MONTANA RESOURCES LLP

DATA REPORT FOR TSP AND PM_{10} MONITORING STATION AT GREELEY SCHOOL IN BUTTE, MONTANA

QUARTER 1, 2024

Prepared for:

Montana Resources LLP
600 Shields Avenue
Butte, MT 59701

Prepared by:

Bison Engineering, Inc.
3143 E. Lyndale Avenue
Helena, MT 59601
(406) 442-5768
http://www.bison-eng.com

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CERTIFICATION OF DATA INTEGRITY

Bison Engineering, Inc. certifies the data in this report is an accurate summary of the air quality and meteorological conditions measured at the Greeley School ambient monitoring site. Every reasonable effort was made to obtain accurate and representative data and to comply with the procedures set forth in the project-specific *Quality Assurance Project Plan (QAPP)*, *State of Montana Ambient Air Monitoring Program Quality Assurance Project Plan (April 2013)*, and the Environmental Protection Agency's *Volume II: Ambient Air Quality Program (January 2017) and Volume IV: Meteorological Measurements.*

Preparer: Steven R. Heck

Signature: 

Title: Meteorologist

Date: July 8, 2024

Reviewer: Harold W. Robbins

Signature: 

Title: Executive Manager

Date: July 10, 2024

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1.0 INTRODUCTION

Particulate monitoring has been conducted in the Greeley School area for many years, since the days of the Anaconda Company operation during the 1970s. Montana Department of Environmental Quality (MDEQ) and Butte-Silver Bow (BSB) County are currently performing the following monitoring:

- Continuous monitoring for PM_{10} using a Met One Model 1020 Beta Attenuation Monitor (BAM-1020).

- Continuous monitoring for $PM_{2.5}$ using a second Met One BAM-1020.

- Episodic monitoring for $PM_{2.5}$ using a BGI Model PQ-200 sampler. This sampler collects particulate matter on a filter over a 24-hour period, which is subsequently analyzed gravimetrically to determine the average airborne $PM_{2.5}$ concentration during the sampling period. The filter is then analyzed by an EPA laboratory for trace elements and mineralized compounds. This episodic sampling is performed every six days, concurrent with EPA's national one-in-six-day sampling schedule.

- The Greeley School site includes meteorological instruments that measure wind speed, wind direction and temperature.

MDEQ/BSB's monitoring provides continuous, real-time hourly $PM_{2.5}$ and PM_{10} concentrations, as well as $PM_{2.5}$ chemical composition data. In March 2019 and at Montana Resources' (MR) request, Bison Engineering Inc. (Bison) installed additional collocated monitoring equipment at the Greeley School:

- Total Suspended Particulate Sampler: A Met One E-Sampler that continuously measures hourly total suspended particulate (TSP) concentrations using a nephelometric technique that relates light scattering to ambient particulate concentration. Additionally, the sampler includes a filter that is analyzed for total particulate mass and trace elements. Prior to this study, no ongoing TSP monitoring was being performed,

- PM_{10} Particulate Sampler: A BGI Model PQ-200 sampler that collects 24-hour inhalable particulate (PM_{10}) samples on a filter, concurrent with the EPA one-in-six-day sampling schedule. The filter is analyzed for particulate mass and for selected trace elements. The MDEQ BAM-1020 that is used for PM_{10} hourly monitoring does not produce a filter suitable for chemical analysis.

This report presents and analyzes the data collected during the first quarter of 2024. In addition, a description of the monitoring system operations is presented, together with summaries of quality assurance activities including calibrations and performance audits. Tabular summaries of data completeness and periods of missing and/or invalid data also are presented.

Figure 1: Greeley School / Montana Resources LLP Vicinity

2.0 MONITORING SYSTEM OPERATIONS

At MR's request, Bison currently operates two particulate monitors at the Greeley School site:[1]

- PM_{10} sampling is accomplished with a BGI PQ-2000 sampler using filters that collect particulate matter for a 24-hour period based on the EPA national one-in-six-day schedule. Those filters are analyzed gravimetrically, and for selected trace elements. The 24-hour PM_{10} averages from the filters also will be compared against concurrent hourly data from the MDEQ/BSB BAM-1020 monitor, to provide a check on data comparability.

- TSP measurements are accomplished with a Met One AC-powered E-Sampler. It includes an external relative humidity sensor, as well as ambient temperature and pressure sensors housed within the sampler. The TSP sampler is not an EPA Reference or Equivalent Method[2] sampler, and this monitoring does not attempt to determine compliance with the historic TSP standard that was superseded by a PM_{10} standard in 1987. However, the E-Sampler provides hourly estimated TSP measurements that may be compared with on-site wind data to indicate primary TSP source areas. Additionally, it includes a particulate filter suitable for gravimetric and chemical analysis. Because the E-Sampler operates at a flowrate of only 2.0 liters per minute, sampling filters were exposed for periods ranging from 5-8 days so that sufficient particulate mass was collected for chemical analysis. Additionally, the E-Sampler includes a cellular modem to enable remote data downloading. Bison downloads and reviews hourly data collected by the E-Sampler at least once per week.

In addition to the monitoring described above, MDEQ/BSB operates a meteorological station at the Greeley site. That information is also summarized in this report. This meteorological data may prove useful for interpretation of the particulate data. More specifically:

- Wind speed and wind direction data collected by MDEQ/BSB at the Greeley School site may, from time to time, be compared to hourly TSP readings to aid in the identification of TSP (which includes the smaller PM_{10} and $PM_{2.5}$ fractions) source areas. Additionally, the ambient temperature data collected by MDEQ/BSB may also be used for data interpretation and analysis. In particular, the temperature data is used to identify relative humidity thresholds that indicate the presence of fog.

The MR samplers are visited approximately every five to eight days by BSB personnel. They remove the exposed particulate filters from both samplers and install pre-weighed clean filters for the next sampling episode. The primary operational difference between the two samplers is that the E-Sampler (TSP) filter is exposed continuously from the time of

[1] In July 2023 additional monitoring was initiated at two new locations in the Greeley area. Those monitoring results are being reported separately.
[2] Reference and Equivalent Methods are defined in 40 CFR 50.1.

installation until the time of removal, while the BGI PM_{10} sampler filter is exposed for only a single 24-hour episode. The difference in filter exposure periods is necessary because the BGI unit operates at approximately 16.7 liters per minute (lpm) while the E-Sampler operates at 2.0 lpm. This operating scheme results in comparable air sample volumes between the two instruments: approximately 24 cubic meters (m^3) for the BGI sampler versus roughly 14 m^3 to 22 m^3 for the E-Sampler (based on five to eight days between filter exchanges during the first quarter). After retrieval, BSB mails the exposed filters to Bison's Billings office for gravimetric analysis. Following particulate mass determination, Bison submits the weighed filters to Energy Laboratories, Inc. (ELI) in Billings for chemical analysis.

Once per month, Bison conducts calibration checks on both samplers; results of the calibrations are presented in Section 6.0. Once in each calendar quarter, Bison conducts a performance audit of both samplers. The audits are performed by a different person than the monthly calibration checks, using separate NIST-traceable flow standards. The audit performed in February 2024 is documented in this report.

Appendix A presents hourly data for all relevant monitoring parameters, including:

- Hourly TSP data collected by Bison Engineering;
- Hourly relative humidity data collected by Bison Engineering;[3]
- Hourly temperature and wind data collected by BSB/MDEQ; these data are integral to the reporting and analysis of the hourly TSP data being collected by Bison.

The hourly PM_{10} and $PM_{2.5}$ and meteorological data collected by BSB/MDEQ were provided to Bison by MDEQ.

[3] The E-Sampler also collects hourly values of temperature and barometric pressure, but those values are typically not reported herein. The barometric pressure data are not relevant to the analyses in this report, and the ambient temperature data collected by the MDEQ/BSB monitor are generally superior to those collected by the E-Sampler. However, temperature data from the E-Sampler are reported during periods of missing or invalid MDEQ temperature data.

3.0 PM_{10} SAMPLING DATA

The National Ambient Air Quality Standards (NAAQS) for PM_{10} were first promulgated in 1987 and have been modified several times since (1997, 2000 and 2006). The current form of the standard is found at 40 CFR 50.6. The form of the standard is ambient concentration measured and reported at local temperature and pressure (LTP). Although Bison employs typical PM_{10} monitoring procedures and instrumentation, this monitoring is not being performed as a formal demonstration of compliance with the PM_{10} NAAQS; rather, the monitoring aims to provide PM_{10} samples suitable for chemical analysis. Such samples are not necessarily being collected under the existing monitoring program.

Table 1 briefly summarizes the PM_{10} data collected during the first quarter of 2024. For comparison it also shows concurrent 24-hour PM_{10} averages calculated from the hourly values reported by the MDEQ/BSB BAM-1020 monitor. These results show generally good consistency between the two PM_{10} measurement methods, with two notable exceptions:

- On February 18 the BGI sampler measured a PM_{10} concentration of 29.5 µg/m^3 while the BAM-1020 reported 39.3 µg/m^3, giving a relative percent difference (RPD) of 29%. The $PM_{2.5}$ average for that date was 11.7 µg/m^3. Typically, PM_{10} concentrations at the Greeley School are roughly three times the $PM_{2.5}$ concentrations; both PM_{10} measurements noted above seem reasonable on that basis.

- On March 7, the BGI sampler measured a PM_{10} concentration of 8.0 µg/m^3 while the BAM-1020 reported 34.6 µg/m^3, giving a relative percent difference (RPD) of 125%. The $PM_{2.5}$ average for that date was 5.5 µg/m^3. Thus, the BGI PM_{10} concentration was approximately 1.5 times the $PM_{2.5}$ concentration while the BAM-1020 PM10 concentration was six times greater. Both results are somewhat atypical in comparison to the concurrent $PM_{2.5}$ concentration, and no cause is readily apparent.

Although not the focus of this study, these results show that the maximum 24-hour PM_{10} concentrations (42 µg/m^3 for the BGI sampler and 45 µg/m^3 for the BAM-1020 monitor, both on January1)[4] were well below the 24-hour standard of 150 µg/m^3.[5] The quarterly PM_{10} averages from both samplers (16 µg/m^3 and 23 µg/m^3) were well below the Montana Annual PM_{10} standard of 50 µg/m^3.[6]

Data used to calculate average PM_{10} concentrations from gravimetric analysis are presented in Appendix B. Chemical analysis results for Bison's PM_{10} filters are presented in Section 5.0 of this report.

[4] The BAM-1020 monitor also reported a value of 45 µg/m^3 on January 13. The BGI sampler failed to run due to extreme cold.
[5] 40 CFR 50.6.
[6] The NAAQS annual PM_{10} standard was repealed October 17, 2006. Montana, however, has retained an annual PM_{10} standard of 50 µg/m^3. *(ARM17.8.223)*

Table 1: Summary of PM_{10} Monitoring Data for Quarter 1, 2024

Sample Collection Date (2024)	BGI PM10[1] (µg/m³)	BAM-1020[1] (µg/m³)	Arithmetic Difference (µg/m³)	Relative Difference (%)
Jan 01	42.1	44.6	-2.5	6
Jan 07	10.7	ND	-----	-----
Jan13	ND	45.2	-----	-----
Jan19	19.5	22.0	-2.5	12
Jan 25	13.4	15.3	-1.9	14
Jan 31	15.5	18.8	-3.3	19
Feb 06	14.7	14.9	-0.2	1
Feb 12	13.6	15.8	-2.2	15
Feb 18	29.5	39.3	-9.8	29
Feb 24	6.7	9.2	-2.5	31
Mar 01	4.8	6.8	-2.0	35
Mar 07	8.0	34.6	-26.6	125
Mar 13	5.7	9.4	-3.7	50
Mar 19	35.2	38.7	-3.5	10
Mar 25	8.2	ND	-----	-----
Mar 31	10.2	11.1	-0.9	8
Average-Overall	**15.9**	**23.3**	**-----**	**-----**
Average-Concurrent Days	**16.8**	**21.6**	**-4.8**	**25**

[1]All values at local temperature and pressure (LTP).
[2]Denotes relative percent difference of the quarterly averages.

4.0 TSP SAMPLING DATA

Hourly TSP data were collected by the Bison E-Sampler beginning on March 1, 2019, at 1500 MST. Data were also collected continuously throughout the first quarter of 2024.

As noted previously, the E-Sampler does not make a direct TSP measurement. It measures the visual light scattering (90^{o} to the light beam) of the sampled air, and then calculates hourly TSP averages based on a user-entered calibration multiplier. The appropriate multiplier varies by location depending on the nature of the airborne particulate and can also vary seasonally. For this project, the multiplier is determined approximately once per week using the gravimetrically obtained data from the TSP filter (used for metals analysis) as a means of calibration. The sample filter used during monitoring is analyzed gravimetrically to determine an *empirical* correction factor; those results then are used to appropriately calibrate (correct) all collected TSP data prior to reporting.

As noted previously, the purpose of this monitoring is not to obtain rigorous TSP measurements to ascertain compliance with published (or historical) standards. While the E-Sampler is not a Reference Method monitor, it provides unique dual capabilities to satisfy important objectives of this project:

- Obtain hourly TSP values that can be compared to other particulate data (PM_{10} and $PM_{2.5}$). It may also be used to investigate diurnal patterns along with specific episodic conditions. The hourly data may also prove useful in source contribution investigations by comparing the results with on-site wind speed and direction data to identify potential sources of airborne particulate, and

- Collect TSP material on filters that may be analyzed gravimetrically, and for selected trace elements. The material collected on the TSP filters includes all airborne particle sizes, in contrast to the PM_{10} sampler filters which exclude all material of greater than 10-micron diameter.

One limitation of this nephelometric method is that false high TSP readings can occur during periods of fog. For this reason, all hourly data collected during periods with an ambient relative humidity above 90 percent of the possible value[7] have been excluded from the reported data. A total of 316 hours of E-Sampler data were excluded from analysis during the first quarter for that reason.

[7] The maximum possible reading from an ambient relative humidity sensor varies with temperature. At temperatures of 0°C or greater it is 100 percent. At subfreezing temperatures, it decreases by 0.8 percent relative humidity for every 1°C drop in temperature. For example, at a temperature of -20°C the maximum possible reported relative humidity is 84%. At that temperature, all TSP data associated with a reported relative humidity of 75.6 % (calculated as 0.9 x 84%) or higher would be excluded from analysis due to possible fog effects.

4.1 TSP Data Summary

Monthly and quarterly average TSP data for the first quarter are summarized in Table 2 and are compared with concurrent PM_{10} and $PM_{2.5}$ data from the MDEQ/BSB monitors. Daily average concentrations for each parameter are presented in Tables 2a through 2c.[8] To facilitate direct comparability with the TSP data, hourly PM_{10} and $PM_{2.5}$ values during suspected fog periods (and whenever TSP data were missing for other reasons) have been excluded from the calculations below, although the PM_{10} and $PM_{2.5}$ monitors in use at the Greeley School are generally unaffected by fog.

Overall, the daily TSP averages from the E-Sampler TSP monitor were very similar to the PM_{10} values from the BAM-1020 PM_{10} monitor. In fact, the quarterly average PM_{10} concentration from the BAM-1020 was marginally higher than the average TSP concentration from the E-Sampler. This indicates that virtually all of the airborne particulate was smaller than 10 microns. It should be noted that the TSP measurements are made using a nephelometric technique while the hourly PM_{10} measurements are made using beta attenuation. The fraction of $PM_{2.5}$ ranged from approximately 50 percent in January to 30 percent in March.

Average temperatures were slightly below normal in January, slightly above normal in February and near normal in March.[9] Precipitation was below normal in January, well above normal in February and near normal in March.

Table 2: TSP, PM_{10} and $PM_{2.5}$ Averages for Quarter 1, 2024

Period 2024	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
January	22	26	10.9
February	13	14	6.4
March	17	16	4.9
Quarter 1	**17**	**18**	**6.9**

[8] Monthly and quarterly average values shown in Tables 2, 2a, 2b and 2c are calculated using all hourly values for time periods shown. Any apparent inconsistencies among monthly and quarterly averages reflect differences in data recovery among the three months, as shown in Section 8.0.

[9] January included both an extreme cold snap around mid-month, and several days of near-record warmth at the end of the month.

Table 2a: TSP, PM_{10} and $PM_{2.5}$ Daily Averages for January 2024

Date 2024	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
Jan 1	41	42	21.0
Jan 2	69	81	24.2
Jan 3	51	58	20.6
Jan 4	39	36	13.6
Jan 5	22	No Data	8.0
Jan 6	21	No Data	6.7
Jan 7	15	No Data	4.3
Jan 8	15	16	7.7
Jan 9	27	45	3.6
Jan 10	No Data	-----	-----
Jan 11	No Data	-----	-----
Jan 12	No Data	-----	-----
Jan 13	No Data	-----	-----
Jan 14	No Data	-----	-----
Jan 15	No Data	-----	-----
Jan 16	No Data	-----	-----
Jan 17	6	15	5.1
Jan 18	6	15	3.2
Jan 19	16	22	10.4
Jan 20	21	25	14.0
Jan 21	21	23	15.4
Jan 22	21	23	14.4
Jan 23	21	18	12.4
Jan 24	14	17	10.6
Jan 25	16	15	9.5
Jan 26	16	17	9.4
Jan 27	21	29	11.8
Jan 28	20	18	11.6
Jan 29	19	19	11.4
Jan 30	29	29	9.6
Jan 31	18	19	7.0
Average	**22**	**26**	**10.9**

Table 2b: TSP, PM_{10} and $PM_{2.5}$ Daily Averages for February 2024

Date 2024	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
Feb 1	15	16	6.5
Feb 2	15	20	7.4
Feb 3	4	6	3.8
Feb 4	8	7	4.8
Feb 5	12	11	6.4
Feb 6	11	12	6.8
Feb 7	5	8	5.7
Feb 8	11	12	9.4
Feb 9	11	12	7.4
Feb 10	18	13	8.3
Feb 11	17	21	7.2
Feb 12	12	13	6.2
Feb 13	7	11	3.5
Feb 14	6	9	3.6
Feb 15	6	9	3.0
Feb 16	11	12	6.8
Feb 17	36	39	18.3
Feb 18	26	39	11.7
Feb 19	23	22	14.1
Feb 20	17	13	8.1
Feb 21	28	21	10.1
Feb 22	23	14	8.5
Feb 23	25	19	6.0
Feb 24	5	9	2.7
Feb 25	5	7	3.0
Feb 26	6	7	2.2
Feb 27	15	10	3.3
Feb 28	5	9	3.3
Feb 29	3	8	2.9
Average	**13**	**14**	**6.4**

Table 2c: TSP, PM_{10} and $PM_{2.5}$ Daily Averages for March 2024

Date 2024	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
Mar 1	7	7	4.0
Mar 2	9	12	4.1
Mar 3	8	6	3.0
Mar 4	9	10	3.4
Mar 5	9	10	3.0
Mar 6	14	16	4.7
Mar 7	31	33	5.7
Mar 8	56	34	9.5
Mar 9	38	26	7.7
Mar 10	22	15	4.1
Mar 11	11	11	4.3
Mar 12	8	8	3.8
Mar 13	6	9	2.4
Mar 14	12	15	5.1
Mar 15	14	23	5.5
Mar 16	16	19	5.4
Mar 17	11	18	4.7
Mar 18	26	26	6.5
Mar 19	44	39	7.4
Mar 20	30	26	7.3
Mar 21	9	5	3.1
Mar 22	16	13	5.3
Mar 23	26	18	7.7
Mar 24	9	No Data	3.4
Mar 25	14	No Data	4.8
Mar 26	15	5	5.8
Mar 27	15	10	4.3
Mar 28	8	7	4.2
Mar 29	10	11	3.2
Mar 30	12	9	3.3
Mar 31	11	11	4.5
Average	**17**	**16**	**4.9**

It is also instructive to examine variations in TSP concentration with wind speed and direction:

- Figure 2 presents a wind rose for all hours in the first quarter.

- Figure 3 presents a wind rose for only those periods when the reported hourly TSP concentration was above 40 μg/m^3; this represents the upper 11 percent of valid TSP values.

- Figure 4 presents a wind rose for only those periods when the hourly TSP concentration was below 6 μg/m^3; this represents the lower 30 percent of valid TSP values.

- Appendix C presents the corresponding tables for these wind roses, which show exact numerical frequencies and averages. The discussions below rely on data from those tables.

Figure 2 shows a strong emphasis for northwesterly through northeasterly winds. Easterly winds were considerably less common than in most previous quarters; this continues the pattern seen during the third and fourth quarters of 2023. The average wind speed was 1.3 m/s (2.9 mph).

Figure 3 shows a wind rose for high[10] (>40 μg/m^3) TSP concentrations. Wind directions during these periods showed a stronger emphasis for winds from the north-northwest through north-northeast, but the overall distribution was not greatly different from that shown in Figure 2. Wind speeds were lower than for the quarter overall, averaging 0.9 m/s (2.0 mph).

Figure 4 shows a wind rose for low (<6 μg/m^3) TSP concentrations. These periods showed an emphasis for winds from the northwest quadrant, and a secondary emphasis for the southwest quadrant. Wind speeds during low-TSP periods were noticeably higher, averaging 1.9 m/s (4.3 mph).

4.2 TSP vs PM_{10}

A comparison was made between the gravimetrically-determined TSP data and the concurrent hourly data for PM_{10}. Unlike the data presented in Section 4.1, the TSP gravimetric data was collected over periods typically ranging from 5–8 days. The reason for the long sampling period was explained in Section 2.0 and relates to the volumetric collection needs for a valid mass sample. For interest, the gravimetric TSP sample results were compared against the hourly PM_{10} data obtained from beta attenuation over concurrent periods. Table 3 provides this comparison.

[10] The descriptor "high" is used only in a relative sense, as all the TSP data presented in this analysis indicate concentrations far below any historical standards.

The table shows that overall, the gravimetrically determined TSP concentrations from the E-Sampler were nearly equal to the concurrent PM_{10} concentrations from the BAM-1020 monitor. This comparison indicates that virtually all of the airborne particulate was smaller than 10 microns; this is consistent with the analysis presented in Section 4.1.

Table 3: Summary: Gravimetric TSP vs Hourly PM_{10} for Quarter 1, 2024

Sampling Period (2024)	Average Gravimetric TSP ($\mu g/m^3$)	Average BAM-1020 PM_{10} ($\mu g/m^3$)
12/27/2023-01/02	43.1	42.9
01/02-01/09	28.9*	44.7*
01/09-01/17	9.0**	30.5**
01/17-01/23	16.0	20.3
01/23-01/30	18.1	19.0
01/30-02/02	20.4	21.0
02/02-02/07	9.3	9.6
02/07-02/13	12.7	13.5
02/13-02/20	17.4	20.4
02/20-02/27	14.4	16.2
02/27-03/06	7.6	9.3
03/06-03/11	32.6	24.4
03/11-03/18	11.7	16.0
03/18-03/26	22.0	19.6
Average	**18.8**	**19.4**

*Low data recovery over this averaging period for PM_{10}. Values excluded from averages.
**TSP result unrealistically low. Suspect a filter leak and/or faulty E-Sampler operation due to extreme cold. Values excluded from averages

Figure 2. Quarterly Wind Rose, Greeley School (All Hours)

First Quarter 2024 (direction wind was from)

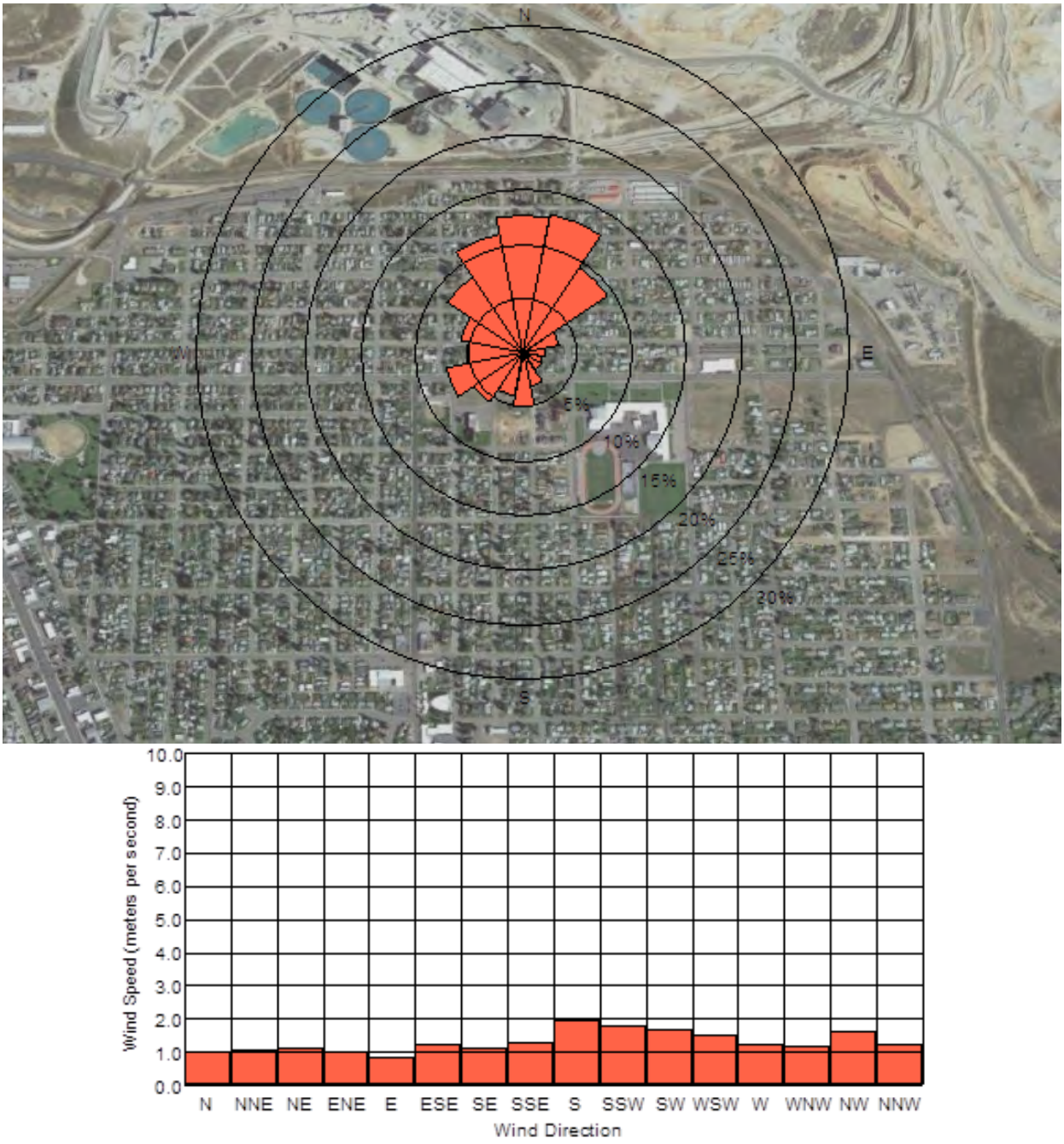
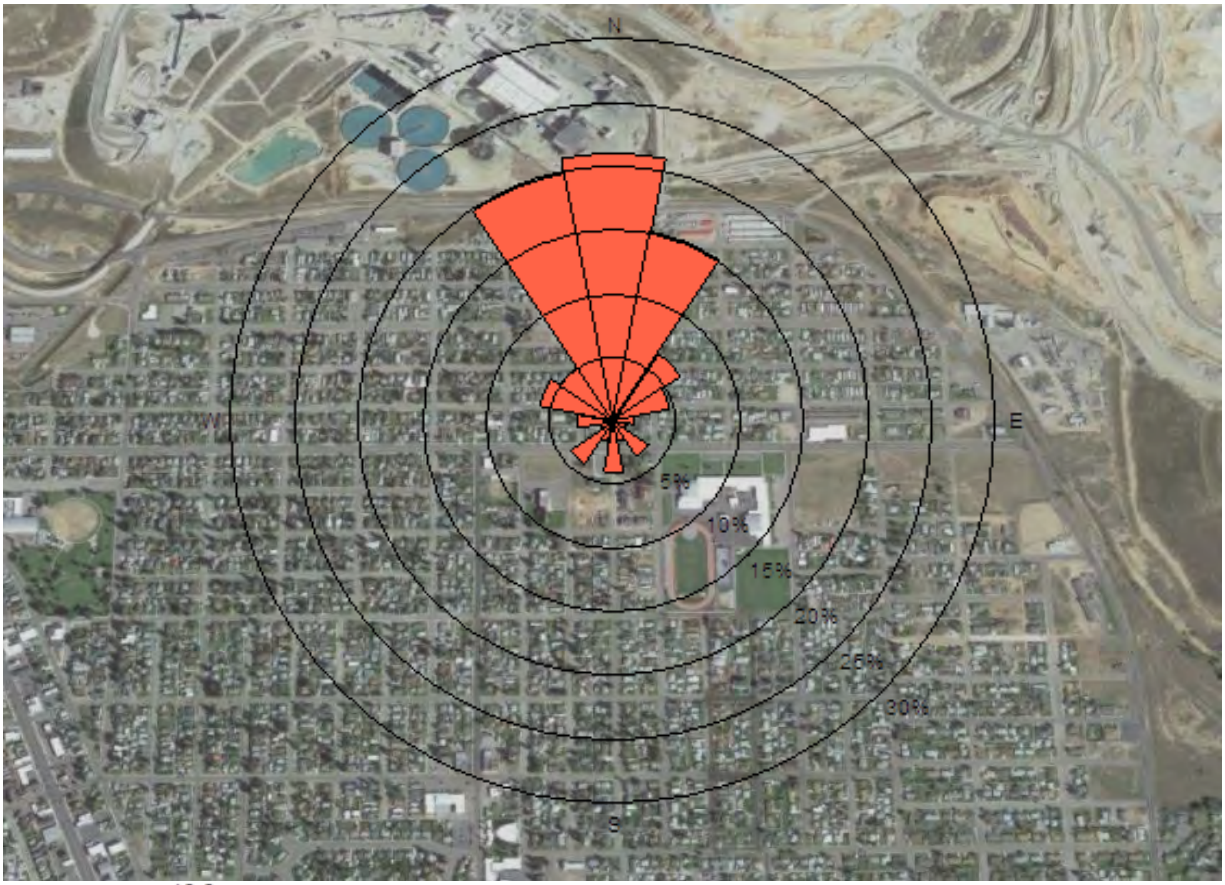


Figure 3. Quarterly Wind Rose, Greeley School (TSP >40 µg/m³)

First Quarter 2024 (direction wind was from)



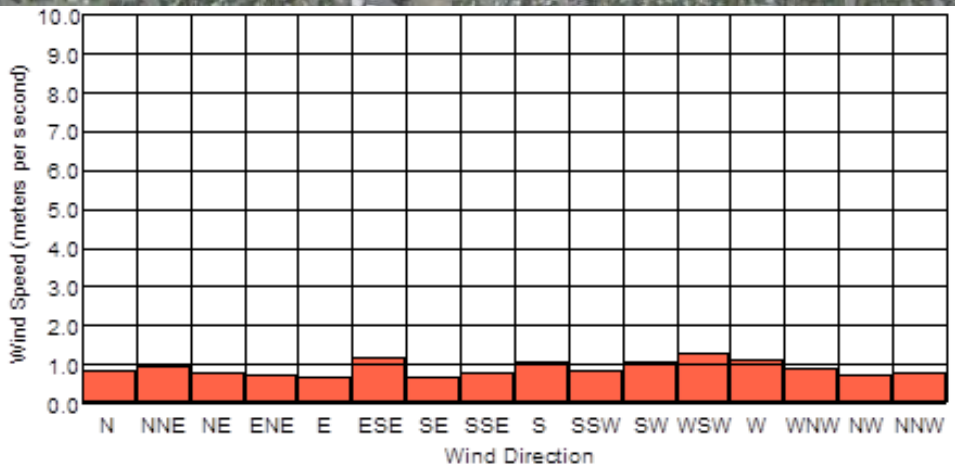
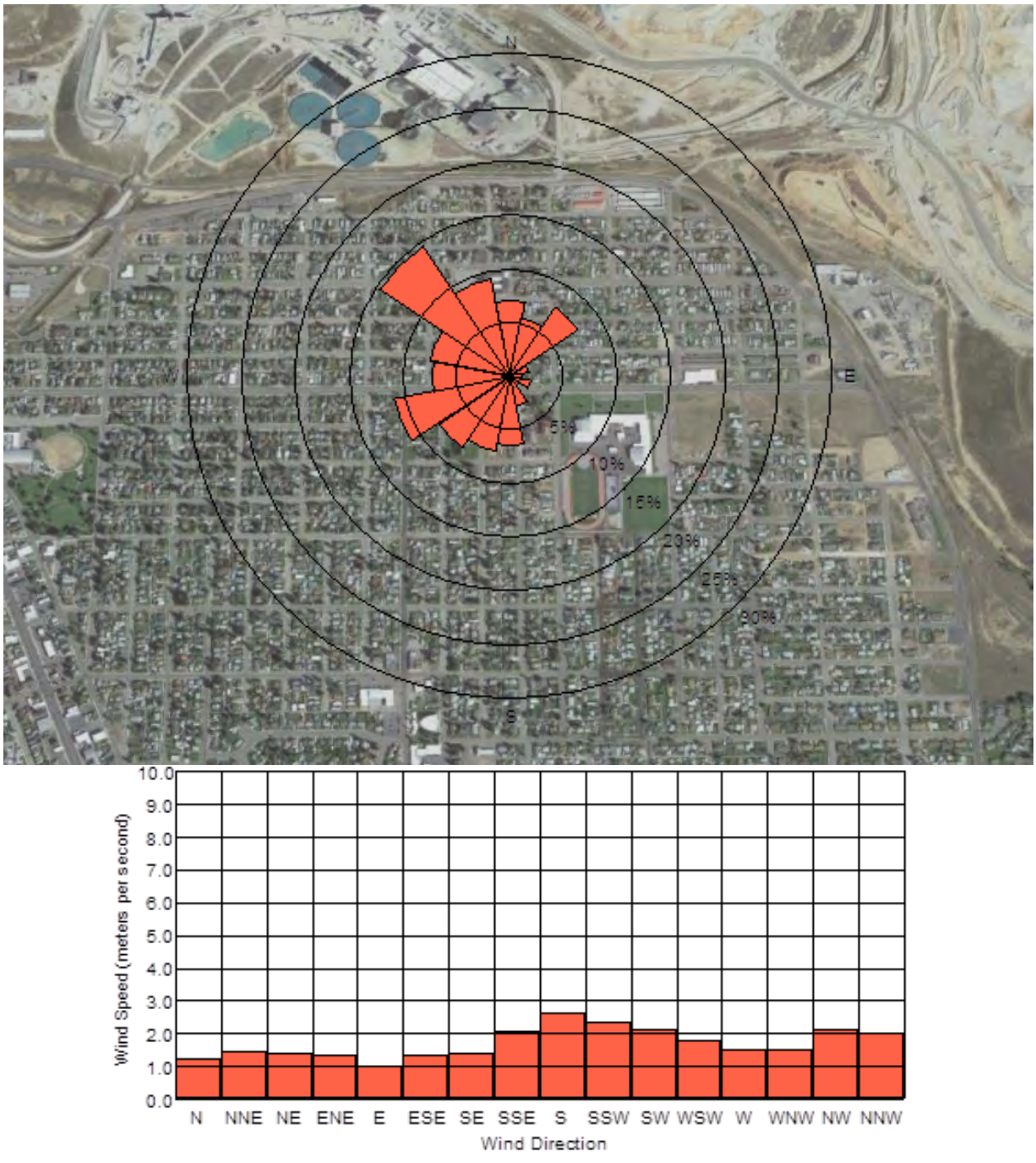


Figure 4. Quarterly Wind Rose, Greeley School (TSP ≤5 µg/m³)

First Quarter 2024 (direction wind was from)



5.0 CHEMICAL ANALYSIS DATA

Following gravimetric analysis, the particulate samples were submitted to Energy Laboratories, Inc. (ELI) in Billings, Montana, for elemental analysis including arsenic, cadmium, copper, lead, manganese, molybdenum and zinc. This analyte list is subject to modification as results from this monitoring are obtained, and as other information becomes available.

All samples were digested and then analyzed by ICP-MS using EPA Method E200.8. Laboratory results are presented in Appendix D and are reported in units of micrograms (µg) per filter. Fourteen TSP samples and fifteen PM_{10} samples collected during the first quarter were analyzed for trace elements, as well as four Field Blanks and five filter lot blanks (Lab Blanks). All samples were successfully collected in the normal manner, with two exceptions:

- The TSP sample scheduled from January 9 – January 17 produced a gravimetric TSP concentration that was 1) less than one third of the MDEQ BAM-1020 PM_{10} concentration, and 2) only 75% of the MDEQ BAM-1020 $PM_{2.5}$ concentration during the same period. This indicates that there may have been leakage around the filter during sampling, or that some of the captured particulate may have been lost after sampling. Sample collection may have been impacted by the extremely cold temperatures during much of the period. This also calls into question the trace element results for this sample; they are reported herein, but not incorporated into quarterly average calculations.

- The PM_{10} sample collection scheduled for January 13 was unsuccessful, probably because of extremely cold temperatures.

Tables 4a and 4b summarize the total particulate mass and ELI analytical results for samples collected during the first quarter. Detectable results were usually obtained for copper. Results for other elements (particularly arsenic, cadmium and zinc) were mostly non-detectable. Table 4c shows the Field Blank and Lab Blank results associated with the first quarter samples. The bottom row of Table 4c shows the laboratory's range of Method Blank (MB) Method Detection Limit (MDL) during the quarter, which represents the minimum detectable amount of each trace element per filter. Lab Blank, Field Blank and Method Blank concentrations for the first quarter were all non-detectable.

Tables 5a and 5b show the calculated airborne concentration of each trace element over the indicated sampling periods. To facilitate data interpretation, the number of leading zeroes in the results has been minimized by expressing results in units of ***nanograms*** (ng) per cubic meter rather than micrograms.

- All trace element concentrations in the individual TSP samples were below the applicable Guideline values. The closest approach to a Guideline was for manganese in the sample collected from March 6 to March 11, with a concentration of 24 ng/m^3,

or 48% of the lifetime exposure Guideline value of 50 ng/m^3. All quarterly averages were far below the applicable Guideline values.

- All trace element concentrations in the individual PM_{10} samples were also below the applicable Guideline values. The closest approach to a Guideline was for manganese in the sample collected on February 18, with a concentration of 22 ng/m^3, or 44% of the lifetime exposure Guideline value of 50 ng/m^3. All quarterly averages were far below the applicable Guideline values.

Table 6 shows the sources of the "Guideline" values used for these analyses, and their derivations.[11] Additionally, Table 6 shows the approximate airborne concentration corresponding to each MDL range listed in Table 4c. The detectable airborne concentrations are different for TSP and PM_{10} due to differences in typical sample volumes. A detailed table showing commonly accepted values from regulatory agencies and reputable private organizations is provided in Appendix E.

[11] The guideline values were updated (starting with the 4th quarter report 2020) to be consistent with those from the Montana Department of Public Health and Human Services (MDPHHS). Guidelines for copper and molybdenum are lower than those used in previous quarterly reports. Although MDPHHS suggested a higher guideline for manganese, the lower previously reported value was retained. Guidelines for arsenic, cadmium, lead and zinc are unchanged.

Table 4a: Summary of Analytical Results – TSP

DATE	PART MASS (µg)	As (µg)	Cd (µg)	Cu (µg)	Mn (µg)	Mo (µg)	Pb (µg)	Zn (µg)
01/02-01/09	542	ND	ND	0.95	0.21	ND	ND	ND
01/09-01/17	202(1)	ND (1)	ND (1)	1.4 (1)	0.22 (1)	ND (1)	ND (1)	ND (1)
01/17-01/23	263	ND	ND	0.76	ND	ND	ND	ND
01/23-01/30	348	ND	ND	1.1	ND	ND	ND	ND
01/30-02/02	168	ND	ND	0.58	ND	0.13	ND	ND
02/02-02/07	125	ND	ND	ND	ND	ND	ND	ND
02/07-02/13	214	ND	ND	0.49	ND	0.14	ND	ND
02/13-02/20	333	ND	ND	0.72	ND	0.23	ND	ND
02/20-02/27	278	ND	ND	0.55	ND	ND	ND	ND
02/27-03/06	168	ND	ND	ND	ND	ND	ND	ND
03/06-03/11	440	ND	ND	1.3	0.32	ND	ND	ND
03/11-03/18	227	ND	ND	0.49	ND	ND	ND	ND
03/18-03/26	484	ND	ND	0.86	ND	ND	0.070	ND
03/26-04/02	269	ND	ND	0.48	ND	ND	ND	ND

All values expressed as micrograms per filter. ND denotes not detected.
(1) Suspect leak in sample train or lost particulate. Results not incorporated in averages.

Table 4b: Summary of Analytical Results – PM_{10}

DATE	PART MASS (µg)	As (µg)	Cd (µg)	Cu (µg)	Mn (µg)	Mo (µg)	Pb (µg)	Zn (µg)
01/01	1549	ND	0.023	2.9	0.47	0.078	0.18	1.6
01/07	258	ND	ND	0.40	ND	ND	ND	ND
01/13	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
01/19	469	ND	ND	0.86	ND	ND	ND	ND
01/25	321	ND	ND	0.62	ND	ND	ND	ND
01/31	372	ND	ND	1.2	ND	ND	ND	ND
02/06	353	ND	ND	0.62	ND	ND	ND	ND
02/12	328	ND	ND	0.80	ND	0.24	ND	ND
02/18	708	ND	ND	1.8	0.52	0.13	0.091	ND
02/24	161	ND	ND	ND	ND	0.077	ND	ND
03/01	115	ND	ND	ND	ND	ND	ND	ND
03/07	192	ND	ND	ND	ND	ND	ND	ND
03/13	136	0.14	ND	0.67	ND	ND	ND	ND
03/19	845	ND	ND	1.7	0.20	ND	0.13	ND
03/25	198	ND	ND	0.46	ND	ND	ND	ND
03/31	246	ND	ND	0.50	ND	ND	ND	ND

All values expressed as micrograms per filter. ND denotes not detected.
DNR = Sampler did not run as scheduled, possibly due to extreme cold.

Table 4c: Summary of Analytical Results – Blanks

DATE	PART MASS (µg)	As (µg)	Cd (µg)	Cu (µg)	Mn (µg)	Mo (µg)	Pb (µg)	Zn (µg)
01/31-LB	-2	ND	ND	ND	ND	ND	ND	ND
01/02-FFB	13	ND	ND	ND	ND	ND	ND	ND
03/05-LB	3	ND	ND	ND	ND	ND	ND	ND
01/30-FFB	-4	ND	ND	ND	ND	ND	ND	ND
03/05-LB	3	ND	ND	ND	ND	ND	ND	ND
02/20-FFB	2	ND	ND	ND	ND	ND	ND	ND
04/01-LB	3	ND	ND	ND	ND	ND	ND	ND
03/18-FFB	1	ND	ND	ND	ND	ND	ND	ND
05/08-LB	4	ND	ND	ND	ND	ND	ND	ND
Lab Method Blank MDL		0.06-0.08	0.006-0.009	0.2-0.3	0.2	0.005-0.07	0.04-0.09	0.3-0.8

All values expressed as micrograms per filter. ND denotes not detected.
LB denotes laboratory filter blank. FFB denotes field filter blank.

Table 5a: Summary of Airborne Trace Element Concentrations – TSP

DATE	Sample Volume (m^3)	As (ng/m^3)	Cd (ng/m^3)	Cu (ng/m^3)	Mn (ng/m^3)	Mo (ng/m^3)	Pb (ng/m^3)	Zn (ng/m^3)
01/02-01/09	18.76	ND	ND	51	11	ND	ND	ND
01/09-01/17	22.42	ND (1)	ND (1)	62 (1)	10 (1)	ND (1)	ND (1)	ND (1)
01/17-01/23	16.47	ND	ND	46	ND	ND	ND	ND
01/23-01/30	19.22	ND	ND	57	ND	ND	ND	ND
01/30-02/02	8.24	ND	ND	70	ND	16	ND	ND
02/02-02/07	13.38	ND	ND	ND	ND	ND	ND	ND
02/07-02/13	16.82	ND	ND	29	ND	8.3	ND	ND
02/13-02/20	19.10	ND	ND	38	ND	12	ND	ND
02/20-02/27	19.33	ND	ND	28	ND	ND	ND	ND
02/27-03/06	21.96	ND	ND	ND	ND	ND	ND	ND
03/06-03/11	13.50	ND	ND	96	24	ND	ND	ND
03/11-03/18	19.33	ND	ND	25	ND	ND	ND	ND
03/18-03/26	21.96	ND	ND	39	ND	ND	3.2	ND
03/26-04/02	19.10	ND	ND	25	ND	ND	ND	ND
Average (ng/m^3) *		2.3	0.26	40	7.8	4.1	2.6	22
Guideline (ng/m^3) **		15	10	2,000	50	400	150	47,619

(1) Suspect leakage in sample train due to extreme cold, or lost particulate. Results not included in averages.

* Rather than treat non detectable (ND) data as zero, the mean was calculated using ½ of the detectable value (Table 6) for the parameter and sample group in question.

**The guideline values, except lead (Pb), are applicable to a lifetime or chronic exposure. The lead (Pb) guideline is an ambient air quality standard applicable to a 3-month average. The quarterly average lead concentration of 2.6 ng/m^3 was 2 percent of the guideline value; non-detect lead concentrations were set at ½ of the lead detection limit for the sample group in question.

Table 5b: Summary of Airborne Trace Element Concentrations – PM_{10}

DATE	Sample Volume (m^3)	As (ng/m^3)	Cd (ng/m^3)	Cu (ng/m^3)	Mn (ng/m^3)	Mo (ng/m^3)	Pb (ng/m^3)	Zn (ng/m^3)
01/01	36.76	ND	0.63	79	13	2.1	4.9	44
01/07	24.02	ND	ND	17	ND	ND	ND	ND
01/13	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
01/19	24.02	ND	ND	36	ND	ND	ND	ND
01/25	24.03	ND	ND	26	ND	ND	ND	ND
01/31	24.03	ND	ND	50	ND	ND	ND	ND
02/06	24.02	ND	ND	26	ND	ND	ND	ND
02/12	24.03	ND	ND	33	ND	10	ND	ND
02/18	24.01	ND	ND	75	22	5.4	3.8	ND
02/24	24.03	ND	ND	ND	ND	3.2	ND	ND
03/01	24.03	ND	ND	ND	ND	ND	ND	ND
03/07	24.03	ND	ND	ND	ND	ND	ND	ND
03/13	24.03	5.8	ND	28	ND	ND	ND	ND
03/19	24.03	ND	ND	71	8.3	ND	5.4	ND
03/25	24.03	ND	ND	19	ND	ND	ND	ND
03/31	24.03	ND	ND	21	ND	ND	ND	ND
Average (ng/m^3)		1.9	0.21	33	6.2	2.2	2.3	16
Guideline (ng/m^3) *		15	10	2,000	50	400	150	47,619

DNR = Sampler did not run as scheduled, possibly due to extreme cold.

* Rather than treat non detectable (ND) data as zero, the mean was calculated using ½ of the detectable value (Table 6) for the parameter and date in question.

**The guideline values, except lead (Pb), are applicable to a lifetime or chronic exposure. The lead (Pb) guideline is an ambient air quality standard applicable to a 3-month average.

Table 6: Summary of Airborne Trace Element Concentration Guidelines (ng/m³)

Analyte	Dose/ Risk[A]	Source	Description	Time Period	Detectable TSP[D]	Detectable PM_{10}[E]
Arsenic (inorganic)	15	EPA / DPHHS[G]	RfC[B]	Lifetime	3.64-4.86	2.50-3.33
Cadmium	10	ATSDR / DPHHS[G]	Non-cancer / CV[G]	Chronic	0.36-0.55	0.25-0.38
	200	IRIS	Cancer	Chronic		
Copper	2,000	DPHHS[G] / Michigan DEQ	RfC[B]	Chronic	12.1-18.2	8.33-12.5
Lead	150	EPA / ATSDR / DPHHS[G]	National Ambient Air Quality Standard [C]	3-month	2.43-5.46	1.67-3.75
Manganese	50	EPA	RfC[B]	Lifetime	12.1	8.33
Molybdenum	11,905 (=500,000/42) [F]	CAL/OSHA, ACGIH	CAL/OSHA, ACGIH	Chronic [F]	0.30-4.25	0.21-2.92
	400	DPHHS[G] / Michigan DEQ	CV	Chronic		
Zinc	47,619 (=2,000,000/42) [F]	ACGIH TLV	ACGIH TLV	Chronic [F]	18.2-48.6	12.5-33.3

[A] See Appendix E for definitions and listing of dose and risk assessment values reviewed to produce this summary table.
[B] RfC = Reference Concentration (EPA) is an estimate (with uncertainty added) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.
[C] This standard is based on a three-month average.
[D] Based on average 6-day sampling period and total sample volume of 16.47 m³. Range reflects maximum and minimum laboratory MDLs during Q1 2024.
[E] Based on 24-hour sampling period and total sample volume of 24 m³. Range reflects maximum and minimum laboratory MDLs during Q1 2024.
[F] This value derived by dividing the OSHA/NIOSH exposure limit by 42. This was done to include a factor of 10 to account for a general population, not just healthy adults and then including another factor of 4.2 to include a year-long exposure as opposed to 8 hours per day, 5 days a week and 52 weeks per year.
[G] Reference information from letter and analysis by DPHHS (regarding Greeley School ambient data) to Butte-Silver Bow Health Department dated October 28,2020.

EPA = Environmental Protection Agency
ATSDR = Agency for Toxic Substances & Disease Registry
CV = "Comparison Value" – a term used by DPHHS (10/28/20 letter) to indicate an ATSDR (or other) guideline or reference value
DPHHS = Montana Department of Health and Human Services
RfC = Reference Concentration (see above)
RSL = EPA Regional Screening Levels (https://www.epa.gov.gov/risk/regional-screening-levels-rsls-generic-tables)
OSHA = Occupational Safety and Health Administration
ACGIH = American Congress of Governmental Industrial Hygienists
NIOSH= National Institute of Occupational Safety and Health
TLV = Threshold limit value

6.0 CALIBRATION DATA

Calibration checks of the BGI PM_{10} sampler and the Met One E-Sampler are performed in at least two months of each quarter. In the third month, an audit is performed by a different person using different calibration standards. On January 3, verification checks were performed both prior to and following replacement of the BGI PM_{10} sampling pump. Monthly verification checks were performed on both samplers on January 29, February 22 and March 15.[12]

Table 7 summarizes the verification checks performed each month and the applicable acceptance criteria. In the event of unsatisfactory results, corrective actions are performed as specified in the rightmost column of Table 7. Note that the E-Sampler flow rate, temperature, pressure and relative humidity sensors can only be checked and adjusted at a single point.

Table 8 summarizes the results of the calibration checks performed during the first quarter, as well as any corrective actions. Detailed verification check results are shown in Appendix F. Appendix G presents certifications for flow calibration standards used during the quarter.

Table 7: Summary of Montana Resources – Greeley School Site Calibration/ Audit Activities and Acceptance Criteria

Activity	**Acceptance Criteria / Actions**	
PM_{10} Sampler Calibration Checks		
Flow Verification	±4%	Multipoint recalibration if flow error exceeds ±2%
Leak Check	Investigate / correct if vacuum drop exceeds 4 cm of water in 2 minutes	
Temperature Verification	±2.0°C	Multipoint recalibration if error exceeds ±2.0°C
Pressure	±10 mmHg	Adjust calibration if error exceeds ±10 mmHg
E-Sampler Calibration Checks		
Flow Verification	±5%	Adjust calibration if error exceeds ±4%
Leak Check	≤0.3 LPM	Investigate / correct leak problem
Temperature Verification	±2.0°C	Adjust calibration if error exceeds ±2.0°C
Pressure	±10 mmHg	Adjust calibration if error exceeds ±10 mmHg
Relative Humidity	≤7% RH	Adjust calibration if error exceeds ±7% RH
Other		
PM_{10} Inlet Head	Disassemble and clean	
TSP Inlet Head	Disassemble and clean	

[12] The calibration checks performed on April 11, 2024, also are shown to demonstrate data validity through the end of the quarter.

Table 8: Summary of Quarter 1, 2024 Calibration Verification Results

Date	Calibration Check	Results	Limits	Actions
01/03/2024	BGI PM_{10} Flow Verification (A)	+0.5%	±4%	C
	BGI PM_{10} Flow Verification (B)	-0.4%	±4%	C
	BGI PM_{10} Flow Verification (A)	+0.5%	±4%	D
	BGI PM_{10} Flow Verification (B)	-0.5%	±4%	D
	BGI Ambient Temperature	0.0°C	±2.0°C	
	BGI Filter Temperature	+0.1°C	±2.0°C	
	BGI Ambient Pressure	-4.1 mm Hg	±10 mmHg	
	BGI Leak Test (pressure drop)	1 cm H_2O	≤4 cm H_20	
01/29/2024	BGI PM_{10} Flow Verification (A)	+0.2%	±4%	
	BGI PM_{10} Flow Verification (B)	-0.2%	±4%	
	BGI Ambient Temperature	-0.2°C	±2.0°C	
	BGI Filter Temperature	+0.4°C	±2.0°C	
	BGI Ambient Pressure	-4.1 mm Hg	±10 mmHg	
	BGI Leak Test (pressure drop)	1 cm H_2O	≤4 cm H_20	
01/29/2024	E-Sampler Flow Verification (A)	-0.5%	±5%	
	E-Sampler Flow Verification (B)	+0.5%	±5%	
	E-Sampler Ambient Temperature	+1.1°C	±2.0°C	
	E-Sampler Ambient Pressure	+96 Pa	±1333 Pa	
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	
	E-Sampler Relative Humidity	-1.0% RH	±7% RH	
02/22/2024	BGI PM_{10} Flow Verification (A)	+1.2%	±4%	
	BGI PM_{10} Flow Verification (B)	-1.2%	±4%	
	BGI Ambient Temperature	-0.7°C	±2.0°C	
	BGI Filter Temperature	0.0°C	±2.0°C	
	BGI Ambient Pressure	-4.3 mm Hg	±10 mmHg	
	BGI Leak Test (pressure drop)	1 cm H_2O	≤4 cm H_20	
	E-Sampler Flow Verification (A)	-3.4%	±5%	
	E-Sampler Flow Verification (B)	+3.5%	±5%	
	E-Sampler Ambient Temperature	+1.0°C	±2.0°C	
	E-Sampler Ambient Pressure	+107 Pa	±1333 Pa	
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	
	E-Sampler Relative Humidity	-0.7% RH	±7% RH	
03/15/2024	BGI PM_{10} Flow Verification (A)	+0.7%	±4%	
	BGI PM_{10} Flow Verification (B)	-0.7%	±4%	
	BGI Ambient Temperature	+0.3°C	±2.0°C	
	BGI Filter Temperature	+0.2°C	±2.0°C	
	BGI Ambient Pressure	-4.8 mm Hg	±10 mmHg	
	BGI Leak Test (pressure drop)	1 cm H_2O	≤4 cm H_20	
	E-Sampler Flow Verification (A)	+1.5%	±5%	
	E-Sampler Flow Verification (B)	-1.5%	±5%	
	E-Sampler Ambient Temperature	+1.5°C	±2.0°C	
	E-Sampler Ambient Pressure	+76 Pa	±1333 Pa	
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	
	E-Sampler Relative Humidity	-2.0% RH	±7% RH	

Date	Calibration Check	Results	Limits	Actions
04/11/2024	BGI PM_{10} Flow Verification (A)	0.0%	±4%	
	BGI PM_{10} Flow Verification (B)	0.0%	±4%	
	BGI Ambient Temperature	+0.2°C	±2.0°C	
	BGI Filter Temperature	-0.3°C	±2.0°C	
	BGI Ambient Pressure	-4.0 mm Hg	±10 mmHg	
	BGI Leak Test (pressure drop)	1 cm H_2O	≤4 cm H_20	
04/11/2024	E-Sampler Flow Verification (A)	+2.0%	±5%	
	E-Sampler Flow Verification (B)	-2.0%	±5%	
	E-Sampler Ambient Temperature	+0.8°C	±2.0°C	
	E-Sampler Ambient Pressure	+71 Pa	±1333 Pa	
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	
	E-Sampler Relative Humidity	+1.5% RH	±7% RH	

Codes:
A = Difference of reported flow from reference standard flow.
B = Difference of reference standard flow from design flow (16.7 LPM for BGI, 2.0 LPM for E-Sampler).
C = Calibration check before sample pump replacement.
D = Calibration check after sample pump replacement.

7.0 QUARTERLY AUDIT/CALIBRATION RESULTS

An audit is performed once in each full calendar quarter. The checks and acceptance criteria are identical to those for monthly calibrations (see Table 7). The primary difference is that the audits are performed by a different person, using different calibration standards. Calibration adjustments then are made as necessary, based on the as-found audit results. The first quarter audit was performed on February 22, 2024. Results for the PM_{10} sampler were satisfactory, and no adjustments were required. Results for the TSP sampler were also satisfactory.

Table 9: Quarter 1, 2024 Audit Results

BGI PQ200 PM10 Sampler – Performance Audit			
Date: 02/22/2024	Time: 1115-1135	Sampler Serial Number: 1622	
Performed By: Daniel Bitz		Observer: Steve Heck	
1) BGI Delta Cal S/N 1288 (Temp & BP) 2) Tetra Cal S/N 149645 (Flow)		Certification Date: 1) 01/03/2024 2) 12/04/2023	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Audit (b)	Difference (a - b) (must be ≤ ±10)
Ambient Pressure	623	626.4	-3.4
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Audit (b)	Difference (a - b) (must be ≤ ±2ºC)
Ambient Temperature	2.0	2.0	0.0
Filter Temperature	2.7	3.4	-0.7
Leak Check			
Vacuum Readings (mm Hg)	Start 100	End 98	Pass ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Audit (b)	% Difference 100*(a – b)/b (must be ≤ ±4%)
Operating flow rate check	16.70	16.21	+3.0%
Reading (liters per minute)	Audit (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.7)/16.7 (must be ≤ ±5%)
Design flow rate calculation	16.21	16.7	-2.9%
Comments: No adjustments made.			

Met One E-Sampler – ~~Monthly Calibration Check~~ / Quarterly Audit			
Date: 02/22/2024	Time: 1040-1055 MST	Sampler Serial Number: X24429	
Performed By: Daniel Bitz		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Tetra Cal SN 149645		Certification Date: 1) 12-04-2023	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ±1333 Pa)
Ambient Pressure	83,607 Pa	626.7 mmHg =83,553 Pa	+54 Pa
Pascals = mmHg * 133.322		Limit of ±1333 Pascals = ±10 mmHg	
Temperature Sensor Verification (sunny and calm)			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ±2ºC)
Ambient Temperature	7.8 C	5.8 C	+2.0 C
Leak Check			
Leak Check Flow Rate	0.0 LPM	(must be <0.4 LPM)	**Pass** ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ±5%)
Audit standard flow rate check	2.0	1.95	+2.6%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–2.0)/2.0 (must be ≤ ±5%)
Design flow rate check	1.95	2.0	-2.5%
Relative Humidity Verification (checked with Assmann Psychrometer)			
Dry Bulb Temp. °C	N/A	Calculated RH (a)	N/A
Wet Bulb Temp. °C	N/A	Sampler RH (b)	N/A
BP Inches Hg	N/A	Difference = a – b (must be ≤7% RH)	N/A

Relative humidity checked just prior to audit. Sensor Read 50% vs known of 50.7%

8.0 DATA COMPLETENESS

The percentages of data recovery for each Greeley School monitoring parameter reported by MR during the first quarter of 2024 are given in Table 10. The quarterly data recovery goal for hourly TSP is ≥80 percent,[13] and for relative humidity is ≥90 percent. The net data recovery was 89.6 percent for TSP and 100.0 percent for relative humidity.

The hourly TSP data loss was caused by the invalidation of the TSP sample collected from January 9 to January 17. The calculated average TSP concentration was only 9.0 µg/m^3, which was unrealistically low compared to the average MDEQ BAM-1020 PM_{10} concentration of 30.5 µg/m^3, and to the BAM-1020 $PM_{2.5}$ concentration of 13.2 µg/m^3. The weather was extremely cold during collection of this sample, which may have contributed to a filter leak during sampling. It is also possible that some particulate was lost from the filter surface prior to analysis.

Data recovery statistics for the particulate filter samples are presented in Table 11. The quarterly data recovery goal for TSP and PM_{10} filter samples is ≥80 percent for both the gravimetric and trace element analyses. The actual data recovery was 92.9 percent for the TSP gravimetric and trace element analyses, and 93.8 percent for the PM_{10} gravimetric and trace element analyses. As noted above, the validity of the TSP sample collected from January 9 to January 17 is questionable; the analytical results for that sample are reported in Section 5.0 for completeness.

[13] The number of possible hourly TSP values counts only hours when the ambient relatively humidity was less than 90 percent of the possible maximum. This determination is discussed in Section 4.0.

Table 10: Quarterly Data Completeness Summary – Hourly Data

Montana Resources LLP – Greeley School					
Parameter	Readings Possible[A]	Valid Readings	Percent Recovery	QA/QC Hours[B]	Net Percent Recovery
January 2024					
TSP	641	440	68.6	6	69.6
Relative Humidity	744	744	100.0	0	100.0
Total	1385	1184	85.5	6	85.9
February 2024					
TSP	540	533	98.7	7	100.0
Relative Humidity	696	696	100.0	0	100.0
Total	1236	1229	99.4	7	100.0
March 2024					
TSP	687	682	99.3	5	100.0
Relative Humidity	744	744	100.0	0	100.0
Total	1431	1426	99.7	5	100.0
Quarter 1, 2024					
TSP	1868	1655	88.6	18	89.6
Relative Humidity	2184	2184	100.0	0	100.0
Total	4052	3839	94.7	18	95.2

[A] Only hours with relative humidity <90 percent of maximum value are counted as ***possible*** TSP data hours. See discussion in Section 4.1.
[B] Includes hours affected by filter changes, which usually occur every 5 to 7 days.

Table 11: Quarterly Data Completeness Summary – Filter Analysis Data

Montana Resources LLP – Greeley School			
Parameter	Readings Possible	Valid Readings	Percent Recovery
January 2024			
TSP – Gravimetric	4	3	75.0
TSP – Trace Elements	28	21	75.0
PM_{10} – Gravimetric	6	5	83.3
PM_{10} – Trace Elements	42	35	83.3
Total	80	64	80.0
February 2024			
TSP – Gravimetric	5	5	100.0
TSP – Trace Elements	35	35	100.0
PM_{10} – Gravimetric	4	4	100.0
PM_{10} – Trace Elements	28	28	100.0
Total	72	72	100.0
March 2024			
TSP – Gravimetric	5	5	100.0
TSP – Trace Elements	35	35	100.0
PM_{10} – Gravimetric	6	6	100.0
PM_{10} – Trace Elements	42	42	100.0
Total	88	88	100.0
Quarter 1, 2024			
TSP – Gravimetric	14	13	92.9
TSP – Trace Elements	98	91	92.9
PM_{10} – Gravimetric	16	15	93.8
PM_{10} – Trace Elements	112	105	93.8
Total	240	224	93.3
Note: The TSP sample collected from Dec 27, 2023, to Jan 2, 2024, is not included in this tabulation because it was collected mostly in December, and was included in the Quarter 4, 2023 report.			

9.0 COMPARISON TO AMBIENT AIR QUALITY STANDARDS

This study is not intended to determine compliance with the NAAQS[14] or the Montana ambient air quality standards[15] (MAAQS). Nonetheless, a generalized comparison is possible. The filter-based PM_{10} data collected by MR indicate ambient PM_{10} concentrations far below the 24-hour standard of 150 μg/m³ that otherwise applies to the NAAQS and MAAQS.

Similarly, the lead concentrations analyzed from the exposed TSP filters indicate quarterly average airborne concentrations well below the 0.15 μg/m³ ambient NAAQS based on a 3-month average of the 24-hour samples. The MAAQS is 1.5 μg/m³ and is based on a 90-day rolling average of 24-hour samples. The TSP samples presented herein were typically collected over 5- to 8-day periods, at a much lower sampling rate (2.0 liters per minute) compared to the standard method (≥40 standard cubic feet per minute). Nonetheless, the results indicate quarterly average ambient lead concentrations below the MAAQS and NAAQS. Table 12 summarizes these comparisons through the first quarter of 2024.

Additionally, the analyses presented in Section 5.0 indicate that individual (per sample) airborne concentrations of the other six trace elements were each below the Guidelines presented in Table 6. The quarterly average concentrations for all COCs were well below their respective ***Lifetime*** Guideline values.

Table 12: Summary of Airborne Concentration vs. NAAQS

Analyte	Observed Concentration (μg/m³)	Averaging Period	Ambient Standard (μg/m³)	Authority
PM_{10}	42[1]	24-hour (max)	150	NAAQS & MAAQS
Pb	0.003[2] 0.003[3]	90-day	1.50	MAAQS
		3-month	0.15	NAAQS
TSP	20[4]	Annual	75[4]	NAAQS & MAAQS

[1] Denotes maximum value from BGI filter-based PM_{10} sampler. Maximum value from MDEQ BAM-1020 sampler on sixth-day runs was 45 μg/m³.

[2] This value was the maximum from the filter-based TSP sampler, collected over an 8-day sampling period.

[3] This value was the quarterly average from the filter-based TSP sampler. Non-detect results were set to ½ of the sample group detection limit when calculating the average.

[4] Historical TSP standard shown for comparison purposes is no longer in effect. NAAQS standard for TSP was based on geometric mean and MAAQS on arithmetic average. Value shown represents arithmetic average for monitoring period of Quarter 1, 2024, based on gravimetric filter analysis.

[14] 40 CFR 50 *et seq.*
[15] ARM 17.8.223

APPENDIX A: VALIDATED AMBIENT MONITORING DATA BY MONTH, FIRST QUARTER 2024

TABLE A-1: MISSING DATA CODES[1]			
Letter Code	**Mnemonic Code**	**Description**	**Number Code**
AF	Sc	Scheduled but Not Collected	9972
AH	Fl	Sample Flow Rate Out of Limits / Flow Fail Alarm	9974
AK	Lk	Filter Leak	9977
AM	Mi	Miscellaneous Void	9979
AN	ND	Machine Malfunction	9980
AO	Wx	Bad Weather[2]	9981
AQ	Co	Collection Error	9983
AV	Pw	Power Failure	9988
AZ	Au	QC Audit (internal audit)	9992
BA	Ma	Maintenance[3]	9993
BC	Ca	Multipoint Calibration	9995
BF	Pz	Zero / Span / Precision Check (used for single-point calibration checks and leak checks)	9998

[1]The list of codes in this table is not exhaustive but includes those most commonly used for this site (and includes all codes applicable to the data collected during the current quarter).

[2]For this project, denotes that hourly TSP value is considered unreliable due to ambient relative humidity exceeding 90 percent of the maximum value.

[3]Includes routine changeout of sampling filters in TSP monitor.

Montana Resources LLP
Greeley School Air Monitoring Summary
TSP - Met One E-Sampler (micrograms per cubic meter)
January 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	AO	AO	AO	AO	AO	AO	AO	AO	AO	73	63	65	43	47	36	26	27	30	25	20	41	AO	AO	AO	41	73	20
2	AO	AO	AO	AO	AO	AO	AO	AO	AO	61	57	34	39	41	BA	44	59	50	146	105	89	101	AO	AO	69	146	34
3	AO	AO	AO	AO	AO	AO	AO	AO	AO	39	48	25	37	27	34	47	47	50	52	61	103	61	45	88	51	103	25
4	86	47	AO	AO	65	68	40	71	58	65	29	37	36	6	4	2	7	8	10	11	41	47	39	82	39	86	2
5	67	18	39	48	AO	AO	AO	AO	AO	AO	22	4	2	1	1	2	5	4	6	11	40	20	29	78	22	78	1
6	101	77	36	38	48	24	25	8	7	6	10	11	9	6	5	4	6	6	8	13	12	24	12	13	21	101	4
7	36	27	42	36	16	AO	7	AO	7	14	4	4	4	2	1	1	2	7	15	20	43	AO	AO	AO	15	43	1
8	AO	AO	AO	AO	AO	AO	AO	AO	AO	21	22	33	21	6	1	2	3	9	17	24	7	13	14	28	15	33	1
9	15	8	26	161	24	5	6	12	7	3	BA	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	27	161	3
10	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK			
11	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK			
12	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK			
13	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK			
14	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK			
15	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK			
16	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK			
17	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	AK	BA	3	1	2	8	5	6	10	18	4	6	18	1
18	4	7	8	3	1	1	3	2	9	6	5	5	5	3	3	2	3	5	8	26	5	6	7	5	6	26	1
19	6	17	16	14	13	10	6	8	9	17	9	8	5	6	7	8	11	16	20	23	27	52	41	40	16	52	5
20	47	34	32	38	61	31	27	38	23	24	23	21	19	23	17	15	7	6	7	6	4	2	3	5	21	61	2
21	3	11	AO	AO	AO	AO	AO	AO	AO	19	19	14	14	19	21	19	28	9	10	21	19	14	45	69	21	69	3
22	55	32	32	AO	AO	AO	AO	AO	14	19	19	18	17	15	9	12	8	13	8	5	21	26	28	51	21	55	5
23	36	12	9	16	26	13	AO	AO	42	22	12	14	13	5	BA	3	2	3	10	22	20	45	58	59	21	59	2
24	AO	AO	AO	AO	AO	AO	AO	AO	AO	41	19	30	5	2	1	0	4	8	7	5	18	35	20	9	14	41	0
25	30	31	38	22	22	38	AO	AO	AO	28	9	16	5	3	1	0	1	6	9	18	10	11	12	20	16	38	0
26	AO	AO	32	14	7	7	10	30	44	26	6	2	2	2	2	1	2	5	5	27	38	28	30	36	16	44	1
27	37	67	AO	23	16	30	22	19	29	26	17	21	23	23	12	10	4	9	15	7	12	29	16	21	21	67	4
28	31	45	37	31	21	18	16	22	19	26	16	12	12	10	3	1	1	4	12	22	22	31	11	60	20	60	1
29	20	11	9	9	AO	AO	AO	AO	AO	42	10	10	14	5	1	1	BF	8	7	41	34	74	AO	AO	19	74	1
30	AO	AO	AO	AO	AO	AO	AO	AO	AO	29	12	10	8	9	BA	23	21	21	80	30	31	50	43	45	29	80	8
31	27	28	21	12	31	AO	AO	AO	AO	19	23	21	18	11	9	3	2	3	9	5	15	35	37	37	18	37	2
Avg	38	30	27	33	27	22	16	23	22	28	21	19	16	12	9	10	11	12	21	23	29	34	27	39	22	67	5
Max	101	77	42	161	65	68	40	71	58	73	63	65	43	47	36	47	59	50	146	105	103	101	58	88	69	161	34
Min	3	7	8	3	1	1	3	2	7	3	4	2	2	1	1	0	1	2	5	5	4	2	3	4	6	18	0

Montana Resources LLP
Greeley School Air Monitoring Summary
TSP - Met One E-Sampler (micrograms per cubic meter)
February 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	64	36	31	15	AO	35	AO	AO	AO	27	20	15	12	5	4	3	3	2	9	5	8	3	4	5	15	64	2
2	8	5	6	7	9	7	53	29	66	27	15	19	17	4	BA	4	4	6	3	3	4	AO	AO	AO	15	66	3
3	AO	AO	AO	AO	AO	AO	AO	AO	AO	AO	8	3	3	6	3	4	4	AO	AO	AO	AO	AO	AO	AO	4	8	3
4	AO	AO	3	5	13	12	8	AO	AO	AO	9	8	3	2	5	7	9	9	14	16	5	12	AO	AO	8	16	2
5	AO	AO	11	9	8	5	4	4	19	7	19	7	10	11	10	4	4	4	8	6	11	16	77	AO	12	77	4
6	AO	AO	AO	AO	AO	AO	16	21	15	11	6	5	6	7	10	13	10	17	AO	AO	AO	AO	AO	AO	11	21	5
7	AO	AO	AO	AO	AO	AO	AO	AO	AO	13	7	BA	3	3	5	2	3	4	AO	AO	AO	AO	AO	AO	5	13	2
8	AO	AO	AO	AO	AO	AO	AO	AO	AO	9	15	14	16	13	10	5	4	5	AO	AO	15	AO	AO	AO	11	16	4
9	AO	AO	AO	AO	AO	AO	AO	AO	AO	AO	17	19	12	9	4	5	4	5	20	AO	AO	AO	AO	14	11	20	4
10	21	63	20	21	AO	AO	9	6	9	15	15	5	3	2	1	1	2	5	12	33	27	60	49	15	18	63	1
11	23	13	23	12	49	24	26	12	10	18	17	16	17	18	16	11	10	13	13	12	7	15	AO	AO	17	49	7
12	AO	AO	AO	AO	17	17	38	21	17	8	3	4	2	5	2	5	2	3	2	3	16	27	13	30	12	38	2
13	13	8	7	1	3	3	8	10	9	8	5	3	2	1	BA	1	2	2	2	6	32	13	6	7	7	32	1
14	AO	4	AO	3	3	4	4	AO	11	9	7	6	6	7	5	6	7	7	9	AO	AO	AO	AO	11	6	11	3
15	9	5	5	2	AO	AO	AO	AO	4	4	5	4	4	6	5	4	4	5	10	8	AO	AO	AO	10	6	10	2
16	9	8	9	AO	AO	AO	7	9	6	6	7	9	7	11	10	12	13	14	22	34	AO	AO	AO	AO	11	34	6
17	AO	AO	AO	AO	AO	AO	AO	AO	28	38	40	39	31	24	20	18	17	25	51	65	48	63	AO	AO	36	65	17
18	52	43	50	44	33	37	27	44	32	18	25	28	12	1	1	6	3	3	4	16	37	35	34	37	26	52	1
19	31	32	53	35	19	AO	AO	AO	34	23	23	19	21	16	13	9	10	13	25	9	14	7	28	49	23	53	7
20	31	35	26	12	11	16	25	27	10	5	5	6	3	BA	2	7	5	9	13	11	16	27	41	57	17	57	2
21	AO	AO	AO	AO	AO	AO	AO	AO	34	42	38	43	38	11	4	2	3	9	21	34	57	20	29	64	28	64	2
22	53	58	AO	AO	AO	AO	AO	AO	30	35	AZ	BF	25	4	2	2	1	3	4	27	22	39	29	29	23	58	1
23	17	58	29	AO	AO	AO	AO	AO	136	59	2	3	4	2	2	1	2	4	14	11	19	21	54	44	25	136	1
24	12	12	10	6	6	6	2	2	4	4	4	2	2	4	5	6	4	4	8	6	5	2	4	3	5	12	2
25	3	9	6	4	2	2	3	4	4	6	5	4	6	8	4	4	4	2	9	6	6	3	2	3	5	9	2
26	2	1	2	2	2	3	3	2	1	2	1	4	19	39	3	2	4	5	4	2	4	4	22	16	6	39	1
27	24	7	7	24	AO	AO	AO	AO	35	17	12	5	44	3	BA	2	2	1	1	3	4	5	11	70	15	70	1
28	5	8	14	4	6	2	4	2	6	6	2	1	1	1	1	3	2	3	10	10	7	3	13	6	5	14	1
29	3	1	2	2	2	3	4	3	3	2	3	5	7	6	4	5	4	4	2	3	4	2	AO	AO	3	7	1
Avg	21	21	17	12	12	12	14	13	23	16	12	11	12	8	6	5	5	7	12	14	17	19	26	26	13	40	3
Max	64	63	53	44	49	37	53	44	136	59	40	43	44	39	20	18	17	25	51	65	57	63	77	70	36	136	17
Min	2	1	2	1	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	2	4	2	2	3	3	7	1

Montana Resources LLP
Greeley School Air Monitoring Summary
TSP - Met One E-Sampler (micrograms per cubic meter)
March 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	AO	3	1	4	11	3	3	8	2	7	3	2	1	2	2	1	1	3	7	5	6	24	24	28	7	28	1
2	26	19	12	21	18	15	6	4	10	3	2	3	2	1	2	1	5	4	8	20	24	3	2	7	9	26	1
3	3	5	3	0	11	9	6	0	1	1	0	2	0	1	1	2	4	6	10	10	33	31	38	25	8	38	0
4	14	11	14	12	21	24	AO	10	16	8	5	1	1	1	2	3	10	2	10	6	13	9	14	4	9	24	1
5	32	11	22	10	18	21	2	3	3	3	3	3	2	2	11	3	1	2	7	13	6	14	8	18	9	32	1
6	AO	AO	AO	AO	AO	15	AO	AO	32	18	5	4	3	2	BA	3	4	4	6	5	10	57	20	38	14	57	2
7	60	61	21	22	18	AO	AO	AO	46	63	115	43	10	4	6	5	4	5	10	5	14	28	69	46	31	115	4
8	98	113	90	23	31	32	AO	45	36	33	59	75	55	29	23	15	10	13	25	44	50	168	72	138	56	168	10
9	85	64	77	54	36	66	33	39	52	66	44	39	46	39	12	6	9	10	16	29	17	14	20	27	38	85	6
10	84	70	46	37	13	13	11	8	25	10	8	6	9	9	9	17	11	12	13	11	17	11	12	55	22	84	6
11	26	10	24	29	18	18	8	26	9	12	11	3	BA	2	3	2	3	5	14	5	4	11	8	6	11	29	2
12	6	3	5	13	18	7	7	9	6	5	1	2	2	1	3	2	0	1	3	3	9	5	20	49	8	49	0
13	39	17	1	4	3	1	5	6	13	19	3	1	1	2	1	1	1	2	3	4	3	4	6	3	6	39	1
14	2	6	1	3	14	19	7	16	8	5	6	13	6	2	2	3	3	4	5	4	15	30	74	42	12	74	1
15	19	8	8	8	9	AO	11	12	12	14	18	11	10	12	BF	6	6	4	10	40	31	38	8	5	14	40	4
16	10	28	36	67	21	18	27	20	13	18	35	12	4	1	3	1	2	5	6	19	13	9	10	4	16	67	1
17	8	17	10	9	5	10	AO	12	13	7	12	8	8	6	3	1	2	3	8	9	14	5	48	42	11	48	1
18	20	15	20	23	24	13	20	89	29	17	19	18	5	BA	4	2	4	6	9	17	37	33	69	110	26	110	2
19	112	120	47	40	24	31	74	65	43	33	56	45	17	7	8	53	9	6	12	43	87	28	53	53	44	120	6
20	45	40	21	46	56	51	61	55	25	44	19	17	7	9	9	6	19	20	12	33	29	33	41	32	30	61	6
21	38	49	43	11	5	4	2	AO	2	7	3	2	2	4	3	3	4	2	2	3	4	1	2	4	9	49	1
22	4	3	AO	AO	AO	AO	AO	30	14	6	4	6	8	9	6	6	6	7	16	22	20	27	67	38	16	67	3
23	32	40	36	29	43	30	26	38	22	31	27	30	20	14	7	6	13	AO	AO	AO	AO	AO	AO	AO	26	43	6
24	AO	AO	AO	AO	AO	AO	AO	AO	5	4	9	11	6	9	11	13	8	8	9	9	10	11	12	14	9	14	4
25	9	9	AO	12	17	AO	19	19	21	30	26	17	11	6	7	7	7	9	10	7	8	14	15	20	14	30	6
26	12	12	11	19	AO	AO	AO	40	21	17	10	6	6	BA	3	11	7	6	14	11	39	8	35	20	15	40	3
27	21	8	10	15	16	20	18	27	12	2	3	5	4	4	5	7	7	7	7	16	46	55	44	10	15	55	2
28	18	10	6	8	7	12	5	2	AO	8	8	11	8	5	4	6	4	7	6	5	19	14	12	AO	8	19	2
29	AO	AO	AO	AO	AO	AO	AO	20	19	14	3	2	3	4	3	1	3	3	7	15	11	9	14	42	10	42	1
30	57	42	AO	AO	AO	AO	AO	18	11	6	9	8	7	4	5	3	5	7	5	5	7	5	7	10	12	57	3
31	26	33	AO	AO	16	14	8	6	7	6	5	5	5	7	8	8	5	21	8	5	7	10	21	17	11	33	5
Avg	34	30	24	21	19	19	17	23	18	17	17	13	9	7	6	7	6	6	9	14	20	24	28	31	17	56	3
Max	112	120	90	67	56	66	74	89	52	66	115	75	55	39	23	53	19	21	25	44	87	168	74	138	56	168	10
Min	2	3	1	0	3	1	2	0	1	1	0	1	0	1	1	1	0	1	2	3	3	1	2	3	6	14	0

Montana Resources LLP
Greeley School Air Monitoring Summary
Relative Humidity (% RH)
January 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	87	87	86	86	85	84	84	85	85	84	81	72	66	59	51	50	53	68	73	78	81	85	85	87	77	87	50
2	86	86	85	84	83	83	82	82	82	79	68	56	53	48	46	41	54	69	75	77	80	82	84	85	73	86	41
3	85	85	85	84	84	84	84	84	84	78	62	56	59	54	58	58	61	66	68	70	71	71	76	76	73	85	54
4	78	84	86	86	85	83	82	82	82	74	66	66	67	61	59	56	63	72	76	77	79	80	84	86	76	86	56
5	84	86	86	88	90	90	90	90	90	88	76	51	41	36	41	42	46	47	50	54	63	64	70	70	68	90	36
6	76	76	72	74	76	74	68	59	62	57	49	40	40	37	38	45	53	60	59	58	58	61	70	75	60	76	37
7	76	76	77	82	85	86	86	87	85	80	77	79	69	63	56	53	53	61	73	79	82	85	87	85	76	87	53
8	84	84	84	83	83	82	82	82	81	75	66	64	55	46	45	48	49	54	57	59	57	60	58	58	67	84	45
9	59	65	64	64	64	65	68	71	72	66	58	79	89	75	59	49	49	59	59	63	64	62	62	62	64	89	49
10	58	59	58	57	61	57	54	57	65	60	50	44	45	66	72	75	78	81	84	86	87	86	86	85	67	87	44
11	84	85	84	83	84	84	80	76	70	56	49	44	41	43	42	43	56	85	81	77	76	78	76	71	69	85	41
12	71	70	70	70	70	69	68	68	68	68	69	69	69	69	69	68	68	67	67	66	66	65	65	65	68	71	65
13	64	63	63	62	62	61	62	61	61	64	67	67	69	71	71	72	71	71	71	72	72	72	72	72	67	72	61
14	71	71	70	70	69	69	70	69	71	72	73	74	74	75	73	74	75	77	77	76	76	76	75	75	73	77	69
15	74	73	72	72	71	70	69	68	68	70	67	66	66	64	63	62	64	71	70	72	74	74	73	73	69	74	62
16	73	73	74	74	74	74	74	73	74	70	61	57	47	46	50	52	54	63	68	75	79	78	77	77	67	79	46
17	78	79	78	76	76	76	76	77	77	74	66	60	64	61	57	56	66	69	72	76	77	76	74	81	72	81	56
18	77	73	63	54	52	57	76	78	78	74	61	56	50	45	48	55	60	64	64	65	64	61	62	62	62	78	45
19	63	65	70	68	69	65	65	67	69	64	64	63	54	58	61	65	68	71	73	76	79	81	83	84	69	84	54
20	82	82	83	84	84	84	84	84	85	82	76	71	72	70	67	57	64	61	61	65	68	72	78	86	75	86	57
21	87	88	92	93	92	91	90	90	90	87	82	78	72	60	68	65	63	69	73	78	80	85	86	87	81	93	60
22	85	84	86	89	89	89	89	87	87	84	79	72	70	70	65	66	70	74	77	75	77	81	84	85	80	89	65
23	81	84	83	84	85	88	90	90	88	80	75	60	56	44	43	47	52	56	63	69	75	78	82	87	73	90	43
24	89	90	90	88	90	90	89	88	88	75	57	57	44	43	44	41	47	53	59	63	66	67	67	66	69	90	41
25	71	76	83	84	84	85	87	87	88	75	61	47	43	48	51	56	63	71	77	83	83	83	87	85	73	88	43
26	87	87	85	82	75	75	76	80	79	67	53	49	44	41	42	42	45	56	68	72	76	80	81	80	68	87	41
27	82	84	84	83	81	80	78	78	77	73	68	63	60	62	61	63	66	70	75	73	75	79	77	80	74	84	60
28	86	89	89	87	87	86	87	87	88	85	73	66	63	57	50	44	49	59	66	70	74	77	78	81	74	89	44
29	82	82	87	89	92	93	93	93	93	89	73	58	58	49	42	40	44	59	72	79	84	88	90	91	76	93	40
30	91	92	91	91	91	91	91	91	91	80	67	60	53	47	42	42	42	56	68	75	79	82	84	86	74	92	42
31	84	85	84	84	85	88	89	89	89	70	58	50	47	38	34	30	33	40	48	56	66	73	80	81	66	89	30
Avg	79	79	79	79	79	79	79	79	80	74	66	61	58	55	54	53	57	64	69	71	74	76	77	78	71	85	49
Max	91	92	92	93	92	93	93	93	93	89	82	79	89	75	73	75	78	85	84	86	87	88	90	91	81	93	69
Min	58	59	58	54	52	57	54	57	61	56	49	40	40	36	34	30	33	40	48	54	57	60	58	58	60	71	30

Montana Resources LLP
Greeley School Air Monitoring Summary
Relative Humidity (% RH)
February 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	84	86	86	87	87	86	88	88	88	71	53	44	45	40	42	43	46	47	53	56	57	61	66	68	66	88	40
2	71	71	72	72	75	75	79	82	81	76	69	65	58	58	55	51	55	72	84	87	89	92	93	94	74	94	51
3	94	94	95	94	94	92	93	94	93	90	86	84	84	81	81	83	87	91	91	92	92	92	93	92	90	95	81
4	92	91	89	87	84	80	82	88	89	88	86	82	75	68	64	68	75	79	83	86	79	84	88	88	82	92	64
5	87	86	81	76	71	84	87	84	84	73	72	58	57	53	52	53	54	61	69	77	81	80	86	89	73	89	52
6	90	90	90	89	88	88	86	86	83	79	71	67	69	72	75	81	85	88	92	92	93	93	93	94	85	94	67
7	93	93	93	93	93	93	93	93	93	89	81	77	78	77	79	85	88	89	90	91	91	90	89	90	88	93	77
8	90	90	90	90	90	91	91	91	89	82	77	71	70	61	67	68	76	87	91	90	88	87	88	89	84	91	61
9	89	89	88	87	87	87	87	88	89	88	86	82	79	74	66	65	73	79	85	88	88	87	86	85	83	89	65
10	85	84	85	85	86	86	85	84	84	73	63	53	48	46	38	39	41	53	68	75	78	78	74	67	69	86	38
11	71	74	79	81	82	82	81	79	75	65	59	59	52	52	54	54	56	74	85	85	86	88	90	90	73	90	52
12	90	90	89	88	82	75	80	82	77	65	59	58	53	59	55	55	62	62	75	80	83	84	80	75	73	90	53
13	71	67	65	63	65	65	72	78	74	69	55	49	43	35	34	31	36	45	58	66	76	78	80	84	61	84	31
14	85	85	85	84	84	83	84	84	82	77	71	68	69	70	67	68	70	78	82	85	87	85	85	82	79	87	67
15	83	84	82	83	84	83	83	83	81	78	74	62	58	54	57	57	66	76	84	81	84	83	83	80	76	84	54
16	80	81	81	82	82	81	80	79	77	72	65	59	54	55	57	55	52	60	72	79	80	82	80	79	72	82	52
17	78	77	77	76	76	75	75	75	76	71	52	52	47	48	42	45	46	53	59	70	74	78	80	81	66	81	42
18	79	78	79	78	76	74	74	76	70	54	43	44	49	56	56	57	70	83	86	87	84	79	79	82	71	87	43
19	83	83	83	84	86	88	89	89	86	76	66	64	57	53	51	53	56	62	66	67	67	68	75	80	72	89	51
20	85	86	86	83	76	80	83	85	79	55	49	44	46	46	48	53	57	56	63	72	77	80	83	88	69	88	44
21	89	89	89	90	90	90	88	87	85	62	51	50	51	40	38	39	44	60	71	77	79	80	82	82	71	90	38
22	83	85	88	89	89	88	88	87	85	81	69	54	52	51	43	44	49	52	66	70	75	78	80	82	72	89	43
23	82	83	85	87	87	87	87	88	79	48	47	40	36	35	33	34	34	40	48	51	61	65	70	71	62	88	33
24	66	66	70	70	62	65	59	52	48	38	36	36	38	39	38	39	38	40	44	44	47	49	52	53	50	70	36
25	54	54	52	51	51	52	56	59	54	47	48	48	45	46	45	44	48	52	58	59	52	50	48	47	51	59	44
26	47	47	48	50	48	54	61	73	86	83	84	83	79	78	59	54	48	46	46	47	50	58	61	72	61	86	46
27	76	74	76	83	84	85	84	83	81	73	67	57	56	50	40	43	40	40	49	56	57	61	60	57	64	85	40
28	53	56	58	65	60	56	57	59	57	45	45	43	44	41	40	42	46	52	57	57	59	59	62	56	53	65	40
29	55	58	59	57	58	56	53	51	47	44	42	40	38	39	43	47	45	48	52	56	59	68	90	92	54	92	38
Avg	79	79	79	79	79	79	79	80	78	69	63	58	56	54	52	53	57	63	70	73	75	76	78	79	70	86	50
Max	94	94	95	94	94	93	93	94	93	90	86	84	84	81	81	85	88	91	92	92	93	93	93	94	90	95	81
Min	47	47	48	50	48	52	53	51	47	38	36	36	36	35	33	31	34	40	44	44	47	49	48	47	50	59	31

Montana Resources LLP
Greeley School Air Monitoring Summary
Relative Humidity (% RH)
March 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	92	86	73	68	74	59	55	60	60	54	43	36	36	46	48	46	45	49	56	61	64	67	73	76	59	92	36
2	77	75	76	78	79	79	71	68	61	57	68	77	63	57	44	44	49	50	61	86	86	85	84	86	69	86	44
3	86	86	85	80	74	68	63	68	62	50	43	37	35	33	32	32	32	32	39	46	56	64	65	66	56	86	32
4	66	65	65	68	73	78	81	78	56	40	39	37	38	38	38	43	60	58	61	57	56	55	58	52	57	81	37
5	54	63	67	68	68	76	81	83	77	78	73	66	59	55	63	65	56	59	68	71	72	75	71	78	69	83	54
6	84	83	85	84	82	81	81	82	69	56	44	37	33	32	30	31	32	35	38	45	52	58	60	64	57	85	30
7	69	74	76	77	79	80	80	80	62	53	47	38	34	32	30	28	30	32	37	43	47	55	63	67	55	80	28
8	71	75	76	75	78	79	80	79	63	53	49	40	42	30	26	22	21	26	36	47	55	58	65	69	55	80	21
9	71	73	75	76	76	78	77	73	54	47	37	36	35	28	21	23	26	26	28	29	34	38	42	46	48	78	21
10	55	57	52	50	48	46	50	48	44	39	37	34	34	33	32	33	35	39	44	47	48	49	50	54	44	57	32
11	57	58	61	63	63	62	61	63	56	52	43	38	39	42	42	43	49	51	62	64	72	73	70	64	56	73	38
12	63	62	66	68	70	66	66	70	68	59	50	41	37	35	49	65	64	59	67	75	79	75	79	84	63	84	35
13	83	83	84	88	85	80	71	74	69	69	62	55	51	49	43	39	40	44	48	50	53	55	60	63	62	88	39
14	66	72	72	74	75	76	79	80	68	57	54	50	45	37	32	31	34	36	42	45	55	61	69	73	58	80	31
15	73	76	80	82	83	85	83	79	63	55	51	41	39	36	32	29	31	32	42	50	61	70	71	76	59	85	29
16	77	80	83	85	85	85	86	83	61	51	46	38	35	29	29	28	28	32	34	41	49	52	51	50	55	86	28
17	57	70	74	79	83	86	88	85	61	52	48	41	37	32	27	24	24	28	37	48	59	64	70	77	56	88	24
18	79	82	83	84	84	85	87	85	61	51	43	34	27	23	22	21	22	23	29	37	51	62	69	74	55	87	21
19	79	79	83	85	85	86	86	84	60	49	41	36	27	21	20	20	21	22	29	38	46	56	62	68	53	86	20
20	75	78	81	83	84	85	84	79	57	54	39	32	25	25	24	21	21	26	30	39	49	57	63	68	53	85	21
21	71	74	72	68	78	85	89	92	85	79	66	60	58	43	38	39	41	46	50	50	56	76	87	85	66	92	38
22	87	88	90	90	90	90	90	88	64	50	43	41	40	37	34	30	29	30	33	44	57	63	72	76	61	90	29
23	81	84	85	87	87	87	87	84	74	70	65	61	74	84	71	72	74	90	94	94	93	92	92	91	82	94	61
24	90	89	88	88	88	87	87	87	84	81	73	65	61	59	64	68	71	72	74	74	75	75	81	84	78	90	59
25	84	80	87	86	85	85	85	81	67	62	53	54	54	47	50	48	48	47	54	63	63	68	72	74	67	87	47
26	74	74	78	87	90	91	92	89	80	69	63	57	51	58	63	63	72	86	85	85	87	78	86	88	77	92	51
27	86	84	85	85	82	82	76	66	50	42	39	36	35	31	29	32	35	39	46	55	60	59	56	59	56	86	29
28	63	65	59	63	64	67	78	86	90	89	85	84	84	89	86	87	78	78	82	81	84	88	88	91	80	91	59
29	91	91	91	91	90	89	89	85	65	62	52	42	39	41	49	48	44	42	49	60	70	77	84	86	68	91	39
30	86	87	89	89	89	88	88	83	71	63	58	56	45	39	34	45	49	66	73	77	80	78	85	86	71	89	34
31	88	88	90	90	88	85	85	84	70	57	42	42	43	44	42	38	39	38	45	55	61	66	73	79	64	90	38
Avg	75	77	78	79	79	79	79	78	66	58	51	47	44	41	40	41	42	45	51	57	62	66	70	73	62	85	36
Max	92	91	91	91	90	91	92	92	90	89	85	84	84	89	86	87	78	90	94	94	93	92	92	91	82	94	61
Min	54	57	52	50	48	46	50	48	44	39	37	32	25	21	20	20	21	22	28	29	34	38	42	46	44	57	20

Montana Resources LLP
Greeley School Air Monitoring Summary
Temperature - MDEQ monitor (degrees Celsius)
January 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	-9.3	-10.0	-10.6	-11.5	-12.0	-11.8	-11.8	-11.8	-11.5	-9.6	-7.0	-4.5	-2.7	-1.1	1.4	2.0	0.9	-2.7	-4.0	-5.8	-7.0	-8.6	-9.1	-10.5	-7.0	2.0	-12.0
2	-11.5	-12.5	-13.3	-14.0	-14.5	-15.0	-15.3	-15.5	-15.6	-11.8	-8.3	-3.2	-2.5	-1.2	0.8	3.0	-0.3	-3.7	-6.0	-7.3	-8.6	-9.6	-10.8	-11.6	-8.7	3.0	-15.6
3	-12.1	-12.6	-13.0	-13.0	-13.1	-12.8	-12.3	-13.1	-13.3	-10.6	-7.0	-4.4	-3.5	-1.5	-1.1	-0.8	-1.3	-2.0	-2.2	-2.5	-2.7	-3.7	-4.5	-4.4	-7.0	-0.8	-13.3
4	-5.1	-7.5	-8.5	-8.3	-6.9	-6.5	-6.3	-6.0	-6.0	-4.0	-5.0	0.5	0.7	2.0	1.2	1.2	0.7	-0.4	-0.8	-1.2	-1.6	-2.0	-3.5	-4.0	-3.2	2.0	-8.5
5	-3.0	-2.4	-1.8	-2.4	-2.9	-3.5	-4.6	-4.9	-4.9	-4.4	-1.8	0.4	4.1	4.5	1.7	1.2	-1.5	-2.7	-4.1	-4.9	-6.1	-6.9	-7.4	-6.0	-2.7	4.5	-7.4
6	-8.0	-8.6	-8.3	-8.6	-9.1	-8.6	-7.3	-5.5	-6.0	-5.1	-0.4	0.4	0.3	0.4	0.9	-0.4	-1.7	-2.5	-2.9	-3.0	-3.0	-3.2	-3.7	-5.0	-4.1	0.9	-9.1
7	-6.9	-6.5	-6.5	-6.1	-6.4	-6.0	-5.5	-5.8	-5.6	-4.3	-3.7	-2.7	-1.7	-2.2	-2.2	-3.0	-3.7	-4.5	-5.4	-6.0	-7.3	-8.6	-9.8	-10.3	-5.4	-1.7	-10.3
8	-10.3	-11.3	-12.1	-12.1	-11.8	-12.3	-13.3	-13.5	-13.0	-6.5	-3.2	-8.3	-6.3	-4.9	-5.0	-5.1	-5.4	-6.1	-6.4	-6.5	-6.6	-7.1	-6.1	-6.3	-8.3	-3.2	-13.5
9	-5.6	-6.1	-5.9	-5.5	-5.1	-5.0	-4.3	-4.8	-3.5	-1.7	-0.2	-1.7	-2.5	-0.8	-0.8	-1.0	-1.1	-3.0	-3.7	-5.3	-5.6	-5.0	-5.4	-5.6	-3.7	-0.2	-6.1
10	-5.9	-5.6	-5.0	-5.1	-6.9	-6.3	-5.5	-6.0	-7.0	-6.3	-4.9	-3.7	-3.2	-4.3	-4.6	-5.1	-5.4	-5.9	-6.5	-7.3	-8.8	-9.5	-9.6	-9.8	-6.2	-3.2	-9.8
11	-9.8	-10.1	-10.5	-10.3	-9.8	-9.3	-8.6	-8.3	-7.8	-6.5	-5.5	-4.5	-4.0	-3.9	-3.0	-3.7	-5.5	-7.3	-9.6	-13.3	-14.3	-15.8	-18.6	-24.8	-9.4	-3.0	-24.8
12	-26.5	-26.8	-27.2	-26.7	-27.0	-28.7	-29.2	-29.3	-29.7	-29.2	-27.7	-26.7	-26.3	-26.7	-27.0	-27.6	-28.7	-29.8	-30.5	-31.0	-31.7	-32.0	-32.5	-33.0	-28.8	-26.3	-33.0
13	-33.5	-34.0	-34.5	-35.0	-35.0	-35.7	-35.2	-35.2	-35.5	-28.7	-19.3	-29.3	-26.5	-25.7	-22.7	-23.2	-24.1	-24.2	-24.7	-24.7	-25.2	-24.8	-25.2	-25.7	-28.7	-19.3	-35.7
14	-26.5	-27.2	-27.8	-28.1	-28.3	-28.6	-28.0	-28.0	-26.7	-24.3	-22.5	-20.5	-17.8	-16.2	-16.6	-17.7	-17.5	-17.7	-18.2	-18.7	-18.8	-19.8	-20.1	-20.2	-22.3	-16.2	-28.6
15	-22.1	-23.7	-24.6	-25.3	-26.7	-28.6	-29.5	-29.7	-29.7	-27.6	-25.2	-23.3	-21.7	-20.5	-19.7	-18.2	-19.7	-21.8	-22.5	-23.3	-24.2	-24.6	-24.5	-23.2	-24.2	-18.2	-29.7
16	-22.0	-22.6	-22.8	-23.1	-22.8	-22.1	-21.6	-21.2	-20.7	-19.6	-17.7	-15.1	-12.1	-11.8	-10.8	-10.5	-10.0	-12.0	-13.1	-14.5	-15.3	-15.0	-14.1	-14.1	-16.9	-10.0	-23.1
17	-14.8	-14.1	-12.8	-11.8	-11.1	-10.3	-9.8	-9.3	-8.6	-7.4	-5.9	-2.2	-1.6	0.2	1.6	2.3	1.2	0.5	0.0	0.3	0.3	0.1	0.1	-0.1	-4.7	2.3	-14.8
18	-0.8	-2.2	-2.7	-3.2	-3.7	-4.6	-10.0	-13.0	-14.5	-14.1	-13.8	-12.6	-11.3	-10.8	-10.5	-11.8	-13.3	-15.1	-15.0	-14.8	-14.8	-14.1	-13.8	-13.6	-10.6	-0.8	-15.1
19	-13.6	-14.3	-15.1	-14.6	-14.3	-13.3	-12.8	-12.6	-12.3	-10.5	-8.5	-7.0	-3.2	-3.0	-2.7	-2.5	-2.9	-2.9	-3.2	-3.5	-4.5	-4.9	-5.9	-5.9	-8.1	-2.5	-15.1
20	-5.1	-4.8	-4.6	-5.0	-4.8	-4.4	-4.1	-3.7	-3.5	-2.7	-0.6	1.1	1.6	2.7	3.9	6.1	4.8	4.6	4.3	3.2	3.0	2.8	2.1	1.4	-0.1	6.1	-5.1
21	1.5	0.6	-0.8	-1.3	-2.5	-3.4	-3.2	-4.0	-4.5	-3.5	-1.8	-0.6	1.1	3.6	3.0	3.7	3.7	2.8	2.4	1.5	0.8	-1.0	-2.0	-2.0	-0.2	3.7	-4.5
22	-1.5	-1.5	-2.2	-4.0	-4.3	-5.3	-5.4	-5.3	-4.8	-3.5	-1.8	0.1	1.1	1.5	3.0	3.1	2.8	2.1	0.9	0.9	0.4	-0.5	-1.1	-1.7	-1.1	3.1	-5.4
23	-1.0	-1.8	-1.7	-1.6	-1.7	-3.2	-4.0	-4.0	-3.0	-1.1	-0.1	3.5	4.8	5.7	6.7	5.9	5.0	4.1	3.1	2.0	1.3	0.7	-0.8	-2.5	0.7	6.7	-4.0
24	-3.5	-4.5	-4.9	-4.9	-6.0	-6.9	-6.0	-5.6	-6.1	-3.9	-0.8	1.6	3.9	4.4	4.9	5.4	3.7	2.5	1.6	1.2	1.0	0.8	0.9	0.8	-0.9	5.4	-6.9
25	0.0	-1.2	-3.0	-3.9	-4.5	-5.1	-6.1	-6.9	-6.9	-4.5	-1.6	3.4	4.5	4.3	3.7	3.2	2.4	1.1	0.0	-1.8	-2.2	-3.2	-4.9	-5.4	-1.6	4.5	-6.9
26	-6.4	-6.5	-5.5	-4.6	-4.5	-4.0	-3.7	-4.1	-3.7	-1.5	0.4	1.0	1.5	2.2	2.7	3.1	3.0	-0.2	-2.7	-3.7	-4.8	-6.6	-7.4	-7.8	-2.7	3.1	-7.8
27	-8.5	-9.0	-9.5	-8.5	-8.6	-7.5	-6.8	-6.0	-5.0	-3.5	-1.7	0.2	2.6	3.6	5.7	5.5	5.1	4.1	2.9	3.3	2.8	2.1	2.7	2.3	-1.3	5.7	-9.5
28	0.1	-1.2	-1.2	-1.0	-0.5	-0.2	-0.8	-0.5	-1.2	-0.6	3.2	5.8	6.7	8.3	10.4	11.2	10.0	8.0	6.6	5.7	4.8	4.3	3.9	3.2	3.5	11.2	-1.2
29	3.1	2.9	0.9	0.1	-1.3	-1.5	-2.5	-2.9	-2.7	-0.6	2.1	6.5	7.6	9.6	11.5	12.4	11.3	8.0	4.0	1.8	0.3	-1.1	-2.0	-2.5	2.7	12.4	-2.9
30	-3.2	-3.7	-3.9	-4.3	-4.8	-4.9	-5.0	-4.6	-3.9	-1.7	0.7	4.6	7.6	8.3	10.6	11.8	11.4	7.8	3.8	2.1	0.7	-0.3	-1.6	-2.4	1.0	11.8	-5.0
31	-1.2	-2.0	-2.4	-2.9	-3.2	-4.8	-5.1	-5.4	-5.1	-1.1	2.2	5.2	7.1	8.4	10.5	12.2	11.1	8.7	6.5	4.5	2.5	0.2	-2.0	-2.5	1.7	12.2	-5.4
Avg	-8.8	-9.4	-9.7	-9.9	-10.1	-10.3	-10.4	-10.5	-10.4	-8.4	-6.0	-4.4	-3.0	-2.1	-1.4	-1.2	-2.1	-3.6	-4.7	-5.6	-6.3	-7.0	-7.6	-8.2	-6.7	-0.2	-12.6
Max	3.1	2.9	0.9	0.1	-0.5	-0.2	-0.8	-0.5	-1.2	-0.6	3.2	6.5	7.6	9.6	11.5	12.4	11.4	8.7	6.6	5.7	4.8	4.3	3.9	3.2	3.5	12.4	-1.2
Min	-33.5	-34.0	-34.5	-35.0	-35.0	-35.7	-35.2	-35.2	-35.5	-29.2	-27.7	-29.3	-26.5	-26.7	-27.0	-27.6	-28.7	-29.8	-30.5	-31.0	-31.7	-32.0	-32.5	-33.0	-28.8	-26.3	-35.7

Montana Resources LLP
Greeley School Air Monitoring Summary
Temperature - MDEQ monitor (degrees Celsius)
February 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	-3.5	-4.1	-4.1	-4.9	-5.0	-5.1	-5.6	-6.0	-5.0	-0.5	4.5	8.0	8.2	9.5	9.4	8.9	8.2	8.0	7.0	6.4	6.2	5.7	4.5	4.1	2.3	9.5	-6.0
2	3.4	3.4	3.3	3.5	2.8	2.7	1.7	1.3	1.5	2.8	4.4	5.9	7.4	7.7	8.4	9.0	8.3	5.8	3.9	2.4	1.5	0.5	0.2	0.2	3.8	9.0	0.2
3	0.2	0.2	0.1	-0.1	-0.2	-0.4	-0.8	-1.0	-0.8	-0.1	0.5	0.8	0.9	1.6	1.6	1.2	0.5	0.0	-0.3	-0.4	-0.6	-0.6	-0.6	-0.8	0.0	1.6	-1.0
4	-0.8	-1.1	-1.3	-1.8	-2.7	-3.5	-3.9	-4.4	-4.5	-4.6	-4.0	-3.0	-2.0	-1.1	-0.6	-0.8	-1.6	-2.2	-3.0	-4.3	-4.4	-6.4	-8.0	-8.5	-3.3	-0.6	-8.5
5	-7.5	-6.5	-5.3	-4.1	-2.7	-2.7	-2.7	-3.0	-3.4	-1.8	-1.1	1.7	2.7	3.4	5.0	5.4	4.7	3.2	1.3	-0.3	-1.7	-1.6	-3.5	-4.6	-1.0	5.4	-7.5
6	-5.4	-5.8	-6.0	-5.8	-5.3	-4.0	-4.0	-3.5	-2.5	-1.7	0.5	1.8	1.8	2.7	2.5	1.6	1.4	0.9	0.2	0.0	0.0	-0.1	-0.2	-0.3	-1.3	2.7	-6.0
7	-0.3	-0.6	-0.8	-1.3	-1.8	-2.0	-1.8	-1.7	-1.3	-0.5	0.1	0.7	0.7	1.1	1.0	-0.2	-0.6	-0.8	-1.2	-1.6	-1.8	-2.2	-2.7	-3.0	-0.9	1.1	-3.0
8	-3.2	-3.5	-3.7	-3.7	-3.9	-4.3	-4.5	-4.5	-4.1	-2.5	-1.6	-0.6	-0.4	1.3	0.5	0.6	-1.1	-2.2	-3.7	-3.2	-3.7	-5.3	-5.0	-6.9	-2.9	1.3	-6.9
9	-6.8	-7.0	-8.1	-8.8	-8.3	-8.6	-8.1	-7.5	-6.9	-6.5	-5.3	-3.2	-2.5	-1.7	-1.3	-1.0	-2.9	-3.9	-6.0	-6.9	-6.8	-7.0	-7.0	-7.3	-5.8	-1.0	-8.8
10	-7.0	-7.0	-7.0	-6.9	-7.3	-7.4	-7.5	-7.8	-7.1	-5.4	-4.3	-2.5	-2.0	-1.7	0.0	0.1	-0.8	-2.9	-5.5	-7.0	-8.3	-7.8	-6.6	-5.0	-5.2	0.1	-8.3
11	-6.0	-7.0	-9.0	-10.0	-10.3	-10.3	-10.0	-9.1	-8.0	-5.9	-3.9	-3.2	-0.6	0.0	-0.1	-0.1	-0.2	-1.7	-2.5	-2.2	-2.7	-3.9	-4.9	-5.1	-4.9	0.0	-10.3
12	-6.3	-6.6	-6.8	-6.0	-3.5	-2.7	-3.7	-4.0	-2.5	-0.6	0.6	1.0	1.7	1.2	1.9	2.0	1.3	0.9	-0.6	-1.7	-1.8	-2.0	-2.0	-1.8	-1.8	2.0	-6.8
13	-2.2	-2.0	-1.6	-1.6	-2.2	-2.5	-3.5	-4.8	-3.2	-2.0	-0.2	1.4	3.3	3.0	3.8	4.1	2.5	0.8	-0.8	-2.7	-4.5	-5.5	-6.1	-7.5	-1.4	4.1	-7.5
14	-7.8	-8.0	-8.3	-9.1	-9.3	-9.1	-9.6	-9.6	-9.1	-8.3	-6.8	-6.0	-5.5	-5.4	-4.6	-5.1	-5.9	-7.1	-7.5	-8.1	-8.6	-8.5	-8.5	-8.1	-7.7	-4.6	-9.6
15	-8.1	-8.1	-8.6	-10.1	-10.6	-11.1	-11.5	-11.5	-11.1	-10.3	-9.1	-7.0	-6.5	-5.5	-5.4	-5.5	-6.5	-7.6	-8.6	-9.6	-11.6	-11.3	-11.1	-10.6	-9.0	-5.4	-11.6
16	-11.8	-12.6	-12.3	-12.3	-13.1	-13.5	-14.3	-14.6	-14.1	-12.8	-11.3	-10.5	-9.1	-9.5	-9.0	-8.0	-7.9	-9.6	-12.5	-14.6	-16.2	-17.6	-18.5	-19.1	-12.7	-7.9	-19.1
17	-20.2	-20.7	-21.3	-22.0	-22.2	-22.5	-22.7	-22.8	-20.7	-15.6	-12.1	-10.6	-7.0	-6.6	-3.4	-3.9	-3.7	-5.1	-8.3	-10.5	-12.6	-14.1	-14.6	-15.6	-14.1	-3.4	-22.8
18	-14.6	-13.3	-12.8	-12.3	-11.1	-10.1	-9.6	-10.1	-8.6	-4.9	-1.1	0.1	0.6	0.4	0.8	0.9	-0.1	-1.2	-2.0	-3.2	-2.4	-2.5	-2.7	-3.0	-5.1	0.9	-14.6
19	-3.0	-3.4	-3.2	-3.5	-4.5	-5.9	-7.5	-8.1	-7.3	-4.1	-2.0	-0.6	2.1	3.0	3.7	3.2	3.0	1.5	0.3	0.7	0.7	1.1	-0.6	-3.0	-1.6	3.7	-8.1
20	-4.5	-5.9	-5.9	-5.0	-2.2	-4.0	-4.8	-6.0	-4.1	1.7	3.6	5.2	4.9	5.8	5.5	5.6	5.1	4.8	3.2	1.7	1.2	0.5	-0.8	-2.5	0.1	5.8	-6.0
21	-3.2	-4.3	-5.0	-6.1	-7.3	-7.9	-7.5	-6.6	-5.6	-2.0	0.6	3.0	4.1	5.8	6.5	6.7	5.3	2.9	0.5	-1.1	-2.4	-3.5	-4.0	-3.7	-1.5	6.7	-7.9
22	-4.1	-5.0	-6.0	-6.9	-7.5	-7.9	-7.8	-6.8	-5.5	-3.7	-1.7	2.4	3.7	3.7	5.0	4.6	3.9	3.0	1.1	0.1	-1.0	-1.3	-2.0	-3.0	-1.8	5.0	-7.9
23	-4.3	-5.4	-6.0	-7.0	-7.5	-7.9	-8.3	-9.0	-6.0	0.4	1.2	3.4	4.7	5.6	6.4	6.4	5.9	4.6	2.1	1.1	-0.8	-1.2	-2.5	-3.2	-1.1	6.4	-9.0
24	-2.2	-2.0	-3.2	-3.2	-0.8	-1.7	0.4	1.8	2.4	4.5	5.6	6.4	6.8	6.6	6.7	6.3	6.4	5.9	5.0	4.9	4.5	4.4	4.2	4.1	3.1	6.8	-3.2
25	4.0	3.9	4.1	3.8	3.9	3.9	3.5	3.4	4.5	6.1	6.3	6.6	7.0	6.9	7.1	7.7	7.1	6.3	5.2	4.6	5.4	5.5	5.8	5.9	5.4	7.7	3.4
26	5.9	5.7	5.4	5.0	4.8	3.9	3.1	2.0	0.5	0.3	-0.3	-0.6	-1.3	-2.2	-2.0	-3.0	-3.5	-4.0	-4.5	-5.5	-6.0	-6.9	-8.0	-10.6	-0.9	5.9	-10.6
27	-11.6	-11.3	-11.0	-10.3	-11.1	-12.1	-12.6	-11.8	-10.5	-8.8	-7.1	-5.5	-6.0	-5.9	-4.3	-4.6	-5.0	-5.5	-7.5	-9.3	-9.6	-10.3	-10.1	-9.6	-8.8	-4.3	-12.6
28	-8.3	-8.3	-8.1	-8.8	-6.6	-4.5	-4.5	-5.0	-4.0	-1.6	-0.1	1.8	2.3	4.1	4.9	5.0	4.2	2.8	1.7	1.6	1.7	0.9	-0.1	0.8	-1.2	5.0	-8.8
29	0.7	0.0	-0.4	0.0	-0.3	0.1	0.7	1.0	2.0	3.2	4.4	6.0	7.5	7.4	7.3	6.5	6.3	5.5	4.5	4.0	3.9	2.7	-0.8	-1.2	3.0	7.5	-1.2
Avg	-4.8	-5.0	-5.3	-5.5	-5.4	-5.6	-5.8	-5.9	-5.0	-2.9	-1.4	0.1	0.9	1.4	2.0	1.8	1.2	0.1	-1.3	-2.2	-2.8	-3.4	-4.0	-4.4	-2.6	2.4	-7.9
Max	5.9	5.7	5.4	5.0	4.8	3.9	3.5	3.4	4.5	6.1	6.3	8.0	8.2	9.5	9.4	9.0	8.3	8.0	7.0	6.4	6.2	5.7	5.8	5.9	5.4	9.5	3.4
Min	-20.2	-20.7	-21.3	-22.0	-22.2	-22.5	-22.7	-22.8	-20.7	-15.6	-12.1	-10.6	-9.1	-9.5	-9.0	-8.0	-7.9	-9.6	-12.5	-14.6	-16.2	-17.6	-18.5	-19.1	-14.1	-7.9	-22.8

Montana Resources LLP
Greeley School Air Monitoring Summary
Temperature - MDEQ monitor (degrees Celsius)
March 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	-1.7	-1.7	-1.0	-1.2	-2.2	-1.2	-1.2	-2.4	-2.2	-0.8	1.1	3.0	3.1	2.5	2.1	3.0	3.0	1.6	-0.1	-0.8	-1.1	-2.2	-3.5	-4.0	-0.3	3.1	-4.0
2	-3.9	-3.5	-3.7	-3.7	-3.7	-3.2	-1.2	-0.8	0.7	1.8	1.4	0.6	1.6	1.7	2.0	0.8	0.2	-0.3	-1.6	-4.1	-4.9	-4.9	-5.0	-5.4	-1.6	2.0	-5.4
3	-5.6	-5.9	-6.0	-6.5	-7.4	-7.8	-7.0	-7.3	-6.6	-5.5	-4.3	-2.5	-1.3	-1.3	-1.7	-2.5	-2.7	-2.5	-3.7	-5.8	-7.1	-7.8	-8.6	-9.1	-5.3	-1.3	-9.1
4	-9.3	-9.3	-9.1	-9.1	-10.6	-12.1	-13.3	-13.3	-9.1	-5.3	-4.1	-2.9	-3.0	-2.2	-2.0	-2.7	-4.1	-4.3	-5.0	-5.9	-6.5	-6.5	-6.9	-6.3	-6.8	-2.0	-13.3
5	-7.5	-9.3	-10.3	-10.8	-10.3	-8.3	-8.3	-8.1	-7.5	-7.4	-6.1	-4.8	-3.4	-2.5	-3.5	-3.5	-3.2	-3.5	-4.4	-4.8	-5.3	-5.6	-6.3	-8.6	-6.4	-2.5	-10.8
6	-10.0	-11.1	-12.3	-12.6	-13.1	-13.1	-14.0	-15.0	-10.8	-7.3	-5.0	-3.4	-2.0	-1.6	-0.2	0.1	-0.3	-1.2	-3.0	-4.9	-6.0	-7.5	-8.6	-9.0	-7.2	0.1	-15.0
7	-10.3	-11.6	-13.1	-14.0	-14.8	-15.6	-16.1	-16.2	-12.0	-8.6	-6.0	-2.7	-1.6	-0.8	0.9	0.3	-0.2	-0.8	-2.2	-4.0	-4.5	-7.0	-8.6	-10.6	-7.5	0.9	-16.2
8	-11.6	-12.6	-13.1	-14.3	-14.5	-15.0	-15.6	-15.3	-11.1	-7.9	-6.3	-1.7	-0.2	2.4	3.8	4.7	5.1	4.2	1.6	-1.5	-3.2	-4.6	-5.8	-7.0	-5.8	5.1	-15.6
9	-8.1	-8.6	-9.6	-10.1	-10.6	-11.1	-11.5	-10.8	-6.0	-2.0	1.2	2.9	4.8	7.4	9.8	9.4	7.4	6.3	4.9	3.5	2.0	0.6	-0.6	-0.6	-1.2	9.8	-11.5
10	-2.2	-2.2	-1.1	-1.1	-0.6	-0.1	-1.2	-0.6	1.0	3.4	4.8	6.3	7.1	8.0	8.3	8.5	7.3	5.8	4.5	4.0	3.4	3.1	2.5	1.8	2.9	8.5	-2.2
11	1.6	1.4	1.3	1.2	1.5	1.8	1.9	2.1	3.7	4.3	5.9	7.2	7.4	6.9	7.0	7.1	6.7	6.0	4.1	3.5	2.3	1.8	2.1	2.7	3.8	7.4	1.2
12	2.4	2.4	1.7	1.3	1.2	1.6	1.7	1.8	2.6	3.9	4.9	6.0	7.0	7.8	5.2	3.5	3.5	3.2	2.1	0.7	0.0	-0.5	-1.5	-2.2	2.5	7.8	-2.2
13	-1.6	-1.6	-1.5	-2.0	-1.7	-2.0	-2.0	-2.7	-2.4	-2.4	-1.6	-0.8	-0.1	0.6	1.6	1.8	1.7	1.0	0.0	-0.6	-0.8	-1.2	-1.7	-2.0	-0.9	1.8	-2.7
14	-2.5	-4.3	-4.1	-4.1	-4.5	-4.3	-5.3	-5.5	-2.7	-0.5	0.0	1.8	3.8	4.9	6.0	5.5	5.2	4.4	2.5	1.1	-0.3	-2.0	-3.2	-4.4	-0.5	6.0	-5.5
15	-5.0	-6.0	-6.8	-7.5	-8.1	-8.3	-8.6	-8.0	-3.9	-1.5	0.3	2.4	4.4	6.2	8.9	9.7	9.0	9.3	6.6	4.0	1.6	-0.2	-1.2	-2.2	-0.2	9.7	-8.6
16	-2.9	-3.5	-4.1	-4.8	-5.0	-5.5	-5.8	-4.8	0.2	3.1	6.0	9.1	10.5	12.1	13.1	13.6	13.9	11.5	10.2	8.1	6.1	4.9	4.8	4.8	4.0	13.9	-5.8
17	3.1	0.2	-0.8	-2.0	-2.7	-4.0	-4.5	-3.4	2.2	4.8	5.9	8.3	10.7	12.1	13.2	14.2	14.5	13.1	10.1	6.7	4.0	2.4	0.7	-0.8	4.5	14.5	-4.5
18	-1.5	-2.5	-3.0	-3.5	-3.7	-4.3	-5.0	-4.4	1.1	4.7	8.0	11.5	14.5	14.6	15.3	16.2	15.5	15.0	12.7	9.5	5.6	3.1	1.3	-0.1	5.0	16.2	-5.0
19	-1.2	-1.7	-2.7	-3.4	-3.7	-4.1	-4.4	-3.5	2.3	5.9	8.6	10.6	13.2	14.6	15.3	15.6	15.8	15.3	12.8	9.9	7.4	4.9	3.1	1.7	5.5	15.8	-4.4
20	-0.1	-0.8	-1.7	-2.4	-2.7	-3.0	-2.5	-0.8	4.1	5.8	10.7	13.4	15.2	14.9	15.0	16.1	15.9	14.1	11.7	8.5	5.7	4.0	2.6	1.6	6.1	16.1	-3.0
21	0.9	0.3	1.0	2.2	2.8	1.9	1.1	0.7	2.7	3.7	5.3	6.2	5.5	7.1	8.0	8.0	7.2	6.1	5.4	5.1	4.3	2.4	1.3	1.4	3.8	8.0	0.3
22	1.0	0.9	0.7	0.4	0.4	0.6	0.1	0.4	3.9	5.4	6.6	8.2	8.6	9.0	9.7	10.7	11.2	10.6	9.0	6.9	5.0	3.7	1.7	0.6	4.8	11.2	0.1
23	-1.1	-1.8	-2.2	-3.0	-2.7	-2.7	-2.7	-1.6	0.8	1.9	2.9	4.0	3.2	3.2	6.6	5.7	4.6	1.3	0.3	0.4	-0.8	-1.7	-2.2	-3.2	0.4	6.6	-3.2
24	-5.0	-6.0	-6.8	-7.3	-7.5	-7.9	-8.0	-7.4	-6.0	-4.8	-3.0	-1.7	-1.2	-0.4	0.0	-1.0	-1.6	-2.0	-2.2	-3.0	-3.7	-3.7	-4.1	-4.5	-4.1	0.0	-8.0
25	-5.0	-5.0	-5.5	-5.9	-7.4	-8.1	-8.1	-7.6	-5.0	-4.0	-0.6	0.0	0.9	1.8	1.6	1.9	1.3	1.4	0.4	-0.5	-0.5	-0.8	-1.5	-1.7	-2.4	1.9	-8.1
26	-1.8	-1.8	-2.0	-2.5	-2.9	-3.2	-3.5	-2.7	-1.1	0.4	1.0	1.9	2.8	2.3	1.9	2.4	1.9	0.2	-0.2	-0.8	-1.2	-0.5	-2.0	-2.5	-0.6	2.8	-3.5
27	-2.7	-2.7	-2.5	-2.2	-2.4	-3.5	-4.1	-2.7	0.2	1.5	2.6	4.2	4.9	6.7	7.4	7.3	7.3	6.9	5.8	4.5	3.5	3.0	3.4	3.3	2.1	7.4	-4.1
28	2.8	2.7	3.7	3.3	3.2	2.7	2.0	0.7	0.3	0.5	0.9	1.3	0.9	0.0	0.2	-0.2	1.6	0.9	0.1	-0.3	-1.5	-1.6	-2.0	-3.2	0.8	3.7	-3.2
29	-4.1	-4.5	-5.1	-5.6	-6.5	-6.5	-5.9	-4.6	-0.4	0.6	2.3	3.4	4.6	4.7	4.0	5.0	4.6	4.4	3.3	1.0	-0.5	-1.2	-2.5	-3.2	-0.5	5.0	-6.5
30	-3.7	-4.4	-5.1	-5.5	-5.8	-5.9	-5.9	-4.0	-1.2	1.1	2.6	3.7	5.9	6.5	7.3	6.3	5.7	4.0	3.0	2.0	1.7	1.4	0.7	0.4	0.4	7.3	-5.9
31	-0.3	-1.0	-1.1	-1.1	-0.8	-0.6	-0.8	-0.4	1.7	3.0	3.5	3.6	3.6	3.9	4.3	4.7	4.3	4.0	2.8	1.2	-0.1	-1.2	-3.0	-4.0	1.1	4.7	-4.0
Avg	-3.1	-3.7	-4.1	-4.4	-4.7	-4.9	-5.2	-4.8	-2.0	-0.1	1.6	3.2	4.2	4.9	5.5	5.6	5.2	4.4	3.0	1.4	0.1	-0.8	-1.8	-2.5	-0.1	6.2	-6.1
Max	3.1	2.7	3.7	3.3	3.2	2.7	2.0	2.1	4.1	5.9	10.7	13.4	15.2	14.9	15.3	16.2	15.9	15.3	12.8	9.9	7.4	4.9	4.8	4.8	6.1	16.2	1.2
Min	-11.6	-12.6	-13.1	-14.3	-14.8	-15.6	-16.1	-16.2	-12.0	-8.6	-6.3	-4.8	-3.4	-2.5	-3.5	-3.5	-4.1	-4.3	-5.0	-5.9	-7.1	-7.8	-8.6	-10.6	-7.5	-2.5	-16.2

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Speed - MDEQ monitor (meters per second)
January 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	1.1	0.8	1.3	1.0	0.9	1.0	0.9	0.8	0.9	0.8	1.3	1.2	1.5	1.0	1.0	0.9	0.7	0.7	0.9	0.9	0.8	0.9	0.9	0.9	1.0	1.5	0.7
2	0.9	0.8	0.7	0.9	0.9	0.6	0.8	0.9	0.8	1.0	1.2	1.3	1.2	1.0	1.0	0.7	0.7	0.7	0.7	1.0	1.0	0.8	0.8	0.8	0.9	1.3	0.6
3	0.7	0.8	0.7	1.1	1.1	1.0	0.9	0.7	0.9	0.9	1.3	1.4	1.7	0.9	0.8	0.6	0.9	0.6	0.5	0.5	0.6	0.7	0.8	1.1	0.9	1.7	0.5
4	1.1	0.8	0.9	1.1	0.9	1.1	1.3	0.9	0.9	1.3	1.0	0.7	0.9	1.1	1.9	1.3	1.0	1.1	0.7	0.8	0.5	0.6	0.8	0.8	1.0	1.9	0.5
5	0.9	1.0	0.8	0.7	0.9	1.4	1.3	1.3	1.2	0.9	1.6	2.2	2.4	2.9	3.4	2.9	3.3	2.7	1.6	1.5	1.0	1.3	1.0	0.9	1.6	3.4	0.7
6	0.9	1.2	1.2	1.2	1.2	1.1	1.5	1.6	1.3	1.6	1.6	1.5	1.7	1.2	1.5	2.7	2.1	1.2	0.9	0.8	1.2	1.1	1.3	1.3	1.4	2.7	0.8
7	1.2	1.3	1.0	1.2	1.2	1.2	1.2	1.4	1.5	1.4	2.0	2.3	2.0	2.5	2.8	2.8	2.6	1.7	1.4	1.5	1.1	0.8	0.8	0.9	1.6	2.8	0.8
8	1.0	0.8	1.1	1.0	0.9	0.7	0.7	0.7	0.9	1.0	1.0	1.4	1.6	2.2	2.5	1.8	1.2	1.7	1.3	1.5	1.4	1.4	1.4	1.1	1.3	2.5	0.7
9	1.4	1.4	1.8	1.5	1.5	1.9	1.5	1.2	2.7	1.9	1.2	2.1	2.5	1.3	1.5	2.2	1.4	1.3	1.6	1.4	1.7	1.5	1.5	1.4	1.6	2.7	1.2
10	1.9	2.4	2.5	2.3	1.4	1.5	1.8	1.3	1.0	1.3	1.6	1.5	2.0	2.2	1.4	1.8	1.2	1.3	1.2	1.0	1.0	0.8	0.8	1.2	1.5	2.5	0.8
11	1.1	0.9	1.0	0.8	1.1	0.9	1.3	1.2	1.4	2.0	2.9	3.6	3.8	4.2	4.4	3.9	3.3	2.5	1.3	1.5	1.7	2.1	2.0	2.0	2.1	4.4	0.8
12	1.9	1.6	1.5	1.3	1.5	1.6	1.2	1.4	1.5	1.3	1.2	1.3	1.5	1.8	1.8	2.0	1.7	1.5	1.5	1.3	1.1	1.0	1.0	0.9	1.4	2.0	0.9
13	0.9	0.9	1.0	1.0	0.9	1.2	1.0	1.0	1.1	0.9	1.1	1.4	1.2	1.4	1.2	1.1	1.2	1.0	1.0	0.8	0.7	0.8	0.9	0.8	1.0	1.4	0.7
14	0.7	0.6	0.6	0.7	0.7	0.8	1.1	1.2	1.1	1.0	1.2	1.3	1.5	1.6	1.8	1.5	1.2	1.3	1.4	1.3	1.4	1.6	1.4	1.4	1.2	1.8	0.6
15	2.0	1.3	1.2	1.0	0.8	0.6	0.6	0.7	1.0	0.9	0.9	1.3	1.5	1.2	1.7	1.4	1.3	0.7	0.9	0.7	0.9	0.7	0.8	1.1	1.0	2.0	0.6
16	0.9	0.9	0.7	0.8	0.8	0.7	1.0	1.0	0.8	0.8	1.2	1.5	1.4	1.5	1.5	1.3	1.0	1.1	1.0	0.8	0.8	1.1	1.1	1.0	1.0	1.5	0.7
17	1.0	1.1	1.1	1.7	1.2	1.4	1.3	1.3	1.2	1.3	2.0	1.1	1.4	1.1	1.3	1.1	2.2	0.8	0.8	1.6	1.3	1.0	0.7	1.8	1.3	2.2	0.7
18	2.3	2.9	4.3	5.5	3.9	2.0	2.3	2.3	2.1	1.6	1.7	2.0	1.8	1.6	1.4	1.7	1.3	1.6	1.5	1.3	1.2	1.1	1.1	1.0	2.1	5.5	1.0
19	0.9	0.9	1.0	0.8	0.8	0.9	0.9	1.3	1.1	1.2	1.4	1.5	1.1	1.3	1.2	1.0	0.9	0.7	0.6	0.8	0.8	1.2	0.7	1.1	1.0	1.5	0.6
20	1.5	0.9	1.0	1.0	0.9	1.6	1.1	1.0	1.1	0.9	0.6	0.8	1.1	1.2	0.9	1.1	0.9	1.3	0.9	0.8	1.1	1.1	0.8	0.9	1.0	1.6	0.6
21	1.0	0.7	0.6	1.0	0.9	0.9	1.0	1.3	1.5	1.1	0.7	0.6	0.7	0.7	0.6	1.0	0.7	0.5	0.8	0.6	0.7	0.6	0.6	0.8	0.8	1.5	0.5
22	0.7	0.6	0.6	1.0	1.1	0.9	1.3	1.4	1.0	1.5	0.9	1.0	0.9	1.3	1.0	1.1	0.8	0.6	1.0	0.9	0.6	0.7	0.7	0.8	0.9	1.5	0.6
23	0.8	0.8	0.6	0.5	0.6	0.7	0.9	0.8	0.7	0.7	0.9	0.6	1.0	1.3	1.4	0.8	1.4	1.0	0.7	0.5	0.5	0.4	0.6	0.6	0.8	1.4	0.4
24	0.9	0.8	0.8	1.1	1.0	1.3	1.2	1.1	1.4	1.4	0.8	1.0	1.0	1.3	1.5	1.0	0.5	0.6	0.8	0.8	0.8	0.7	0.7	0.6	1.0	1.5	0.5
25	0.7	0.5	0.5	0.8	1.1	0.9	1.0	1.0	1.0	1.4	0.7	0.8	1.1	1.6	1.7	1.7	0.9	0.5	0.7	0.5	0.7	0.8	1.0	1.1	0.9	1.7	0.5
26	1.0	1.2	1.1	0.8	1.1	1.0	1.0	0.8	0.8	0.7	0.7	1.3	1.4	1.6	1.5	1.2	1.0	0.7	0.6	1.0	1.5	1.0	1.2	1.2	1.1	1.6	0.6
27	1.0	1.0	0.9	1.2	1.2	1.2	1.3	1.1	1.4	1.1	0.9	1.0	0.7	1.1	1.0	0.6	0.7	0.4	0.8	0.8	0.7	0.8	0.7	0.8	0.9	1.4	0.4
28	0.7	0.8	1.0	0.7	0.7	1.3	1.0	0.9	1.0	0.8	0.8	0.7	0.8	1.2	1.3	1.0	1.0	0.7	0.7	0.7	0.7	0.6	0.4	0.5	0.8	1.3	0.4
29	0.8	0.5	0.7	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.7	0.6	1.0	1.5	1.2	1.2	1.2	0.5	0.6	0.5	0.5	0.6	0.7	0.8	0.8	1.5	0.5
30	0.6	0.8	0.8	0.8	0.9	1.1	1.3	1.4	0.9	0.7	1.0	0.9	1.0	1.0	1.2	1.1	0.7	0.8	0.5	0.7	0.8	0.7	0.7	0.8	0.9	1.4	0.5
31	0.9	0.9	0.7	1.0	0.9	1.0	0.9	1.0	1.2	0.9	0.9	0.9	1.1	1.3	1.3	2.4	2.4	1.3	0.9	0.7	0.9	0.8	0.7	0.9	1.1	2.4	0.7
Avg	1.1	1.0	1.1	1.2	1.1	1.1	1.1	1.1	1.2	1.1	1.2	1.3	1.4	1.5	1.6	1.5	1.3	1.1	1.0	1.0	1.0	0.9	0.9	1.0	1.2	2.1	0.6
Max	2.3	2.9	4.3	5.5	3.9	2.0	2.3	2.3	2.7	2.0	2.9	3.6	3.8	4.2	4.4	3.9	3.3	2.7	1.6	1.6	1.7	2.1	2.0	2.0	2.1	5.5	1.2
Min	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.6	0.6	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.8	1.3	0.4

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Speed - MDEQ monitor (meters per second)
February 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0.9	1.0	1.1	1.2	1.4	1.7	1.3	1.3	1.2	1.1	1.1	1.4	1.2	3.6	2.8	3.3	2.9	2.5	1.9	1.6	2.0	1.6	0.9	0.9	1.7	3.6	0.9
2	0.8	0.8	1.0	0.9	0.7	0.7	0.7	0.7	0.6	0.4	0.7	0.5	0.5	0.9	0.9	0.9	0.6	0.9	1.6	1.1	1.3	0.6	0.5	0.4	0.8	1.6	0.4
3	0.5	0.6	0.5	0.5	0.6	0.9	0.8	0.6	0.8	0.9	1.0	1.3	1.3	1.0	1.0	0.9	1.1	1.0	1.0	1.1	0.7	0.4	0.6	0.5	0.8	1.3	0.4
4	0.7	0.6	0.6	1.2	2.3	3.1	2.4	2.4	2.7	2.6	2.2	1.7	1.2	1.0	1.1	1.1	0.7	0.6	1.0	1.1	1.4	1.3	0.9	1.2	1.5	3.1	0.6
5	1.3	1.4	1.5	1.4	1.2	1.3	1.4	1.2	1.2	1.4	1.1	0.9	1.3	1.1	1.0	1.4	1.0	1.2	1.2	1.0	1.0	1.0	0.9	1.1	1.2	1.5	0.9
6	1.4	1.3	1.1	1.7	1.2	1.0	1.5	0.7	0.7	1.3	0.9	1.0	1.1	0.7	0.6	0.9	0.6	0.6	0.5	0.5	0.3	0.4	0.4	0.5	0.9	1.7	0.3
7	0.5	0.8	0.7	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.9	1.0	1.0	1.2	0.9	1.5	1.4	1.4	1.1	1.1	0.9	1.1	1.4	1.8	1.0	1.8	0.5
8	1.2	1.2	1.2	0.6	0.4	0.6	0.7	1.2	1.0	0.7	0.8	0.9	1.4	0.9	1.0	1.0	1.3	0.7	0.7	1.1	1.7	1.5	1.1	1.6	1.0	1.7	0.4
9	1.6	1.4	1.5	0.8	1.1	1.0	1.0	0.9	1.0	1.4	1.4	1.4	1.4	1.5	1.4	1.6	2.5	1.8	1.6	1.3	1.0	1.2	1.2	1.4	1.4	2.5	0.8
10	1.3	1.2	1.4	1.4	1.0	1.2	1.0	1.2	1.2	1.2	1.7	1.6	1.6	1.8	1.2	1.4	1.1	1.1	1.2	1.0	0.8	1.0	1.2	1.2	1.2	1.8	0.8
11	1.6	1.2	0.9	1.0	0.8	0.8	1.0	0.9	1.0	1.0	1.2	1.4	1.2	1.0	1.2	1.0	0.7	0.8	1.1	0.7	0.6	0.9	1.2	1.3	1.0	1.6	0.6
12	1.0	1.2	1.4	1.4	1.1	0.8	1.1	1.4	0.8	0.9	0.8	1.0	1.1	1.9	1.4	1.7	1.1	1.3	1.7	0.6	0.6	0.5	0.9	0.7	1.1	1.9	0.5
13	0.6	0.7	1.0	1.0	0.8	0.7	0.7	0.8	0.8	0.7	1.3	1.5	1.2	1.3	1.2	1.4	1.7	2.6	2.4	1.1	1.0	2.0	2.0	1.7	1.3	2.6	0.6
14	1.5	1.1	1.3	1.3	1.0	0.9	1.1	1.2	1.3	1.3	1.3	1.3	1.4	1.5	1.4	1.9	1.8	1.5	1.3	0.9	0.9	0.9	0.9	1.2	1.3	1.9	0.9
15	1.1	1.2	1.6	1.3	1.7	1.6	1.6	1.4	1.5	1.5	1.5	1.8	1.9	1.7	1.8	1.6	1.5	1.8	1.6	1.7	1.3	1.2	1.3	1.7	1.5	1.9	1.1
16	1.9	1.4	1.3	1.2	1.3	1.6	2.0	1.6	1.7	1.3	1.5	1.5	1.7	1.7	1.8	1.7	1.4	1.2	0.8	0.7	1.0	0.9	1.0	0.8	1.4	2.0	0.7
17	0.7	0.8	0.7	0.9	1.1	0.7	0.9	0.9	0.9	1.2	1.3	1.5	1.5	1.8	1.5	1.5	1.4	1.3	1.1	1.0	0.9	1.0	0.9	1.1	1.1	1.8	0.7
18	1.2	1.1	0.8	1.0	1.2	1.2	1.0	1.1	1.1	1.5	0.8	1.1	1.7	2.3	1.8	1.7	1.8	0.9	0.8	0.6	0.6	0.6	0.6	0.8	1.1	2.3	0.6
19	0.9	0.8	0.7	0.9	1.2	1.0	1.2	1.1	1.1	1.5	1.5	1.4	1.0	1.2	0.8	1.1	0.9	0.8	0.8	1.0	1.2	1.1	0.7	0.6	1.0	1.5	0.6
20	0.9	1.5	1.3	1.6	1.6	1.2	1.5	1.4	1.5	1.5	1.0	1.0	1.6	1.7	1.4	2.8	2.8	0.9	0.6	0.5	0.6	0.7	0.8	0.6	1.3	2.8	0.5
21	0.8	1.1	1.3	0.9	0.8	1.0	1.1	1.3	1.0	0.9	0.9	0.9	1.2	1.0	1.4	1.2	1.4	0.7	1.1	0.6	0.7	0.8	0.9	0.9	1.0	1.4	0.6
22	1.1	1.1	1.0	1.1	1.1	0.9	1.0	1.3	1.3	1.2	0.8	0.7	0.8	2.1	2.0	1.3	1.1	1.3	1.0	0.7	0.7	0.5	0.7	0.5	1.1	2.1	0.5
23	0.8	1.0	0.9	1.0	0.9	1.1	1.0	0.8	1.1	0.9	1.5	1.1	1.2	1.5	1.3	1.7	1.5	1.2	0.7	0.8	1.0	1.1	1.1	0.8	1.1	1.7	0.7
24	1.2	0.9	0.6	1.1	1.1	0.8	2.1	2.7	2.1	1.6	2.8	3.0	3.0	3.3	3.0	2.4	2.2	2.3	1.4	1.6	1.6	1.3	1.9	2.0	1.9	3.3	0.6
25	2.1	2.1	2.1	1.0	1.2	0.9	0.9	0.6	0.7	1.4	2.2	2.0	2.1	1.5	1.5	2.5	3.4	3.0	2.4	1.2	2.6	3.1	3.8	3.9	2.0	3.9	0.6
26	3.7	3.0	3.0	3.9	3.0	2.1	1.7	2.1	2.0	1.5	1.5	1.7	3.2	3.2	4.0	3.9	4.1	4.3	3.3	2.8	4.1	2.8	2.1	1.0	2.8	4.3	1.0
27	0.8	1.2	0.9	1.1	1.1	1.0	0.9	0.9	1.0	1.4	1.6	1.9	2.8	3.0	3.8	3.0	3.5	3.1	1.9	1.1	1.3	0.9	1.3	1.2	1.7	3.8	0.8
28	1.5	1.3	1.3	1.1	2.2	3.2	2.4	1.3	1.7	1.1	2.0	3.3	3.4	3.7	4.0	3.5	3.1	1.8	0.9	1.1	1.1	1.1	1.2	3.0	2.1	4.0	0.9
29	3.0	2.9	1.7	2.4	1.7	1.6	2.9	3.1	3.7	3.0	2.6	3.0	3.5	4.1	4.8	4.7	5.8	4.9	4.4	5.4	4.9	2.9	2.0	0.9	3.3	5.8	0.9
Avg	1.3	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.5	1.6	1.8	1.8	1.9	1.9	1.6	1.4	1.2	1.3	1.2	1.2	1.2	1.4	2.5	0.7
Max	3.7	3.0	3.0	3.9	3.0	3.2	2.9	3.1	3.7	3.0	2.8	3.3	3.5	4.1	4.8	4.7	5.8	4.9	4.4	5.4	4.9	3.1	3.8	3.9	3.3	5.8	1.1
Min	0.5	0.6	0.5	0.5	0.4	0.6	0.7	0.6	0.6	0.4	0.7	0.5	0.5	0.7	0.6	0.9	0.6	0.6	0.5	0.5	0.3	0.4	0.4	0.4	0.8	1.3	0.3

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Speed - MDEQ monitor (meters per second)
March 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0.9	1.7	1.5	1.3	1.2	2.1	1.9	0.8	0.7	0.9	1.3	1.8	2.3	1.8	1.7	1.4	1.6	1.1	0.9	1.0	0.8	0.8	1.1	1.1	1.3	2.3	0.7
2	0.9	0.8	1.0	0.9	1.0	1.2	1.1	1.1	0.9	1.1	2.2	1.4	1.0	1.1	1.7	2.0	0.9	0.5	1.5	2.5	2.5	1.2	1.3	2.5	1.3	2.5	0.5
3	1.6	1.5	1.9	1.6	1.2	1.2	1.6	1.5	1.4	1.8	2.1	2.0	2.0	2.3	2.0	2.2	1.5	1.0	1.6	1.5	1.3	1.0	1.0	1.1	1.6	2.3	1.0
4	1.1	1.0	1.2	1.0	0.8	0.9	0.8	1.0	1.3	1.5	2.0	2.4	3.5	2.9	3.0	1.8	2.2	1.6	1.2	1.3	1.3	1.3	1.3	1.8	1.6	3.5	0.8
5	1.3	1.1	0.9	1.0	1.3	1.9	1.4	1.5	1.3	1.7	2.0	1.7	1.7	2.0	2.4	2.2	1.5	2.0	1.3	1.4	1.3	1.1	1.6	0.8	1.5	2.4	0.8
6	0.9	0.8	0.8	0.9	0.9	0.8	1.0	0.9	1.1	1.6	2.1	2.4	2.0	2.1	1.7	1.9	1.5	1.6	2.0	1.6	1.5	1.4	1.2	0.9	1.4	2.4	0.8
7	0.9	0.7	0.8	0.8	0.9	0.9	1.1	0.9	1.1	1.3	1.5	1.5	2.3	1.8	1.5	2.7	3.1	2.9	2.0	1.8	1.7	1.6	1.0	1.1	1.5	3.1	0.7
8	0.7	0.9	0.9	0.9	0.7	0.9	0.7	0.8	0.9	1.2	1.6	1.4	1.4	1.1	1.4	1.4	1.4	1.2	1.2	1.1	0.9	1.6	1.3	0.9	1.1	1.6	0.7
9	1.0	0.9	0.7	0.8	0.9	0.8	0.8	0.9	1.1	1.1	0.8	1.1	1.4	1.3	1.6	2.3	2.8	2.4	2.8	1.4	1.0	1.1	1.0	1.1	1.3	2.8	0.7
10	0.8	0.9	0.9	0.8	1.2	2.4	1.1	1.1	1.1	2.6	3.6	3.5	4.0	4.4	5.0	4.6	4.0	4.1	3.8	2.6	1.2	1.0	0.6	0.5	2.3	5.0	0.5
11	0.8	0.8	0.5	0.5	0.6	0.7	0.6	0.6	1.3	1.1	1.3	1.5	1.8	1.3	0.9	1.2	2.1	1.8	0.8	0.9	0.7	0.6	0.8	1.2	1.0	2.1	0.5
12	1.4	1.1	0.5	0.5	0.6	0.7	0.8	1.3	0.6	1.3	1.0	2.3	1.4	1.8	2.1	1.8	1.4	1.4	1.0	0.6	0.8	0.7	0.7	0.6	1.1	2.3	0.5
13	0.7	0.6	1.0	0.8	1.2	1.4	2.8	2.5	3.1	3.2	3.3	3.0	3.4	3.7	3.6	3.4	3.4	3.5	2.6	2.7	2.1	2.1	1.9	2.1	2.4	3.7	0.6
14	2.1	1.7	1.9	1.9	1.6	1.6	1.7	1.9	1.9	1.2	1.5	1.5	1.3	1.7	2.1	2.6	2.3	2.0	1.4	1.1	1.1	0.7	0.6	0.7	1.6	2.6	0.6
15	1.6	1.2	1.2	1.1	0.8	0.8	1.1	0.9	1.4	1.4	1.3	1.5	1.4	1.4	1.0	1.1	1.4	1.0	1.0	0.8	0.6	0.5	0.7	0.6	1.1	1.6	0.5
16	0.7	0.7	0.8	0.8	1.0	1.0	1.1	1.1	0.8	1.0	1.1	1.4	1.9	1.3	2.3	1.7	1.4	1.1	2.2	1.1	1.1	0.9	1.1	1.2	1.2	2.3	0.7
17	0.7	0.6	0.8	0.7	0.6	0.6	0.5	0.7	0.7	0.7	1.3	1.4	1.2	1.1	1.5	1.1	0.9	0.9	0.9	0.8	0.5	0.7	0.5	0.7	0.8	1.5	0.5
18	0.7	0.6	0.7	0.7	0.9	0.8	0.8	0.7	0.8	0.7	0.9	1.3	1.4	2.2	1.8	1.8	2.0	1.9	1.7	1.1	0.7	0.5	0.5	0.6	1.1	2.2	0.5
19	0.6	0.8	0.6	0.5	0.6	0.8	0.9	0.6	0.5	0.6	0.9	1.3	1.6	1.4	1.5	1.4	1.4	1.0	1.1	0.8	0.9	0.7	0.5	0.6	0.9	1.6	0.5
20	0.6	0.7	0.6	0.6	0.8	0.8	0.6	0.7	0.6	0.9	1.6	1.8	3.0	2.8	2.0	2.4	2.1	1.9	1.6	0.6	0.4	0.6	0.5	0.5	1.2	3.0	0.4
21	0.5	0.6	0.7	1.5	1.4	1.3	0.9	1.1	1.0	1.1	1.1	2.2	3.5	2.0	2.7	2.7	2.3	3.0	2.3	2.5	2.6	2.9	1.8	1.2	1.8	3.5	0.5
22	0.7	0.7	0.6	0.5	0.6	0.5	0.6	0.4	0.5	1.0	1.7	1.4	1.4	1.2	2.2	2.2	2.7	1.7	0.7	0.6	0.8	0.7	0.7	0.6	1.0	2.7	0.4
23	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.6	0.9	1.1	1.2	0.8	0.8	1.1	1.2	1.8	2.4	1.6	0.8	0.6	1.4	1.4	1.5	2.2	1.1	2.4	0.6
24	2.6	2.0	2.0	1.6	1.4	1.4	1.4	1.4	1.5	1.5	1.7	1.9	1.4	1.4	1.0	1.8	1.6	1.0	1.2	2.5	2.5	1.8	1.2	1.5	1.6	2.6	1.0
25	1.8	1.3	1.3	1.3	1.7	1.5	1.3	1.3	1.2	1.7	1.2	1.4	1.8	2.4	3.3	2.9	3.0	2.3	2.0	1.4	1.1	0.7	0.6	0.7	1.6	3.3	0.6
26	0.6	0.6	0.6	0.6	0.5	0.5	0.7	0.6	0.5	0.9	1.5	1.6	2.5	2.4	2.5	2.2	2.1	1.0	0.8	0.8	1.2	1.8	0.5	0.8	1.2	2.5	0.5
27	0.6	0.8	0.7	0.8	0.7	0.7	0.9	0.9	1.7	2.2	3.3	2.4	2.1	2.2	2.5	2.3	2.6	2.4	1.5	0.8	0.7	0.5	0.6	0.7	1.4	3.3	0.5
28	0.6	0.7	1.5	0.9	0.7	0.7	1.6	1.4	0.8	0.6	0.8	0.8	1.8	1.1	0.9	1.2	0.9	0.7	1.0	1.3	1.0	0.7	0.8	0.9	1.0	1.8	0.6
29	1.2	0.8	1.2	1.3	1.2	1.3	1.2	1.6	1.2	1.3	1.3	1.6	1.6	2.6	2.4	1.5	1.4	1.0	1.2	0.6	0.9	0.8	0.5	0.5	1.3	2.6	0.5
30	0.8	0.9	1.4	1.1	1.6	1.5	1.4	1.3	1.4	1.4	1.6	2.1	1.8	2.1	1.9	2.3	1.7	1.6	0.9	1.5	1.3	1.4	1.3	0.5	1.5	2.3	0.5
31	0.5	0.5	0.5	0.7	0.8	0.9	1.1	1.0	1.0	1.6	2.9	3.7	3.6	3.0	3.3	3.0	2.7	2.2	2.5	2.5	1.4	0.9	0.6	0.7	1.7	3.7	0.5
Avg	1.0	0.9	1.0	0.9	1.0	1.1	1.1	1.1	1.1	1.3	1.7	1.8	2.0	2.0	2.1	2.1	2.0	1.7	1.5	1.3	1.2	1.1	0.9	1.0	1.4	2.6	0.6
Max	2.6	2.0	2.0	1.9	1.7	2.4	2.8	2.5	3.1	3.2	3.6	3.7	4.0	4.4	5.0	4.6	4.0	4.1	3.8	2.7	2.6	2.9	1.9	2.5	2.4	5.0	1.0
Min	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.8	0.8	0.8	1.1	0.9	1.1	0.9	0.5	0.7	0.6	0.4	0.5	0.5	0.5	0.8	1.5	0.4

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Direction - MDEQ monitor (degrees)
January 2024

	<< Hour >>																								
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Prev
1	24	326	41	54	58	306	50	32	28	16	115	329	22	356	336	358	322	5	39	17	358	52	23	96	19
2	340	46	41	45	52	68	25	349	349	22	87	61	360	26	12	348	354	20	347	13	24	12	70	7	23
3	57	31	49	337	159	340	64	46	1	67	221	2	14	246	358	323	43	2	23	323	146	327	36	252	12
4	2	29	27	352	360	290	62	327	342	232	336	17	359	323	322	320	261	271	289	347	136	65	1	15	344
5	7	357	319	337	338	350	354	357	30	345	335	313	292	300	316	306	315	320	304	274	34	70	20	354	338
6	11	42	30	13	11	39	20	16	15	4	42	342	13	328	224	202	227	328	42	324	4	360	349	14	4
7	116	2	166	169	150	116	213	124	150	306	268	256	316	325	336	329	322	316	211	179	185	149	222	68	213
8	111	107	134	343	159	316	232	310	227	133	146	46	30	285	284	291	291	204	214	199	62	40	40	350	289
9	308	12	357	359	333	18	327	344	168	164	309	222	141	286	219	242	251	198	243	37	98	52	34	58	327
10	124	121	117	161	107	53	116	11	346	356	36	26	29	309	329	309	319	324	299	156	107	326	7	247	21
11	30	138	21	13	39	13	34	24	86	174	179	200	214	217	227	227	245	308	288	250	41	62	10	238	327
12	254	225	251	268	260	225	242	222	227	238	220	303	255	242	255	243	237	191	183	210	226	218	279	112	236
13	185	162	211	185	274	145	179	80	97	61	72	37	39	26	40	29	32	126	18	115	13	46	291	170	82
14	128	125	12	350	342	114	308	46	349	250	165	20	31	23	278	254	215	251	249	238	188	245	208	232	269
15	253	231	252	258	81	47	26	28	282	73	98	43	29	37	1	34	23	22	166	324	153	197	277	312	10
16	278	199	181	42	332	298	324	289	316	141	27	5	24	8	30	29	354	38	26	1	326	338	343	265	348
17	310	330	337	347	252	352	210	357	4	262	20	1	29	17	290	247	165	121	279	163	163	18	258	309	320
18	301	332	329	327	331	318	238	230	207	212	259	30	339	261	234	199	213	213	303	199	261	317	303	248	271
19	326	260	309	274	306	343	136	40	32	62	55	41	9	20	16	15	26	21	18	8	3	38	9	16	11
20	243	352	21	6	347	190	352	302	353	10	24	344	31	12	17	23	44	133	166	96	91	113	56	349	23
21	348	60	48	51	96	12	98	354	161	14	61	275	4	30	28	18	354	309	15	52	47	45	54	13	30
22	346	10	289	359	336	357	332	340	354	239	354	6	354	24	39	32	43	3	46	31	73	5	327	61	5
23	70	104	343	354	336	356	348	349	77	353	16	38	25	29	56	353	332	357	34	45	30	79	27	5	20
24	342	26	1	344	5	7	319	341	285	224	354	4	358	178	194	165	299	85	21	43	355	9	8	360	355
25	23	1	20	10	357	345	20	348	29	187	19	355	343	319	315	317	319	324	359	65	79	44	12	343	1
26	28	11	349	338	10	1	345	345	335	169	48	28	357	4	326	244	221	9	17	344	332	346	341	157	353
27	25	12	251	334	54	187	46	354	320	6	224	25	24	28	49	63	38	59	39	19	14	47	67	16	25
28	34	35	28	67	67	320	52	13	49	42	15	136	64	30	214	264	251	17	57	24	94	126	49	59	44
29	31	91	51	17	9	356	4	352	346	208	117	45	11	41	48	20	10	95	79	64	19	342	25	321	29
30	340	1	7	323	352	333	6	346	307	221	356	40	18	21	3	6	24	49	83	52	18	12	351	29	7
31	30	351	164	336	354	28	340	17	357	16	1	32	27	26	8	207	205	147	344	29	26	44	35	355	14
Prev	4	27	6	354	6	358	6	358	357	349	30	11	11	352	337	320	317	5	360	24	50	31	5	358	4

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Direction - MDEQ monitor (degrees)
February 2024

	<< Hour >>																								
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Prev
1	5	7	357	339	352	309	352	31	344	13	14	32	59	192	182	152	143	168	204	121	176	156	45	28	37
2	38	33	55	43	38	35	37	26	44	15	16	6	23	42	41	35	93	295	64	232	285	294	221	261	22
3	261	301	293	286	62	273	282	274	280	284	283	266	268	300	303	304	278	271	282	271	288	10	207	337	287
4	290	258	194	39	53	41	70	184	208	211	233	277	337	358	353	359	315	21	22	10	49	1	41	13	356
5	49	131	351	30	279	358	19	43	355	14	151	47	48	298	66	176	252	197	136	350	50	12	345	12	24
6	21	336	349	201	334	332	233	340	29	29	7	27	50	28	40	10	87	63	28	23	43	338	235	356	12
7	354	329	269	251	216	198	201	360	29	241	281	282	247	284	247	232	252	212	247	248	243	188	237	266	254
8	258	262	242	332	347	353	292	286	321	344	7	356	22	30	328	233	276	41	339	13	43	202	334	168	326
9	139	126	152	10	185	165	148	350	301	162	37	17	33	10	329	265	258	258	171	82	326	151	239	141	148
10	103	299	41	213	240	248	297	260	72	335	41	10	349	36	298	257	291	318	330	342	3	340	329	330	327
11	289	351	196	129	146	16	90	176	107	10	14	29	42	50	19	44	183	274	26	302	242	331	258	75	27
12	339	360	29	352	8	6	239	60	356	269	58	315	308	62	48	327	323	311	326	33	15	330	26	351	354
13	25	244	186	207	118	2	329	16	4	353	24	43	55	266	241	275	229	288	318	216	310	185	210	232	291
14	193	268	272	249	304	189	238	236	249	240	267	337	278	4	325	246	256	280	204	343	17	349	330	329	279
15	326	359	326	233	222	235	255	256	255	263	255	334	8	22	344	312	3	196	292	301	287	218	312	37	295
16	245	278	251	245	263	240	257	241	249	259	274	315	359	18	28	44	338	247	230	228	258	284	268	280	273
17	292	249	35	263	177	265	311	63	1	29	18	39	32	46	30	32	47	325	104	344	22	9	284	269	360
18	15	294	184	25	202	14	20	19	83	69	298	46	3	6	347	356	342	18	354	352	339	96	314	344	5
19	182	253	336	343	347	37	23	45	342	270	72	185	96	78	1	19	354	27	56	20	8	14	278	4	12
20	21	333	8	355	341	308	293	342	52	27	345	71	103	196	245	181	167	292	283	357	18	75	58	344	357
21	87	338	1	28	1	37	287	269	314	338	358	10	17	5	251	249	258	248	149	10	132	337	277	313	333
22	295	325	340	5	262	7	290	314	331	331	333	46	7	325	312	306	289	307	291	188	41	40	42	37	334
23	50	352	19	1	12	18	13	30	356	4	36	24	323	247	217	229	248	246	267	308	60	357	15	38	353
24	25	345	67	38	37	27	258	243	254	264	255	240	217	230	243	253	268	265	271	269	274	261	248	261	270
25	248	237	232	271	262	283	88	292	261	258	225	222	231	251	256	224	219	220	227	263	221	202	194	186	237
26	193	194	205	199	211	223	248	295	253	327	330	320	332	326	326	324	323	318	329	334	336	326	278	164	289
27	264	151	194	195	328	18	143	299	205	139	350	4	270	241	245	259	255	254	269	327	132	80	103	179	238
28	169	335	46	27	194	202	210	350	24	27	184	217	210	217	222	213	201	180	214	249	7	52	222	182	211
29	170	161	176	188	153	244	186	196	186	185	182	167	173	170	177	180	178	172	176	179	185	215	357	297	184
Prev	328	305	320	319	298	327	286	323	331	324	340	357	1	344	313	279	269	273	283	320	349	346	293	328	317

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Direction - MDEQ monitor (degrees)
March 2024

	<< Hour >>																								
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Prev
1	292	297	298	260	132	230	242	299	66	331	10	217	228	271	326	289	57	37	78	66	33	21	350	334	326
2	8	307	350	333	336	323	322	334	275	336	211	91	341	340	263	296	140	353	300	281	344	352	349	221	323
3	268	110	121	109	225	37	209	48	3	23	54	42	77	73	201	244	238	286	275	318	148	199	79	297	69
4	228	178	199	196	4	121	312	49	150	40	267	195	224	218	243	283	331	37	338	323	183	191	242	181	230
5	137	26	254	96	101	119	17	27	352	7	40	46	42	48	16	347	336	297	291	294	331	319	329	1	8
6	186	221	351	220	187	209	152	301	157	151	39	43	49	49	335	227	274	323	311	289	289	189	169	276	247
7	211	229	290	239	250	278	250	242	184	57	18	2	244	248	210	319	325	324	321	314	314	182	351	218	274
8	269	300	196	262	298	176	252	291	159	51	10	336	11	12	316	320	331	317	302	180	305	235	332	328	303
9	232	279	354	296	36	218	336	163	10	27	189	14	20	1	233	214	190	191	190	221	52	37	52	337	314
10	44	335	317	294	70	188	170	157	110	191	190	181	182	180	179	178	192	193	185	168	115	14	93	346	167
11	60	42	25	91	305	51	61	88	174	22	317	236	239	300	221	287	162	169	160	133	278	114	111	192	122
12	184	166	50	253	312	342	153	161	19	334	242	212	229	194	251	331	326	303	186	74	304	257	227	6	261
13	148	256	285	357	317	319	340	337	349	341	337	324	331	325	319	317	323	329	315	320	320	320	320	331	324
14	339	192	118	170	206	208	152	175	145	10	359	23	266	245	282	314	313	311	311	347	164	240	289	307	268
15	151	190	95	191	345	203	161	241	178	342	29	5	20	1	133	51	341	294	222	156	24	360	182	332	29
16	272	299	321	307	9	330	316	338	349	343	1	293	334	340	186	218	262	351	33	55	44	248	221	144	322
17	112	27	36	272	2	357	357	1	230	74	10	17	5	309	296	289	247	173	122	126	336	48	321	339	356
18	340	16	19	329	276	343	4	348	353	50	8	2	166	321	326	305	346	326	339	235	203	328	337	8	340
19	348	338	345	34	11	15	350	342	8	59	354	358	6	334	312	17	77	188	345	137	157	19	159	55	12
20	330	71	349	71	28	6	354	341	31	344	42	338	260	255	291	291	294	323	309	158	36	15	329	28	348
21	18	344	266	277	348	202	260	233	185	32	324	334	328	312	282	307	304	324	322	322	319	328	317	289	309
22	172	29	140	82	23	34	18	340	88	23	345	38	75	104	231	252	245	267	337	287	355	344	6	13	11
23	12	339	354	34	334	343	339	23	37	356	339	345	296	41	42	71	108	172	80	292	256	235	256	251	352
24	221	235	246	254	246	231	241	249	280	287	309	261	319	297	319	241	245	299	31	171	204	238	311	289	264
25	217	335	340	315	252	218	232	276	111	25	5	9	327	312	322	321	320	313	325	313	336	168	187	160	307
26	44	225	190	76	6	20	320	334	34	44	64	320	314	324	360	324	35	24	202	25	316	324	156	111	4
27	276	281	37	345	346	32	338	350	23	231	223	243	242	230	220	235	225	235	258	36	8	267	137	39	288
28	51	351	173	50	29	51	260	37	229	196	151	167	228	236	290	185	185	26	12	360	182	338	86	305	338
29	286	358	66	344	10	232	335	125	3	8	51	36	47	242	209	102	51	349	324	29	134	316	13	5	11
30	301	294	190	299	292	292	282	339	35	35	40	347	328	201	211	187	244	244	123	244	165	94	151	287	272
31	12	346	308	275	287	216	168	227	238	39	19	21	26	44	31	21	25	25	42	54	3	206	344	341	360
Prev	291	313	338	307	334	298	299	329	47	16	3	352	323	309	276	290	297	311	319	323	330	304	330	326	323

Montana Resources LLP
Greeley School Air Monitoring Summary
Standard Deviation of Wind Direction - MDEQ monitor (degrees)
January 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	76	76	93	76	72	78	72	56	74	57	61	58	53	42	24	25	40	53	57	63	71	69	51	71	61	93	24
2	56	60	78	79	79	65	57	64	75	75	68	72	37	46	22	29	30	52	59	78	70	72	83	79	62	83	22
3	74	64	59	74	77	63	61	73	54	66	79	53	30	60	45	61	40	50	36	34	36	62	50	81	58	81	30
4	68	62	67	76	62	84	90	75	54	74	49	46	40	22	18	27	37	35	43	28	51	45	27	84	53	90	18
5	48	24	72	43	73	76	77	80	76	43	29	28	28	24	15	16	14	22	39	69	62	63	70	71	48	80	14
6	65	76	78	69	74	69	57	52	47	37	37	30	40	61	52	21	24	46	50	32	21	20	21	43	47	78	20
7	37	43	77	79	62	71	81	64	75	75	52	58	35	21	18	18	21	39	56	62	68	54	69	64	54	81	18
8	65	71	70	61	56	71	62	72	73	71	77	45	57	57	52	56	90	68	68	68	69	52	60	63	65	90	45
9	59	38	45	60	64	57	63	76	59	27	38	24	29	59	45	23	38	65	70	61	75	59	62	54	52	76	23
10	50	45	50	48	74	49	66	53	67	50	55	28	47	40	45	60	50	39	65	66	69	54	55	81	54	81	28
11	68	78	65	75	83	65	41	48	50	27	24	28	39	32	34	36	41	35	60	57	59	21	58	45	49	83	21
12	33	38	47	48	42	40	64	43	40	49	61	65	53	36	35	33	35	37	37	38	48	44	63	73	46	73	33
13	54	72	64	69	67	59	75	68	63	63	59	49	59	40	51	28	25	55	52	51	43	31	56	66	55	75	25
14	55	70	62	70	60	63	61	49	51	73	53	66	51	52	42	42	58	44	44	44	49	33	36	35	53	73	33
15	32	39	38	44	39	65	59	72	61	70	57	41	36	49	32	36	36	56	39	49	50	62	75	64	50	75	32
16	65	66	75	76	70	86	70	75	84	56	58	52	49	38	34	40	51	41	57	65	76	67	67	69	62	86	34
17	74	77	71	76	65	44	59	86	60	69	56	60	28	38	40	57	17	55	46	26	35	58	72	29	54	86	17
18	32	16	15	11	13	43	48	34	21	40	41	26	53	71	58	28	37	42	56	61	57	60	73	68	42	73	11
19	78	55	61	69	64	77	71	45	45	50	65	36	47	20	31	22	30	34	31	58	48	70	45	47	50	78	20
20	68	52	51	67	43	82	36	72	61	30	60	50	39	48	66	30	20	26	48	41	22	26	21	23	45	82	20
21	28	63	61	33	70	77	82	60	78	73	49	65	37	43	37	30	30	51	29	66	40	48	59	60	53	82	28
22	70	61	66	51	75	53	73	61	54	68	62	59	45	29	33	22	43	69	22	41	71	75	71	67	56	75	22
23	66	70	66	65	76	49	78	58	64	49	28	36	27	20	26	35	14	24	52	39	42	62	60	69	49	78	14
24	57	72	55	71	64	64	81	64	68	85	48	23	41	30	26	44	45	63	40	20	76	79	48	43	54	85	20
25	74	61	72	74	63	65	62	62	53	77	59	43	28	29	23	19	24	50	38	76	59	51	53	79	54	79	19
26	72	72	67	58	37	49	62	71	66	55	60	25	32	29	17	36	40	52	34	66	78	85	72	74	55	85	17
27	67	73	80	71	62	79	64	65	78	70	70	28	56	32	37	33	56	47	40	34	52	64	76	75	59	80	28
28	63	76	73	69	69	74	66	95	70	52	34	57	45	35	57	47	39	40	25	44	72	66	70	69	59	95	25
29	55	64	51	73	49	63	67	65	48	66	53	48	17	13	29	21	21	55	48	58	56	55	59	48	49	73	13
30	57	61	68	53	67	65	65	43	66	63	50	26	36	24	15	13	20	44	73	58	55	60	72	59	51	73	13
31	65	49	77	55	58	56	53	67	71	29	51	31	23	21	29	47	22	45	71	50	28	73	70	83	51	83	21
Avg	59	59	64	63	62	65	65	63	61	58	53	44	40	37	35	33	35	46	48	52	55	56	59	62	53	81	23
Max	78	78	93	79	83	86	90	95	84	85	79	72	59	71	66	61	90	69	73	78	78	85	83	84	65	95	45
Min	28	16	15	11	13	40	36	34	21	27	24	23	17	13	15	13	14	22	22	20	21	20	21	23	42	73	11

Montana Resources LLP
Greeley School Air Monitoring Summary
Standard Deviation of Wind Direction - MDEQ monitor (degrees)
February 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	79	59	83	64	86	84	70	87	69	53	38	26	57	12	14	15	14	17	15	38	34	27	44	44	47	87	12
2	30	40	36	47	42	50	63	52	55	44	23	41	49	26	22	22	31	34	51	29	53	45	35	57	41	63	22
3	55	57	44	48	32	29	49	66	40	34	33	31	25	36	39	35	27	29	31	28	37	44	49	41	39	66	25
4	42	61	50	55	53	20	51	61	55	53	65	57	34	42	42	42	49	46	24	64	74	73	70	73	52	74	20
5	84	87	76	66	58	39	25	57	54	55	63	56	49	47	69	41	49	30	21	36	63	50	61	56	54	87	21
6	82	68	88	80	59	66	63	42	75	19	23	22	26	47	40	41	42	39	59	48	64	65	67	53	53	88	19
7	45	51	48	41	45	45	54	30	41	53	38	31	49	41	51	36	25	43	27	30	51	51	39	29	41	54	25
8	36	44	63	52	62	34	84	67	79	42	41	57	27	36	29	51	29	53	62	22	45	65	55	31	49	84	22
9	54	52	33	54	62	64	69	61	64	66	43	63	34	46	48	54	33	52	61	81	73	73	74	78	58	81	33
10	55	68	75	67	83	68	69	62	72	52	26	46	31	31	48	52	57	26	64	68	59	76	76	47	57	83	26
11	71	52	67	44	70	64	53	67	88	59	75	61	51	63	35	49	61	50	26	58	64	59	73	81	60	88	26
12	64	73	79	56	33	35	84	49	44	72	52	38	48	12	28	25	47	38	22	40	44	47	36	58	47	84	12
13	53	56	34	37	61	57	64	45	53	23	24	32	53	54	68	34	23	21	16	48	82	66	46	47	46	82	16
14	61	56	60	53	61	74	61	53	52	59	80	58	81	38	62	56	49	56	56	67	62	47	51	32	58	81	32
15	47	35	61	46	30	33	31	39	36	49	58	62	34	54	56	54	38	48	52	46	55	56	46	35	46	62	30
16	25	46	43	49	39	38	29	34	36	77	65	60	61	40	26	31	55	41	61	60	52	43	52	41	46	77	25
17	56	53	79	64	63	72	73	56	73	66	61	36	55	44	50	37	71	73	59	60	68	64	60	62	61	79	36
18	60	49	62	65	79	66	52	72	85	80	66	47	23	16	24	18	15	23	42	32	39	50	47	53	49	85	15
19	64	79	62	70	72	78	66	69	58	74	55	56	47	38	56	26	30	44	67	47	43	38	62	67	57	79	26
20	56	74	79	81	67	70	78	75	90	32	51	54	25	25	41	21	37	60	65	58	58	67	66	70	58	90	21
21	88	70	73	71	58	62	76	66	75	47	39	54	27	56	41	43	21	58	28	61	64	55	65	66	57	88	21
22	80	64	75	76	74	78	67	71	81	47	54	41	51	35	24	28	31	26	39	58	52	50	63	61	55	81	24
23	48	63	52	56	67	78	69	78	83	28	36	63	54	47	54	27	24	24	65	54	50	72	77	52	55	83	24
24	32	43	71	34	56	50	41	13	21	32	20	17	18	17	20	19	29	24	28	27	30	30	20	29	30	71	13
25	21	21	20	54	43	66	40	54	65	50	25	30	21	31	38	19	15	14	21	46	19	16	15	14	32	66	14
26	16	17	17	18	20	49	44	27	39	36	26	31	17	17	14	16	16	16	22	23	16	21	60	61	27	61	14
27	81	44	79	65	66	44	66	63	69	44	48	65	46	35	36	42	33	33	44	69	34	54	83	48	54	83	33
28	69	68	81	58	51	47	53	60	58	32	27	18	17	17	16	16	17	16	38	70	47	24	49	15	40	81	15
29	16	17	40	39	41	52	20	17	16	16	19	18	19	17	15	15	12	12	12	13	12	45	34	52	24	52	12
Avg	54	54	60	56	56	56	57	55	60	48	44	44	39	35	38	33	34	36	41	48	50	51	54	50	48	77	22
Max	88	87	88	81	86	84	84	87	90	80	80	65	81	63	69	56	71	73	67	81	82	76	83	81	61	90	36
Min	16	17	17	18	20	20	20	13	16	16	19	17	17	12	14	15	12	12	12	13	12	16	15	14	24	52	12

Montana Resources LLP
Greeley School Air Monitoring Summary
Standard Deviation of Wind Direction - MDEQ monitor (degrees)
March 2024

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	59	51	49	67	87	44	22	53	70	38	43	50	34	39	34	42	41	21	33	61	61	31	67	57	48	87	21
2	60	51	58	64	49	61	50	60	39	61	32	50	32	28	29	30	44	65	38	60	33	52	58	55	48	65	28
3	71	66	49	54	79	66	54	48	39	21	23	47	56	29	56	39	50	68	60	69	78	78	75	67	56	79	21
4	61	57	67	74	77	65	83	57	61	55	77	72	35	44	30	45	44	57	72	51	74	65	75	42	60	83	30
5	58	71	80	65	53	32	37	26	43	21	27	34	54	43	27	26	55	52	60	65	71	58	37	76	49	80	21
6	55	55	70	55	54	67	84	61	67	62	37	57	44	39	69	37	61	35	22	44	56	42	34	55	53	84	22
7	59	49	51	51	61	69	70	70	65	69	70	71	53	64	73	25	13	12	13	26	54	48	79	63	53	79	12
8	61	66	58	66	56	46	63	57	60	58	45	75	34	58	43	22	17	28	25	42	58	62	64	75	52	75	17
9	60	62	82	78	74	64	76	63	66	71	74	33	28	42	58	39	15	23	18	37	42	72	42	56	53	82	15
10	73	71	47	49	51	40	62	58	45	21	14	17	15	16	14	13	12	12	13	17	25	43	53	76	36	76	12
11	42	46	72	61	49	57	65	60	24	51	52	49	32	53	86	38	29	27	64	34	52	56	54	39	50	86	24
12	41	49	71	55	38	59	53	21	47	42	65	23	53	47	38	42	30	47	41	48	43	65	77	60	48	77	21
13	46	67	35	66	23	16	16	16	18	18	16	14	15	13	13	12	11	13	10	11	18	13	11	14	21	67	10
14	23	74	60	63	74	67	83	76	70	75	43	46	53	50	40	19	16	16	18	28	33	68	63	64	51	83	16
15	66	90	80	76	56	71	52	68	74	61	42	37	34	58	69	52	24	37	21	27	79	74	78	66	58	90	21
16	52	61	68	47	71	74	68	63	60	61	52	61	22	58	34	56	58	52	21	39	38	80	64	53	55	80	21
17	73	64	72	39	39	52	53	39	49	54	34	39	65	69	52	56	68	38	17	40	58	48	56	38	51	73	17
18	43	59	58	67	63	55	64	53	48	56	32	34	62	27	27	32	21	16	9	48	51	59	56	55	46	67	9
19	65	82	47	66	58	65	66	62	63	58	38	29	35	59	43	41	43	50	13	37	44	53	62	76	52	82	13
20	61	74	60	74	62	78	62	63	58	28	24	53	26	30	29	24	29	16	32	45	83	62	59	68	50	83	16
21	77	71	57	45	29	28	47	29	45	51	60	35	18	38	36	27	26	15	14	15	14	14	22	44	36	77	14
22	38	34	44	62	45	52	54	69	36	31	24	40	43	51	47	28	19	26	55	38	65	58	50	57	44	69	19
23	24	46	51	75	57	31	56	62	33	61	38	47	42	51	52	18	37	32	46	59	34	38	30	40	44	75	18
24	58	55	46	54	58	61	53	61	59	68	59	76	74	70	75	33	41	42	37	32	40	66	52	70	56	76	32
25	75	46	20	39	53	55	63	70	81	32	52	48	38	24	15	15	13	17	15	13	28	46	75	48	41	81	13
26	56	61	59	39	42	46	36	33	52	40	39	36	25	25	23	45	28	48	42	46	49	25	74	67	43	74	23
27	52	71	48	64	59	71	66	36	48	27	19	27	31	40	25	24	17	17	28	39	75	53	54	52	43	75	17
28	42	54	27	57	58	57	44	46	43	43	38	59	22	34	53	35	66	49	29	38	50	60	53	61	47	66	22
29	72	53	83	70	78	68	58	69	73	33	42	31	41	33	31	58	55	28	21	53	61	46	47	65	53	83	21
30	66	57	75	59	64	56	75	52	26	32	36	23	36	29	43	27	27	38	16	28	44	19	44	46	42	75	16
31	45	64	41	61	71	66	52	47	59	39	23	13	14	21	21	20	16	16	17	17	26	56	65	61	39	71	13
Avg	56	61	58	60	58	56	58	53	52	46	41	43	38	41	41	33	33	33	30	39	50	52	56	57	48	77	19
Max	77	90	83	78	87	78	84	76	81	75	77	76	74	70	86	58	68	68	72	69	83	80	79	76	60	90	32
Min	23	34	20	39	23	16	16	16	18	18	14	13	14	13	13	12	11	12	9	11	14	13	11	14	21	65	9

APPENDIX B: GRAVIMETRIC ANALYSIS DATA

Quarter 1, 2024 Filter Analysis Results - Blanks - Greeley

FILTER	TYPE	DATE*	PRE WEIGHT (MG)	PRE-WEIGHT DATE	POST WEIGHT (MG)	POST-WEIGHT DATE	PART MASS (MG)
C1667982	Lab	31-Jan	123.069	30-Nov	123.067	19-Jan	-0.002
C1667986	Field	2-Jan	119.402	30-Nov	119.415	19-Jan	0.013
C1708118	Lab	5-Mar	123.122	22-Dec	123.125	28-Feb	0.003
C1708125	Field	30-Jan	121.576	22-Dec	121.572	28-Feb	-0.004
C1708146	Lab	5-Mar	121.785	18-Jan	121.788	29-Feb	0.003
C1708150	Field	20-Feb	119.135	18-Jan	119.137	29-Feb	0.002
C1733469	Lab	4-Apr	121.213	15-Feb	121.216	28-Mar	0.003
C1733475	Field	18-Mar	122.748	15-Feb	122.749	28-Mar	0.001
T1668480	Lab	8-May	118.703	6-Mar	118.707	1-May	0.004

*Denotes collection date for Field Blank, analysis date for Laboratory Blanks

Quarter 1, 2024 Filter Analysis Results - PM10 - Greeley

FILTER	DATE	AVG FLOW LPM	HOURS	SAMPLE VOLUME (M3)	PRE WEIGHT (MG)	POST WEIGHT (MG)	PART MASS (MG)	CONC (UG/M3)	DEQ (UG/M3)
C1667984	01/01	16.71	36:43	36.76	121.129	122.678	1.549	42.1	44.6
C1708116	01/07	16.70	24:00	24.02	120.490	120.748	0.258	10.7	DNR
C1708119	01/13	DNR	DNR	DNR	122.989	123.002	0.013	DNR	45.2
C1708121	01/19	16.70	24:00	24.02	120.449	120.918	0.469	19.5	22.0
C1708123	01/25	16.70	24:00	24.03	120.849	121.170	0.321	13.4	15.3
C1708141	01/31	16.70	24:00	24.03	122.614	122.986	0.372	15.5	18.8
C1708143	02/06	16.70	24:00	24.02	121.310	121.663	0.353	14.7	14.9
C1708145	02/12	16.70	24:00	24.03	121.640	121.968	0.328	13.6	15.8
C1708148	02/18	16.70	24:00	24.01	123.525	124.233	0.708	29.5	39.3
C1733466	02/24	16.70	24:00	24.03	120.199	120.360	0.161	6.7	9.2
C1733468	03/01	16.70	24:00	24.03	121.738	121.853	0.115	4.8	6.8
C1733472	03/07	16.71	23:59	24.03	121.103	121.295	0.192	8.0	34.6
C1733473	03/13	16.70	24:00	24.03	121.139	121.275	0.136	5.7	9.4
C1733481	03/19	16.70	24:00	24.03	119.507	120.352	0.845	35.2	38.7
C1733483	03/25	16.70	24:00	24.03	120.380	120.578	0.198	8.2	DNR
C1733485	03/31	16.71	23:59	24.03	118.811	119.057	0.246	10.2	11.1

DNR Failed to run

Quarter 1, 2024 Filter Analysis Results - TSP Greeley

FILTER	START	END	HOURS	FLOW LPM	SAMPLE VOLUME (M3)	PRE WEIGHT (MG)	POST WEIGHT (MG)	PART MASS (MG)	CONC (UG/M3)	E-S CONC (UG/M3)	TRUE E-S MULT	MDEQ PM10
C1667985	12/27 @ 13	01/02 @ 15	147	2.0	16.82	120.548	121.272	0.724	43.1	105.1	2.05	42.9
C1708117	01/02 @ 16	01/09 @ 11	164	2.0	18.76	121.580	122.122	0.542	28.9	62.5	2.31	44.7 (M)
C1708120	01/09 @ 12	01/17 @ 15	196	2.0	22.42	121.720	121.922	0.202	9.0	VOID	#VALUE!	30.5
C1708122	01/17 @ 16	01/23 @ 15	144	2.0	16.47	121.417	121.680	0.263	16.0	56.7	1.41	20.3
C1708124	01/23 @ 16	01/30 @ 15	168	2.0	19.22	121.515	121.863	0.348	18.1	59.6	1.52	19.0
C1708142	01/30 @ 16	02/02 @ 15	72	2.0	8.24	120.890	121.058	0.168	20.4	43.6	2.34	21.0
C1708144	02/02 @ 16	02/07 @ 12	117	2.0	13.38	120.157	120.282	0.125	9.3	18.0	2.59	9.6
C1708147	02/07 @ 13	02/13 @ 15	147	2.0	16.82	122.682	122.896	0.214	12.7	30.6	2.08	13.5
C1708149	02/13 @ 16	02/20 @ 14	167	2.0	19.10	120.002	120.335	0.333	17.4	47.8	1.82	20.4
C1733467	02/20 @ 15	02/27 @ 15	169	2.0	19.33	120.683	120.961	0.278	14.4	23.1	3.11	16.2
C1733470	02/27 @ 16	03/06 @ 15	192	2.0	21.96	122.834	123.002	0.168	7.6	17.7	2.16	9.3
C1733471	03/06 @ 16	03/11 @ 13	118	2.0	13.50	120.627	121.067	0.440	32.6	37.2	4.38	24.4
C1733474	03/11 @ 14	03/18 @ 14	169	2.0	19.33	120.748	120.975	0.227	11.7	24.1	2.44	16.0
C1733482	03/18 @ 15	03/26 @ 14	192	2.0	21.96	118.347	118.831	0.484	22.0	30.5	3.61	19.6
C1733484	03/26 @ 15	04/02 @ 13	167	2.0	19.10	118.351	118.620	0.269	14.1	21.6	3.26	

APPENDIX C: WIND ROSE TABLES

Table C-1. Quarterly Wind Rose Summary, Greeley School (All Data)

First Quarter 2024 (All Data)																	
	Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	7.2	7.3	4.9	2.2	1.5	0.8	1.1	1.3	1.3	1.0	1.2	1.6	2.2	2.8	2.3	5.4	44.0
	1.1 - 2.0	5.2	5.2	4.0	1.1	0.5	1.0	0.8	1.6	2.1	1.7	2.5	4.4	2.8	2.6	4.0	4.5	43.9
	2.1 - 3.0	0.1	0.3	0.4	0.1	0.0	0.1	0.1	0.4	0.8	0.8	1.2	1.1	0.3	0.5	1.5	0.6	8.5
	3.1 - 4.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.4	0.2	0.0	0.0	0.5	0.4	2.6
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.7
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Calm																	0.0
	Total	12.6	12.9	9.4	3.4	2.0	1.9	2.0	3.3	5.0	4.1	5.5	7.3	5.3	5.9	8.4	11.1	100.0
	Average Speed	1.0	1.1	1.1	1.0	0.9	1.2	1.1	1.3	2.0	1.8	1.7	1.5	1.3	1.2	1.6	1.2	1.3

Table C-2. Quarterly Wind Rose Summary, Greeley School TSP > 40

First Quarter 2024 (TSP >40 µg/m^3)																	
	Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	16.9	10.5	5.2	4.1	1.2	0.0	3.5	1.7	1.2	1.7	1.7	0.0	2.3	3.5	4.7	17.4	75.6
	1.1 - 2.0	4.1	4.7	1.2	0.6	0.6	1.2	0.0	0.0	2.9	0.0	2.3	1.2	0.0	2.3	0.6	2.3	23.8
	2.1 - 3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.6
	3.1 - 4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Calm																	0.0
	Total	20.9	15.1	6.4	4.7	1.7	1.2	3.5	1.7	4.1	1.7	4.1	1.2	2.9	5.8	5.2	19.8	100.0
	Average Speed	0.9	1.0	0.8	0.7	0.7	1.2	0.7	0.8	1.1	0.9	1.1	1.3	1.1	0.9	0.8	0.8	0.9

Table C-3. Quarterly Wind Rose Summary, Greeley School TSP < 6

First Quarter, 2024 (TSP <6 µg/m^3)																	
	Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	2.4	2.0	1.8	0.8	0.6	0.6	0.4	0.0	1.2	0.4	0.6	1.6	1.0	1.6	0.8	0.8	16.8
	1.1 - 2.0	4.2	2.6	4.8	0.8	0.6	1.4	0.4	1.4	1.8	2.2	3.2	5.5	5.7	4.2	6.9	5.1	50.9
	2.1 - 3.0	0.4	0.4	1.0	0.2	0.0	0.0	0.2	1.2	1.6	2.4	2.6	3.4	0.6	1.6	4.6	1.8	22.2
	3.1 - 4.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.4	2.0	1.4	0.4	0.0	0.0	1.8	1.2	7.9
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	1.6
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Calm																	0.0
	Total	7.1	5.5	7.7	1.8	1.2	2.0	1.0	2.8	6.5	7.1	7.9	10.9	7.3	7.5	14.5	9.3	100.0
	Average Speed	1.3	1.5	1.4	1.4	1.1	1.4	1.4	2.1	2.6	2.4	2.1	1.8	1.5	1.5	2.2	2.0	1.9

APPENDIX D: LABORATORY ANALYSIS REPORTS

ANALYTICAL SUMMARY REPORT

March 15, 2024

Bison Engineering
3143 E Lyndale Ave
Helena, MT 59601-6401

Work Order: B24011012 Quote ID: B4795

Project Name: Montana Resources/Greely School DH

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 1/22/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24011012-001	Particulate Filter C1667977 PM10	12/14/23 00:00	01/22/24	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B24011012-002	Particulate Filter C1667978 12/12-12/19	12/19/23 00:00	01/22/24	Air	Same As Above
B24011012-003	Particulate Filter C1667979 PM10	12/20/23 00:00	01/22/24	Air	Same As Above
B24011012-004	Particulate Filter C1667980 TSP 12/19-12/22	12/22/23 00:00	01/22/24	Air	Same As Above
B24011012-005	Particulate Filter C1667981 PM10	12/26/23 00:00	01/22/24	Air	Same As Above
B24011012-006	Particulate Filter C1667982 Lab Blank	12/01/23 13:30	01/22/24	Air	Same As Above
B24011012-007	Particulate Filter C1667983 TSP 12/22-12/27	12/27/23 00:00	01/22/24	Air	Same As Above
B24011012-008	Particulate Filter C1667984 PM10	01/01/24 00:00	01/22/24	Air	Same As Above
B24011012-009	Particulate Filter C1667985 TSP 12/27-1/2	01/02/24 00:00	01/22/24	Air	Same As Above
B24011012-010	Particulate Filter C1667986 Field Blank	01/02/24 14:28	01/22/24	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

CLIENT: Bison Engineering
Project: Montana Resources/Greely School DH
Work Order: B24011012

Revised Date: 03/15/24
Report Date: 02/02/24

CASE NARRATIVE

Per client request, results are based on the final concentration using 25 mL of extraction solution per filter.

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the lowest method detection limit (MDL)/Limit of Detection (LOD). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL/LOD may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

Revised Date: 3/15/2024

On 3/14/2024 a request was received from Steve Heck at Bison Engineering to revise this workorder by changing the method detection limits (MDLs) to match historical client request and to change significant figures on results to report at least two significant figures on all samples.

The report has been revised and replaces the previously issued report dated 2/2/2024 in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 12/14/23
DateReceived: 01/22/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-001
Client Sample ID: Particulate Filter C1667977 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 15:03 / aem
Cadmium	0.018	ug/filter	J	1.0		E200.8	02/01/24 21:29 / aem
Copper	2.3	ug/filter		1.0		E200.8	01/31/24 15:03 / aem
Lead	0.14	ug/filter	J	1.0		E200.8	01/31/24 15:03 / aem
Manganese	0.69	ug/filter	J	1.0		E200.8	01/31/24 15:03 / aem
Molybdenum	0.074	ug/filter	J	1.0		E200.8	01/31/24 15:03 / aem
Zinc	1.3	ug/filter		1.0		E200.8	01/31/24 15:03 / aem

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-002
Client Sample ID: Particulate Filter C1667978 12/12-12/19

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 12/19/23
DateReceived: 01/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 15:09 / aem
Cadmium	0.015	ug/filter	J	1.0		E200.8	02/01/24 21:35 / aem
Copper	2.1	ug/filter		1.0		E200.8	01/31/24 15:09 / aem
Lead	0.12	ug/filter	J	1.0		E200.8	01/31/24 15:09 / aem
Manganese	0.46	ug/filter	J	1.0		E200.8	01/31/24 15:09 / aem
Molybdenum	0.12	ug/filter	J	1.0		E200.8	01/31/24 15:09 / aem
Zinc	0.98	ug/filter	J	1.0		E200.8	01/31/24 15:09 / aem

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 12/20/23
DateReceived: 01/22/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-003
Client Sample ID: Particulate Filter C1667979 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 15:15 / aem
Cadmium	0.015	ug/filter	J	1.0		E200.8	02/01/24 21:40 / aem
Copper	2.0	ug/filter		1.0		E200.8	01/31/24 15:15 / aem
Lead	0.13	ug/filter	J	1.0		E200.8	01/31/24 15:15 / aem
Manganese	0.36	ug/filter	J	1.0		E200.8	01/31/24 15:15 / aem
Molybdenum	0.22	ug/filter	J	1.0		E200.8	01/31/24 15:15 / aem
Zinc	1.0	ug/filter		1.0		E200.8	02/01/24 21:40 / aem

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-004
Client Sample ID: Particulate Filter C1667980 TSP 12/19-12/22

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 12/22/23
DateReceived: 01/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 15:21 / aem
Cadmium	ND	ug/filter		1.0		E200.8	02/01/24 21:46 / aem
Copper	1.5	ug/filter		1.0		E200.8	01/31/24 15:21 / aem
Lead	ND	ug/filter		1.0		E200.8	01/31/24 15:21 / aem
Manganese	0.40	ug/filter	J	1.0		E200.8	01/31/24 15:21 / aem
Molybdenum	ND	ug/filter		1.0		E200.8	01/31/24 15:21 / aem
Zinc	0.81	ug/filter	J	1.0		E200.8	01/31/24 15:21 / aem

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-005
Client Sample ID: Particulate Filter C1667981 PM10

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 12/26/23
DateReceived: 01/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 15:27 / aem
Cadmium	0.015	ug/filter	J	1.0		E200.8	02/01/24 21:52 / aem
Copper	1.2	ug/filter		1.0		E200.8	01/31/24 15:27 / aem
Lead	0.096	ug/filter	J	1.0		E200.8	01/31/24 15:27 / aem
Manganese	0.26	ug/filter	J	1.0		E200.8	01/31/24 15:27 / aem
Molybdenum	ND	ug/filter		1.0		E200.8	01/31/24 15:27 / aem
Zinc	0.94	ug/filter	J	1.0		E200.8	01/31/24 15:27 / aem

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-006
Client Sample ID: Particulate Filter C1667982 Lab Blank

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 12/01/23 13:30
DateReceived: 01/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 15:33 / aem
Cadmium	ND	ug/filter		1.0		E200.8	01/31/24 15:33 / aem
Copper	ND	ug/filter		1.0		E200.8	01/31/24 15:33 / aem
Lead	ND	ug/filter		1.0		E200.8	01/31/24 15:33 / aem
Manganese	ND	ug/filter		1.0		E200.8	01/31/24 15:33 / aem
Molybdenum	ND	ug/filter		1.0		E200.8	01/31/24 15:33 / aem
Zinc	ND	ug/filter		1.0		E200.8	01/31/24 15:33 / aem

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-007
Client Sample ID: Particulate Filter C1667983 TSP 12/22-12/27

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 12/27/23
DateReceived: 01/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	2.1	ug/filter		1.0		E200.8	01/31/24 15:51 / aem
Cadmium	0.011	ug/filter	J	1.0		E200.8	02/01/24 21:58 / aem
Copper	1.1	ug/filter		1.0		E200.8	01/31/24 15:51 / aem
Lead	ND	ug/filter		1.0		E200.8	01/31/24 15:51 / aem
Manganese	0.79	ug/filter	J	1.0		E200.8	01/31/24 15:51 / aem
Molybdenum	ND	ug/filter		1.0		E200.8	01/31/24 15:51 / aem
Zinc	0.88	ug/filter	J	1.0		E200.8	01/31/24 15:51 / aem

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 01/01/24
DateReceived: 01/22/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-008
Client Sample ID: Particulate Filter C1667984 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 15:57 / aem
Cadmium	0.023	ug/filter	J	1.0		E200.8	02/01/24 22:04 / aem
Copper	2.9	ug/filter		1.0		E200.8	01/31/24 15:57 / aem
Lead	0.18	ug/filter	J	1.0		E200.8	01/31/24 15:57 / aem
Manganese	0.47	ug/filter	J	1.0		E200.8	01/31/24 15:57 / aem
Molybdenum	0.078	ug/filter	J	1.0		E200.8	01/31/24 15:57 / aem
Zinc	1.6	ug/filter		1.0		E200.8	01/31/24 15:57 / aem

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-009
Client Sample ID: Particulate Filter C1667985 TSP 12/27-1/2

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 01/02/24
DateReceived: 01/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 16:03 / aem
Cadmium	0.013	ug/filter	J	1.0		E200.8	02/01/24 22:10 / aem
Copper	1.6	ug/filter		1.0		E200.8	01/31/24 16:03 / aem
Lead	0.095	ug/filter	J	1.0		E200.8	01/31/24 16:03 / aem
Manganese	0.31	ug/filter	J	1.0		E200.8	01/31/24 16:03 / aem
Molybdenum	ND	ug/filter		1.0		E200.8	01/31/24 16:03 / aem
Zinc	0.86	ug/filter	J	1.0		E200.8	01/31/24 16:03 / aem

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24011012-010
Client Sample ID: Particulate Filter C1667986 Field Blank

Revised Date: 03/15/24
Report Date: 02/02/24
Collection Date: 01/02/24 14:28
DateReceived: 01/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	01/31/24 16:09 / aem
Cadmium	ND	ug/filter		1.0		E200.8	01/31/24 16:09 / aem
Copper	ND	ug/filter		1.0		E200.8	01/31/24 16:09 / aem
Lead	ND	ug/filter		1.0		E200.8	01/31/24 16:09 / aem
Manganese	ND	ug/filter		1.0		E200.8	01/31/24 16:09 / aem
Molybdenum	ND	ug/filter		1.0		E200.8	01/31/24 16:09 / aem
Zinc	ND	ug/filter		1.0		E200.8	01/31/24 16:09 / aem

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 03/15/24

Client: Bison Engineering

Work Order: B24011012

Report Date: 02/02/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS208-B_240131A	
Lab ID: QCS	7	Initial Calibration Verification Standard								01/31/24 12:42
Arsenic		0.0490	mg/L	0.0050	98	90	110			
Cadmium		0.0251	mg/L	0.0010	100	90	110			
Copper		0.0502	mg/L	0.010	100	90	110			
Lead		0.0477	mg/L	0.0010	95	90	110			
Manganese		0.243	mg/L	0.0050	97	90	110			
Molybdenum		0.0484	mg/L	0.0050	97	90	110			
Zinc		0.0497	mg/L	0.0050	99	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								01/31/24 14:22
Arsenic		0.0469	mg/L	0.0050	94	90	110			
Cadmium		0.0457	mg/L	0.0010	91	90	110			
Copper		0.0478	mg/L	0.010	96	90	110			
Lead		0.0462	mg/L	0.0010	92	90	110			
Manganese		0.0470	mg/L	0.0050	94	90	110			
Molybdenum		0.0449	mg/L	0.0050	90	90	110			
Zinc		0.0464	mg/L	0.0050	93	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								01/31/24 15:39
Arsenic		0.0476	mg/L	0.0050	95	90	110			
Cadmium		0.0466	mg/L	0.0010	93	90	110			
Copper		0.0492	mg/L	0.010	98	90	110			
Lead		0.0461	mg/L	0.0010	92	90	110			
Manganese		0.0468	mg/L	0.0050	93	90	110			
Molybdenum		0.0451	mg/L	0.0050	90	90	110			
Zinc		0.0479	mg/L	0.0050	96	90	110			
Lab ID: QCS	7	Initial Calibration Verification Standard								02/01/24 20:24
Arsenic		0.0493	mg/L	0.0050	99	90	110			
Cadmium		0.0250	mg/L	0.0010	100	90	110			
Copper		0.0507	mg/L	0.010	101	90	110			
Lead		0.0488	mg/L	0.0010	98	90	110			
Manganese		0.246	mg/L	0.0050	98	90	110			
Molybdenum		0.0490	mg/L	0.0050	98	90	110			
Zinc		0.0506	mg/L	0.0050	101	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								02/01/24 21:11
Arsenic		0.0489	mg/L	0.0050	98	90	110			
Cadmium		0.0513	mg/L	0.0010	103	90	110			
Copper		0.0495	mg/L	0.010	99	90	110			
Lead		0.0508	mg/L	0.0010	102	90	110			
Manganese		0.0492	mg/L	0.0050	98	90	110			
Molybdenum		0.0517	mg/L	0.0050	103	90	110			
Zinc		0.0474	mg/L	0.0050	95	90	110			
Method: E200.8									Batch: 186694	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 03/15/24

Client: Bison Engineering

Work Order: B24011012

Report Date: 02/02/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 186694
Lab ID: **MB-186694**	7	Method Blank				Run: ICPMS208-B_240131A				01/31/24 14:40
Arsenic		ND	ug/filter	0.08						
Cadmium		ND	ug/filter	0.009						
Copper		ND	ug/filter	0.3						
Lead		ND	ug/filter	0.09						
Manganese		ND	ug/filter	0.2						
Molybdenum		ND	ug/filter	0.07						
Zinc		ND	ug/filter	0.8						
Lab ID: **LCS-186694**	7	Laboratory Control Sample				Run: ICPMS208-B_240131A				01/31/24 14:46
Arsenic		91.0	ug/filter	1.0	91	85	115			
Cadmium		45.2	ug/filter	1.0	90	85	115			
Copper		94.9	ug/filter	5.0	95	85	115			
Lead		87.4	ug/filter	1.0	87	85	115			
Manganese		452	ug/filter	3.0	90	85	115			
Molybdenum		88.6	ug/filter	1.0	89	85	115			
Zinc		92.7	ug/filter	10	93	85	115			
Lab ID: **LCSD-186694**	7	Laboratory Control Sample Duplicate				Run: ICPMS208-B_240131A				01/31/24 14:52
Arsenic		94.5	ug/filter	1.0	95	85	115			
Cadmium		45.5	ug/filter	1.0	91	85	115			
Copper		97.9	ug/filter	5.0	98	85	115			
Lead		91.7	ug/filter	1.0	92	85	115			
Manganese		469	ug/filter	3.0	94	85	115			
Molybdenum		85.0	ug/filter	1.0	85	85	115			
Zinc		96.6	ug/filter	10	97	85	115			
Lab ID: **MB-186694**	2	Method Blank				Run: ICPMS208-B_240131A				02/01/24 21:23
Cadmium		ND	ug/filter	0.009						
Zinc		ND	ug/filter	0.8						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B24011012

Login completed by: Addison A. Gilbert
Date Received: 1/22/2024
Reviewed by: lleprowse
Received by: AAG
Reviewed Date: 1/23/2024
Carrier name: Hand Deliver

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.1°C Blue Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

The sample identification indicated on the container label for sample Particulate Filter C1667986 Field Blank is Particulate Filter C1667986 Field Blank and on the Chain of Custody it is Particulate Filter C1667820 Field Blank. Proceeded with the sample identification as indicated on the sample container.

Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

www.energylab.com

Account Information (Billing information)

Company/Name	Bison Engineering, Inc.
Contact	Shelley Argott-Brown
Phone	(406) 442-5768
Mailing Address	3143 E Lyndale Avenue
City, State, Zip	Helena MT, 59601
Email	sbrown-argott@bison-eng.com
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☐Email
Purchase Order	MTR223018
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	Bison Engineering, Inc.
Contact	Don Milmine
Phone	(406) 208-4833
Mailing Address	2751 Enterprise Avenue Suite 2
City, State, Zip	Billings, MT 59102
Email	dmilmine@bison-eng.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Analyze per history

Project Information

Project Name, PWSID, Permit, etc.	Momtana Resources/Greely School DH
Sampler Name	Sampler Phone
Sample Origin State	Montana
EPA/State Compliance	☒ Yes ☐ No

URANIUM MINING CLIENTS MUST indicate sample type.
☐ NOT Source or Byproduct Material
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

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

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

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Arsenic	Cadmium	Copper	Lead	Manganese	Molybdenum	Zinc			See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	Particulate filter C1667977 PM10	12/14/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					S24011012
2	Particulate filter C1667978 TSP 12/12-12/19	12/12→12/19	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
3	Particulate filter C1667979 PM10	12/20/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
4	Particulate filter C1667980 TSP 12/19-12/22	12/19-12/22	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
5	Particulate filter C1667981PM10	12/26/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
6	Particulate filter C1667982 Lab Blank	12/1/23	1330	1	on Teflon filter	x	x	x	x	x	x	x					
7	Particulate filter C1667983 TSP 12/22-12/27	12/22-12/27	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
8	Particulate filter C1667984 PM10	1/1/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
9	Particulate filter C1667985 TSP 12/27-1/2	12/27→1/2	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
10	Particulate filter C1667820 Field Blank	1/2/24	1428	1	on Teflon filter	x	x	x	x	x	x	x					

Custody Record MUST be signed	Relinquished by (print) Don Milmine	Date/Time 1/22/24 1603	Signature Don V. Milmine	Received by (print)	Date/Time	Signature
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) C. Dewitt	Date/Time 22 Jan 24 1603	Signature

LABORATORY USE ONLY

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

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

ELI-COC-10/18 v.3

ANALYTICAL SUMMARY REPORT

March 15, 2024

Bison Engineering
3143 E Lyndale Ave
Helena, MT 59601-6401

Work Order: B24021777 Quote ID: B4795

Project Name: Montana Resources / Greely School DH

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 2/29/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24021777-001	Particulate filter C1708116 PM10	01/07/24 00:00	02/29/24	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B24021777-002	Particulate filter C1708117 TSP 1/2-1/9	01/09/24 00:00	02/29/24	Air	Same As Above
B24021777-003	Particulate filter C1708118 Lab Blank	12/22/23 13:10	02/29/24	Air	Same As Above
B24021777-004	Particulate filter C1708119 PM10	01/13/24 00:00	02/29/24	Air	Same As Above
B24021777-005	Particulate filter C1708120 TSP 1/9-1/17	01/17/24 00:00	02/29/24	Air	Same As Above
B24021777-006	Particulate filter C1708121 PM10	01/19/24 00:00	02/29/24	Air	Same As Above
B24021777-007	Particulate filter C1708122 TSP 1/17-1/23	01/23/24 00:00	02/29/24	Air	Same As Above
B24021777-008	Particulate filter C1708123 PM10	01/23/24 00:00	02/29/24	Air	Same As Above
B24021777-009	Particulate filter C1708124 TSP 1/23-1/30	01/30/24 00:00	02/29/24	Air	Same As Above
B24021777-010	Particulate filter C1708125 Field Blank	01/30/24 11:05	02/29/24	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

CLIENT: Bison Engineering
Project: Montana Resources / Greely School DH
Work Order: B24021777

Revised Date: 03/15/24
Report Date: 03/13/24

CASE NARRATIVE

Per client request, results are based on the final concentration using 25 mL of extraction solution per filter.

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the lowest method detection limit (MDL)/Limit of Detection (LOD). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL/LOD may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

Revised Date: 3/15/2024

On 3/14/2024 a request was received from Steve Heck at Bison Engineering to revise this workorder by changing the method detection limits (MDLs) to match historical client request and to change significant figures on results to report at least two significant figures on all samples.

The report has been revised and replaces the previously issued report dated 3/13/2024 in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/07/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-001
Client Sample ID: Particulate filter C1708116 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:42 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:42 / jks
Copper	0.40	ug/filter	J	1.0		E200.8	03/05/24 06:42 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:42 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:42 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 06:42 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:42 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-002
Client Sample ID: Particulate filter C1708117 TSP 1/2-1/9

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/09/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:48 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:48 / jks
Copper	0.95	ug/filter	J	1.0		E200.8	03/05/24 06:48 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:48 / jks
Manganese	0.21	ug/filter	J	1.0		E200.8	03/05/24 06:48 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 06:48 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:48 / jks

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-003
Client Sample ID: Particulate filter C1708118 Lab Blank

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 12/22/23 13:10
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:54 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:54 / jks
Copper	ND	ug/filter		1.0		E200.8	03/05/24 06:54 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:54 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:54 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 06:54 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:54 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-004
Client Sample ID: Particulate filter C1708119 PM10

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/13/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 07:11 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 07:11 / jks
Copper	ND	ug/filter		1.0		E200.8	03/05/24 07:11 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 07:11 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 07:11 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 07:11 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 07:11 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-005
Client Sample ID: Particulate filter C1708120 TSP 1/9-1/17

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/17/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 07:17 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 07:17 / jks
Copper	1.4	ug/filter		1.0		E200.8	03/05/24 07:17 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 07:17 / jks
Manganese	0.22	ug/filter	J	1.0		E200.8	03/05/24 07:17 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 07:17 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 07:17 / jks

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/19/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-006
Client Sample ID: Particulate filter C1708121 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 07:23 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 07:23 / jks
Copper	0.86	ug/filter	J	1.0		E200.8	03/05/24 07:23 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 07:23 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 07:23 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 07:23 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 07:23 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-007
Client Sample ID: Particulate filter C1708122 TSP 1/17-1/23

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/23/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 07:29 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 07:29 / jks
Copper	0.76	ug/filter	J	1.0		E200.8	03/05/24 07:29 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 07:29 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 07:29 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 07:29 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 07:29 / jks

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
QCL - Quality Control Limit
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/23/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-008
Client Sample ID: Particulate filter C1708123 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 07:35 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 07:35 / jks
Copper	0.62	ug/filter	J	1.0		E200.8	03/05/24 07:35 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 07:35 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 07:35 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 07:35 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 07:35 / jks

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
QCL - Quality Control Limit
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-009
Client Sample ID: Particulate filter C1708124 TSP 1/23-1/30

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/30/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 07:41 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 07:41 / jks
Copper	1.1	ug/filter		1.0		E200.8	03/05/24 07:41 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 07:41 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 07:41 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 07:41 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 07:41 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources / Greely School DH
Lab ID: B24021777-010
Client Sample ID: Particulate filter C1708125 Field Blank

Revised Date: 03/15/24
Report Date: 03/13/24
Collection Date: 01/30/24 11:05
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 07:47 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 07:47 / jks
Copper	ND	ug/filter		1.0		E200.8	03/05/24 07:47 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 07:47 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 07:47 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 07:47 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 07:47 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 03/15/24

Client: Bison Engineering **Work Order:** B24021777 **Report Date:** 03/13/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS207-B_240304A	
Lab ID: **QCS**	7	Initial Calibration Verification Standard								03/05/24 02:47
Arsenic		0.0496	mg/L	0.0050	99	90	110			
Cadmium		0.0246	mg/L	0.0010	99	90	110			
Copper		0.0511	mg/L	0.010	102	90	110			
Lead		0.0472	mg/L	0.0010	94	90	110			
Manganese		0.250	mg/L	0.0050	100	90	110			
Molybdenum		0.0486	mg/L	0.0050	97	90	110			
Zinc		0.0498	mg/L	0.0050	100	90	110			
Lab ID: **CCV**	7	Continuing Calibration Verification Standard								03/05/24 05:49
Arsenic		0.0507	mg/L	0.0050	101	90	110			
Cadmium		0.0493	mg/L	0.0010	99	90	110			
Copper		0.0522	mg/L	0.010	104	90	110			
Lead		0.0461	mg/L	0.0010	92	90	110			
Manganese		0.0480	mg/L	0.0050	96	90	110			
Molybdenum		0.0497	mg/L	0.0050	99	90	110			
Zinc		0.0503	mg/L	0.0050	101	90	110			
Lab ID: **CCV**	7	Continuing Calibration Verification Standard								03/05/24 07:00
Arsenic		0.0484	mg/L	0.0050	97	90	110			
Cadmium		0.0488	mg/L	0.0010	98	90	110			
Copper		0.0494	mg/L	0.010	99	90	110			
Lead		0.0464	mg/L	0.0010	93	90	110			
Manganese		0.0454	mg/L	0.0050	91	90	110			
Molybdenum		0.0494	mg/L	0.0050	99	90	110			
Zinc		0.0488	mg/L	0.0050	98	90	110			
Method: **E200.8**									Batch: 187513	
Lab ID: **MB-187513**	7	Method Blank				Run: ICPMS207-B_240304A				03/05/24 05:08
Arsenic		ND	ug/filter	0.08						
Cadmium		ND	ug/filter	0.009						
Copper		ND	ug/filter	0.3						
Lead		ND	ug/filter	0.09						
Manganese		ND	ug/filter	0.2						
Molybdenum		ND	ug/filter	0.07						
Zinc		ND	ug/filter	0.8						
Lab ID: **LCS-187513**	7	Laboratory Control Sample				Run: ICPMS207-B_240304A				03/05/24 05:14
Arsenic		98.8	ug/filter	1.0	99	85	115			
Cadmium		49.4	ug/filter	1.0	99	85	115			
Copper		101	ug/filter	5.0	101	85	115			
Lead		96.2	ug/filter	1.0	96	85	115			
Manganese		496	ug/filter	5.0	99	85	115			
Molybdenum		98.3	ug/filter	1.0	98	85	115			
Zinc		102	ug/filter	5.0	102	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 03/15/24

Client: Bison Engineering

Work Order: B24021777

Report Date: 03/13/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 187513
Lab ID: **LCSD-187513**	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_240304A				03/05/24 05:20
Arsenic		100	ug/filter	1.0	100	85	115			
Cadmium		49.8	ug/filter	1.0	100	85	115			
Copper		103	ug/filter	5.0	103	85	115			
Lead		96.9	ug/filter	1.0	97	85	115			
Manganese		503	ug/filter	5.0	101	85	115			
Molybdenum		100	ug/filter	1.0	100	85	115			
Zinc		101	ug/filter	5.0	101	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B24021777

Login completed by: Danielle N. Harris
Date Received: 2/29/2024
Reviewed by: lleprowse
Received by: AAG
Reviewed Date: 3/4/2024
Carrier name: Hand Deliver

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.5°C On Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

None

Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

www.energylab.com

Account Information *(Billing information)*

Company/Name	Bison Engineering, Inc.
Contact	Shelley Argott-Brown
Phone	(406) 442-5768
Mailing Address	3143 E Lyndale Avenue
City, State, Zip	Helena MT, 59601
Email	sbrown-argott@bison-eng.com
Receive Invoice	☐Hard Copy ■Email
Receive Report	☐Hard Copy ☐Email
Purchase Order	MTR223018
Quote	
Bottle Order	

Report Information *(if different than Account Information)*

Company/Name	Bison Engineering, Inc.
Contact	Don Milmine
Phone	(406) 208-4833
Mailing Address	2751 Enterprise Avenue Suite 2
City, State, Zip	Billings, MT 59102
Email	dmilmine@bison-eng.com
Receive Report	☐Hard Copy ■Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

Analyze per history

Project Information

Project Name, PWSID, Permit, etc.	Momtana Resources/Greely School DH
Sampler Name	Sampler Phone
Sample Origin State	Montana
EPA/State Compliance	■ Yes ☐ No

URANIUM MINING CLIENTS MUST indicate sample type.
☐ NOT Source or Byproduct Material
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

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

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

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Arsenic	Cadmium	Copper	Lead	Manganese	Molybdenum	Zinc			See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
1	Particulate filter C1708116 PM10	1/7/24	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					B24021777
2	Particulate filter C1708117 TSP 1/2 - 1/9	1/2→1/9	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
3	Particulate filter C1708118 Lab blank	12/22/23	1310	1	on Teflon filter	X	X	X	X	X	X	X					
4	Particulate filter C1708119 PM10	1/13/24	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					
5	Particulate filter C1708120 TSP 1/9 - 1/17	1/9→1/17	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
6	Particulate filter C1708121 PM10	1/19/24	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					
7	Particulate filter C1708122 TSP 1/17 - 1/23	1/17→1/23	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
8	Particulate filter C1708123 PM10	1/23/24	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					
9	Particulate filter C1708124 TSP 1/23 - 1/30	1/23→1/30	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
10	Particulate filter C1708125 Field blank	1/30/24	1105	1	on Teflon filter	X	X	X	X	X	X	X					

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Don Milmine	2/29/24 1625	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				C. Beaty	2/29/24 1625	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

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

ELI-COC-10/18 v.3

ANALYTICAL SUMMARY REPORT

April 02, 2024

Bison Engineering
3143 E Lyndale Ave
Helena, MT 59601-6401

Work Order: B24021776 Quote ID: B4795

Project Name: Montana Resources/Greely School DH

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 2/29/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24021776-001	Particulate filter C1708141 PM10	01/31/24 00:00	02/29/24	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B24021776-002	Particulate filter C1708142 TSP 1/13-2/2	02/02/24 00:00	02/29/24	Air	Same As Above
B24021776-003	Particulate filter C1708143 PM10	02/06/24 00:00	02/29/24	Air	Same As Above
B24021776-004	Particulate filter C1708144 TSP 2/2-2/7	02/07/24 00:00	02/29/24	Air	Same As Above
B24021776-005	Particulate filter C1708145 PM10	02/12/24 00:00	02/29/24	Air	Same As Above
B24021776-006	Particulate filter C1708146 Lab Blank	01/18/24 14:45	02/29/24	Air	Same As Above
B24021776-007	Particulate filter C1708147 TSP 2/7-2/13	02/13/24 00:00	02/29/24	Air	Same As Above
B24021776-008	Particulate filter C1708148 PM10	02/13/24 00:00	02/29/24	Air	Same As Above
B24021776-009	Particulate filter C17081449 TSP 2/13-2/20	02/20/24 00:00	02/29/24	Air	Same As Above
B24021776-010	Particulate filter C1708150 Field Blank	02/20/24 10:46	02/29/24	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

CLIENT: Bison Engineering
Project: Montana Resources/Greely School DH
Work Order: B24021776

Revised Date: 04/02/24
Report Date: 03/11/24

CASE NARRATIVE

Per client request, results are based on the final concentration using 25 mL of extraction solution per filter.

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the lowest method detection limit (MDL)/Limit of Detection (LOD). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL/LOD may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

Revised Date: 3/27/2024

On 3/26/2024 a request was received from Steve Heck at Bison Engineering to revise this workorder by changing the method detection limits (MDLs) to match historical client request and to change significant figures on results to report at least two significant figures on all samples.

The report has been revised and replaces the previously issued report dated 3/11/2024 in its entirety.

Revised Date: 4/2/2024

On 4/1/2024 a request was received from Steve Heck at Bison Engineering to revise this workorder by changing the MDLs and significant figures on all samples as requested in the previous revision, not just quality control samples. We apologize for any inconvenience this may have caused.

The report has been revised and replaces the previously issued report dated 3/27/2024 in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-001
Client Sample ID: Particulate filter C1708141 PM10

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 01/31/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 05:32 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 05:32 / jks
Copper	1.2	ug/filter		1.0		E200.8	03/05/24 05:32 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 05:32 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 05:32 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 19:04 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 19:04 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/02/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-002
Client Sample ID: Particulate filter C1708142 TSP 1/13-2/2

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 05:38 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 05:38 / jks
Copper	0.58	ug/filter	J	1.0		E200.8	03/05/24 19:10 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 05:38 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 05:38 / jks
Molybdenum	0.13	ug/filter	J	1.0		E200.8	03/05/24 19:10 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 05:38 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/06/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-003
Client Sample ID: Particulate filter C1708143 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 05:44 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 05:44 / jks
Copper	0.62	ug/filter	J	1.0		E200.8	03/05/24 19:16 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 05:44 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 05:44 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 19:16 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 05:44 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/07/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-004
Client Sample ID: Particulate filter C1708144 TSP 2/2-2/7

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:01 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:01 / jks
Copper	ND	ug/filter		1.0		E200.8	03/05/24 19:22 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:01 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:01 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 06:01 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:01 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/12/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-005
Client Sample ID: Particulate filter C1708145 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:07 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:07 / jks
Copper	0.80	ug/filter	J	1.0		E200.8	03/05/24 19:28 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:07 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:07 / jks
Molybdenum	0.24	ug/filter	J	1.0		E200.8	03/05/24 19:28 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 19:28 / jks

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
QCL - Quality Control Limit
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 01/18/24 14:45
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-006
Client Sample ID: Particulate filter C1708146 Lab Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:13 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:13 / jks
Copper	ND	ug/filter		1.0		E200.8	03/05/24 06:13 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:13 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:13 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 06:13 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:13 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-007
Client Sample ID: Particulate filter C1708147 TSP 2/7-2/13

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/13/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:19 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:19 / jks
Copper	0.49	ug/filter	J	1.0		E200.8	03/05/24 19:34 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:19 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:19 / jks
Molybdenum	0.14	ug/filter	J	1.0		E200.8	03/05/24 19:34 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:19 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/13/24
DateReceived: 02/29/24
Matrix: Air

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-008
Client Sample ID: Particulate filter C1708148 PM10

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:25 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:25 / jks
Copper	1.8	ug/filter		1.0		E200.8	03/05/24 06:25 / jks
Lead	0.091	ug/filter	J	1.0		E200.8	03/05/24 06:25 / jks
Manganese	0.52	ug/filter	J	1.0		E200.8	03/05/24 19:40 / jks
Molybdenum	0.13	ug/filter	J	1.0		E200.8	03/05/24 19:40 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 19:40 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-009
Client Sample ID: Particulate filter C17081449 TSP 2/13-2/20

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/20/24
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:30 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:30 / jks
Copper	0.72	ug/filter	J	1.0		E200.8	03/05/24 19:58 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:30 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:30 / jks
Molybdenum	0.23	ug/filter	J	1.0		E200.8	03/05/24 19:58 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:30 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School DH
Lab ID: B24021776-010
Client Sample ID: Particulate filter C1708150 Field Blank

Revised Date: 04/02/24
Report Date: 03/11/24
Collection Date: 02/20/24 10:46
DateReceived: 02/29/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1.0		E200.8	03/05/24 06:36 / jks
Cadmium	ND	ug/filter		1.0		E200.8	03/05/24 06:36 / jks
Copper	ND	ug/filter		1.0		E200.8	03/05/24 06:36 / jks
Lead	ND	ug/filter		1.0		E200.8	03/05/24 06:36 / jks
Manganese	ND	ug/filter		1.0		E200.8	03/05/24 06:36 / jks
Molybdenum	ND	ug/filter		1.0		E200.8	03/05/24 06:36 / jks
Zinc	ND	ug/filter		1.0		E200.8	03/05/24 06:36 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 03/27/24

Client: Bison Engineering **Work Order:** B24021776 **Report Date:** 03/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS207-B_240304A	
Lab ID: **QCS**	7	Initial Calibration Verification Standard								03/05/24 02:47
Arsenic		0.0496	mg/L	0.0050	99	90	110			
Cadmium		0.0246	mg/L	0.0010	99	90	110			
Copper		0.0511	mg/L	0.010	102	90	110			
Lead		0.0472	mg/L	0.0010	94	90	110			
Manganese		0.250	mg/L	0.0050	100	90	110			
Molybdenum		0.0486	mg/L	0.0050	97	90	110			
Zinc		0.0498	mg/L	0.0050	100	90	110			
Lab ID: **CCV**	7	Continuing Calibration Verification Standard								03/05/24 04:27
Arsenic		0.0481	mg/L	0.0050	96	90	110			
Cadmium		0.0492	mg/L	0.0010	98	90	110			
Copper		0.0489	mg/L	0.010	98	90	110			
Lead		0.0460	mg/L	0.0010	92	90	110			
Manganese		0.0457	mg/L	0.0050	91	90	110			
Molybdenum		0.0491	mg/L	0.0050	98	90	110			
Zinc		0.0478	mg/L	0.0050	96	90	110			
Lab ID: **CCV**	7	Continuing Calibration Verification Standard								03/05/24 05:49
Arsenic		0.0507	mg/L	0.0050	101	90	110			
Cadmium		0.0493	mg/L	0.0010	99	90	110			
Copper		0.0522	mg/L	0.010	104	90	110			
Lead		0.0461	mg/L	0.0010	92	90	110			
Manganese		0.0480	mg/L	0.0050	96	90	110			
Molybdenum		0.0497	mg/L	0.0050	99	90	110			
Zinc		0.0503	mg/L	0.0050	101	90	110			
Method: **E200.8**									Batch: 187513	
Lab ID: **MB-187513**	7	Method Blank				Run: ICPMS207-B_240304A				03/05/24 05:08
Arsenic		ND	ug/filter	0.08						
Cadmium		ND	ug/filter	0.009						
Copper		ND	ug/filter	0.3						
Lead		ND	ug/filter	0.09						
Manganese		ND	ug/filter	0.2						
Molybdenum		ND	ug/filter	0.07						
Zinc		ND	ug/filter	0.8						
Lab ID: **LCS-187513**	7	Laboratory Control Sample				Run: ICPMS207-B_240304A				03/05/24 05:14
Arsenic		98.8	ug/filter	1.0	99	85	115			
Cadmium		49.4	ug/filter	1.0	99	85	115			
Copper		101	ug/filter	5.0	101	85	115			
Lead		96.2	ug/filter	1.0	96	85	115			
Manganese		496	ug/filter	5.0	99	85	115			
Molybdenum		98.3	ug/filter	1.0	98	85	115			
Zinc		102	ug/filter	5.0	102	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 03/27/24

Client: Bison Engineering

Work Order: B24021776

Report Date: 03/11/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 187513
Lab ID: **LCSD-187513**	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_240304A				03/05/24 05:20
Arsenic		100	ug/filter	1.0	100	85	115			
Cadmium		49.8	ug/filter	1.0	100	85	115			
Copper		103	ug/filter	5.0	103	85	115			
Lead		96.9	ug/filter	1.0	97	85	115			
Manganese		503	ug/filter	5.0	101	85	115			
Molybdenum		100	ug/filter	1.0	100	85	115			
Zinc		101	ug/filter	5.0	101	85	115			
Method: **E200.8**										Analytical Run: ICPMS208-B_240304A
Lab ID: **QCS**	4	Initial Calibration Verification Standard								03/05/24 10:41
Copper		0.0501	mg/L	0.010	100	90	110			
Manganese		0.247	mg/L	0.0050	99	90	110			
Molybdenum		0.0486	mg/L	0.0050	97	90	110			
Zinc		0.0500	mg/L	0.0050	100	90	110			
Lab ID: **QCS**	4	Initial Calibration Verification Standard								03/05/24 18:21
Copper		0.0500	mg/L	0.010	100	90	110			
Manganese		0.246	mg/L	0.0050	99	90	110			
Molybdenum		0.0486	mg/L	0.0050	97	90	110			
Zinc		0.0505	mg/L	0.0050	101	90	110			
Lab ID: **CCV**	4	Continuing Calibration Verification Standard								03/05/24 18:27
Copper		0.0492	mg/L	0.010	98	90	110			
Manganese		0.0493	mg/L	0.0050	99	90	110			
Molybdenum		0.0502	mg/L	0.0050	100	90	110			
Zinc		0.0487	mg/L	0.0050	97	90	110			
Lab ID: **CCV**	4	Continuing Calibration Verification Standard								03/05/24 19:46
Copper		0.0499	mg/L	0.010	100	90	110			
Manganese		0.0490	mg/L	0.0050	98	90	110			
Molybdenum		0.0500	mg/L	0.0050	100	90	110			
Zinc		0.0505	mg/L	0.0050	101	90	110			
Method: **E200.8**										Batch: 187513
Lab ID: **MB-187513**	4	Method Blank				Run: ICPMS208-B_240304A				03/05/24 18:58
Copper		ND	ug/filter	0.3						
Manganese		ND	ug/filter	0.2						
Molybdenum		ND	ug/filter	0.07						
Zinc		ND	ug/filter	0.8						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B24021776

Login completed by: Danielle N. Harris
Date Received: 2/29/2024

Reviewed by: lleprowse
Received by: AAG

Reviewed Date: 3/4/2024
Carrier name: Hand Deliver

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.5°C On Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

None

Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

www.energylab.com

Account Information *(Billing information)*

Company/Name	Bison Engineering, Inc.
Contact	Shelley Argott-Brown
Phone	(406) 442-5768
Mailing Address	3143 E Lyndale Avenue
City, State, Zip	Helena MT, 59601
Email	sbrown-argott@bison-eng.com
Receive Invoice	☐Hard Copy ■Email
Receive Report	☐Hard Copy ☐Email
Purchase Order	MTR223018
Quote	
Bottle Order	

Report Information *(if different than Account Information)*

Company/Name	Bison Engineering, Inc.
Contact	Don Milmine
Phone	(406) 208-4833
Mailing Address	2751 Enterprise Avenue Suite 2
City, State, Zip	Billings, MT 59102
Email	dmilmine@bison-eng.com
Receive Report	☐Hard Copy ■Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

Analyze per history

Project Information

Project Name, PWSID, Permit, etc.	Momtana Resources/Greely School DH
Sampler Name	Sampler Phone
Sample Origin State	Montana
EPA/State Compliance	■ Yes ☐ No

URANIUM MINING CLIENTS MUST indicate sample type.
☐ NOT Source or Byproduct Material
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

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

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

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Arsenic	Cadmium	Copper	Lead	Manganese	Molybdenum	Zinc			See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
1	Particulate filter C1708141 PM10	1/31/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					B24021776
2	Particulate filter C1708142 TSP 1/30 - 2/2	1/30→2/2	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
3	Particulate filter C1708143 PM10	2/6/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
4	Particulate filter C1708144 TSP 2/2 -2/7	2/2→2/7	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
5	Particulate filter C1708145 PM10	2/12/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
6	Particulate filter C1708146 Lab blank	1/18/24	1445	1	on Teflon filter	x	x	x	x	x	x	x					
7	Particulate filter C1708147 TSP 2/7 - 2/13	2/7→2/13	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
8	Particulate filter C1708148 PM10	2/13/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
9	Particulate filter C1708149 TSP 2/13 - 2/20	2/13→2/20	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
10	Particulate filter C1708150 Field blank	2/20/24	1046	1	on Teflon filter	x	x	x	x	x	x	x					

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Don Milmine	2/29/24 1625	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Gilbert	2/29/24 1625	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

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

ELI-COC-10/18 v.3

ANALYTICAL SUMMARY REPORT

April 10, 2024

Bison Engineering
3143 E Lyndale Ave
Helena, MT 59601-6401

Work Order: B24031866 Quote ID: B4795

Project Name: Montana Resources/Greely School DH

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 3/29/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24031866-001	Particulate Filter C1733466 PM10	02/24/24 0:00	03/29/24	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B24031866-002	Particulate Filter C1733467 TSP 2/20-2/27	02/27/24 0:00	03/29/24	Air	Same As Above
B24031866-003	Particulate Filter C1733468 PM10	03/01/24 0:00	03/29/24	Air	Same As Above
B24031866-004	Particulate Filter C1733469 Lab Blank	02/15/24 13:47	03/29/24	Air	Same As Above
B24031866-005	Particulate Filter C1733470 TST 2/27-3/6	03/06/24 0:00	03/29/24	Air	Same As Above
B24031866-006	Particulate Filter C1733471 TSP 3/6-3/11	03/11/24 0:00	03/29/24	Air	Same As Above
B24031866-007	Particulate Filter C1733472 PM10	03/07/24 0:00	03/29/24	Air	Same As Above
B24031866-008	Particulate Filter C1733473 PM10	03/13/24 0:00	03/29/24	Air	Same As Above
B24031866-009	Particulate Filter C1733474 TSP 3/11-3/18	03/18/24 0:00	03/29/24	Air	Same As Above
B24031866-010	Particulate Filter C1733475 TSP Field Blank	03/18/24 10:39	03/29/24	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

CLIENT: Bison Engineering
Project: Montana Resources/Greely School DH
Work Order: B24031866

Report Date: 04/10/24

CASE NARRATIVE

Per client request, results are based on the final concentration using 25 mL of extraction solution per filter.

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the lowest method detection limit (MDL)/Limit of Detection (LOD). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL/LOD may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733466 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-001
Collection Date: 02/24/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 13:30 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	41	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 13:30 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	41	188390
Copper	ND	ug/filter		1.0	0.30	E200.8	04/04/24 13:30 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	41	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 13:30 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	41	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 13:30 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	41	188390
Molybdenum	0.077	ug/filter	J	1.0	0.070	E200.8	04/04/24 13:30 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	41	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 13:30 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	41	188390

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733467 TSP 2/20-2/27
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-002
Collection Date: 02/27/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 13:36 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	42	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 13:36 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	42	188390
Copper	0.55	ug/filter	J	1.0	0.30	E200.8	04/04/24 13:36 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	42	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 13:36 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	42	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 13:36 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	42	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 13:36 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	42	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 13:36 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	42	188390

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733468 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-003
Collection Date: 03/01/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 13:42 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	43	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 13:42 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	43	188390
Copper	ND	ug/filter		1.0	0.30	E200.8	04/04/24 13:42 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	43	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 13:42 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	43	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 13:42 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	43	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 13:42 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	43	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 13:42 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	43	188390

Report Definitions: RL - Analyte Reporting Limit | MCL - Maximum Contaminant Level | ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733469 Lab Blank
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-004
Collection Date: 02/15/24 13:47
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 14:00 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	46	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 14:00 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	46	188390
Copper	ND	ug/filter		1.0	0.30	E200.8	04/04/24 14:00 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	46	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 14:00 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	46	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 14:00 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	46	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 14:00 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	46	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 14:00 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	46	188390

Report Definitions: RL - Analyte Reporting Limit MCL - Maximum Contaminant Level ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733470 TST 2/27-3/6
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-005
Collection Date: 03/06/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 14:06 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	47	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 14:06 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	47	188390
Copper	ND	ug/filter		1.0	0.30	E200.8	04/04/24 14:06 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	47	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 14:06 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	47	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 14:06 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	47	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 14:06 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	47	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 14:06 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	47	188390

Report Definitions: RL - Analyte Reporting Limit MCL - Maximum Contaminant Level ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733471 TSP 3/6-3/11
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-006
Collection Date: 03/11/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 14:12 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	48	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 14:12 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	48	188390
Copper	1.3	ug/filter		1.0	0.30	E200.8	04/04/24 14:12 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	48	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 14:12 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	48	188390
Manganese	0.32	ug/filter	J	1.0	0.20	E200.8	04/04/24 14:12 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	48	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 14:12 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	48	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 14:12 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	48	188390

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733472 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-007
Collection Date: 03/07/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 14:17 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	49	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 14:17 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	49	188390
Copper	ND	ug/filter		1.0	0.30	E200.8	04/04/24 14:17 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	49	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 14:17 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	49	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 14:17 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	49	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 14:17 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	49	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 14:17 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	49	188390

Report Definitions: RL - Analyte Reporting Limit MCL - Maximum Contaminant Level ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733473 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-008
Collection Date: 03/13/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	0.14	ug/filter	J	1.0	0.080	E200.8	04/04/24 14:23 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	50	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 14:23 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	50	188390
Copper	0.67	ug/filter	J	1.0	0.30	E200.8	04/04/24 14:23 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	50	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 14:23 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	50	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 14:23 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	50	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 14:23 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	50	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 14:23 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	50	188390

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733474 TSP 3/11-3/18
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-009
Collection Date: 03/18/24
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 14:29 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	51	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 14:29 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	51	188390
Copper	0.49	ug/filter	J	1.0	0.30	E200.8	04/04/24 14:29 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	51	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 14:29 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	51	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 14:29 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	51	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 14:29 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	51	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 14:29 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	51	188390

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate Filter C1733475 TSP Field Blank
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24031866-010
Collection Date: 03/18/24 10:39
DateReceived: 03/29/24
Report Date: 04/10/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.080	E200.8	04/04/24 14:35 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	52	188390
Cadmium	ND	ug/filter		1.0	0.0090	E200.8	04/04/24 14:35 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	52	188390
Copper	ND	ug/filter		1.0	0.30	E200.8	04/04/24 14:35 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	52	188390
Lead	ND	ug/filter		1.0	0.090	E200.8	04/04/24 14:35 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	52	188390
Manganese	ND	ug/filter		1.0	0.20	E200.8	04/04/24 14:35 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	52	188390
Molybdenum	ND	ug/filter		1.0	0.070	E200.8	04/04/24 14:35 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	52	188390
Zinc	ND	ug/filter		1.0	0.80	E200.8	04/04/24 14:35 / jks	04/03/24 13:04	40CFR50	ICPMS207-B_240404A	52	188390

Report Definitions: RL - Analyte Reporting Limit MCL - Maximum Contaminant Level ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Bison Engineering **Work Order:** B24031866 **Report Date:** 04/10/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS207-B_240404A	
Lab ID: QCS	7	Initial Calibration Verification Standard							04/04/24 11:03	
Arsenic		0.0482	mg/L	0.0050	96	90	110			
Cadmium		0.0245	mg/L	0.0010	98	90	110			
Copper		0.0499	mg/L	0.010	100	90	110			
Lead		0.0480	mg/L	0.0010	96	90	110			
Manganese		0.246	mg/L	0.0050	99	90	110			
Molybdenum		0.0481	mg/L	0.0050	96	90	110			
Zinc		0.0496	mg/L	0.0050	99	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard							04/04/24 12:32	
Arsenic		0.0482	mg/L	0.0050	96	90	110			
Cadmium		0.0479	mg/L	0.0010	96	90	110			
Copper		0.0486	mg/L	0.010	97	90	110			
Lead		0.0484	mg/L	0.0010	97	90	110			
Manganese		0.0472	mg/L	0.0050	94	90	110			
Molybdenum		0.0476	mg/L	0.0050	95	90	110			
Zinc		0.0484	mg/L	0.0050	97	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard							04/04/24 13:48	
Arsenic		0.0472	mg/L	0.0050	94	90	110			
Cadmium		0.0488	mg/L	0.0010	98	90	110			
Copper		0.0483	mg/L	0.010	97	90	110			
Lead		0.0472	mg/L	0.0010	94	90	110			
Manganese		0.0477	mg/L	0.0050	95	90	110			
Molybdenum		0.0484	mg/L	0.0050	97	90	110			
Zinc		0.0474	mg/L	0.0050	95	90	110			
Method: E200.8									Batch: 188390	
Lab ID: MB-188390	7	Method Blank				Run: ICPMS207-B_240404A			04/04/24 12:55	
Arsenic		ND	ug/filter	0.08						
Cadmium		ND	ug/filter	0.009						
Copper		ND	ug/filter	0.3						
Lead		ND	ug/filter	0.09						
Manganese		ND	ug/filter	0.2						
Molybdenum		ND	ug/filter	0.07						
Zinc		ND	ug/filter	0.8						
Lab ID: LCS-188390	7	Laboratory Control Sample				Run: ICPMS207-B_240404A			04/04/24 13:01	
Arsenic		95.0	ug/filter	1.0	95	85	115			
Cadmium		47.9	ug/filter	1.0	96	85	115			
Copper		97.8	ug/filter	5.0	98	85	115			
Lead		93.9	ug/filter	1.0	94	85	115			
Manganese		472	ug/filter	5.0	94	85	115			
Molybdenum		94.4	ug/filter	1.0	94	85	115			
Zinc		97.4	ug/filter	5.0	97	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Bison Engineering **Work Order:** B24031866 **Report Date:** 04/10/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 188390
Lab ID: **LCSD-188390**	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_240404A				04/04/24 13:07
Arsenic		94.9	ug/filter	1.0	95	85	115			
Cadmium		48.0	ug/filter	1.0	96	85	115			
Copper		97.2	ug/filter	5.0	97	85	115			
Lead		97.7	ug/filter	1.0	98	85	115			
Manganese		473	ug/filter	5.0	95	85	115			
Molybdenum		93.7	ug/filter	1.0	94	85	115			
Zinc		96.5	ug/filter	5.0	97	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B24031866

Login completed by: Danielle N. Harris
Date Received: 3/29/2024
Reviewed by: tjones
Received by: CMJ
Reviewed Date: 4/2/2024
Carrier name: Hand Deliver

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.2°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

None

Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

www.energylab.com

Account Information (Billing information)

Company/Name	Bison Engineering, Inc.
Contact	Shelley Argott-Brown
Phone	(406) 442-5768
Mailing Address	3143 E Lyndale Avenue
City, State, Zip	Helena MT, 59601
Email	sbrown-argott@bison-eng.com
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	MTR223018
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	Bison Engineering, Inc.
Contact	Don Milmine
Phone	(406) 208-4833
Mailing Address	2751 Enterprise Avenue Suite 2
City, State, Zip	Billings, MT 59102
Email	dmilmine@bison-eng.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

Analyze per history

Project Information

Project Name, PWSID, Permit, etc.	Momtana Resources/Greely School DH
Sampler Name	Sampler Phone
Sample Origin State	Montana
EPA/State Compliance	☒ Yes ☐ No

URANIUM MINING CLIENTS MUST indicate sample type.
☐ NOT Source or Byproduct Material
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

Matrix Codes
(A - Air) W- Water; S - Soils/Solids; V - Vegetation; B - Bioassay; O - Other; DW - Drinking Water

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

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Arsenic	Cadmium	Copper	Lead	Manganese	Molybdenum	Zinc			See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	Particulate filter C1733466 PM10	2/24/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					B24031866
2	Particulate filter C1733467 TSP 2/20 - 2/27	2/20-2/27	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
3	Particulate filter C1733468 PM10	3/1/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
4	Particulate filter C1733469 Lab Blank	2/15/24	1347	1	on Teflon filter	x	x	x	x	x	x	x					
5	Particulate filter C1733470 TST 2/27-3/6	2/27-3/6	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
6	Particulate filter C1733471 TSP 3/6-3/11	3/6-3/11	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
7	Particulate filter C1733472 PM10	3/7/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
8	Particulate filter C1733473 PM10	3/13/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
9	Particulate filter C1733474 TSP 3/11-3/18	3/11-3/18	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
10	Particulate filter C1733475 TSP Field blank	3/18/24	1039	1	on Teflon filter	x	x	x	x	x	x	x					

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Don Milmine	3/29/24 1528	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Crystal Jones	3/29/24 1530	

LABORATORY USE ONLY

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

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

ELI-COC-10/18 v.3

ANALYTICAL SUMMARY REPORT

May 14, 2024

Bison Engineering
3143 E Lyndale Ave
Helena, MT 59601-6401

Work Order: B24050153 Quote ID: B4795

Project Name: Montana Resources/Greely School DH

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 5/1/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24050153-001	Particulate filter C1733481 PM10	03/19/24 0:00	05/01/24	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B24050153-002	Particulate filter C1733827 TSP 3/18-3/26	03/26/24 0:00	05/01/24	Air	Same As Above
B24050153-003	Particulate filter C1733483 PM10	03/25/24 0:00	05/01/24	Air	Same As Above
B24050153-004	Particulate filter C1733484 TSP 3/26-4/2	04/02/24 0:00	05/01/24	Air	Same As Above
B24050153-005	Particulate filter C1733485 PM10	03/31/24 0:00	05/01/24	Air	Same As Above
B24050153-006	Particulate filter T1168480 Lab Blank	03/07/24 14:00	05/01/24	Air	Same As Above
B24050153-007	Particulate filter C1733487 PM10	04/06/24 0:00	05/01/24	Air	Same As Above
B24050153-008	Particulate filter C1733488 TSP 4/2-4/10	04/10/24 0:00	05/01/24	Air	Same As Above
B24050153-009	Particulate filter C1733489 PM10	04/12/24 0:00	05/01/24	Air	Same As Above
B24050153-010	Particulate filter C1733490 TSP 4/10-4/15	04/15/24 0:00	05/01/24	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733481 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-001
Collection Date: 03/19/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 05:09 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	438	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 05:09 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	438	189242
Copper	1.7	ug/filter		1.0	0.16	E200.8	05/08/24 05:09 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	438	189242
Lead	0.13	ug/filter	J	1.0	0.042	E200.8	05/10/24 04:46 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	422	189242
Manganese	0.20	ug/filter	J	1.0	0.18	E200.8	05/08/24 05:09 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	438	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 05:09 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	438	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 05:09 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	438	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733827 TSP 3/18-3/26
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-002
Collection Date: 03/26/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 05:26 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	441	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 05:26 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	441	189242
Copper	0.86	ug/filter	J	1.0	0.16	E200.8	05/08/24 05:26 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	441	189242
Lead	0.070	ug/filter	J	1.0	0.042	E200.8	05/10/24 05:04 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	425	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 05:26 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	441	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 05:26 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	441	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 05:26 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	441	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733483 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-003
Collection Date: 03/25/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 05:32 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	442	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 05:32 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	442	189242
Copper	0.46	ug/filter	J	1.0	0.16	E200.8	05/10/24 05:11 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	426	189242
Lead	ND	ug/filter		1.0	0.042	E200.8	05/08/24 05:32 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	442	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 05:32 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	442	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 05:32 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	442	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 05:32 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	442	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733484 TSP 3/26-4/2
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-004
Collection Date: 04/02/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 05:38 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	443	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 05:38 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	443	189242
Copper	0.48	ug/filter	J	1.0	0.16	E200.8	05/10/24 05:17 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	427	189242
Lead	ND	ug/filter		1.0	0.042	E200.8	05/08/24 05:38 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	443	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 05:38 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	443	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 05:38 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	443	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 05:38 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	443	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733485 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-005
Collection Date: 03/31/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 05:44 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	444	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 05:44 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	444	189242
Copper	0.50	ug/filter	J	1.0	0.16	E200.8	05/10/24 05:23 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	428	189242
Lead	ND	ug/filter		1.0	0.042	E200.8	05/08/24 05:44 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	444	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 05:44 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	444	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 05:44 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	444	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 05:44 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	444	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter T1168480 Lab Blank
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-006
Collection Date: 03/07/24 14:00
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 05:50 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	445	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 05:50 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	445	189242
Copper	ND	ug/filter		1.0	0.16	E200.8	05/08/24 05:50 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	445	189242
Lead	ND	ug/filter		1.0	0.042	E200.8	05/08/24 05:50 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	445	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 05:50 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	445	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 05:50 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	445	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 05:50 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	445	189242

Report Definitions: RL - Analyte Reporting Limit MCL - Maximum Contaminant Level ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733487 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-007
Collection Date: 04/06/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 05:56 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	446	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 05:56 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	446	189242
Copper	0.44	ug/filter	J	1.0	0.16	E200.8	05/10/24 05:29 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	429	189242
Lead	ND	ug/filter		1.0	0.042	E200.8	05/08/24 05:56 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	446	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 05:56 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	446	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 05:56 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	446	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 05:56 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	446	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733488 TSP 4/2-4/10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-008
Collection Date: 04/10/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 06:02 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	447	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 06:02 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	447	189242
Copper	0.66	ug/filter	J	1.0	0.16	E200.8	05/10/24 05:35 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	430	189242
Lead	ND	ug/filter		1.0	0.042	E200.8	05/08/24 06:02 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	447	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 06:02 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	447	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 06:02 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	447	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 06:02 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	447	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733489 PM10
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-009
Collection Date: 04/12/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 06:07 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	448	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 06:07 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	448	189242
Copper	0.69	ug/filter	J	1.0	0.16	E200.8	05/10/24 05:41 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	431	189242
Lead	0.043	ug/filter	J	1.0	0.042	E200.8	05/08/24 06:07 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	448	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 06:07 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	448	189242
Molybdenum	ND	ug/filter		1.0	0.0050	E200.8	05/08/24 06:07 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	448	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 06:07 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	448	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Client Sample ID: Particulate filter C1733490 TSP 4/10-4/15
Project: Montana Resources/Greely School DH
Matrix: Air

Lab ID: B24050153-010
Collection Date: 04/15/24
DateReceived: 05/01/24
Report Date: 05/14/24

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS IN AIR												
Arsenic	ND	ug/filter		1.0	0.058	E200.8	05/08/24 06:13 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	449	189242
Cadmium	ND	ug/filter		1.0	0.0063	E200.8	05/08/24 06:13 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	449	189242
Copper	0.85	ug/filter	J	1.0	0.16	E200.8	05/10/24 05:47 / ae	05/03/24 08:55	40CFR50	ICPMS208-B_240508A	432	189242
Lead	0.063	ug/filter	J	1.0	0.042	E200.8	05/08/24 06:13 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	449	189242
Manganese	ND	ug/filter		1.0	0.18	E200.8	05/08/24 06:13 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	449	189242
Molybdenum	0.052	ug/filter	J	1.0	0.0050	E200.8	05/08/24 06:13 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	449	189242
Zinc	ND	ug/filter		1.0	0.30	E200.8	05/08/24 06:13 / ae	05/03/24 08:55	40CFR50	ICPMS207-B_240506A	449	189242

Report Definitions:
RL - Analyte Reporting Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Bison Engineering **Work Order:** B24050153 **Report Date:** 05/14/24

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS207-B_240506A
Lab ID: **QCS**	Initial Calibration Verification Standard								05/08/24 00:39
Arsenic	0.0486	mg/L	0.0050	97	90	110			
Cadmium	0.0232	mg/L	0.0010	93	90	110			
Copper	0.0512	mg/L	0.010	102	90	110			
Lead	0.0490	mg/L	0.0010	98	90	110			
Manganese	0.264	mg/L	0.0050	106	90	110			
Molybdenum	0.0487	mg/L	0.0050	97	90	110			
Zinc	0.0494	mg/L	0.0050	99	90	110			
Lab ID: **CCV**	Continuing Calibration Verification Standard								05/08/24 03:53
Arsenic	0.0478	mg/L	0.0050	96	90	110			
Cadmium	0.0485	mg/L	0.0010	97	90	110			
Copper	0.0490	mg/L	0.010	98	90	110			
Lead	0.0503	mg/L	0.0010	101	90	110			
Manganese	0.0489	mg/L	0.0050	98	90	110			
Molybdenum	0.0487	mg/L	0.0050	97	90	110			
Zinc	0.0482	mg/L	0.0050	96	90	110			
Lab ID: **CCV**	Continuing Calibration Verification Standard								05/08/24 05:15
Arsenic	0.0470	mg/L	0.0050	94	90	110			
Cadmium	0.0482	mg/L	0.0010	96	90	110			
Copper	0.0486	mg/L	0.010	97	90	110			
Lead	0.0492	mg/L	0.0010	98	90	110			
Manganese	0.0478	mg/L	0.0050	96	90	110			
Molybdenum	0.0484	mg/L	0.0050	97	90	110			
Zinc	0.0478	mg/L	0.0050	96	90	110			
Method: **E200.8**									Batch: 189242
Lab ID: **MB-189242**	Method Blank				Run: ICPMS207-B_240506A				05/08/24 04:45
Arsenic	ND	ug/filter	0.06						
Cadmium	ND	ug/filter	0.006						
Copper	ND	ug/filter	0.2						
Lead	ND	ug/filter	0.04						
Manganese	ND	ug/filter	0.2						
Molybdenum	ND	ug/filter	0.005						
Zinc	ND	ug/filter	0.3						
Lab ID: **LCS-189242**	Laboratory Control Sample				Run: ICPMS207-B_240506A				05/08/24 04:51
Arsenic	98.7	ug/filter	1.0	99	85	115			
Cadmium	48.8	ug/filter	1.0	98	85	115			
Copper	98.8	ug/filter	5.0	99	85	115			
Lead	98.6	ug/filter	1.0	99	85	115			
Manganese	507	ug/filter	5.0	101	85	115			
Molybdenum	100	ug/filter	1.0	100	85	115			
Zinc	104	ug/filter	5.0	104	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Bison Engineering **Work Order:** B24050153 **Report Date:** 05/14/24

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Batch: 189242
Lab ID: **LCSD-189242**	Laboratory Control Sample Duplicate				Run: ICPMS207-B_240506A				05/08/24 04:57
Arsenic	99.6	ug/filter	1.0	100	85	115			
Cadmium	49.1	ug/filter	1.0	98	85	115			
Copper	99.3	ug/filter	5.0	99	85	115			
Lead	95.8	ug/filter	1.0	96	85	115			
Manganese	504	ug/filter	5.0	101	85	115			
Molybdenum	99.6	ug/filter	1.0	100	85	115			
Zinc	110	ug/filter	5.0	110	85	115			
Method: **E200.8**									Analytical Run: ICPMS208-B_240508A
Lab ID: **QCS**	Initial Calibration Verification Standard								05/09/24 22:00
Copper	0.0513	mg/L	0.010	103	90	110			
Lead	0.0499	mg/L	0.0010	100	90	110			
Lab ID: **CCV**	Continuing Calibration Verification Standard								05/10/24 03:34
Copper	0.0497	mg/L	0.010	99	90	110			
Lead	0.0500	mg/L	0.0010	100	90	110			
Lab ID: **CCV**	Continuing Calibration Verification Standard								05/10/24 04:52
Copper	0.0500	mg/L	0.010	100	90	110			
Lead	0.0490	mg/L	0.0010	98	90	110			
Method: **E200.8**									Batch: 189242
Lab ID: **MB-189242**	Method Blank				Run: ICPMS208-B_240508A				05/10/24 04:40
Copper	ND	ug/filter	0.2						
Lead	ND	ug/filter	0.04						

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B24050153

Login completed by:	Chrystal N. Sheaff	Date Received:	5/1/2024
Reviewed by:	cindy	Received by:	AAG
Reviewed Date:	5/5/2024	Carrier name:	Hand Deliver

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	3.2°C Blue Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

None

(1)

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information *(Billing information)*

Company/Name	Bison Engineering, Inc.
Contact	Shelley Argott-Brown
Phone	(406) 442-5768
Mailing Address	3143 E Lyndale Avenue
City, State, Zip	Helena MT, 59601
Email	sbrown-argott@bison-eng.com
Receive Invoice	☐Hard Copy ■Email
Receive Report	☐Hard Copy ☐Email
Purchase Order	MTR223018
Quote	
Bottle Order	

Report Information *(if different than Account Information)*

Company/Name	Bison Engineering, Inc.
Contact	Don Milmine
Phone	(406) 208-4833
Mailing Address	2751 Enterprise Avenue Suite 2
City, State, Zip	Billings, MT 59102
Email	dmilmine@bison-eng.com
Receive Report	☐Hard Copy ■Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

Analyze per history

Project Information

Project Name, PWSID, Permit, etc.	Momtana Resources/Greely School DH
Sampler Name	Sampler Phone
Sample Origin State	Montana
EPA/State Compliance	■ Yes ☐ No

URANIUM MINING CLIENTS MUST indicate sample type.
☐ NOT Source or Byproduct Material
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

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

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

Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Arsenic	Cadmium	Copper	Lead	Manganese	Molybdenum	Zinc			See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1 Particulate filter C1733481 PM10	3/19/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					B24050153
2 Particulate filter C1733827 TSP 3/18 - 3/26	3/18-3/26	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
3 Particulate filter C1733483 PM10	3/25/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
4 Particulate filter C1733484 TSP 3/26 - 4/2	3/26-4/2	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
5 Particulate filter C1733485 PM10	3/31/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
6 Particulate filter T1168480 Lab Blank	3/7/24	1400	1	on Teflon filter	x	x	x	x	x	x	x					
7 Particulate filter C1733487 PM10	4/6/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
8 Particulate filter C1733488 TSP 4/2 - 4/10	4/2-4/10	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
9 Particulate filter C1733489 PM10	4/12/24	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
10 Particulate filter C1733490 TSP 4/10 - 4/15	4/10-4/15	continuous	1	on Teflon filter	x	x	x	x	x	x	x					

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Don Milmine	5/1/24 1525	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				C. Dell	5/1/24 1525	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

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

ELI-COC-10/18 v.3

APPENDIX E: COMMON GUIDELINES FOR AIRBORNE CONTAMINANTS

Dose and Risk Assessment References

Pollutant	Organization	Standard Type	Description	Value	Units	Time Period	Reference
Arsenic							
	WHO	Air Quality Guideline		0.0015	Unit Risk	Life-time	https://www.atsdr.cdc.gov/toxprofiles/tp2-c8.pdf
	NIOSH	REL		2	µg/m^3	15 min	https://www.atsdr.cdc.gov/toxprofiles/tp2-c8.pdf
	ACGIH	TLV (TWA)		10	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	OSHA	PEL (TWA)	General - organic As	200	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	OSHA	PEL (TWA)	General - inorganic As	10	µg/m^3	8-hour	https://www.atsdr.cdc.gov/toxprofiles/tp2-c8.pdf
	OSHA	PEL (TWA)	Construction - organic	500	µg/m^3	8-hour	https://www.atsdr.cdc.gov/toxprofiles/tp2-c8.pdf
	OSHA	PEL (TWA)	Shipyard - organic	500	µg/m^3	8-hour	https://www.atsdr.cdc.gov/toxprofiles/tp2-c8.pdf
	EPA	EPA- Ca	Noncancer	0.015	µg/m^3		https://www.epa.gov/sites/production/files/2014-05/documents/table1.pdf
	EPA	IRIS	Risk = 10^{-6} (lifetime)	0.043	µg/m^3	Life-time	https://www.epa.gov/sites/production/files/2014-05/documents/table1.pdf
	EPA	REL		0.20	µg/m^3	1-Hour	https://www.epa.gov/sites/production/files/2014-05/documents/table2.pdf
	EPA	RfC	Inorganic As	0.015	µg/m^3	Life-time	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
	EPA	RSL	Cancer Risk @ 10^{-6}	0.65	ng/m^3	Life-time	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
	EPA	RSL	HI = 1	0.016	µg/m^3		https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
Cadmium							
	ACGIH	TLV (TWA)	(total)	10	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	ACGIH	TLV (TWA)	(respirable)	2	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	OSHA	PEL (TWA)		5	µg/m^3		https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	EPA	ATSDR	Noncancer - Cd Compounds	0.01	µg/m^3	Chronic	https://www.epa.gov/sites/production/files/2014-05/documents/table1.pdf
	EPA	IRIS	Cancer - Cd Compounds	2	µg/m^3	Chronic	https://www.epa.gov/sites/production/files/2014-05/documents/table1.pdf
	EPA	MRL	Cd Compounds	0.03	µg/m^3	Acute	
	EPA	AEGL-1 (1-hr)	Cd Compounds	100	µg/m^3	1-Hour	https://www.epa.gov/sites/production/files/2014-05/documents/table2.pdf
	EPA	AEGL-1 (8-hr)	Cd Compounds	41	µg/m^3	8-Hour	https://www.epa.gov/sites/production/files/2014-05/documents/table2.pdf
	EPA	RfC	Cd (water)	0.01	µg/m^3	Life-time	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
	EPA	RSL: TR @ 10^{-6}	Cd (water) (Cancer Risk)	1.60	ng/m^3	Life-time	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
	EPA	RSL: HI = 1	Cd (water) (Noncancer Risk)	10	ng/m^3	HI=1	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
Copper							
	ACGIH	TLV (TWA)	(dust & mist)	1,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	NIOSH	REL (TWA)		1,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	OSHA	PEL (TWA)		1,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
Lead (Pb)							
	ACGIH	TLV (TWA)	(inorganic)	50	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	NIOSH	REL (TWA)	(inorganic+ organic salts)	50	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	OSHA	PEL (TWA)	(inorganic)	50	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	EPA	NAAQS		0.150	µg/m^3	3-month mean	40 CFR 50.12 (and Appendix R)
	NIOSH	IGHL/10	Lead compounds	10	mg/m^3		https://www.epa.gov/sites/production/files/2014-05/documents/table2.pdf
	EPA	RSL: HI = 1	Pb (Noncancer Risk)	0.15	µg/m^3	HI=1	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
Manganese							
	ACGIH	TLV (TWA)	(compounds + fumes)	20	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	NIOSH	REL (TWA)	(compounds + fumes)	1,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	OSHA	PEL (TWA)	(compounds + fumes)	5,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	ATSDR	Screen for Risk Assessment	Noncancer - Mn Compounds	0.30	µg/m^3	Chronic	https://www.epa.gov/sites/production/files/2014-05/documents/table2.pdf
	NIOSH	IGHL/10	Manganese compounds	50	mg/m^3		https://www.epa.gov/sites/production/files/2014-05/documents/table2.pdf
	USDOE	TEEL-1	MnO, MO_2 & $MnSO_4$	4.7	mg/m^3	1-Hour	https://www.epa.gov/sites/production/files/2014-05/documents/table2.pdf
	EPA	RSL: HI = 1	Mn (non-diet) (Noncancer Risk)	0.052	µg/m^3	HI=1	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
	EPA	RfC	Mn (non-diet)	0.05	µg/m^3	Life-time	https://semspub.epa.gov/work/HQ/401635.pdf - (November, 2021)
Molybdenum							
	ACGIH	TLV (TWA)	(soluble compounds)*	500	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	NIOSH	REL (TWA)	(soluble compounds)*	N/A	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	OSHA	PEL (TWA)	(soluble compounds)*	5,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
			* Higher limits for insoluble compounds				

Zinc (Zn)

ACGIH	TLV (TWA)	(zinc oxide - respirable)	2,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
	STEL	(zinc oxide - respirable)	10,000	µg/m^3	15 minutes	https://www.osha.gov/dsg/annotated-pels/tablez-1.html
OSHA	PEL (TWA)	(inorganic)	5,000	µg/m^3	8-hour	https://www.osha.gov/dsg/annotated-pels/tablez-1.html

Term	Definition
ACGIH	American Congress of Governmental Industrial Hygienists
AEGL-1	Acute exposure guideline levels for mild effects: 1-hour and 8-hour
ATSDR	Agency for Toxic Substances & Disease Registry
HI (EPA)	Hazardous Index: Aggregate exposures below a HI of 1.0 will likely not result in adverse noncancer health effects over a lifetime of exposure. A respiratory HI greater than 1.0 can be best described as indicating that a potential may exist for adverse irritation to the respiratory system. https://archive.epa.gov/airtoxics/nata/web/html/gloss.html
IDHL/10	One-tenth of levels determined by NIOSH to be imminently dangerous to life and death.
IRIS	Integrated Risk Information System
NAAQS	National Ambient Air Quality Standards: 40 CFR 50.12
NIOSH	National Institute of Occupational Safety and Health (part of CDC)
PEL	Permissible Exposure Limits (expressed as 8-hour time weighted average (TWA)) 29 CFR 1910.1000 Z-1 Table
REL (NIOSH)	Recommended exposure limit: Level at which NIOSH believes protects worker safety and health over a working lifetime.
REL (Ca EPA)	California EPA concentration level at which no adverse health effect are anticipated. Includes most sensitive individuals Levels exceeding REL does not automatically indicate an adverse health impact.
RfC	Reference Concentration (EPA) is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetim https://www.epa.gov/sites/default/files/2015-08/documents/technical_appendix_a_toxicity_v2_3_3.pdf
RSL	Residential Regional Screening Level (EPA Region X) @ 10^{-6} Cancer Risk or (Noncancer) Hazardous Index (HI) = 1 (based on Hazard Quotient (HQ) of 1. https://semspub.epa.gov/work/HQ/401635.pdf Last (EPA) Table Update: November 2021
STEL	Short-Term Exposure Limit (15-minutes)
TEEL-1	Temporary emergency exposure limits for mild transient effects for 1-hour exposure
TLV	Threshold Limit Value
TWA	Time Weighted Average
WHO	World Health Organization

APPENDIX F: CALIBRATIONS

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 01/03/2024	Time: 1406 – 1445 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 25.0 Meter S/N D16202		Certification Date: 1) 11-08-2023	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	616 mm Hg	620.1 mmHg	-4.1
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	-1.2 C	-1.2 C	0.0 C
Filter Temperature	-1.4 C	-1.5 C	+0.1 C
Leak Check			
Vacuum Readings ($cm\ H_2O$)	Start 99	End 98	Pass ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 4%)
Operating flow rate check	16.72	16.64	+0.5%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.7)/16.7 (must be ≤ ± 5%)
Design flow rate calculation	16.64	16.7	-0.4%

Unexposed sample filter removed temporarily for calibration checks.

Replaced sample pump (still working OK) with new one and rechecked calibration.

Sampler Ind. = 16.70 LPM, Ref = 16.61 LPM. Leak check 99-98.
So basically no change.

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 01/29/2024	Time: 1610 – 1630 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 25.0 Meter S/N D16202		Certification Date: 1) 11-08-2023	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	625 mm Hg	629.1 mmHg	-4.1
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	12.8 C	13.0 C	-0.2 C
Filter Temperature	13.3 C	12.9 C	+0.4 C
Leak Check			
Vacuum Readings (cm H_2O)	Start 114	End 113	Pass ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 4%)
Operating flow rate check	16.72	16.68	+0.2%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.7)/16.7 (must be ≤ ± 5%)
Design flow rate calculation	16.68	16.7	-0.2%
Exposed sample filter removed temporarily for calibration checks.			

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 02/22/2024	Time: 1055 – 1115 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 25.0 Meter S/N D16202		Certification Date: 1) 11-08-2023	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	623 mm Hg	627.3 mmHg	-4.3
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	2.8 C	3.5 C	-0.7 C
Filter Temperature	2.1 C	2.1 C	0.0 C
Leak Check			
Vacuum Readings (cm H_2O)	Start 101	End 100	Pass ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 4%)
Operating flow rate check	16.70	16.50	+1.2%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.7)/16.7 (must be ≤ ± 5%)
Design flow rate calculation	16.50	16.7	-1.2%
Tetra Cal showed 16.21 LPM			

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 03/15/2024	Time: 1415 – 1435 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 25.0 Meter S/N D16202		Certification Date: 1) 11-08-2023	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	622 mm Hg	626.8 mmHg	-4.8
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	8.7 C	8.4 C	+0.3 C
Filter Temperature	10.0 C	9.8 C	+0.2 C
Leak Check			
Vacuum Readings (cm H_2O)	Start 95	End 94	Pass ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 4%)
Operating flow rate check	16.70	16.58	+0.7%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.7)/16.7 (must be ≤ ± 5%)
Design flow rate calculation	16.58	16.7	-0.7%
Temporarily removed exposed filter			

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 04/11/2024	Time: 1321 – 1338 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 25.0 Meter S/N D16202		Certification Date: 1) 11-08-2023	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	618 mm Hg	622.0 mmHg	-4.0
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	14.5 C	14.3 C	+0.2 C
Filter Temperature	16.1 C	16.4 C	-0.3 C
Leak Check			
Vacuum Readings (cm H_2O)	Start 130	End 129	Pass ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 4%)
Operating flow rate check	16.70	16.70	0.0%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.7)/16.7 (must be ≤ ± 5%)
Design flow rate calculation	16.70	16.70	-0.0%
Temporarily removed unexposed filter			

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 01/29/2024	Time: 1630-1650 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift Meter SN C14999 (Flow/BP) 2) Tetra Cal SN 149645 (Temp)		Certification Date: 1) 07-28-2023 2) 12-04-2023	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	83,822 Pa	628.0 mm Hg = 83,726 Pa	+96 Pa
Pascals = mmHg * 133.322		Limit of ±1333 Pascals = ±10 mmHg	
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	14.0 C	12.9 C	+1.1 C
Leak Check			
Leak Check Flow Rate	0.0 LPM	(must be <0.4 LPM)	**Pass** ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 5%)
Audit standard flow rate check	2.0	2.01	-0.5 %
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–2.0)/2.0 (must be ≤ ± 5%)
Design flow rate check	2.01	2.0	+0.5 %
Relative Humidity Verification			
Dry Bulb Temp. °C	12.0	Calculated RH (a)	46.0%
Wet Bulb Temp. °C	6.3	Sampler RH (b)	45%
BP Inches Hg	24.72	Difference = a – b (must be ≤7% RH)	-1.0%

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 02/22/2024	Time: 1025-1040 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 6.0 SN C13475 (Flow/BP) 2) Delta Cal SN 1288 (Temp)		Certification Date: 1) 07-28-2023 2) 01-03-2024	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	83,607 Pa	626.3 mm Hg = 83,500 Pa	+107 Pa
Pascals = mmHg * 133.322		Limit of ±1333 Pascals = ±10 mmHg	
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	4.6 C	3.6 C	+1.0 C
Leak Check			
Leak Check Flow Rate	0.0 LPM	(must be <0.4 LPM)	**Pass** ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 5%)
Audit standard flow rate check	2.0	2.07	-3.4 %
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–2.0)/2.0 (must be ≤ ± 5%)
Design flow rate check	2.07	2.0	+3.5 %
Relative Humidity Verification			
Dry Bulb Temp. °C	2.0	Calculated RH (a)	50.7%
Wet Bulb Temp. °C	-1.5	Sampler RH (b)	50%
BP Inches Hg	24.66	Difference = a – b (must be ≤7% RH)	-0.7%

Adjusted flow to 1.96 LPM

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 03/15/2024	Time: 1429 - 1446 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 6.0 SN C14999 (Flow/BP) 2) Swift 25.0 SN D16202 (Temp)		Certification Date: 1) 07-28-2023 2) 11-08-2023	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	83,509 Pa	625.8 mm Hg = 83,433 Pa	+76 Pa
Pascals = mmHg * 133.322		Limit of ±1333 Pascals = ±10 mmHg	
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	11.7 C (sunny/calm)	10.2 C	+1.5 C
Leak Check			
Leak Check Flow Rate	0.0 LPM	(must be <0.4 LPM)	**Pass** ~~Fail~~
Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 5%)
Audit standard flow rate check	2.0	1.97	+1.5 %
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–2.0)/2.0 (must be ≤ ± 5%)
Design flow rate check	1.97	2.0	-1.5 %
Relative Humidity Verification			
Dry Bulb Temp. °C	8.6	Calculated RH (a)	34.0%
Wet Bulb Temp. °C	2.3	Sampler RH (b)	32%
BP Inches Hg	24.64	Difference = a – b (must be ≤7% RH)	-2.0%

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 04/11/2024	Time: 1330 - 1343 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Swift 6.0 SN C13475 (Flow/BP) 2) Swift 25.0 SN D16202 (Temp)		Certification Date: 1) 07-28-2023 2) 11-08-2023	

Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	82,864 Pa	621.0 mm Hg = 82,793 Pa	+71 Pa
Pascals = mmHg * 133.322		Limit of ±1333 Pascals = ±10 mmHg	

Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	17.1 C	16.3 C	+0.8 C

Leak Check			
Leak Check Flow Rate	0.0 LPM	(must be <0.4 LPM)	**Pass** ~~Fail~~

Flow Rate Verification			
Reading (liters per minute)	Sampler (a)	Reference Standard (b)	% Difference 100*(a – b)/b (must be ≤ ± 5%)
Audit standard flow rate check	2.0	1.96	+2.0 %
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–2.0)/2.0 (must be ≤ ± 5%)
Design flow rate check	1.96	2.0	-2.0 %

Relative Humidity Verification			
Dry Bulb Temp. °C	15.1	Calculated RH (a)	16.5%
Wet Bulb Temp. °C	4.6	Sampler RH (b)	18%
BP Inches Hg	24.49	Difference = a – b (must be ≤7% RH)	+1.5%

APPENDIX G: CALIBRATION STANDARD CERTIFICATION SHEETS

Met One Instruments, Inc.
1600 NW Washington Blvd • Grants Pass, OR 97526 • (541) 471-7111 • www.metone.com

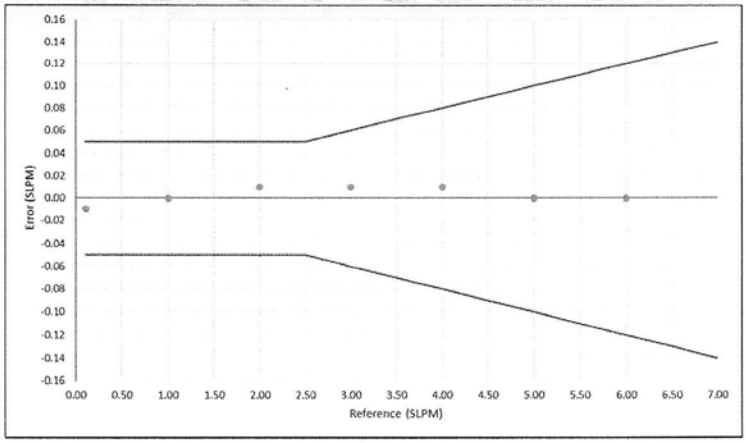
Certificate of Calibration

Model Swift 6.0

Serial Number: C14999
Firmware Version: 83373 Rev 1.0.0
Customer: BISON ENGINEERING INC
As Left [X] As Found [ ]

Calibrated By: *H.Duffy*
Calibration Date: *7/28/2023*
Next Calibration Date: *7/28/2024*

Flow Calibration			
Standard (SLPM)	**Swift 6.0 (SLPM)**	**Acceptable Range**	**In Tolerance**
1.000	1.01	0.95 - 1.05	Yes
2.000	2.01	1.95 - 2.05	Yes
3.000	3.01	2.94 - 3.06	Yes
4.000	4.01	3.92 - 4.08	Yes
5.000	5.00	4.90 - 5.10	Yes
6.000	6.00	5.88 - 6.12	Yes
Flow Accuracy: ±2% of reading or ±0.05 LPM, whichever is greater			



Temperature		
Standard (°C)	**Swift (°C)**	**In Tolerance**
22.6	22.1	Yes
Temperature Accuracy: ±1.0°C		

Pressure		
Standard (mbar)	**Swift (mbar)**	**In Tolerance**
986.1	985.2	Yes
Pressure Accuracy: ±16 mbar		

Calibration Procedure: Swift 6.0-6100
Recommended Calibration Interval: 12 months from the first day of use

Standards	Manufacturer	Model	SN	Cal Due Date
Air Flow Meter (Flow & Temp)	Alicat	M-50SLPM-D/5M	432090	01/27/24
Temp/Humidity/BP	Met One Instruments	597	Y13061	05/19/24

This instrument has been tested and calibrated to meet the manufacturer's published specifications at an ISO-9001 certified facility. The standards used for the calibration are on record and traceable to the National Institute of Standards and Technology (NIST) and have accuracies equal to or greater than the instrument being tested. The calibration system complies with MIL-STD-45662A. Complete test records for each unit are maintained by Met One Instruments, Inc. and are available upon request.

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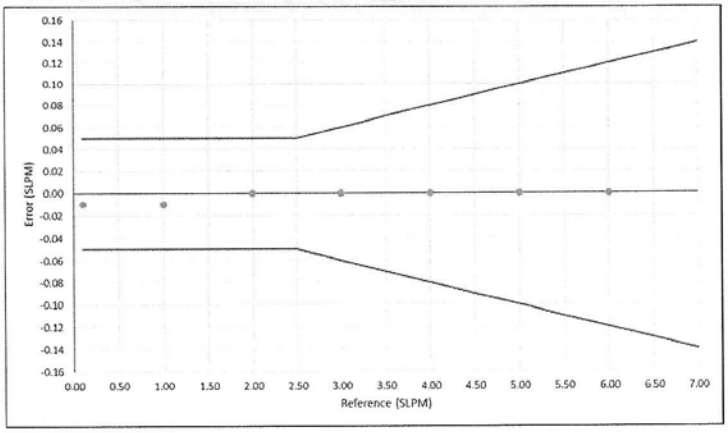
Certificate of Calibration

Model Swift 6.0

Serial Number: C13475
Firmware Version: 83373 Rev 1.0.0
Customer: BISON ENGINEERING INC
As Left [X] As Found [ ]

Calibrated By: *H.Duffy*
Calibration Date: *7/28/2023*
Next Calibration Date: *7/28/2024*

Flow Calibration			
Standard (SLPM)	**Swift 6.0 (SLPM)**	**Acceptable Range**	**In Tolerance**
1.000	0.99	0.95 - 1.05	Yes
2.000	2.00	1.95 - 2.05	Yes
3.000	3.00	2.94 - 3.06	Yes
4.000	4.00	3.92 - 4.08	Yes
5.000	5.00	4.90 - 5.10	Yes
6.000	6.00	5.88 - 6.12	Yes
Flow Accuracy: ±2% of reading or ±0.05 LPM, whichever is greater			



Temperature		
Standard (°C)	**Swift (°C)**	**In Tolerance**
22.6	22.1	Yes
Temperature Accuracy: ±1.0°C		

Pressure		
Standard (mbar)	**Swift (mbar)**	**In Tolerance**
986.1	985.5	Yes
Pressure Accuracy: ±16 mbar		

Calibration Procedure: Swift 6.0-6100
Recommended Calibration Interval: 12 months from the first day of use

Standards	Manufacturer	Model	SN	Cal Due Date
Air Flow Meter (Flow & Temp)	Alicat	M-50SLPM-D/5M	432090	01/27/24
Temp/Humidity/BP	Met One Instruments	597	Y13061	05/19/24

This instrument has been tested and calibrated to meet the manufacturer's published specifications at an ISO-9001 certified facility. The standards used for the calibration are on record and traceable to the National Institute of Standards and Technology (NIST) and have accuracies equal to or greater than the instrument being tested. The calibration system complies with MIL-STD-45662A. Complete test records for each unit are maintained by Met One Instruments, Inc. and are available upon request.

Mesa Labs 12100 W. 6th Ave
Lakewood, CO 80228
NIST Traceable Calibration Facility

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

Calibration Report #: 149645-04122023
TetraCal Serial Number: 149645
Calibration Technician: Melissa Sardoni
Date: 4-Dec-2023
Recommended Recal Date: 4-Dec-2024

Critical Venturi Flow Meter

Max Uncertainty = 0.346%

TE20004	6 - 30.00 LPM	Calibration Due:	25-Sep-2024
TE20006	1.40 - 6.0 LPM	Calibration Due:	25-Sep-2024
TE20008	0.40 - 1.20 LPM	Calibration Due:	26-Sep-2024

Room Temperature: +- 0.03°C from -5°C - 70°C **Room Temperature:** 24.40 °C
Brand: Eutechnics

TE Number: TE12312 **Serial Number:** 358921
Std Cal Date: 1-Sep-23 **Std Cal Due Date:** 1-Sep-24

Ambient Temperature (set): 24.8 °C
Aux (filter) Temperature (set): 24.4 °C

Barometric and Absolute Pressure

Vaisala Model PTB330 (50-1100) Digital Accuracy: 0.03371%

TE Number: TE20203 **Serial Number:** U1220936
Std Cal Date: 6-Jun-23 **Std Cal Due Date:** 6-Jun-24

TetraCal:

Barometric pressure (set): 617.20 mmHg

Results of Venturi Calibration

Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

Venturi

TE20004	Q1 = 5.45324	ΔP ^	0.51821	Overall Uncertainty: 0.35%
TE20006	Q2 = 1.17346	ΔP ^	0.52812	Overall Uncertainty: 0.35%
TE20008	Q3 = 0.21591	ΔP ^	0.52812	Overall Uncertainty: 0.35%

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Mesa Labs 12100 W. 6th Ave Lakewood, CO 80228
NIST Traceable Calibration Facility

As Shipped Calibration Data for TetraCal

Unit Type: TetraCal TC12	Date	Technician	
Flow Range: 1.20 -30.00 LPM	04Dec2023	Melissa Sardoni	
Serial No. : 149645	Ambient Pressure:	617	mmHg
Firmware Version: 3.41P	Ambient Temperature:	24.4	°C

Range 1: 1.2 - 6.00 LPM		Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
Venturi	TE20004	1	122.34	617.7	5.968	5.975	0.117
Type	1A	2	363.64	617.7	18.103	17.991	-0.619
Flow range	6 - 30.00 LPM	3	594.51	617.7	29.713	29.903	0.639
		Maximum allowable error at any flow rate is 0.75%.				Average	0.046
						Result	PASS

Range 2: 6.00 - 30.0 LPM		Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
Venturi	TE20006	1	107.98	617.7	1.503	1.496	-0.466
Type	2A	2	232.85	617.7	3.309	3.295	-0.423
Flow range	1.40 - 6.0 LPM	3	416.30	617.7	5.961	5.987	0.436
		Maximum allowable error at any flow rate is 0.75%.				Average	-0.151
						Result	PASS

Range 3: NP		Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
Venturi	TE20008	1	218.27	617.2	0.499	0.496	-0.601
Type	3A	2	342.63	617.2	0.800	0.796	-0.500
Flow range	0.40 - 1.20 LPM	3	507.69	617.7	1.199	1.197	-0.167
		Maximum allowable error at any flow rate is 0.75%.				Average	-0.423
						Result	PASS

Performed By: Melissa Sardoni **Date:** 4-Dec-2023

Melissa Sardoni

Approved By: Leonard Rainert
Quality Specialist **Date:** 06Dec2023

Leonard Rainert

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Mesa Labs 12100 W. 6th Ave Lakewood, CO 80228
NIST Traceable Calibration Facility

As-Found data for TetraCal

Unit Type:	TetraCal TC12	Date	Technician
Flow Range:	1.20 -30.00 LPM	04Dec2023	Melissa Sardoni
Serial No. :	149645	Ambient Pressure:	617 mmHg
Firmware Version:	3.41P	Ambient Temperature:	24.4 °C

	As Received Temp. Press. Calibration				As Shipped Temp. Press. Calibration			
	DUT	**Standard**	**Diff**	**+/- 1 mmHg**	**DUT**	**Standard**	**Diff**	**+/-1 mmHg**
$Pres_{AMB}$ mmHg	616.5	616.7	-0.2	Pass	617.2	617.1	0.1	Pass
	DUT	**Standard**	**Diff**	**+/- 1 °C**	**DUT**	**Standard**	**Diff**	**+/- 1 °C**
$Temp_{AMB}$ °C	23.3	23.2	0.1	Pass	24.8	24.4	0.4	Pass
$Temp_{Filter}$ °C	24.4	24.4	0	Pass	24.4	24.4	0	Pass

	Offset	New Offset
PresAMB	-47	-46.8
TempAMB	0.25	0.15
Temp Filter	0.15	0.15

Range 1: 1.2 - 6.00 LPM

Venturi	TE20004
Type	1A
Flow range	6 - 30.00 LPM

Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
1	124.11	617.0	6.058	6.006	-0.858
2	365.22	617.5	18.17	18.008	-0.892
3	594.39	617.0	29.711	29.788	0.259
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.497
				Result	FAIL

Range 2: 6.00 - 30.0 LPM

Venturi	TE20006
Type	2A
Flow range	1.40 - 6.0 LPM

Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
1	109.62	617.0	1.526	1.505	-1.376
2	235.68	617.0	3.349	3.310	-1.165
3	419.04	617.5	5.994	5.981	-0.217
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.919
				Result	FAIL

Range 3: NP

Venturi	TE20008
Type	3A
Flow range	0.40 - 1.20 LPM

Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
1	217.24	617.5	0.495	0.496	0.202
2	346.69	617.5	0.808	0.803	-0.619
3	507.24	617.5	1.198	1.196	-0.167
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.195
				Result	PASS

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Certificate of Calibration

Model Swift 25.0

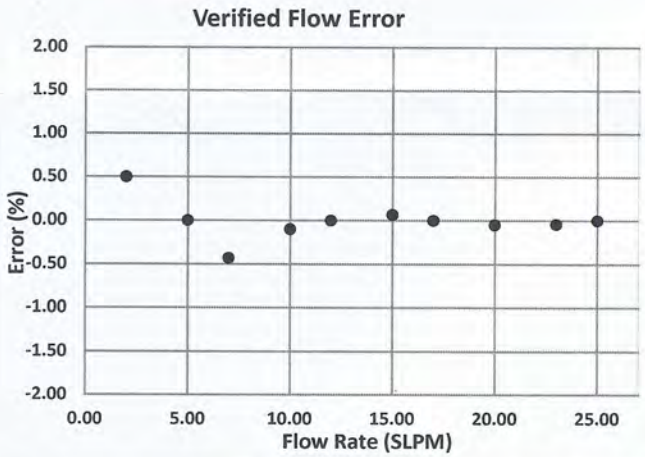
Serial Number : D16202

Firmware: R1.0.2

Calibrated Date: 11/8/2023

Calibrated By: J.Taylor

Verified Flow Data Points			
Standard (SLPM)	Swift 25.0 (SLPM)	Acceptable Range	In Tolerance
2	2.01	1.98 - 2.02	Pass
5	5.00	4.95 - 5.05	Pass
7	6.97	6.93 - 7.07	Pass
10	9.99	9.90 - 10.10	Pass
12	12.00	11.88 - 12.12	Pass
15	15.01	14.85 - 15.15	Pass
17	17.00	16.83 - 17.17	Pass
20	19.99	19.80 - 20.20	Pass
23	22.99	22.77 - 23.23	Pass
25	25.00	24.75 - 25.75	Pass



Internal Temperature		
Standard (SLPM)	Swift 25.0 (SLPM)	In Tolerance
19.51	19.51	Pass
Temp Accuracy: ± °C		

Pressure		
Standard (mbar)	Swift 25.0 (mbar)	In Tolerance
992.3	992.9	Pass
Pressure Accuracy: ± 0.6 mbar		

External Temperature Probe		
Standard (°C)	Swift 25.0 (°C)	In Tolerance
19.51	19.52	Pass
Temp Accuracy: ± 0.01 °C		

RH %		
Standard (RH%)	Swift 25.0 (RH%)	In Tolerance
46	43	Pass
Relative Humidity Accuracy: ± 3 %RH		

Calibration Procedure: Swift 25.0-6100
Recommended Calibration Interval: 12 months from the first day of use

Standards	Model	SN	Cal Due
Air Flow Meter	M-50SLPM-D	306982	8/31/2024
RH &TEMPERATURE	HC2-S & HP22-A	61174458	6/1/2024
BAROMETRIC PRESSURE	092	T17328	August 21,2024

This instrument has been tested and calibrated to meet the manufacturer's published specifications at an ISO-9001 certified facility. The standards used for the calibration are on record and traceable to the National Institute of Standards and Technology (NIST) and have accuracies equal to or greater than the instrument being tested. The calibration system complies with MIL-STD-45662A. Complete test records for each unit are maintained by Met One Instruments, Inc. and are available upon request.

Mesa Labs 12100 W. 6th Ave
Lakewood, CO 80228
NIST Traceable Calibration Facility

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

Calibration Report #: 1288-03012024
DeltaCal Serial Number: 1288
Calibration Technician: Elsy Lasky
Date: 3-Jan-2024
Recommended Recal Date: 3-Jan-2025

Critical Venturi Flow Meter

Max Uncertainty = 0.346%

TE20005	6 - 30.00 LPM	Calibration Due:	1-Aug-2024
TE20007	1.40 - 6.0 LPM	Calibration Due:	2-Aug-2024

Room Temperature: +- 0.03°C from -5°C - 70°C **Room Temperature:** 22.90 °C

Brand: Eutechnics
TE Number: TE12348 **Serial Number:** A11146
Std Cal Date: 29-Sep-23 **Std Cal Due Date:** 29-Sep-24

Ambient Temperature (set): 23.0 °C
Aux (filter) Temperature (set): 23.0 °C

Barometric and Absolute Pressure

Vaisala Model PTB330 (50-1100) Digital Accuracy: 0.03371%

TE Number: TE12311 **Serial Number:** H0850001
Std Cal Date: 6-Aug-23 **Std Cal Due Date:** 6-Aug-24

DeltaCal:
Barometric pressure (set): 616.00 mmHg

Results of Venturi Calibration

Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

Venturi				
TE20005	Q= 4.02226	ΔP ^	0.51536	Overall Uncertainty: 0.35%
TE20007	Q= 3.95205	ΔP ^	0.52799	Overall Uncertainty: 0.35%

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As Shipped Calibration Data for DeltaCal

Unit Type:	DC 1
Flow Range:	1.5-19.5 LPM
Serial No. :	1288
Firmware Version:	4.00P

Date	Technician
03Jan2024	Elsy Lasky

Ambient Pressure:	616.2	mmHg
Ambient Temperature:	22.9	°C

Range 1

Venturi	TE20005
Type	1B
Flow range	6 - 30.00 LPM

Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
1	134.39	615.4	6.530	6.504	-0.398
2	205.14	615.4	10.048	10.005	-0.428
3	267.02	615.4	13.124	13.040	-0.640
4	326.09	615.4	16.061	15.978	-0.517
5	368.21	615.4	18.155	18.063	-0.507
6	403.83	615.4	19.926	19.806	-0.602
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.515
				Result	PASS

Range 2

Venturi	TE20007
Type	2B
Flow range	1.40 - 6.0 LPM

Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
1	139.56	615.9	1.941	1.953	0.618
2	206.07	615.9	2.895	2.908	0.449
3	261.31	615.9	3.687	3.713	0.705
4	322.98	615.9	4.571	4.569	-0.044
5	371.60	615.9	5.268	5.248	-0.380
6	417.85	615.9	5.931	5.904	-0.455
	Maximum allowable error at any flow rate is 0.75%.			Average	0.149
				Result	PASS

Performed By: Elsy Lasky **Date:** 3-Jan-2024

Elsy Lasky

Approved By: TROY THACKER **Date:** 03JAN2024

Troy Thacker

MesaLabs

Mesa Labs 12100 W. 6th Ave Lakewood, CO 80228
NIST Traceable Calibration Facility

As-Found data for DeltaCal

Unit Type:	DC 1
Flow Range:	1.5-19.5 LPM
Serial No. :	1288
Firmware Version:	4.00P

Date	Technician
03Jan2024	Elsy Lasky

Ambient Pressure:	616.2	mmHg
Ambient Temperature:	22.9	°C

	As Received Temp. Press. Calibration				As Shipped Temp. Press. Calibration			
	DUT	**Standard**	**Diff**	**+/- 1 mmHg**	**DUT**	**Standard**	**Diff**	**+/-1 mmHg**
$Pres_{AMB}$ mmHg	618	617.9	0.1	Pass	615.9	616.2	-0.3	Pass
	DUT	**Standard**	**Diff**	**+/- 1 °C**	**DUT**	**Standard**	**Diff**	**+/- 1 °C**
$Temp_{AMB}$ °C	22.5	22.5	0	Pass	23	22.9	0.1	Pass
$Temp_{Filter}$ °C	22.5	22.5	0	Pass	23	22.9	0.1	Pass

	Offset	New Offset
PresAMB	3	2.9
TempAMB	0	0
Temp Filter	0	0

Range 1

Venturi	TE20005
Type	1B
Flow range	6 - 30.00 LPM

Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
1	134.61	616.0	6.533	6.499	-0.520
2	204.39	616.0	9.997	9.938	-0.590
3	264.52	616.0	12.983	12.893	-0.693
4	326.16	616.0	16.043	15.927	-0.723
5	369.74	616.0	18.208	18.082	-0.692
6	404.37	616.0	19.927	19.820	-0.537
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.626
				Result	PASS

Range 2

Venturi	TE20007
Type	2B
Flow range	1.40 - 6.0 LPM

Test #	Static Pressure mmHg	Barometric Pressure mmHg	Venturi Qa LPM	DUT Qa LPM	% error %
1	139.22	616.0	1.935	1.952	0.879
2	200.99	616.5	2.818	2.814	-0.142
3	267.78	616.5	3.775	3.782	0.185
4	318.96	616.5	4.507	4.505	-0.044
5	370.03	616.5	5.239	5.244	0.095
6	422.60	616.5	5.992	5.995	0.050
	Maximum allowable error at any flow rate is 0.75%.			Average	0.171
				Result	FAIL