The exhaust gas stream is sampled along a cross-section of the stack and PM is captured within the nozzle, probe, filter-bell and quartz fiber filter. Method 5 incorporates Method 2 "velocity measurements" and Method 4 "moisture measurements."

Montana Back-half, “Determination of Condensable Particulate Emissions in “Back Half” of Sampling Train (Impinger Train)”. Montana Source Test Protocol and Procedures Manual. Condensable particulate matter (CPM) is measured in conjunction with Method 5 sampling. The CPM is captured in the impinger water located after the Method 5 filter (in the “back half” of the sample train). The impinger water is maintained below 68°F. Impinger water was recovered and evaporated during lab analysis for gravimetric determination of CPM.

EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources." 40 CFR 60, Appendix A. The objective of Method 9 is to quantify the opacity of a source plume. This method was performed by a certified observer during particulate testing.

4.2 Sample Handling and Analytical Procedures

Sampling procedures are cited in the appropriate methods and there was no deviation from those methods.

Bison's project manager retained custody of the samples until relinquishing them to Bison's Helena, Montana qualified lab personnel to be analyzed according to published EPA methodology. Helena lab personnel analyzed the Method 5 particulate filters. Bison Billings lab personnel analyzed the Method 5 probe rinses and Montana back-half samples. A chain of custody is included in the appendices.

4.3 Audit Samples

The stationary source audit program (SSAP) is effectively suspended as of March 2022 because there are currently no independent accredited audit sample providers (AASP). For particulate sample analyses, Bison uses a particulate audit filter from ERA for balance verification.

APPENDIX A: TEST DATA

BISON ENGINEERING, INC.

COMPANY	**Montana Resources, LLC**
FACILITY	**Butte**
LOCATION	**Butte, MT**
SOURCE	**Molybdenum Dryer**
DATE	**06/24/24**
METHOD	**5 w/ MT BH**
POLLUTANT	**5**

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Molybdenum Dryer**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):	90	feet
Stack height (approx.):	150	feet
Circular ID (rectangular length):	12.00	inches
Port depth and/or wall thickness:		inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	na	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 12.00 inches (If circular = duct ID)
Stack/duct area = 0.785 sq.feet 113.1 sq. inches

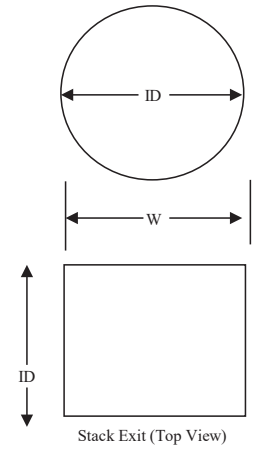
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	252.00	84.00
Number of diameters:	21.00	7.00

Recommended number of traverse points: 8

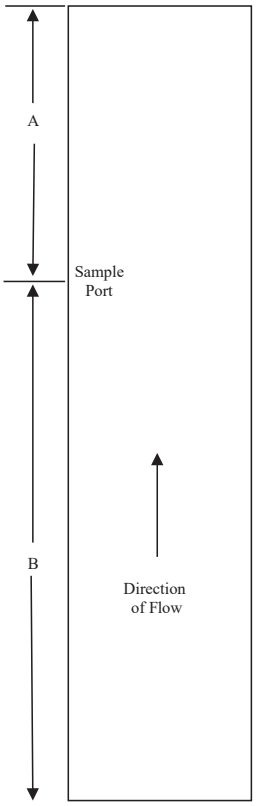
Traverse points less than 0.50 inch from the stack wall are relocated to a distance of 0.50 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	6.7	0.80	0 3/4
2	25.0	3.00	3
3	75.0	9.00	9
4	93.3	11.20	11 1/4

Reference Diagram



Stack Exit (Top View)



Drawing NOT to scale and
NOT an accurate representation of stack.

Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Molybdenum Dryer**
Date: **6/24/2024**

Stack Temp: 155 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.04	0
2	0.03	0
3	0.05	0
4	0.02	2
5	0.02	1
6	0.03	0
7	0.06	0
8	0.05	0
9	0.04	3
10	0.05	5
11	0.06	0
12	0.05	4

Average: 0.04 1

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**1**
Location:	**Butte, MT**			**Start Time:**	**12:27**
Source:	**Molybdenum Dryer**			**End Time:**	**13:59**
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/24/2024**
Box Operator:	**ZDH**	Sunny. 80s			
Technician(s):	**JEW**	Old ports unavailable due to new roof. New ports cut the days of testing.			

Stack Dimensional Data:

Circular		
Diameter	12.000	in
Rectangular		
Width		in
Length		in
Stack Area	0.785	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	2B	Liner type	SS		
Y factor	1.0057	Nozzle ID	18	Nozzle size	0.438	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.001046	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	2B	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	3	Condenser TC ID	GN7		

Source Information:

Barometric Pressure	24.6	inHg	Assumed O_2	NA	%
Static Pressure	-0.04	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.07	inH_2O	Rec. Nz.	0.423	inches
Stack Temperature	155	°F			
Assumed moisture	17.00	%			
Assumed meter temp.	70	°F			
Total number of points	12				
Time per point	7.5	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.001	0.000
Leak check vacuum, inHg	16	13

Nozzle check for roundness:

1	2	3	
0.439	0.437	0.438	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	87.646	dcf	Ave. ΔP	0.090	inH_2O
Wet mol. weight	28.99	M_s (actual)	Ave. √ΔP	0.3	inH_2O
Actual H_2O	8.43	%	Ave. ΔH	2.4	inH_2O
Std. meter vol.	69.790	dscf	Ave. T_s	121.8	°F
Isokinetic Average	93.0	%	Ave. T_m	92.2	°F

Moisture/Lab:

Filter, #	Q69		
	Initial	Final	Gain
Impingers, g	2,186.1	2,311.5	125.4
Silica gel, g	972.0	982.9	10.9
		Total water gain, g:	136.3

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		92.611									
1	7.5	100.600	0.11	131	86	2.86	2.90	2.5	250	66	252
2	15.0	108.160	0.10	126	87	2.63	2.60	2	255	64	251
3	22.5	115.480	0.09	120	89	2.40	2.40	2	258	64	249
4	30.0	122.470	0.08	118	91	2.15	2.20	2	255	65	248
5	37.5	129.720	0.09	117	92	2.42	2.40	2	246	64	250
6	45.0	136.978	0.09	113	93	2.44	2.40	2	250	63	254
7	52.5	143.910	0.08	113	92	2.17	2.20	2	250	66	253
8	60.0	151.660	0.10	120	94	2.69	2.70	4	255	60	250
9	67.5	159.000	0.09	124	95	2.41	2.40	4	253	57	252
10	75.0	166.390	0.09	127	95	2.40	2.40	4	247	58	250
11	82.5	173.350	0.08	127	96	2.13	2.10	4	249	61	247
12	90.0	180.257	0.08	126	96	2.14	2.10	4	247	61	255

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**2**
Location:	**Butte, MT**			**Start Time:**	**14:30**
Source:	**Molybdenum Dryer**			**End Time:**	**16:03**
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/24/2024**
Box Operator:	**ZDH**	Sunny. 80s			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	12.000	in
Rectangular		
Width		in
Length		in
Stack Area	0.785	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	2B	Liner type	SS		
Y factor	1.0057	Nozzle ID	18	Nozzle size	0.438	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.001046	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	2B	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	3	Condenser TC ID	GN7		

Source Information:

Barometric Pressure	24.54	inHg	Assumed O_2	NA	%
Static Pressure	-0.04	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.09	inH_2O	Rec. Nz.	0.368	inches
Stack Temperature	121.8	°F			
Assumed moisture	8.43	%			
Assumed meter temp.	92.2	°F			
Total number of points	12				
Time per point	7.5	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.002	0.001
Leak check vacuum, inHg	15	13

Nozzle check for roundness:

1	2	3	
0.439	0.437	0.438	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	103.283	dcf	Ave. ΔP	0.098	inH_2O
Wet mol. weight	29.58	M_s (actual)	Ave. √ΔP	0.312	inH_2O
Actual H_2O	3.51	%	Ave. ΔH	3.358	inH_2O
Std. meter vol.	81.466	dscf	Ave. T_s	75.2	°F
Isokinetic Average	96.1	%	Ave. T_m	97.7	°F

Moisture/Lab:

Filter, #	Q70		
	Initial	Final	Gain
Impingers, g	2,201.2	2,242.0	40.8
Silica gel, g	932.8	954.9	22.1
		Total water gain:	62.9

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		180.599									
1	7.5	188.670	0.09	92	96	3.00	3.00	4.5	247	64	253
2	15.0	197.300	0.10	87	96	3.36	3.40	5	250	52	249
3	22.5	206.460	0.11	81	96	3.74	3.70	5	251	57	252
4	30.0	215.000	0.10	76	98	3.44	3.40	5	249	60	248
5	37.5	223.860	0.10	72	99	3.47	3.50	5	256	60	255
6	45.0	232.723	0.10	70	99	3.49	3.50	5	250	61	251
7	52.5	240.550	0.08	74	98	2.76	2.80	4	248	66	248
8	60.0	250.100	0.12	70	98	4.17	4.20	6	250	55	250
9	67.5	258.450	0.09	70	99	3.14	3.10	4.5	257	58	251
10	75.0	266.690	0.09	70	98	3.13	3.10	4.5	247	58	260
11	82.5	275.550	0.10	70	98	3.48	3.50	5	258	59	249
12	90.0	283.882	0.09	70	97	3.13	3.10	4.5	251	60	247

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte, MT**			**Start Time:**	**16:30**
Source:	**Molybdenum Dryer**			**End Time:**	**18:03**
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/24/2024**
Box Operator:	**ZDH**	Sunny. 80s			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	12.000	in
Rectangular		
Width		in
Length		in
Stack Area	0.785	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	2B	Liner type	SS		
Y factor	1.0057	Nozzle ID	18	Nozzle size	0.438	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.001046	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	2B	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	3	Condenser TC ID	GN7		

Source Information:

Barometric Pressure	24.53	inHg	Assumed O_2	NA	%
Static Pressure	-0.04	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.098	inH_2O	Rec. Nz.	0.344	inches
Stack Temperature	75.2	°F			
Assumed moisture	3.51	%			
Assumed meter temp.	97.7	°F			
Total number of points	12				
Time per point	7.5	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	X
Leak rate, dcfm	0.001	0.001
Leak check vacuum, inHg	13	17

Nozzle check for roundness:

1	2	3	
0.439	0.437	0.438	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	108.905	dcf	Ave. ΔP	0.100	inH_2O
Wet mol. weight	29.67	M_s (actual)	Ave. √ΔP	0.316	inH_2O
Actual H_2O	2.73	%	Ave. ΔH	3.733	inH_2O
Std. meter vol.	87.212	dscf	Ave. T_s	69.0	°F
Isokinetic Average	100.3	%	Ave. T_m	89.7	°F

Moisture/Lab:

Filter, #	Q71		
	Initial	Final	Gain
Impingers, g	2,184.1	2,214.7	30.6
Silica gel, g	982.6	1,003.9	21.3
		Total water gain:	51.9

Traverse Point	Time (min.)	Meter Volume (dcf) 284.321	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
1	7.5	293.730	0.11	73	93	4.10	4.10	7	252	64	254
2	15.0	303.260	0.11	69	91	4.12	4.10	7	251	58	250
3	22.5	312.330	0.10	69	90	3.74	3.70	7	249	63	251
4	30.0	321.100	0.09	69	90	3.36	3.40	6.5	249	56	250
5	37.5	330.140	0.10	69	90	3.74	3.70	7	247	53	248
6	45.0	338.876	0.09	69	89	3.36	3.40	6	250	56	250
7	52.5	348.200	0.11	70	89	4.10	4.10	7.5	254	58	252
8	60.0	357.750	0.11	68	89	4.11	4.10	7.5	250	57	251
9	67.5	366.840	0.10	68	89	3.74	3.70	7	251	58	246
10	75.0	375.900	0.10	68	89	3.74	3.70	7	244	59	246
11	82.5	384.620	0.09	68	89	3.36	3.40	6	249	61	257
12	90.0	393.226	0.09	68	88	3.36	3.40	6	244	59	250

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Molybdenum Dryer**

Run 1 6/24/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	744.8	831.0	86.2
2	803.3	837.8	34.5
3	638.0	642.7	4.7
Total	**2,186.1**	**2,311.5**	**125.4**

Run 2 6/24/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	765.5	787.8	22.3
2	737.2	750.6	13.4
3	698.5	703.6	5.1
Total	**2,201.2**	**2,242.0**	**40.8**

Run 3 6/24/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	743.5	755.2	11.7
2	800.6	815.6	15.0
3	640.0	643.9	3.9
Total	**2,184.1**	**2,214.7**	**30.6**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources, LLC**
Source: **Molybdenum Dryer**
Location: **Butte, MT**

Run			1	2	3	
Date			6/24/2024	6/24/2024	6/24/2024	
Run Start Time			12:27	14:30	16:30	
Run End Time			13:59	16:03	18:03	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.60	24.54	24.53	**24.56**
Nozzle Dia., in.			0.4380	0.4380	0.4380	**0.4380**
Isokinetic Average, %			93.0	96.1	100.3	**96.5**
Sample Volume, dscf			69.790	81.466	87.212	**79.489**
Sample Volume, dscm			1.976	2.307	2.470	**2.251**
Stack Diameter, in.			12.00	12.00	12.00	**12.00**
Stack Area, sq.ft.			0.785	0.785	0.785	**0.785**
Static Press., "H_2O			-0.04	-0.04	-0.04	**-0.04**
H_2O %v			8.43	3.51	2.73	**4.89**
Wet Molecular Weight, lb/lb-mole			28.99	29.58	29.67	**29.41**
Velocity, FPS			19.45	19.23	19.34	**19.34**
ADCFM			839	874	886	**866**
ACFM			916	906	911	**911**
DSCFM			626	707	725	**686**
Stack Temperature, ^oF			121.8	75.2	69.0	**88.7**
Filterable Particulate	Concentration, C_s	gr/dscf	0.002	0.001	0.000	**0.001**
		g/dscm	0.005	0.003	0.000	**0.003**
	Mass	lb/hr	0.011	0.007	0.000	**0.006**
Condensable Particulate	Concentration, C_s	gr/dscf	0.002	0.002	0.000	**0.001**
		g/dscm	0.004	0.004	0.001	**0.003**
	Mass	lb/hr	0.009	0.010	0.001	**0.007**
Total PM	Concentration, C_s	gr/dscf	0.004	0.003	0.000	**0.002**
		g/dscm	0.009	0.006	0.001	**0.005**
	Mass	lb/hr	0.020	0.017	0.002	**0.013**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte, MT**	**Start Time:**	**12:27**
Source:	**Molybdenum Dryer**	**End Time:**	**13:59**
Method:	**5**	**Date:**	**6/24/2024**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	92.611						
8	100.600	2.90	86	1	0.11	131	0.332
15	108.160	2.60	87	2	0.10	126	0.316
23	115.480	2.40	89	3	0.09	120	0.300
30	122.470	2.20	91	4	0.08	118	0.283
38	129.720	2.40	92	5	0.09	117	0.300
45	136.978	2.40	93	6	0.09	113	0.300
53	143.910	2.20	92	7	0.08	113	0.283
60	151.660	2.70	94	8	0.10	120	0.316
68	159.000	2.40	95	9	0.09	124	0.300
75	166.390	2.40	95	10	0.09	127	0.300
83	173.350	2.10	96	11	0.08	127	0.283
90	180.257	2.10	96	12	0.08	126	0.283

Client:	**Montana Resources, LLC**	**Run:**	**1**
Source:	**Molybdenum Dryer**	**Date:**	**06/24/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	7.5	min	Diameter	12.000	in
Meter Volume, V_m	87.646	dcf	Rectangular		
Water Volume	136.3	g	Width		in
Nozzle Diameter, N_z	0.4380	in.	Length		in
Nozzle Area	0.001046	sq.ft.	Stack Area	0.785	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.60	"Hg	CO_2 Average	NA	%vd
Static Pressure	-0.04	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	2.400	"H_2O	√Dp	0.3000	"H_2O
Temperature, T_m	92.2	^oF	Temperature, T_s	121.8	^oF
Temperature, T_m	551.9	^oA (^oR)	Temperature, T_s	581.5	^oA (R)
Pressure Meter, P_m	24.776	"Hg	Pressure Stack, P_s	24.597	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	69.790	dscf	Velocity, V_s	19.45	fps
	1.976	dscm	Volume (actual)	916	acfm
Actual Volume, $V_{m(actual)}$	102.161	awcf		839	adcfm
Gas Stream Moisture			Volume (standard)	41,006	wscf/hr
Moisture Vapor, $Vw_{(std)}$	6.428	scf		37,549	dscf/hr
Moisture, B_{ws}	0.0843			626	dscf/min
Moisture EPA M4	8.43	%v		683	wscf/min
Moisture @ Saturation	14.71	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	30.00	lb/lb-mole			
Wet, M_s	28.99	lb/lb-mole			
Percent Isokinetic	93.0	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00958	grams	Concentration, C_s	0.0021	gr/dscf
				0.005	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	7.56E-03	grams	CPM, C_s	1.67E-03	gr/dscf
				0.004	g/dscm
			Mass Emissions	0.01	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte, MT**	**Start Time:**	**14:30**
Source:	**Molybdenum Dryer**	**End Time:**	**16:03**
Method:	**5**	**Date:**	**06/24/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	180.599						
8	188.670	3.00	96	1	0.09	92	0.300
15	197.300	3.40	96	2	0.10	87	0.316
23	206.460	3.70	96	3	0.11	81	0.332
30	215.000	3.40	98	4	0.10	76	0.316
38	223.860	3.50	99	5	0.10	72	0.316
45	232.723	3.50	99	6	0.10	70	0.316
53	240.550	2.80	98	7	0.08	74	0.283
60	250.100	4.20	98	8	0.12	70	0.346
68	258.450	3.10	99	9	0.09	70	0.300
75	266.690	3.10	98	10	0.09	70	0.300
83	275.550	3.50	98	11	0.10	70	0.316
90	283.882	3.10	97	12	0.09	70	0.300

Client:	**Montana Resources, LLC**	**Run:**	**2**
Source:	**Molybdenum Dryer**	**Date:**	**06/24/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	7.5	min	Diameter	12.000	in
Meter Volume, V_m	103.283	dcf	Rectangular		
Water Volume	62.9	g	Width		in
Nozzle Diameter, N_z	0.4380	in.	Length		in
Nozzle Area	0.001046	sq.ft.	Stack Area	0.785	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.54	"Hg	CO_2 Average	NA	%vd
Static Pressure	-0.04	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	3.358	"H_2O	√Dp	0.3120	"H_2O
Temperature, T_m	97.7	^oF	Temperature, T_s	75.2	^oF
Temperature, T_m	557.4	^oA (^oR)	Temperature, T_s	534.9	^oA (R)
Pressure Meter, P_m	24.787	"Hg	Pressure Stack, P_s	24.537	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	81.466	dscf	Velocity, V_s	19.23	fps
	2.307	dscm	Volume (actual)	906	acfm
Actual Volume, $V_{m(actual)}$	104.357	awcf		874	adcfm
Gas Stream Moisture			Volume (standard)	43,967	wscf/hr
Moisture Vapor, $Vw_{(std)}$	2.966	scf		42,424	dscf/hr
Moisture, B_{ws}	0.0351			707	dscf/min
Moisture EPA M4	3.51	%v		733	wscf/min
Moisture @ Saturation	3.59	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	30.00	lb/lb-mole			
Wet, M_s	29.58	lb/lb-mole			
Percent Isokinetic	96.1	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00588	grams	Concentration, C_s	0.0011	gr/dscf
				0.003	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	8.76E-03	grams	CPM, C_s	1.66E-03	gr/dscf
				0.004	g/dscm
			Mass Emissions	0.01	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**3**
Location:	**Butte, MT**	**Start Time:**	**16:30**
Source:	**Molybdenum Dryer**	**End Time:**	**18:03**
Method:	**5**	**Date:**	**06/24/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m ^oF**	**Point**	**"H_2O**	**T_s ^oF**	**√Dp**
	284.321						
8	293.730	4.10	93	1	0.11	73	0.332
15	303.260	4.10	91	2	0.11	69	0.332
23	312.330	3.70	90	3	0.10	69	0.316
30	321.100	3.40	90	4	0.09	69	0.300
38	330.140	3.70	90	5	0.10	69	0.316
45	338.876	3.40	89	6	0.09	69	0.300
53	348.200	4.10	89	7	0.11	70	0.332
60	357.750	4.10	89	8	0.11	68	0.332
68	366.840	3.70	89	9	0.10	68	0.316
75	375.900	3.70	89	10	0.10	68	0.316
83	384.620	3.40	89	11	0.09	68	0.300
90	393.226	3.40	88	12	0.09	68	0.300

Client:	**Montana Resources, LLC**	**Run:**	**3**
Source:	**Molybdenum Dryer**	**Date:**	**06/24/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	7.5	min	Diameter	12.000	in
Meter Volume, V_m	108.905	dcf	Rectangular		
Water Volume	51.9	g	Width		in
Nozzle Diameter, N_z	0.4380	in.	Length		in
Nozzle Area	0.001046	sq.ft.	Stack Area	0.785	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.53	"Hg	CO_2 Average	NA	%vd
Static Pressure	-0.04	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	3.733	"H_2O	√Dp	0.3160	"H_2O
Temperature, T_m	89.7	^oF	Temperature, T_s	69.0	^oF
Temperature, T_m	549.4	^oA (^oR)	Temperature, T_s	528.7	^oA (R)
Pressure Meter, P_m	24.804	"Hg	Pressure Stack, P_s	24.527	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	87.212	dscf	Velocity, V_s	19.34	fps
	2.470	dscm	Volume (actual)	911	acfm
Actual Volume, $V_{m(actual)}$	109.581	awcf		886	adcfm
Gas Stream Moisture			Volume (standard)	44,719	wscf/hr
Moisture Vapor, $Vw_{(std)}$	2.448	scf		43,498	dscf/hr
Moisture, B_{ws}	0.0273			725	dscf/min
Moisture EPA M4	2.73	%v		745	wscf/min
Moisture @ Saturation	2.92	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	30.00	lb/lb-mole			
Wet, M_s	29.67	lb/lb-mole			
Percent Isokinetic	100.3	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00032	grams	Concentration, C_s	0.0001	gr/dscf
				0.000	µg/dscm
			Mass Emissions	0.00	lb/hr

MT Back Half:

Condensable PM	1.34E-03	grams	CPM, C_s	2.36E-04	gr/dscf
				0.001	µg/dscm
			Mass Emissions	0.00	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Molybdenum Dryer**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction		Corrected Gain (grams)
	Probe Rinse (Acetone FH)	43.5	30.0931	30.1029	0.0098	0.0002		**0.0096**
1	Filter	Q69	0.4642	0.4628	-0.0014			**0.0000**
	CPM Inorganics (Water)	189	30.0085	30.0176	0.0091	0.0015		**0.0076**
	Impinger H_2O Gain, g		2186	2312	125			
						Filterable PM (mg)		**9.58**
						Condensable PM (mg)		**7.56**
						Total PM (mg)		**17.14**
	Probe Rinse (Acetone FH)	81.1	30.3995	30.4055	0.0060	0.0004		**0.0056**
2	Filter	Q70	0.4635	0.4638	0.0003			**0.0003**
	CPM Inorganics (Water)	202	30.3419	30.3523	0.0104	0.0016		**0.0088**
	Impinger H_2O Gain, g		2201	2242	41			
						Filterable PM (mg)		**5.88**
						Condensable PM (mg)		**8.76**
						Total PM (mg)		**14.65**
	Probe Rinse (Acetone FH)	73.3	30.6978	30.6984	0.0006	0.0004		**0.0002**
3	Filter	Q71	0.4541	0.4542	0.0001			**0.0001**
	CPM Inorganics (Water)	193	30.3975	30.4004	0.0029	0.0016		**0.0013**
	Impinger H_2O Gain, g		2184	2215	31			
						Filterable PM (mg)		**0.32**
						Condensable PM (mg)		**1.34**
						Total PM (mg)		**1.66**
	Acetone Blank	97	30.9973	30.9978	0.0005	0.0000	g/g	
	Water Blank	320	30.5518	30.5544	0.0026	0.0000	g/g	

EPA Methods 1-4, 5 and MT Back Half
Example Calculations

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte, MT**	**Start Time:**	**12:27**
Source:	**Molybdenum Dryer**	**End Time:**	**13:59**
Method:	**5**	**Date:**	**6/24/2024**

EPA Methods 1-4:

1) $P_m = Pb + (\Delta H/13.6) =$ 24.776 "Hg

where Pb:	24.60	"Hg
ΔH:	2.400	"H_2O

2) $Ps = Pb + (Static\ Press./13.6) =$ 24.597 "Hg

where Pb:	24.60	"Hg
Static Press.:	-0.04	"H_2O

3) $V_m(std) = V_m(\frac{Tstd}{Pstd})(Y)(\frac{Pm}{Tm}) =$ 69.790 dscf

where Vm:	87.646	dcf
Y:	1.0057	
Pm:	24.776	"Hg
Tm:	551.9	°A
Tstd:	527.67	°R
Pstd:	29.92	"Hg

4) $V_w(std) = (0.04716)(H_2O) =$ 6.428 scf

where H_2O:	136.30	g

5) $Bws = \left(\frac{Vw(std)}{Vw(std)+Vm(std)}\right) =$ 0.0843

where Vw(std):	6.428	scf
Vm(std):	69.790	dscf

6) % H_2O = Bws x 100 = 8.43 %v

7) $V_m(actual) = \left(\frac{Y\ x\ Vm}{(1-Bws)}\right)\left(\frac{Ts}{Tm}\right)\left(\frac{Pm}{Ps}\right) =$ 102.161 awcf

where Y:	1.0057	
Vm:	87.6460	dcf
Bws:	0.0843	
Ts:	581.5	°A
Tm:	551.9	°A
Pm:	24.776	"Hg
Ps:	24.597	"Hg

10) $M_s = M_d(1 - Bws) + (18 \times Bws)$ = 28.99 lb/lb-mole
where M_d: 30.00 lb/lb-mole
Bws: 0.0843

11) Stack Area(cir.) = 3.1416 (stack diameter/24)^2 = 0.785 sq. ft.
where Stack ID: 12 inches

12) Velocity, $V_s = 85.49(Cp)(Ave.\ Sqrt\ \Delta P)\left(\sqrt{\frac{Ts}{(Ps \times Ms)}}\right)$ = 19.45 fps
where Cp: 0.84
Ave. Sqrt ΔP: 0.3000
Ts: 581.5 °A
Ps: 24.597 "Hg
Ms: 28.99 lb/lb-mole

13) AWCFM = (V_s)(stack area)(60 sec/min) = 916.0 ACFM
where V_s: 19.45 ft/sec
Stack Area: 0.785 sq. ft

14) ADCFM = (AWCFM)(1-Bws) = 839.0 ADCFM
where ACFM: 916.0
Bws: 0.0843

15) $Qsw = 3600(V_s)(\text{stack area})\left(\frac{527.67°A}{Ts}\right)\left(\frac{Ps}{29.92\ "Hg}\right)$ 41,006.0 wscf/hr
where V_s: 19.45 ft/sec
Stack Area: 0.7850 sq. ft.
Ts: 581.5 °A
Ps: 24.597 "Hg

16) Qsd = (wscf/hr)(1-Bws) = 37,549.0 dscf/hr
where wscf/hr: 41,006.0
Bws: 0.0843

17) DSCFM= (dscf/hr)/60 mins/hr = 625.8 DSCFM
where dscf/hr: 37,549.0

18) Nozzle Area = 3.1416 (Nozzle Size/24)^2 = 0.001046 sq. ft.
where Nozzle Size: 0.4380 inches

19) Isokinetic % $= \left(\frac{0.0945(Ts)(Vm(std))}{Ps(V_s)(\text{nozzle area})(\text{sampling time})(1-Bws)}\right) =$ 93.0 %

where Ts:	581.5	°A
Vm(Std):	69.790	dscf
Ps:	24.597	"Hg
Vs	19.45	ft/sec
Nozzle Area:	0.001046	sq. ft.
Sampling Time:	90	min.
Bws:	0.0843	

EPA Method 5 and MT Back Half:

Front Half:

20) Filterable PM = filter gain + probe rinse gain = 0.00958 grams

where Filter Gain:	0.00000	grams
Probe Rinse:	0.00958	grams

21) Cs = (Sample grams/Vm(Std))(15.43grains/gram) = 2.12E-03 gr/dscf

where Sample:	0.00958	grams
Vm(std)	69.790	dscf

22) Cs = (Sample grams)/Vm(std) = 0.005 g/dscm

where Sample:	0.00958	grams
Vm(std)	1.976	dscm

23) Mass Emission Rate = (Cs)(Stack flow)/7000gr/lb = 0.011 lb/hr

where Cs:	2.12E-03	gr/dscf
Stack Flow:	37,549.0	dscf/hr

MT Back Half:

24) Condensable PM = water fraction = 0.00756 grams

Back-half concentrations and mass rates are calculated as front-half examples.

BISON ENGINEERING, INC.

COMPANY	**Montana Resources, LLC**
FACILITY	**Butte**
LOCATION	**Butte, MT**
SOURCE	**Fine Ore #1**
DATE	**6/25/224**
METHOD	**5 w/ MT BH**
POLLUTANT	**PM**

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #1**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):		feet
Stack height (approx.):		feet
Circular ID (rectangular length):	40.00	inches
Port depth and/or wall thickness:	6.00	inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	NA	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 40.00 inches (If circular = duct ID)
Stack/duct area = 8.727 sq.feet 1256.6 sq. inches

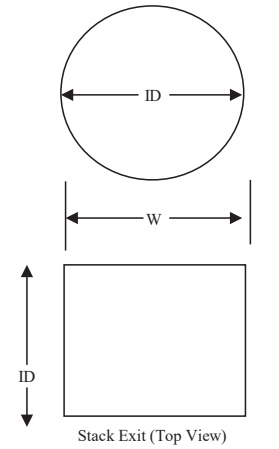
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	100.00	48.00
Number of diameters:	2.50	1.20

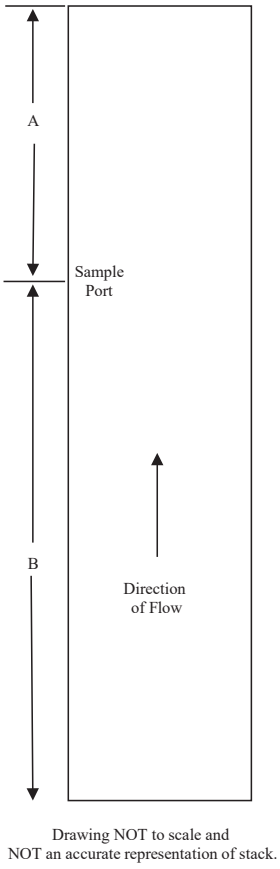
Recommended number of traverse points: 24

Traverse points less than 1.0 inch from the stack wall are relocated to a distance of 1.0 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	2.1	0.84	6 7/8
2	6.7	2.68	8 5/8
3	11.8	4.72	10 3/4
4	17.7	7.08	13 1/8
5	25.0	10.00	16
6	35.6	14.24	20 1/4
7	64.4	25.76	31 3/4
8	75.0	30.00	36
9	82.3	32.92	38 7/8
10	88.2	35.28	41 1/4
11	93.3	37.32	43 3/8
12	97.9	39.16	45 1/8

Reference Diagram





Drawing NOT to scale and
NOT an accurate representation of stack.

Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #1**
Date: **6/25/224**

Stack Temp: 77 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.35	0
2	0.35	5
3	0.33	3
4	0.34	4
5	0.31	4
6	0.38	5
7	0.38	6
8	0.31	7
9	0.31	12
10	0.37	13
11	0.35	11
12	0.45	10
13	0.51	6
14	0.52	8
15	0.51	10
16	0.56	11
17	0.60	13
18	0.60	14
19	0.48	16
20	0.31	4
21	0.30	4
22	0.33	5
23	0.33	5
24	0.33	7
Average:	0.40	8

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**1**
Location:	**Butte, MT**			**Start Time:**	**8:30**
Source:	**Fine Ore #1**			**End Time:**	**10:07**
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**ZDH**	Sunny			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	4D	Liner type	SS		
Y factor	1.0057	Nozzle ID	23	Nozzle size	0.258	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.000363	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	4D	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	5	Condenser TC ID	GN2		

Source Information:

Barometric Pressure	24.67	inHg	Assumed O_2	NA	%
Static Pressure	0.24	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.4	inH_2O	Rec. Nz.	0.248	inches
Stack Temperature	71	°F			
Assumed moisture	3.00	%			
Assumed meter temp.	60	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.001	0.002
Leak check vacuum, inHg	16	18

Nozzle check for roundness:

1	2	3	
0.257	0.258	0.258	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	68.959	dcf	Ave. ΔP	0.358	inH_2O
Wet mol. weight	28.87	M_s (actual)	Ave. √ΔP	0.596	inH_2O
Actual H_2O	1.17	%	Ave. ΔH	1.535	inH_2O
Std. meter vol.	57.271	dscf	Ave. T_s	80.1	°F
Isokinetic Average	98.4	%	Ave. T_m	69.6	°F

Moisture/Lab:

Filter, #	Q78		
	Initial	Final	Gain
Impingers, g	2,209.6	2,209.8	0.2
Silica gel, g	919.5	933.7	14.2
		Total water gain, g:	14.4

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		395.378									
1	3.75	398.010	0.31	75	62	1.32	1.30	1	247	63	245
2	7.50	400.750	0.33	78	63	1.40	1.40	1	252	57	256
3	11.25	403.450	0.32	78	64	1.36	1.40	1	249	54	256
4	15.00	406.200	0.33	78	64	1.40	1.40	1	250	54	261
5	18.75	409.160	0.38	79	65	1.62	1.60	1	260	56	251
6	22.50	412.170	0.39	79	66	1.66	1.70	1.5	251	55	251
7	26.25	414.560	0.28	79	66	1.19	1.20	1	253	55	251
8	30.00	417.020	0.28	79	66	1.19	1.20	1	250	54	250
9	33.75	419.750	0.33	82	68	1.40	1.40	1	248	54	250
10	37.50	422.460	0.30	82	69	1.28	1.30	1	250	54	250
11	41.25	425.150	0.31	82	69	1.32	1.30	1	248	54	249
12	45.00	427.855	0.31	81	70	1.33	1.33	1	253	54	251
13	48.75	430.450	0.30	79	69	1.29	1.30	1	250	59	251
14	52.50	433.300	0.32	81	71	1.37	1.40	1	252	52	250
15	56.25	436.150	0.34	81	72	1.46	1.50	1	249	52	250
16	60.00	439.100	0.38	81	73	1.63	1.60	1.5	250	50	251
17	63.75	442.150	0.40	81	73	1.72	1.70	2	251	49	252
18	67.50	445.270	0.41	81	73	1.76	1.80	2	250	50	252
19	71.25	448.420	0.42	81	73	1.81	1.80	2	248	52	250
20	75.00	451.120	0.31	81	74	1.34	1.30	1	249	54	251
21	78.75	454.280	0.43	81	75	1.86	1.90	2	250	53	248
22	82.50	457.560	0.45	81	75	1.94	1.90	2	250	52	250
23	86.25	460.970	0.49	81	75	2.12	2.10	2.5	250	52	252
24	90.00	464.337	0.47	81	76	2.03	2.00	2.5	253	52	257

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**		**Run:**	**2**	
Location:	**Butte, MT**		**Start Time:**	**10:32**	
Source:	**Fine Ore #1**		**End Time:**	**12:06**	
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**	**Date:**	**6/25/2024**	
Box Operator:	**ZDH**	Changed Nozzle after Run 1 to collect additional volume			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	4D	Liner type	SS		
Y factor	1.0057	Nozzle ID	23	Nozzle size	0.305	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.000507	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	4D	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	5	Condenser TC ID	GN2		

Source Information:

Barometric Pressure	24.66	inHg	Assumed O_2	NA	%
Static Pressure	0.24	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.358	inH_2O	Rec. Nz.	0.252	inches
Stack Temperature	80.1	°F			
Assumed moisture	1.17	%			
Assumed meter temp.	69.6	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.001	0.000
Leak check vacuum, inHg	13	12

Nozzle check for roundness:

1	2	3	
0.305	0.306	0.305	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	83.064	dcf	Ave. ΔP	0.248	inH_2O
Wet mol. weight	28.87	M_s (actual)	Ave. √ΔP	0.496	inH_2O
Actual H_2O	1.14	%	Ave. ΔH	2.188	inH_2O
Std. meter vol.	67.522	dscf	Ave. T_s	84.8	°F
Isokinetic Average	100.2	%	Ave. T_m	81.9	°F

Moisture/Lab:

Filter, #	Q79		
	Initial	Final	Gain
Impingers, g	2,251.1	2,254.7	3.6
Silica gel, g	981.5	994.4	12.9
		Total water gain:	16.5

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		464.491									
1	3.75	467.760	0.23	83	76	2.00	2.00	2	250	63	248
2	7.50	471.020	0.22	83	76	1.91	1.90	2	255	57	250
3	11.25	474.400	0.24	83	77	2.09	2.10	2	253	55	251
4	15.00	477.750	0.23	83	78	2.00	2.00	2	252	55	253
5	18.75	480.890	0.20	83	79	1.75	1.80	2	253	55	250
6	22.50	484.070	0.20	83	79	1.75	1.80	2	249	56	250
7	26.25	487.110	0.19	83	80	1.66	1.70	1	249	56	250
8	30.00	490.400	0.23	83	81	2.01	2.00	2	251	57	256
9	33.75	493.740	0.24	83	81	2.10	2.10	2	254	57	250
10	37.50	497.700	0.32	83	82	2.81	2.80	2.5	251	57	251
11	41.25	501.760	0.34	84	82	2.98	3.00	3	252	58	252
12	45.00	505.733	0.32	84	82	2.80	2.80	3	250	58	254
13	48.75	509.400	0.28	84	82	2.45	2.50	2	249	63	241
14	52.50	512.970	0.26	86	83	2.27	2.30	2	250	52	261
15	56.25	516.520	0.27	86	83	2.36	2.40	2	250	51	264
16	60.00	520.160	0.27	86	84	2.37	2.40	2	247	51	252
17	63.75	523.650	0.25	85	84	2.19	2.20	2	249	51	268
18	67.50	527.000	0.23	85	85	2.02	2.00	2	251	51	255
19	71.25	530.110	0.19	85	85	1.67	1.70	2	246	53	248
20	75.00	533.120	0.18	87	85	1.58	1.60	2	251	52	256
21	78.75	536.490	0.23	88	85	2.01	2.00	2	251	53	261
22	82.50	540.210	0.27	88	85	2.36	2.40	3	251	53	251
23	86.25	543.840	0.28	88	86	2.45	2.50	3	261	54	252
24	90.00	547.555	0.28	88	86	2.45	2.50	3	274	54	251

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte, MT**			**Start Time:**	**12:27**
Source:	**Fine Ore #1**			**End Time:**	**14:00**
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**ZDH**	Changed Nozzle after Run 1 to collect additional volume			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	4D	Liner type	SS		
Y factor	1.0057	Nozzle ID	23	Nozzle size	0.305	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.000507	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	4D	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	5	Condenser TC ID	GN2		

Source Information:

Barometric Pressure	24.66	inHg	Assumed O_2	NA	%
Static Pressure	0.24	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.248	inH_2O	Rec. Nz.	0.273	inches
Stack Temperature	84.8	°F			
Assumed moisture	1.14	%			
Assumed meter temp.	81.9	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.001	0.000
Leak check vacuum, inHg	13	12

Nozzle check for roundness:

1	2	3	
0.305	0.306	0.305	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	86.081	dcf	Ave. ΔP	0.263	inH_2O
Wet mol. weight	28.91	M_s (actual)	Ave. √ΔP	0.511	inH_2O
Actual H_2O	0.81	%	Ave. ΔH	2.333	inH_2O
Std. meter vol.	68.937	dscf	Ave. T_s	87.8	°F
Isokinetic Average	99.3	%	Ave. T_m	90.3	°F

Moisture/Lab:

Filter, #	Q80		
	Initial	Final	Gain
Impingers, g	2,230.6	2,231.4	0.8
Silica gel, g	929.4	940.6	11.2
		Total water gain:	12.0

Traverse Point	Time (min.)	Meter Volume (dcf) 547.848	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
1	3.75	550.970	0.20	86	85	1.76	1.80	2	251	64	251
2	7.50	554.090	0.21	92	87	1.83	1.80	2	253	61	249
3	11.25	557.210	0.20	92	87	1.74	1.70	2	249	56	250
4	15.00	560.320	0.20	91	88	1.75	1.80	2	250	56	250
5	18.75	563.630	0.22	89	88	1.93	1.90	2	250	55	251
6	22.50	566.800	0.22	89	89	1.94	1.90	2	251	54	252
7	26.25	570.240	0.24	89	89	2.11	2.10	2	249	53	251
8	30.00	573.600	0.24	89	90	2.12	2.10	2	250	52	250
9	33.75	577.400	0.29	89	90	2.56	2.60	2.5	251	52	251
10	37.50	581.440	0.34	86	90	3.01	3.00	3	252	51	253
11	41.25	585.800	0.38	86	90	3.37	3.40	3	252	51	252
12	45.00	590.011	0.35	86	90	3.10	3.10	3	249	51	249
13	48.75	593.890	0.30	86	90	2.66	2.70	3	251	53	251
14	52.50	597.730	0.29	86	91	2.57	2.60	3	250	52	250
15	56.25	601.620	0.30	86	91	2.66	2.70	3	250	43	250
16	60.00	605.420	0.30	87	91	2.66	2.70	3	250	44	251
17	63.75	609.160	0.28	86	92	2.49	2.50	3	251	44	252
18	67.50	612.780	0.26	87	92	2.31	2.30	3	250	42	250
19	71.25	616.220	0.23	86	92	2.05	2.10	3	250	42	251
20	75.00	619.630	0.24	86	93	2.14	2.10	3	251	42	252
21	78.75	623.060	0.23	86	93	2.05	2.10	3	252	43	253
22	82.50	626.580	0.25	89	93	2.22	2.20	3	250	43	251
23	86.25	630.210	0.26	89	93	2.30	2.30	3	251	44	251
24	90.00	633.929	0.28	90	93	2.48	2.50	3	252	44	251

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #1**

Run 1 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	767.3	754.2	-13.1
2	763.6	772.2	8.6
3	678.7	683.4	4.7
Total	**2,209.6**	**2,209.8**	**0.2**

Run 2 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	774.6	764.4	-10.2
2	785.8	794.1	8.3
3	690.7	696.2	5.5
Total	**2,251.1**	**2,254.7**	**3.6**

Run 3 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	745.3	733.0	-12.3
2	802.6	812.7	10.1
3	682.7	685.7	3.0
Total	**2,230.6**	**2,231.4**	**0.8**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources, LLC**
Source: **Fine Ore #1**
Location: **Butte, MT**

Run			1	2	3	
Date			6/25/2024	6/25/2024	6/25/2024	
Run Start Time			8:30	10:32	12:27	
Run End Time			10:07	12:06	14:00	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.67	24.66	24.66	**24.66**
Nozzle Dia., in.			0.2580	0.3050	0.3050	**0.2893**
Isokinetic Average, %			98.4	100.2	99.3	**99.3**
Sample Volume, dscf			57.271	67.522	68.937	**64.577**
Sample Volume, dscm			1.622	1.912	1.952	**1.829**
Stack Diameter, in.			40.00	40.00	40.00	**40.00**
Stack Area, sq.ft.			8.727	8.727	8.727	**8.727**
Static Press., "H_2O			0.24	0.24	0.24	**0.24**
H_2O %v			1.17	1.14	0.81	**1.04**
Wet Molecular Weight, lb/lb-mole			28.87	28.87	28.91	**28.88**
Velocity, FPS			37.25	31.14	32.15	**33.51**
ADCFM			19,277	16,120	16,698	**17,365**
ACFM			19,505	16,306	16,834	**17,548**
DSCFM			15,549	12,885	13,274	**13,903**
Stack Temperature, ^oF			80.1	84.8	87.8	**84.2**
Filterable Particulate	Concentration, C_s	gr/dscf	0.001	0.000	0.000	**0.000**
		g/dscm	0.001	0.000	0.000	**0.001**
	Mass	lb/hr	0.07	0.01	0.01	**0.03**
Condensable Particulate	Concentration, C_s	gr/dscf	0.000	0.003	0.000	**0.001**
		g/dscm	0.000	0.007	0.001	**0.003**
	Mass	lb/hr	0.03	0.35	0.03	**0.14**
Total PM	Concentration, C_s	gr/dscf	0.0007	0.0033	0.0003	**0.0014**
		g/dscm	0.002	0.008	0.001	**0.003**
	Mass	lb/hr	0.10	0.36	0.04	**0.17**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte, MT**	**Start Time:**	**8:30**
Source:	**Fine Ore #1**	**End Time:**	**10:07**
Method:	**5**	**Date:**	**6/25/2024**

Sampling Data				Traverse Data			
Time	Meter	ΔH	Meter	Traverse	Dp	Stack	
min.	ft^3	$"H_2O$	T_m °F	Point	$"H_2O$	T_s °F	√Dp
	395.378						
4	398.010	1.30	62	1	0.31	75	0.557
8	400.750	1.40	63	2	0.33	78	0.574
11	403.450	1.40	64	3	0.32	78	0.566
15	406.200	1.40	64	4	0.33	78	0.574
19	409.160	1.60	65	5	0.38	79	0.616
23	412.170	1.70	66	6	0.39	79	0.624
26	414.560	1.20	66	7	0.28	79	0.529
30	417.020	1.20	66	8	0.28	79	0.529
34	419.750	1.40	68	9	0.33	82	0.574
38	422.460	1.30	69	10	0.30	82	0.548
41	425.150	1.30	69	11	0.31	82	0.557
45	427.855	1.33	70	12	0.31	81	0.557
49	430.450	1.30	69	13	0.30	79	0.548
53	433.300	1.40	71	14	0.32	81	0.566
56	436.150	1.50	72	15	0.34	81	0.583
60	439.100	1.60	73	16	0.38	81	0.616
64	442.150	1.70	73	17	0.40	81	0.632
68	445.270	1.80	73	18	0.41	81	0.640
71	448.420	1.80	73	19	0.42	81	0.648
75	451.120	1.30	74	20	0.31	81	0.557
79	454.280	1.90	75	21	0.43	81	0.656
83	457.560	1.90	75	22	0.45	81	0.671
86	460.970	2.10	75	23	0.49	81	0.700
90	464.337	2.00	76	24	0.47	81	0.686

Client:	**Montana Resources, LLC**	**Run:**	**1**
Source:	**Fine Ore #1**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	68.959	dcf	Rectangular		
Water Volume	14.4	g	Width		in
Nozzle Diameter, N_z	0.2580	in.	Length		in
Nozzle Area	0.000363	sq.ft.	Stack Area	8.727	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.67	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.24	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	1.535	"H_2O	√Dp	0.5960	"H_2O
Temperature, T_m	69.6	^oF	Temperature, T_s	80.1	^oF
Temperature, T_m	529.3	^oA (^oR)	Temperature, T_s	539.8	^oA (R)
Pressure Meter, P_m	24.783	"Hg	Pressure Stack, P_s	24.688	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	57.271	dscf	Velocity, V_s	37.25	fps
	1.622	dscm	Volume (actual)	19,505	acfm
Actual Volume, $V_{m(actual)}$	71.841	awcf		19,277	adcfm
Gas Stream Moisture			Volume (standard)	943,999	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.679	scf		932,954	dscf/hr
Moisture, B_{ws}	0.0117			15,549	dscf/min
Moisture EPA M4	1.17	%v		15,733	wscf/min
Moisture @ Saturation	4.20	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.87	lb/lb-mole			
Percent Isokinetic	98.4	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00194	grams	Concentration, C_s	0.0005	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.07	lb/hr

MT Back Half:

Condensable PM	7.63E-04	grams	CPM, C_s	2.06E-04	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.03	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte, MT**	**Start Time:**	**10:32**
Source:	**Fine Ore #1**	**End Time:**	**12:06**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time min.	Meter ft^3	ΔH "H_2O	Meter T_m °F	Traverse Point	Dp "H_2O	Stack T_s °F	√Dp
	464.491						
4	467.760	2.00	76	1	0.23	83	0.480
8	471.020	1.90	76	2	0.22	83	0.469
11	474.400	2.10	77	3	0.24	83	0.490
15	477.750	2.00	78	4	0.23	83	0.480
19	480.890	1.80	79	5	0.20	83	0.447
23	484.070	1.80	79	6	0.20	83	0.447
26	487.110	1.70	80	7	0.19	83	0.436
30	490.400	2.00	81	8	0.23	83	0.480
34	493.740	2.10	81	9	0.24	83	0.490
38	497.700	2.80	82	10	0.32	83	0.566
41	501.760	3.00	82	11	0.34	84	0.583
45	505.733	2.80	82	12	0.32	84	0.566
49	509.400	2.50	82	13	0.28	84	0.529
53	512.970	2.30	83	14	0.26	86	0.510
56	516.520	2.40	83	15	0.27	86	0.520
60	520.160	2.40	84	16	0.27	86	0.520
64	523.650	2.20	84	17	0.25	85	0.500
68	527.000	2.00	85	18	0.23	85	0.480
71	530.110	1.70	85	19	0.19	85	0.436
75	533.120	1.60	85	20	0.18	87	0.424
79	536.490	2.00	85	21	0.23	88	0.480
83	540.210	2.40	85	22	0.27	88	0.520
86	543.840	2.50	86	23	0.28	88	0.529
90	547.555	2.50	86	24	0.28	88	0.529

Client:	**Montana Resources, LLC**	**Run:**	**2**
Source:	**Fine Ore #1**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	83.064	dcf	Rectangular		
Water Volume	16.5	g	Width		in
Nozzle Diameter, N_z	0.3050	in.	Length		in
Nozzle Area	0.000507	sq.ft.	Stack Area	8.727	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.66	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.24	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	2.188	"H_2O	√Dp	0.4960	"H_2O
Temperature, T_m	81.9	^oF	Temperature, T_s	84.8	^oF
Temperature, T_m	541.6	^oA (^oR)	Temperature, T_s	544.5	^oA (R)
Pressure Meter, P_m	24.821	"Hg	Pressure Stack, P_s	24.678	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	67.522	dscf	Velocity, V_s	31.14	fps
	1.912	dscm	Volume (actual)	16,306	acfm
Actual Volume, $V_{m(actual)}$	85.446	awcf		16,120	adcfm
Gas Stream Moisture			Volume (standard)	782,029	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.778	scf		773,114	dscf/hr
Moisture, B_{ws}	0.0114			12,885	dscf/min
Moisture EPA M4	1.14	%v		13,034	wscf/min
Moisture @ Saturation	4.89	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.87	lb/lb-mole			
Percent Isokinetic	100.2	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00042	grams	Concentration, C_s	0.0001	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	1.40E-02	grams	CPM, C_s	3.20E-03	gr/dscf
				0.007	g/dscm
			Mass Emissions	0.35	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**3**
Location:	**Butte, MT**	**Start Time:**	**12:27**
Source:	**Fine Ore #1**	**End Time:**	**14:00**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m ^oF**	**Traverse Point**	**Dp "H_2O**	**Stack T_s ^oF**	**√Dp**
	547.848						
4	550.970	1.80	85	1	0.20	86	0.447
8	554.090	1.80	87	2	0.21	92	0.458
11	557.210	1.70	87	3	0.20	92	0.447
15	560.320	1.80	88	4	0.20	91	0.447
19	563.630	1.90	88	5	0.22	89	0.469
23	566.800	1.90	89	6	0.22	89	0.469
26	570.240	2.10	89	7	0.24	89	0.490
30	573.600	2.10	90	8	0.24	89	0.490
34	577.400	2.60	90	9	0.29	89	0.539
38	581.440	3.00	90	10	0.34	86	0.583
41	585.800	3.40	90	11	0.38	86	0.616
45	590.011	3.10	90	12	0.35	86	0.592
49	593.890	2.70	90	13	0.30	86	0.548
53	597.730	2.60	91	14	0.29	86	0.539
56	601.620	2.70	91	15	0.30	86	0.548
60	605.420	2.70	91	16	0.30	87	0.548
64	609.160	2.50	92	17	0.28	86	0.529
68	612.780	2.30	92	18	0.26	87	0.510
71	616.220	2.10	92	19	0.23	86	0.480
75	619.630	2.10	93	20	0.24	86	0.490
79	623.060	2.10	93	21	0.23	86	0.480
83	626.580	2.20	93	22	0.25	89	0.500
86	630.210	2.30	93	23	0.26	89	0.510
90	633.929	2.50	93	24	0.28	90	0.529

Client:	**Montana Resources, LLC**	**Run:**	**3**
Source:	**Fine Ore #1**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	86.081	dcf	Rectangular		
Water Volume	12.0	g	Width		in
Nozzle Diameter, N_z	0.3050	in.	Length		in
Nozzle Area	0.000507	sq.ft.	Stack Area	8.727	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.66	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.24	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	2.333	"H_2O	√Dp	0.5110	"H_2O
Temperature, T_m	90.3	^oF	Temperature, T_s	87.8	^oF
Temperature, T_m	550.0	^oA (^oR)	Temperature, T_s	547.5	^oA (R)
Pressure Meter, P_m	24.832	"Hg	Pressure Stack, P_s	24.678	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	68.937	dscf	Velocity, V_s	32.15	fps
	1.952	dscm	Volume (actual)	16,834	acfm
Actual Volume, $V_{m(actual)}$	87.424	awcf		16,698	adcfm
Gas Stream Moisture			Volume (standard)	802,969	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.566	scf		796,465	dscf/hr
Moisture, B_{ws}	0.0081			13,274	dscf/min
Moisture EPA M4	0.81	%v		13,383	wscf/min
Moisture @ Saturation	5.38	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.91	lb/lb-mole			
Percent Isokinetic	99.3	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:					
Filterable PM	0.00020	grams	Concentration, C_s	0.0000	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.01	lb/hr
MT Back Half:					
Condensable PM	1.22E-03	grams	CPM, C_s	2.74E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.03	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #1**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction	Corrected Gain (grams)
	Probe Rinse (Acetone FH)	89.2	29.7718	29.7742	0.0024	0.0005	**0.0019**
1	Filter	Q78	0.4613	0.4609	-0.0004		**0.0000**
	CPM Inorganics (Water)	288	30.1390	30.1421	0.0031	0.0023	**0.0008**
	Impinger H_2O Gain, g		2210	2210	0		
						Filterable PM (mg)	**1.94**
						Condensable PM (mg)	**0.76**
						Total PM (mg)	**2.71**
	Probe Rinse (Acetone FH)	55.5	29.9031	29.9038	0.0007	0.0003	**0.0004**
2	Filter	Q79	0.4567	0.4565	-0.0002		**0.0000**
	CPM Inorganics (Water)	284	30.2310	30.2473	0.0163	0.0023	**0.0140**
	Impinger H_2O Gain, g		2251	2255	4		
						Filterable PM (mg)	**0.42**
						Condensable PM (mg)	**14.00**
						Total PM (mg)	**14.41**
	Probe Rinse (Acetone FH)	58.3	29.4866	29.4871	0.0005	0.0003	**0.0002**
3	Filter	Q80	0.4596	0.4593	-0.0003		**0.0000**
	CPM Inorganics (Water)	256	30.6615	30.6648	0.0033	0.0021	**0.0012**
	Impinger H_2O Gain, g		2231	2231	1		
						Filterable PM (mg)	**0.20**
						Condensable PM (mg)	**1.22**
						Total PM (mg)	**1.42**
	Acetone Blank	97	30.9973	30.9978	0.0005	5.13E-06 g/g	
	Water Blank	320	30.5518	30.5544	0.0026	8.11E-06 g/g	

BISON ENGINEERING, INC.

COMPANY	**Montana Resources, LLC**
FACILITY	**Butte**
LOCATION	**Butte, MT**
SOURCE	**Fine Ore Bin #2**
DATE	**06/25/24**
METHOD	**5 w/ MT BH**
POLLUTANT	**PM**

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore Bin #2**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):		feet
Stack height (approx.):		feet
Circular ID (rectangular length):	40.00	inches
Port depth and/or wall thickness:	6.00	inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	NA	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 40.00 inches (If circular = duct ID)
Stack/duct area = 8.727 sq.feet 1256.6 sq. inches

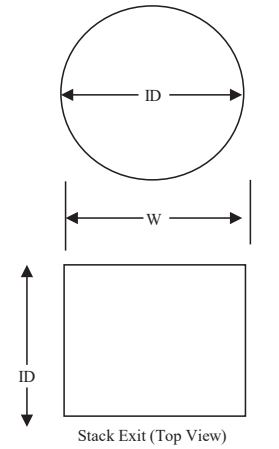
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	100.00	48.00
Number of diameters:	2.50	1.20

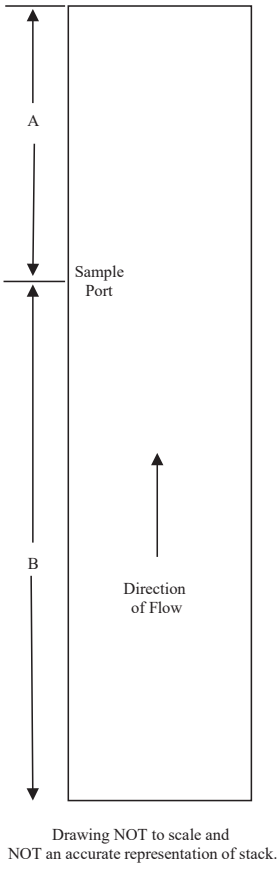
Recommended number of traverse points: 24

Traverse points less than 1.0 inch from the stack wall are relocated to a distance of 1.0 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	2.1	0.84	6 7/8
2	6.7	2.68	8 5/8
3	11.8	4.72	10 3/4
4	17.7	7.08	13 1/8
5	25.0	10.00	16
6	35.6	14.24	20 1/4
7	64.4	25.76	31 3/4
8	75.0	30.00	36
9	82.3	32.92	38 7/8
10	88.2	35.28	41 1/4
11	93.3	37.32	43 3/8
12	97.9	39.16	45 1/8

Reference Diagram





Drawing NOT to scale and
NOT an accurate representation of stack.

Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore Bin #2**
Date: **6/25/2024**

Stack Temp: 86 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.31	0
2	0.30	0
3	0.30	5
4	0.31	0
5	0.32	0
6	0.28	5
7	0.27	10
8	0.34	15
9	0.35	12
10	0.36	10
11	0.37	5
12	0.41	0
13	0.30	0
14	0.30	0
15	0.31	5
16	0.33	0
17	0.28	0
18	0.27	5
19	0.28	10
20	0.29	15
21	0.30	15
22	0.30	10
23	0.32	5
24	0.32	5
Average:	0.31	6

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**		**Run:**	**1**	
Location:	**Butte, MT**		**Start Time:**	**14:50**	
Source:	**Fine Ore Bin #2**		**End Time:**	**16:23**	
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**	**Date:**	**6/25/2024**	
Box Operator:	**ZDH**	NA			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	4D	Liner type	ss		
Y factor	1.0057	Nozzle ID	ss	Nozzle size	0.305	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.000507	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	4D	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	5	Condenser TC ID	GN2		

Source Information:

Barometric Pressure	24.65	inHg	Assumed O_2	NA	%
Static Pressure	0.05	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.3	inH_2O	Rec. Nz.	0.259	inches
Stack Temperature	85	°F			
Assumed moisture	1.20	%			
Assumed meter temp.	90	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.001	0.001
Leak check vacuum, inHg	13	16

Nozzle check for roundness:

1	2	3	
0.305	0.306	0.305	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	92.901	dcf	Ave. ΔP	0.300	inH_2O
Wet mol. weight	28.86	M_s (actual)	Ave. √ΔP	0.548	inH_2O
Actual H_2O	1.25	%	Ave. ΔH	2.654	inH_2O
Std. meter vol.	74.791	dscf	Ave. T_s	85.0	°F
Isokinetic Average	100.6	%	Ave. T_m	87.7	°F

Moisture/Lab:

Filter, #	Q84		
	Initial	Final	Gain
Impingers, g	2,244.7	2,247.3	2.6
Silica gel, g	889.3	906.7	17.4
		Total water gain, g:	20.0

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		634.135									
1	3.75	638.100	0.31	84	91	2.76	2.80	2	260	54	250
2	7.50	641.850	0.30	84	89	2.66	2.70	2	255	53	251
3	11.25	645.600	0.28	85	88	2.47	2.50	2	251	47	251
4	15.00	649.480	0.30	85	88	2.65	2.70	2	249	47	250
5	18.75	653.370	0.31	85	88	2.74	2.70	2	250	50	251
6	22.50	657.030	0.27	85	88	2.38	2.40	2	248	51	249
7	26.25	660.780	0.28	85	88	2.47	2.50	2	249	53	250
8	30.00	664.590	0.29	85	88	2.56	2.60	2	250	54	250
9	33.75	668.350	0.28	85	88	2.47	2.50	2	249	55	249
10	37.50	672.300	0.31	85	88	2.74	2.70	2	249	55	250
11	41.25	676.320	0.32	85	88	2.83	2.80	3	250	56	250
12	45.00	680.211	0.30	85	88	2.65	2.70	3	250	55	251
13	48.75	684.220	0.32	83	88	2.84	2.80	3	250	55	250
14	52.50	688.150	0.31	86	87	2.73	2.70	3	250	54	250
15	56.25	691.680	0.25	86	87	2.20	2.20	2.5	250	54	251
16	60.00	695.500	0.29	86	87	2.55	2.60	2.5	248	56	250
17	63.75	699.550	0.33	85	87	2.91	2.90	3	249	55	249
18	67.50	703.680	0.34	86	87	2.99	3.00	3	251	57	249
19	71.25	707.690	0.32	86	87	2.82	2.80	3	251	57	250
20	75.00	711.580	0.30	86	87	2.64	2.60	2.5	252	57	251
21	78.75	715.410	0.29	85	87	2.56	2.60	2.5	251	58	250
22	82.50	719.290	0.30	85	87	2.64	2.60	2.5	251	57	249
23	86.25	723.280	0.32	85	87	2.82	2.80	2.5	250	57	251
24	90.00	727.036	0.28	84	86	2.47	2.50	2	249	57	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**2**
Location:	**Butte, MT**			**Start Time:**	**16:39**
Source:	**Fine Ore Bin #2**			**End Time:**	**18:11**
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**ZDH**	NA			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	4D	Liner type	ss		
Y factor	1.0057	Nozzle ID	ss	Nozzle size	0.305	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.000507	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	4D	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	5	Condenser TC ID	GN2		

Source Information:

Barometric Pressure	24.64	inHg	Assumed O_2	NA	%
Static Pressure	0.05	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.3	inH_2O	Rec. Nz.	0.259	inches
Stack Temperature	85	°F			
Assumed moisture	1.25	%			
Assumed meter temp.	87.7	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.001	0.001
Leak check vacuum, inHg	17	14

Nozzle check for roundness:

1	2	3	
0.305	0.306	0.305	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	92.693	dcf	Ave. ΔP	0.303	inH_2O
Wet mol. weight	28.88	M_s (actual)	Ave. √ΔP	0.551	inH_2O
Actual H_2O	1.05	%	Ave. ΔH	2.654	inH_2O
Std. meter vol.	75.018	dscf	Ave. T_s	85.6	°F
Isokinetic Average	100.3	%	Ave. T_m	84.6	°F

Moisture/Lab:

Filter, #	Q85		
	Initial	Final	Gain
Impingers, g	2,224.2	2,226.9	2.7
Silica gel, g	875.7	889.9	14.2
		Total water gain:	16.9

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		727.354									
1	3.75	731.080	0.28	84	85	2.46	2.50	2	250	44	249
2	7.50	734.730	0.27	84	85	2.37	2.40	2	251	44	252
3	11.25	738.510	0.29	86	85	2.54	2.50	2	251	42	253
4	15.00	742.400	0.31	85	84	2.72	2.70	3	250	44	250
5	18.75	746.370	0.32	85	84	2.80	2.80	3	250	45	248
6	22.50	750.210	0.30	86	85	2.63	2.60	3	249	45	250
7	26.25	754.250	0.33	86	85	2.89	2.90	3	251	45	251
8	30.00	758.000	0.29	86	85	2.54	2.50	2.5	248	46	252
9	33.75	761.650	0.28	86	85	2.45	2.50	2	251	48	251
10	37.50	765.290	0.27	86	85	2.37	2.40	2	249	47	250
11	41.25	769.090	0.30	86	85	2.63	2.60	2	250	48	251
12	45.00	773.058	0.32	86	85	2.80	2.80	2	252	47	251
13	48.75	777.080	0.33	86	85	2.89	2.90	3	253	52	252
14	52.50	780.980	0.31	86	84	2.71	2.70	2	252	48	250
15	56.25	784.940	0.32	86	84	2.80	2.80	2.5	250	49	250
16	60.00	788.800	0.30	86	84	2.62	2.60	2	251	50	251
17	63.75	792.600	0.29	86	84	2.54	2.50	2	252	51	253
18	67.50	796.390	0.29	86	85	2.54	2.50	2	251	51	253
19	71.25	800.050	0.27	86	85	2.37	2.40	2	252	51	250
20	75.00	804.100	0.33	86	85	2.89	2.90	2.5	251	51	249
21	78.75	808.220	0.34	86	85	2.98	3.00	3	252	52	248
22	82.50	812.130	0.31	85	84	2.72	2.70	2.5	251	52	250
23	86.25	816.010	0.30	85	84	2.63	2.60	2.5	250	52	251
24	90.00	820.047	0.33	85	84	2.89	2.90	3	250	53	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte, MT**			**Start Time:**	**18:24**
Source:	**Fine Ore Bin #2**			**End Time:**	**19:57**
EPA Method:	**5 w/ MT BH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**ZDH**	NA			
Technician(s):	**JEW**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	11	Probe ID	4D	Liner type	ss		
Y factor	1.0057	Nozzle ID	ss	Nozzle size	0.305	inches	
ΔH@	1.732	Hot box ID	HHB7	Nozzle area	0.000507	sq.ft.	
Bp ID	TS4	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	HFB1	Pitot ID	4D	Filter heat	250	°F	
Weights ID	HFW1	Probe Length, ft	5	Condenser TC ID	GN2		

Source Information:

Barometric Pressure	24.65	inHg	Assumed O_2	NA	%
Static Pressure	0.05	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.303	inH_2O	Rec. Nz.	0.259	inches
Stack Temperature	85.6	°F			
Assumed moisture	1.05	%			
Assumed meter temp.	84.6	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.000	0.001
Leak check vacuum, inHg	11	17

Nozzle check for roundness:

1	2	3	
0.305	0.306	0.305	inches
	Caliper ID	WS2	

Post Test Calculations:

Sample volume	91.455	dcf	Ave. ΔP	0.294	inH_2O
Wet mol. weight	28.88	M_s (actual)	Ave. √ΔP	0.542	inH_2O
Actual H_2O	1.09	%	Ave. ΔH	2.588	inH_2O
Std. meter vol.	74.072	dscf	Ave. T_s	85.9	°F
Isokinetic Average	100.7	%	Ave. T_m	84.3	°F

Moisture/Lab:

Filter, #	Q86		
	Initial	Final	Gain
Impingers, g	2,227.1	2,228.6	1.5
Silica gel, g	906.6	922.4	15.8
		Total water gain:	17.3

Traverse Point	Time (min.)	Meter Volume (dcf) 820.334	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
1	3.75	824.130	0.29	84	84	2.55	2.60	2	253	59	253
2	7.50	827.970	0.30	85	84	2.64	2.60	2	251	56	251
3	11.25	831.850	0.31	86	84	2.72	2.70	2	252	64	251
4	15.00	835.820	0.32	86	84	2.81	2.80	2.5	250	58	250
5	18.75	839.670	0.30	86	84	2.63	2.60	2	251	58	251
6	22.50	843.470	0.29	86	84	2.54	2.50	2	250	58	250
7	26.25	847.170	0.28	86	84	2.46	2.50	2	250	58	251
8	30.00	850.950	0.30	86	84	2.63	2.60	2	250	58	250
9	33.75	854.850	0.31	86	84	2.72	2.70	2	250	57	250
10	37.50	858.820	0.32	86	84	2.81	2.80	2.5	251	55	250
11	41.25	862.480	0.27	86	84	2.37	2.40	2	250	55	250
12	45.00	866.144	0.27	86	84	2.37	2.40	2	250	56	250
13	48.75	870.250	0.34	86	84	2.98	3.00	3	250	58	251
14	52.50	874.100	0.30	86	84	2.63	2.60	2	250	56	250
15	56.25	877.810	0.28	86	84	2.46	2.50	2	251	55	251
16	60.00	881.470	0.27	86	84	2.37	2.40	2	251	55	250
17	63.75	885.120	0.27	86	84	2.37	2.40	2	248	54	251
18	67.50	889.080	0.31	86	84	2.72	2.70	2.5	250	53	250
19	71.25	892.800	0.28	86	85	2.46	2.50	2	249	55	251
20	75.00	896.520	0.28	86	85	2.46	2.50	2	251	56	253
21	78.75	900.350	0.30	86	85	2.64	2.60	2.5	250	56	250
22	82.50	904.170	0.29	86	85	2.55	2.60	2.5	252	57	251
23	86.25	907.920	0.28	86	86	2.47	2.50	2	251	57	250
24	90.00	911.789	0.30	86	85	2.64	2.60	2	250	56	250

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore Bin #2**

Run 1 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	774.6	765.5	-9.1
2	776.2	783.7	7.5
3	693.9	698.1	4.2
Total	**2,244.7**	**2,247.3**	**2.6**

Run 2 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	737.7	727.3	-10.4
2	806.2	815.4	9.2
3	680.3	684.2	3.9
Total	**2,224.2**	**2,226.9**	**2.7**

Run 3 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	775.9	760.6	-15.3
2	779.4	790.4	11.0
3	671.8	677.6	5.8
Total	**2,227.1**	**2,228.6**	**1.5**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources, LLC**
Source: **Fine Ore Bin #2**
Location: **Butte, MT**

Run			1	2	3	
Date			6/25/2024	6/25/2024	6/25/2024	
Run Start Time			14:50	16:39	18:24	
Run End Time			16:23	18:11	19:57	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.65	24.64	24.65	**24.65**
Nozzle Dia., in.			0.3050	0.3050	0.3050	**0.3050**
Isokinetic Average, %			100.6	100.3	100.7	**100.5**
Sample Volume, dscf			74.791	75.018	74.072	**74.627**
Sample Volume, dscm			2.118	2.124	2.097	**2.113**
Stack Diameter, in.			40.00	40.00	40.00	**40.00**
Stack Area, sq.ft.			8.727	8.727	8.727	**8.727**
Static Press., "H_2O			0.05	0.05	0.05	**0.05**
H_2O %v			1.25	1.05	1.09	**1.13**
Wet Molecular Weight, lb/lb-mole			28.86	28.88	28.88	**28.87**
Velocity, FPS			34.43	34.63	34.07	**34.38**
ADCFM			17,803	17,943	17,646	**17,797**
ACFM			18,028	18,133	17,840	**18,000**
DSCFM			14,212	14,302	14,063	**14,192**
Stack Temperature, ^oF			85.0	85.6	85.9	**85.5**
Filterable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.000	0.000	0.000	**0.000**
	Mass	lb/hr	0.019	0.006	0.014	**0.013**
Condensable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.001	0.000	0.000	**0.000**
	Mass	lb/hr	0.035	0.000	0.000	**0.012**
Total PM	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.001	0.000	0.000	**0.000**
	Mass	lb/hr	0.054	0.006	0.014	**0.025**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte, MT**	**Start Time:**	**14:50**
Source:	**Fine Ore Bin #2**	**End Time:**	**16:23**
Method:	**5**	**Date:**	**6/25/2024**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	634.135						
4	638.100	2.80	91	1	0.31	84	0.557
8	641.850	2.70	89	2	0.30	84	0.548
11	645.600	2.50	88	3	0.28	85	0.529
15	649.480	2.70	88	4	0.30	85	0.548
19	653.370	2.70	88	5	0.31	85	0.557
23	657.030	2.40	88	6	0.27	85	0.520
26	660.780	2.50	88	7	0.28	85	0.529
30	664.590	2.60	88	8	0.29	85	0.539
34	668.350	2.50	88	9	0.28	85	0.529
38	672.300	2.70	88	10	0.31	85	0.557
41	676.320	2.80	88	11	0.32	85	0.566
45	680.211	2.70	88	12	0.30	85	0.548
49	684.220	2.80	88	13	0.32	83	0.566
53	688.150	2.70	87	14	0.31	86	0.557
56	691.680	2.20	87	15	0.25	86	0.500
60	695.500	2.60	87	16	0.29	86	0.539
64	699.550	2.90	87	17	0.33	85	0.574
68	703.680	3.00	87	18	0.34	86	0.583
71	707.690	2.80	87	19	0.32	86	0.566
75	711.580	2.60	87	20	0.30	86	0.548
79	715.410	2.60	87	21	0.29	85	0.539
83	719.290	2.60	87	22	0.30	85	0.548
86	723.280	2.80	87	23	0.32	85	0.566
90	727.036	2.50	86	24	0.28	84	0.529

Client:	**Montana Resources, LLC**	**Run:**	**1**
Source:	**Fine Ore Bin #2**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	92.901	dcf	Rectangular		
Water Volume	20.0	g	Width		in
Nozzle Diameter, N_z	0.3050	in.	Length		in
Nozzle Area	0.000507	sq.ft.	Stack Area	8.727	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.65	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.05	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	2.654	"H_2O	√Dp	0.5480	"H_2O
Temperature, T_m	87.7	^oF	Temperature, T_s	85.0	^oF
Temperature, T_m	547.4	^oA (^oR)	Temperature, T_s	544.7	^oA (R)
Pressure Meter, P_m	24.845	"Hg	Pressure Stack, P_s	24.654	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	74.791	dscf	Velocity, V_s	34.43	fps
	2.118	dscm	Volume (actual)	18,028	acfm
Actual Volume, $V_{m(actual)}$	94.876	awcf		17,803	adcfm
Gas Stream Moisture			Volume (standard)	863,494	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.943	scf		852,700	dscf/hr
Moisture, B_{ws}	0.0125			14,212	dscf/min
Moisture EPA M4	1.25	%v		14,392	wscf/min
Moisture @ Saturation	4.92	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.86	lb/lb-mole			
Percent Isokinetic	100.6	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00075	grams	Concentration, C_s	0.0002	gr/dscf
				0.0004	g/dscm
			Mass Emissions	0.02	lb/hr

MT Back Half:

Condensable PM	1.40E-03	grams	CPM, C_s	2.89E-04	gr/dscf
				0.0007	g/dscm
			Mass Emissions	0.04	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte, MT**	**Start Time:**	**16:39**
Source:	**Fine Ore Bin #2**	**End Time:**	**18:11**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	727.354						
4	731.080	2.50	85	1	0.28	84	0.529
8	734.730	2.40	85	2	0.27	84	0.520
11	738.510	2.50	85	3	0.29	86	0.539
15	742.400	2.70	84	4	0.31	85	0.557
19	746.370	2.80	84	5	0.32	85	0.566
23	750.210	2.60	85	6	0.30	86	0.548
26	754.250	2.90	85	7	0.33	86	0.574
30	758.000	2.50	85	8	0.29	86	0.539
34	761.650	2.50	85	9	0.28	86	0.529
38	765.290	2.40	85	10	0.27	86	0.520
41	769.090	2.60	85	11	0.30	86	0.548
45	773.058	2.80	85	12	0.32	86	0.566
49	777.080	2.90	85	13	0.33	86	0.574
53	780.980	2.70	84	14	0.31	86	0.557
56	784.940	2.80	84	15	0.32	86	0.566
60	788.800	2.60	84	16	0.30	86	0.548
64	792.600	2.50	84	17	0.29	86	0.539
68	796.390	2.50	85	18	0.29	86	0.539
71	800.050	2.40	85	19	0.27	86	0.520
75	804.100	2.90	85	20	0.33	86	0.574
79	808.220	3.00	85	21	0.34	86	0.583
83	812.130	2.70	84	22	0.31	85	0.557
86	816.010	2.60	84	23	0.30	85	0.548
90	820.047	2.90	84	24	0.33	85	0.574

Client:	**Montana Resources, LLC**	**Run:**	**2**
Source:	**Fine Ore Bin #2**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	92.693	dcf	Rectangular		
Water Volume	16.9	g	Width		in
Nozzle Diameter, N_z	0.3050	in.	Length		in
Nozzle Area	0.000507	sq.ft.	Stack Area	8.727	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.64	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.05	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	2.654	"H_2O	√Dp	0.5510	"H_2O
Temperature, T_m	84.6	^oF	Temperature, T_s	85.6	^oF
Temperature, T_m	544.3	^oA (^oR)	Temperature, T_s	545.3	^oA (R)
Pressure Meter, P_m	24.835	"Hg	Pressure Stack, P_s	24.644	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	75.018	dscf	Velocity, V_s	34.63	fps
	2.124	dscm	Volume (actual)	18,133	acfm
Actual Volume, $V_{m(actual)}$	95.115	awcf		17,943	adcfm
Gas Stream Moisture			Volume (standard)	867,202	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.797	scf		858,096	dscf/hr
Moisture, B_{ws}	0.0105			14,302	dscf/min
Moisture EPA M4	1.05	%v		14,453	wscf/min
Moisture @ Saturation	5.02	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.88	lb/lb-mole			
Percent Isokinetic	100.3	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00023	grams	Concentration, C_s	0.0000	gr/dscf
				0.0001	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	0.00E+00	grams	CPM, C_s	0.00E+00	gr/dscf
				0.0000	g/dscm
			Mass Emissions	0.00	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**3**
Location:	**Butte, MT**	**Start Time:**	**18:24**
Source:	**Fine Ore Bin #2**	**End Time:**	**19:57**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	820.334						
4	824.130	2.60	84	1	0.29	84	0.539
8	827.970	2.60	84	2	0.30	85	0.548
11	831.850	2.70	84	3	0.31	86	0.557
15	835.820	2.80	84	4	0.32	86	0.566
19	839.670	2.60	84	5	0.30	86	0.548
23	843.470	2.50	84	6	0.29	86	0.539
26	847.170	2.50	84	7	0.28	86	0.529
30	850.950	2.60	84	8	0.30	86	0.548
34	854.850	2.70	84	9	0.31	86	0.557
38	858.820	2.80	84	10	0.32	86	0.566
41	862.480	2.40	84	11	0.27	86	0.520
45	866.144	2.40	84	12	0.27	86	0.520
49	870.250	3.00	84	13	0.34	86	0.583
53	874.100	2.60	84	14	0.30	86	0.548
56	877.810	2.50	84	15	0.28	86	0.529
60	881.470	2.40	84	16	0.27	86	0.520
64	885.120	2.40	84	17	0.27	86	0.520
68	889.080	2.70	84	18	0.31	86	0.557
71	892.800	2.50	85	19	0.28	86	0.529
75	896.520	2.50	85	20	0.28	86	0.529
79	900.350	2.60	85	21	0.30	86	0.548
83	904.170	2.60	85	22	0.29	86	0.539
86	907.920	2.50	86	23	0.28	86	0.529
90	911.789	2.60	85	24	0.30	86	0.548

Client:	**Montana Resources, LLC**	**Run:**	**3**
Source:	**Fine Ore Bin #2**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	91.455	dcf	Rectangular		
Water Volume	17.3	g	Width		in
Nozzle Diameter, N_z	0.3050	in.	Length		in
Nozzle Area	0.000507	sq.ft.	Stack Area	8.727	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.65	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.05	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0057	Y			

Field Data Averages

Meter			Stack		
ΔH	2.588	"H_2O	√Dp	0.5420	"H_2O
Temperature, T_m	84.3	^oF	Temperature, T_s	85.9	^oF
Temperature, T_m	544.0	^oA (^oR)	Temperature, T_s	545.6	^oA (R)
Pressure Meter, P_m	24.840	"Hg	Pressure Stack, P_s	24.654	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	74.072	dscf	Velocity, V_s	34.07	fps
	2.097	dscm	Volume (actual)	17,840	acfm
Actual Volume, $V_{m(actual)}$	93.967	awcf		17,646	adcfm
Gas Stream Moisture			Volume (standard)	853,056	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.816	scf		843,758	dscf/hr
Moisture, B_{ws}	0.0109			14,063	dscf/min
Moisture EPA M4	1.09	%v		14,218	wscf/min
Moisture @ Saturation	5.07	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.88	lb/lb-mole			
Percent Isokinetic	100.7	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00056	grams	Concentration, C_s	0.0001	gr/dscf
				0.0003	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	0.00E+00	grams	CPM, C_s	0.00E+00	gr/dscf
				0.0000	g/dscm
			Mass Emissions	0.00	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore Bin #2**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction	Corrected Gain (grams)
	Probe Rinse (Acetone FH)	49.4	30.3461	30.3471	0.0010	0.0003	**0.0007**
1	Filter	Q84	0.4579	0.4577	-0.0002		**0.0000**
	CPM Inorganics (Water)	259	30.1435	30.1470	0.0035	0.0021	**0.0014**
	Impinger H_2O Gain, g		2245	2247	3		
						Filterable PM (mg)	**0.75**
						Condensable PM (mg)	**1.40**
						Total PM (mg)	**2.15**
	Probe Rinse (Acetone FH)	52.4	29.6995	29.7000	0.0005	0.0003	**0.0002**
2	Filter	Q85	0.4607	0.4603	-0.0004		**0.0000**
	CPM Inorganics (Water)	266	30.7333	30.7337	0.0004	0.0022	**0.0000**
	Impinger H_2O Gain, g		2224	2227	3		
						Filterable PM (mg)	**0.23**
						Condensable PM (mg)	**0.00**
						Total PM (mg)	**0.23**
	Probe Rinse (Acetone FH)	85.4	29.9077	29.9087	0.0010	0.0004	**0.0006**
3	Filter	Q86	0.4566	0.4563	-0.0003		**0.0000**
	CPM Inorganics (Water)	170	30.0330	30.0338	0.0008	0.0014	**0.0000**
	Impinger H_2O Gain, g		2227	2229	2		
						Filterable PM (mg)	**0.56**
						Condensable PM (mg)	**0.00**
						Total PM (mg)	**0.56**
	Acetone Blank	97	30.9973	30.9978	0.0005	5.13E-06 g/g	
	Water Blank	320	30.5518	30.5544	0.0026	8.11E-06 g/g	

BISON ENGINEERING, INC.

COMPANY	**Montana Resources, LLC**
FACILITY	**Butte**
LOCATION	**Butte, MT**
SOURCE	**Fine Ore #3**
DATE	**06/25/24**
METHOD	**5/MTBH**
POLLUTANT	**PM**

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #3**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):		feet
Stack height (approx.):		feet
Circular ID (rectangular length):	40.00	inches
Port depth and/or wall thickness:	6.00	inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	N/A	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 40.00 inches (If circular = duct ID)
Stack/duct area = 8.727 sq.feet 1256.6 sq. inches

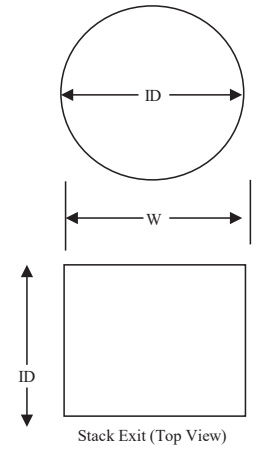
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	100.00	48.00
Number of diameters:	2.50	1.20

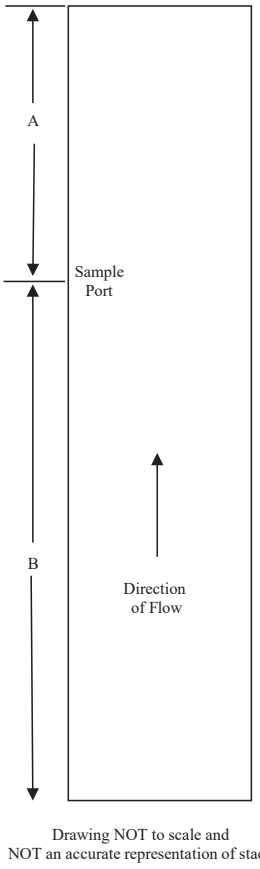
Recommended number of traverse points: 24

Traverse points less than 1.0 inch from the stack wall are relocated to a distance of 1.0 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	2.1	0.84	6 7/8
2	6.7	2.68	8 5/8
3	11.8	4.72	10 3/4
4	17.7	7.08	13 1/8
5	25.0	10.00	16
6	35.6	14.24	20 1/4
7	64.4	25.76	31 3/4
8	75.0	30.00	36
9	82.3	32.92	38 7/8
10	88.2	35.28	41 1/4
11	93.3	37.32	43 3/8
12	97.9	39.16	45 1/8

Reference Diagram





Drawing NOT to scale and
NOT an accurate representation of stack.

Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #3**
Date: **6/25/2024**

Stack Temp: 75 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.28	0
2	0.34	3
3	0.33	2
4	0.32	0
5	0.31	5
6	0.40	0
7	0.29	0
8	0.31	0
9	0.33	0
10	0.35	0
11	0.36	0
12	0.34	0
13	0.31	5
14	0.34	0
15	0.36	0
16	0.30	3
17	0.41	0
18	0.29	0
19	0.34	2
20	0.33	0
21	0.32	0
22	0.33	0
23	0.36	0
24	0.34	3
Average:	0.33	1

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**1**
Location:	**Butte, MT**			**Start Time:**	**8:00**
Source:	**Fine Ore #3**			**End Time:**	**9:41**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**RTM**	80 and sunny			
Technician(s):	**AV**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B4D	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA11	Nozzle size	0.264	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.00038	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B4D	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	4	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.57	inHg	Assumed O_2	NA	%
Static Pressure	0.14	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.33	inH_2O	Rec. Nz.	0.258	inches
Stack Temperature	85	°F			
Assumed moisture	1.50	%			
Assumed meter temp.	68	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.004	0.004
Leak check vacuum, inHg	18	19

Nozzle check for roundness:

1	2	3	
0.264	0.264	0.263	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	67.490	dcf	Ave. ΔP	0.346	inH_2O
Wet mol. weight	28.86	M_s (actual)	Ave. √ΔP	0.587	inH_2O
Actual H_2O	1.24	%	Ave. ΔH	1.775	inH_2O
Std. meter vol.	60.311	dscf	Ave. T_s	76.1	°F
Isokinetic Average	100.4	%	Ave. T_m	61.3	°F

Moisture/Lab:

Filter, #	Q75		
	Initial	Final	Gain
Impingers, g	2,005.0	2,007.4	2.4
Silica gel, g	905.4	919.0	13.6
		Total water gain, g:	16.0

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	2.800	0.35	74	55	1.78	1.80	3	250	50	250
2	7.50	5.430	0.31	74	55	1.57	1.60	3	250	46	250
3	11.25	7.970	0.29	74	55	1.47	1.50	3	250	45	250
4	15.00	10.840	0.36	75	57	1.83	1.80	3	252	46	250
5	18.75	13.420	0.28	75	58	1.43	1.40	3	249	47	250
6	22.50	16.190	0.34	75	59	1.74	1.70	3	250	49	250
7	26.25	18.830	0.30	75	59	1.53	1.50	3	250	49	250
8	30.00	21.510	0.32	75	59	1.63	1.60	3	250	49	250
9	33.75	24.240	0.33	75	61	1.69	1.70	3	250	48	250
10	37.50	27.250	0.41	75	61	2.10	2.10	3	250	50	250
11	41.25	30.350	0.42	75	62	2.16	2.20	3	250	51	250
12	45.00	33.576	0.45	75	62	2.31	2.30	3	251	54	250
13	48.75	36.450	0.36	75	63	1.85	1.90	3	250	57	251
14	52.50	39.230	0.34	75	63	1.75	1.80	3	250	57	250
15	56.25	42.110	0.36	78	63	1.84	1.80	3	250	56	251
16	60.00	45.130	0.40	78	64	2.05	2.10	3	250	55	250
17	63.75	47.950	0.34	78	64	1.74	1.70	3	250	55	251
18	67.50	50.560	0.29	78	64	1.49	1.50	3	250	54	250
19	71.25	53.200	0.31	78	64	1.59	1.60	3	250	54	250
20	75.00	56.020	0.34	78	64	1.74	1.70	3	251	55	251
21	78.75	58.670	0.30	78	64	1.54	1.50	3	250	55	250
22	82.50	61.550	0.35	78	65	1.80	1.80	3	250	55	250
23	86.25	64.530	0.36	78	65	1.85	1.90	3	250	55	250
24	90.00	67.490	0.40	78	65	2.05	2.10	3	251	55	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte, MT**	**Start Time:**	**10:10**
Source:	**Fine Ore #3**	**End Time:**	**12:00**
EPA Method:	**5/MTBH**	**Date:**	**6/25/2024**
Box Operator:	**RTM**		
Technician(s):	**AV**		

Environmental Conditions/Test Notes:
80 and sunny

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B4D	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA11	Nozzle size	0.264	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.00038	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B4D	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	4	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.54	inHg	Assumed O_2	NA	%
Static Pressure	0.14	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.346	inH_2O	Rec. Nz.	0.255	inches
Stack Temperature	76.1	°F			
Assumed moisture	1.24	%			
Assumed meter temp.	61.3	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.002	0.004
Leak check vacuum, inHg	18	19

Nozzle check for roundness:

1	2	3	
0.264	0.264	0.263	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	67.946	dcf	Ave. ΔP	0.352	inH_2O
Wet mol. weight	28.78	M_s (actual)	Ave. √ΔP	0.591	inH_2O
Actual H_2O	2.01	%	Ave. ΔH	1.817	inH_2O
Std. meter vol.	60.133	dscf	Ave. T_s	80.5	°F
Isokinetic Average	100.5	%	Ave. T_m	65.8	°F

Moisture/Lab:

Filter, #	Q76		
	Initial	Final	Gain
Impingers, g	1,895.3	1,905.1	9.8
Silica gel, g	914.7	931.0	16.3
		Total water gain:	26.1

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	2.690	0.33	79	63	1.69	1.70	3	250	68	250
2	7.50	5.460	0.34	79	64	1.75	1.80	3	249	61	250
3	11.25	8.410	0.36	79	64	1.85	1.90	3	250	59	250
4	15.00	11.160	0.35	80	64	1.80	1.80	3	250	60	250
5	18.75	13.840	0.33	80	64	1.69	1.70	3	250	60	250
6	22.50	16.440	0.32	80	65	1.64	1.60	3	250	60	250
7	26.25	19.120	0.31	80	65	1.59	1.60	3	250	62	250
8	30.00	21.690	0.29	80	65	1.49	1.50	3	250	65	250
9	33.75	24.080	0.26	80	65	1.34	1.30	3	250	56	250
10	37.50	26.590	0.28	80	65	1.44	1.40	3	250	56	250
11	41.25	29.030	0.27	80	65	1.39	1.40	3	250	53	251
12	45.00	31.504	0.28	80	65	1.44	1.40	3	251	51	250
13	48.75	34.590	0.41	81	66	2.11	2.10	3	250	60	250
14	52.50	37.670	0.43	81	66	2.21	2.20	3	250	53	250
15	56.25	40.630	0.40	81	66	2.06	2.10	3	250	51	250
16	60.00	43.840	0.42	81	66	2.16	2.20	3	249	51	250
17	63.75	47.020	0.44	81	67	2.27	2.30	3	250	51	250
18	67.50	49.900	0.35	80	67	1.81	1.80	3	252	51	250
19	71.25	52.540	0.30	81	67	1.54	1.50	3	250	51	250
20	75.00	55.380	0.35	81	67	1.80	1.80	3	248	52	250
21	78.75	58.290	0.36	81	68	1.86	1.90	3	250	53	251
22	82.50	61.360	0.40	82	68	2.06	2.10	3	250	53	250
23	86.25	64.620	0.43	82	68	2.21	2.20	3	250	53	249
24	90.00	67.946	0.44	82	69	2.27	2.30	3	250	54	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte, MT**			**Start Time:**	**12:22**
Source:	**Fine Ore #3**			**End Time:**	**13:58**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**RTM**	80 and sunny			
Technician(s):	**AV**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B4D	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA11	Nozzle size	0.264	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.00038	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B4D	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	4	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.51	inHg	Assumed O_2	NA	%
Static Pressure	0.14	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.352	inH_2O	Rec. Nz.	0.254	inches
Stack Temperature	80.5	°F			
Assumed moisture	2.01	%			
Assumed meter temp.	65.8	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.003	0.004
Leak check vacuum, inHg	18	20

Nozzle check for roundness:

1	2	3	
0.264	0.264	0.263	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	68.684	dcf	Ave. ΔP	0.360	inH_2O
Wet mol. weight	28.78	M_s (actual)	Ave. √ΔP	0.597	inH_2O
Actual H_2O	2.02	%	Ave. ΔH	1.825	inH_2O
Std. meter vol.	60.265	dscf	Ave. T_s	82.5	°F
Isokinetic Average	100.0	%	Ave. T_m	69.7	°F

Moisture/Lab:

Filter, #	Q77		
	Initial	Final	Gain
Impingers, g	1,981.2	1,990.1	8.9
Silica gel, g	877.7	895.1	17.4
		Total water gain:	26.3

Traverse Point	Time (min.)	Meter Volume (dcf) 0.000	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
1	3.75	3.390	0.51	82	69	2.60	2.60	4	250	68	250
2	7.50	6.790	0.53	82	69	2.70	2.70	4	250	46	249
3	11.25	9.970	0.43	82	69	2.19	2.20	3	250	45	250
4	15.00	13.400	0.48	82	69	2.45	2.50	3	251	47	250
5	18.75	16.370	0.40	82	69	2.04	2.00	3	250	48	250
6	22.50	19.240	0.38	82	69	1.94	1.90	3	250	48	250
7	26.25	21.970	0.30	82	69	1.53	1.50	3	250	49	251
8	30.00	24.560	0.28	82	70	1.43	1.40	3	250	48	250
9	33.75	27.150	0.29	82	70	1.48	1.50	3	251	49	250
10	37.50	29.630	0.27	82	70	1.38	1.40	3	250	49	251
11	41.25	32.310	0.31	84	70	1.58	1.60	3	250	49	250
12	45.00	35.116	0.34	84	70	1.73	1.70	3	250	49	250
13	48.75	37.870	0.33	82	70	1.68	1.70	3	252	55	250
14	52.50	40.560	0.31	82	70	1.58	1.60	3	250	51	250
15	56.25	43.360	0.33	82	70	1.68	1.70	3	251	51	250
16	60.00	46.130	0.34	82	70	1.74	1.70	3	250	51	250
17	63.75	49.140	0.40	82	70	2.04	2.00	3	249	51	250
18	67.50	52.060	0.37	82	70	1.89	1.90	3	249	52	250
19	71.25	54.840	0.34	82	70	1.74	1.70	3	250	53	250
20	75.00	57.700	0.36	83	70	1.83	1.80	3	250	54	251
21	78.75	60.410	0.31	84	70	1.58	1.60	3	250	54	250
22	82.50	63.140	0.32	84	70	1.63	1.60	3	250	54	250
23	86.25	65.830	0.34	84	70	1.73	1.70	3	250	54	251
24	90.00	68.684	0.36	84	70	1.83	1.80	3	250	55	250

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #3**

Run 1 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	710.0	703.6	-6.4
2	680.0	685.3	5.3
3	615.0	618.5	3.5
Total	**2,005.0**	**2,007.4**	**2.4**

Run 2 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	661.7	658.1	-3.6
2	607.1	616.4	9.3
3	626.5	630.6	4.1
Total	**1,895.3**	**1,905.1**	**9.8**

Run 3 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	614.8	607.0	-7.8
2	706.3	719.3	13.0
3	660.1	663.8	3.7
Total	**1,981.2**	**1,990.1**	**8.9**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources, LLC**
Source: **Fine Ore #3**
Location: **Butte, MT**

Run			1	2	3	
Date			6/25/2024	6/25/2024	6/25/2024	
Run Start Time			8:00	10:10	12:22	
Run End Time			9:41	12:00	13:58	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.57	24.54	24.51	**24.54**
Nozzle Dia., in.			0.2640	0.2640	0.2640	**0.2640**
Isokinetic Average, %			100.4	100.5	100.0	**100.3**
Sample Volume, dscf			60.311	60.133	60.265	**60.236**
Sample Volume, dscm			1.708	1.703	1.707	**1.706**
Stack Diameter, in.			40.00	40.00	40.00	**40.00**
Stack Area, sq.ft.			8.727	8.727	8.727	**8.727**
Static Press., "H_2O			0.14	0.14	0.14	**0.14**
H_2O %v			1.24	2.01	2.02	**1.76**
Wet Molecular Weight, lb/lb-mole			28.86	28.78	28.78	**28.81**
Velocity, FPS			36.63	37.11	37.58	**37.11**
ADCFM			18,942	19,041	19,281	**19,088**
ACFM			19,180	19,432	19,678	**19,430**
DSCFM			15,326	15,262	15,378	**15,322**
Stack Temperature, ^oF			76.1	80.5	82.5	**79.7**
Filterable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.001	0.000	0.000	**0.000**
	Mass	lb/hr	0.044	0.007	0.006	**0.019**
Condensable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.001	0.001	0.000	**0.000**
	Mass	lb/hr	0.046	0.036	0.000	**0.027**
Total PM	Concentration, C_s	gr/dscf	0.001	0.000	0.000	**0.000**
		g/dscm	0.002	0.001	0.000	**0.001**
	Mass	lb/hr	0.091	0.043	0.006	**0.046**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte, MT**	**Start Time:**	**8:00**
Source:	**Fine Ore #3**	**End Time:**	**9:41**
Method:	**5**	**Date:**	**6/25/2024**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	0.000						
4	2.800	1.80	55	1	0.35	74	0.592
8	5.430	1.60	55	2	0.31	74	0.557
11	7.970	1.50	55	3	0.29	74	0.539
15	10.840	1.80	57	4	0.36	75	0.600
19	13.420	1.40	58	5	0.28	75	0.529
23	16.190	1.70	59	6	0.34	75	0.583
26	18.830	1.50	59	7	0.30	75	0.548
30	21.510	1.60	59	8	0.32	75	0.566
34	24.240	1.70	61	9	0.33	75	0.574
38	27.250	2.10	61	10	0.41	75	0.640
41	30.350	2.20	62	11	0.42	75	0.648
45	33.576	2.30	62	12	0.45	75	0.671
49	36.450	1.90	63	13	0.36	75	0.600
53	39.230	1.80	63	14	0.34	75	0.583
56	42.110	1.80	63	15	0.36	78	0.600
60	45.130	2.10	64	16	0.40	78	0.632
64	47.950	1.70	64	17	0.34	78	0.583
68	50.560	1.50	64	18	0.29	78	0.539
71	53.200	1.60	64	19	0.31	78	0.557
75	56.020	1.70	64	20	0.34	78	0.583
79	58.670	1.50	64	21	0.30	78	0.548
83	61.550	1.80	65	22	0.35	78	0.592
86	64.530	1.90	65	23	0.36	78	0.600
90	67.490	2.10	65	24	0.40	78	0.632

Client:	**Montana Resources, LLC**	**Run:**	**1**
Source:	**Fine Ore #3**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	67.490	dcf	Rectangular		
Water Volume	16.0	g	Width		in
Nozzle Diameter, N_z	0.2640	in.	Length		in
Nozzle Area	0.000380	sq.ft.	Stack Area	8.727	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.57	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.14	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	1.775	"H_2O	√Dp	0.5870	"H_2O
Temperature, T_m	61.3	^oF	Temperature, T_s	76.1	^oF
Temperature, T_m	521.0	^oA (^oR)	Temperature, T_s	535.8	^oA (R)
Pressure Meter, P_m	24.701	"Hg	Pressure Stack, P_s	24.580	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	60.311	dscf	Velocity, V_s	36.63	fps
	1.708	dscm	Volume (actual)	19,180	acfm
Actual Volume, $V_{m(actual)}$	75.477	awcf		18,942	adcfm
Gas Stream Moisture			Volume (standard)	931,127	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.755	scf		919,581	dscf/hr
Moisture, B_{ws}	0.0124			15,326	dscf/min
Moisture EPA M4	1.24	%v		15,519	wscf/min
Moisture @ Saturation	3.70	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.86	lb/lb-mole			
Percent Isokinetic	100.4	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00132	grams	Concentration, C_s	0.0003	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.04	lb/hr

MT Back Half:

Condensable PM	1.38E-03	grams	CPM, C_s	3.53E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.05	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte, MT**	**Start Time:**	**10:10**
Source:	**Fine Ore #3**	**End Time:**	**12:00**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	0.000						
4	2.690	1.70	63	1	0.33	79	0.574
8	5.460	1.80	64	2	0.34	79	0.583
11	8.410	1.90	64	3	0.36	79	0.600
15	11.160	1.80	64	4	0.35	80	0.592
19	13.840	1.70	64	5	0.33	80	0.574
23	16.440	1.60	65	6	0.32	80	0.566
26	19.120	1.60	65	7	0.31	80	0.557
30	21.690	1.50	65	8	0.29	80	0.539
34	24.080	1.30	65	9	0.26	80	0.510
38	26.590	1.40	65	10	0.28	80	0.529
41	29.030	1.40	65	11	0.27	80	0.520
45	31.504	1.40	65	12	0.28	80	0.529
49	34.590	2.10	66	13	0.41	81	0.640
53	37.670	2.20	66	14	0.43	81	0.656
56	40.630	2.10	66	15	0.40	81	0.632
60	43.840	2.20	66	16	0.42	81	0.648
64	47.020	2.30	67	17	0.44	81	0.663
68	49.900	1.80	67	18	0.35	80	0.592
71	52.540	1.50	67	19	0.30	81	0.548
75	55.380	1.80	67	20	0.35	81	0.592
79	58.290	1.90	68	21	0.36	81	0.600
83	61.360	2.10	68	22	0.40	82	0.632
86	64.620	2.20	68	23	0.43	82	0.656
90	67.946	2.30	69	24	0.44	82	0.663

Client:	**Montana Resources, LLC**	**Run:**	**2**
Source:	**Fine Ore #3**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	67.946	dcf	Rectangular		
Water Volume	26.1	g	Width		in
Nozzle Diameter, N_z	0.2640	in.	Length		in
Nozzle Area	0.000380	sq.ft.	Stack Area	8.727	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.54	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.14	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	1.817	"H_2O	√Dp	0.5910	"H_2O
Temperature, T_m	65.8	^oF	Temperature, T_s	80.5	^oF
Temperature, T_m	525.5	^oA (^oR)	Temperature, T_s	540.2	^oA (R)
Pressure Meter, P_m	24.674	"Hg	Pressure Stack, P_s	24.550	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	60.133	dscf	Velocity, V_s	37.11	fps
	1.703	dscm	Volume (actual)	19,432	acfm
Actual Volume, $V_{m(actual)}$	76.561	awcf		19,041	adcfm
Gas Stream Moisture			Volume (standard)	934,502	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.231	scf		915,719	dscf/hr
Moisture, B_{ws}	0.0201			15,262	dscf/min
Moisture EPA M4	2.01	%v		15,575	wscf/min
Moisture @ Saturation	4.28	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.78	lb/lb-mole			
Percent Isokinetic	100.5	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00021	grams	Concentration, C_s	0.0001	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	1.07E-03	grams	CPM, C_s	2.75E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.04	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**3**
Location:	**Butte, MT**	**Start Time:**	**12:22**
Source:	**Fine Ore #3**	**End Time:**	**13:58**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m ^oF**	**Traverse Point**	**Dp "H_2O**	**Stack T_s ^oF**	**√Dp**
	0.000						
4	3.390	2.60	69	1	0.51	82	0.714
8	6.790	2.70	69	2	0.53	82	0.728
11	9.970	2.20	69	3	0.43	82	0.656
15	13.400	2.50	69	4	0.48	82	0.693
19	16.370	2.00	69	5	0.40	82	0.632
23	19.240	1.90	69	6	0.38	82	0.616
26	21.970	1.50	69	7	0.30	82	0.548
30	24.560	1.40	70	8	0.28	82	0.529
34	27.150	1.50	70	9	0.29	82	0.539
38	29.630	1.40	70	10	0.27	82	0.520
41	32.310	1.60	70	11	0.31	84	0.557
45	35.116	1.70	70	12	0.34	84	0.583
49	37.870	1.70	70	13	0.33	82	0.574
53	40.560	1.60	70	14	0.31	82	0.557
56	43.360	1.70	70	15	0.33	82	0.574
60	46.130	1.70	70	16	0.34	82	0.583
64	49.140	2.00	70	17	0.40	82	0.632
68	52.060	1.90	70	18	0.37	82	0.608
71	54.840	1.70	70	19	0.34	82	0.583
75	57.700	1.80	70	20	0.36	83	0.600
79	60.410	1.60	70	21	0.31	84	0.557
83	63.140	1.60	70	22	0.32	84	0.566
86	65.830	1.70	70	23	0.34	84	0.583
90	68.684	1.80	70	24	0.36	84	0.600

Client:	**Montana Resources, LLC**	**Run:**	**3**
Source:	**Fine Ore #3**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	68.684	dcf	Rectangular		
Water Volume	26.3	g	Width		in
Nozzle Diameter, N_z	0.2640	in.	Length		in
Nozzle Area	0.000380	sq.ft.	Stack Area	8.727	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.51	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.14	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	1.825	"H_2O	√Dp	0.5970	"H_2O
Temperature, T_m	69.7	^oF	Temperature, T_s	82.5	^oF
Temperature, T_m	529.4	^oA (^oR)	Temperature, T_s	542.2	^oA (R)
Pressure Meter, P_m	24.644	"Hg	Pressure Stack, P_s	24.520	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	60.265	dscf	Velocity, V_s	37.58	fps
	1.707	dscm	Volume (actual)	19,678	acfm
Actual Volume, $V_{m(actual)}$	77.115	awcf		19,281	adcfm
Gas Stream Moisture			Volume (standard)	941,695	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.240	scf		922,673	dscf/hr
Moisture, B_{ws}	0.0202			15,378	dscf/min
Moisture EPA M4	2.02	%v		15,695	wscf/min
Moisture @ Saturation	4.57	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.78	lb/lb-mole			
Percent Isokinetic	100.0	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00016	grams	Concentration, C_s	0.0000	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	0.00E+00	grams	CPM, C_s	0.00E+00	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.00	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Fine Ore #3**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction	Corrected Gain (grams)
	Probe Rinse (Acetone FH)	35.5	30.1587	30.1598	0.0011	0.0002	**0.0009**
1	Filter	Q75	0.4632	0.4636	0.0004		**0.0004**
	CPM Inorganics (Water)	150	29.8094	29.8120	0.0026	0.0012	**0.0014**
	Impinger H_2O Gain, g		2005	2007	2		
						Filterable PM (mg)	**1.32**
						Condensable PM (mg)	**1.38**
						Total PM (mg)	**2.70**
	Probe Rinse (Acetone FH)	56.4	30.1379	30.1384	0.0005	0.0003	**0.0002**
2	Filter	Q76	0.4547	0.4547	0.0000		**0.0000**
	CPM Inorganics (Water)	152	30.5673	30.5696	0.0023	0.0012	**0.0011**
	Impinger H_2O Gain, g		1895	1905	10		
						Filterable PM (mg)	**0.21**
						Condensable PM (mg)	**1.07**
						Total PM (mg)	**1.28**
	Probe Rinse (Acetone FH)	46.1	30.4697	30.4701	0.0004	0.0002	**0.0002**
3	Filter	Q77	0.4542	0.4537	-0.0005		**0.0000**
	CPM Inorganics (Water)	166	30.3795	30.3806	0.0011	0.0014	**0.0000**
	Impinger H_2O Gain, g		1981	1990	9		
						Filterable PM (mg)	**0.16**
						Condensable PM (mg)	**0.00**
						Total PM (mg)	**0.16**
	Acetone Blank	97	30.9973	30.9978	0.0005	5.13E-06 g/g	
	Water Blank	320	30.5518	30.5544	0.0026	8.11E-06 g/g	

BISON ENGINEERING, INC.

COMPANY	**Montana Resources, LLC**
FACILITY	**Butte**
LOCATION	**Butte,MT**
SOURCE	**Fine Ore #4**
DATE	**06/24/24**
METHOD	**5/MTBH**
POLLUTANT	**PM**

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Fine Ore #4**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):		feet
Stack height (approx.):		feet
Circular ID (rectangular length):	40.00	inches
Port depth and/or wall thickness:	6.00	inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	N/A	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 40.00 inches (If circular = duct ID)
Stack/duct area = 8.727 sq.feet 1256.6 sq. inches

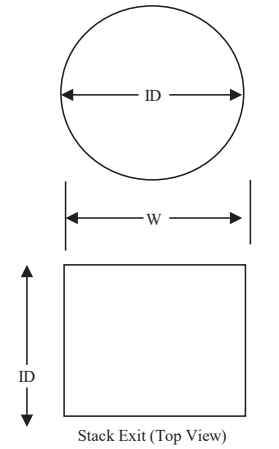
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	100.00	48.00
Number of diameters:	2.50	1.20

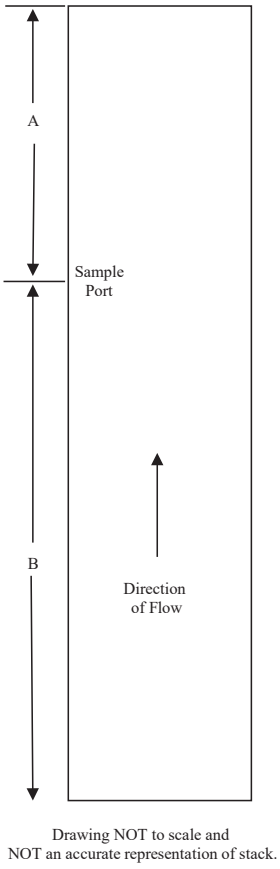
Recommended number of traverse points: 24

Traverse points less than 1.0 inch from the stack wall are relocated to a distance of 1.0 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	2.1	0.84	6 7/8
2	6.7	2.68	8 5/8
3	11.8	4.72	10 3/4
4	17.7	7.08	13 1/8
5	25.0	10.00	16
6	35.6	14.24	20 1/4
7	64.4	25.76	31 3/4
8	75.0	30.00	36
9	82.3	32.92	38 7/8
10	88.2	35.28	41 1/4
11	93.3	37.32	43 3/8
12	97.9	39.16	45 1/8

Reference Diagram





Drawing NOT to scale and
NOT an accurate representation of stack.

Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Fine Ore #4**
Date: **6/24/2024**

Stack Temp: 81 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.49	2
2	0.50	1
3	0.48	1
4	0.51	0
5	0.52	0
6	0.50	0
7	0.54	5
8	0.49	0
9	0.48	0
10	0.46	5
11	0.45	0
12	0.50	5
13	0.51	2
14	0.52	3
15	0.53	1
16	0.51	0
17	0.50	0
18	0.45	0
19	0.46	0
20	0.49	0
21	0.50	2
22	0.50	5
23	0.51	0
24	0.52	0

Average: 0.50 1

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**1**
Location:	**Butte,MT**			**Start Time:**	**11:55**
Source:	**Fine Ore #4**			**End Time:**	**13:31**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/24/2024**
Box Operator:	**RTM**	85 and Sunny			
Technician(s):	**AV**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B4D	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA9	Nozzle size	0.250	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000341	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B4D	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	4	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.45	inHg	Assumed O_2	NA	%
Static Pressure	0.13	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.5	inH_2O	Rec. Nz.	0.232	inches
Stack Temperature	81	°F			
Assumed moisture	1.50	%			
Assumed meter temp.	67	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.004	0.002
Leak check vacuum, inHg	18	19

Nozzle check for roundness:

1	2	3	
0.250	0.251	0.250	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	71.754	dcf	Ave. ΔP	0.488	inH_2O
Wet mol. weight	28.88	M_s (actual)	Ave. √ΔP	0.699	inH_2O
Actual H_2O	1.13	%	Ave. ΔH	2.008	inH_2O
Std. meter vol.	62.924	dscf	Ave. T_s	85.5	°F
Isokinetic Average	99.0	%	Ave. T_m	69.0	°F

Moisture/Lab:

Filter, #	Q72		
	Initial	Final	Gain
Impingers, g	1,980.5	1,978.9	-1.6
Silica gel, g	873.2	890.0	16.8
		Total water gain, g:	15.2

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	2.850	0.47	84	67	1.93	1.90	3	250	68	251
2	7.50	5.810	0.49	84	68	2.01	2.00	3	250	68	251
3	11.25	8.640	0.44	84	68	1.81	1.80	3	251	60	250
4	15.00	11.770	0.51	85	67	2.09	2.10	3	250	61	250
5	18.75	14.710	0.46	85	68	1.89	1.90	3	250	64	250
6	22.50	17.770	0.48	84	68	1.97	2.00	3	251	65	250
7	26.25	20.740	0.51	85	68	2.09	2.10	3	250	66	250
8	30.00	23.850	0.53	85	68	2.17	2.20	3	249	67	251
9	33.75	26.840	0.47	84	69	1.93	1.90	3	250	67	250
10	37.50	29.850	0.49	84	69	2.02	2.00	3	251	67	250
11	41.25	32.910	0.52	84	69	2.14	2.10	3	250	66	250
12	45.00	35.754	0.46	85	69	1.89	1.90	3	251	66	250
13	48.75	38.750	0.48	86	69	1.97	2.00	3	250	65	250
14	52.50	41.850	0.52	86	70	2.14	2.10	3	250	63	250
15	56.25	44.850	0.48	86	70	1.97	2.00	3	250	59	250
16	60.00	47.820	0.46	86	70	1.89	1.90	3	250	59	250
17	63.75	50.730	0.49	86	70	2.01	2.00	3	251	59	250
18	67.50	53.920	0.51	86	70	2.10	2.10	3	250	60	250
19	71.25	56.790	0.46	86	70	1.89	1.90	4	250	60	250
20	75.00	59.740	0.49	86	70	2.01	2.00	4	250	60	250
21	78.75	62.730	0.50	87	70	2.05	2.10	4	251	60	250
22	82.50	65.520	0.46	87	70	1.89	1.90	4	250	60	250
23	86.25	68.620	0.51	88	70	2.09	2.10	4	250	60	250
24	90.00	71.754	0.53	88	70	2.17	2.20	4	250	60	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte,MT**	**Start Time:**	**13:55**
Source:	**Fine Ore #4**	**End Time:**	**15:46**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**	**Date:** **13:48**
Box Operator:	**RTM**	85 and Sunny	
Technician(s):	**AV**		

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B4D	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA9	Nozzle size	0.250	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000341	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B4D	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	4	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.42	inHg	Assumed O_2	NA	%
Static Pressure	0.13	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.488	inH_2O	Rec. Nz.	0.233	inches
Stack Temperature	85.5	°F			
Assumed moisture	1.13	%			
Assumed meter temp.	69	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.003	0.004
Leak check vacuum, inHg	18	18

Nozzle check for roundness:

1	2	3	
0.250	0.251	0.250	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	72.051	dcf	Ave. ΔP	0.488	inH_2O
Wet mol. weight	28.86	M_s (actual)	Ave. √ΔP	0.699	inH_2O
Actual H_2O	1.24	%	Ave. ΔH	2.017	inH_2O
Std. meter vol.	62.882	dscf	Ave. T_s	84.8	°F
Isokinetic Average	99.1	%	Ave. T_m	70.9	°F

Moisture/Lab:

Filter, #	Q73		
	Initial	Final	Gain
Impingers, g	1,924.6	1,925.7	1.1
Silica gel, g	898.9	914.6	15.7
		Total water gain:	16.8

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	2.920	0.50	85	70	2.07	2.10	3	250	68	250
2	7.50	5.870	0.48	85	71	1.99	2.00	3	250	68	250
3	11.25	8.930	0.47	85	71	1.95	2.00	3	250	66	250
4	15.00	11.950	0.49	85	71	2.03	2.00	3	250	66	251
5	18.75	14.820	0.46	85	72	1.91	1.90	3	251	66	250
6	22.50	17.960	0.49	85	72	2.04	2.00	3	250	67	250
7	26.25	20.940	0.51	85	72	2.12	2.10	3	250	65	250
8	30.00	24.010	0.52	85	72	2.16	2.10	3	250	64	250
9	33.75	26.950	0.45	84	72	1.87	1.90	3	250	63	251
10	37.50	29.860	0.46	84	72	1.92	1.90	3	251	61	250
11	41.25	32.790	0.48	84	72	2.00	2.00	3	252	60	250
12	45.00	35.815	0.49	84	71	2.04	2.00	3	250	59	250
13	48.75	38.880	0.52	84	71	2.16	2.20	3	250	55	250
14	52.50	41.920	0.49	84	71	2.04	2.00	3	250	55	250
15	56.25	45.010	0.51	85	71	2.12	2.10	3	250	55	250
16	60.00	48.000	0.48	85	70	1.99	2.00	3	250	54	250
17	63.75	50.910	0.46	85	70	1.90	1.90	3	250	55	250
18	67.50	53.970	0.52	85	70	2.15	2.10	3	251	55	250
19	71.25	57.090	0.54	85	70	2.24	2.20	3	250	56	251
20	75.00	59.990	0.44	85	70	1.82	1.80	3	250	56	250
21	78.75	62.910	0.46	85	70	1.90	1.90	3	250	58	250
22	82.50	65.920	0.49	85	70	2.03	2.00	3	252	58	250
23	86.25	68.970	0.50	85	70	2.07	2.10	3	251	58	249
24	90.00	72.051	0.51	85	70	2.11	2.10	3	250	58	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte,MT**			**Start Time:**	**16:05**
Source:	**Fine Ore #4**			**End Time:**	**17:41**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/24/2024**
Box Operator:	**RTM**	85 and Sunny			
Technician(s):	**AV**				

Stack Dimensional Data:

Circular		
Diameter	40.000	in
Rectangular		
Width		in
Length		in
Stack Area	8.727	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B4D	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA9	Nozzle size	0.250	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000341	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B4D	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	4	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.39	inHg	Assumed O_2	NA	%
Static Pressure	0.13	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.488	inH_2O	Rec. Nz.	0.232	inches
Stack Temperature	84.8	°F			
Assumed moisture	1.24	%			
Assumed meter temp.	70.9	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.002	0.003
Leak check vacuum, inHg	19	20

Nozzle check for roundness:

1	2	3	
0.250	0.251	0.250	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	72.336	dcf	Ave. ΔP	0.487	inH_2O
Wet mol. weight	28.8	M_s (actual)	Ave. √ΔP	0.697	inH_2O
Actual H_2O	1.80	%	Ave. ΔH	2.021	inH_2O
Std. meter vol.	63.151	dscf	Ave. T_s	85.7	°F
Isokinetic Average	100.4	%	Ave. T_m	70.1	°F

Moisture/Lab:

Filter, #	Q74		
	Initial	Final	Gain
Impingers, g	1,956.8	1,964.7	7.9
Silica gel, g	890.0	906.7	16.7
		Total water gain:	24.6

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	2.880	0.46	85	69	1.90	1.90	3	250	68	250
2	7.50	6.100	0.52	85	69	2.15	2.20	3	250	64	250
3	11.25	9.090	0.48	85	69	1.98	2.00	3	250	59	250
4	15.00	12.090	0.49	85	69	2.02	2.00	3	250	59	250
5	18.75	15.060	0.46	86	69	1.89	1.90	3	249	58	250
6	22.50	18.150	0.50	86	69	2.06	2.10	3	250	60	250
7	26.25	21.140	0.48	86	69	1.98	2.00	3	250	60	251
8	30.00	24.230	0.51	85	69	2.10	2.10	3	250	60	250
9	33.75	27.190	0.47	85	69	1.94	1.90	3	251	60	252
10	37.50	30.180	0.48	85	69	1.98	2.00	3	250	60	250
11	41.25	33.270	0.51	86	70	2.10	2.10	3	250	61	250
12	45.00	36.274	0.50	86	70	2.06	2.10	3	251	61	250
13	48.75	39.220	0.48	86	71	1.98	2.00	3	250	61	250
14	52.50	42.090	0.45	86	71	1.86	1.90	3	250	62	251
15	56.25	45.090	0.46	86	71	1.90	1.90	3	250	62	250
16	60.00	48.210	0.52	86	71	2.15	2.20	3	250	62	250
17	63.75	51.360	0.53	86	71	2.19	2.20	3	251	62	252
18	67.50	54.360	0.46	86	71	1.90	1.90	3	250	64	251
19	71.25	57.290	0.48	86	71	1.98	2.00	3	250	64	250
20	75.00	60.330	0.49	86	71	2.03	2.00	3	252	64	250
21	78.75	63.280	0.48	86	71	1.98	2.00	3	250	65	250
22	82.50	66.450	0.52	86	71	2.15	2.20	3	250	65	250
23	86.25	69.380	0.46	86	71	1.90	1.90	3	250	65	250
24	90.00	72.336	0.49	86	71	2.03	2.00	3	250	65	250

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Fine Ore #4**

Run 1 6/24/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	740.1	728.8	-11.3
2	720.4	726.8	6.4
3	520.0	523.3	3.3
Total	**1,980.5**	**1,978.9**	**-1.6**

Run 2 1/0/1900

Impinger #	Initial (g)	Final (g)	Gain (g)
1	744.3	730.5	-13.8
2	627.6	639.1	11.5
3	552.7	556.1	3.4
Total	**1,924.6**	**1,925.7**	**1.1**

Run 3 6/24/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	735.0	730.6	-4.4
2	698.5	705.6	7.1
3	523.3	528.5	5.2
Total	**1,956.8**	**1,964.7**	**7.9**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources, LLC**
Source: **Fine Ore #4**
Location: **Butte,MT**

Run			1	2	3	
Date			6/24/2024	1/0/1900	6/24/2024	
Run Start Time			11:55	13:55	16:05	
Run End Time			13:31	15:46	17:41	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.45	24.42	24.39	**24.42**
Nozzle Dia., in.			0.2500	0.2500	0.2500	**0.2500**
Isokinetic Average, %			99.0	99.1	100.4	**99.5**
Sample Volume, dscf			62.924	62.882	63.151	**62.986**
Sample Volume, dscm			1.782	1.781	1.788	**1.784**
Stack Diameter, in.			40.00	40.00	40.00	**40.00**
Stack Area, sq.ft.			8.727	8.727	8.727	**8.727**
Static Press., "H_2O			0.13	0.13	0.13	**0.13**
H_2O %v			1.13	1.24	1.80	**1.39**
Wet Molecular Weight, lb/lb-mole			28.88	28.86	28.80	**28.85**
Velocity, FPS			44.10	44.11	44.09	**44.10**
ADCFM			22,831	22,811	22,670	**22,771**
ACFM			23,092	23,097	23,086	**23,092**
DSCFM			18,065	18,050	17,888	**18,001**
Stack Temperature, ^oF			85.5	84.8	85.7	**85.3**
Filterable Particulate	Concentration, C_s	gr/dscf	0.000	0.001	0.000	**0.000**
		g/dscm	0.001	0.001	0.001	**0.001**
	Mass	lb/hr	0.074	0.087	0.058	**0.073**
Condensable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.000	0.000	0.000	**0.000**
	Mass	lb/hr	0.029	0.000	0.000	**0.010**
Total PM	Concentration, C_s	gr/dscf	0.001	0.001	0.000	**0.001**
		g/dscm	0.002	0.001	0.001	**0.001**
	Mass	lb/hr	0.103	0.087	0.058	**0.083**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte,MT**	**Start Time:**	**11:55**
Source:	**Fine Ore #4**	**End Time:**	**13:31**
Method:	**5**	**Date:**	**6/24/2024**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m °F**	**Traverse Point**	**Dp "H_2O**	**Stack T_s °F**	**√Dp**
	0.000						
4	2.850	1.90	67	1	0.47	84	0.686
8	5.810	2.00	68	2	0.49	84	0.700
11	8.640	1.80	68	3	0.44	84	0.663
15	11.770	2.10	67	4	0.51	85	0.714
19	14.710	1.90	68	5	0.46	85	0.678
23	17.770	2.00	68	6	0.48	84	0.693
26	20.740	2.10	68	7	0.51	85	0.714
30	23.850	2.20	68	8	0.53	85	0.728
34	26.840	1.90	69	9	0.47	84	0.686
38	29.850	2.00	69	10	0.49	84	0.700
41	32.910	2.10	69	11	0.52	84	0.721
45	35.754	1.90	69	12	0.46	85	0.678
49	38.750	2.00	69	13	0.48	86	0.693
53	41.850	2.10	70	14	0.52	86	0.721
56	44.850	2.00	70	15	0.48	86	0.693
60	47.820	1.90	70	16	0.46	86	0.678
64	50.730	2.00	70	17	0.49	86	0.700
68	53.920	2.10	70	18	0.51	86	0.714
71	56.790	1.90	70	19	0.46	86	0.678
75	59.740	2.00	70	20	0.49	86	0.700
79	62.730	2.10	70	21	0.50	87	0.707
83	65.520	1.90	70	22	0.46	87	0.678
86	68.620	2.10	70	23	0.51	88	0.714
90	71.754	2.20	70	24	0.53	88	0.728

Client:	**Montana Resources, LLC**	**Run:**	**1**
Source:	**Fine Ore #4**	**Date:**	**06/24/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	71.754	dcf	Rectangular		
Water Volume	15.2	g	Width		in
Nozzle Diameter, N_z	0.2500	in.	Length		in
Nozzle Area	0.000341	sq.ft.	Stack Area	8.727	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.45	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.13	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.008	"H_2O	√Dp	0.6990	"H_2O
Temperature, T_m	69.0	^oF	Temperature, T_s	85.5	^oF
Temperature, T_m	528.7	^oA (^oR)	Temperature, T_s	545.2	^oA (R)
Pressure Meter, P_m	24.598	"Hg	Pressure Stack, P_s	24.460	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	62.924	dscf	Velocity, V_s	44.10	fps
	1.782	dscm	Volume (actual)	23,092	acfm
Actual Volume, $V_{m(actual)}$	80.432	awcf		22,831	adcfm
Gas Stream Moisture			Volume (standard)	1,096,305	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.717	scf		1,083,917	dscf/hr
Moisture, B_{ws}	0.0113			18,065	dscf/min
Moisture EPA M4	1.13	%v		18,272	wscf/min
Moisture @ Saturation	5.04	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.88	lb/lb-mole			
Percent Isokinetic	99.0	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00194	grams	Concentration, C_s	0.0005	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.07	lb/hr

MT Back Half:

Condensable PM	7.59E-04	grams	CPM, C_s	1.86E-04	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.03	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte,MT**	**Start Time:**	**13:55**
Source:	**Fine Ore #4**	**End Time:**	**15:46**
Method:	**5**	**Date:**	**01/00/00**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	0.000						
4	2.920	2.10	70	1	0.50	85	0.707
8	5.870	2.00	71	2	0.48	85	0.693
11	8.930	2.00	71	3	0.47	85	0.686
15	11.950	2.00	71	4	0.49	85	0.700
19	14.820	1.90	72	5	0.46	85	0.678
23	17.960	2.00	72	6	0.49	85	0.700
26	20.940	2.10	72	7	0.51	85	0.714
30	24.010	2.10	72	8	0.52	85	0.721
34	26.950	1.90	72	9	0.45	84	0.671
38	29.860	1.90	72	10	0.46	84	0.678
41	32.790	2.00	72	11	0.48	84	0.693
45	35.815	2.00	71	12	0.49	84	0.700
49	38.880	2.20	71	13	0.52	84	0.721
53	41.920	2.00	71	14	0.49	84	0.700
56	45.010	2.10	71	15	0.51	85	0.714
60	48.000	2.00	70	16	0.48	85	0.693
64	50.910	1.90	70	17	0.46	85	0.678
68	53.970	2.10	70	18	0.52	85	0.721
71	57.090	2.20	70	19	0.54	85	0.735
75	59.990	1.80	70	20	0.44	85	0.663
79	62.910	1.90	70	21	0.46	85	0.678
83	65.920	2.00	70	22	0.49	85	0.700
86	68.970	2.10	70	23	0.50	85	0.707
90	72.051	2.10	70	24	0.51	85	0.714

Client:	**Montana Resources, LLC**	**Run:**	**2**
Source:	**Fine Ore #4**	**Date:**	**01/00/00**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	72.051	dcf	Rectangular		
Water Volume	16.8	g	Width		in
Nozzle Diameter, N_z	0.2500	in.	Length		in
Nozzle Area	0.000341	sq.ft.	Stack Area	8.727	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.42	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.13	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.017	"H_2O	√Dp	0.6990	"H_2O
Temperature, T_m	70.9	^oF	Temperature, T_s	84.8	^oF
Temperature, T_m	530.6	^oA (^oR)	Temperature, T_s	544.5	^oA (R)
Pressure Meter, P_m	24.568	"Hg	Pressure Stack, P_s	24.430	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	62.882	dscf	Velocity, V_s	44.11	fps
	1.781	dscm	Volume (actual)	23,097	acfm
Actual Volume, $V_{m(actual)}$	80.462	awcf		22,811	adcfm
Gas Stream Moisture			Volume (standard)	1,096,617	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.792	scf		1,083,019	dscf/hr
Moisture, B_{ws}	0.0124			18,050	dscf/min
Moisture EPA M4	1.24	%v		18,277	wscf/min
Moisture @ Saturation	4.94	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.86	lb/lb-mole			
Percent Isokinetic	99.1	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00230	grams	Concentration, C_s	0.0006	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.09	lb/hr

MT Back Half:

Condensable PM	0.00E+00	grams	CPM, C_s	0.00E+00	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.00	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**3**
Location:	**Butte,MT**	**Start Time:**	**16:05**
Source:	**Fine Ore #4**	**End Time:**	**17:41**
Method:	**5**	**Date:**	**06/24/24**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m ^oF**	**Traverse Point**	**Dp "H_2O**	**Stack T_s ^oF**	**$\sqrt{Dp}$**
	0.000						
4	2.880	1.90	69	1	0.46	85	0.678
8	6.100	2.20	69	2	0.52	85	0.721
11	9.090	2.00	69	3	0.48	85	0.693
15	12.090	2.00	69	4	0.49	85	0.700
19	15.060	1.90	69	5	0.46	86	0.678
23	18.150	2.10	69	6	0.50	86	0.707
26	21.140	2.00	69	7	0.48	86	0.693
30	24.230	2.10	69	8	0.51	85	0.714
34	27.190	1.90	69	9	0.47	85	0.686
38	30.180	2.00	69	10	0.48	85	0.693
41	33.270	2.10	70	11	0.51	86	0.714
45	36.274	2.10	70	12	0.50	86	0.707
49	39.220	2.00	71	13	0.48	86	0.693
53	42.090	1.90	71	14	0.45	86	0.671
56	45.090	1.90	71	15	0.46	86	0.678
60	48.210	2.20	71	16	0.52	86	0.721
64	51.360	2.20	71	17	0.53	86	0.728
68	54.360	1.90	71	18	0.46	86	0.678
71	57.290	2.00	71	19	0.48	86	0.693
75	60.330	2.00	71	20	0.49	86	0.700
79	63.280	2.00	71	21	0.48	86	0.693
83	66.450	2.20	71	22	0.52	86	0.721
86	69.380	1.90	71	23	0.46	86	0.678
90	72.336	2.00	71	24	0.49	86	0.700

Client:	**Montana Resources, LLC**	**Run:**	**3**
Source:	**Fine Ore #4**	**Date:**	**06/24/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	40.000	in
Meter Volume, V_m	72.336	dcf	Rectangular		
Water Volume	24.6	g	Width		in
Nozzle Diameter, N_z	0.2500	in.	Length		in
Nozzle Area	0.000341	sq.ft.	Stack Area	8.727	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.39	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.13	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.021	"H_2O	√Dp	0.6970	"H_2O
Temperature, T_m	70.1	^oF	Temperature, T_s	85.7	^oF
Temperature, T_m	529.8	^oA (^oR)	Temperature, T_s	545.4	^oA (R)
Pressure Meter, P_m	24.539	"Hg	Pressure Stack, P_s	24.400	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	63.151	dscf	Velocity, V_s	44.09	fps
	1.788	dscm	Volume (actual)	23,086	acfm
Actual Volume, $V_{m(actual)}$	81.502	awcf		22,670	adcfm
Gas Stream Moisture			Volume (standard)	1,092,967	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.160	scf		1,073,294	dscf/hr
Moisture, B_{ws}	0.0180			17,888	dscf/min
Moisture EPA M4	1.80	%v		18,216	wscf/min
Moisture @ Saturation	5.09	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.80	lb/lb-mole			
Percent Isokinetic	100.4	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00156	grams	Concentration, C_s	0.0004	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.06	lb/hr

MT Back Half:

Condensable PM	0.00E+00	grams	CPM, C_s	0.00E+00	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.00	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Fine Ore #4**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction	Corrected Gain (grams)
	Probe Rinse (Acetone FH)	30.7	29.9895	29.9905	0.0010	0.0002	**0.0008**
1	Filter	Q72	0.4589	0.4600	0.0011		**0.0011**
	CPM Inorganics (Water)	215	29.9767	29.9792	0.0025	0.0017	**0.0008**
	Impinger H_2O Gain, g		1981	1979	-2		
						Filterable PM (mg)	**1.94**
						Condensable PM (mg)	**0.76**
						Total PM (mg)	**2.70**
	Probe Rinse (Acetone FH)	39.2	30.7413	30.7430	0.0017	0.0002	**0.0015**
2	Filter	Q73	0.4527	0.4535	0.0008		**0.0008**
	CPM Inorganics (Water)	173	29.7297	29.7296	-0.0001	0.0014	**0.0000**
	Impinger H_2O Gain, g		1925	1926	1		
						Filterable PM (mg)	**2.30**
						Condensable PM (mg)	**0.00**
						Total PM (mg)	**2.30**
	Probe Rinse (Acetone FH)	46.6	30.2448	30.2466	0.0018	0.0002	**0.0016**
3	Filter	Q74	0.4529	0.4526	-0.0003		**0.0000**
	CPM Inorganics (Water)	181	30.0643	30.0643	0.0000	0.0015	**0.0000**
	Impinger H_2O Gain, g		1957	1965	8		
						Filterable PM (mg)	**1.56**
						Condensable PM (mg)	**0.00**
						Total PM (mg)	**1.56**
	Acetone Blank	97	30.9973	30.9978	0.0005	5.13E-06	g/g
	Water Blank	320	30.5518	30.5544	0.0026	8.11E-06	g/g

BISON ENGINEERING, INC.

COMPANY	**Montana Resources, LLC**
FACILITY	**Butte**
LOCATION	**Butte, MT**
SOURCE	**Primary Crusher**
DATE	**06/27/24**
METHOD	**5/MTBH**
POLLUTANT	**PM**

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Primary Crusher**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):		feet
Stack height (approx.):		feet
Circular ID (rectangular length):	72.00	inches
Port depth and/or wall thickness:		inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	NA	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 72.00 inches (If circular = duct ID)
Stack/duct area = 28.274 sq.feet 4071.5 sq. inches

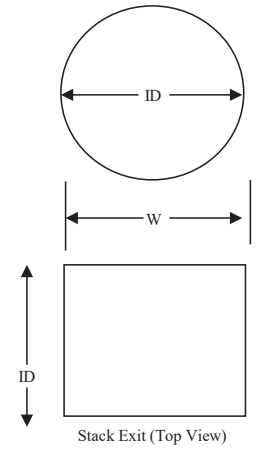
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	200.00	335.00
Number of diameters:	2.78	4.65

Recommended number of traverse points: 24

Traverse points less than 1.0 inch from the stack wall are relocated to a distance of 1.0 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	2.1	1.51	1 1/2
2	6.7	4.82	4 7/8
3	11.8	8.50	8 1/2
4	17.7	12.74	12 3/4
5	25.0	18.00	18
6	35.6	25.63	25 5/8
7	64.4	46.37	46 3/8
8	75.0	54.00	54
9	82.3	59.26	59 1/4
10	88.2	63.50	63 1/2
11	93.3	67.18	67 1/8
12	97.9	70.49	70 1/2

Reference Diagram



Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Primary Crusher**
Date: **6/27/2024**

Stack Temp: 68 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.48	0
2	0.49	1
3	0.50	0
4	0.51	0
5	0.51	5
6	0.50	0
7	0.54	0
8	0.50	0
9	0.45	0
10	0.48	1
11	0.50	0
12	0.52	0
13	0.51	2
14	0.50	0
15	0.50	2
16	0.51	0
17	0.48	1
18	0.47	3
19	0.51	1
20	0.50	0
21	0.49	0
22	0.51	0
23	0.52	0
24	0.50	0

Average: 0.50 1

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**		**Run:**	**1**
Location:	**Butte, MT**		**Start Time:**	**9:20**
Source:	**Primary Crusher**		**End Time:**	**10:58**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**	**Date:**	**6/27/2024**
Box Operator:	**RTM**	Rain and overcast		
Technician(s):	**ZDH**			

Stack Dimensional Data:

Circular		
Diameter	72.000	in
Rectangular		
Width		in
Length		in
Stack Area	28.274	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	6F	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSB14	Nozzle size	0.270	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000398	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	6F	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.3	inHg	Assumed O_2	NA	%
Static Pressure	0.04	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.5	inH_2O	Rec. Nz.	0.233	inches
Stack Temperature	68	°F			
Assumed moisture	1.50	%			
Assumed meter temp.	56	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.002	0.002
Leak check vacuum, inHg	20	21

Nozzle check for roundness:

1	2	3	
0.271	0.270	0.270	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	84.241	dcf	Ave. ΔP	0.500	inH_2O
Wet mol. weight	28.75	M_s (actual)	Ave. √ΔP	0.707	inH_2O
Actual H_2O	2.30	%	Ave. ΔH	2.842	inH_2O
Std. meter vol.	75.390	dscf	Ave. T_s	65.1	°F
Isokinetic Average	99.9	%	Ave. T_m	56.5	°F

Moisture/Lab:

Filter, #	Q90		
	Initial	Final	Gain
Impingers, g	1,924.8	1,940.4	15.6
Silica gel, g	838.6	860.6	22.0
		Total water gain, g:	37.6

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	3.530	0.50	65	56	2.83	2.80	3	250	51	250
2	7.50	7.130	0.55	65	56	3.11	3.10	3	250	51	251
3	11.25	10.610	0.48	65	56	2.72	2.70	4	251	50	250
4	15.00	14.020	0.50	65	56	2.83	2.80	3	250	47	250
5	18.75	17.430	0.48	65	56	2.72	2.70	3	249	48	250
6	22.50	21.040	0.51	65	56	2.89	2.90	3	250	48	250
7	26.25	24.770	0.54	65	56	3.05	3.10	3	250	48	249
8	30.00	28.080	0.47	65	56	2.66	2.70	3	250	48	249
9	33.75	31.480	0.46	65	56	2.60	2.60	3	250	48	250
10	37.50	34.910	0.50	65	56	2.83	2.80	3	250	48	250
11	41.25	38.410	0.49	65	56	2.77	2.80	3	250	48	250
12	45.00	41.947	0.49	65	56	2.77	2.80	3	251	48	252
13	48.75	45.450	0.52	65	56	2.94	2.90	3	250	48	250
14	52.50	49.030	0.51	65	56	2.89	2.90	3	250	50	249
15	56.25	52.490	0.50	65	56	2.83	2.80	3	250	51	250
16	60.00	55.910	0.47	65	57	2.66	2.70	4	250	52	250
17	63.75	59.310	0.49	65	57	2.78	2.80	4	250	52	249
18	67.50	62.870	0.51	65	57	2.89	2.90	4	250	52	251
19	71.25	66.520	0.52	65	57	2.95	3.00	4	251	52	250
20	75.00	70.080	0.50	65	57	2.83	2.90	4	251	53	250
21	78.75	73.740	0.54	65	57	3.06	3.10	4	250	53	250
22	82.50	77.260	0.49	65	57	2.78	2.80	4	252	53	249
23	86.25	80.810	0.50	66	58	2.83	2.80	4	250	54	250
24	90.00	84.241	0.49	66	58	2.78	2.80	4	250	54	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**2**
Location:	**Butte, MT**			**Start Time:**	**11:10**
Source:	**Primary Crusher**			**End Time:**	**12:48**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/27/2024**
Box Operator:	**RTM**	Rain and overcast			
Technician(s):	**ZDH**				

Stack Dimensional Data:

Circular		
Diameter	72.000	in
Rectangular		
Width		in
Length		in
Stack Area	28.274	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	6F	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSB14	Nozzle size	0.270	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000398	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	6F	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.3	inHg	Assumed O_2	NA	%
Static Pressure	0.04	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.5	inH_2O	Rec. Nz.	0.233	inches
Stack Temperature	65.1	°F			
Assumed moisture	2.30	%			
Assumed meter temp.	56.5	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.003	0.002
Leak check vacuum, inHg	20	18

Nozzle check for roundness:

1	2	3	
0.271	0.270	0.270	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	84.246	dcf	Ave. ΔP	0.500	inH_2O
Wet mol. weight	28.84	M_s (actual)	Ave. √ΔP	0.707	inH_2O
Actual H_2O	1.42	%	Ave. ΔH	2.813	inH_2O
Std. meter vol.	74.981	dscf	Ave. T_s	66.8	°F
Isokinetic Average	98.8	%	Ave. T_m	59.3	°F

Moisture/Lab:

Filter, #	Q91		
	Initial	Final	Gain
Impingers, g	1,944.6	1,949.7	5.1
Silica gel, g	916.3	934.1	17.8
		Total water gain:	22.9

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	3.610	0.51	66	58	2.85	2.90	4	250	57	250
2	7.50	7.100	0.50	67	58	2.79	2.80	4	250	56	250
3	11.25	10.750	0.53	67	58	2.96	3.00	4	250	58	249
4	15.00	14.260	0.49	66	58	2.74	2.70	4	251	56	250
5	18.75	17.770	0.49	66	58	2.74	2.70	4	250	56	250
6	22.50	21.260	0.51	66	59	2.86	2.90	4	251	56	250
7	26.25	24.720	0.47	67	59	2.63	2.60	4	250	56	249
8	30.00	28.060	0.49	67	59	2.74	2.70	4	250	56	250
9	33.75	31.610	0.49	67	59	2.74	2.70	4	251	56	250
10	37.50	35.120	0.50	67	59	2.80	2.80	4	248	55	249
11	41.25	38.460	0.46	67	59	2.57	2.60	4	250	55	250
12	45.00	42.053	0.51	67	59	2.85	2.90	4	250	55	250
13	48.75	45.710	0.53	67	59	2.97	3.00	4	250	55	251
14	52.50	49.180	0.50	67	60	2.80	2.80	4	250	55	250
15	56.25	52.670	0.49	67	60	2.75	2.80	4	250	55	250
16	60.00	56.190	0.51	67	60	2.86	2.90	4	250	55	250
17	63.75	59.780	0.52	67	60	2.91	2.90	4	250	55	250
18	67.50	63.180	0.48	67	60	2.69	2.70	4	251	55	250
19	71.25	66.670	0.49	67	60	2.75	2.80	4	250	57	251
20	75.00	70.210	0.52	67	60	2.91	2.90	4	250	57	251
21	78.75	73.750	0.51	67	60	2.86	2.90	4	250	57	250
22	82.50	77.240	0.50	67	60	2.80	2.80	4	250	57	250
23	86.25	80.760	0.50	67	60	2.80	2.80	4	250	57	250
24	90.00	84.246	0.51	67	60	2.86	2.90	4	250	57	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte, MT**			**Start Time:**	**13:00**
Source:	**Primary Crusher**			**End Time:**	**14:39**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/27/2024**
Box Operator:	**RTM**	Rain and overcast			
Technician(s):	**ZDH**				

Stack Dimensional Data:

Circular		
Diameter	72.000	in
Rectangular		
Width		in
Length		in
Stack Area	28.274	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	6F	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSB14	Nozzle size	0.270	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000398	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	6F	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.3	inHg	Assumed O_2	NA	%
Static Pressure	0.04	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.5	inH_2O	Rec. Nz.	0.232	inches
Stack Temperature	66.8	°F			
Assumed moisture	1.42	%			
Assumed meter temp.	59.3	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.002	0.002
Leak check vacuum, inHg	17	18

Nozzle check for roundness:

1	2	3	
0.271	0.270	0.270	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	85.164	dcf	Ave. ΔP	0.499	inH_2O
Wet mol. weight	28.88	M_s (actual)	Ave. √ΔP	0.706	inH_2O
Actual H_2O	1.13	%	Ave. ΔH	2.829	inH_2O
Std. meter vol.	75.627	dscf	Ave. T_s	67.9	°F
Isokinetic Average	99.7	%	Ave. T_m	60.5	°F

Moisture/Lab:

Filter, #	Q92		
	Initial	Final	Gain
Impingers, g	1,853.3	1,856.4	3.1
Silica gel, g	860.4	875.7	15.3
		Total water gain:	18.4

Traverse Point	Time (min.)	Meter Volume (dcf) 0.000	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
1	3.8	3.480	0.49	67	60	2.79	2.80	4	250	61	250
2	7.5	7.010	0.50	67	60	2.84	2.80	4	251	48	250
3	11.3	10.580	0.51	67	60	2.90	2.90	4	251	48	250
4	15.0	14.050	0.48	67	60	2.73	2.70	4	250	47	250
5	18.8	17.740	0.53	67	60	3.02	3.00	4	250	47	250
6	22.5	21.490	0.54	67	60	3.07	3.10	4	250	47	251
7	26.3	25.020	0.50	67	60	2.84	2.80	4	250	47	250
8	30.0	28.530	0.48	67	60	2.73	2.70	4	252	47	250
9	33.8	32.040	0.49	67	60	2.79	2.80	4	250	47	250
10	37.5	35.550	0.49	67	60	2.79	2.80	4	250	54	250
11	41.3	39.160	0.51	67	60	2.90	2.90	4	250	54	250
12	45.0	42.655	0.50	67	60	2.84	2.80	4	250	58	250
13	48.8	46.260	0.50	68	61	2.84	2.80	4	251	60	252
14	52.5	49.780	0.48	68	61	2.73	2.70	4	250	60	250
15	56.3	53.210	0.49	69	61	2.78	2.80	4	250	61	251
16	60.0	56.710	0.50	69	61	2.84	2.80	4	250	61	250
17	63.8	60.350	0.51	69	61	2.90	2.90	4	250	61	250
18	67.5	63.930	0.49	69	61	2.78	2.80	4	251	60	250
19	71.3	67.580	0.54	69	61	3.07	3.10	4	250	60	250
20	75.0	71.190	0.51	69	61	2.90	2.90	4	250	60	250
21	78.8	74.710	0.50	69	61	2.84	2.80	4	250	60	250
22	82.5	78.230	0.48	69	61	2.73	2.70	4	251	61	250
23	86.3	81.650	0.47	69	61	2.67	2.70	4	250	62	250
24	90.0	85.164	0.49	69	61	2.78	2.80	4	250	62	251

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Primary Crusher**

Run 1 6/27/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	742.4	742.0	-0.4
2	627.3	638.8	11.5
3	555.1	559.6	4.5
Total	**1,924.8**	**1,940.4**	**15.6**

Run 2 6/27/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	728.8	720.0	-8.8
2	690.4	700.3	9.9
3	525.4	529.4	4.0
Total	**1,944.6**	**1,949.7**	**5.1**

Run 3 6/27/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	622.2	613.6	-8.6
2	603.3	613.4	10.1
3	627.8	629.4	1.6
Total	**1,853.3**	**1,856.4**	**3.1**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources, LLC**
Source: **Primary Crusher**
Location: **Butte, MT**

Run			1	2	3	
Date			6/27/2024	6/27/2024	6/27/2024	
Run Start Time			9:20	11:10	13:00	
Run End Time			10:58	12:48	14:39	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.30	24.30	24.30	**24.30**
Nozzle Dia., in.			0.2700	0.2700	0.2700	**0.2700**
Isokinetic Average, %			99.9	98.8	99.7	**99.5**
Sample Volume, dscf			75.390	74.981	75.627	**75.333**
Sample Volume, dscm			2.135	2.123	2.142	**2.133**
Stack Diameter, in.			72.00	72.00	72.00	**72.00**
Stack Area, sq.ft.			28.274	28.274	28.274	**28.274**
Static Press., "H_2O			0.04	0.04	0.04	**0.04**
H_2O %v			2.30	1.42	1.13	**1.62**
Wet Molecular Weight, lb/lb-mole			28.75	28.84	28.88	**28.82**
Velocity, FPS			44.00	44.00	43.96	**43.99**
ADCFM			72,926	73,583	73,733	**73,414**
ACFM			74,643	74,643	74,576	**74,621**
DSCFM			59,563	59,906	59,902	**59,790**
Stack Temperature, ^oF			65.1	66.8	67.9	**66.6**
Filterable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.001	0.000	0.001	**0.001**
	Mass	lb/hr	0.155	0.045	0.223	**0.141**
Condensable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.001	0.001	0.001	**0.001**
	Mass	lb/hr	0.165	0.171	0.215	**0.183**
Total PM	Concentration, C_s	gr/dscf	0.001	0.000	0.001	**0.001**
		g/dscm	0.001	0.001	0.002	**0.001**
	Mass	lb/hr	0.319	0.215	0.437	**0.324**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte, MT**	**Start Time:**	**9:20**
Source:	**Primary Crusher**	**End Time:**	**10:58**
Method:	**5**	**Date:**	**6/27/2024**

Sampling Data				Traverse Data			
Time min.	Meter ft^3	ΔH "H_2O	Meter T_m °F	Traverse Point	Dp "H_2O	Stack T_s °F	√Dp
	0.000						
4	3.530	2.80	56	1	0.50	65	0.707
8	7.130	3.10	56	2	0.55	65	0.742
11	10.610	2.70	56	3	0.48	65	0.693
15	14.020	2.80	56	4	0.50	65	0.707
19	17.430	2.70	56	5	0.48	65	0.693
23	21.040	2.90	56	6	0.51	65	0.714
26	24.770	3.10	56	7	0.54	65	0.735
30	28.080	2.70	56	8	0.47	65	0.686
34	31.480	2.60	56	9	0.46	65	0.678
38	34.910	2.80	56	10	0.50	65	0.707
41	38.410	2.80	56	11	0.49	65	0.700
45	41.947	2.80	56	12	0.49	65	0.700
49	45.450	2.90	56	13	0.52	65	0.721
53	49.030	2.90	56	14	0.51	65	0.714
56	52.490	2.80	56	15	0.50	65	0.707
60	55.910	2.70	57	16	0.47	65	0.686
64	59.310	2.80	57	17	0.49	65	0.700
68	62.870	2.90	57	18	0.51	65	0.714
71	66.520	3.00	57	19	0.52	65	0.721
75	70.080	2.90	57	20	0.50	65	0.707
79	73.740	3.10	57	21	0.54	65	0.735
83	77.260	2.80	57	22	0.49	65	0.700
86	80.810	2.80	58	23	0.50	66	0.707
90	84.241	2.80	58	24	0.49	66	0.700

Client:	**Montana Resources, LLC**	**Run:**	**1**
Source:	**Primary Crusher**	**Date:**	**06/27/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	72.000	in
Meter Volume, V_m	84.241	dcf	Rectangular		
Water Volume	37.6	g	Width		in
Nozzle Diameter, N_z	0.2700	in.	Length		in
Nozzle Area	0.000398	sq.ft.	Stack Area	28.274	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.30	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.04	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.842	"H_2O	√Dp	0.7070	"H_2O
Temperature, T_m	56.5	^oF	Temperature, T_s	65.1	^oF
Temperature, T_m	516.2	^oA (^oR)	Temperature, T_s	524.8	^oA (R)
Pressure Meter, P_m	24.509	"Hg	Pressure Stack, P_s	24.303	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	75.390	dscf	Velocity, V_s	44.00	fps
	2.135	dscm	Volume (actual)	74,643	acfm
Actual Volume, $V_{m(actual)}$	94.477	awcf		72,926	adcfm
Gas Stream Moisture			Volume (standard)	3,657,919	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.773	scf		3,573,787	dscf/hr
Moisture, B_{ws}	0.0230			59,563	dscf/min
Moisture EPA M4	2.30	%v		60,965	wscf/min
Moisture @ Saturation	2.57	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.75	lb/lb-mole			
Percent Isokinetic	99.9	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00148	grams	Concentration, C_s	0.0003	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.15	lb/hr

MT Back Half:

Condensable PM	1.58E-03	grams	CPM, C_s	3.22E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.16	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte, MT**	**Start Time:**	**11:10**
Source:	**Primary Crusher**	**End Time:**	**12:48**
Method:	**5**	**Date:**	**06/27/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	0.000						
4	3.610	2.90	58	1	0.51	66	0.714
8	7.100	2.80	58	2	0.50	67	0.707
11	10.750	3.00	58	3	0.53	67	0.728
15	14.260	2.70	58	4	0.49	66	0.700
19	17.770	2.70	58	5	0.49	66	0.700
23	21.260	2.90	59	6	0.51	66	0.714
26	24.720	2.60	59	7	0.47	67	0.686
30	28.060	2.70	59	8	0.49	67	0.700
34	31.610	2.70	59	9	0.49	67	0.700
38	35.120	2.80	59	10	0.50	67	0.707
41	38.460	2.60	59	11	0.46	67	0.678
45	42.053	2.90	59	12	0.51	67	0.714
49	45.710	3.00	59	13	0.53	67	0.728
53	49.180	2.80	60	14	0.50	67	0.707
56	52.670	2.80	60	15	0.49	67	0.700
60	56.190	2.90	60	16	0.51	67	0.714
64	59.780	2.90	60	17	0.52	67	0.721
68	63.180	2.70	60	18	0.48	67	0.693
71	66.670	2.80	60	19	0.49	67	0.700
75	70.210	2.90	60	20	0.52	67	0.721
79	73.750	2.90	60	21	0.51	67	0.714
83	77.240	2.80	60	22	0.50	67	0.707
86	80.760	2.80	60	23	0.50	67	0.707
90	84.246	2.90	60	24	0.51	67	0.714

Client:	**Montana Resources, LLC**	**Run:**	**2**
Source:	**Primary Crusher**	**Date:**	**06/27/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	72.000	in
Meter Volume, V_m	84.246	dcf	Rectangular		
Water Volume	22.9	g	Width		in
Nozzle Diameter, N_z	0.2700	in.	Length		in
Nozzle Area	0.000398	sq.ft.	Stack Area	28.274	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.30	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.04	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.813	"H_2O	√Dp	0.7070	"H_2O
Temperature, T_m	59.3	^oF	Temperature, T_s	66.8	^oF
Temperature, T_m	519.0	^oA (^oR)	Temperature, T_s	526.5	^oA (R)
Pressure Meter, P_m	24.507	"Hg	Pressure Stack, P_s	24.303	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	74.981	dscf	Velocity, V_s	44.00	fps
	2.123	dscm	Volume (actual)	74,643	acfm
Actual Volume, $V_{m(actual)}$	93.428	awcf		73,583	adcfm
Gas Stream Moisture			Volume (standard)	3,646,108	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.080	scf		3,594,333	dscf/hr
Moisture, B_{ws}	0.0142			59,906	dscf/min
Moisture EPA M4	1.42	%v		60,768	wscf/min
Moisture @ Saturation	2.73	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.84	lb/lb-mole			
Percent Isokinetic	98.8	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00042	grams	Concentration, C_s	0.0001	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.04	lb/hr

MT Back Half:

Condensable PM	1.62E-03	grams	CPM, C_s	3.32E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.17	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**3**
Location:	**Butte, MT**	**Start Time:**	**13:00**
Source:	**Primary Crusher**	**End Time:**	**14:39**
Method:	**5**	**Date:**	**06/27/24**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m ^oF**	**Traverse Point**	**Dp "H_2O**	**Stack T_s ^oF**	**√Dp**
	0.000						
4	3.480	2.80	60	1	0.49	67	0.700
8	7.010	2.80	60	2	0.50	67	0.707
11	10.580	2.90	60	3	0.51	67	0.714
15	14.050	2.70	60	4	0.48	67	0.693
19	17.740	3.00	60	5	0.53	67	0.728
23	21.490	3.10	60	6	0.54	67	0.735
26	25.020	2.80	60	7	0.50	67	0.707
30	28.530	2.70	60	8	0.48	67	0.693
34	32.040	2.80	60	9	0.49	67	0.700
38	35.550	2.80	60	10	0.49	67	0.700
41	39.160	2.90	60	11	0.51	67	0.714
45	42.655	2.80	60	12	0.50	67	0.707
49	46.260	2.80	61	13	0.50	68	0.707
53	49.780	2.70	61	14	0.48	68	0.693
56	53.210	2.80	61	15	0.49	69	0.700
60	56.710	2.80	61	16	0.50	69	0.707
64	60.350	2.90	61	17	0.51	69	0.714
68	63.930	2.80	61	18	0.49	69	0.700
71	67.580	3.10	61	19	0.54	69	0.735
75	71.190	2.90	61	20	0.51	69	0.714
79	74.710	2.80	61	21	0.50	69	0.707
83	78.230	2.70	61	22	0.48	69	0.693
86	81.650	2.70	61	23	0.47	69	0.686
90	85.164	2.80	61	24	0.49	69	0.700

Client:	**Montana Resources, LLC**	**Run:**	**3**
Source:	**Primary Crusher**	**Date:**	**06/27/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	72.000	in
Meter Volume, V_m	85.164	dcf	Rectangular		
Water Volume	18.4	g	Width		in
Nozzle Diameter, N_z	0.2700	in.	Length		in
Nozzle Area	0.000398	sq.ft.	Stack Area	28.274	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.30	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.04	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.829	"H_2O	√Dp	0.7060	"H_2O
Temperature, T_m	60.5	^oF	Temperature, T_s	67.9	^oF
Temperature, T_m	520.2	^oA (^oR)	Temperature, T_s	527.6	^oA (R)
Pressure Meter, P_m	24.508	"Hg	Pressure Stack, P_s	24.303	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	75.627	dscf	Velocity, V_s	43.96	fps
	2.142	dscm	Volume (actual)	74,576	acfm
Actual Volume, $V_{m(actual)}$	94.152	awcf		73,733	adcfm
Gas Stream Moisture			Volume (standard)	3,635,198	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.868	scf		3,594,120	dscf/hr
Moisture, B_{ws}	0.0113			59,902	dscf/min
Moisture EPA M4	1.13	%v		60,587	wscf/min
Moisture @ Saturation	2.83	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.88	lb/lb-mole			
Percent Isokinetic	99.7	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00212	grams	Concentration, C_s	0.0004	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.22	lb/hr

MT Back Half:

Condensable PM	2.05E-03	grams	CPM, C_s	4.18E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.21	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Primary Crusher**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction	Corrected Gain (grams)
	Probe Rinse (Acetone FH)	42.8	30.3072	30.3075	0.0003	0.0002	**0.00008**
1	Filter	Q90	0.4591	0.4605	0.0014		**0.00140**
	CPM Inorganics (Water)	200	30.1998	30.2030	0.0032	0.0016	**0.00158**
	Impinger H_2O Gain, g		1925	1940	16		
						Filterable PM (mg)	**1.48**
						Condensable PM (mg)	**1.58**
						Total PM (mg)	**3.06**
	Probe Rinse (Acetone FH)	54	29.8005	29.8010	0.0005	0.0003	**0.00022**
2	Filter	Q91	0.4634	0.4636	0.0002		**0.00020**
	CPM Inorganics (Water)	134	30.2379	30.2406	0.0027	0.0011	**0.00162**
	Impinger H_2O Gain, g		1945	1950	5		
						Filterable PM (mg)	**0.42**
						Condensable PM (mg)	**1.62**
						Total PM (mg)	**2.04**
	Probe Rinse (Acetone FH)	34.2	29.8612	29.8635	0.0023	0.0002	**0.00212**
3	Filter	Q92	0.4585	0.4569	-0.0016		**0.00000**
	CPM Inorganics (Water)	129	30.3722	30.3753	0.0031	0.0010	**0.00205**
	Impinger H_2O Gain, g		1853	1856	3		
						Filterable PM (mg)	**2.12**
						Condensable PM (mg)	**2.05**
						Total PM (mg)	**4.18**
	Acetone Blank	97	30.9973	30.9978	0.0005	5.13E-06 g/g	
	Water Blank	320	30.5518	30.5544	0.0026	8.11E-06 g/g	

BISON ENGINEERING, INC.

COMPANY	**Montana Resources, LLC**
FACILITY	**Butte**
LOCATION	**Butte,MT**
SOURCE	**Secondary Crusher**
DATE	**06/25/24**
METHOD	**5/MTBH**
POLLUTANT	**PM**

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Secondary Crusher**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):		feet
Stack height (approx.):		feet
Circular ID (rectangular length):	67.00	inches
Port depth and/or wall thickness:	8.00	inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	N/A	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 67.00 inches (If circular = duct ID)
Stack/duct area = 24.484 sq.feet 3525.7 sq. inches

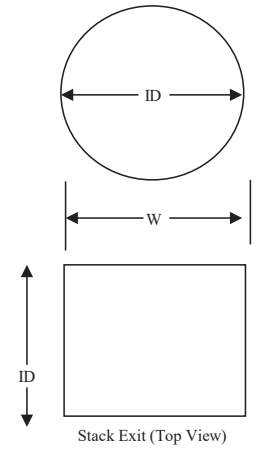
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	100.00	20.00
Number of diameters:	1.49	0.30

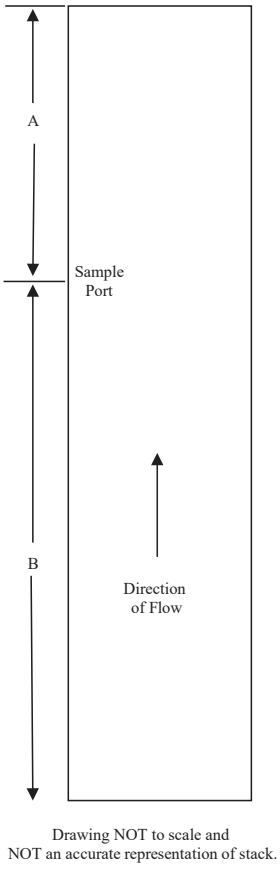
Recommended number of traverse points: 24

Traverse points less than 1.0 inch from the stack wall are relocated to a distance of 1.0 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	2.1	1.41	9 3/8
2	6.7	4.49	12 1/2
3	11.8	7.91	15 7/8
4	17.7	11.86	19 7/8
5	25.0	16.75	24 3/4
6	35.6	23.85	31 7/8
7	64.4	43.15	51 1/8
8	75.0	50.25	58 1/4
9	82.3	55.14	63 1/8
10	88.2	59.09	67 1/8
11	93.3	62.51	70 1/2
12	97.9	65.59	73 5/8

Reference Diagram





Drawing NOT to scale and
NOT an accurate representation of stack.

Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Secondary Crusher**
Date: **6/25/2024**

Stack Temp: 70 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.35	0
2	0.36	0
3	0.34	5
4	0.32	0
5	0.39	0
6	0.41	2
7	0.40	2
8	0.45	2
9	0.42	2
10	0.46	0
11	0.48	0
12	0.49	0
13	0.50	0
14	0.43	2
15	0.36	0
16	0.39	2
17	0.38	5
18	0.38	0
19	0.39	0
20	0.36	0
21	0.35	3
22	0.39	4
23	0.45	0
24	0.35	1

Average: 0.40 1

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**1**
Location:	**Butte,MT**			**Start Time:**	**15:12**
Source:	**Secondary Crusher**			**End Time:**	**16:51**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**RTM**	Sunny			
Technician(s):	**RFR**				

Stack Dimensional Data:

Circular		
Diameter	67.000	in
Rectangular		
Width		in
Length		in
Stack Area	24.484	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B8A	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA15	Nozzle size	0.312	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000531	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B8A	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.51	inHg	Assumed O_2	NA	%
Static Pressure	0.19	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.4	inH_2O	Rec. Nz.	0.243	inches
Stack Temperature	70	°F			
Assumed moisture	1.50	%			
Assumed meter temp.	74	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.002	0.003
Leak check vacuum, inHg	21	20

Nozzle check for roundness:

1	2	3	
0.312	0.312	0.313	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	102.305	dcf	Ave. ΔP	0.405	inH_2O
Wet mol. weight	28.86	M_s (actual)	Ave. √ΔP	0.634	inH_2O
Actual H_2O	1.30	%	Ave. ΔH	4.146	inH_2O
Std. meter vol.	90.439	dscf	Ave. T_s	74.3	°F
Isokinetic Average	99.7	%	Ave. T_m	69.4	°F

Moisture/Lab:

Filter, #	Q81		
	Initial	Final	Gain
Impingers, g	1,948.1	1,950.4	2.3
Silica gel, g	892.5	915.4	22.9
		Total water gain, g:	25.2

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	4.120	0.39	70	73	4.03	4.00	5	250	57	252
2	7.50	8.170	0.36	70	71	3.70	3.70	5	252	46	250
3	11.25	12.120	0.34	73	70	3.47	3.50	5	250	50	250
4	15.00	16.050	0.33	74	70	3.36	3.40	5	250	55	250
5	18.75	19.870	0.31	74	69	3.15	3.20	5	250	57	251
6	22.50	23.750	0.36	74	69	3.66	3.70	5	249	58	250
7	26.25	27.840	0.37	74	69	3.76	3.80	5	250	58	250
8	30.00	31.870	0.35	74	69	3.56	3.60	5	250	59	250
9	33.75	35.980	0.40	74	69	4.07	4.10	5	249	59	250
10	37.50	40.340	0.42	74	69	4.27	4.30	5	250	59	250
11	41.25	44.750	0.42	74	69	4.27	4.30	5	250	59	250
12	45.00	49.146	0.44	74	70	4.48	4.50	5	250	60	250
13	48.75	53.410	0.40	74	69	4.07	4.10	5	250	60	250
14	52.50	58.380	0.54	75	69	5.48	5.50	7	250	58	250
15	56.25	63.210	0.51	75	69	5.18	5.20	7	249	60	249
16	60.00	67.810	0.48	75	69	4.87	4.90	7	250	60	250
17	63.75	72.600	0.50	75	69	5.08	5.10	7	250	62	250
18	67.50	76.920	0.41	75	69	4.16	4.20	7	250	62	250
19	71.25	80.990	0.36	75	69	3.65	3.70	6	250	64	250
20	75.00	85.250	0.42	75	69	4.26	4.30	6	250	63	251
21	78.75	89.760	0.44	76	69	4.46	4.50	6	251	63	250
22	82.50	94.060	0.42	76	69	4.26	4.30	5	250	63	250
23	86.25	98.320	0.39	76	69	3.95	4.00	5	250	63	250
24	90.00	102.305	0.35	76	69	3.55	3.60	5	250	63	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**2**
Location:	**Butte,MT**			**Start Time:**	**17:18**
Source:	**Secondary Crusher**			**End Time:**	**18:58**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**RTM**	Sunny			
Technician(s):	**RFR**				

Stack Dimensional Data:

Circular		
Diameter	67.000	in
Rectangular		
Width		in
Length		in
Stack Area	24.484	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B8A	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA15	Nozzle size	0.312	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000531	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B8A	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.51	inHg	Assumed O_2	NA	%
Static Pressure	0.19	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.405	inH_2O	Rec. Nz.	0.243	inches
Stack Temperature	74.3	°F			
Assumed moisture	1.30	%			
Assumed meter temp.	69.4	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.003	0.004
Leak check vacuum, inHg	18	18

Nozzle check for roundness:

1	2	3	
0.312	0.312	0.313	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	100.312	dcf	Ave. ΔP	0.390	inH_2O
Wet mol. weight	28.78	M_s (actual)	Ave. √ΔP	0.623	inH_2O
Actual H_2O	2.02	%	Ave. ΔH	4.004	inH_2O
Std. meter vol.	88.738	dscf	Ave. T_s	76.8	°F
Isokinetic Average	100.5	%	Ave. T_m	68.8	°F

Moisture/Lab:

Filter, #	Q82		
	Initial	Final	Gain
Impingers, g	1,983.6	1,997.7	14.1
Silica gel, g	917.7	942.3	24.6
		Total water gain:	38.7

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	4.050	0.36	77	69	3.65	3.70	5	250	68	250
2	7.50	8.230	0.38	76	69	3.86	3.90	5	250	67	251
3	11.25	12.080	0.34	76	69	3.46	3.50	5	250	62	250
4	15.00	15.930	0.32	77	69	3.25	3.30	5	250	66	251
5	18.75	19.540	0.29	77	69	2.94	3.00	5	251	67	250
6	22.50	23.540	0.35	78	69	3.55	3.60	5	250	61	250
7	26.25	27.710	0.39	79	69	3.94	4.00	5	250	57	250
8	30.00	31.780	0.36	79	70	3.65	3.70	5	250	55	250
9	33.75	36.010	0.40	78	69	4.05	4.10	5	250	53	250
10	37.50	40.190	0.41	77	69	4.16	4.20	5	250	52	251
11	41.25	44.360	0.39	77	69	3.96	4.00	5	252	52	250
12	45.00	48.751	0.43	77	69	4.36	4.40	5	250	52	250
13	48.75	53.080	0.41	77	68	4.15	4.20	5	250	63	250
14	52.50	57.890	0.51	77	68	5.17	5.20	5	250	63	251
15	56.25	62.560	0.50	76	68	5.07	5.10	6	250	58	250
16	60.00	67.190	0.49	76	68	4.97	5.00	6	250	58	250
17	63.75	71.980	0.51	76	68	5.18	5.20	6	250	58	250
18	67.50	76.260	0.43	76	68	4.36	4.40	5	250	55	250
19	71.25	80.120	0.35	76	68	3.55	3.60	5	250	52	250
20	75.00	84.030	0.35	76	69	3.56	3.60	5	250	51	250
21	78.75	88.100	0.34	76	69	3.46	3.50	5	251	52	250
22	82.50	92.130	0.36	76	69	3.66	3.70	5	252	52	250
23	86.25	96.370	0.38	76	69	3.86	3.90	5	251	52	250
24	90.00	100.312	0.32	76	69	3.25	3.30	5	250	54	250

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte,MT**			**Start Time:**	**19:21**
Source:	**Secondary Crusher**			**End Time:**	**20:59**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/25/2024**
Box Operator:	**RTM**	Sunny			
Technician(s):	**RFR**				

Stack Dimensional Data:

Circular		
Diameter	67.000	in
Rectangular		
Width		in
Length		in
Stack Area	24.484	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	B8A	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSA15	Nozzle size	0.312	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000531	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	B8A	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.51	inHg	Assumed O_2	NA	%
Static Pressure	0.19	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.39	inH_2O	Rec. Nz.	0.247	inches
Stack Temperature	76.8	°F			
Assumed moisture	2.02	%			
Assumed meter temp.	68.8	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.004	0.005
Leak check vacuum, inHg	19	21

Nozzle check for roundness:

1	2	3	
0.312	0.312	0.313	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	96.246	dcf	Ave. ΔP	0.361	inH_2O
Wet mol. weight	28.85	M_s (actual)	Ave. √ΔP	0.601	inH_2O
Actual H_2O	1.37	%	Ave. ΔH	3.633	inH_2O
Std. meter vol.	84.888	dscf	Ave. T_s	77.0	°F
Isokinetic Average	99.1	%	Ave. T_m	69.8	°F

Moisture/Lab:

Filter, #	Q83		
	Initial	Final	Gain
Impingers, g	1,865.9	1,871.7	5.8
Silica gel, g	926.7	945.9	19.2
		Total water gain:	25.0

Traverse Point	Time (min.)	Meter Volume (dcf) 0.000	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
1	3.75	3.950	0.35	78	69	3.50	3.50	5	254	55	248
2	7.50	7.790	0.34	78	69	3.40	3.40	5	251	54	246
3	11.25	11.480	0.32	78	69	3.20	3.20	5	250	54	247
4	15.00	15.360	0.35	79	69	3.50	3.50	5	249	54	249
5	18.75	19.330	0.36	79	70	3.60	3.60	5	248	55	250
6	22.50	23.330	0.36	79	70	3.60	3.60	5	246	55	248
7	26.25	27.080	0.32	77	70	3.22	3.20	5	252	56	253
8	30.00	30.870	0.33	77	70	3.32	3.30	5	250	57	247
9	33.75	34.810	0.35	77	70	3.52	3.50	5	246	57	248
10	37.50	38.860	0.36	77	70	3.62	3.60	5	247	57	246
11	41.25	42.850	0.36	77	70	3.62	3.60	5	251	58	249
12	45.00	46.947	0.39	77	70	3.92	3.90	5	249	58	248
13	48.75	51.070	0.38	77	70	3.82	3.80	5	252	60	254
14	52.50	55.320	0.41	77	70	4.12	4.10	5	249	54	251
15	56.25	59.520	0.41	77	70	4.12	4.10	5	248	55	252
16	60.00	63.940	0.43	77	70	4.32	4.30	6	252	56	254
17	63.75	68.010	0.38	77	70	3.82	3.80	5	251	56	250
18	67.50	72.040	0.34	77	70	3.42	3.40	5	249	57	251
19	71.25	76.120	0.36	76	70	3.62	3.60	5	249	57	250
20	75.00	80.160	0.35	76	70	3.52	3.50	5	251	57	251
21	78.75	84.430	0.39	75	70	3.93	3.90	5	248	57	247
22	82.50	88.570	0.37	75	70	3.73	3.70	5	247	56	248
23	86.25	92.610	0.35	75	70	3.53	3.50	5	252	56	249
24	90.00	96.246	0.31	75	70	3.13	3.60	5	252	57	249

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Secondary Crusher**

Run 1 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	735.6	720.8	-14.8
2	687.7	699.6	11.9
3	524.8	530.0	5.2
Total	**1,948.1**	**1,950.4**	**2.3**

Run 2 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	657.9	652.1	-5.8
2	686.1	700.0	13.9
3	639.6	645.6	6.0
Total	**1,983.6**	**1,997.7**	**14.1**

Run 3 6/25/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	691.2	681.8	-9.4
2	618.2	630.7	12.5
3	556.5	559.2	2.7
Total	**1,865.9**	**1,871.7**	**5.8**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources, LLC**
Source: **Secondary Crusher**
Location: **Butte,MT**

Run			1	2	3	
Date			6/25/2024	6/25/2024	6/25/2024	
Run Start Time			15:12	17:18	19:21	
Run End Time			16:51	18:58	20:59	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.51	24.51	24.51	**24.51**
Nozzle Dia., in.			0.3120	0.3120	0.3120	**0.3120**
Isokinetic Average, %			99.7	100.5	99.1	**99.8**
Sample Volume, dscf			90.439	88.738	84.888	**88.022**
Sample Volume, dscm			2.561	2.513	2.404	**2.493**
Stack Diameter, in.			67.00	67.00	67.00	**67.00**
Stack Area, sq.ft.			24.484	24.484	24.484	**24.484**
Static Press., "H_2O			0.19	0.19	0.19	**0.19**
H_2O %v			1.30	2.02	1.37	**1.56**
Wet Molecular Weight, lb/lb-mole			28.86	28.78	28.85	**28.83**
Velocity, FPS			39.55	39.00	37.59	**38.71**
ADCFM			57,346	56,136	54,464	**55,982**
ACFM			58,101	57,293	55,221	**56,872**
DSCFM			46,449	45,257	43,893	**45,200**
Stack Temperature, ^oF			74.3	76.8	77.0	**76.0**
Filterable Particulate	Concentration, C_s	gr/dscf	0.002	0.002	0.002	**0.002**
		g/dscm	0.005	0.004	0.004	**0.004**
	Mass	lb/hr	0.825	0.702	0.673	**0.734**
Condensable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.000	0.001	0.001	**0.001**
	Mass	lb/hr	0.068	0.110	0.083	**0.087**
Total PM	Concentration, C_s	gr/dscf	0.002	0.002	0.002	**0.002**
		g/dscm	0.005	0.005	0.005	**0.005**
	Mass	lb/hr	0.893	0.812	0.756	**0.821**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**1**
Location:	**Butte,MT**	**Start Time:**	**15:12**
Source:	**Secondary Crusher**	**End Time:**	**16:51**
Method:	**5**	**Date:**	**6/25/2024**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	0.000						
4	4.120	4.00	73	1	0.39	70	0.624
8	8.170	3.70	71	2	0.36	70	0.600
11	12.120	3.50	70	3	0.34	73	0.583
15	16.050	3.40	70	4	0.33	74	0.574
19	19.870	3.20	69	5	0.31	74	0.557
23	23.750	3.70	69	6	0.36	74	0.600
26	27.840	3.80	69	7	0.37	74	0.608
30	31.870	3.60	69	8	0.35	74	0.592
34	35.980	4.10	69	9	0.40	74	0.632
38	40.340	4.30	69	10	0.42	74	0.648
41	44.750	4.30	69	11	0.42	74	0.648
45	49.146	4.50	70	12	0.44	74	0.663
49	53.410	4.10	69	13	0.40	74	0.632
53	58.380	5.50	69	14	0.54	75	0.735
56	63.210	5.20	69	15	0.51	75	0.714
60	67.810	4.90	69	16	0.48	75	0.693
64	72.600	5.10	69	17	0.50	75	0.707
68	76.920	4.20	69	18	0.41	75	0.640
71	80.990	3.70	69	19	0.36	75	0.600
75	85.250	4.30	69	20	0.42	75	0.648
79	89.760	4.50	69	21	0.44	76	0.663
83	94.060	4.30	69	22	0.42	76	0.648
86	98.320	4.00	69	23	0.39	76	0.624
90	102.305	3.60	69	24	0.35	76	0.592

Client:	**Montana Resources, LLC**	**Run:**	**1**
Source:	**Secondary Crusher**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	67.000	in
Meter Volume, V_m	102.305	dcf	Rectangular		
Water Volume	25.2	g	Width		in
Nozzle Diameter, N_z	0.3120	in.	Length		in
Nozzle Area	0.000531	sq.ft.	Stack Area	24.484	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.51	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.19	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	4.146	"H_2O	√Dp	0.6340	"H_2O
Temperature, T_m	69.4	^oF	Temperature, T_s	74.3	^oF
Temperature, T_m	529.1	^oA (^oR)	Temperature, T_s	534.0	^oA (R)
Pressure Meter, P_m	24.815	"Hg	Pressure Stack, P_s	24.524	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	90.439	dscf	Velocity, V_s	39.55	fps
	2.561	dscm	Volume (actual)	58,101	acfm
Actual Volume, $V_{m(actual)}$	113.126	awcf		57,346	adcfm
Gas Stream Moisture			Volume (standard)	2,823,622	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.188	scf		2,786,915	dscf/hr
Moisture, B_{ws}	0.0130			46,449	dscf/min
Moisture EPA M4	1.30	%v		47,060	wscf/min
Moisture @ Saturation	3.49	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.86	lb/lb-mole			
Percent Isokinetic	99.7	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.01215	grams	Concentration, C_s	0.0021	gr/dscf
				0.005	g/dscm
			Mass Emissions	0.83	lb/hr

MT Back Half:

Condensable PM	1.00E-03	grams	CPM, C_s	1.71E-04	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.07	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**2**
Location:	**Butte,MT**	**Start Time:**	**17:18**
Source:	**Secondary Crusher**	**End Time:**	**18:58**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	0.000						
4	4.050	3.70	69	1	0.36	77	0.600
8	8.230	3.90	69	2	0.38	76	0.616
11	12.080	3.50	69	3	0.34	76	0.583
15	15.930	3.30	69	4	0.32	77	0.566
19	19.540	3.00	69	5	0.29	77	0.539
23	23.540	3.60	69	6	0.35	78	0.592
26	27.710	4.00	69	7	0.39	79	0.624
30	31.780	3.70	70	8	0.36	79	0.600
34	36.010	4.10	69	9	0.40	78	0.632
38	40.190	4.20	69	10	0.41	77	0.640
41	44.360	4.00	69	11	0.39	77	0.624
45	48.751	4.40	69	12	0.43	77	0.656
49	53.080	4.20	68	13	0.41	77	0.640
53	57.890	5.20	68	14	0.51	77	0.714
56	62.560	5.10	68	15	0.50	76	0.707
60	67.190	5.00	68	16	0.49	76	0.700
64	71.980	5.20	68	17	0.51	76	0.714
68	76.260	4.40	68	18	0.43	76	0.656
71	80.120	3.60	68	19	0.35	76	0.592
75	84.030	3.60	69	20	0.35	76	0.592
79	88.100	3.50	69	21	0.34	76	0.583
83	92.130	3.70	69	22	0.36	76	0.600
86	96.370	3.90	69	23	0.38	76	0.616
90	100.312	3.30	69	24	0.32	76	0.566

Client:	**Montana Resources, LLC**	**Run:**	**2**
Source:	**Secondary Crusher**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	67.000	in
Meter Volume, V_m	100.312	dcf	Rectangular		
Water Volume	38.7	g	Width		in
Nozzle Diameter, N_z	0.3120	in.	Length		in
Nozzle Area	0.000531	sq.ft.	Stack Area	24.484	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.51	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.19	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	4.004	"H_2O	√Dp	0.6230	"H_2O
Temperature, T_m	68.8	^oF	Temperature, T_s	76.8	^oF
Temperature, T_m	528.5	^oA (^oR)	Temperature, T_s	536.5	^oA (R)
Pressure Meter, P_m	24.804	"Hg	Pressure Stack, P_s	24.524	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	88.738	dscf	Velocity, V_s	39.00	fps
	2.513	dscm	Volume (actual)	57,293	acfm
Actual Volume, $V_{m(actual)}$	112.338	awcf		56,136	adcfm
Gas Stream Moisture			Volume (standard)	2,771,381	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.825	scf		2,715,399	dscf/hr
Moisture, B_{ws}	0.0202			45,257	dscf/min
Moisture EPA M4	2.02	%v		46,190	wscf/min
Moisture @ Saturation	3.79	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.78	lb/lb-mole			
Percent Isokinetic	100.5	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.01041	grams	Concentration, C_s	0.0018	gr/dscf
				0.004	g/dscm
			Mass Emissions	0.70	lb/hr

MT Back Half:

Condensable PM	1.63E-03	grams	CPM, C_s	2.83E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.11	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources, LLC**	**Run:**	**3**
Location:	**Butte,MT**	**Start Time:**	**19:21**
Source:	**Secondary Crusher**	**End Time:**	**20:59**
Method:	**5**	**Date:**	**06/25/24**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m °F**	**Traverse Point**	**Dp "H_2O**	**Stack T_s °F**	**√Dp**
	0.000						
4	3.950	3.50	69	1	0.35	78	0.592
8	7.790	3.40	69	2	0.34	78	0.583
11	11.480	3.20	69	3	0.32	78	0.566
15	15.360	3.50	69	4	0.35	79	0.592
19	19.330	3.60	70	5	0.36	79	0.600
23	23.330	3.60	70	6	0.36	79	0.600
26	27.080	3.20	70	7	0.32	77	0.566
30	30.870	3.30	70	8	0.33	77	0.574
34	34.810	3.50	70	9	0.35	77	0.592
38	38.860	3.60	70	10	0.36	77	0.600
41	42.850	3.60	70	11	0.36	77	0.600
45	46.947	3.90	70	12	0.39	77	0.624
49	51.070	3.80	70	13	0.38	77	0.616
53	55.320	4.10	70	14	0.41	77	0.640
56	59.520	4.10	70	15	0.41	77	0.640
60	63.940	4.30	70	16	0.43	77	0.656
64	68.010	3.80	70	17	0.38	77	0.616
68	72.040	3.40	70	18	0.34	77	0.583
71	76.120	3.60	70	19	0.36	76	0.600
75	80.160	3.50	70	20	0.35	76	0.592
79	84.430	3.90	70	21	0.39	75	0.624
83	88.570	3.70	70	22	0.37	75	0.608
86	92.610	3.50	70	23	0.35	75	0.592
90	96.246	3.60	70	24	0.31	75	0.557

Client:	**Montana Resources, LLC**	**Run:**	**3**
Source:	**Secondary Crusher**	**Date:**	**06/25/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	67.000	in
Meter Volume, V_m	96.246	dcf	Rectangular		
Water Volume	25.0	g	Width		in
Nozzle Diameter, N_z	0.3120	in.	Length		in
Nozzle Area	0.000531	sq.ft.	Stack Area	24.484	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.51	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.19	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	3.633	"H_2O	√Dp	0.6010	"H_2O
Temperature, T_m	69.8	^oF	Temperature, T_s	77.0	^oF
Temperature, T_m	529.5	^oA (^oR)	Temperature, T_s	536.7	^oA (R)
Pressure Meter, P_m	24.777	"Hg	Pressure Stack, P_s	24.524	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	84.888	dscf	Velocity, V_s	37.59	fps
	2.404	dscm	Volume (actual)	55,221	acfm
Actual Volume, $V_{m(actual)}$	106.795	awcf		54,464	adcfm
Gas Stream Moisture			Volume (standard)	2,670,189	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.179	scf		2,633,607	dscf/hr
Moisture, B_{ws}	0.0137			43,893	dscf/min
Moisture EPA M4	1.37	%v		44,503	wscf/min
Moisture @ Saturation	3.82	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.85	lb/lb-mole			
Percent Isokinetic	99.1	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00985	grams	Concentration, C_s	0.0018	gr/dscf
				0.004	g/dscm
			Mass Emissions	0.67	lb/hr

MT Back Half:

Condensable PM	1.21E-03	grams	CPM, C_s	2.20E-04	gr/dscf
				0.001	g/dscm
			Mass Emissions	0.08	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources, LLC**
Location: **Butte,MT**
Source: **Secondary Crusher**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction	Corrected Gain (grams)
	Probe Rinse (Acetone FH)	28.8	30.6806	30.6820	0.0014	0.0001	**0.0013**
	Filter	Q81	0.4591	0.4700	0.0109		**0.0109**
	CPM Inorganics (Water)	136	30.3721	30.3742	0.0021	0.0011	**0.0010**
	Impinger H_2O Gain, g		1948	1950	2		
						Filterable PM (mg)	**12.15**
						Condensable PM (mg)	**1.00**
						Total PM (mg)	**13.15**
	Probe Rinse (Acetone FH)	36.2	30.5360	30.5404	0.0044	0.0002	**0.0042**
	Filter	Q82	0.4535	0.4597	0.0062		**0.0062**
	CPM Inorganics (Water)	120	29.4609	29.4635	0.0026	0.0010	**0.0016**
	Impinger H_2O Gain, g		1984	1998	14		
						Filterable PM (mg)	**10.41**
						Condensable PM (mg)	**1.63**
						Total PM (mg)	**12.04**
	Probe Rinse (Acetone FH)	29.8	30.1707	30.1754	0.0047	0.0002	**0.0045**
	Filter	Q83	0.4634	0.4687	0.0053		**0.0053**
	CPM Inorganics (Water)	147	30.2217	30.2241	0.0024	0.0012	**0.0012**
	Impinger H_2O Gain, g		1866	1872	6		
						Filterable PM (mg)	**9.85**
						Condensable PM (mg)	**1.21**
						Total PM (mg)	**11.06**
	Acetone Blank	97	30.9973	30.9978	0.0005	5.13E-06 g/g	
	Water Blank	320	30.5518	30.5544	0.0026	8.11E-06 g/g	

BISON ENGINEERING, INC.

COMPANY	Montana Resources, LLC
FACILITY	Butte
LOCATION	Butte, MT
SOURCE	Coarse Ore Conveyer
DATE	06/28/24
METHOD	5/MTBH
POLLUTANT	PM

EPA Method 1
Stack Parameters and Traverse Points

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Coarse Ore Conveyer**
Facility: **Butte**

Type of testing: P (P for Particulate; V for Velocity/Nonparticulate)
Type of duct: C (C for circular; R for rectangular)

Number of ports available:	2	
Number of ports to be used:	2	
Port diameter:	4	inches
Sampling location height (approx.):		feet
Stack height (approx.):		feet
Circular ID (rectangular length):	39.50	inches
Port depth and/or wall thickness:	4.00	inches
Stack width (rectangular only):		inches
Port location (length, width or NA)	N/A	

Equivalent Diameter
If rectangular = $\frac{2*Length*Width}{Length + Width}$ = 39.50 inches (If circular = duct ID)
Stack/duct area = 8.510 sq.feet 1225.4 sq. inches

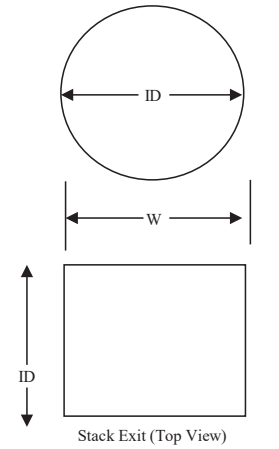
Sample port location:	Downstream flow disturbance from process B	Upstream flow disturbance toward exit A
Number of inches:	186.00	88.50
Number of diameters:	4.71	2.24

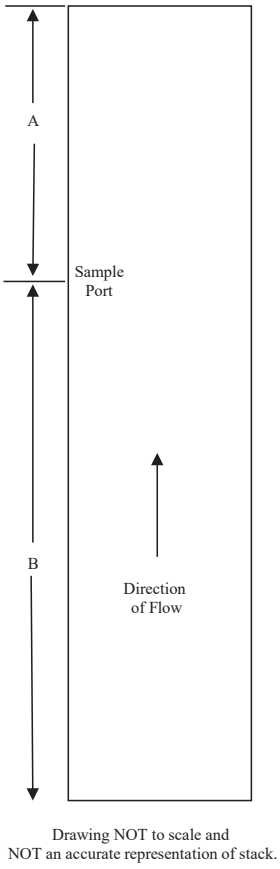
Recommended number of traverse points: 24

Traverse points less than 1.0 inch from the stack wall are relocated to a distance of 1.0 inch.

Points	% of diameter	Distance from inside wall (in.)	Distance including port (in.)
1	2.1	0.83	4 7/8
2	6.7	2.65	6 5/8
3	11.8	4.66	8 5/8
4	17.7	6.99	11
5	25.0	9.88	13 7/8
6	35.6	14.06	18
7	64.4	25.44	29 1/2
8	75.0	29.63	33 5/8
9	82.3	32.51	36 1/2
10	88.2	34.84	38 7/8
11	93.3	36.85	40 7/8
12	97.9	38.67	42 5/8

Reference Diagram





Drawing NOT to scale and
NOT an accurate representation of stack.

Pre-Test Traverse

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Coarse Ore Conveyer**
Date: **6/28/2024**

Stack Temp: 66 °F

Traverse Point	Velocity ΔP (inH_2O)	Null Angle
1	0.51	0
2	0.53	2
3	0.52	0
4	0.55	0
5	0.54	5
6	0.50	0
7	0.51	0
8	0.51	0
9	0.52	0
10	0.51	0
11	0.52	0
12	0.54	0
13	0.49	5
14	0.54	5
15	0.51	0
16	0.50	0
17	0.55	0
18	0.52	0
19	0.51	5
20	0.51	0
21	0.52	0
22	0.53	0
23	0.50	0
24	0.52	0

Average: 0.52 1

Flow is found to be: Non-cyclonic

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**1**
Location:	**Butte, MT**			**Start Time:**	**8:52**
Source:	**Coarse Ore Conveyer**			**End Time:**	**10:30**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/28/2024**
Box Operator:	**RFR**	Overcast with colder weather			
Technician(s):	**ZDH**				

Stack Dimensional Data:

Circular		
Diameter	39.500	in
Rectangular		
Width		in
Length		in
Stack Area	8.510	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	6F	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSB14	Nozzle size	0.265	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000383	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	6F	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.42	inHg	Assumed O_2	NA	%
Static Pressure	0.2	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.5	inH_2O	Rec. Nz.	0.231	inches
Stack Temperature	65	°F			
Assumed moisture	1.50	%			
Assumed meter temp.	65	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.001	0.004
Leak check vacuum, inHg	12	17

Nozzle check for roundness:

1	2	3	
0.265	0.265	0.266	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	80.619	dcf	Ave. ΔP	0.485	inH_2O
Wet mol. weight	28.88	M_s (actual)	Ave. √ΔP	0.696	inH_2O
Actual H_2O	1.13	%	Ave. ΔH	2.563	inH_2O
Std. meter vol.	72.496	dscf	Ave. T_s	63.1	°F
Isokinetic Average	100.0	%	Ave. T_m	56.1	°F

Moisture/Lab:

Filter, #	Q87		
	Initial	Final	Gain
Impingers, g	2,055.6	2,059.0	3.4
Silica gel, g	942.0	956.2	14.2
		Total water gain, g:	17.6

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	3.350	0.49	63	52	2.56	2.60	4	247	55	245
2	7.50	6.800	0.50	63	53	2.62	2.60	4	251	45	250
3	11.25	10.100	0.48	63	53	2.52	2.50	4	252	45	247
4	15.00	13.520	0.51	63	53	2.67	2.70	4	251	46	250
5	18.75	16.810	0.49	63	54	2.57	2.60	4	251	47	250
6	22.50	20.080	0.47	63	54	2.47	2.50	4	251	48	251
7	26.25	23.450	0.49	63	55	2.58	2.60	4	252	48	251
8	30.00	26.740	0.48	63	56	2.53	2.50	4	250	48	251
9	33.75	30.130	0.50	63	56	2.64	2.60	4	253	51	250
10	37.50	33.470	0.48	63	56	2.53	2.50	4	250	50	251
11	41.25	36.750	0.47	64	56	2.47	2.50	4	251	50	250
12	45.00	40.155	0.49	64	56	2.58	2.60	4	250	50	251
13	48.75	43.590	0.51	64	56	2.68	2.70	4	250	50	247
14	52.50	46.970	0.47	63	57	2.48	2.50	4	250	50	252
15	56.25	50.270	0.46	63	57	2.43	2.40	4	249	50	251
16	60.00	53.690	0.49	63	57	2.59	2.60	4	249	50	252
17	63.75	57.140	0.51	63	57	2.69	2.70	4	249	50	251
18	67.50	60.450	0.49	63	57	2.59	2.60	4	250	51	247
19	71.25	63.790	0.48	63	58	2.54	2.50	4	253	51	250
20	75.00	67.100	0.45	63	58	2.38	2.40	4	248	51	250
21	78.75	70.450	0.47	63	59	2.49	2.50	4	251	51	251
22	82.50	73.880	0.49	63	59	2.60	2.60	4	250	51	250
23	86.25	77.360	0.50	63	59	2.65	2.70	4	252	52	251
24	90.00	80.619	0.47	63	59	2.49	2.50	4	250	53	251

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**2**
Location:	**Butte, MT**			**Start Time:**	**10:44**
Source:	**Coarse Ore Conveyer**			**End Time:**	**12:22**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/28/2024**
Box Operator:	**RFR**	Overcast with colder weather			
Technician(s):	**ZDH**				

Stack Dimensional Data:

Circular		
Diameter	39.500	in
Rectangular		
Width		in
Length		in
Stack Area	8.510	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	6F	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSB14	Nozzle size	0.265	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000383	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	6F	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.45	inHg	Assumed O_2	NA	%
Static Pressure	0.2	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.485	inH_2O	Rec. Nz.	0.234	inches
Stack Temperature	63.1	°F			
Assumed moisture	1.13	%			
Assumed meter temp.	56.1	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.003	0.004
Leak check vacuum, inHg	16	18

Nozzle check for roundness:

1	2	3	
0.265	0.265	0.266	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	81.145	dcf	Ave. ΔP	0.474	inH_2O
Wet mol. weight	28.82	M_s (actual)	Ave. √ΔP	0.689	inH_2O
Actual H_2O	1.65	%	Ave. ΔH	2.542	inH_2O
Std. meter vol.	72.132	dscf	Ave. T_s	63.0	°F
Isokinetic Average	100.8	%	Ave. T_m	62.7	°F

Moisture/Lab:

Filter, #	Q88		
	Initial	Final	Gain
Impingers, g	1,933.3	1,938.0	4.7
Silica gel, g	903.8	924.7	20.9
		Total water gain:	25.6

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	3.250	0.45	63	62	2.41	2.40	4	248	54	244
2	7.50	6.510	0.46	63	62	2.47	2.50	4	251	49	245
3	11.25	9.800	0.46	63	62	2.47	2.50	4	250	49	244
4	15.00	13.220	0.48	63	62	2.58	2.60	4	249	49	246
5	18.75	16.690	0.49	63	62	2.63	2.60	4	250	50	247
6	22.50	20.080	0.47	63	62	2.52	2.50	4	249	51	248
7	26.25	23.520	0.50	63	62	2.68	2.70	4	251	52	252
8	30.00	26.940	0.48	63	63	2.58	2.60	4	250	54	251
9	33.75	30.280	0.47	63	63	2.53	2.50	4	251	54	249
10	37.50	33.780	0.49	63	63	2.63	2.60	4	250	54	249
11	41.25	37.150	0.46	63	63	2.47	2.50	4	250	54	252
12	45.00	40.650	0.49	63	63	2.63	2.60	4	249	54	248
13	48.75	44.190	0.51	63	63	2.74	2.70	4	252	54	251
14	52.50	47.640	0.48	63	63	2.58	2.60	4	250	54	248
15	56.25	50.990	0.46	63	63	2.47	2.50	4	251	54	248
16	60.00	54.280	0.45	63	63	2.42	2.40	4	250	55	252
17	63.75	57.700	0.49	63	63	2.63	2.60	4	251	55	253
18	67.50	61.030	0.47	63	63	2.53	2.50	4	250	56	251
19	71.25	64.460	0.47	63	63	2.53	2.50	4	251	56	253
20	75.00	67.770	0.46	63	63	2.47	2.50	4	253	57	251
21	78.75	71.180	0.49	63	63	2.63	2.60	4	251	57	253
22	82.50	74.490	0.47	63	63	2.53	2.50	4	252	57	252
23	86.25	77.770	0.46	63	63	2.47	2.50	4	251	57	253
24	90.00	81.145	0.47	63	63	2.53	2.50	4	250	57	251

Isokinetic Field Data
Field Data Entry

Client:	**Montana Resources, LLC**			**Run:**	**3**
Location:	**Butte, MT**			**Start Time:**	**12:35**
Source:	**Coarse Ore Conveyer**			**End Time:**	**14:12**
EPA Method:	**5/MTBH**	**Environmental Conditions/Test Notes:**		**Date:**	**6/28/2024**
Box Operator:	**RFR**	Overcast with colder weather			
Technician(s):	**ZDH**				

Stack Dimensional Data:

Circular		
Diameter	39.500	in
Rectangular		
Width		in
Length		in
Stack Area	8.510	sq.ft.

Equipment:

Meterbox ID	BOX 14	Probe ID	6F	Liner type	SS		
Y factor	1.0687	Nozzle ID	BSB14	Nozzle size	0.265	inches	
ΔH@	1.858	Hot box ID	HB4	Nozzle area	0.000383	sq.ft.	
Bp ID	BP1	Pitot Cp	0.84	Probe heat	250	°F	
Balance ID	AWS-1	Pitot ID	6F	Filter heat	250	°F	
Weights ID	AWS-1	Probe Length, ft	8	Condenser TC ID	GN8		

Source Information:

Barometric Pressure	24.45	inHg	Assumed O_2	NA	%
Static Pressure	0.2	inH_2O	Assumed CO_2	NA	%
Ave. ΔP	0.474	inH_2O	Rec. Nz.	0.234	inches
Stack Temperature	63	°F			
Assumed moisture	1.65	%			
Assumed meter temp.	62.7	°F			
Total number of points	24				
Time per point	3.75	min.			
Total run time	90	min.			

Leak Checks:

	Pre-test	Post-test
Pitot	x	x
Leak rate, dcfm	0.005	0.006
Leak check vacuum, inHg	17	19

Nozzle check for roundness:

1	2	3	
0.265	0.265	0.266	inches
	Caliper ID	FCAL1	

Post Test Calculations:

Sample volume	82.088	dcf	Ave. ΔP	0.477	inH_2O
Wet mol. weight	28.85	M_s (actual)	Ave. √ΔP	0.69	inH_2O
Actual H_2O	1.34	%	Ave. ΔH	2.55	inH_2O
Std. meter vol.	72.543	dscf	Ave. T_s	64.8	°F
Isokinetic Average	101.2	%	Ave. T_m	65.8	°F

Moisture/Lab:

Filter, #	Q89		
	Initial	Final	Gain
Impingers, g	2,027.2	2,027.0	-0.2
Silica gel, g	916.7	937.8	21.1
		Total water gain:	20.9

Traverse Point	Time (min.)	Meter Volume (dcf)	Velocity ΔP (inH_2O)	Stack Temp. (°F)	Meter Temp. (°F)	Calc. ΔH	Run ΔH	Vacuum (inHg)	Filter Box (°F)	Condenser Temp (≤68°F)	Probe Temp (248 ± 25°F)
		0.000									
1	3.75	3.210	0.45	64	65	2.40	2.40	4	248	64	250
2	7.50	6.620	0.49	64	65	2.62	2.60	4	249	55	247
3	11.25	10.050	0.47	64	65	2.51	2.50	4	252	56	249
4	15.00	13.520	0.49	64	65	2.62	2.60	4	251	59	248
5	18.75	16.970	0.48	64	65	2.56	2.60	4	251	61	250
6	22.50	20.480	0.50	65	66	2.67	2.70	4	250	63	251
7	26.25	23.940	0.49	65	66	2.62	2.60	4	252	62	248
8	30.00	27.320	0.47	65	66	2.51	2.50	4	251	64	249
9	33.75	30.640	0.45	65	66	2.40	2.40	4	250	64	251
10	37.50	34.060	0.47	65	66	2.51	2.50	4	248	63	245
11	41.25	37.490	0.49	65	66	2.62	2.60	4	251	62	250
12	45.00	41.030	0.51	65	66	2.72	2.70	4	249	63	246
13	48.75	44.640	0.53	65	66	2.83	2.80	4	253	62	255
14	52.50	48.150	0.50	65	66	2.67	2.70	4	248	61	254
15	56.25	51.580	0.47	65	66	2.51	2.50	4	252	60	251
16	60.00	54.860	0.44	65	66	2.35	2.40	4	250	60	251
17	63.75	58.250	0.46	65	66	2.46	2.50	4	249	59	252
18	67.50	61.690	0.48	65	66	2.56	2.60	4	247	60	250
19	71.25	65.030	0.45	65	66	2.40	2.40	4	250	61	251
20	75.00	68.420	0.47	65	66	2.51	2.50	4	251	62	253
21	78.75	71.880	0.49	65	66	2.62	2.60	4	247	62	251
22	82.50	75.330	0.48	65	66	2.56	2.60	4	248	62	254
23	86.25	78.720	0.45	65	66	2.40	2.40	4	250	62	253
24	90.00	82.088	0.46	66	66	2.45	2.50	4	251	63	251

EPA Method 4
Impinger Weights Summary

Client: **Montana Resources, LLC**
Location: **Butte, MT**
Source: **Coarse Ore Conveyer**

Run 1 6/28/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	740.9	735.8	-5.1
2	720.0	726.9	6.9
3	594.7	596.3	1.6
Total	**2,055.6**	**2,059.0**	**3.4**

Run 2 6/28/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	675.1	668.7	-6.4
2	630.7	637.9	7.2
3	627.5	631.4	3.9
Total	**1,933.3**	**1,938.0**	**4.7**

Run 3 6/28/2024

Impinger #	Initial (g)	Final (g)	Gain (g)
1	735.9	720.5	-15.4
2	696.5	706.4	9.9
3	594.8	600.1	5.3
Total	**2,027.2**	**2,027.0**	**-0.2**

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Results Summary

Client: **Montana Resources,LLC**
Source: **Coarse Ore Conveyer**
Location: **Butte, MT**

Run			1	2	3	
Date			6/28/2024	6/28/2024	6/28/2024	
Run Start Time			8:52	10:44	12:35	
Run End Time			10:30	12:22	14:12	
Duration, min.			90	90	90	Average
Barometric Pressure, "Hg			24.42	24.45	24.45	**24.44**
Nozzle Dia., in.			0.2650	0.2650	0.2650	**0.2650**
Isokinetic Average, %			100.0	100.8	101.2	**100.7**
Sample Volume, dscf			72.496	72.132	72.543	**72.390**
Sample Volume, dscm			2.053	2.043	2.054	**2.050**
Stack Diameter, in.			39.50	39.50	39.50	**39.50**
Stack Area, sq.ft.			8.510	8.510	8.510	**8.510**
Static Press., "H_2O			0.20	0.20	0.20	**0.20**
H_2O %v			1.13	1.65	1.34	**1.37**
Wet Molecular Weight, lb/lb-mole			28.88	28.82	28.85	**28.85**
Velocity, FPS			43.02	42.60	42.71	**42.78**
ADCFM			21,718	21,393	21,516	**21,542**
ACFM			21,966	21,752	21,808	**21,842**
DSCFM			17,903	17,660	17,700	**17,754**
Stack Temperature, ^oF			63.1	63.0	64.8	**63.6**
Filterable Particulate	Concentration, C_s	gr/dscf	0.000	0.000	0.000	**0.000**
		g/dscm	0.000	0.000	0.000	**0.000**
	Mass	lb/hr	0.006	0.027	0.009	**0.014**
Condensable Particulate	Concentration, C_s	gr/dscf	0.001	0.000	0.000	**0.000**
		g/dscm	0.002	0.000	0.000	**0.001**
	Mass	lb/hr	0.149	0.022	0.000	**0.057**
Total PM	Concentration, C_s	gr/dscf	0.001	0.000	0.000	**0.000**
		g/dscm	0.002	0.001	0.000	**0.001**
	Mass	lb/hr	0.155	0.049	0.009	**0.071**

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources,LLC**	**Run:**	**1**
Location:	**Butte, MT**	**Start Time:**	**8:52**
Source:	**Coarse Ore Conveyer**	**End Time:**	**10:30**
Method:	**5**	**Date:**	**6/28/2024**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m °F**	**Traverse Point**	**Dp "H_2O**	**Stack T_s °F**	**√Dp**
	0.000						
4	3.350	2.60	52	1	0.49	63	0.700
8	6.800	2.60	53	2	0.50	63	0.707
11	10.100	2.50	53	3	0.48	63	0.693
15	13.520	2.70	53	4	0.51	63	0.714
19	16.810	2.60	54	5	0.49	63	0.700
23	20.080	2.50	54	6	0.47	63	0.686
26	23.450	2.60	55	7	0.49	63	0.700
30	26.740	2.50	56	8	0.48	63	0.693
34	30.130	2.60	56	9	0.50	63	0.707
38	33.470	2.50	56	10	0.48	63	0.693
41	36.750	2.50	56	11	0.47	64	0.686
45	40.155	2.60	56	12	0.49	64	0.700
49	43.590	2.70	56	13	0.51	64	0.714
53	46.970	2.50	57	14	0.47	63	0.686
56	50.270	2.40	57	15	0.46	63	0.678
60	53.690	2.60	57	16	0.49	63	0.700
64	57.140	2.70	57	17	0.51	63	0.714
68	60.450	2.60	57	18	0.49	63	0.700
71	63.790	2.50	58	19	0.48	63	0.693
75	67.100	2.40	58	20	0.45	63	0.671
79	70.450	2.50	59	21	0.47	63	0.686
83	73.880	2.60	59	22	0.49	63	0.700
86	77.360	2.70	59	23	0.50	63	0.707
90	80.619	2.50	59	24	0.47	63	0.686

Client:	**Montana Resources,LLC**	**Run:**	**1**
Source:	**Coarse Ore Conveyer**	**Date:**	**06/28/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	39.500	in
Meter Volume, V_m	80.619	dcf	Rectangular		
Water Volume	17.6	g	Width		in
Nozzle Diameter, N_z	0.2650	in.	Length		in
Nozzle Area	0.000383	sq.ft.	Stack Area	8.510	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.42	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.20	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.563	"H_2O	√Dp	0.6960	"H_2O
Temperature, T_m	56.1	^oF	Temperature, T_s	63.1	^oF
Temperature, T_m	515.8	^oA (^oR)	Temperature, T_s	522.8	^oA (R)
Pressure Meter, P_m	24.608	"Hg	Pressure Stack, P_s	24.435	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	72.496	dscf	Velocity, V_s	43.02	fps
	2.053	dscm	Volume (actual)	21,966	acfm
Actual Volume, $V_{m(actual)}$	88.950	awcf		21,718	adcfm
Gas Stream Moisture			Volume (standard)	1,086,438	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.830	scf		1,074,161	dscf/hr
Moisture, B_{ws}	0.0113			17,903	dscf/min
Moisture EPA M4	1.13	%v		18,107	wscf/min
Moisture @ Saturation	2.38	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.88	lb/lb-mole			
Percent Isokinetic	100.0	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00019	grams	Concentration, C_s	0.0000	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	4.57E-03	grams	CPM, C_s	9.74E-04	gr/dscf
				0.002	g/dscm
			Mass Emissions	0.15	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources,LLC**	**Run:**	**2**
Location:	**Butte, MT**	**Start Time:**	**10:44**
Source:	**Coarse Ore Conveyer**	**End Time:**	**12:22**
Method:	**5**	**Date:**	**06/28/24**

Sampling Data				Traverse Data			
Time	**Meter**	**ΔH**	**Meter**	**Traverse**	**Dp**	**Stack**	
min.	**ft^3**	**"H_2O**	**T_m °F**	**Point**	**"H_2O**	**T_s °F**	**√Dp**
	0.000						
4	3.250	2.40	62	1	0.45	63	0.671
8	6.510	2.50	62	2	0.46	63	0.678
11	9.800	2.50	62	3	0.46	63	0.678
15	13.220	2.60	62	4	0.48	63	0.693
19	16.690	2.60	62	5	0.49	63	0.700
23	20.080	2.50	62	6	0.47	63	0.686
26	23.520	2.70	62	7	0.50	63	0.707
30	26.940	2.60	63	8	0.48	63	0.693
34	30.280	2.50	63	9	0.47	63	0.686
38	33.780	2.60	63	10	0.49	63	0.700
41	37.150	2.50	63	11	0.46	63	0.678
45	40.650	2.60	63	12	0.49	63	0.700
49	44.190	2.70	63	13	0.51	63	0.714
53	47.640	2.60	63	14	0.48	63	0.693
56	50.990	2.50	63	15	0.46	63	0.678
60	54.280	2.40	63	16	0.45	63	0.671
64	57.700	2.60	63	17	0.49	63	0.700
68	61.030	2.50	63	18	0.47	63	0.686
71	64.460	2.50	63	19	0.47	63	0.686
75	67.770	2.50	63	20	0.46	63	0.678
79	71.180	2.60	63	21	0.49	63	0.700
83	74.490	2.50	63	22	0.47	63	0.686
86	77.770	2.50	63	23	0.46	63	0.678
90	81.145	2.50	63	24	0.47	63	0.686

Client:	**Montana Resources,LLC**	**Run:**	**2**
Source:	**Coarse Ore Conveyer**	**Date:**	**06/28/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	39.500	in
Meter Volume, V_m	81.145	dcf	Rectangular		
Water Volume	25.6	g	Width		in
Nozzle Diameter, N_z	0.2650	in.	Length		in
Nozzle Area	0.000383	sq.ft.	Stack Area	8.510	sq.ft.
Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.45	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.20	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.542	"H_2O	√Dp	0.6890	"H_2O
Temperature, T_m	62.7	^oF	Temperature, T_s	63.0	^oF
Temperature, T_m	522.4	^oA (^oR)	Temperature, T_s	522.7	^oA (R)
Pressure Meter, P_m	24.637	"Hg	Pressure Stack, P_s	24.465	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	72.132	dscf	Velocity, V_s	42.60	fps
	2.043	dscm	Volume (actual)	21,752	acfm
Actual Volume, $V_{m(actual)}$	88.845	awcf		21,393	adcfm
Gas Stream Moisture			Volume (standard)	1,077,358	wscf/hr
Moisture Vapor, $Vw_{(std)}$	1.207	scf		1,059,582	dscf/hr
Moisture, B_{ws}	0.0165			17,660	dscf/min
Moisture EPA M4	1.65	%v		17,956	wscf/min
Moisture @ Saturation	2.37	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.82	lb/lb-mole			
Percent Isokinetic	100.8	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00083	grams	Concentration, C_s	0.0002	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.03	lb/hr

MT Back Half:

Condensable PM	6.68E-04	grams	CPM, C_s	1.43E-04	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.02	lb/hr

Isokinetic Field Data
Field Data and Calculations
Particulate Emissions and Gas Stream Characteristics

Client:	**Montana Resources,LLC**	**Run:**	**3**
Location:	**Butte, MT**	**Start Time:**	**12:35**
Source:	**Coarse Ore Conveyer**	**End Time:**	**14:12**
Method:	**5**	**Date:**	**06/28/24**

Sampling Data				Traverse Data			
Time min.	**Meter ft^3**	**ΔH "H_2O**	**Meter T_m °F**	**Traverse Point**	**Dp "H_2O**	**Stack T_s °F**	**√Dp**
	0.000						
4	3.210	2.40	65	1	0.45	64	0.671
8	6.620	2.60	65	2	0.49	64	0.700
11	10.050	2.50	65	3	0.47	64	0.686
15	13.520	2.60	65	4	0.49	64	0.700
19	16.970	2.60	65	5	0.48	64	0.693
23	20.480	2.70	66	6	0.50	65	0.707
26	23.940	2.60	66	7	0.49	65	0.700
30	27.320	2.50	66	8	0.47	65	0.686
34	30.640	2.40	66	9	0.45	65	0.671
38	34.060	2.50	66	10	0.47	65	0.686
41	37.490	2.60	66	11	0.49	65	0.700
45	41.030	2.70	66	12	0.51	65	0.714
49	44.640	2.80	66	13	0.53	65	0.728
53	48.150	2.70	66	14	0.50	65	0.707
56	51.580	2.50	66	15	0.47	65	0.686
60	54.860	2.40	66	16	0.44	65	0.663
64	58.250	2.50	66	17	0.46	65	0.678
68	61.690	2.60	66	18	0.48	65	0.693
71	65.030	2.40	66	19	0.45	65	0.671
75	68.420	2.50	66	20	0.47	65	0.686
79	71.880	2.60	66	21	0.49	65	0.700
83	75.330	2.60	66	22	0.48	65	0.693
86	78.720	2.40	66	23	0.45	65	0.671
90	82.088	2.50	66	24	0.46	66	0.678

Client:	**Montana Resources,LLC**	**Run:**	**3**
Source:	**Coarse Ore Conveyer**	**Date:**	**06/28/24**

Field Data Input Continued

Moisture Data			Stack Dimensional Data:		
Total Test Time	90.0	min	Circular		
Sample Time Interval	3.8	min	Diameter	39.500	in
Meter Volume, V_m	82.088	dcf	Rectangular		
Water Volume	20.9	g	Width		in
Nozzle Diameter, N_z	0.2650	in.	Length		in
Nozzle Area	0.000383	sq.ft.	Stack Area	8.510	sq.ft.

Traverse Data			Molecular Weight:		
Barometric Pressure, P_b	24.45	"Hg	CO_2 Average	NA	%vd
Static Pressure	0.20	"H_2O	O_2 Average	NA	%vd
Pitot Factor, cp	0.84				
Meter Cal Factor	1.0687	Y			

Field Data Averages

Meter			Stack		
ΔH	2.550	"H_2O	√Dp	0.6900	"H_2O
Temperature, T_m	65.8	^oF	Temperature, T_s	64.8	^oF
Temperature, T_m	525.5	^oA (^oR)	Temperature, T_s	524.5	^oA (R)
Pressure Meter, P_m	24.638	"Hg	Pressure Stack, P_s	24.465	"Hg

Field Data Calculations

Meter Box Capture			EPA Method 2 Stack Gas Flowrate:		
Standard Volume, $V_{m(std)}$	72.543	dscf	Velocity, V_s	42.71	fps
	2.054	dscm	Volume (actual)	21,808	acfm
Actual Volume, $V_{m(actual)}$	89.377	awcf		21,516	adcfm
Gas Stream Moisture			Volume (standard)	1,076,433	wscf/hr
Moisture Vapor, $Vw_{(std)}$	0.986	scf		1,062,009	dscf/hr
Moisture, B_{ws}	0.0134			17,700	dscf/min
Moisture EPA M4	1.34	%v		17,941	wscf/min
Moisture @ Saturation	2.53	%v (for T_s < 212°F)			
EPA Method 3 Gas Density					
Dry, M_d	29.00	lb/lb-mole			
Wet, M_s	28.85	lb/lb-mole			
Percent Isokinetic	101.2	%			

Laboratory Results

EPA Method 5 and MT Back Half

Front Half:

Filterable PM	0.00027	grams	Concentration, C_s	0.0001	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.01	lb/hr

MT Back Half:

Condensable PM	0.00E+00	grams	CPM, C_s	0.00E+00	gr/dscf
				0.000	g/dscm
			Mass Emissions	0.00	lb/hr

EPA Method 5 and Montana Back Half
Filterable and Condensable Particulate
Laboratory Gravimetric Data

Client: **Montana Resources,LLC**
Location: **Butte, MT**
Source: **Coarse Ore Conveyer**

Run	Sample Description	g, #	Initial (grams)	Final (grams)	Net Gain	Blank Correction	Corrected Gain (grams)
	Probe Rinse (Acetone FH)	61.3	29.2766	29.2771	0.0005	0.0003	**0.00019**
1	Filter	Q87	0.4624	0.4621	-0.0003		**0.00000**
	CPM Inorganics (Water)	225	29.7317	29.7381	0.0064	0.0018	**0.00457**
	Impinger H_2O Gain, g		2056	2059	3		
						Filterable PM (mg)	**0.19**
						Condensable PM (mg)	**4.57**
						Total PM (mg)	**4.76**
	Probe Rinse (Acetone FH)	32.3	29.4262	29.4272	0.0010	0.0002	**0.00083**
2	Filter	Q88	0.4603	0.4594	-0.0009		**0.00000**
	CPM Inorganics (Water)	226	29.6160	29.6185	0.0025	0.0018	**0.00067**
	Impinger H_2O Gain, g		1933	1938	5		
						Filterable PM (mg)	**0.83**
						Condensable PM (mg)	**0.67**
						Total PM (mg)	**1.50**
	Probe Rinse (Acetone FH)	44.2	30.1845	30.1850	0.0005	0.0002	**0.00027**
3	Filter	Q89	0.4526	0.4522	-0.0004		**0.00000**
	CPM Inorganics (Water)	166	30.0227	30.0237	0.0010	0.0013	**0.00000**
	Impinger H_2O Gain, g		2027	2027	0		
						Filterable PM (mg)	**0.27**
						Condensable PM (mg)	**0.00**
						Total PM (mg)	**0.27**
	Acetone Blank	97	30.9973	30.9978	0.0005	5.13E-06 g/g	
	Water Blank	320	30.5518	30.5544	0.0026	8.11E-06 g/g	

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-24-24	Start Time: 12:45	Stop Time: 13:15
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Molybdenum Dryer	Operating Mode: Normal		
Control Equipment: Wet Scrubber	Operating Mode: Normal		
Describe Emission Point: Start top of exhaust stack	Stop top of exhaust stack		
Height above Ground Level: Start 90' Stop 90'	Height Relative to Observer: Start 90' Stop 90'		
Distance from Observer: Start 250' Stop 250'	Direction from Observer: Start N Stop N		
Describe Emissions: Start light plume	Stop light plume		
Emission Color: Start white Stop white	Plume Type: Continuous ☑ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start end of plume	Stop end of plume		
Describe Background: Start clear sky	Stop clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 10 mph Stop 10 mph	Wind Direction: Start W Stop W		
Ambient Temp.: Start 78°F Stop 79°F	Wet Bulb Temp. NA	RH Percent NA	

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

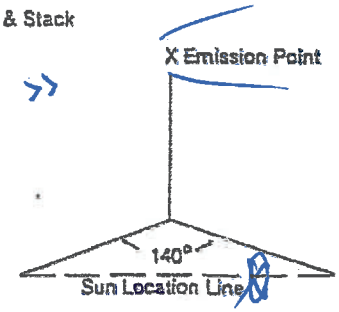
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-24-24

Organization: Bison Engineering

Comments: Run 1.

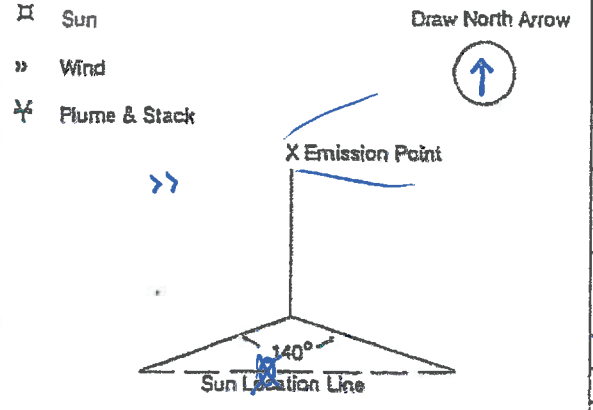
BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-24-24	Start Time: 14:55	Stop Time: 15:25
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Molybdenum Dryer	Operating Mode: Normal		
Control Equipment: Wet Scrubber	Operating Mode: Normal		
Describe Emission Point: Start top of exhaust stack	Stop top of exhaust stack		
Height above Ground Level: Start 90' Stop 90'	Height Relative to Observer: Start 90' Stop 90'		
Distance from Observer: Start 250' Stop 250'	Direction from Observer: Start N Stop N		
Describe Emissions: Start light plume	Stop light plume		
Emission Color: Start white Stop white	Plume Type: Continuous ☒ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start end of plume	Stop end of plume		
Describe Background: Start clear sky	Stop clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 10 mph Stop 10 mph	Wind Direction: Start W Stop W		
Ambient Temp.: Start 83°F Stop 83°F	Wet Bulb Temp. NA	RH Percent NA	

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch



Average Opacity for Highest Period: 0

Number of Readings Above: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-24-24

Organization: Bison Engineering

Comments: Run 2

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-24-24	Start Time: 16:55	Stop Time: 17:25
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Molybdenum Dryer	Operating Mode: Normal		
Control Equipment: Wet Scrubber	Operating Mode: Normal		
Describe Emission Point: Start: top of exhaust stack	Stop: top of exhaust stack		
Height above Ground Level: Start 90' Stop 90'	Height Relative to Observer: Start 90' Stop 90'		
Distance from Observer: Start 250' Stop 250'	Direction from Observer: Start N Stop N		
Describe Emissions: Start No plume	Stop No plume		
Emission Color: Start None Stop None	Plume Type: NA; Continuous ☐ Fugitive ☐ Intermittant ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start clear sky	Stop clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 10mph Stop 10mph	Wind Direction: Start W Stop W		
Ambient Temp.: Start 84°F Stop 84°F	Wet Bulb Temp. NA; RH Percent NA		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

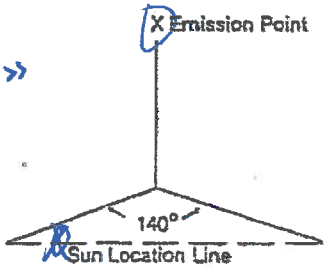
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-24-24

Organization: Bison Engineering

Comments: Run 3

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 8:50	Stop Time: 9:20
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Fine Ore Bin #1	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start: top of exhaust stack	Stop: top of exhaust stack		
Height above Ground Level: Start 40' Stop 40'	Height Relative to Observer: Start 40' Stop 40'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start W Stop W		
Describe Emissions: Start No plume	Stop No plume		
Emission Color: Start None Stop	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start Clear sky	Stop Clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 5mph Stop 5mph	Wind Direction: Start NW Stop NW		
Ambient Temp.: Start 54°F Stop 56°F	Wet Bulb Temp. NA / RH Percent NA		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

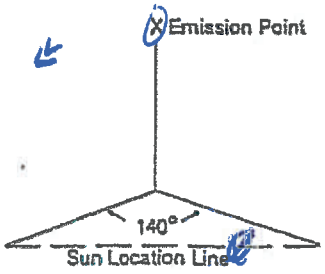
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

Comments: Run 1

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 10:50	Stop Time: 11:20
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Fine Ore Bin #1	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start top of exhaust stack	Stop top of exhaust stack		
Height above Ground Level: Start 40' Stop 40'	Height Relative to Observer: Start 40' Stop 40'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start W Stop W		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop None	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start Clear Sky	Stop Clear Sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 5mph Stop 5mph	Wind Direction: Start NW Stop NW		
Ambient Temp.: Start 71°F Stop 71°F	Wet Bulb Temp. NA	RH Percent NA	

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

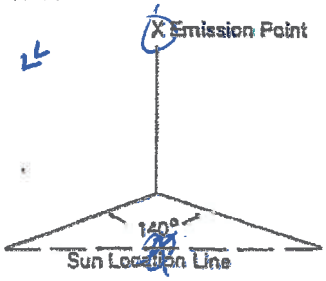
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

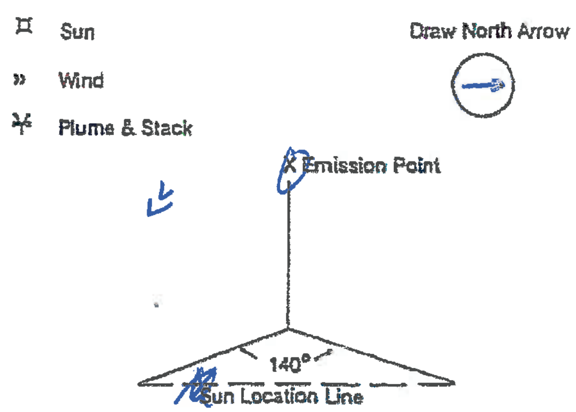
Comments: Run 2

BISON ENGINEERING, INC. VISIBLE EMISSION OBSERVATION FORM

Field	Value
Source Name	Montana Resources
Observation Date	6-25-24
Start Time	13:05
Stop Time	13:35
Address	600 Shields Ave.
City	Butte
State	MT
Zip	59701
Phone	406-496-3200
Source ID Number	
Process Equipment	Fine Ore Bin #1
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Start: top of exhaust stack; Stop: top of exhaust stack
Height above Ground Level	Start: 40'; Stop: 40'
Height Relative to Observer	Start: 40'; Stop: 40'
Distance from Observer	Start: 100'; Stop: 100'
Direction from Observer	Start: W; Stop: W
Describe Emissions	Start: No Plume; Stop: No Plume
Emission Color	Start: None; Stop: None
Plume Type	NA; Continuous ☐; Fugitive ☐; Intermittent ☐
Water Droplets Present?	Yes ☐; No ☒
If Water Droplet Plume	Attached ☐; Detached ☐
Point in the Plume at which Opacity was Determined	Start: No Plume; Stop: No Plume
Describe Background	Start: clear sky; Stop: clear sky
Background Color	Start: blue; Stop: blue
Sky Conditions	Start: clear; Stop: clear
Wind Speed	Start: 5mph; Stop: 5mph
Wind Direction	Start: NW; Stop: NW
Ambient Temp.	Start: 79°F; Stop: 79°F
Wet Bulb Temp.	NA
RH Percent	NA

Min	0	15	30	45	Min	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch



Average Opacity for Highest Period: 0

Number of Readings Above 0 % Were 0

Range of Opacity Readings: Minimum 0; Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature]

Date: 6-25-24

Organization: Bison Engineering

Comments: Run 3

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 15:00	Stop Time: 15:30
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Fine Ore Bin #2	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start: top of exhaust stack	Stop: top of exhaust stack		
Height above Ground Level: Start 40' Stop 40'	Height Relative to Observer: Start 40' Stop 40'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start E Stop E		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop None	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start clear sky	Stop clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 10mph Stop 10mph	Wind Direction: Start NW Stop NW		
Ambient Temp.: Start 83°F Stop 83°F	Wet Bulb Temp. NA / RH Percent NA		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch

Sun
Wind
Plume & Stack
Draw North Arrow
Emission Point
140°
Sun Location

Average Opacity for Highest Period: 0

Number of Readings Above % Were: 0 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

Comments: Run 1.
Sun location estimated due to adjacent building blocking view of sun.

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name	Montana Resources
Address	600 Shields Ave.
City	Butte
State	MT
Zip	59701
Phone	406-496-3200
Source ID Number	
Process Equipment	Fine Ore Bin #2
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point Start	top of exhaust stack
Stop	top of exhaust stack
Height above Ground Level Start	40'
Stop	40'
Height Relative to Observer Start	40'
Stop	40'
Distance from Observer Start	100'
Stop	100'
Direction from Observer Start	E
Stop	E
Describe Emissions Start	No Plume
Stop	No Plume
Emission Color Start	None
Stop	None
Plume Type	N/A Continuous ☐ Fugitive ☐ Intermittent ☐
Water Droplets Present?	Yes ☐ No ☒
If Water Droplet Plume:	Attached ☐ Detached ☐
Point in the Plume at which Opacity was Determined Start	No Plume
Stop	No Plume
Describe Background Start	clear sky
Stop	clear sky
Background Color Start	blue
Stop	blue
Sky Conditions Start	clear
Stop	clear
Wind Speed Start	10 mph
Stop	10 mph
Wind Direction Start	NW
Stop	NW
Ambient Temp. Start	82°F
Stop	82°F
Wet Bulb Temp.	NA
RH Percent	NA

Observation Date	Start Time	Stop Time
6-25-24	16:40	17:10

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

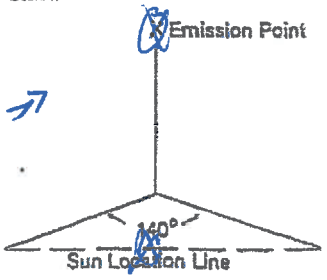
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above % Were: 0

Range of Opacity Readings — Minimum: 0 Maximum: 0

Observer's Name (Print): Robert Rogge

Observer's Signature: RT Re

Date: 6-25-24

Organization: Bison Engineering

Comments:

Run 2.

Sun location estimated due to adjacent building blocking view of sun

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

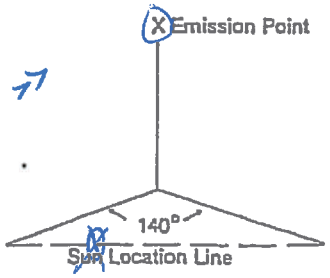
Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 18:25	Stop Time: 18:55

Address: 600 Shields Ave.
City: Butte | State: MT | Zip: 59701
Phone: 406-496-3200 | Source ID Number:
Process Equipment: Fine Ore Bin #2 | Operating Mode: Normal
Control Equipment: Baghouse | Operating Mode: Normal
Describe Emission Point: Start: top of exhaust stack | Stop: top of exhaust stack
Height above Ground Level: Start 40' Stop 40' | Height Relative to Observer: Start 40' Stop 40'
Distance from Observer: Start 100' Stop 100' | Direction from Observer: Start E Stop E
Describe Emissions: Start No Plume | Stop No Plume
Emission Color: Start None Stop None | Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐
Water Droplets Present? Yes ☐ No ☒ | If Water Droplet Plume: Attached ☐ Detached ☐
Point in the Plume at which Opacity was Determined: Start No Plume Stop No Plume
Describe Background: Start clear sky Stop clear sky
Background Color: Start blue Stop blue | Sky Conditions: Start clear Stop clear
Wind Speed: Start 10mph Stop 10mph | Wind Direction: Start NW Stop NW
Ambient Temp.: Start 81°F Stop 81°F | Wet Bulb Temp. NA | RH Percent NA

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch

Sun
Wind
Plume & Stack
Draw North Arrow



Average Opacity for Highest Period: 0
Number of Readings Above: 0 % Were 0
Range of Opacity Readings: Minimum 0 Maximum 0
Observer's Name (Print): Robert Rogge
Observer's Signature: [signature] Date: 6-25-24
Organization: Bison Engineering
Comments: Run 3
Sun location estimated due to adjacent building blocking view of the sun.

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 8:15	Stop Time: 8:45
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Fine Ore Bin #3	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start: top of exhaust stack	Stop: top of exhaust stack		
Height above Ground Level: Start 40' Stop 40'	Height Relative to Observer: Start 40' Stop 40'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start W Stop W		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop	Plume Type: NA Fugitive ☐ Continuous ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No plume	Stop No Plume		
Describe Background: Start clear sky	Stop clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 5mph Stop 5mph	Wind Direction: Start NW Stop NW		
Ambient Temp.: Start 52°F Stop 53°F	Wet Bulb Temp. NA	RH Percent NA	

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

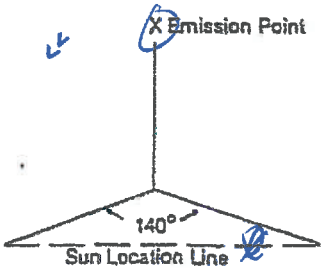
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

Comments: Run 1.

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 10:15	Stop Time: 10:45
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Fine Ore Bin #3	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start top of exhaust stack	Stop top of exhaust stack		
Height above Ground Level: Start 40' Stop 40'	Height Relative to Observer: Start 40' Stop 40'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start W Stop W		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start clear sky	Stop clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 5 mph Stop 5 mph	Wind Direction: Start NW Stop NW		
Ambient Temp.: Start 66°F Stop 66°F	Wet Bulb Temp. NA / RH Percent NA		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

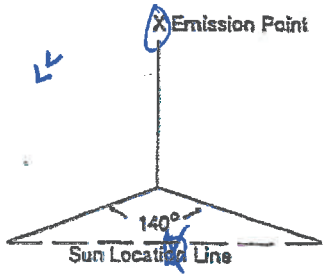
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

Comments: Run 2

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 12:30	Stop Time: 13:00

Address: 600 Shields Ave.

City: Butte | State: MT | Zip: 59701

Phone: 406-496-3200 | Source ID Number:

Process Equipment: Fine Ore Bin #3 | Operating Mode: Normal

Control Equipment: Baghouse | Operating Mode: Normal

Describe Emission Point
Start: top of exhaust stack Stop: top of exhaust stack

Height above Ground Level: Start 40' Stop 40' | Height Relative to Observer: Start 40' Stop 40'

Distance from Observer: Start 100' Stop 100' | Direction from Observer: Start W Stop W

Describe Emissions
Start: No Plume Stop: No Plume

Emission Color: Start None Stop None | Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐

Water Droplets Present? Yes ☐ No ☒ | If Water Droplet Plume: Attached ☐ Detached ☐

Point in the Plume at which Opacity was Determined
Start: No Plume Stop: No Plume

Describe Background
Start: clear sky Stop: clear sky

Background Color: Start blue Stop blue | Sky Conditions: Start clear Stop clear

Wind Speed: Start 5mph Stop 5 mph | Wind Direction: Start NW Stop NW

Ambient Temp.: Start 78°F Stop 78°F | Wet Bulb Temp.: NA | RH Percent: NA

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch

Sun
Wind
Plume & Stack
Draw North Arrow
Emission Point
140°
Sun Location Line

Average Opacity for Highest Period: 0

Number of Readings Above % Were: 0 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

Comments: Run 3

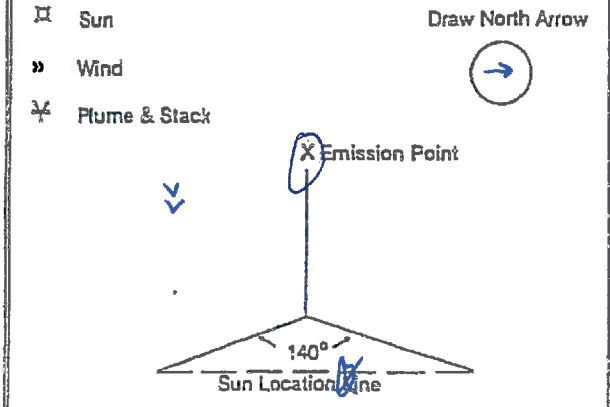
BISON ENGINEERING, INC. VISIBLE EMISSION OBSERVATION FORM

Montana Resources

Source Name: ~~Fine Ore Bin #4~~ RFR 6/24/24 12:22	Observation Date: 6-24-24	Start Time: 12:00	Stop Time: 12:30
Address: 600 Shields Ave.	City: Butte	State: MT	Zip: 59701
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Fine Ore Bin #4	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start Top of exhaust stack	Stop Top of exhaust stack		
Height above Ground Level: Start 40' Stop 40'	Height Relative to Observer: Start 40' Stop 40'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start W Stop W		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop None	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start Clear sky	Stop Clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start Clear Stop Clear		
Wind Speed: Start 10mph Stop 10mph	Wind Direction: Start W Stop W		
Ambient Temp. Start 75°F Stop 75°F	Wet Bulb Temp. NA / RH Percent NA		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch



Average Opacity for Highest Period: 0

Number of Readings Above % Were: 0 / 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-24-24

Organization: Bison Engineering

Comments: Run 1

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-24-24	Start Time: 14:15	Stop Time: 14:45
Address: 600 Shields Ave			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Fine Ore Bin #4	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		

Describe Emission Point
Start: top of exhaust stack Stop: top of exhaust stack

Height above Ground Level: Start 40' Stop 40'	Height Relative to Observer: Start 40' Stop 40'
Distance from Observer: Start 80' Stop 80'	Direction from Observer: Start NW Stop NW

Describe Emissions
Start: No Plume Stop: No Plume

Emission Color: Start None Stop None	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐

Point in the Plume at which Opacity was Determined
Start: No Plume Stop: No Plume

Describe Background
Start: clear sky Stop: clear sky

Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear
Wind Speed: Start 10 mph Stop 10 mph	Wind Direction: Start W Stop W
Ambient Temp.: Start 82°F Stop 82°F	Wet Bulb Temp.: NA RH Percent: NA

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch

Sun
Wind
Plume & Stack
Draw North Arrow
Emission Point
140°
Sun Location Line

Average Opacity for Highest Period: 0

Number of Readings Above % Were: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-24-24

Organization: Bison Engineering

Comments: Run 2

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name	Montana Resources
Address	600 Shields Ave.
City	Butte
State	MT
Zip	59701
Phone	406-496-3200
Source ID Number	
Process Equipment	Fine Ore Bin #4
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Start: top of exhaust stack; Stop: top of exhaust stack
Height above Ground Level	Start: 40'; Stop: 40'
Height Relative to Observer	Start: 40'; Stop: 40'
Distance from Observer	Start: 80'; Stop: 80'
Direction from Observer	Start: NW; Stop: NW
Describe Emissions	Start: No Plume; Stop: No Plume
Emission Color	Start: None; Stop: None
Plume Type	NA; Continuous ☐ Fugitive ☐ Intermittent ☐
Water Droplets Present?	Yes ☐ No ☒
If Water Droplet Plume:	Attached ☐ Detached ☐
Point in the Plume at which Opacity was Determined	Start: No plume; Stop: No plume
Describe Background	Start: clear sky; Stop: clear sky
Background Color	Start: blue; Stop: blue
Sky Conditions	Start: clear; Stop: clear
Wind Speed	Start: 10 mph; Stop: 10 mph
Wind Direction	Start: W; Stop: W
Ambient Temp.	Start: 83°F; Stop: 83°F
Wet Bulb Temp.	NA
RH Percent	NA

Observation Date: 6-24-24 | Start Time: 16:15 | Stop Time: 16:45

Min	0	15	30	45	Min	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Average Opacity for Highest Period: 0

Number of Readings Above 0 % Were 0

Range of Opacity Readings: Minimum 0, Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-24-24

Organization: Bison Engineering

Comments: Run 3. Unable to achieve or verify ideal sun location due to adjacent building.

Source Layout Sketch

Sun | Wind | Plume & Stack | Emission Point | Draw North Arrow

140° Sun Location Line

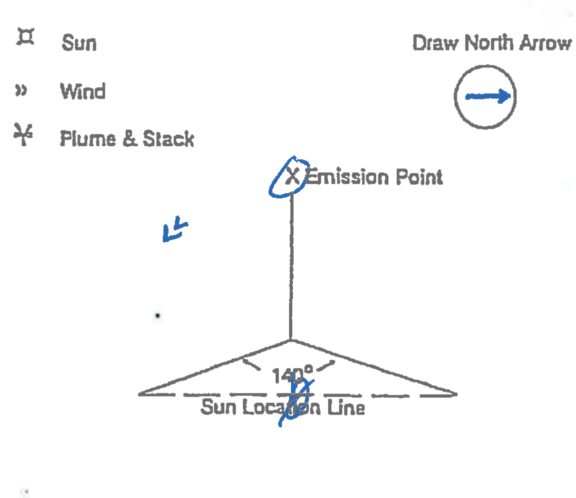
BISON ENGINEERING, INC. VISIBLE EMISSION OBSERVATION FORM

Field	Value
Source Name	Montana Resources
Address	600 Shields Ave.
City	Butte
State	MT
Zip	59701
Phone	406-496-3200
Source ID Number	
Process Equipment	Primary Crusher
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Start top of exhaust stack Stop top of exhaust stack
Height above Ground Level	Start 100' Stop 100'
Height Relative to Observer	Start 100' Stop 100'
Distance from Observer	Start 300' Stop 300'
Direction from Observer	Start W Stop W
Describe Emissions	Start No Plume Stop No Plume
Emission Color	Start None Stop None
Plume Type	NA Continuous ☐ Fugitive ☐ Intermittent ☐
Water Droplets Present?	Yes ☐ No ☒
If Water Droplet Plume:	Attached ☐ Detached ☐
Point in the Plume at which Opacity was Determined	Start No Plume Stop No Plume
Describe Background	Start cloudy sky Stop cloudy sky
Background Color	Start gray Stop gray
Sky Conditions	Start cloudy Stop cloudy
Wind Speed	Start 5mph Stop 5mph
Wind Direction	Start NW Stop NW
Ambient Temp.	Start 55°F Stop 55°F
Wet Bulb Temp.	NA
RH Percent	NA

Observation Date	Start Time	Stop Time
6-27-24	9:30	10:00

Min	0	15	30	45	Min	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch



Field	Value
Average Opacity for Highest Period	0
Number of Readings Above 0 % Were	0
Range of Opacity Readings	Minimum 0 Maximum 0
Observer's Name (Print)	Robert Rogge
Observer's Signature	[signature]
Date	6-27-24
Organization	Bison Engineering
Comments	Run 1 Sun location is estimated due to the sun being blocked by clouds. Rainy conditions.

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-27-24	Start Time: 11:20	Stop Time: 11:50
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Primary Crusher	Operating Mode: Normal		
Control Equipment: Bag house	Operating Mode: Normal		

Describe Emission Point
Start: top of exhaust stack Stop: top of exhaust stack

Height above Ground Level	Height Relative to Observer
Start 100' Stop 100'	Start 100' Stop 100'

Distance from Observer	Direction from Observer
Start 300' Stop 300'	Start W Stop W

Describe Emissions
Start: No Plume Stop: No Plume

Emission Color
Start: None Stop: None

Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐

Water Droplets Present? Yes ☐ No ☒

If Water Droplet Plume: Attached ☐ Detached ☐

Point in the Plume at which Opacity was Determined
Start: No Plume Stop: No Plume

Describe Background
Start: partly cloudy sky Stop: partly cloudy sky

Background Color
Start: blue Stop: blue

Sky Conditions
Start: partly cloudy Stop: partly cloudy

Wind Speed
Start: 15mph Stop: 15mph

Wind Direction
Start: NW Stop: NW

Ambient Temp.
Start: 59°F Stop: 59°F

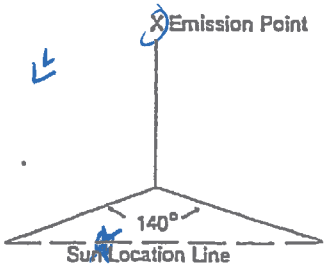
Wet Bulb Temp.: NA

RH Percent: NA

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch

Sun
Wind
Plume & Stack
Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above % Were: 0 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rugge

Observer's Signature: [signature] Date: 6-27-24

Organization: Bison Engineering

Comments: Run 2

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-27-24	Start Time: 13:10	Stop Time: 13:40
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Primary Crusher	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start: top of exhaust stack	Stop: top of exhaust stack		
Height above Ground Level: Start 100' Stop 100'	Height Relative to Observer: Start 100' Stop 100'		
Distance from Observer: Start 300' Stop 300'	Direction from Observer: Start W Stop W		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop None	Plume Type: NA; Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start partly cloudy sky	Stop partly cloudy sky		
Background Color: Start blue Stop blue	Sky Conditions: Start partly cloudy Stop partly cloudy		
Wind Speed: Start 15mph Stop 15mph	Wind Direction: Start NW Stop NW		
Ambient Temp.: Start 63°F Stop 63°F	Wet Bulb Temp.: NA; RH Percent: NA		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

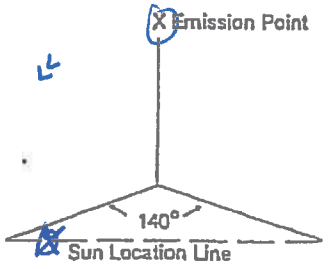
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow →



Average Opacity for Highest Period: 0

Number of Readings Above 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-27-24

Organization: Bison Engineering

Comments: Run 3

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 15:45	Stop Time: 16:15
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Secondary Crusher	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start: top of exhaust stack	Stop: top of exhaust stack		
Height above Ground Level: Start 30' Stop 30'	Height Relative to Observer: Start 30' Stop 30'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start E Stop E		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start Clear Sky	Stop Clear Sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 10mph Stop 10mph	Wind Direction: Start NW Stop NW		
Ambient Temp.: Start 82°F Stop 82°F	Wet Bulb Temp. NA / RH Percent NA		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

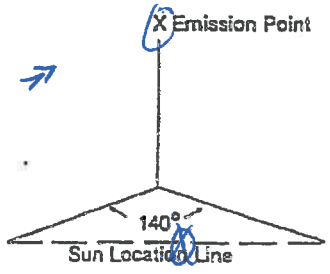
Source Layout Sketch

☼ Sun

» Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rugge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

Comments: Run 1

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

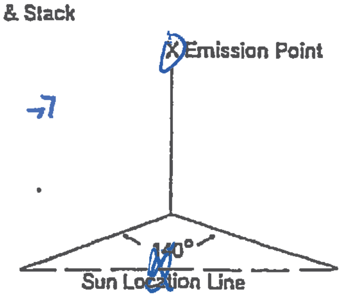
Source Name	Montana Resources
Observation Date	6-25-24
Start Time	17:20
Stop Time	17:50
Address	600 Shields Ave.
City	Butte
State	MT
Zip	59701
Phone	406-496-3200
Source ID Number	
Process Equipment	Secondary Crusher
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Start: top of exhaust stack; Stop: top of exhaust stack
Height above Ground Level	Start: 30'; Stop: 30'
Height Relative to Observer	Start: 30'; Stop: 30'
Distance from Observer	Start: 100'; Stop: 100'
Direction from Observer	Start: E; Stop: E
Describe Emissions	Start: No plume; Stop: No plume
Emission Color	Start: None; Stop: None
Plume Type	NA; Continuous ☐; Fugitive ☐; Intermittent ☐
Water Droplets Present?	Yes ☐; No ☒
If Water Droplet Plume	Attached ☐; Detached ☐
Point in the Plume at which Opacity was Determined	Start: No Plume; Stop: No Plume
Describe Background	Start: clear sky; Stop: clear sky
Background Color	Start: blue; Stop: blue
Sky Conditions	Start: clear; Stop: clear
Wind Speed	Start: 10mph; Stop: 10mph
Wind Direction	Start: NW; Stop: NW
Ambient Temp.	Start: 83°F; Stop: 83°F
Wet Bulb Temp.	NA
RH Percent	NA

Min	0	15	30	45	Min	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch

¤ Sun
» Wind
Ұ Plume & Stack

Draw North Arrow



Average Opacity for Highest Period	0
Number of Readings Above 0 % Were	0
Range of Opacity Readings	Minimum 0; Maximum 0
Observer's Name (Print)	Robert Rogge
Observer's Signature	[signature]
Date	6-25-24
Organization	Bison Engineering
Comments	Run 2

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources	Observation Date: 6-25-24	Start Time: 20:20	Stop Time: 20:50
Address: 600 Shields Ave.			
City: Butte	State: MT	Zip: 59701	
Phone: 406-496-3200	Source ID Number:		
Process Equipment: Secondary Crusher	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start: top of exhaust stack	Stop: top of exhaust stack		
Height above Ground Level: Start 30' Stop 30'	Height Relative to Observer: Start 30' Stop 30'		
Distance from Observer: Start 100' Stop 100'	Direction from Observer: Start E Stop E		
Describe Emissions: Start No Plume	Stop No Plume		
Emission Color: Start None Stop None	Plume Type: NA Continuous ☐ Fugitive ☐ Intermittent ☐		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start No Plume	Stop No Plume		
Describe Background: Start clear sky	Stop clear sky		
Background Color: Start blue Stop blue	Sky Conditions: Start clear Stop clear		
Wind Speed: Start 10mph Stop 10mph	Wind Direction: Start N Stop N		
Ambient Temp.: Start 81°F Stop 81°F	Wet Bulb Temp. NA	RH Percent NA	

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

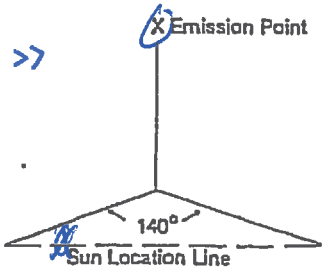
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0

Number of Readings Above % Were: 0 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Robert Rogge

Observer's Signature: [signature] Date: 6-25-24

Organization: Bison Engineering

Comments: Run 3.

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name: Montana Resources Coarse Ore Conveyer	Observation Date: 6/28/24	Start Time: 9:00	Stop Time: 9:30
Address: 600 Shields Ave			
City: Butte	State: MT	Zip: 59701	
Phone:	Source ID Number:		
Process Equipment: Coarse Ore Conveyer	Operating Mode: Normal		
Control Equipment: Baghouse	Operating Mode: Normal		
Describe Emission Point: Start Top of Exhaust Stack	Stop Top of Exhaust Stack		
Height above Ground Level: Start 120' Stop 120'	Height Relative to Observer: Start 110' Stop 110'		
Distance from Observer: Start 250' Stop 250'	Direction from Observer: Start W Stop W		
Describe Emissions: Start No Plume	Stop No plume		
Emission Color: Start None Stop None	Plume Type: Continuous ☐ Fugitive ☐ Intermittent ☐ (NA)		
Water Droplets Present? Yes ☐ No ☒	If Water Droplet Plume: Attached ☐ Detached ☐		
Point in the Plume at which Opacity was Determined: Start Top of exhaust	Stop 1' above exhaust		
Describe Background: Start Clouds	Stop Clouds		
Background Color: Start Grey Stop Grey	Sky Conditions: Start Cloudy Stop Cloudy		
Wind Speed: Start 5-11mph Stop 5-11mph	Wind Direction: Start N Stop N		
Ambient Temp.: Start 53°F Stop 55°F	Wet Bulb Temp. / RH Percent		

Min	Seconds 0	15	30	45	Min	Seconds 0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

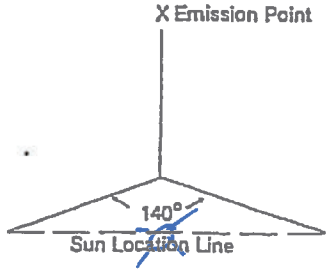
Source Layout Sketch

Sun

Wind

Plume & Stack

Draw North Arrow



Average Opacity for Highest Period: 0	Number of Readings Above 15 % Were 0
Range of Opacity Readings: 0 Minimum	0 Maximum
Observer's Name (Print): Zach Harding	
Observer's Signature	Date: 6/28/24
Organization: Bison Engineering	
Comments: Run 2	

Version: 2
Date: 1/18/18
Y:SOURCE\MASTER SPREADSHEETS\Field Datasheets\M9 Opacity Form

BISON ENGINEERING, INC.

VISIBLE EMISSION OBSERVATION FORM

Source Name	(Montana Resources) Coarse Ore Conveyer
Address	600 shields Ave
City	Butte
State	MT
Zip	59701
Phone	RTM [redacted]
Source ID Number	
Process Equipment	Coarse Ore Conveyor
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	normal
Describe Emission Point	Start: Top of stack; Stop: top of stack
Height above Ground Level	Start: 120'; Stop: 120'
Height Relative to Observer	Start: 110'; Stop: 110'
Distance from Observer	Start: 250'; Stop: 250'
Direction from Observer	Start: W; Stop: W
Describe Emissions	Start: No plume; Stop: No plume
Emission Color	Start: N/A; Stop: N/A
Plume Type	Continuous ☐ Fugitive ☐ Intermittent ☐ — N/A
Water Droplets Present?	Yes ☐ No ☒
If Water Droplet Plume	Attached ☐ Detached ☐
Point in the Plume at which Opacity was Determined	Start: Top of stack; Stop: Top of stack
Describe Background	Start: overcast cloudy; Stop: overcast cloudy
Background Color	Start: Grey; Stop: Grey
Sky Conditions	Start: cloudy; Stop: cloudy
Wind Speed	Start: 10-12; Stop: 10-12
Wind Direction	Start: N; Stop: N
Ambient Temp.	Start: 56°F; Stop: 56°F
Wet Bulb Temp.	
RH Percent	

Observation Date	Start Time	Stop Time
6/28/24	10:50	11:20

Min	0	15	30	45	Min	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Average Opacity for Highest Period: 0

Number of Readings Above 15 % Were 0

Range of Opacity Readings: Minimum 0 Maximum 0

Observer's Name (Print): Riley Madsen

Observer's Signature: Riley Madsen

Date: 6/28/24

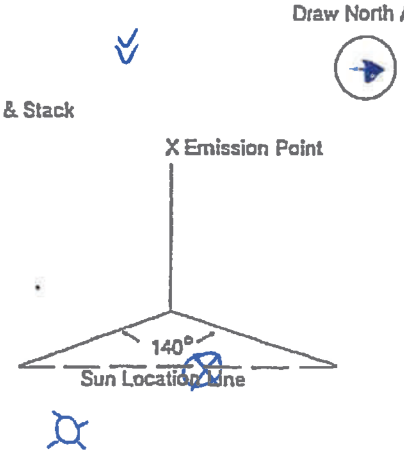
Organization: Bison Engineering

Comments: R-2

Certification through Compliance Assurance Associates, Inc

Source Layout Sketch

Sun
Wind
Plume & Stack
Draw North Arrow
X Emission Point



BISON ENGINEERING, INC.

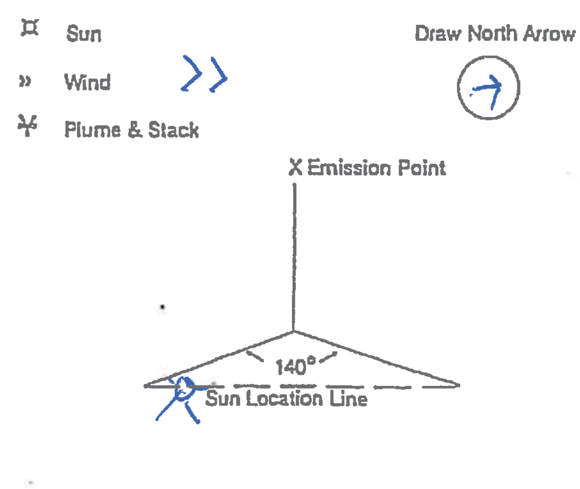
VISIBLE EMISSION OBSERVATION FORM

Source Name	Montana Resources
Address	600 Shields Ave
City	Butte
State	MT
Zip	59701
Phone	
Source ID Number	
Process Equipment	Coarse Ore Conveyor
Operating Mode	Normal
Control Equipment	Baghouse
Operating Mode	Normal
Describe Emission Point	Start Circular Exhaust Stack; Stop Circular Exhaust Stack
Height above Ground Level	Start 120'; Stop 120'
Height Relative to Observer	Start 120'; Stop 120'
Distance from Observer	Start 275'; Stop 275'
Direction from Observer	Start NW; Stop NW
Describe Emissions	Start None; Stop None
Emission Color	Start N/A; Stop N/A
Plume Type: NA	Continuous ☐ Fugitive ☐ Intermittent ☐
Water Droplets Present?	Yes ☐ No ☒
If Water Droplet Plume:	Attached ☐ Detached ☐
Point in the Plume at which Opacity was Determined	Start 1' above stack; Stop 1' above stack
Describe Background	Start Clouds; Stop Clouds
Background Color	Start Grey; Stop grey
Sky Conditions	Start Partly Cloudy; Stop Partly Cloudy
Wind Speed	Start 15-20 mph; Stop 15-20 mph
Wind Direction	Start N; Stop N
Ambient Temp.	Start 62°F; Stop 62°F
Wet Bulb Temp.	
RH Percent	

Observation Date	Start Time	Stop Time
6/28/2024	13:00	13:30

Min	0	15	30	45	Min	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

Source Layout Sketch



Average Opacity for Highest Period	0
Number of Readings Above 15% Were	0
Range of Opacity Readings	0 Minimum; 0 Maximum
Observer's Name (Print)	Zach Hardy
Observer's Signature	[signature]
Date	6/28/24
Organization	Bison Engineering
Comments	RUN 3

APPENDIX B: LABORATORY DATA

Bison Engineering, Inc.
Gravimetric Analysis Results

Client: Montana Resources
Location: Butte, MT
Project Number: MTR224203
Test Date: 6/24-28/2024

Filters:

Sample Identification	Filter #	Date	Tare 1 (g)	Date	Tare 2 (g)	CHECK (g)	Average (g)	Filter #	Date	Final 1 (g)	Date	Final 2 (g)	CHECK (g)	Average (g)	Gain (g)
MTR224203 Moly Dryer Run 1	Q69	6/7/2024	0.4642	6/10/2024	0.4641	-0.0001	0.4642	Q69	6/27/2024	0.4628	7/1/2024	0.4628	0.0000	0.4628	-0.0014
MTR224203 Moly Dryer Run 2	Q70	6/7/2024	0.4634	6/10/2024	0.4635	0.0001	0.4635	Q70	6/27/2024	0.4638	7/1/2024	0.4638	0.0000	0.4638	0.0003
MTR224203 Moly Dryer Run 3	Q71	6/7/2024	0.4542	6/10/2024	0.4540	-0.0002	0.4541	Q71	6/27/2024	0.4541	7/1/2024	0.4542	0.0001	0.4542	0.0001
MTR224203 Fine Ore Bin #4 Run 1	Q72	6/7/2024	0.4589	6/10/2024	0.4588	-0.0001	0.4589	Q72	6/27/2024	0.4598	7/1/2024	0.4601	0.0003	0.4600	0.0011
MTR224203 Fine Ore Bin #4 Run 2	Q73	6/7/2024	0.4527	6/10/2024	0.4527	0.0000	0.4527	Q73	6/27/2024	0.4534	7/1/2024	0.4535	0.0001	0.4535	0.0008
MTR224203 Fine Ore Bin #4 Run 3	Q74	6/7/2024	0.4529	6/10/2024	0.4529	0.0000	0.4529	Q74	6/27/2024	0.4525	7/1/2024	0.4526	0.0001	0.4526	-0.0003
MTR224203 Fine Ore Bin #3 Run 1	Q75	6/7/2024	0.4632	6/10/2024	0.4631	-0.0001	0.4632	Q75	6/27/2024	0.4636	7/1/2024	0.4636	0.0000	0.4636	0.0004
MTR224203 Fine Ore Bin #3 Run 2	Q76	6/7/2024	0.4546	6/10/2024	0.4548	0.0002	0.4547	Q76	6/27/2024	0.4547	7/1/2024	0.4547	0.0000	0.4547	0.0000
MTR224203 Fine Ore Bin #3 Run 3	Q77	6/11/2024	0.4542	6/12/2024	0.4541	-0.0001	0.4542	Q77	6/27/2024	0.4536	7/1/2024	0.4537	0.0001	0.4537	-0.0005
MTR224203 Fine Ore Bin #1 Run 1	Q78	6/11/2024	0.4614	6/12/2024	0.4612	-0.0002	0.4613	Q78	6/27/2024	0.4608	7/1/2024	0.4609	0.0001	0.4609	-0.0004
MTR224203 Fine Ore Bin #1 Run 2	Q79	6/11/2024	0.4567	6/12/2024	0.4567	0.0000	0.4567	Q79	6/27/2024	0.4564	7/1/2024	0.4566	0.0002	0.4565	-0.0002
MTR224203 Fine Ore Bin #1 Run 3	Q80	6/11/2024	0.4596	6/12/2024	0.4595	-0.0001	0.4596	Q80	6/27/2024	0.4593	7/1/2024	0.4592	-0.0001	0.4593	-0.0003
MTR224203 Secondary Crusher Run 1	Q81	6/11/2024	0.4590	6/12/2024	0.4591	0.0001	0.4591	Q81	6/27/2024	0.4702	7/1/2024	0.4697	-0.0005	0.4700	0.0109
MTR224203 Secondary Crusher Run 2	Q82	6/11/2024	0.4534	6/12/2024	0.4535	0.0001	0.4535	Q82	6/27/2024	0.4597	7/1/2024	0.4596	-0.0001	0.4597	0.0062
MTR224203 Secondary Crusher Run 3	Q83	6/11/2024	0.4634	6/12/2024	0.4633	-0.0001	0.4634	Q83	6/27/2024	0.4688	7/1/2024	0.4685	-0.0003	0.4687	0.0053
MTR224203 Fine Ore Bin #2 Run 1	Q84	6/11/2024	0.4580	6/12/2024	0.4578	-0.0002	0.4579	Q84	6/27/2024	0.4577	7/1/2024	0.4577	0.0000	0.4577	-0.0002
MTR224203 Fine Ore Bin #2 Run 2	Q85	6/11/2024	0.4607	6/12/2024	0.4606	-0.0001	0.4607	Q85	6/27/2024	0.4603	7/1/2024	0.4603	0.0000	0.4603	-0.0004
MTR224203 Fine Ore Bin #2 Run 3	Q86	6/11/2024	0.4566	6/12/2024	0.4566	0.0000	0.4566	Q86	6/27/2024	0.4562	7/1/2024	0.4563	0.0001	0.4563	-0.0003
MTR224203 Coarse Ore Conveyor Run 1	Q87	6/11/2024	0.4623	6/12/2024	0.4624	0.0001	0.4624	Q87	7/1/2024	0.4620	7/2/2024	0.4622	0.0002	0.4621	-0.0003
MTR224203 Coarse Ore Conveyor Run 2	Q88	6/11/2024	0.4602	6/12/2024	0.4603	0.0001	0.4603	Q88	7/1/2024	0.4593	7/2/2024	0.4594	0.0001	0.4594	-0.0009
MTR224203 Coarse Ore Conveyor Run 3	Q89	6/11/2024	0.4526	6/12/2024	0.4525	-0.0001	0.4526	Q89	7/1/2024	0.4522	7/2/2024	0.4522	0.0000	0.4522	-0.0004
MTR224203 Primary Crusher Run 1	Q90	6/11/2024	0.4591	6/12/2024	0.4590	-0.0001	0.4591	Q90	7/1/2024	0.4607	7/2/2024	0.4603	-0.0004	0.4605	0.0014
MTR224203 Primary Crusher Run 2	Q91	6/11/2024	0.4634	6/12/2024	0.4634	0.0000	0.4634	Q91	7/1/2024	0.4636	7/2/2024	0.4636	0.0000	0.4636	0.0002
MTR224203 Primary Crusher Run 3	Q92	6/11/2024	0.4584	6/12/2024	0.4585	0.0001	0.4585	Q92	7/1/2024	0.4569	7/2/2024	0.4569	0.0000	0.4569	-0.0016

Liquid Fractions:

Wt (g)	Sample Identification	Dish #	Date	Tare 1 (g)	Date	Tare 2 (g)	CHECK (g)	Average (g)	Dish #	Date	Final 1 (g)	Date	Final 2 (g)	CHECK (g)	Average (g)	Gain (g)
43.5	MTR224 Moly 6/24 PR R1	97	7/11/2024	30.0932	7/16/2024	30.0930	-0.0002	30.0931	97	7/29/2024	30.1028	8/1/2024	30.1029	0.0001	30.1029	0.0098
81.1	MTR224 Moly 6/24 PR R2	98	7/11/2024	30.3995	7/16/2024	30.3995	0.0000	30.3995	98	7/29/2024	30.4056	8/1/2024	30.4054	-0.0002	30.4055	0.0060
73.3	MTR224 Moly 6/24 PR R3	99	7/11/2024	30.6978	7/16/2024	30.6977	-0.0001	30.6978	99	7/29/2024	30.6983	8/1/2024	30.6984	0.0001	30.6984	0.0006
30.7	MTR224 Fine Ore #4 PR R1	100	7/11/2024	29.9895	7/16/2024	29.9895	0.0000	29.9895	100	7/29/2024	29.9903	8/1/2024	29.9906	0.0003	29.9905	0.0010
39.2	MTR224 Fine Ore #4 PR R2	101	7/11/2024	30.7413	7/16/2024	30.7412	-0.0001	30.7413	101	7/29/2024	30.7429	8/1/2024	30.7430	0.0001	30.7430	0.0017
46.6	MTR224 Fine Ore #4 PR R3	102	7/11/2024	30.2449	7/16/2024	30.2447	-0.0002	30.2448	102	7/29/2024	30.2466	8/1/2024	30.2465	-0.0001	30.2466	0.0018
35.5	MTR224 Fine Ore #3 PR R1	103	7/11/2024	30.1588	7/16/2024	30.1586	-0.0002	30.1587	103	7/29/2024	30.1599	8/1/2024	30.1597	-0.0002	30.1598	0.0011
56.4	MTR224 Fine Ore #3 PR R2	104	7/11/2024	30.1379	7/16/2024	30.1378	-0.0001	30.1379	104	7/29/2024	30.1383	8/1/2024	30.1385	0.0002	30.1384	0.0005
46.1	MTR224 Fine Ore #3 PR R3	105	7/11/2024	30.4697	7/16/2024	30.4697	0.0000	30.4697	105	7/29/2024	30.4700	8/1/2024	30.4701	0.0001	30.4701	0.0004
49.4	MTR224 Fine Ore #2 PR R1	106	7/11/2024	30.3460	7/16/2024	30.3461	0.0001	30.3461	106	7/29/2024	30.3472	8/1/2024	30.3470	-0.0002	30.3471	0.0010
52.4	MTR224 Fine Ore #2 PR R2	107	7/11/2024	29.6994	7/16/2024	29.6995	0.0001	29.6995	107	7/29/2024	29.7000	8/1/2024	29.6999	-0.0001	29.7000	0.0005
85.4	MTR224 Fine Ore #2 PR R3	108	7/11/2024	29.9077	7/16/2024	29.9077	0.0000	29.9077	108	7/29/2024	29.9087	8/1/2024	29.9087	0.0000	29.9087	0.0010
89.2	MTR224 Fine Ore #1 PR R1	109	7/11/2024	29.7716	7/16/2024	29.7719	0.0003	29.7718	109	7/29/2024	29.7742	8/1/2024	29.7742	0.0000	29.7742	0.0024
55.5	MTR224 Fine Ore #1 PR R2	110	7/11/2024	29.9029	7/16/2024	29.9032	0.0003	29.9031	110	7/29/2024	29.9037	8/1/2024	29.9039	0.0002	29.9038	0.0007
58.3	MTR224 Fine Ore #1 PR R3	111	7/11/2024	29.4865	7/16/2024	29.4866	0.0001	29.4866	111	7/29/2024	29.4871	8/1/2024	29.4871	0.0000	29.4871	0.0005
28.8	MTR224 Secondary Crusher PR R1	112	7/11/2024	30.6805	7/16/2024	30.6807	0.0002	30.6806	112	7/29/2024	30.6819	8/1/2024	30.6821	0.0002	30.6820	0.0014
36.2	MTR224 Secondary Crusher PR R2	113	7/11/2024	30.5359	7/16/2024	30.5361	0.0002	30.5360	113	7/29/2024	30.5404	8/1/2024	30.5404	0.0000	30.5404	0.0044
29.8	MTR224 Secondary Crusher PR R3	114	7/16/2024	30.1706	7/17/2024	30.1708	0.0002	30.1707	114	7/29/2024	30.1753	8/1/2024	30.1755	0.0002	30.1754	0.0047
42.8	MTR224 Primary Crusher PR R1	115	7/16/2024	30.3071	7/17/2024	30.3073	0.0002	30.3072	115	7/29/2024	30.3074	8/1/2024	30.3076	0.0002	30.3075	0.0003
54	MTR224 Primary Crusher PR R2	116	7/16/2024	29.8005	7/17/2024	29.8005	0.0000	29.8005	116	7/29/2024	29.8010	8/1/2024	29.8010	0.0000	29.8010	0.0005
34.2	MTR224 Primary Crusher PR R3	117	7/16/2024	29.8611	7/17/2024	29.8612	0.0001	29.8612	117	7/29/2024	29.8634	8/1/2024	29.8635	0.0001	29.8635	0.0023
61.3	MTR224 Coarse Ore PR R1	118	7/16/2024	29.2766	7/17/2024	29.2765	-0.0001	29.2766	118	7/29/2024	29.2771	8/1/2024	29.2771	0.0000	29.2771	0.0005
32.3	MTR224 Coarse Ore PR R2	119	7/16/2024	29.4261	7/17/2024	29.4262	0.0001	29.4262	119	7/29/2024	29.4272	8/1/2024	29.4271	-0.0001	29.4272	0.0010
44.2	MTR224 Coarse Ore PR R3	120	7/16/2024	30.1844	7/17/2024	30.1845	0.0001	30.1845	120	7/29/2024	30.1849	8/1/2024	30.1851	0.0002	30.1850	0.0005
97.4	Acetone Blank	121	7/16/2024	30.9971	7/17/2024	30.9975	0.0004	30.9973	121	7/29/2024	30.9979	8/1/2024	30.9977	-0.0002	30.9978	0.0005
320.4	Water Blank	122	7/16/2024	30.5517	7/17/2024	30.5519	0.0002	30.5518	122	7/29/2024	30.5543	8/1/2024	30.5545	0.0002	30.5544	0.0026
314.6	MTR224 Moly R1 MT BH	123	7/16/2024	30.0083	7/17/2024	30.0086	0.0003	30.0085	123	8/1/2024	30.0175	8/2/2024	30.0177	0.0002	30.0176	0.0091
242.4	MTR224 Moly R2 MT BH	124	7/16/2024	30.3417	7/17/2024	30.3420	0.0003	30.3419	124	7/29/2024	30.3525	8/1/2024	30.3521	-0.0004	30.3523	0.0104
223.3	MTR224 Moly R3 MT BH	125	7/17/2024	30.3974	7/19/2024	30.3976	0.0002	30.3975	125	7/29/2024	30.4004	8/1/2024	30.4003	-0.0001	30.4004	0.0029
214.5	MTR224 Fine #4 R1 MT BH	126	7/17/2024	29.9765	7/19/2024	29.9768	0.0003	29.9767	126	7/29/2024	29.9791	8/1/2024	29.9793	0.0002	29.9792	0.0025
173.9	MTR224 Fine #4 R2 MT BH	127	7/17/2024	29.7296	7/19/2024	29.7297	0.0001	29.7297	127	7/29/2024	29.7294	8/1/2024	29.7297	0.0003	29.7296	-0.0001
188.5	MTR224 Fine #4 R3 MT BH	128	7/17/2024	30.0641	7/19/2024	30.0645	0.0004	30.0643	128	7/29/2024	30.0642	8/1/2024	30.0644	0.0002	30.0643	0.0000
152.6	MTR224 Fine #3 R1 MT BH	129	7/17/2024	29.8093	7/19/2024	29.8094	0.0001	29.8094	129	7/29/2024	29.8120	8/1/2024	29.8120	0.0000	29.8120	0.0026
161.4	MTR224 Fine #3 R2 MT BH	130	7/17/2024	30.5671	7/19/2024	30.5675	0.0004	30.5673	130	7/29/2024	30.5695	8/1/2024	30.5696	0.0001	30.5696	0.0023
175.3	MTR224 Fine #3 R3 MT BH	131	7/17/2024	30.3794	7/19/2024	30.3795	0.0001	30.3795	131	7/29/2024	30.3806	8/1/2024	30.3806	0.0000	30.3806	0.0011
261.1	MTR224 Fine #2 R1 MT BH	132	7/17/2024	30.1433	7/19/2024	30.1437	0.0004	30.1435	132	7/29/2024	30.1470	8/1/2024	30.1470	0.0000	30.1470	0.0035
268.2	MTR224 Fine #2 R2 MT BH	133	7/17/2024	30.7334	7/19/2024	30.7331	-0.0003	30.7333	133	7/29/2024	30.7337	8/1/2024	30.7337	0.0000	30.7337	0.0004
171.6	MTR224 Fine #2 R3 MT BH	134	7/17/2024	30.0331	7/19/2024	30.0328	-0.0003	30.0330	134	7/29/2024	30.0336	8/1/2024	30.0339	0.0003	30.0338	0.0008
288.2	MTR224 Fine #1 R1 MT BH	135	7/17/2024	30.1391	7/19/2024	30.1389	-0.0002	30.1390	135	7/29/2024	30.1420	8/1/2024	30.1422	0.0002	30.1421	0.0031
287.3	MTR224 Fine #1 R2 MT BH	136	7/17/2024	30.2310	7/19/2024	30.2310	0.0000	30.2310	136	7/29/2024	30.2471	8/1/2024	30.2474	0.0003	30.2473	0.0163
256.7	MTR224 Fine #1 R3 MT BH	137	7/17/2024	30.6613	7/19/2024	30.6617	0.0004	30.6615	137	7/29/2024	30.6647	8/1/2024	30.6649	0.0002	30.6648	0.0033
137.8	MTR224 Secondary Crusher R1 MT BH	138	7/17/2024	30.3721	7/19/2024	30.3720	-0.0001	30.3721	138	7/29/2024	30.3741	8/1/2024	30.3742	0.0001	30.3742	0.0021
134.2	MTR224 Secondary Crusher R2 MT BH	139	7/17/2024	29.4608	7/19/2024	29.4610	0.0002	29.4609	139	7/29/2024	29.4635	8/1/2024	29.4635	0.0000	29.4635	0.0026
152.3	MTR224 Secondary Crusher R3 MT BH	140	7/17/2024	30.2215	7/19/2024	30.2219	0.0004	30.2217	140	7/29/2024	30.2239	8/1/2024	30.2243	0.0004	30.2241	0.0024
215.8	MTR224 Primary Crusher R1 MT BH	141	7/17/2024	30.1998	7/19/2024	30.1997	-0.0001	30.1998	141	7/29/2024	30.2029	8/1/2024	30.2031	0.0002	30.2030	0.0032
138.8	MTR224 Primary Crusher R2 MT BH	142	7/17/2024	30.2379	7/19/2024	30.2379	0.0000	30.2379	142	7/29/2024	30.2404	8/1/2024	30.2407	0.0003	30.2406	0.0027
132.4	MTR224 Primary Crusher R3 MT BH	143	7/17/2024	30.3721	7/19/2024	30.3722	0.0001	30.3722	143	7/29/2024	30.3751	8/1/2024	30.3754	0.0003	30.3753	0.0031
228.4	MTR224 Coarse Ore R1 MT BH	144	7/17/2024	29.7315	7/19/2024	29.7319	0.0004	29.7317	144	7/29/2024	29.7381	8/1/2024	29.7381	0.0000	29.7381	0.0064
230.5	MTR224 Coarse Ore R2 MT BH	145	7/17/2024	29.6159	7/19/2024	29.6160	0.0001	29.6160	145	7/29/2024	29.6183	8/1/2024	29.6187	0.0004	29.6185	0.0025
165.5	MTR224 Coarse Ore R3 MT BH	146	7/17/2024	30.0225	7/19/2024	30.0228	0.0003	30.0227	146	7/29/2024	30.0234	8/1/2024	30.0239	0.0005	30.0237	0.0010

Bison Engineering, Inc.
Balance Verification

Client: Montana Resources
Location: Butte, MT
Project Number: 6/24-28/2024

Balance ID: Helena

										Ref. Filter Mass (pre 6/11/24)		0.1257	Environmental Conditions			
		Standard Balance Masses (g)								Ref. Filter Mass (post 6/11/24)		0.1018	Room		Dessicator	
Date	**Time**	**1.0000**	**2.0000**	**3.0000**	**5.0000**	**10.0000**	**20.0000**	**30.0000**	**50.0000**	**Filter + PM (g)**	**PM (g)**	**CHECK**	**RH (%)**	**T (°F)**	**RH (%)**	**T (°F)**
6/7/24	8:26 AM	1.0000	2.0000	3.0002	4.9999	9.9999	19.9996	29.9999	50.0000	0.2383	0.1126	GO	34.0	71.5	11.0	71.2
6/10/24	10:40 AM	0.9999	2.0000	3.0000	5.0000	10.0000	20.0001	29.9998	50.0003	0.2385	0.1128	GO	37.0	70.9	11.0	71.1
6/11/24	9:35 AM	1.0000	12.0000	3.0001	4.9999	10.0000	20.0000	30.0000	50.0000	0.2384	0.1127	GO	35.0	71.7	11.0	71.2
6/12/24	2:44 PM	0.9999	1.9999	3.0001	4.9998	9.9999	19.9998	30.0000	50.0001	0.1681	0.0663	GO	33.0	70.0	11.0	70.5
6/27/24	10:30 AM	1.0000	2.0001	3.0002	5.0001	9.9999	20.0001	30.0002	50.0001	0.1682	0.0664	GO	38.0	70.4	13.0	69.8
7/1/24	6:47 AM	1.0001	1.9999	2.9999	5.0002	10.0000	20.0001	30.0002	50.0002	0.1682	0.0664	GO	37.0	69.6	13.0	69.4
7/2/24	3:43 PM	0.9999	2.0002	3.0001	5.0001	9.9999	19.9999	29.9998	50.0000	0.1682	0.0664	GO	37.0	69.2	15.0	69.4

Bison Engineering, Inc.
Balance Verification

Client: Montana Resources
Location: Butte, MT
Project Number: MTR224203
Test Date: 6/24-28/2024

Balance ID: Billings

		Standard Balance Masses (g)								Ref. Filter Mass		0.1051	Environmental Conditions			
													Room		Dessicator	
Date	**Time**	**1.0000**	**2.0000**	**3.0000**	**5.0000**	**10.0000**	**20.0000**	**30.0000**	**50.0000**	**Filter + PM (g)**	**PM (g)**	**CHECK**	**RH (%)**	**T (°F)**	**RH (%)**	**T (°F)**
7/11/24	9:07 AM	1.0000	2.0000	3.0003	5.0002	10.0004	20.0001	30.0003	50.0003	0.1714	0.0663	GO	35.0	71.4	11.0	73.0
7/11/24	2:13 PM	1.0000	2.0001	3.0000	5.0002	10.0001	20.0001	30.0001	50.0002	0.1714	0.0663	GO	36.0	71.4	10.0	73.0
7/16/24	10:50 AM	0.9999	2.0001	3.0002	5.0001	9.9999	20.0001	30.0000	49.9999	0.1712	0.0661	GO	30.0	75.3	14.0	77.5
7/17/24	12:51 PM	1.0000	2.0001	3.0002	5.0000	9.9999	19.9999	30.0001	50.0003	0.1713	0.0662	GO	32.0	76.6	14.0	77.3
7/19/24	3:39 PM	1.0001	2.0001	3.0001	5.0001	10.0002	20.0002	30.0002	50.0004	0.1713	0.0662	GO	35.0	71.2	14.0	72.0
7/22/24	6:10 AM	1.0002	2.0002	3.0001	5.0002	10.0003	20.0002	30.0001	50.0004	0.1713	0.0662	GO	36.0	70.7	14.0	71.2
7/24/24	11:30 AM	1.0000	2.0001	3.0002	5.0002	10.0000	20.0002	30.0002	50.0002	0.1714	0.0663	GO	35.0	71.6	10.0	70.7
7/26/24	10:15 AM	1.0001	2.0002	3.0002	5.0003	10.0001	20.0001	30.0003	50.0002	0.1714	0.0663	GO	33.0	71.2	10.0	70.9
7/29/24	10:45 AM	1.0000	2.0000	3.0002	5.0001	10.0002	20.0002	30.0005	50.0008	0.1714	0.0663	GO	35.0	70.3	10.0	71.0
8/1/24	6:00 AM	1.0002	2.0002	3.0001	5.0002	10.0003	20.0002	30.0001	50.0004	0.1713	0.0662	GO	34.0	71.0	10.0	70.7

BISON ENGINEERING, INC.
SOURCE SAMPLE RECEIPT CHECKLIST

Client: Montana Resources
Location: Butte, MT
Project number: MTR 224203

Date: 7/18/24
Time: 10:35
Project QI: Zach Harding

Is the Chain of Custody present with samples?	Y	*
Analytical method(s) to be used	5, MT-BH	
Has the CoC form been signed by the responsible party?		
Are the Date and Time noted?	Y	
All sample containers inspected?	Y	
Does the number of samples match the number on the CoC form?	Y	†
Do all the sample IDs match the CoC form?	Y	†
Were sample volumes marked prior to transport?	Y	†
Are sample weights noted on containers or CoC?	NA	†
Are all sample containers intact?	Y	†
Are any signs of leakage present	Y	*
Temperature of samples upon arrival ('ambient' if no special conditioning required)?	ambient	
Is the Chain of Custody signed by the Bison analyst?	Y	

Corrective actions:

Project QI consulted due to mismatching Sample IDs	
Project QI consulted due to broken sample container(s)	NA
Project QI consulted due to leaking sample(s)	
Project QI consulted for verification of methodology	
Other?	
Corrective actions documented?	
Corrective actions accomplished?	

*must be addressed prior to analysis and noted in final report
† Must be addressed prior to sample analysis

Bison analyst: Jennifer Kessler, [signature] 7/18/24
(Print, sign, date)

Notes: COC p.3 not signed by AM
COC not signed at transfer from Helena to Billings. Samples were in sealed boxes w/ Chain of custody.

Y:SOURCE\Laboratory\Chain of Custody\Sample Receipt Form 9/28/2023

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BISON ENGINEERING, INC.

SAMPLE CHAIN OF CUSTODY RECORD

Client: Montana Resources
Location: Butte, MT
Project Number: MTR224203
Project Manager: ZDH

PM phone: 406-431-8930
PM e-mail: ZHardy@bison-eng.com

Date	Sample ID	Source	Run #	Method/Analysis	Remarks
6/24/24	M5 Filter Q69	Moly Dryer	1	5	
	M5 Filter Q70		2		
	M5 Filter Q71		3		
	Probe Rinse		1		
	" "		2		
	" "		3		
	MT Back Half		1	MT Back Half	
	" " "		2		
	" " "		3		
	M5 Filter Q72	Fire Orc #4	1	5	
	" " Q73		2		
	" " Q74		3		
	Probe Rinse		1		
	" "		2		
	" "		3		
	MT Back Half		1	MT Back Half	

Bison Responsible Party: (name, signature, date and time)
Zach Hardy, 6/28/24 16:30

Relinquished by: (signature, date and time)

Received by: (signature, date and time)
7/18/24 10:35

Relinquished by: (signature, date and time)

Received by: (signature, date and time)

Relinquished by: (signature, date and time)

Y:Source\Laboratory\Chain of Custody\Bison Field Chain of Custody

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BISON ENGINEERING, INC.

SAMPLE CHAIN OF CUSTODY RECORD

Client: See page 1

Location:

Project Number:

Project Manager:

PM phone:

PM e-mail:

Date	Sample ID	Source	Run #	Method/Analysis	Remarks
6/24	MT Back Half	Fine ore #4	2	MT Back Half	
↓	" " "	↓	3	" " "	
6/25	M5 Filter Q75	Fine ore #3	1	5	
	" " Q76		2		
	" " Q77		3		
	Probe Rinse		1		
	" "		2		
	" "		3		
	MT Back Half		1	MT Back Half	
	" "		2		
	" "		3		
	M5 Filter Q78	Fine ore #1	1	M5	
	" " Q79		2		
	" " Q80		3		
	Probe Rinse		1		
	" "		2		

Bison Responsible Party: (name, signature, date and time)
Zach Hardy, 6/28/24 16:30

Received by: (signature, date and time)
7/18/24 10:35

Received by: (signature, date and time)

Relinquished by: (signature, date and time)

Relinquished by: (signature, date and time)

Relinquished by: (signature, date and time)

Y:Source\Laboratory\Chain of Custody\Bison Field Chain of Custody

www.bison-eng.com

BISON ENGINEERING, INC.

SAMPLE CHAIN OF CUSTODY RECORD

Client: See Page 1
Location:
Project Number:
Project Manager:
PM phone:
PM e-mail:

Date	Sample ID	Source	Run #	Method/Analysis	Remarks
6/25	Probe Rinse	Fine Ore #1	3	5	
	MT Back Half		1	MT Back Half	
	" " "		2	↓	
	" " "		3		
	M5 Filter Q81	Secondary Crushers	1	5	
	" " Q82		2		
	" " Q83		3		
	Probe Rinse		1		
	" "		2	↓	
	" "		3		
	MT Back Half		1	MT Back Half	
	" " "		2	↓	
	" " "		3		
	M5 Filter Q84	Fine Ore #2	1	5	
	" " Q85		2	↓	
	" " Q86		3		

Bison Responsible Party: (name, signature, date and time)

Relinquished by: (signature, date and time)

Received by: (signature, date and time) 9/18/24 10:35

Relinquished by: (signature, date and time)

Received by: (signature, date and time)

Relinquished by: (signature, date and time)

Y:Source\Laboratory\Chain of Custody\Bison Field Chain of Custody

www.bison-eng.com

BISON ENGINEERING, INC.

SAMPLE CHAIN OF CUSTODY RECORD

Client: See Page 1
Location:
Project Number:
Project Manager:
PM phone:
PM e-mail:

Date	Sample ID	Source	Run #	Method/Analysis	Remarks
6/25/24	Probe Rinse	Fine Ore #2	1	5	
	" "		2	↓	
	" "		3	↓	
↓	MT Back Half	↓	1	MT Back Half	
	" " "		2	↓	
	" " "		3		
6/27/24	M5 Filter Q90	Primary Crusher	1	5	
	" " Q91		2	↓	
	" " Q92		3	↓	
	Probe Rinse		1	↓	
	" "		2	↓	
	" "		3	↓	
↓	MT Back Half	↓	1	MT Back Half	
	" " "		2	↓	
	" " "		3	↓	
6/28/24	M5 Filter Q87	Ore Conveyor	1	5	

Bison Responsible Party: (name, signature, date and time)
Zach Harding 6/28/24 16:30

Relinquished by: (signature, date and time)

Received by: (signature, date and time)
7/18/24 10:35

Relinquished by: (signature, date and time)

Received by: (signature, date and time)

Relinquished by: (signature, date and time)

Y:Source\Laboratory\Chain of Custody\Bison Field Chain of Custody

www.bison-eng.com

BISON ENGINEERING, INC.

SAMPLE CHAIN OF CUSTODY RECORD

Client: See Page 1

Location:

Project Number:

Project Manager:

PM phone:

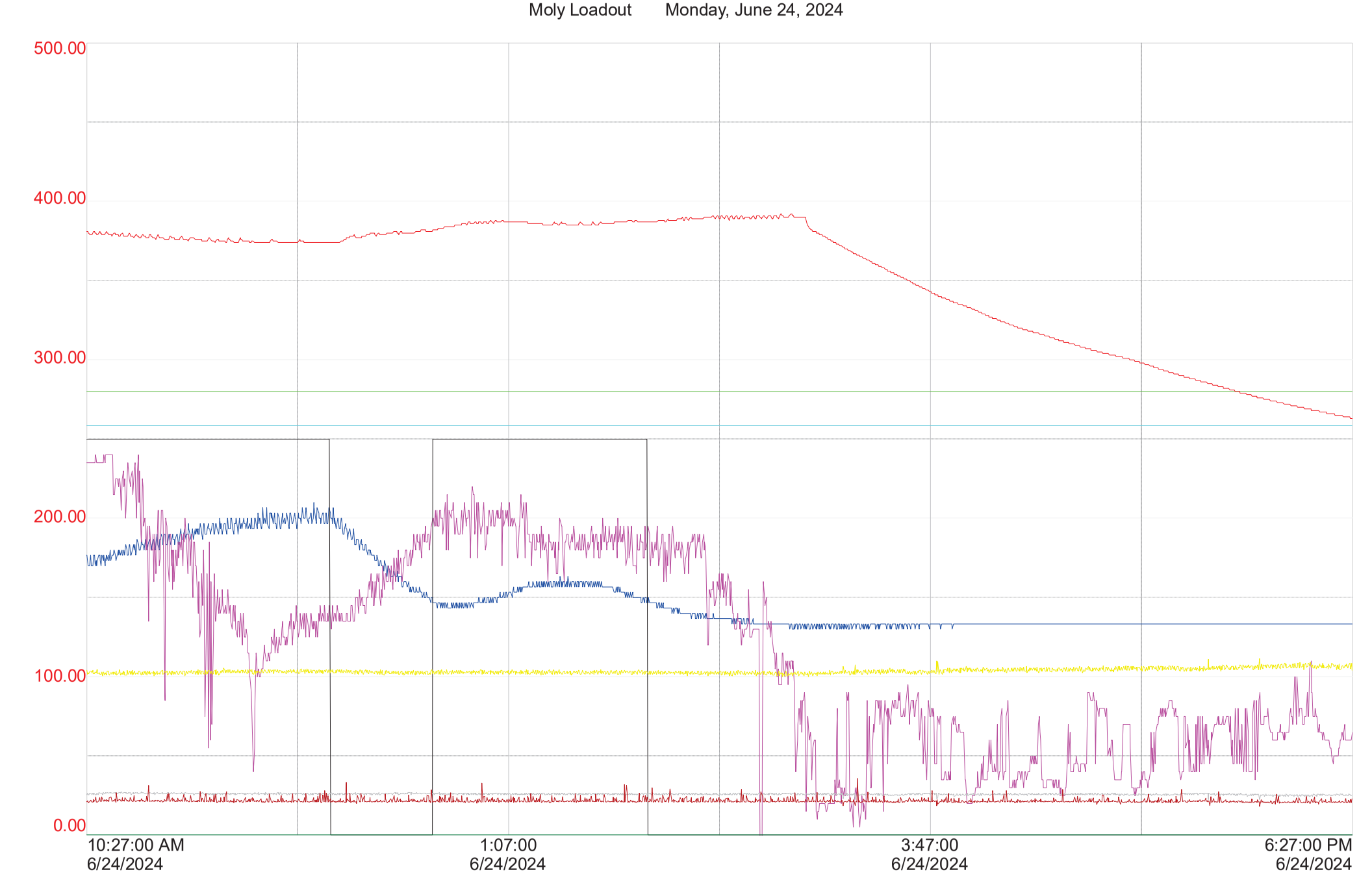
PM e-mail:

Date	Sample ID	Source	Run #	Method/Analysis	Remarks
6/28/24	MS Filter Q88	Ore Conveyor	2	5	
	" " Q89		3		
	Probe Rinse		1		
	" "		2	↓	
	" "		3		
	MT Back Half		1	MT Back Half	
	" " "	↓	2	↓	
	" " "		3		
↓	DI HPLC H_2O Blank	NA	NA	Blank	
	Acetone Blank	NA	NA	Blank	

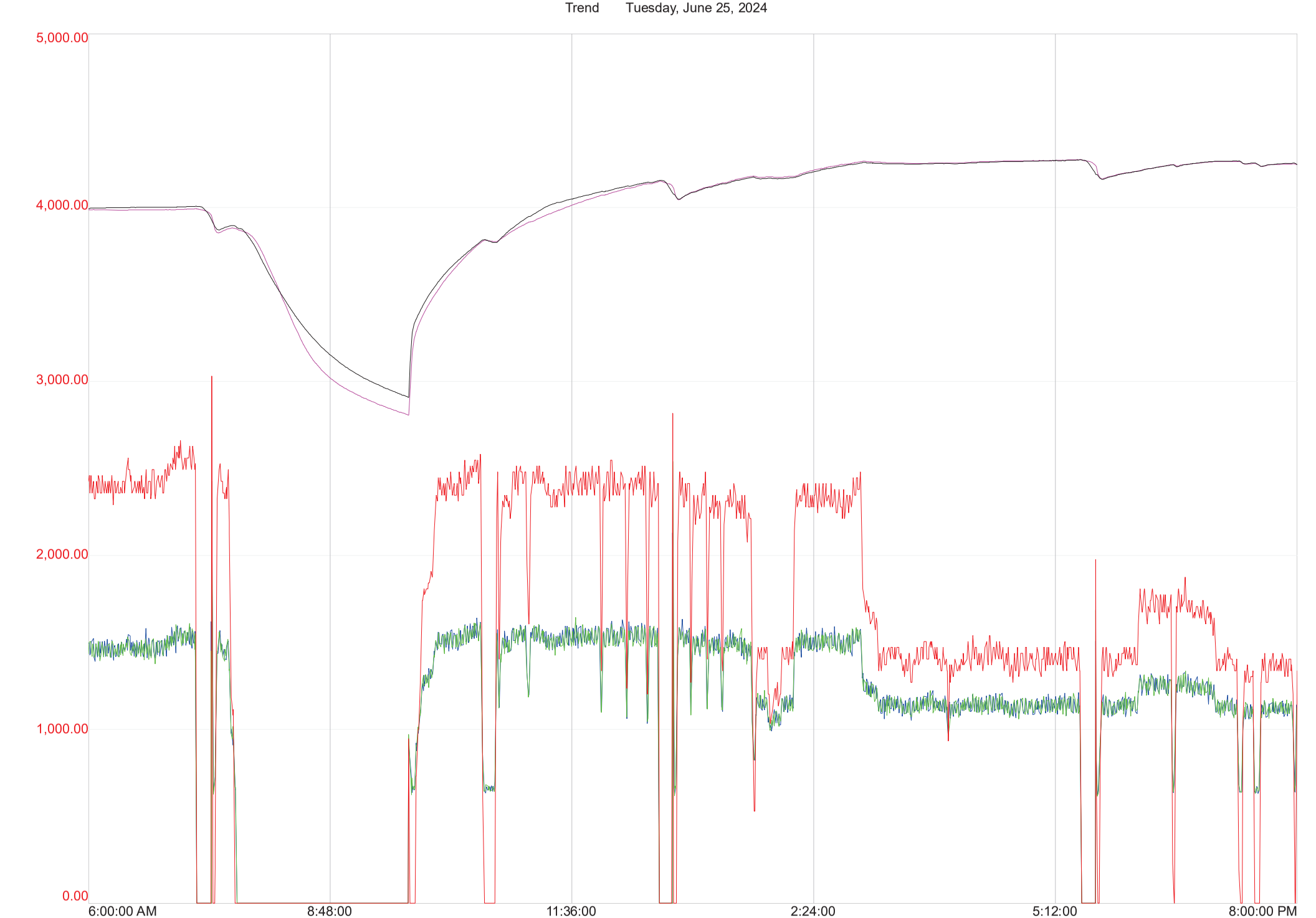
Bison Responsible Party: (name, signature, date and time) Zach Harding 6/28/24 16:30	Relinquished by: (signature, date and time)
Received by: (signature, date and time) 7/18/24 10:35	Relinquished by: (signature, date and time)
Received by: (signature, date and time)	Relinquished by: (signature, date and time)

Y:Source\Laboratory\Chain of Custody\Bison Field Chain of Custody

APPENDIX C: PLANT OPERATING RECORDS

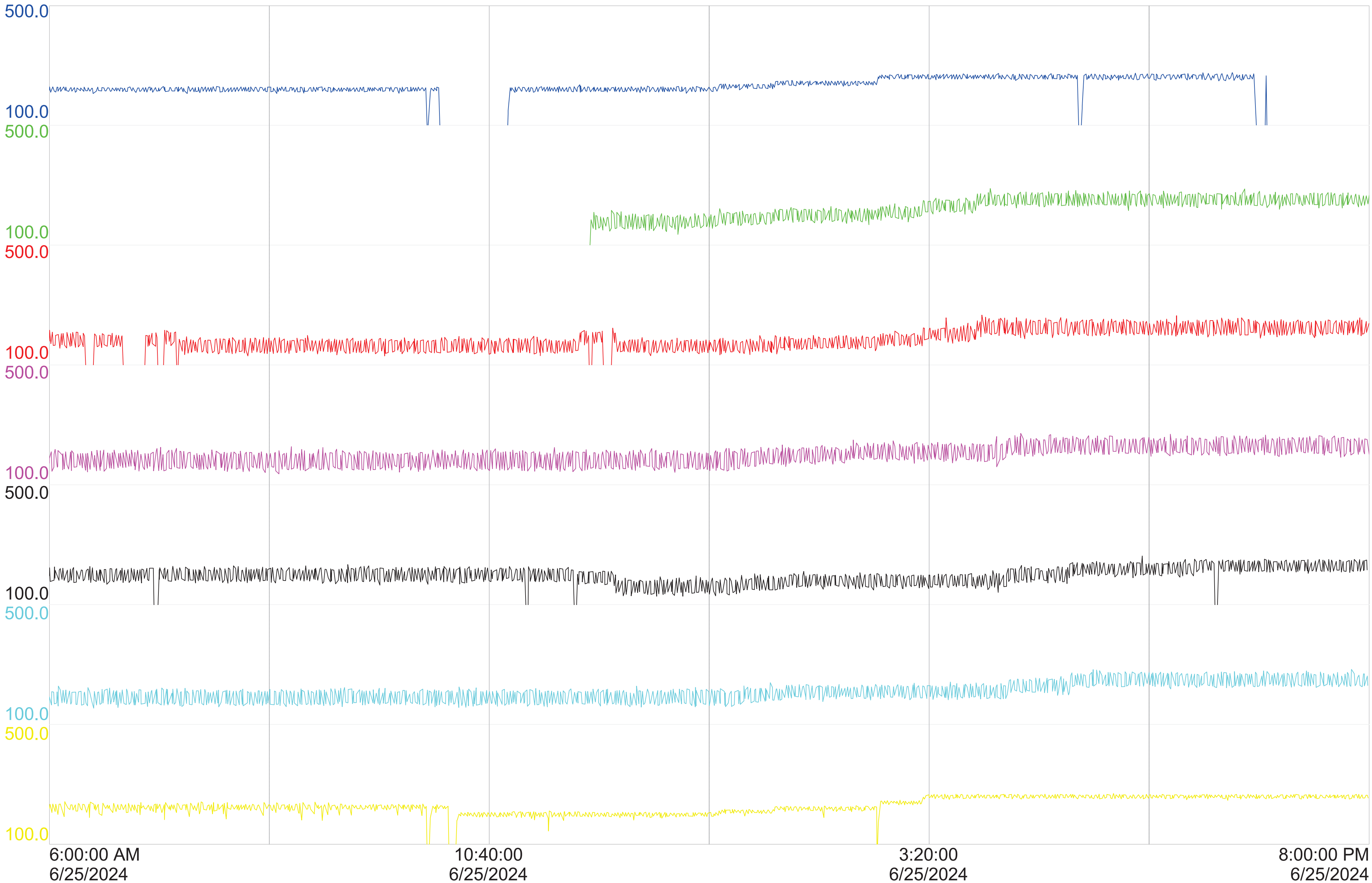


Caption	8:05:37 AM	Min	Max	Units
Holoflyte_Dryer_Amps}	4.70	0.00	15.00	Amps
Holoflyte_Dryer_Speed}	56.00	0.00	100.00	%
Hot_Oil_Temp}	396.00	0.00	500.00	F
DRY_BIN_LEVEL}	33.00	0.00	100.00	%
Filter_Disc_Drive_Running}	1.00	0.00	2.00	On
Filter_Disc_VFD_Speed}	67.20	0.00	130.00	Hz
HOT_OIL_CIRC_PUMP1_AMPS}	20.30	0.00	100.00	Amps
HOT_OIL_CIRC_PUMP2_AMPS}	0.00	0.00	100.00	Amps

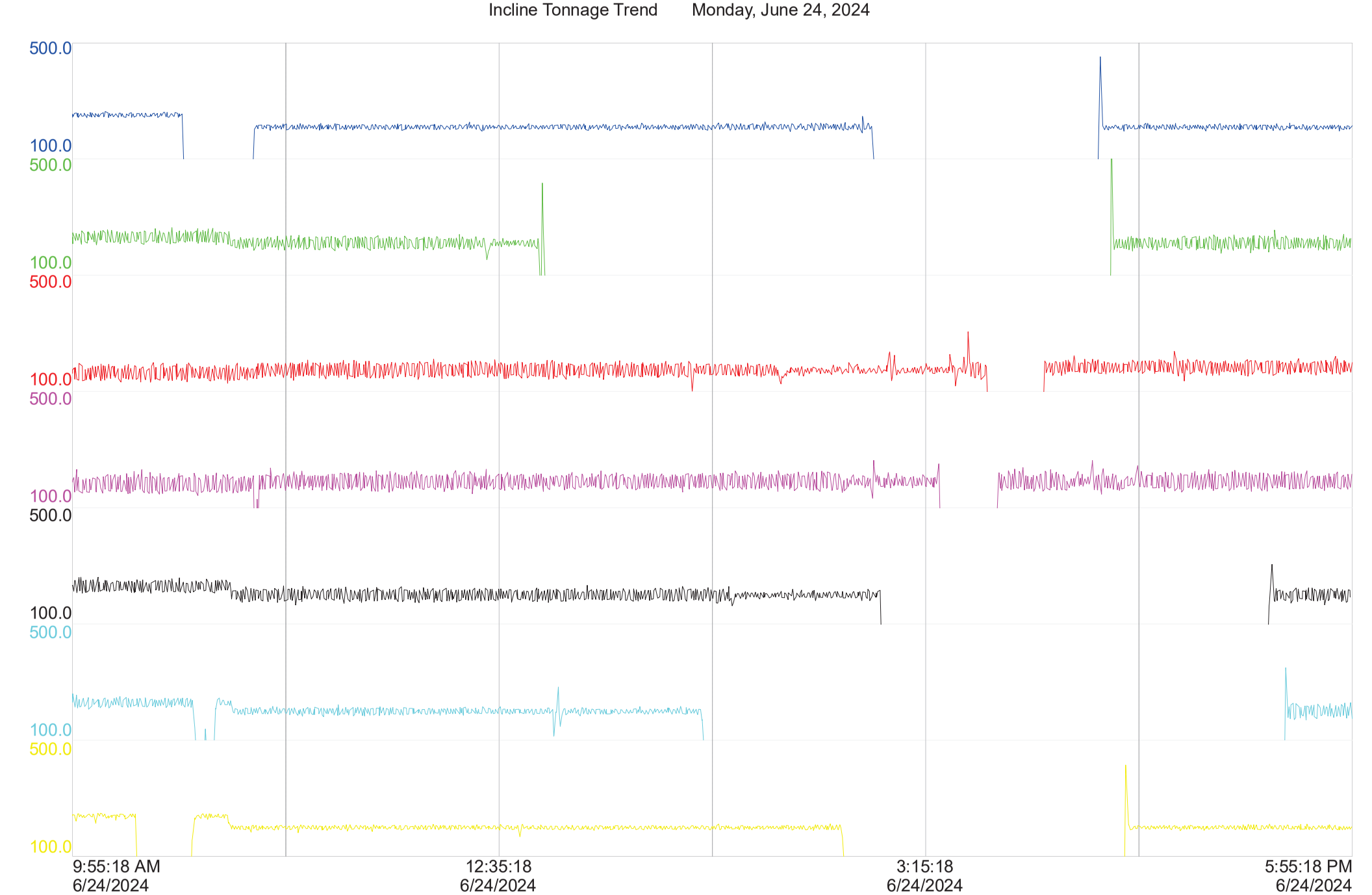


Caption	11:00:42 AM	Min	Max	Units
{13Conv\CONV13_MOTOR1_AMPS}	250.18	0.00	700.00	Amps
{13Conv\CONV13_MOTOR2_AMPS}	248.93	0.00	700.00	Amps
{13Conv\CONV13_INST_TPH}	2,915.01	0.00	5,000.00	TPH
{13Conv\CONV13_GEARBOX1_TEMP}	158.70	0.00	200.00	F
{13Conv\CONV13_GEARBOX2_TEMP}	161.70	0.00	200.00	F

Incline Tonnage Trend Tuesday, June 25, 2024



Caption	10:59:42 AM	Min	Max	Units
1_INCLINE_TONS}	346.3	100.0	500.0	TPH
2_INCLINE_TONS}	346.1	100.0	500.0	TPH
3_INCLINE_TONS}	327.2	100.0	500.0	TPH
4_INCLINE_TONS}	335.5	100.0	500.0	TPH
5_INCLINE_TONS}	319.3	100.0	500.0	TPH
6_INCLINE_TONS}	334.4	100.0	500.0	TPH
SCALE_TPH}	326.0	100.0	500.0	TPH

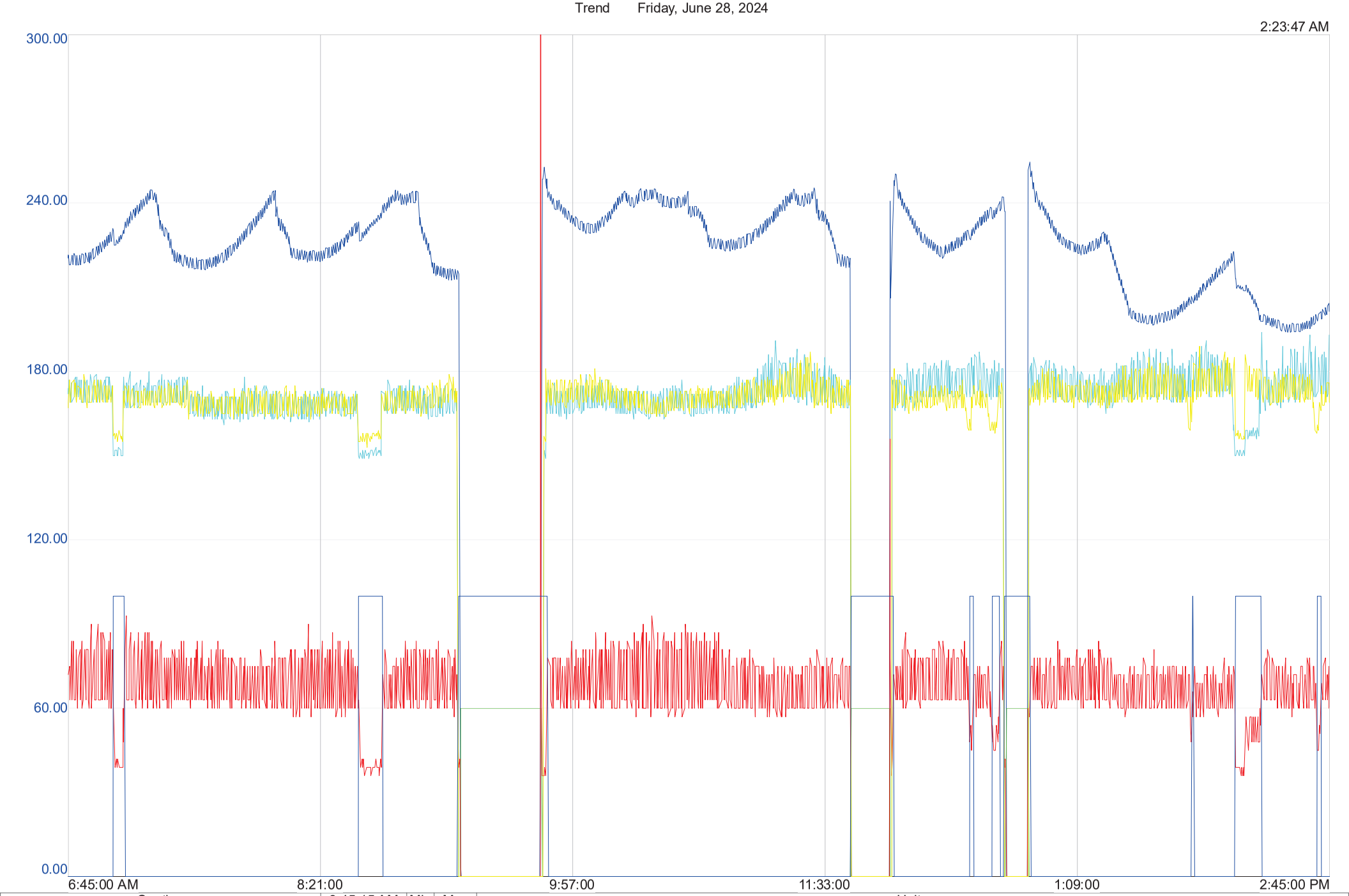


Caption	10:57:00 AM	Min	Max	Units
1_INCLINE_TONS}	345.9	100.0	500.0	TPH
2_INCLINE_TONS}	358.0	100.0	500.0	TPH
3_INCLINE_TONS}	331.2	100.0	500.0	TPH
4_INCLINE_TONS}	341.2	100.0	500.0	TPH
5_INCLINE_TONS}	339.5	100.0	500.0	TPH
6_INCLINE_TONS}	326.8	100.0	500.0	TPH
SCALE_TPH}	321.0	100.0	500.0	TPH

Caption	10:55:22 AM	Min	Max	Units
{13Conv\CONV13_MOTOR1_AMPS}	250.52	0.00	700.00	Amps
{13Conv\CONV13_MOTOR2_AMPS}	251.43	0.00	700.00	Amps
{13Conv\CONV13_INST_TPH}	2,915.01	0.00	5,000.00	TPH
{13Conv\CONV13_GEARBOX1_TEMP}	158.50	0.00	200.00	F
{13Conv\CONV13_GEARBOX2_TEMP}	161.50	0.00	200.00	F

Caption	8:43:14 AM	Min	Max	Units
{PrimaryCrusher\COARSE_LVL}	90.04	0.00	100.00	%
{PrimaryCrusher\CRUSHER_AMPS}	0.00	0.00	200.00	Amps
{PrimaryCrusher\CRU_CHOKE_ALM}	0.00	0.00	2.00	ALARM
{PrimaryCrusher\PRIMARY_AIR_PSI}	97.25	0.00	150.00	PSI

Caption	8:11:32 AM	Min	Max	Units
{SecCrushers\CRU1_CAL_HRSPWR}	0.00	0.00	1,000.00	HorsePower
{SecCrushers\CRU2_CAL_HRSPWR}	0.00	0.00	1,000.00	HorsePower
{SecCrushers\CRU3_CAL_HRSPWR}	0.00	0.00	1,000.00	HorsePower



Caption	8:45:15 AM	Min	Max	Units
{3Conv\Hydralic_Pressure}	-5.41	0.00	300.00	PSI
{3Conv\CONV_3_CLUTCH_HPU_RUN}	1.00	0.00	5.00	On/Off
{3Conv\CONV3_AMPS}	0.00	0.00	100.00	AMPS
{Stockpile\STOCKPILE_FEEDER_1_AMPS}	0.00	0.00	30.00	AMPS
{Stockpile\STOCKPILE_FEEDER_2_AMPS}	0.00	0.00	30.00	AMPS
{Stockpile\STOCKPILE_FEEDER_3_AMPS}	0.00	0.00	30.00	AMPS
{Stockpile\STOCKPILE_FEEDER_4_AMPS}	0.00	0.00	30.00	AMPS
{3Conv\CONV_3_FEED_OFF}	1.00	0.00	3.00	TRIP

APPENDIX D: CALIBRATIONS AND CERTIFICATIONS

Field Barometer Calibration Form

Project # MTR224203

IN OFFICE PRE-TEST CALIBRATION

Reference Standard Used:

Standard ID	Serial number	Adjusted on:	Calibration due:
Helena Mercury Barometer	BIS01	6/20/2024	Must be properly adjusted prior to each use

Field Barometer Verification

Barometer ID: TS4

Reference Value (in. Hg)	Observed (in. Hg)	Correction[a]	Tolerance[b]
25.91	25.90	-0.01	PASS

[a] Correction is the difference between the observed and reference values

[b] EPA Method 5, Section 6.1.2 and EPA Method 2, Section 6.5. Tolerance is +/- 0.1 inHg

Technician ZDH

Date 6/20/2024

Field Barometer Calibration Form

Project # MTR224203

IN OFFICE PRE-TEST CALIBRATION

Reference Standard Used:

Standard ID	Serial number	Adjusted on:	Calibration due:
Billings mercury barometer	BIL01	6/23/2024	Must be properly adjusted prior to each use

Field Barometer Verification

Barometer ID: BP1

Reference Value (in. Hg)	Observed (in. Hg)	Correction[a]	Tolerance[b]
26.54	26.55	0.01	PASS

[a] Correction is the difference between the observed and reference values

[b] EPA Method 5, Section 6.1.2 and EPA Method 2, Section 6.5. Tolerance is +/- 0.1 inHg

Technician RTM

Date 6/23/2024

Field Balance and Weights Calibration Form

Project # MTR224203

IN OFFICE PRE-TEST CHECKS

Date 6/23/2024

Performed by RTM

Environmental conditions in the lab

Temperature (°F)	Pressure (in. Hg)
71	26.55

Reference Standard(s) Used

Standard ID	Serial number(s)	Calibrated on:	Calibration due:
Troemner	10800	1/30/2024	1/30/2025

Verification of Field Balance Against Reference Standard Weights:

Balance ID AWS-1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.0	0.0	PASS
1000	1000.1	0.1	PASS

Verification of Field Standard Weights :

Weights ID AWS-1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.3	0.3	PASS
1000	1000.2	0.2	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

ONSITE BALANCE VERIFICATION

Date	6/24/2024	**Source**	Fine Ore #4
Performed by	RTM		

Environmental conditions onsite

Temperature (°F)	Pressure (in. Hg)
60	24.45

Field Balance Verification:

Balance ID AWS-1

Weights ID AWS-1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.2	0.2	PASS
1000	1000.1	0.1	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

ONSITE BALANCE VERIFICATION

Date	6/25/2024	**Source**	Fine Ore #3
Performed by	RTM		Secondary Crusher

Environmental conditions onsite

Temperature (°F)	Pressure (in. Hg)
70	24.57

Field Balance Verification

Balance ID AWS-1

Weights ID AWS-1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.2	0.2	PASS
1000	999.9	0.1	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

ONSITE BALANCE VERIFICATION

Date	6/27/2024	**Source**	Primary Crusher
Performed by	RTM		

Environmental conditions onsite

Temperature (°F)	Pressure (in. Hg)
62	24.30

Field Balance Verification

Balance ID AWS-1

Weights ID AWS-1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.0	0.0	PASS
1000	1000.4	0.4	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

ONSITE BALANCE VERIFICATION

Date	6/28/2024	**Source**	Coarse Ore Conveyor
Performed by	RTM		

Environmental conditions onsite

Temperature (°F)	Pressure (in. Hg)
54	24.42

Field Balance Verification

Balance ID AWS-1

Weights ID AWS-1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.1	0.1	PASS
1000	1000.2	0.2	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

Field Balance and Weights Calibration Form

Project # MTR224203

IN OFFICE PRE-TEST CHECKS

Date 6/20/2024

Performed by ZDH

Environmental conditions in the lab

Temperature (°F)	Pressure (in. Hg)
71	26.91

Reference Standard(s) Used

Standard ID	Serial number(s)	Calibrated on:	Calibration due:
2kg, 1kg, & 500g weights	11072, 11078, 10696	2/21/2024	2/21/2025

Verification of Field Balance Against Reference Standard Weights:

Balance ID HFB1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.0	0.0	PASS
1000	1000.0	0.0	PASS
2000	2000.1	0.1	PASS

Verification of Field Standard Weights :

Weights ID HFW1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.0	0.0	PASS
1000	1000.1	0.1	PASS
2000	2000.1	0.1	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

ONSITE BALANCE VERIFICATION

Date	6/24/2024	**Source**	Moly Dryer
Performed by	ZDH		

Environmental conditions onsite

Temperature (°F)	Pressure (in. Hg)
80	24.60

Field Balance Verification:

Balance ID HFB1

Weights ID HFW1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.0	0.0	PASS
1000	1000.1	0.1	PASS
2000	2000.0	0.0	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

ONSITE BALANCE VERIFICATION

Date	6/25/2024	**Source**	Fine Ore Bin 1 &2
Performed by	ZDH		

Environmental conditions onsite

Temperature (°F)	Pressure (in. Hg)
69	24.67

Field Balance Verification

Balance ID HFB1

Weights ID HFW1

Nominal Value (g)	Observed (g)	Correction[a]	Tolerance[b]
500	500.1	0.1	PASS
1000	1000.2	0.2	PASS
2000	2000.0	0.0	PASS

[a] Correction is the difference between the observed and nominal mass values

[b] EPA Method 5, Section 10.7, must be +/- 0.5g

Field Caliper Calibration Form

Project # MTR224203

IN OFFICE PRE-TEST CHECKS

Date 6/23/2024

Performed by RTM

Reference Standard Used

Standard ID	Serial number	Calibrated on:	Calibration due:
Insize,RCAL2	1507222657	11/27/2023	11/27/2024

Caliper Verification

Field Caliper ID FCAL1

Inside Diameter

Reference Value (inches)	Observed (inches)	Correction[a]	Tolerance[b]
0.328	0.328	0.000	PASS

[a] Correction is the difference between the observed and reference values

[b] Tolerance is +/- 0.0050 inches

Outside Diameter

Reference Value (inches)	Observed (inches)	Correction[a]	Tolerance[b]
0.502	0.502	0.000	PASS

[a] Correction is the difference between the observed and reference values

[b] Tolerance is +/- 0.0050 inches

Field Caliper Calibration Form

Project # MTR224203

IN OFFICE PRE-TEST CHECKS

Date 6/20/2024

Performed by ZDH

Reference Standard Used

Standard ID	Serial number	Calibrated on:	Calibration due:
HLN1 Aurora	77160806226	4/19/2024	4/19/2025

Caliper Verification

Field Caliper ID WS2

Inside Diameter

Reference Value (inches)	Observed (inches)	Correction[a]	Tolerance[b]
0.270	0.269	-0.001	PASS

[a] Correction is the difference between the observed and reference values

[b] Tolerance is +/- 0.0050 inches

Outside Diameter

Reference Value (inches)	Observed (inches)	Correction[a]	Tolerance[b]
0.373	0.374	0.001	PASS

[a] Correction is the difference between the observed and reference values

[b] Tolerance is +/- 0.0050 inches

Thermocouple Calibration Form

Project # MTR224203

POST-TEST CHECKS

Reference Standard Used

Standard ID	Serial number(s)	Calibrated on:	Calibration due:
Omega	23000224	8/3/2023	8/3/2024
Omega	23000393	11/14/2023	11/14/2024

Temperature Meter Mode:

Thermocouple	TC ID	Continuity (x = pass)	Observed Temp (°F)	Reference Temp (°F)	Correction[a]	Tolerance[b]
Stack Temp	2B	X	72.0	72.0	0.0	PASS
Stack Temp	4D	x	72.3		0.3	PASS
Stack Temp	6F	x	72.4		0.4	PASS
Stack Temp	B4D	x	72.6		0.6	PASS
Stack Temp	B8A	x	71.4		0.6	PASS
Probe Liner	2B	x	72.1		0.1	PASS
Probe Liner	4D	x	71.9		0.1	PASS
Probe Liner	B8A	x	71.0		1.0	PASS
Probe Liner	B4D	x	72.0		0.0	PASS
Probe Liner	6F	x	71.7		0.3	PASS
Hot Box	HB4	x	71.0		1.0	PASS
Hot Box	HHB7	x	71.0		1.0	PASS
Condenser	GN7	x	72.1		0.1	PASS
Condenser	GN2	x	72.6		0.6	PASS
Condenser	GN8	x	72.3		0.3	PASS
DGM Outlet	11	x	71.4		0.6	PASS
DGM Outlet	14	x	72.0		0.0	PASS

Calibration Output Mode:

Switch the Omega from 'Meter Input' to 'Calibration Output' mode. Test the meter box temperature, or handheld temp reader, readout by sending a voltage output equivalent to a temperature similar to stack temperature.

Meter ID	Reference Temp Output (°F)	Meter Readout (°F)	Correction[a]	Tolerance[b]
BOX 11	300.0	299	1.0	PASS
BOX 14	400.0	401	1.0	PASS

[a] Correction is the difference between the observed and reference values

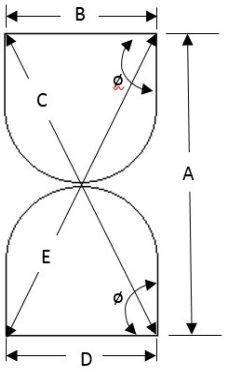
[b] Tolerance is +/- 2°F. Alt-011 6/21/94 Alternative Method 2 Thermocouple Calibration Procedure:
Continuity Check - confirm the thermocouple is reading at the tip by subjecting it to a change in temperature (e.g. removing it from the stack or touching it with your hand). Single point temperature check at ambient temperature, or any temperature, within the range specified by the manufacturer.

	LRS	Billings	
Helena Technician		Technician	ACW
Date	7/8/2024	Date	7/9/2024

S-Type Pitot Tube Geometric Calibration

Pitot ID 2B

Date of Geometric Calibration (< 6 months) 4/11/2024



A	0.93
B	0.38
C	0.99
D	0.38
E	0.97

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos \emptyset$$

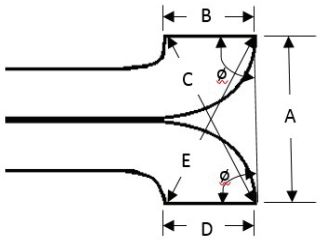
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos \emptyset$$

ø	87.49

$(80° < \emptyset < 100°)$

ø	85.05

$(80° < \emptyset < 100°)$



A	0.92
B	0.72
C	1.16
D	0.70
E	1.16

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos \emptyset$$

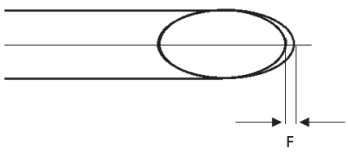
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos \emptyset$$

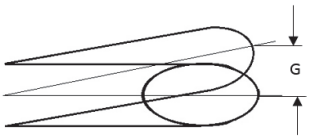
ø	89.65

$(85° < \emptyset < 95°)$

ø	90.66

$(85° < \emptyset < 95°)$





F=	0.073	(F < 0.125)	G=	0.000	(G < 0.032)

Results of the Post-Test Pitot Inspection (mark with x below)**:**

No change x

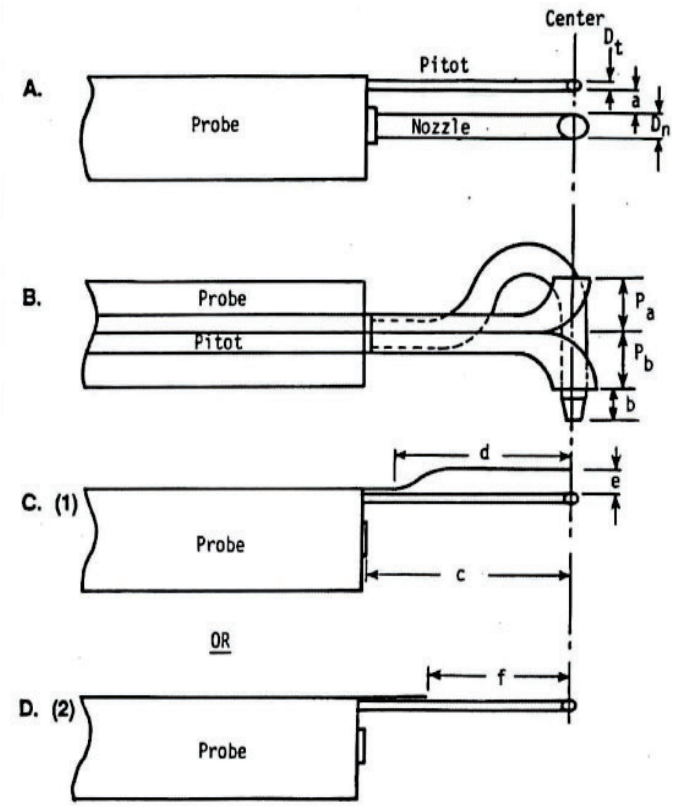
Damaged _____

New Calibration _____

Technician ZDH **Date** 6/28/2024

Probe Calibration

Probe ID 2B
Date of calibration (< 6 months) 4/11/2024



		Measure (Inch)
Dt:	0.375	**Dt = 0.187 to 0.375**
Dn:	0.50	**Dn = 0.5**
a:	1.000	**a ≥ 0.750**
Pa:	0.46	**Pa = Pb**
Pb:	0.46	
b:	0.57	**B ≥ 0**
c:	4.66	**c ≥ 3.0**
d:	6.04	**d ≥ 3.0**
e:	0.76	**e ≥ 0.750**
or		
f:	NA	**f ≥ 2.0**

Results of the Post-Test Probe Inspection (mark with x below)**:**

No change _____

Damaged _____

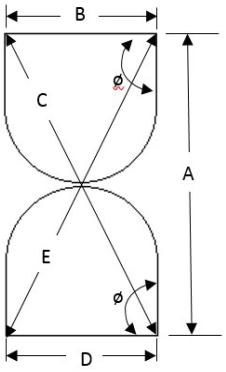
New Calibration _____

Technician ZDH **Date** 6/28/2024

S-Type Pitot Tube Geometric Calibration

Pitot ID 4D

Date of Geometric Calibration (< 6 months) 4/11/2024



A	0.96
B	0.38
C	1.08
D	0.38
E	1.08

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos \emptyset$$

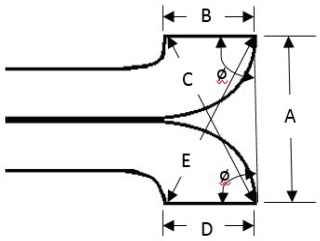
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos \emptyset$$

ø	97.77

$(80° < \emptyset < 100°)$

ø	97.09

$(80° < \emptyset < 100°)$



A	1.00
B	0.56
C	1.12
D	0.57
E	1.11

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos \emptyset$$

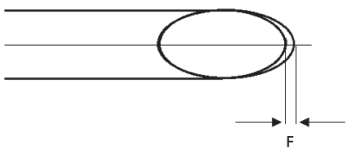
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos \emptyset$$

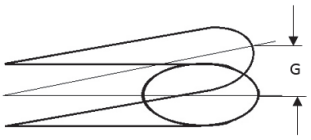
ø	87.44

$(85° < \emptyset < 95°)$

ø	85.73

$(85° < \emptyset < 95°)$





F=	0.054	(F < 0.125)	G=	0.000	(G < 0.032)

Results of the Post-Test Pitot Inspection (mark with x below)**:**

No change x

Damaged _____

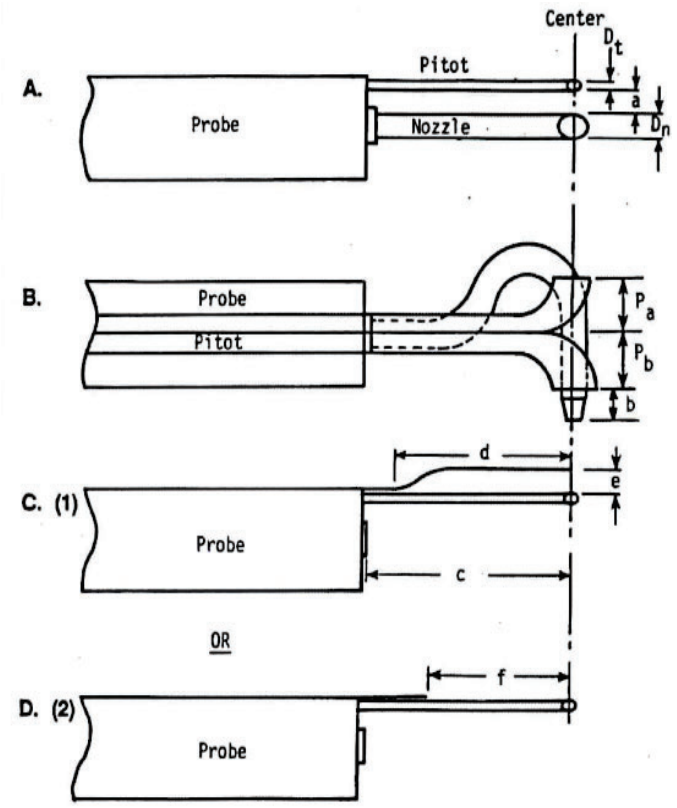
New Calibration _____

Technician ZDH **Date** 6/28/2024

Probe Calibration

Probe ID 4D

Date of calibration (< 6 months) 4/11/2024



		Measure (Inch)
Dt:	0.375	**Dt = 0.187 to 0.375**
Dn:	0.50	**Dn = 0.5**
a:	0.830	**a ≥ 0.750**
Pa:	0.50	**Pa = Pb**
Pb:	0.50	
b:	0.97	**B ≥ 0**
c:	4.02	**c ≥ 3.0**
d:	14.24	**d ≥ 3.0**
e:	1.32	**e ≥ 0.750**
	or	
f:	NA	**f ≥ 2.0**

Results of the Post-Test Probe Inspection (mark with x below)**:**

No change x

Damaged _____

New Calibration _____

Technician ZDH **Date** 6/28/2024

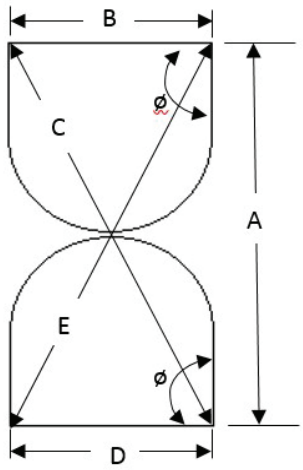
S-Type Pitot Tube Geometric Calibration

BISON ENGINEERING, INC.

Pitot ID: B8A

Date of Geometric Calibration (< 6 months): 6/1/2024

8'



A	0.94
B	0.36
C	0.96
D	0.38
E	1.01

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos Ø$$

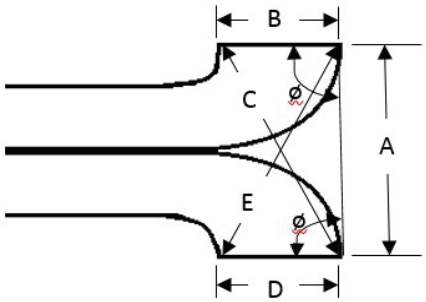
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos Ø$$

ø	82.22

$(80° < Ø < 100°)$

ø	89.37

$(80° < Ø < 100°)$



A	0.94
B	0.55
C	1.08
D	0.56
E	1.09

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos Ø$$

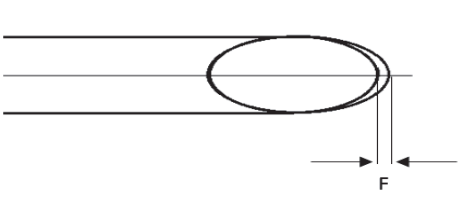
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos Ø$$

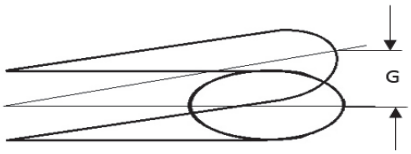
ø	88.91

$(85° < Ø < 95°)$

ø	89.50

$(85° < Ø < 95°)$





F=	0.000

(F < 0.125)

G=	0.000

(G < 0.032)

Results of the Post-Test Pitot Inspection (mark with x below)**:**

No change x

Damaged _____

New Calibration _____

Technician: RTM **Date:** 6/28/2024

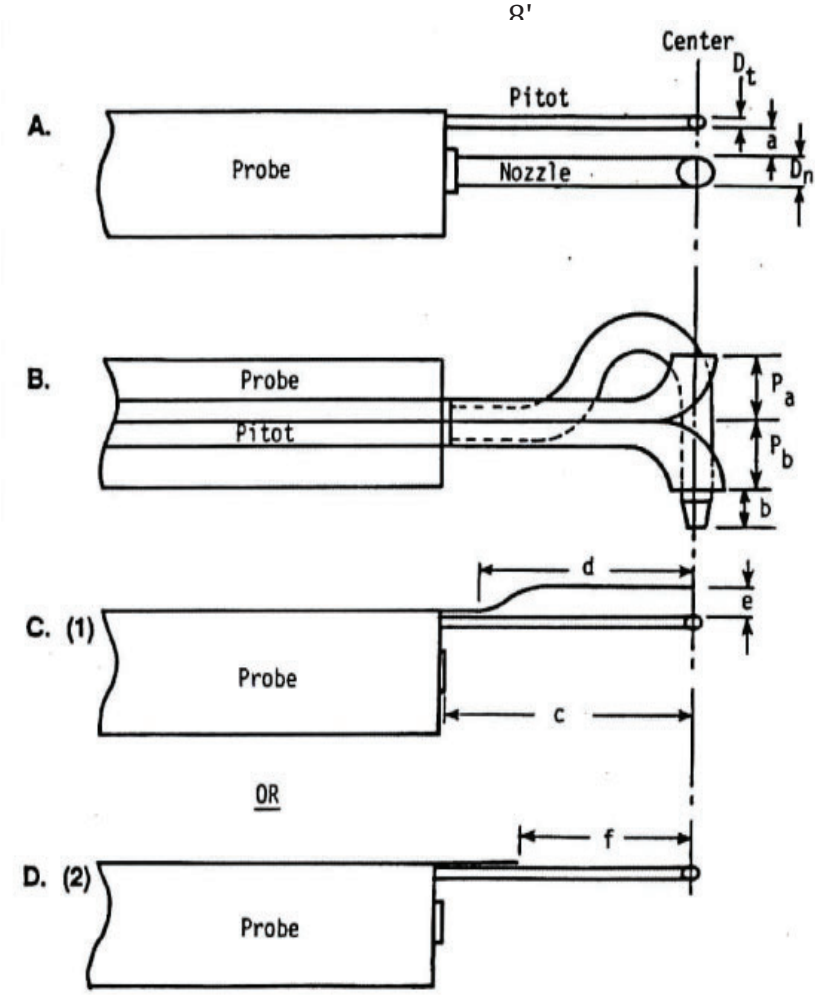
BISON ENGINEERING, INC.

Probe Calibration

Probe ID and Length: B8A

Date of calibration (< 6 months): 6/1/2024

8'



		Measure (Inch)
Dt:	0.37	**Dt = 0.187 to 0.375**
Dn:	0.50	**Dn = 0.5**
a:	0.76	**a ≥ 0.750**
Pa:	0.47	**Pa = Pb**
Pb:	0.47	
b:	0.40	**B ≥ 0**
c:	4.25	**c ≥ 3.0**
d:	13.00	**d ≥ 3.0**
e:	1.25	**e ≥ 0.750**
or		
f:	0.00	**f ≥ 2.0**

Results of the Post-Test Probe Inspection (mark with x below)**:**

No change x

Damaged _____

New Calibration _____

Technician: RTM **Date:** 6/28/2024

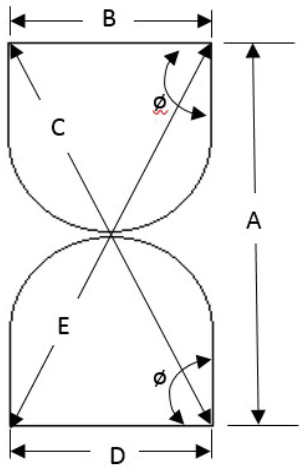
S-Type Pitot Tube Geometric Calibration

BISON ENGINEERING, INC.

Pitot ID: B4D

Date of Geometric Calibration (< 6 months): 2/28/2024

4'



A	0.81
B	0.39
C	0.88
D	0.39
E	0.91

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos Ø$$

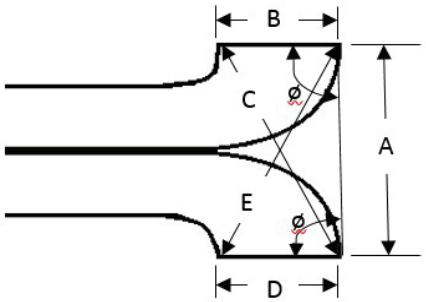
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos Ø$$

ø	86.93

$(80° < Ø < 100°)$

ø	91.80

$(80° < Ø < 100°)$



A	0.81
B	0.71
C	1.03
D	0.71
E	1.03

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos Ø$$

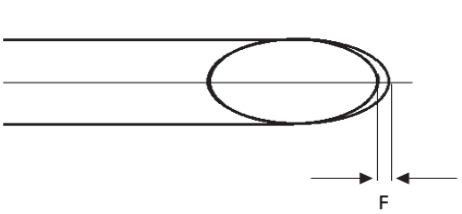
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos Ø$$

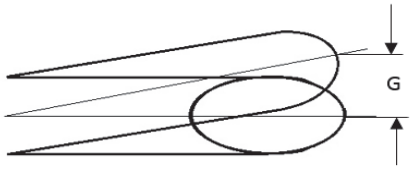
ø	85.05

$(85° < Ø < 95°)$

ø	85.05

$(85° < Ø < 95°)$





F=	0.049	(F < 0.125)

G=	0.000	(G < 0.032)

Results of the Post-Test Pitot Inspection (mark with x below)**:**

No change x

Damaged

New Calibration

Technician: RTM **Date:** 6/28/2024

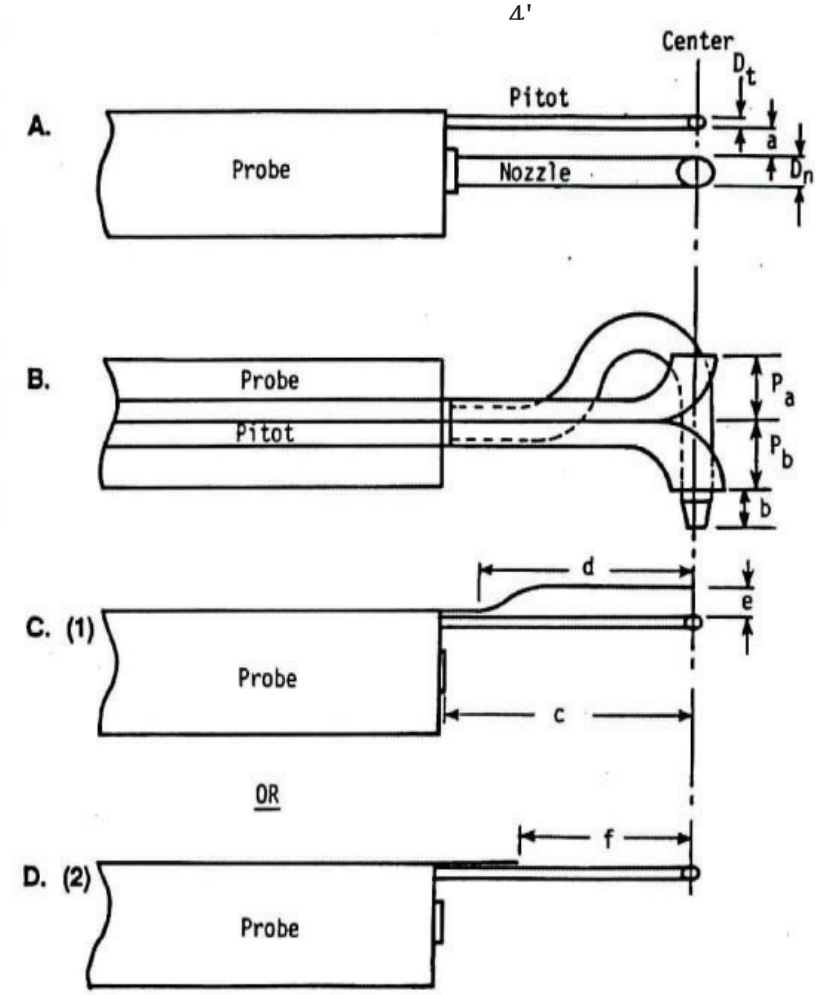
BISON ENGINEERING, INC.

Probe Calibration

Probe ID and Length: B4D

Date of calibration (< 6 months): 2/28/2024

4'



		Measure (Inch)
Dt:	0.375	**Dt = 0.187 to 0.375**
Dn:	0.50	**Dn = 0.5**
a:	1.00	**a ≥ 0.750**
Pa:	0.41	**Pa = Pb**
Pb:	0.41	
b:	1.00	**B ≥ 0**
c:	4.38	**c ≥ 3.0**
d:	7.00	**d ≥ 3.0**
e:	1.00	**e ≥ 0.750**
or		
f:		**f ≥ 2.0**

Results of the Post-Test Probe Inspection (mark with x below)**:**

No change x

Damaged _____

New Calibration _____

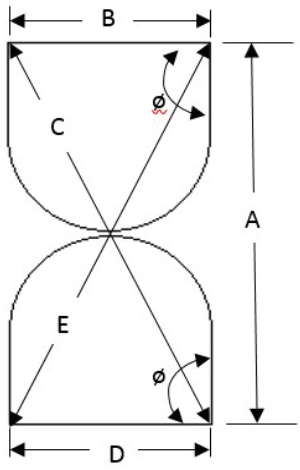
Technician: RTM **Date:** 6/28/2024

S-Type Pitot Tube Geometric Calibration

BISON ENGINEERING, INC.

Pitot ID: 6F

Date of Geometric Calibration (< 6 months): 4/12/2024



A	0.93
B	0.37
C	1.01
D	0.38
E	0.99

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos Ø$$

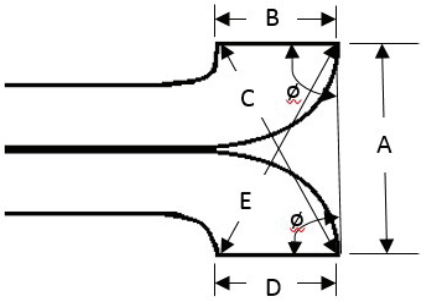
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos Ø$$

ø	91.32

$(80° < Ø < 100°)$

ø	88.09

$(80° < Ø < 100°)$



A	0.94
B	0.38
C	1.04
D	0.38
E	1.04

$$\frac{a^2 + b^2 - c^2}{2ab} = \cos Ø$$

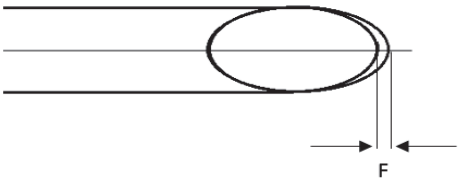
$$\frac{a^2 + d^2 - e^2}{2ad} = \cos Ø$$

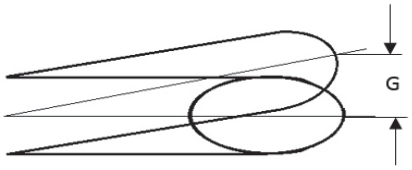
ø	94.84

$(85° < Ø < 95°)$

ø	94.84

$(85° < Ø < 95°)$





F=	0.049	(F < 0.125)

G=	0.000	(G < 0.032)

Results of the Post-Test Pitot Inspection (mark with x below)**:**

No change x

Damaged _____

New Calibration _____

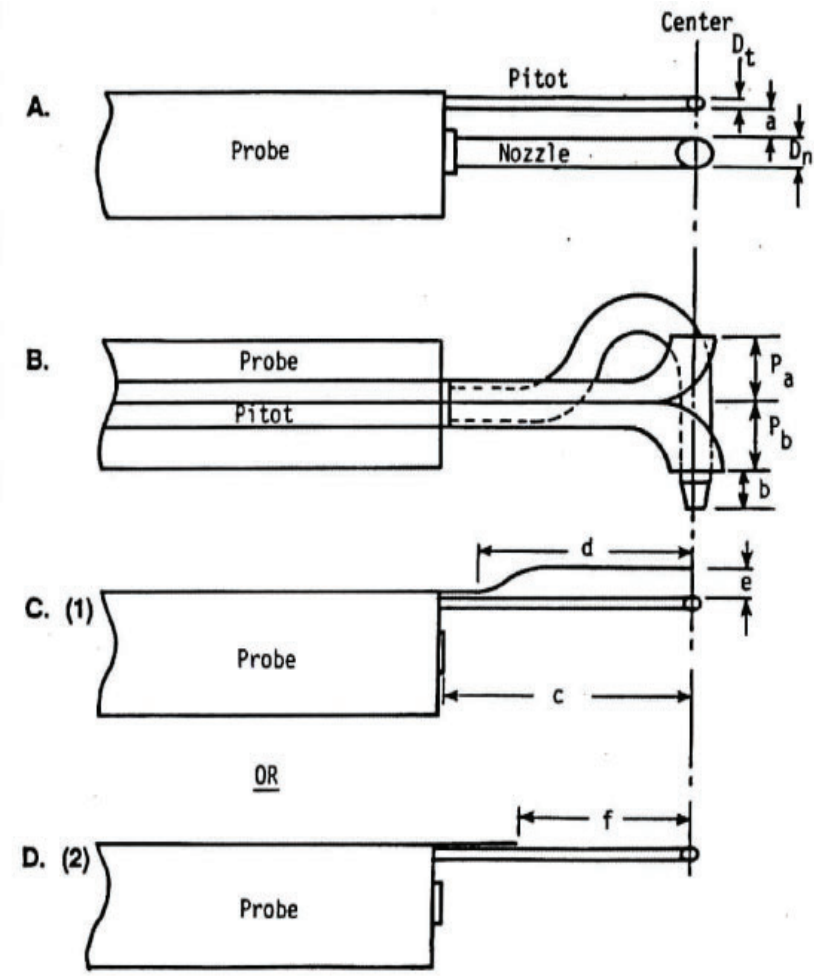
Technician: ZDH **Date:** 6/28/2024

BISON ENGINEERING, INC.

Probe Calibration

Probe ID and Length: 6F

Date of calibration (< 6 months): 4/12/2024



		Measure (Inch)
Dt:	0.375	**Dt = 0.187 to 0.375**
Dn:	0.50	**Dn = 0.5**
a:	0.77	**a ≥ 0.750**
Pa:	0.47	**Pa = Pb**
Pb:	0.47	
b:	1.06	**B ≥ 0**
c:	4.23	**c ≥ 3.0**
d:	6.04	**d ≥ 3.0**
e:	1.24	**e ≥ 0.750**
or		
f:		**f ≥ 2.0**

Results of the Post-Test Probe Inspection (mark with x below)**:**

No change x

Damaged _____

New Calibration _____

Technician: ZDH **Date:** 6/28/2024

APEX INSTRUMENTS
METERBOX CALIBRATION USING REFERENCE DGM

Meter Console Information	
Console Model Number	C-5000
Console Serial Number	2029
DGM Model Number	itron
DGM Serial Number	22081220

Calibration Conditions			
Date	Time	3-Jul-24	9:29
Barometric Pressure		26.13	in Hg
Calibration Technician		JCR	
Calibration Meter Gamma		1.0000	

<<<<<<<Your reference meter here

Standardized Factors/Conversions		
Temperature	492	R
Pressure	29.19	in Hg
K_1	16.855	R/in Hg

Calibration Data

Run Time	Metering Console						Reference Meter				
	Manometer	Volume	Volume	Sample	Outlet Temp	Outlet Temp	Volume	Volume	Sample Volume	Outlet Temp	Outlet Temp
Elapsed	ΔH	Initial	Final	Volume	Initial	Final	Initial	Final		Initial	Final
Θ minutes	P_m in H_2O	V_{mi} cubic feet	V_{mf} cubic feet	V_m cubic feet	t_{Oi} °F	t_{Of} °F	V_{wi} cubic feet	V_{wf} cubic feet	V_w cubic feet	t_{wi} °F	t_{wf} °F
10.75	6.00	912.229	927.913	15.684	69	69	0.000	15.826	15.826	68	68
10.00	3.00	928.155	938.595	10.440	69	70	0.000	10.421	10.421	68	68
11.00	2.00	938.772	948.145	9.373	70	72	0.000	9.341	9.341	68	68
10.00	1.00	948.846	954.969	6.123	72	72	0.000	6.033	6.033	69	69
10.00	0.50	955.684	960.022	4.338	72	73	0.000	4.332	4.332	69	70

Results

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Calibration Meter		Calibration Factor		Flowrate	$\Delta H_@$	
				Value	Variation	Std & Corr	0.75 SCFM	Variation
$V_{m(std)}$ cubic feet	$Q_{m(std)}$ ft^3/min	$V_{w(std)}$ cubic feet	$Q_{w(std)}$ ft^3/min	Y	ΔY	$Q_{m(std)(corr)}$ ft^3/min	$\Delta H_@$ in H_2O	$\Delta\Delta H_@$
13.278	1.235	13.201	1.228	0.9942	-0.001	1.228	1.781	0.019
8.757	0.876	8.693	0.869	0.9927	-0.002	0.869	1.776	0.013
7.818	0.711	7.792	0.708	0.9967	0.002	0.708	1.778	0.015
5.083	0.508	5.023	0.502	0.9881	-0.007	0.502	1.764	0.002
3.593	0.359	3.603	0.360	1.0028	0.008	0.360	1.713	-0.049
Pre-test Y	1.0057	% Deviation	PASS	**0.9949**	Y Average		**1.762**	$\Delta H_@$ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

Note: For $DH_@$, orifice pressure differential that equates to 0.75cfm (0.0212m^3/min) at standard temperature and pressure, acceptable tolerance of individual values from the average is +-0.2inches (5.1mm) H_20.

Initials JCR
JCR

Date 3-Jul-24

APEX INSTRUMENTS · 204 Technology Boulevard · Fuquay-Varina, North Carolina 27526 · (919) 557-7300 · FAX (919) 557-7110

APEX INSTRUMENTS
METERBOX CALIBRATION USING REFERENCE DGM

Meter Console Information	
Console Model Number	C-5000
Console Serial Number	2029
DGM Model Number	itron
DGM Serial Number	22081220

Calibration Conditions			
Date	Time	6-Jun-24	8:48
Barometric Pressure		26.18	in Hg
Calibration Technician		JCR	
Calibration Meter Gamma		1.0000	

Standardized Factors/Conversions		
Temperature	492	R
Pressure	29.19	in Hg
K_1	16.855	R/in Hg

<<<<<<<Your reference meter here

Calibration Data											
Run Time	Metering Console						Reference Meter				
	Manometer	Volume	Volume	Sample	Outlet Temp	Outlet Temp	Volume	Volume	Sample Volume	Outlet Temp	Outlet Temp
Elapsed	ΔH	Initial	Final	Volume	Initial	Final	Initial	Final		Initial	Final
Θ minutes	P_m in H_2O	V_{mi} cubic feet	V_{mf} cubic feet	V_m cubic feet	t_{Oi} °F	t_{Of} °F	V_{wi} cubic feet	V_{wf} cubic feet	V_w cubic feet	t_{wi} °F	t_{wf} °F
10.00	6.00	43.372	57.855	14.483	68	70	0.000	14.727	14.727	67	69
14.00	3.00	58.252	72.907	14.655	70	71	0.000	14.799	14.799	69	70
10.00	2.00	73.182	81.698	8.516	71	72	0.000	8.585	8.585	70	71
10.00	1.00	82.035	88.103	6.068	72	72	0.000	6.118	6.118	71	70
10.00	0.50	88.355	92.694	4.339	72	73	0.000	4.376	4.376	70	71

Results								
Standardized Data				Dry Gas Meter				
Dry Gas Meter		Calibration Meter		Calibration Factor		Flowrate	$\Delta H_@$	
				Value	Variation	Std & Corr	0.75 SCFM	Variation
$V_{m(std)}$ cubic feet	$Q_{m(std)}$ ft^3/min	$V_{w(std)}$ cubic feet	$Q_{w(std)}$ ft^3/min	Y	ΔY	$Q_{m(std)(corr)}$ ft^3/min	$\Delta H_@$ in H_2O	$\Delta\Delta H_@$
12.285	1.228	12.308	1.231	1.0019	-0.004	1.231	1.776	0.044
12.293	0.878	12.333	0.881	1.0032	-0.002	0.881	1.729	-0.003
7.110	0.711	7.141	0.714	1.0044	-0.001	0.714	1.751	0.019
5.047	0.505	5.089	0.509	1.0082	0.002	0.509	1.722	-0.010
3.601	0.360	3.640	0.364	1.0109	0.005	0.364	1.682	-0.050
Pre-test Y	N/A	% Deviation	Enter Pre-Test Y in B35	**1.0057**	Y Average		**1.732**	$\Delta H_@$ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

Note: For $DH_@$, orifice pressure differential that equates to 0.75cfm (0.0212m^3/min) at standard temperature and pressure, acceptable tolerance of individual values from the average is +-0.2inches (5.1mm) H_20.

New DGM installed, no previous Y to compare against.

Initials JCR JCR Date 6-Jun-24

APEX INSTRUMENTS · 204 Technology Park Lane · Fuquay-Varina, North Carolina 27526 · (919) 557-7300 · FAX (919) 557-7110

APEX INSTRUMENTS
METERBOX CALIBRATION USING REFERENCE DGM

Meter Console Information	
Console Model Number	BOX 14
Console Serial Number	2205-D
DGM Model Number	SK25EX
DGM Serial Number	6701

Calibration Conditions			
Date	Time	13-Jun-24	8:40
Barometric Pressure		26.78	in Hg
Calibration Technician		ACW	
Calibration Meter Gamma		1.0000	

<<<<<<<Your reference meter here

Standardized Factors/Conversions		
Temperature	528	R
Pressure	29.92	in Hg
K_1	17.647	R/in Hg

Calibration Data

Run Time	Metering Console						Reference Meter				
	Manometer	Volume	Volume	Sample	Outlet Temp	Outlet Temp	Volume	Volume	Sample Volume	Outlet Temp	Outlet Temp
Elapsed	ΔH	Initial	Final	Volume	Initial	Final	Initial	Final		Initial	Final
Θ minutes	P_m in H_2O	V_{mi} cubic feet	V_{mf} cubic feet	V_m cubic feet	t_{Oi} °F	t_{Of} °F	V_{wi} cubic feet	V_{wf} cubic feet	V_w cubic feet	t_{wi} °F	t_{wf} °F
10.00	6.00	0.000	12.968	12.968	72	72	0.000	14.183	14.183	69	70
10.00	3.00	0.000	9.374	9.374	72	73	0.000	10.101	10.101	70	72
10.00	2.00	0.000	7.663	7.663	73	73	0.000	8.210	8.210	72	72
10.00	1.00	0.000	5.515	5.515	74	74	0.000	5.873	5.873	73	73
10.00	0.50	0.000	3.907	3.907	74	74	0.000	4.141	4.141	73	74

Results

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Calibration Meter		Calibration Factor		Flowrate	$\Delta H_@$	
				Value	Variation			
$V_{m(std)}$ cubic feet	$Q_{m(std)}$ ft^3/min	$V_{w(std)}$ cubic feet	$Q_{w(std)}$ ft^3/min	Y	ΔY	$Q_{m(std)(corr)}$ ft^3/min	$\Delta H_@$ in H_2O	$\Delta\Delta H_@$
11.710	1.171	12.659	1.266	1.0811	0.012	1.266	1.872	0.014
8.388	0.839	8.990	0.899	1.0718	0.003	0.899	1.855	-0.004
6.832	0.683	7.293	0.729	1.0675	-0.001	0.729	1.877	0.018
4.894	0.489	5.207	0.521	1.0640	-0.005	0.521	1.837	-0.021
3.462	0.346	3.668	0.367	1.0594	-0.009	0.367	1.851	-0.007
Pre-test Y	1.0699	% Deviation	PASS	**1.0687**	**Y Average**		**1.858**	**$\Delta H_@$ Average**

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

Note: For $DH_@$, orifice pressure differential that equates to 0.75cfm (0.0212m^3/min) at standard temperature and pressure, acceptable tolerance of individual values from the average is +-0.2inches (5.1mm) H_20.

Initials ACW / ACW Date 13-Jun-24

APEX INSTRUMENTS
METERBOX CALIBRATION USING REFERENCE DGM

Meter Console Information	
Console Model Number	BOX 14
Console Serial Number	2205-D
DGM Model Number	SK25EX
DGM Serial Number	6701

Calibration Conditions			
Date	Time	9-Jul-24	7:30
Barometric Pressure		26.76	in Hg
Calibration Technician		ACW	
Calibration Meter Gamma		1.0000	

Standardized Factors/Conversions		
Temperature	528	R
Pressure	29.92	in Hg
K_1	17.647	R/in Hg

<<<<<<<Your reference meter here

Calibration Data

Run Time	Metering Console						Reference Meter				
	Manometer	Volume	Volume	Sample	Outlet Temp	Outlet Temp	Volume	Volume	Sample Volume	Outlet Temp	Outlet Temp
Elapsed	ΔH	Initial	Final	Volume	Initial	Final	Initial	Final		Initial	Final
Θ minutes	P_m in H_2O	V_{mi} cubic feet	V_{mf} cubic feet	V_m cubic feet	t_{Oi} °F	t_{Of} °F	V_{wi} cubic feet	V_{wf} cubic feet	V_w cubic feet	t_{wi} °F	t_{wf} °F
10.00	6.00	0.000	12.935	12.935	70	70	0.000	14.310	14.310	71	72
10.00	3.00	0.000	9.286	9.286	71	71	0.000	10.094	10.094	72	72
10.00	2.00	0.000	7.613	7.613	71	72	0.000	8.201	8.201	72	73
10.00	1.00	0.000	5.376	5.376	72	72	0.000	5.722	5.722	73	73
10.00	0.50	0.000	3.788	3.788	73	73	0.000	4.006	4.006	73	74

Results

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Calibration Meter		Calibration Factor		Flowrate	$\Delta H_@$	
				Value	Variation			
$V_{m(std)}$ cubic feet	$Q_{m(std)}$ ft^3/min	$V_{w(std)}$ cubic feet	$Q_{w(std)}$ ft^3/min	Y	ΔY	$Q_{m(std)(corr)}$ ft^3/min	$\Delta H_@$ in H_2O	$\Delta\Delta H_@$
11.715	1.172	12.714	1.271	1.0853	0.016	1.271	1.862	-0.049
8.326	0.833	8.960	0.896	1.0761	0.007	0.896	1.871	-0.040
6.801	0.680	7.273	0.727	1.0693	0.000	0.727	1.891	-0.019
4.785	0.479	5.070	0.507	1.0595	-0.010	0.507	1.944	0.034
3.361	0.336	3.546	0.355	1.0551	-0.014	0.355	1.983	0.073
Pre-test Y	1.0687	% Deviation	PASS	**1.0691**	**Y Average**		**1.910**	**$\Delta H_@$ Average**

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

Note: For $DH_@$, orifice pressure differential that equates to 0.75cfm (0.0212m^3/min) at standard temperature and pressure, acceptable tolerance of individual values from the average is +-0.2inches (5.1mm) H_20.

Initials ACW ACW Date 9-Jul-24

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Compliance Assurance Associates Inc.

Helping Industry Comply with Environmental Regulations

This is to acknowledge that

Riley T Madsen

BIL240403-14982

Certificate verification is available at compliance-assurance.com/certs.php using the last name and 14982

successfully participated in Visible Emissions Evaluation field training and certification and pursuant to US EPA 40 CFR 60 Appendix A, Reference Method 9, as amended, is certified to evaluate Visible Emissions for a period of six (6) months from the date of this certification.

White-smoke score: 14 Black-smoke score: 14

Billings, MT
Location

04/03/2024
Date

Compliance Assurance Associates, Inc. 682 Orvil Smith Rd, Harvest, AL, 35749. 901-381-9960. compliance-assurance.com

Compliance Assurance Associates Inc.

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This is to acknowledge that

Robert Rogge

BIL240403-13955

Certificate verification is available at compliance-assurance.com/certs.php using the last name and 13955

successfully participated in Visible Emissions Evaluation field training and certification and pursuant to US EPA 40 CFR 60 Appendix A, Reference Method 9, as amended, is certified to evaluate Visible Emissions for a period of six (6) months from the date of this certification.

White-smoke score: 13 Black-smoke score: 10

Joseph Spivey - Field Manager	Billings, MT	04/03/2024
	Location	Date

Compliance Assurance Associates, Inc. 682 Orvil Smith Rd, Harvest, AL, 35749. 901-381-9960. compliance-assurance.com

Compliance Assurance Associates Inc.

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This is to acknowledge that

Zach D Harding

HEL240401-25035

Certificate verification is available at compliance-assurance.com/certs.php using the last name and 25035

successfully participated in Visible Emissions Evaluation field training and certification and pursuant to US EPA 40 CFR 60 Appendix A, Reference Method 9, as amended, is certified to evaluate Visible Emissions for a period of six (6) months from the date of this certification.

White-smoke score: 25 Black-smoke score: 23

Helena, MT
Location

04/01/2024
Date

Compliance Assurance Associates, Inc. 682 Orvil Smith Rd, Harvest, AL, 35749. 901-381-9960. compliance-assurance.com

STACK TESTING ACCREDITATION COUNCIL

American Association for Laboratory Accreditation

Accredited Air Emission Testing Body

A2LA has accredited

Bison Engineering, Inc.

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036:2004 - Standard Practice for Competence of Air Emission Testing Bodies.

Presented this 30th day of August 2023.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4675.01
Valid to November 30, 2025

This accreditation program is not included under the A2LA ILAC Mutual Recognition Arrangement.

This is the last page of the report.