MONTANA RESOURCES LLP

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

QUARTER 2, 2023

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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.*

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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 second quarter of 2023. 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:

- 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[1] 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 installation until the time of removal, while the BGI PM_{10} sampler filter is exposed for only a

[1] Reference and Equivalent Methods are defined in 40 CFR 50.1.

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 second 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 June 2023 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;[2]
- 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 downloaded by Bison from a new GIS-based website that was activated by MDEQ in late 2022.

[2] The E-Sampler also collects hourly values of temperature and barometric pressure, but those values are 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 superior to those collected by the E-Sampler.

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 second quarter of 2023. 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 good consistency between the two PM_{10} measurement methods on most days. Although not the focus of this study, these results show that the maximum 24-hour PM_{10} concentrations (60 µg/m^3 for the BGI sampler and 59 µg/m^3 for the BAM-1020 monitor, both on May 18) were well below the 24-hour standard of 150 µg/m^3.[3] These maximum values reflected wildfire smoke from northern Canada. The quarterly PM_{10} average from both samplers (15 µg/m^3) was well below the Montana Annual PM_{10} standard of 50 µg/m^3.[4]

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.

[3] 40 CFR 50.6.

[4] 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 2, 2023

Sample Collection Date (2023)	BGI PM10[1] (µg/m³)	BAM-1020[1] (µg/m³)	Arithmetic Difference (µg/m³)	Relative Difference (%)
Apr 6	19.8	21.6	-1.8	9
Apr 12	4.0	4.8	-0.8	19
Apr 18	14.0	10.3	3.7	30
Apr 24	17.3	14.1	3.2	20
Apr 30	31.2	28.1	3.1	11
May 6	3.3	1.8	1.5	60
May 12	13.2	13.2	0.0	0
May 18	60.3	59.2	1.1	2
May 24	6.4	5.9	0.5	8
May 30	12.0	13.4	-1.4	11
Jun 5	7.9	11.7	-3.8	39
Jun 11	9.5	9.3	0.2	2
Jun 17	9.5	9.4	0.1	1
Jun 23	11.7	10.6	1.1	9
Jun 29	8.5	15.1	-6.6	56
Average[2]	**15.2**	**15.2**	**0.0**	**0[3]**

[1]All values at local temperature and pressure (LTP).
[2]Averages only include dates with complete data from both samplers.
[3]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 second quarter of 2023, with generally minor interruptions for calibrations, audits and scheduled maintenance.

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[5] have been excluded from the reported data. A total of 239 hours of E-Sampler data were excluded from analysis during the second quarter for that reason.

[5] 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 second 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.[6] 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 marginally lower than the PM_{10} values from the BAM-1020 PM_{10} monitor. 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 25 percent in April and June, but roughly 50 percent in May. It is suspected that the higher fraction in May reflected greater impacts from occasional wildfire smoke, which tends to consist of smaller particles.

Temperatures were well below normal in April, well above normal in May and near normal in June. Precipitation was near normal in April, above normal in May and well above normal in June. In general the winter of 2022 – 2023 was unusually cold and snowy; the winter snow cover persisted well into April.

Table 2: TSP, PM_{10} and $PM_{2.5}$ Averages for Quarter 2, 2023

Period 2023	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
April	17	17	3.9
May	14	17	7.4
June	10	11	2.8
Quarter 2	**14**	**15**	**4.7**

[6] 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.

Table 2a: TSP, PM_{10} and $PM_{2.5}$ Daily Averages for April 2023

Date 2023	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
Apr 1	7	6	1.8
Apr 2	9	6	2.2
Apr 3	22	17	2.8
Apr 4	13	12	2.1
Apr 5	25	19	3.4
Apr 6	22	22	4.2
Apr 7	30	23	5.1
Apr 8	13	13	2.9
Apr 9	28	23	6.5
Apr 10	21	22	4.9
Apr 11	16	23	3.2
Apr 12	5	4	2.2
Apr 13	12	9	1.2
Apr 14	17	10	3.0
Apr 15	18	11	4.8
Apr 16	27	22	6.7
Apr 17	17	16	4.9
Apr 18	19	12	4.4
Apr 19	5	8	1.6
Apr 20	16	17	2.5
Apr 21	6	6	2.4
Apr 22	9	8	3.0
Apr 23	11	10	2.3
Apr 24	13	19	1.7
Apr 25	6	8	1.9
Apr 26	18	28	5.3
Apr 27	13	31	2.6
Apr 28	22	23	6.9
Apr 29	26	26	8.5
Apr 30	28	28	9.4
Average	**17**	**17**	**3.9**

Table 2b: TSP, PM_{10} and $PM_{2.5}$ Daily Averages for May 2023

Date 2023	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
May 1	24	40	8.3
May 2	20	26	3.3
May 3	18	29	5.3
May 4	17	23	4.8
May 5	6	6	1.8
May 6	3	2	-0.1
May 7	4	3	0.6
May 8	4	5	1.6
May 9	5	7	1.2
May 10	7	8	2.4
May 11	9	10	3.6
May 12	10	15	4.6
May 13	6	5	2.6
May 14	2	7	1.6
May 15	5	11	2.6
May 16	6	17	4.9
May 17	22	28	17.6
May 18	64	65	49.0
May 19	55	62	44.7
May 20	28	35	21.8
May 21	14	21	10.9
May 22	7	10	3.5
May 23	8	9	1.5
May 24	6	6	2.0
May 25	5	5	0.8
May 26	8	6	2.1
May 27	5	5	1.8
May 28	7	8	1.6
May 29	12	9	3.4
May 30	14	14	3.9
May 31	10	10	2.4
Average	**14**	**17**	**7.4**

Table 2c: TSP, PM_{10} and $PM_{2.5}$ Daily Averages for June 2023

Date 2023	TSP (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
Jun 1	7	9	2.5
Jun 2	6	6	1.6
Jun 3	13	9	4.5
Jun 4	10	9	2.2
Jun 5	9	12	2.6
Jun 6	13	16	4.2
Jun 7	10	14	4.1
Jun 8	8	10	2.3
Jun 9	8	10	3.1
Jun 10	9	12	3.2
Jun 11	10	9	2.9
Jun 12	16	11	4.1
Jun 13	15	12	3.4
Jun 14	9	13	2.9
Jun 15	12	12	3.5
Jun 16	19	16	5.8
Jun 17	14	9	5.1
Jun 18	4	4	1.1
Jun 19	5	8	0.7
Jun 20	3	5	0.3
Jun 21	4	6	1.7
Jun 22	4	10	0.8
Jun 23	6	11	2.5
Jun 24	6	9	2.2
Jun 25	5	9	2.8
Jun 26	5	11	1.7
Jun 27	9	11	1.8
Jun 28	9	9	1.2
Jun 29	27	17	3.9
Jun 30	37	24	8.1
Average	**10**	**11**	**2.8**

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 second quarter.
- Figure 3 presents a wind rose for only those periods when the reported hourly TSP concentration was at or above 30 μg/m^3; this represents the upper 10 percent of valid TSP values.
- Figure 4 presents a wind rose for only those periods when the hourly TSP concentration was at or below 6 μg/m^3; this represents the lower 35 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 slight directional emphasis from the west through west-southwest, and from the northwest through the northeast. However, wind directions were evenly distributed in general; winds from each of the 22.5-degree direction sectors occurred at least 3.5 percent of the time. The average wind speed was 1.6 m/s (3.6 mph).

Figure 3 shows a wind rose for high[7] (≥30 μg/m^3) TSP concentrations. Wind directions during these periods showed a stronger emphasis from the northwest and southeast. Historically, northwest winds have been associated with lower TSP concentrations. However, during May 2023 northwest winds were likely associated with smoke impacts from northern Canada. Wind speeds were lower than for the quarter overall, averaging 1.2 m/s (2.7 mph).

Figure 4 shows a wind rose for low (≤6 μg/m^3) TSP concentrations. The pattern is like the overall quarterly wind rose, but with a greater emphasis on the northwest quadrant. Wind speeds during low-TSP periods averaged 1.7 m/s (3.8 mph), similar to the quarter overall.

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.[8] 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.

[7] 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.

[8] It is noted that one sample – from April 17 to April 19 – was collected over only two days.

The table shows that overall, the gravimetrically determined TSP concentrations from the E-Sampler were marginally lower than the concurrent PM_{10} concentrations from the BAM-1020 monitor. 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 2, 2023

Sampling Period (2023)	Average Gravimetric TSP ($\mu g/m^3$)	Average BAM-1020 PM_{10} ($\mu g/m^3$)
03/29-04/02	9.3	6.7
04/02-04/10	21.2	18.2
04/10-04/17	16.3	13.4
04/17-04/19	14.9	11.9
04/19-04/25	10.5	10.0
04/25-05/01	20.6	26.3
05/01-05/09	10.9	14.2
05/09-05/15	6.4	8.6
05/15-05/22	27.7	33.0
05/22-05/25	6.7	7.2
05/25-05/31	9.3	7.4
05/31-06/07	9.1	9.8
06/07-06/13	10.2	10.9
06/13-06/21	9.1	9.3
06/21-06/27	5.2	9.1
Average	**12.5**	**13.1**

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

Second Quarter 2023 (direction wind was from)

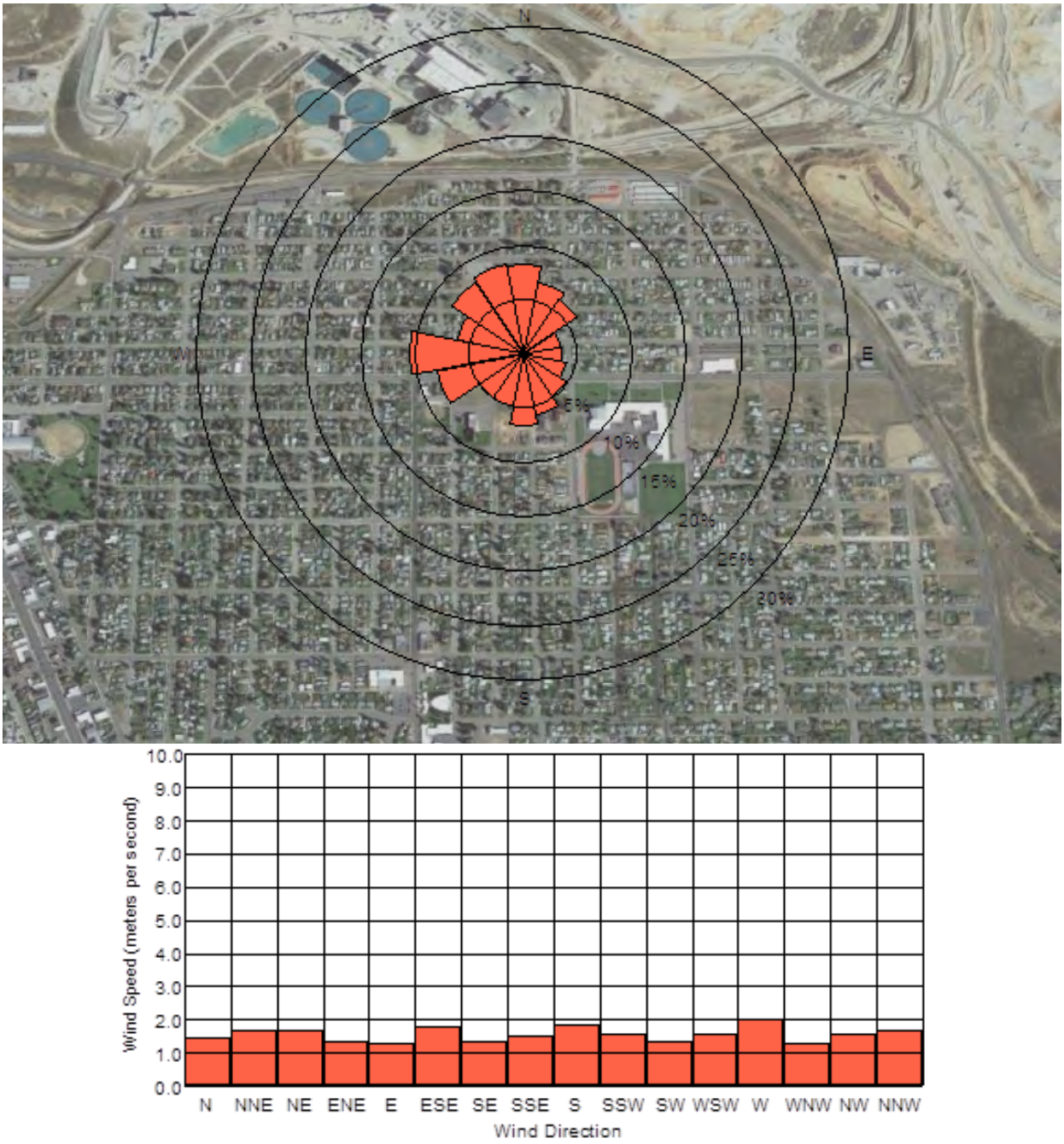


Figure 3. Quarterly Wind Rose, Greeley School (TSP ≥30 µg/m³)

Second Quarter 2023 (direction wind was from)

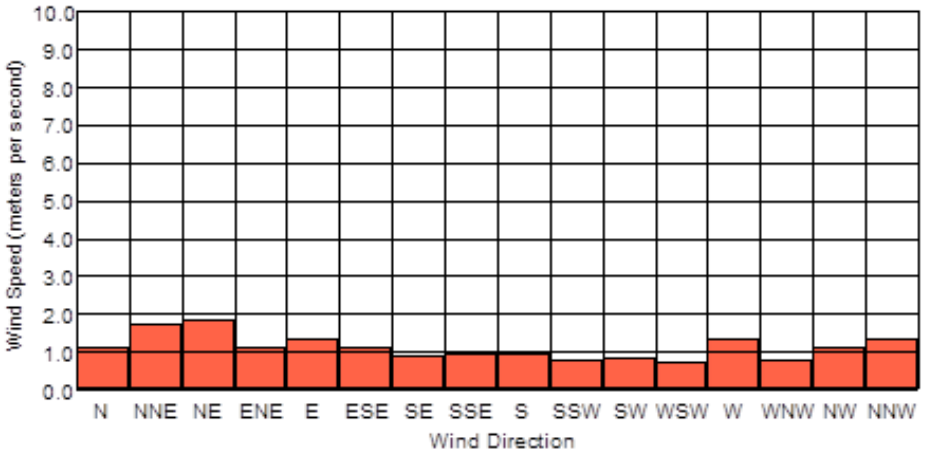
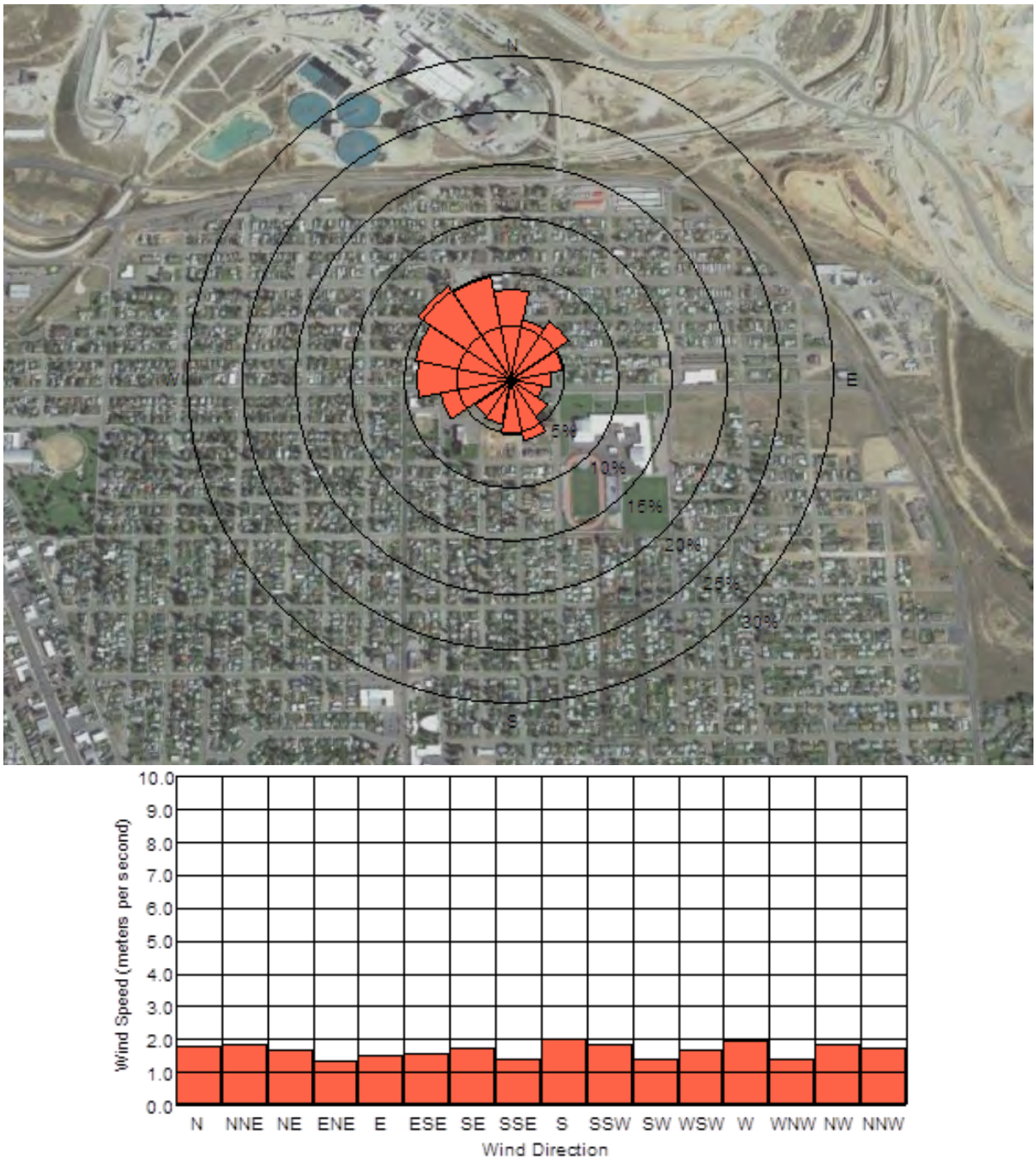


Figure 4. Quarterly Wind Rose, Greeley School (TSP ≤6 µg/m³)

Second Quarter 2023 (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. Sixteen valid TSP samples and fifteen valid PM_{10} samples collected during the second quarter were analyzed for trace elements, as well as four Field Blanks and five filter lot blanks (Lab Blanks).

Tables 4a and 4b summarize the total particulate mass and ELI analytical results for samples collected during the second quarter. Detectable results were usually obtained for copper, while results for other elements were often non-detectable. Table 4c shows the Field Blank and Lab Blank results associated with the second quarter samples. The bottom row of Table 4c shows the laboratory's maximum Method Blank (MB) Method Detection Limit (MDL) during the quarter, which represents the minimum detectable amount of each trace element per filter. Lab (filter) blank, Field Blank and MB concentrations for the second quarter were generally non-detectable, with the following exceptions:

- The MB, Lab Blank and Field Blank arsenic results were at 0.1 µg/filter for analysis batch B23042052, or barely above the typical arsenic MDL of 0.08 µg/filter. This indicates marginal arsenic contamination in the deionized water used to extract the filters in the laboratory. Because the blank results were nearly identical to the arsenic MDL, no blank correction was applied to the reported arsenic results for this batch.

- The MB arsenic results were at 0.1 µg/filter for analysis batches B23052320 and B23070893, barely above the typical arsenic MDL of 0.08 µg/filter. This indicates marginal arsenic contamination in the deionized water used to extract the filters in the laboratory. Interestingly, the Lab Blank and Field Blank results for both batches were non-detectable for arsenic, as were several sample results from both batches. No blank correction was applied to the reported arsenic results for these batches.

- The MB cadmium result for analysis batch B23070893 was at 0.01 µg/filter, versus the reported laboratory MB MDL of 0.009 µg/filter. Both the Lab Blank and Field Blank results were non-detectable. Most of the sample results for this batch were non-detectable. No blank correction was applied to these results.

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.

The trace element results were comparable to those from previous quarters, with one notable exception: the TSP sample collected over a period of 48 hours from April 17 to April 19. Unusually high results were obtained for arsenic, cadmium, copper and lead, as listed below:

- Arsenic 91.1 µg/m^3, or 607% of the lifetime exposure Guideline of 15 µg/m^3

- Cadmium 3.64 µg/m^3, or 36% of the lifetime exposure Guideline of 10 µg/m^3 (while below the exposure Guideline, still unusually high compared to past sampling results)

  Copper 364 µg/m^3, or 18% of the lifetime exposure Guideline of 2,000 µg/m^3 (while below the exposure Guideline, still unusually high compared to past sampling results)

- Lead 364 µg/m^3, or 243% of the quarterly concentration Guideline of 150 µg/m^3 (note that the quarterly average lead concentration of 26 µg/m^3 was only 17% of the National Ambient Air Quality Standard)

The results seem suspect for reasons listed below, although there is no definitive basis for considering these sample results invalid:

- The PM_{10} sample collected on April 18 was bracketed by the TSP sampling period. Those results were unremarkable, with all concentrations well below their respective Guideline values; neither arsenic nor cadmium was detected.

- The gravimetrically-determined average TSP concentration of 15 µg/m^3 was identical to the quarterly average concentration, indicating no short-term dust events.

- Wind speeds were generally low, and not conducive to a dust event.

The Field Blank, Lab Blank and Method Blank concentrations associated with this sample do not suggest a contamination problem.

All other sampling results were well below Guideline values. The closest approaches to a Guideline were as follows:

- The TSP sample for June 21 – June 27 had a manganese concentration of 37.5 ng/m^3, or 75 percent of the 50 ng/m^3 Guideline.

- The PM_{10} sample for April 30 had a manganese concentration of 20.8 ng/m^3, or 42 percent of the 50 ng/m^3 Guideline.

Table 6 shows the sources of the "Guideline" values used for these analyses, and their derivations.[9] Additionally, Table 6 shows the approximate airborne concentration corresponding to each MDL 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.

[9] 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)
03/29-04/02	96	0.1	ND	ND	ND	ND	ND	ND
04/02-04/10	465	0.2	ND	0.9	0.3	ND	0.09	ND
04/10-04/17	312	ND	ND	0.5	ND	ND	ND	ND
04/17-04/19	82	0.5	0.02	2	ND	ND	2	ND
04/19-04/25	175	ND	ND	0.5	ND	ND	ND	ND
04/25-05/01	334	ND	ND	0.7	ND	ND	0.1	ND
05/01-05/09	230	ND	ND	0.4	ND	ND	ND	ND
05/09-05/15	110	ND	ND	ND	0.3	ND	ND	ND
05/15-05/22	533	ND	ND	1	ND	ND	ND	ND
05/22-05/25	53	ND	ND	ND	ND	ND	ND	ND
05/25-05/31	150	ND	ND	0.5	ND	ND	ND	ND
05/31-06/07	175	ND	ND	0.3	ND	ND	ND	ND
06/07-06/13	171	ND	ND	0.3	ND	ND	ND	ND
06/13-06/21	203	ND	ND	0.5	ND	ND	ND	ND
06/21-06/27	83	ND	ND	ND	0.6	ND	ND	ND
06/27-07/03	352	ND	ND	2	ND	0.4	0.1	ND

All values expressed as micrograms per filter. ND denotes not detected.

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)
04/06	475	0.1	ND	0.8	0.3	ND	ND	ND
04/12	95	ND	ND	ND	ND	ND	ND	ND
04/18	336	ND	ND	1	ND	ND	0.1	3
04/24	415	0.08	ND	0.8	ND	ND	ND	ND
04/30	750	0.09	0.02	1	0.5	ND	ND	ND
05/06	80	ND	ND	ND	ND	ND	ND	ND
05/12	318	ND	ND	0.7	0.4	ND	ND	ND
05/18	1,449	ND	0.01	0.8	0.4	ND	ND	1
05/24	154	ND	ND	ND	ND	ND	ND	ND
05/30	289	0.09	0.01	1	ND	ND	ND	ND
06/05	190	ND	ND	ND	ND	ND	ND	ND
06/11	229	ND	ND	ND	ND	ND	ND	ND
06/17	229	ND	ND	ND	ND	ND	ND	ND
06/23	280	ND	ND	0.5	ND	0.09	0.2	ND
06/29	204	0.08	ND	1	ND	0.1	ND	ND

All values expressed as micrograms per filter. ND denotes not detected.

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)
05/08-LB	0	0.1	ND	ND	ND	ND	ND	ND
04/06-FB	1	0.1	ND	ND	ND	ND	ND	ND
06/03-LB	-4	ND	ND	ND	ND	ND	ND	ND
04/03-FB	4	ND	ND	ND	ND	ND	ND	ND
07/03-LB	5	ND	ND	ND	ND	ND	ND	ND
05/25-FB	7	ND	ND	ND	ND	ND	ND	ND
07/17-LB	1	ND	ND	ND	ND	ND	ND	ND
06/17-FB	6	ND	ND	ND	ND	ND	ND	ND
08/16-LB	2	ND	ND	ND	ND	ND	ND	ND
Lab Method Blank MDL		0.08	0.009	0.3	0.2	0.07	0.09	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)
03/29-04/02	10.30	9.71	ND	ND	ND	ND	ND	ND
04/02-04/10	21.96	9.11	ND	41.0	13.7	ND	4.10	ND
04/10-04/17	19.10	ND	ND	26.2	ND	ND	ND	ND
04/17-04/19	5.49	91.1	3.64	364	ND	ND	364	ND
04/19-04/25	16.59	ND	ND	30.1	ND	ND	ND	ND
04/25-05/01	16.24	ND	ND	43.1	ND	ND	6.16	ND
05/01-05/09	21.16	ND	ND	18.9	ND	ND	ND	ND
05/09-05/15	17.27	ND	ND	ND	17.4	ND	ND	ND
05/15-05/22	19.22	ND	ND	52.0	ND	ND	ND	ND
05/22-05/25	7.89	ND	ND	ND	ND	ND	ND	ND
05/25-05/31	16.13	ND	ND	31.0	ND	ND	ND	ND
05/31-06/07	19.22	ND	ND	15.6	ND	ND	ND	ND
06/07-06/13	16.82	ND	ND	17.8	ND	ND	ND	ND
06/13-06/21	22.19	ND	ND	22.5	ND	ND	ND	ND
06/21-06/27	16.02	ND	ND	ND	37.5	ND	ND	ND
06/27-07/03	16.59	ND	ND	121	ND	24.1	6.03	ND
Maximum (ng/m^3)		91.1	3.64	364	37.5	24.1	364	<48.6
Guideline (ng/m^3) *		15	10	2,000	50	400	150	47,619
Max as Pct. Of Guideline		**607%**	**36%**	**18%**	**75%**	**6%**	**243%**	**<1%**

*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 25.8 ng/m^3 was 17 percent of the guideline value; non-detect lead concentrations were set at ½ of the typical lead detection limit of 5.46 ng/m^3 for this calculation.

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)
04/06	24.00	4.17	ND	33.3	12.5	ND	ND	ND
04/12	24.02	ND	ND	ND	ND	ND	ND	ND
04/18	24.02	ND	ND	41.6	ND	ND	4.16	125
04/24	24.03	3.33	ND	33.3	ND	ND	ND	ND
04/30	24.02	3.75	0.83	41.6	20.8	ND	ND	ND
05/06	24.01	ND	ND	ND	ND	ND	ND	ND
05/12	24.02	ND	ND	29.1	16.7	ND	ND	ND
05/18	24.03	ND	0.42	33.3	16.6	ND	ND	41.6
05/24	24.02	ND	ND	ND	ND	ND	ND	ND
05/30	24.02	3.75	0.42	41.6	ND	ND	ND	ND
06/05	24.02	ND	ND	ND	ND	ND	ND	ND
06/11	24.03	ND	ND	ND	ND	ND	ND	ND
06/17	24.03	ND	ND	ND	ND	ND	ND	ND
06/23	24.02	ND	ND	20.8	ND	3.75	8.33	ND
06/29	24.02	3.33	ND	41.6	ND	4.16	ND	ND
Maximum (ng/m^3)		4.17	0.83	41.6	20.8	4.16	8.33	125
Guideline (ng/m^3) *		15	10	2,000	50	400	150	47,619
Max as Pct. Of Guideline		**28%**	**8%**	**2%**	**42%**	**1%**	**6%**	**<1%**

*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	4.86	3.33
Cadmium	10	ATSDR / DPHHS[G]	Non-cancer / CV[G]	Chronic	0.55	0.38
	200	IRIS	Cancer	Chronic		
Copper	2,000	DPHHS[G] / Michigan DEQ	RfC[B]	Chronic	18.2	12.5
Lead	150	EPA / ATSDR / DPHHS[G]	National Ambient Air Quality Standard [C]	3-month	5.46	3.75
Manganese	50	EPA	RfC[B]	Lifetime	18.2	12.5
Molybdenum	11,905 (=500,000/42) [F]	CAL/OSHA, ACGIH	CAL/OSHA, ACGIH	Chronic [F]	6.07	4.17
	400	DPHHS[G] / Michigan DEQ	CV	Chronic		
Zinc	47,619 (=2,000,000/42) [F]	ACGIH TLV	ACGIH TLV	Chronic [F]	48.6	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.
[E] Based on 24-hour sampling period and total sample volume of 24 m³.
[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. Monthly verification checks were performed on both samplers on April 26, May 31 and June 21.[10]

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 second quarter of 2023, as well as any corrective actions. Detailed results of each verification check are shown in Appendix F. Appendix G presents certifications for 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	

[10] The calibration checks performed on July 18, 2023, also are shown to demonstrate data validity through the end of the quarter. The E-Sampler pump was replaced on April 26, and calibration checks were performed before and after pump replacement.

Table 8: Summary of Quarter 2, 2023 Calibration Verification Results

Date	Calibration Check	Results	Limits	Actions
04/26/2023	BGI PM_{10} Flow Verification (A)	+0.0%	±4%	
	BGI PM_{10} Flow Verification (B)	+0.2%	±4%	
	BGI Ambient Temperature	-0.6°C	±2.0°C	
	BGI Filter Temperature	+0.2°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	
	E-Sampler Flow Verification (A)	-2.0%	±5%	C
	E-Sampler Flow Verification (B)	+2.0%	±5%	C
	E-Sampler Ambient Temperature	+0.4°C	±2.0°C	C
	E-Sampler Ambient Pressure	-127 Pa	±1333 Pa	C
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	C
04/26/2023	E-Sampler Flow Verification (A)	-0.5%	±5%	D
	E-Sampler Flow Verification (B)	+0.5%	±5%	D
	E-Sampler Ambient Temperature	+0.6°C	±2.0°C	D
	E-Sampler Ambient Pressure	-130 Pa	±1333 Pa	D
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	D
	E-Sampler Relative Humidity	+1.5% RH	±7% RH	D
05/31/2023	BGI PM_{10} Flow Verification (A)	-1.2%	±4%	
	BGI PM_{10} Flow Verification (B)	+1.6%	±4%	
	BGI Ambient Temperature	0.0°C	±2.0°C	
	BGI Filter Temperature	+0.5°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	
	E-Sampler Flow Verification (A)	0.5%	±5%	
	E-Sampler Flow Verification (B)	+0.5%	±5%	
	E-Sampler Ambient Temperature	+0.4°C	±2.0°C	
	E-Sampler Ambient Pressure	-108 Pa	±1333 Pa	
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	
	E-Sampler Relative Humidity	-0.6% RH	±7% RH	
06/21/2023	BGI PM_{10} Flow Verification (A)	-1.4%	±4%	
	BGI PM_{10} Flow Verification (B)	+1.7%	±4%	
	BGI Ambient Temperature	0.0°C	±2.0°C	
	BGI Filter Temperature	+0.4°C	±2.0°C	
	BGI Ambient Pressure	-3.5 mm Hg	±10 mmHg	
	BGI Leak Test (pressure drop)	1 cm H_2O	≤4 cm H_20	
	E-Sampler Flow Verification (A)	-2.0%	±5%	
	E-Sampler Flow Verification (B)	+2.0%	±5%	
	E-Sampler Ambient Temperature	+0.4°C	±2.0°C	
	E-Sampler Ambient Pressure	-109 Pa	±1333 Pa	
	E-Sampler Leak Test	0.0 LPM	≤0.3 LPM	
	E-Sampler Relative Humidity	-2.9% RH	±7% RH	

Date	Calibration Check	Results	Limits	Actions
07/18/2023	BGI PM_{10} Flow Verification (A)	-1.6%	±4%	
	BGI PM_{10} Flow Verification (B)	+1.7%	±4%	
	BGI Ambient Temperature	-0.1°C	±2.0°C	
	BGI Filter Temperature	0.0°C	±2.0°C	
	BGI Ambient Pressure	-3.0 mm Hg	±10 mmHg	
	BGI Leak Test (pressure drop)	0 cm H_2O	≤4 cm H_20	
	E-Sampler Flow Verification (A)	-0.5%	±5%	
	E-Sampler Flow Verification (B)	+0.5%	±5%	
	E-Sampler Ambient Temperature	-0.1°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	-3.8% RH	±7% RH	

Codes:
A = Difference of reported flow from reference standard flow.
B = Difference of reference standard flow from design flow (16.67 LPM for BGI, 2.0 LPM for E-Sampler).
C = Results prior to replacement of sampling pump.
D = Results after replacement of sampling pump.

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 second quarter audit was performed on June 21, 2023. Results for the PM_{10} sampler were satisfactory, and no adjustments were required. Results for the TSP sampler were also satisfactory.

Table 9: Quarter 2, 2023 Audit Results

BGI PQ200 PM10 Sampler – Performance Audit			
Date: 06/21/2023	Time: 0905-0935 MST	Sampler Serial Number: 1622	
Performed By: Daniel Bitz		Observer: Steve Heck	
Ref Standard and S/N: Tetra Cal SN 149645		Certification Date: 07-28-2022	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Audit (b)	Difference (a - b) (must be ≤ ±10)
Ambient Pressure	623	627.0	-4.0
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Audit (b)	Difference (a - b) (must be ≤ ±2ºC)
Ambient Temperature	10.0 C	10.8 C	-0.8 C
Filter Temperature	11.5 C	11.2 C	+0.3 C
Leak Check			
Vacuum Readings (mm Hg)	Start 99	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	16.93	-1.4%
Reading (liters per minute)	Audit (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.67)/16.67 (must be ≤ ±5%)
Design flow rate calculation	16.93	16.67	+1.6%
Comments: No adjustments made. Removed exposed filter during audit.			

Met One E-Sampler – ~~Monthly Calibration Check~~ / Quarterly Audit			
Date: 06/21/2023	Time: 0925-1005 MST	Sampler Serial Number: X24429	
Performed By: Daniel Bitz		Location (field or lab): Field	
Ref Standard & S/N: 1) Delta Cal SN 1288 (Temp) 2) Tetra Cal SN 149645 (Flow, BP)		Certification Date: 1) 09-20-2022 2) 07-28-2022	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ±1333 Pa)
Ambient Pressure	83,624 Pa	626.5 mmHg =83,462 Pa	+162 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	12.4 C	11.8 C	+0.6 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	1.955	+2.3%
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	1.955	2.0	-2.3%
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

8.0 DATA COMPLETENESS

The percentages of data recovery for each Greeley School monitoring parameter reported by MR during the second quarter of 2023 are given in Table 10. The quarterly data recovery goal for hourly TSP is ≥80 percent,[11] and for relative humidity is ≥90 percent. The net data recovery was 99.9 percent for TSP and 100.0 percent for relative humidity. The TSP data loss was caused by two very brief power failures.

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 100.0 percent for the TSP gravimetric and trace element analyses, and 100.0 percent for the PM_{10} gravimetric and trace element analyses.

[11] 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,C]	Net Percent Recovery
April 2023					
TSP	651	637	97.8	13	99.8
Relative Humidity	720	713	99.0	7	100.0
Total	1371	1350	98.5	20	99.9
May 2023					
TSP	674	666	98.8	7	99.9
Relative Humidity	744	744	100.0	0	100.0
Total	1418	1410	99.4	7	99.9
June 2023					
TSP	620	614	99.0	6	100.0
Relative Humidity	720	720	100.0	0	100.0
Total	1340	1334	99.6	6	100.0
Quarter 2, 2023					
TSP	1945	1917	98.6	26	99.9
Relative Humidity	2184	2177	99.7	7	100.0
Total	4129	4094	99.2	33	100.0

[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.
[C] Includes seven-hour period in April when sampler was removed for scheduled pump replacement.

Table 11: Quarterly Data Completeness Summary – Filter Analysis Data

Montana Resources LLP – Greeley School			
Parameter	Readings Possible	Valid Readings	Percent Recovery
April 2023			
TSP – Gravimetric	6	6	100.0
TSP – Trace Elements	42	42	100.0
PM_{10} – Gravimetric	5	5	100.0
PM_{10} – Trace Elements	35	35	100.0
Total	88	88	100.0
May 2023			
TSP – Gravimetric	5	5	100.0
TSP – Trace Elements	35	35	100.0
PM_{10} – Gravimetric	5	5	100.0
PM_{10} – Trace Elements	35	35	100.0
Total	80	80	100.0
June 2023			
TSP – Gravimetric	5	5	100.0
TSP – Trace Elements	35	35	100.0
PM_{10} – Gravimetric	5	5	100.0
PM_{10} – Trace Elements	35	35	100.0
Total	80	80	100.0
Quarter 2, 2023			
TSP – Gravimetric	16	16	100.0
TSP – Trace Elements	112	112	100.0
PM_{10} – Gravimetric	15	15	100.0
PM_{10} – Trace Elements	105	105	100.0
Total	248	248	100.0

9.0 COMPARISON TO AMBIENT AIR QUALITY STANDARDS

This study is not intended to determine compliance with the NAAQS[12] or the Montana ambient air quality standards[13] (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 second quarter of 2023.

Additionally, the analyses presented in Section 5.0 indicate that airborne concentrations of the other six trace elements are well below guidelines presented in Table 6.

Table 12: Summary of Airborne Concentration vs. NAAQS

Analyte	Observed Concentration (μg/m³)	Averaging Period	Ambient Standard (μg/m³)	Authority
PM_{10}	60[1]	24-hour (max)	150	NAAQS & MAAQS
Pb	0.364[2] 0.026[3]	90-day	1.50	MAAQS
		3-month	0.15	NAAQS
TSP	15[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 59 μg/m³.

[2] This value was the maximum from the filter-based TSP sampler, collected over a 2-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 typical 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 2, 2023, based on gravimetric filter analysis.

[12] 40 CFR 50 *et seq.*
[13] ARM 17.8.223

APPENDIX A: VALIDATED AMBIENT MONITORING DATA BY MONTH, SECOND QUARTER 2023

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)
April 2023

	<< 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	4	5	6	4	13	3	20	18	7	3	3	3	3	3	33	14	1	1	1	4	6	3	3	3	7	33	1
2	2	1	2	4	AO	14	31	26	BA	3	4	5	3	2	3	2	2	5	6	5	15	12	10	50	9	50	1
3	23	11	53	27	7	21	14	27	37	30	27	10	11	3	4	4	6	8	70	46	9	40	19	15	22	70	3
4	20	15	10	13	6	10	14	14	12	14	23	12	13	14	12	13	11	11	11	5	8	10	17	25	13	25	5
5	19	17	10	21	13	25	44	46	31	41	27	15	11	5	4	30	32	5	7	18	19	18	30	112	25	112	4
6	62	16	11	21	25	24	36	36	44	11	13	13	10	7	6	9	11	10	11	17	9	31	35	58	22	62	6
7	71	49	50	42	36	46	55	35	47	44	34	30	21	19	15	20	15	13	10	15	14	13	19	11	30	71	10
8	15	12	20	20	9	13	29	23	9	6	4	7	8	7	7	9	9	12	10	11	11	14	23	35	13	35	4
9	72	33	29	55	24	25	53	39	30	17	15	10	9	11	22	14	13	13	22	22	32	33	38	40	28	72	9
10	44	41	30	16	24	30	38	26	BA	31	27	17	16	14	13	14	14	13	8	11	11	14	13	14	21	44	8
11	14	12	17	18	24	27	44	42	23	17	16	13	15	12	17	17	13	7	5	4	5	6	4	4	16	44	4
12	AO	3	3	2	3	3	4	4	7	9	9	5	6	5	5	AO	AO	AO	10	AO	AO	AO	AO	AO	5	10	2
13	5	4	5	4	4	5	6	5	8	41	17	23	5	8	9	17	16	5	6	14	25	29	AO	AO	12	41	4
14	23	AO	AO	AO	AO	AO	AO	35	43	41	24	11	9	10	5	5	9	4	4	12	14	AO	AO	AO	17	43	4
15	AO	AO	AO	AO	AO	AO	AO	AO	AO	73	37	9	6	5	4	5	5	7	8	9	14	16	19	47	18	73	4
16	45	72	45	23	18	26	21	24	31	30	24	23	17	21	20	19	21	22	23	21	33	27	19	15	27	72	15
17	28	38	30	28	9	7	5	BA	6	10	14	21	19	21	19	21	20	19	12	11	9	13	17	AO	17	38	5
18	14	10	12	AO	AO	AO	AO	27	23	27	24	17	20	62	AO	11	2	4	10	34	13	AO	AO	AO	19	62	2
19	3	9	2	2	3	4	4	BA	5	5	6	6	3	3	6	3	5	7	5	5	6	3	5	16	5	16	2
20	10	2	10	20	37	63	25	14	7	5	8	6	8	9	10	8	8	10	10	25	15	20	25	21	16	63	2
21	5	9	8	12	AO	AO	5	7	7	5	5	5	2	10	1	4	7	6	AO	AO	AO	AO	AO	AO	6	12	1
22	AO	AO	AO	AO	AO	AO	17	26	18	8	6	2	5	4	2	3	2	3	5	6	5	7	13	24	9	26	2
23	14	10	34	20	12	15	18	18	23	12	7	5	7	7	4	3	4	2	6	7	5	12	13	11	11	34	2
24	6	8	8	8	18	22	34	25	20	15	5	4	11	5	2	27	8	AO	AO	AO	AO	AO	AO	AO	13	34	2
25	AO	AO	AO	AO	AO	AO	AO	AV	BA	10	9	11	6	3	4	3	4	4	2	4	6	4	8	8	6	11	2
26	13	20	19	17	AO	AO	18	13	18	BF	BA	BA	BA	BA	BA	BA	BF	7	12	13	12	53	29	8	18	53	7
27	6	6	8	14	10	19	10	7	8	8	18	49	43	6	3	4	5	4	4	8	6	14	46	11	13	49	3
28	11	13	18	13	53	70	22	24	22	25	10	13	13	14	16	13	14	15	14	32	20	28	25	18	22	70	10
29	15	24	26	43	27	26	29	22	33	27	24	24	23	21	20	21	23	22	24	29	33	28	26	36	26	43	15
30	32	25	26	29	34	46	53	31	41	41	36	29	20	18	20	16	15	15	16	20	24	26	32	35	28	53	15
Avg	22	18	19	19	19	24	25	24	22	21	16	14	12	11	10	12	11	9	12	15	14	19	20	27	17	47	5
Max	72	72	53	55	53	70	55	46	47	73	37	49	43	62	33	30	32	22	70	46	33	53	46	112	30	112	15
Min	2	1	2	2	3	3	4	4	5	3	3	2	2	2	1	2	1	1	1	4	5	3	3	3	5	10	1

Montana Resources LLP
Greeley School Air Monitoring Summary
TSP - Met One E-Sampler (micrograms per cubic meter)
May 2023

	<< 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	39	29	30	35	39	40	50	25	25	20	20	16	13	BA	12	12	16	14	15	30	29	18	18	13	24	50	12
2	12	17	21	18	70	29	26	29	28	24	15	21	13	10	12	12	14	15	12	10	12	16	17	21	20	70	10
3	25	11	12	13	12	13	20	34	29	23	25	19	16	AV	14	13	15	15	14	18	18	18	23	21	18	34	11
4	15	15	15	13	12	48	21	21	37	19	18	11	11	10	12	19	15	23	13	12	14	11	7	6	17	48	6
5	7	6	4	6	21	AO	8	7	7	8	6	7	5	5	5	2	5	4	4	3	4	1	2	1	6	21	1
6	2	4	1	2	2	3	1	1	1	1	2	3	1	2	1	4	2	1	2	10	AO	AO	AO	10	3	10	1
7	AO	AO	AO	AO	AO	AO	12	6	5	4	3	4	4	1	4	1	4	4	1	1	6	AO	2	1	4	12	1
8	4	3	2	1	1	2	9	1	1	5	2	3	1	3	3	3	4	4	6	7	6	7	10	7	4	10	1
9	4	7	4	4	4	15	BA	6	9	9	8	4	4	5	2	1	1	1	1	3	3	14	4	7	5	15	1
10	5	AO	AO	AO	AO	AO	AO	AO	AO	8	10	10	6	3	3	17	3	6	4	12	7	7	7	7	7	17	3
11	9	7	6	7	7	9	8	5	5	10	11	11	9	10	9	18	9	7	5	7	10	14	7	7	9	18	5
12	AO	AO	AO	AO	AO	AO	12	13	21	13	10	9	8	8	7	7	9	10	9	9	12	7	7	6	10	21	6
13	9	17	11	7	5	6	9	7	8	5	5	3	5	3	4	5	6	9	4	3	3	3	1	1	6	17	1
14	1	1	2	2	1	3	4	5	5	2	2	1	1	1	2	1	1	3	1	3	2	1	4	3	2	5	1
15	2	5	6	AO	AO	10	16	10	8	4	3	4	5	BA	1	3	3	2	1	2	3	3	5	2	5	16	1
16	2	AO	AO	AO	AO	AO	4	5	8	2	2	2	3	1	2	1	4	3	2	2	2	23	29	9	6	29	1
17	15	19	18	17	17	15	16	25	47	57	60	39	34	15	18	14	15	14	14	12	12	13	13	11	22	60	11
18	13	15	16	AO	AO	AO	23	26	36	48	65	82	92	90	88	86	101	101	80	62	74	81	81	80	64	101	13
19	77	76	76	74	74	73	76	79	88	89	80	39	26	28	32	34	38	37	35	35	32	39	40	33	55	89	26
20	35	38	37	34	34	31	34	33	38	32	31	29	28	25	23	22	24	25	23	23	21	20	22	20	28	38	20
21	18	18	15	15	17	16	16	17	25	22	18	17	15	17	15	9	11	10	9	9	10	8	6	7	14	25	6
22	7	7	7	7	8	6	7	7	6	5	4	3	2	BA	7	7	10	7	7	6	12	12	8	8	7	12	2
23	7	7	6	5	7	9	9	11	10	16	16	16	8	7	7	6	6	4	7	7	8	5	5	3	8	16	3
24	2	4	4	5	7	7	9	12	11	7	7	12	3	3	5	7	4	6	6	AO	3	4	2	2	6	12	2
25	3	2	3	3	2	4	AO	AO	4	3	BA	7	8	10	7	3	5	4	5	5	7	5	9	AO	5	10	2
26	AO	AO	AO	AO	AO	13	19	10	11	10	7	7	8	5	9	7	7	6	7	3	5	4	4	AO	8	19	3
27	AO	AO	AO	AO	AO	AO	AO	6	5	6	4	6	3	5	9	3	5	3	3	3	AO	AO	AO	AO	5	9	3
28	AO	AO	AO	AO	AO	AO	5	9	5	3	3	6	4	6	8	4	3	2	3	4	12	14	10	19	7	19	2
29	AO	AO	AO	AO	AO	AO	9	18	12	8	9	10	12	13	7	10	10	11	10	12	19	17	11	17	12	19	7
30	11	14	12	14	AO	AO	20	24	28	17	11	10	10	15	12	10	15	11	10	10	10	17	15	10	14	28	10
31	8	9	9	10	10	11	23	BA	21	15	BF	17	14	5	6	8	8	6	10	7	3	6	3	4	10	23	3
Avg	13	14	14	14	18	17	17	16	18	16	16	14	12	11	11	11	12	12	10	11	12	14	13	12	14	28	6
Max	77	76	76	74	74	73	76	79	88	89	80	82	92	90	88	86	101	101	80	62	74	81	81	80	64	101	26
Min	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	2	5	1

Montana Resources LLP
Greeley School Air Monitoring Summary
TSP - Met One E-Sampler (micrograms per cubic meter)
June 2023

	<< 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	4	AO	AO	AO	AO	AO	4	5	10	5	10	11	14	6	6	7	8	7	7	8	10	8	6	5	7	14	4
2	5	AO	AO	AO	7	9	10	12	19	18	10	2	1	1	1	1	1	1	2	2	4	7	8	8	6	19	1
3	AO	AO	AO	AO	AO	AO	AO	AO	14	12	10	10	9	9	19	17	AO	AO	AO	AO	AO	AO	AO	AO	13	19	9
4	AO	AO	AO	AO	AO	AO	AO	AO	30	14	14	12	9	7	6	6	6	7	3	8	8	9	6	8	10	30	3
5	3	6	7	7	12	7	11	19	11	8	8	5	8	6	8	9	6	6	9	13	12	13	14	12	9	19	3
6	10	AO	AO	AO	AO	AO	13	25	20	15	15	10	7	9	11	10	14	24	10	6	10	9	AO	8	13	25	6
7	12	AO	AO	AO	AO	12	10	BA	12	14	13	8	9	9	8	8	11	8	6	9	11	7	8	15	10	15	6
8	6	6	8	6	8	9	11	13	20	12	5	4	4	6	4	3	28	4	3	4	3	4	4	6	8	28	3
9	AO	AO	AO	AO	AO	AO	AO	13	9	6	6	5	5	6	6	5	6	8	8	7	8	7	16	8	8	16	5
10	8	8	AO	AO	AO	AO	7	11	13	15	11	15	9	5	4	6	6	5	6	5	9	8	13	13	9	15	4
11	8	6	6	8	11	14	11	11	8	11	11	11	10	11	5	6	10	11	10	15	14	AO	AO	AO	10	15	5
12	AO	AO	AO	AO	AO	AO	AO	22	18	21	22	25	21	20	13	8	8	11	11	12	14	AO	AO	AO	16	25	8
13	AO	AO	AO	AO	AO	AO	AO	AO	39	41	BA	20	17	14	8	12	10	6	7	9	12	11	9	8	15	41	6
14	13	8	7	8	8	7	11	12	12	12	11	8	7	8	8	7	6	8	7	11	8	6	5	6	9	13	5
15	6	5	7	8	8	7	6	8	9	10	12	11	12	17	18	18	16	14	17	15	15	15	15	15	12	18	5
16	14	15	12	12	AO	17	19	22	18	21	22	19	11	12	17	16	15	17	17	24	32	31	25	26	19	32	11
17	25	25	25	25	27	27	30	30	28	22	9	5	5	5	4	5	4	4	5	4	8	9	8	8	14	30	4
18	6	5	5	5	8	6	2	1	1	1	1	1	1	1	2	2	3	4	3	4	6	11	4	3	4	11	1
19	4	3	4	2	4	3	4	7	10	6	4	5	6	5	6	2	3	5	3	5	5	6	7	5	5	10	2
20	4	2	4	4	2	9	4	2	3	1	1	2	2	3	4	2	0	2	2	2	1	2	2	1	3	9	0
21	3	AO	AO	AO	AO	AO	3	5	4	BC	BF	5	BA	2	3	1	1	3	3	3	4	3	3	10	4	10	1
22	5	4	2	3	AO	4	6	12	9	5	5	1	2	2	3	2	2	4	3	4	4	6	3	6	4	12	1
23	5	4	5	7	7	9	9	11	9	10	10	5	4	5	6	9	8	3	3	3	3	3	AO	4	6	11	3
24	AO	AO	AO	AO	AO	AO	AO	5	6	6	5	5	6	6	6	6	5	5	5	6	9	7	6	3	6	9	3
25	3	3	4	AO	AO	4	5	7	7	7	7	6	5	4	5	3	10	3	4	3	6	6	5	7	5	10	3
26	5	AO	4	AO	AO	AO	6	6	10	5	6	5	5	5	4	5	7	5	6	4	4	4	5	6	5	10	4
27	6	7	5	5	5	6	7	8	BA	16	14	15	15	11	14	17	8	9	7	7	8	6	6	5	9	17	5
28	7	7	6	6	5	9	7	9	15	12	12	11	9	9	11	6	6	10	10	5	10	19	9	6	9	19	5
29	6	AO	AO	AO	AO	AO	13	21	28	20	17	17	16	21	23	26	35	38	35	47	55	43	26	30	27	55	6
30	29	29	29	29	29	33	42	60	68	77	36	33	27	29	28	27	28	22	22	25	25	44	88	27	37	88	22
Avg	8	8	8	9	10	11	10	14	16	15	11	10	9	8	9	8	9	9	8	9	11	11	12	10	10	22	5
Max	29	29	29	29	29	33	42	60	68	77	36	33	27	29	28	27	35	38	35	47	55	44	88	30	37	88	22
Min	3	2	2	2	2	3	2	1	1	1	1	1	1	1	1	1	0	1	2	2	1	2	2	1	3	9	0

Montana Resources LLP
Greeley School Air Monitoring Summary
Relative Humidity (% RH)
April 2023

	<< 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	66	67	69	65	74	70	75	64	53	45	49	51	47	46	64	73	58	40	47	63	58	55	54	54	59	75	40
2	62	64	69	81	85	80	80	64	43	41	39	34	35	38	37	28	32	35	43	48	57	63	66	70	54	85	28
3	75	76	79	80	81	81	80	73	61	52	41	34	34	30	30	31	36	50	66	70	65	68	70	69	60	81	30
4	71	66	64	67	66	65	67	66	61	56	57	57	60	62	58	48	41	39	43	51	54	57	64	75	59	75	39
5	74	77	76	75	74	78	79	69	61	58	55	48	43	34	33	34	38	46	51	61	63	64	68	72	60	79	33
6	75	76	77	80	80	77	76	70	55	35	33	31	31	29	28	31	32	33	39	42	45	55	65	71	53	80	28
7	77	78	81	79	79	82	81	63	47	44	36	34	32	23	21	28	31	32	35	39	41	44	48	48	50	82	21
8	49	53	61	63	63	68	71	53	42	42	37	34	32	31	32	33	35	41	45	51	51	58	64	68	49	71	31
9	72	76	79	81	83	84	85	69	47	41	36	33	32	32	31	32	31	30	34	42	53	58	64	66	54	85	30
10	69	72	76	78	81	83	83	66	54	40	37	32	32	32	33	34	34	33	34	37	40	49	48	48	51	83	32
11	47	51	60	66	66	66	63	45	36	32	31	29	27	25	24	25	37	48	55	62	68	74	79	88	50	88	24
12	90	88	86	85	84	86	84	79	75	72	77	79	85	85	88	94	94	92	89	90	90	93	92	93	86	94	72
13	88	86	87	88	87	87	87	82	82	80	77	71	66	67	75	75	68	58	64	78	82	85	89	88	79	89	58
14	85	88	89	90	89	89	88	87	77	64	59	42	41	39	37	44	42	50	47	57	72	90	92	93	69	93	37
15	93	92	90	89	89	90	89	89	90	88	78	46	39	38	40	37	35	36	38	44	49	56	64	70	65	93	35
16	77	78	79	81	81	80	77	63	55	44	34	29	28	27	27	29	27	27	29	35	39	51	68	74	52	81	27
17	82	87	88	87	83	84	85	79	72	66	54	30	23	27	28	39	44	56	74	82	83	86	88	91	67	91	23
18	89	88	88	91	93	92	92	80	64	56	72	74	59	86	93	88	75	63	63	73	84	89	90	89	80	93	56
19	85	80	72	68	67	65	64	62	60	59	57	61	55	53	46	54	43	48	48	43	55	59	61	66	60	85	43
20	68	66	67	75	80	83	78	67	57	51	45	44	42	37	38	37	34	39	40	43	60	66	76	78	57	83	34
21	71	70	73	81	89	90	89	85	81	75	78	76	68	83	61	69	57	61	92	92	93	93	92	91	80	93	57
22	91	89	89	90	89	89	87	79	69	61	51	43	41	37	34	35	35	37	38	44	52	58	65	72	61	91	34
23	74	80	83	80	82	84	80	66	57	44	39	35	31	29	27	28	26	29	32	37	41	42	48	49	51	84	26
24	49	57	59	55	61	69	68	60	56	52	43	38	49	70	85	87	89	90	92	94	94	95	95	95	71	95	38
25	96	96	96	96	96	96	94	88	85	76	75	72	66	63	59	56	58	57	58	62	64	63	72	79	76	96	56
26	83	87	89	89	90	91	88	71	64	BA	BA	BA	BA	BA	BA	BA	27	28	27	31	38	44	50	50	58	91	1
27	44	54	63	60	55	57	53	48	43	36	41	55	66	59	51	49	41	32	33	40	54	62	68	74	52	74	32
28	78	80	82	84	85	86	83	64	57	46	31	23	23	21	19	18	22	26	25	35	43	52	62	66	50	86	18
29	71	75	78	80	83	83	80	59	50	42	27	20	16	15	14	14	15	16	20	28	35	41	49	59	45	83	14
30	65	69	72	74	78	79	73	53	44	33	23	17	15	15	15	14	14	16	19	23	25	29	34	37	39	79	14
Avg	74	76	77	79	80	80	79	69	60	53	49	44	41	43	42	44	42	43	47	53	58	63	68	71	60	85	34
Max	96	96	96	96	96	96	94	89	90	88	78	79	85	86	93	94	94	92	92	94	94	95	95	95	86	96	72
Min	44	51	59	55	55	57	53	45	36	32	23	17	1	15	14	14	14	16	19	23	25	29	34	37	39	71	1

Montana Resources LLP
Greeley School Air Monitoring Summary
Relative Humidity (% RH)
May 2023

	<< 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	41	48	56	58	58	60	62	42	34	28	23	20	19	18	16	16	18	18	21	27	29	32	33	36	34	62	16
2	44	53	56	63	69	72	66	51	38	31	25	22	19	18	19	18	21	22	27	29	30	33	35	42	38	72	18
3	50	53	56	66	66	69	65	54	44	30	22	18	18	18	16	14	16	15	16	21	26	30	36	41	36	69	14
4	48	51	61	67	70	73	65	50	41	30	26	24	21	18	15	18	19	41	66	61	57	58	76	78	47	78	15
5	84	86	81	85	88	92	89	73	69	51	51	39	34	30	29	26	27	31	30	33	36	40	44	47	54	92	26
6	48	48	50	54	68	83	76	82	81	71	61	54	67	65	81	88	87	86	81	85	91	90	90	89	74	91	48
7	91	92	92	92	93	91	88	81	70	56	54	57	71	61	57	67	83	78	82	82	86	91	89	85	79	93	54
8	76	80	88	86	89	88	79	73	66	59	49	44	41	36	34	33	32	31	32	38	46	55	61	64	58	89	31
9	68	69	73	79	83	84	80	74	68	66	57	80	87	84	82	72	63	59	59	62	63	70	76	80	72	87	57
10	84	90	95	96	96	96	96	95	91	80	63	53	42	36	31	30	34	46	49	46	47	53	62	64	66	96	30
11	76	83	88	88	85	85	86	80	66	58	50	41	38	51	61	56	45	57	59	61	70	79	82	87	68	88	38
12	91	92	94	94	95	95	87	76	69	62	52	42	36	32	30	30	31	34	35	37	46	55	57	59	60	95	30
13	68	75	80	85	87	86	81	75	62	53	51	48	53	52	53	62	65	65	69	72	63	64	64	66	67	87	48
14	67	67	67	76	78	80	80	76	71	64	58	51	43	41	43	41	41	47	51	60	67	68	74	80	62	80	41
15	84	87	89	92	90	87	75	69	57	44	40	35	32	31	28	35	71	63	57	67	74	81	82	87	65	92	28
16	89	90	92	92	93	94	78	73	64	42	36	32	30	28	28	27	27	27	27	32	40	53	57	62	55	94	27
17	75	81	84	85	86	86	82	77	72	62	54	42	42	37	39	47	55	57	56	60	68	76	80	84	66	86	37
18	85	86	87	90	92	92	87	77	65	55	44	36	33	30	29	30	32	30	29	26	36	41	53	60	55	92	26
19	67	73	78	81	84	85	73	65	52	38	28	20	16	15	16	16	20	22	24	27	33	42	51	54	45	85	15
20	63	70	74	76	77	77	66	59	47	36	30	26	22	17	15	16	20	25	23	28	34	39	47	57	44	77	15
21	61	67	70	74	76	76	67	59	48	34	26	20	17	24	50	45	40	34	40	45	48	47	55	64	49	76	17
22	70	75	77	79	80	80	86	84	75	65	50	38	31	46	42	38	35	36	45	51	52	51	52	59	58	86	31
23	63	67	68	67	68	63	58	53	48	43	40	37	36	35	33	31	32	32	30	35	37	46	60	64	48	68	30
24	70	77	80	83	85	85	81	66	56	44	39	68	78	70	64	70	76	83	84	90	88	86	87	88	75	90	39
25	89	88	88	88	89	89	91	92	86	77	70	62	62	77	73	69	66	63	72	77	85	86	89	91	80	92	62
26	92	93	94	94	93	89	87	82	89	83	74	62	53	50	66	56	57	62	79	80	82	83	86	93	78	94	50
27	92	93	92	93	94	94	90	86	81	69	65	74	58	52	60	60	55	63	84	87	92	91	91	90	79	94	52
28	91	91	92	92	94	94	84	73	64	59	47	39	34	43	56	65	66	61	70	74	72	77	84	89	71	94	34
29	92	94	94	94	94	92	80	73	67	54	48	44	38	45	49	34	31	30	38	44	63	68	74	83	63	94	30
30	83	83	83	86	90	90	72	69	56	43	33	31	32	31	29	26	29	47	44	39	49	55	60	72	56	90	26
31	76	76	83	86	86	82	79	73	63	50	52	47	41	68	58	55	52	57	69	69	74	78	79	87	68	87	41
Avg	73	77	79	82	84	84	79	71	63	53	46	42	40	41	42	42	43	46	50	53	58	62	67	71	60	86	33
Max	92	94	95	96	96	96	96	95	91	83	74	80	87	84	82	88	87	86	84	90	92	91	91	93	80	96	62
Min	41	48	50	54	58	60	58	42	34	28	22	18	16	15	15	14	16	15	16	21	26	30	33	36	34	62	14

Montana Resources LLP
Greeley School Air Monitoring Summary
Relative Humidity (% RH)
June 2023

	<< 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	88	90	93	93	93	91	87	84	73	64	53	45	62	66	59	55	51	56	64	72	85	86	86	88	74	93	45
2	87	91	91	90	88	89	87	84	83	78	77	69	67	71	73	67	68	65	67	71	74	81	83	84	79	91	65
3	90	90	91	91	92	92	92	91	89	88	84	82	82	84	85	88	90	92	92	91	92	93	93	93	89	93	82
4	94	95	95	96	96	97	96	94	89	66	57	55	51	44	39	40	39	40	44	53	59	66	70	74	69	97	39
5	76	82	83	85	87	86	74	71	61	49	46	36	43	36	48	65	54	48	47	59	72	83	84	84	65	87	36
6	87	90	90	92	93	91	75	73	65	48	42	37	33	41	44	46	57	83	77	75	79	86	90	88	70	93	33
7	89	91	92	93	94	87	80	75	73	65	53	42	36	36	35	33	40	37	32	41	49	55	63	67	61	94	32
8	66	71	77	83	86	84	78	73	68	73	86	81	65	59	70	78	81	81	79	79	84	87	87	89	78	89	59
9	93	94	95	95	95	95	93	86	67	55	57	47	43	41	36	32	33	34	42	52	57	67	84	83	66	95	32
10	85	89	92	94	94	93	84	81	71	66	55	41	39	36	28	48	51	51	56	60	67	75	82	85	68	94	28
11	86	87	87	87	87	86	78	70	62	49	47	47	52	69	45	37	55	66	62	73	83	90	90	90	70	90	37
12	92	92	92	93	93	92	92	89	86	84	83	85	82	76	85	84	83	82	75	78	86	91	91	93	87	93	75
13	94	95	95	95	96	96	96	95	89	81	70	53	52	52	46	64	70	73	58	60	76	82	87	86	78	96	46
14	88	83	79	85	87	82	74	72	66	59	44	31	25	21	20	21	21	23	23	21	25	39	41	42	49	88	20
15	45	58	50	53	67	69	65	49	41	37	37	37	39	44	47	49	50	51	54	54	63	69	73	78	53	78	37
16	81	83	86	88	91	88	74	71	63	53	44	37	27	24	24	25	25	26	29	34	39	46	59	67	54	91	24
17	72	74	74	74	81	81	81	87	85	73	57	55	52	57	54	51	56	49	70	75	76	81	84	85	70	87	49
18	83	83	85	83	81	78	84	78	78	76	71	64	55	51	38	36	33	31	35	43	47	50	58	68	62	85	31
19	72	73	80	83	86	84	79	75	73	53	46	43	50	59	71	69	52	45	45	42	45	57	76	81	64	86	42
20	83	84	84	79	79	79	72	55	47	44	38	35	32	33	40	55	68	69	59	68	71	77	82	84	63	84	32
21	87	91	94	94	94	94	85	75	67	52	37	33	30	33	40	38	53	47	49	53	60	68	78	82	64	94	30
22	84	88	88	89	91	88	72	66	57	38	30	28	27	25	21	19	18	19	24	29	33	35	40	48	48	91	18
23	60	69	75	77	79	80	68	58	52	45	42	43	46	44	52	59	82	78	73	77	74	81	90	89	66	90	42
24	90	91	90	91	93	93	90	86	80	65	49	41	39	41	31	35	27	29	30	32	39	46	71	68	60	93	27
25	75	83	87	90	90	89	75	71	63	46	37	32	35	34	30	28	72	75	72	74	78	80	82	88	66	90	28
26	89	91	88	92	94	91	78	77	72	51	46	36	31	37	42	41	45	43	54	53	55	62	71	75	63	94	31
27	79	82	85	84	84	86	76	68	60	46	40	37	36	34	44	40	46	50	49	54	61	66	74	77	61	86	34
28	81	80	81	87	86	84	80	76	71	68	62	61	58	47	52	43	54	58	60	62	69	78	83	87	70	87	43
29	88	90	91	92	92	91	77	72	66	54	42	38	34	32	29	24	24	29	28	27	37	45	65	71	56	92	24
30	77	79	83	84	86	84	63	61	52	42	35	30	28	27	26	25	26	25	25	29	37	45	55	62	49	86	25
Avg	82	85	86	87	89	87	80	75	69	59	52	47	45	45	45	47	51	52	52	56	62	69	76	79	66	90	38
Max	94	95	95	96	96	97	96	95	89	88	86	85	82	84	85	88	90	92	92	91	92	93	93	93	89	97	82
Min	45	58	50	53	67	69	63	49	41	37	30	28	25	21	20	19	18	19	23	21	25	35	40	42	48	78	18

Montana Resources LLP
Greeley School Air Monitoring Summary
Temperature - MDEQ monitor (degrees Celsius)
April 2023

	<< 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	-1.0	-1.3	-1.8	-1.1	-2.2	-1.8	-2.5	-1.2	1.3	4.1	4.0	4.1	5.0	5.4	2.3	-0.8	0.4	1.7	-0.3	-2.7	-3.5	-3.7	-3.5	-4.3	-0.1	5.4	-4.3
2	-2.7	-2.2	-2.5	-2.5	-2.7	-2.7	-3.0	-3.7	-4.0	-2.5	-1.3	-0.3	-0.6	-1.1	-0.1	2.0	0.6	0.0	-1.3	-2.2	-4.0	-5.8	-6.8	-8.6	-2.4	2.0	-8.6
3	-9.6	-11.0	-11.8	-12.3	-13.1	-13.3	-13.3	-11.1	-7.6	-4.8	-0.6	1.4	1.4	2.5	2.0	1.5	0.7	-0.6	-2.2	-3.0	-3.2	-3.5	-3.7	-3.9	-5.0	2.5	-13.3
4	-4.5	-4.6	-4.9	-5.3	-5.5	-6.0	-6.5	-6.5	-5.5	-4.3	-3.7	-2.7	-2.2	-1.8	-0.8	-0.1	-1.7	-1.7	-3.2	-5.0	-6.3	-7.0	-8.3	-11.1	-4.5	-0.1	-11.1
5	-11.6	-12.8	-13.0	-12.3	-12.5	-13.1	-12.5	-10.3	-8.0	-6.3	-3.9	-1.7	-0.2	1.0	1.5	1.6	1.1	-0.1	-1.2	-3.2	-4.3	-5.1	-6.3	-7.5	-5.9	1.6	-13.1
6	-8.6	-10.0	-10.8	-11.3	-11.3	-10.6	-10.5	-8.8	-4.0	-0.6	0.7	2.1	3.7	5.4	6.8	6.4	6.3	5.6	3.8	2.1	0.9	-1.1	-2.7	-3.7	-2.1	6.8	-11.3
7	-5.0	-5.6	-6.5	-7.1	-7.8	-8.3	-8.3	-5.3	-1.0	1.3	4.3	5.5	6.9	9.4	10.2	7.8	7.3	6.6	5.7	4.7	4.3	3.8	2.7	2.8	1.2	10.2	-8.3
8	2.5	2.1	0.6	0.6	0.5	-0.4	-1.1	2.1	5.6	6.3	7.5	8.3	8.9	9.4	10.0	9.6	9.4	7.9	6.9	5.5	5.1	3.8	2.4	2.0	4.8	10.0	-1.1
9	0.8	-0.4	-1.0	-2.0	-3.0	-3.4	-3.7	-0.8	5.4	8.2	9.8	11.1	12.1	12.6	13.1	12.6	13.0	13.2	12.3	9.1	6.4	4.8	3.8	3.8	5.7	13.2	-3.7
10	3.7	2.7	1.9	1.0	0.1	-0.3	-0.1	3.3	7.5	12.5	13.7	16.7	17.0	16.9	16.5	15.8	15.5	15.9	14.7	12.5	10.9	8.9	9.0	9.0	9.4	17.0	-0.3
11	9.8	8.7	6.4	4.8	4.4	4.5	5.5	9.1	13.5	15.5	15.1	15.9	16.8	17.5	17.6	16.1	12.8	9.3	6.6	4.0	2.7	0.8	-0.5	-1.7	9.0	17.6	-1.7
12	-1.7	-1.6	-1.7	-2.0	-2.2	-2.5	-2.4	-1.2	-0.1	0.9	1.1	1.2	0.5	0.9	0.5	0.1	0.4	0.9	0.6	0.1	0.0	-0.5	-1.0	-1.5	-0.5	1.2	-2.5
13	-1.7	-1.8	-2.0	-2.5	-2.7	-3.0	-3.0	-2.7	-2.7	-2.2	-1.7	-1.2	-0.8	-0.2	-0.3	-0.3	0.2	1.3	0.0	-2.4	-3.2	-5.1	-6.5	-6.5	-2.1	1.3	-6.5
14	-5.0	-6.1	-6.6	-7.5	-7.9	-8.6	-7.4	-5.8	-3.7	-1.3	-0.4	2.8	3.4	2.4	3.6	2.6	3.2	2.0	2.2	0.5	-0.6	-2.2	-2.7	-3.9	-2.0	3.6	-8.6
15	-3.5	-5.3	-6.5	-8.0	-8.6	-7.4	-7.4	-7.0	-4.6	-3.4	0.3	3.4	5.4	6.5	7.1	8.0	8.1	7.5	6.5	4.5	3.1	2.0	0.5	-1.2	0.0	8.1	-8.6
16	-2.7	-2.5	-2.9	-3.5	-3.5	-3.0	-2.2	0.5	2.8	6.4	8.8	11.5	12.7	13.8	13.7	13.1	13.7	13.0	11.8	9.6	8.2	7.8	5.8	4.4	5.7	13.8	-3.5
17	2.8	1.3	1.0	1.2	1.3	-0.2	-0.6	0.5	2.1	4.3	7.1	10.0	10.9	10.1	9.6	8.5	7.6	6.0	3.7	2.5	1.5	0.7	0.3	0.3	3.9	10.9	-0.6
18	0.3	0.3	0.3	-0.2	-0.5	-1.1	-1.2	1.0	3.5	5.4	2.1	2.3	3.9	0.0	-0.4	-0.4	0.0	-0.2	-0.8	-2.0	-3.0	-3.5	-4.0	-4.0	-0.1	5.4	-4.0
19	-3.9	-3.7	-3.7	-3.7	-3.7	-3.7	-3.7	-3.2	-2.7	-1.7	-0.8	-0.6	0.0	0.6	1.1	0.5	1.6	1.1	0.9	0.4	-0.8	-1.7	-2.0	-3.2	-1.5	1.6	-3.9
20	-3.5	-3.4	-3.9	-5.5	-6.5	-7.1	-6.0	-3.5	-1.2	-0.1	0.9	1.5	2.1	2.8	3.3	3.9	4.0	2.9	2.9	1.7	-0.6	-1.7	-2.9	-3.0	-1.0	4.0	-7.1
21	-2.4	-2.4	-2.4	-2.7	-3.2	-3.4	-3.0	-1.7	-0.8	0.7	-0.1	1.4	1.6	0.6	3.4	1.5	3.5	2.8	-1.0	-0.8	-0.8	-1.6	-2.0	-2.5	-0.6	3.5	-3.4
22	-2.7	-2.7	-3.0	-3.2	-3.2	-3.2	-2.5	-0.8	0.5	1.3	2.4	2.9	4.3	4.8	5.9	5.5	5.7	5.8	5.5	3.8	2.4	0.7	-0.8	-2.4	1.1	5.9	-3.2
23	-3.0	-4.0	-4.9	-5.0	-5.4	-5.9	-4.9	-1.7	1.3	4.0	6.5	8.2	10.4	11.8	13.4	13.6	13.6	13.0	11.8	10.1	8.6	8.1	6.7	6.4	4.7	13.6	-5.9
24	6.2	4.9	4.7	5.4	4.9	3.4	4.0	6.0	7.0	8.2	9.6	11.1	10.1	6.1	3.2	2.8	2.5	1.6	0.8	0.5	0.2	0.2	0.2	0.2	4.3	11.1	0.2
25	0.3	0.2	0.2	0.2	0.3	0.3	0.6	1.1	2.0	3.7	3.9	5.0	5.6	6.3	8.1	8.4	8.4	8.4	7.8	6.2	5.0	4.5	2.6	0.9	3.8	8.4	0.2
26	-0.1	-1.0	-1.6	-2.0	-2.5	-2.7	-1.7	1.2	3.7	6.4	9.0	10.6	11.6	13.4	13.8	14.1	13.8	14.3	13.8	12.0	9.8	8.2	7.0	7.4	6.6	14.3	-2.7
27	8.4	6.1	4.9	6.0	7.1	6.7	8.4	9.3	10.0	10.3	8.9	4.0	1.8	2.9	4.9	5.8	7.4	8.3	8.0	6.5	4.0	2.1	0.8	-0.6	5.9	10.3	-0.6
28	-1.7	-2.4	-3.0	-3.7	-4.0	-4.4	-3.0	1.2	4.0	7.7	11.4	13.8	15.3	17.1	18.6	19.2	18.1	17.1	17.2	14.2	10.8	8.1	5.8	4.2	7.6	19.2	-4.4
29	2.9	1.8	1.0	0.4	-0.4	-0.8	0.3	4.9	8.7	12.3	16.7	19.0	20.1	20.7	21.1	21.6	21.2	21.0	19.7	16.8	13.2	10.5	8.1	6.0	11.1	21.6	-0.8
30	4.6	3.3	2.2	1.3	0.3	-0.2	1.3	5.5	9.8	13.7	17.3	20.5	22.2	22.9	23.3	23.2	24.0	23.3	21.5	19.1	17.3	15.2	12.9	11.9	13.2	24.0	-0.2
Avg	-1.1	-1.8	-2.4	-2.8	-3.1	-3.4	-3.0	-1.0	1.4	3.5	5.0	6.3	7.0	7.4	7.8	7.5	7.4	6.9	5.8	4.2	2.8	1.6	0.5	-0.3	2.3	8.9	-4.8
Max	9.8	8.7	6.4	6.0	7.1	6.7	8.4	9.3	13.5	15.5	17.3	20.5	22.2	22.9	23.3	23.2	24.0	23.3	21.5	19.1	17.3	15.2	12.9	11.9	13.2	24.0	0.2
Min	-11.6	-12.8	-13.0	-12.3	-13.1	-13.3	-13.3	-11.1	-8.0	-6.3	-3.9	-2.7	-2.2	-1.8	-0.8	-0.8	-1.7	-1.7	-3.2	-5.0	-6.3	-7.0	-8.3	-11.1	-5.9	-0.1	-13.3

Montana Resources LLP
Greeley School Air Monitoring Summary
Temperature - MDEQ monitor (degrees Celsius)
May 2023

	<< 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	10.4	8.3	6.6	6.2	6.2	5.7	6.3	11.4	14.1	17.4	20.0	22.6	23.0	23.6	23.8	23.9	23.3	22.2	21.0	18.8	17.5	16.1	15.3	14.2	15.7	23.9	5.7
2	11.5	9.6	8.3	6.6	5.2	4.4	6.0	9.5	14.1	16.7	19.7	22.1	24.6	25.2	24.7	24.3	22.6	21.4	19.0	17.9	17.7	17.0	15.7	13.1	15.7	25.2	4.4
3	11.4	10.0	8.9	6.8	6.6	6.1	7.3	10.4	13.5	17.6	19.8	20.9	21.6	22.7	23.4	23.5	22.2	22.3	21.6	19.0	17.3	15.2	13.4	11.3	15.5	23.5	6.1
4	9.8	8.8	6.5	5.2	4.3	3.6	5.4	9.7	13.4	18.5	20.7	21.8	22.4	23.2	23.4	20.7	21.2	16.0	12.2	12.3	12.1	11.7	9.5	8.9	13.4	23.4	3.6
5	8.5	7.5	7.2	6.6	5.6	4.8	5.5	8.5	9.9	11.3	10.8	12.0	13.5	14.1	14.3	15.1	14.1	13.0	12.5	11.5	10.2	9.9	9.4	8.8	10.2	15.1	4.8
6	8.4	8.4	8.1	7.6	6.9	5.7	5.8	4.9	4.9	6.8	8.6	10.0	7.8	7.2	5.2	4.0	3.6	3.4	4.6	4.3	3.9	3.7	3.7	3.6	5.9	10.0	3.4
7	3.5	3.2	3.0	3.0	2.2	2.6	3.3	4.6	6.4	8.9	9.2	9.1	6.2	8.6	8.8	7.3	4.4	5.7	4.5	3.7	2.9	2.2	2.1	2.5	4.9	9.2	2.1
8	3.6	3.0	2.1	2.5	1.8	1.9	3.1	4.0	5.3	6.5	7.9	9.5	10.0	10.6	11.2	12.0	12.1	12.4	12.0	10.9	9.6	8.1	6.7	6.7	7.2	12.4	1.8
9	6.3	6.3	5.2	3.8	3.0	2.5	3.3	5.3	6.7	7.3	8.3	5.2	3.1	4.1	4.5	6.7	8.6	9.6	8.9	7.8	6.7	5.7	4.5	3.5	5.7	9.6	2.5
10	2.6	1.7	1.5	1.4	1.2	1.2	1.1	1.7	2.7	4.3	7.8	10.3	12.3	13.0	14.4	14.9	13.7	11.0	10.2	10.4	9.6	8.7	7.8	7.6	7.1	14.9	1.1
11	6.8	6.3	5.9	5.7	5.8	5.9	6.0	6.6	9.0	10.8	12.1	12.9	13.2	11.3	10.1	12.3	12.8	11.6	10.7	10.1	8.5	7.1	5.7	4.1	8.8	13.2	4.1
12	3.1	2.3	1.5	0.9	0.4	0.2	2.1	5.6	8.6	11.3	13.3	13.7	14.6	15.9	16.3	16.5	16.5	15.4	14.4	13.3	11.4	10.4	10.2	9.5	9.5	16.5	0.2
13	7.3	6.1	4.5	3.3	12.4	12.7	12.8	12.1	11.6	11.4	10.6	10.0	10.1	9.7	9.4	9.2	9.1	8.9	8.8	8.0	7.7	7.6	7.7	8.4	9.1	12.8	3.3
14	9.4	10.7	12.3	14.5	16.8	17.9	17.7	18.3	18.5	16.7	15.8	14.0	12.4	11.7	10.3	9.2	8.6	7.6	6.7	6.0	6.6	6.6	8.8	11.1	12.0	18.5	6.0
15	14.6	17.5	18.2	20.0	20.5	20.9	21.8	19.0	13.4	13.8	13.9	12.7	11.6	9.8	8.4	2.6	2.9	4.6	7.0	10.1	11.4	12.2	12.7	7.3	12.8	21.8	2.6
16	6.2	5.4	4.7	4.2	3.6	3.3	6.2	9.4	13.2	16.5	18.2	19.9	20.3	21.2	21.2	22.1	22.2	21.8	20.9	18.9	16.7	14.9	14.0	13.0	14.1	22.2	3.3
17	10.7	9.5	8.7	8.2	7.7	7.7	9.0	10.0	11.2	13.1	14.2	16.2	17.0	18.2	18.0	16.0	14.9	14.7	14.2	13.4	11.6	9.9	8.9	8.1	12.1	18.2	7.7
18	7.7	6.9	6.5	5.3	4.8	4.2	5.2	7.8	10.8	12.6	15.1	17.5	18.8	19.9	19.6	20.0	18.7	18.6	17.8	16.4	14.3	13.0	10.0	8.3	12.5	20.0	4.2
19	6.8	5.5	4.5	3.6	2.7	2.4	4.7	8.0	12.6	15.7	19.1	21.4	23.6	24.2	24.9	25.4	24.1	23.8	22.7	21.3	18.5	15.4	13.0	11.3	14.8	25.4	2.4
20	9.9	8.3	7.1	6.5	6.1	6.0	8.5	11.3	15.2	18.3	22.1	24.2	25.3	26.0	26.6	26.4	26.1	25.3	24.0	21.8	19.7	17.7	15.5	13.4	17.1	26.6	6.0
21	12.0	10.6	9.4	8.6	7.9	7.7	9.9	12.6	16.4	20.1	22.8	25.3	26.7	23.7	17.4	19.1	19.7	20.1	19.5	18.2	17.0	16.5	14.5	12.7	16.2	26.7	7.7
22	11.4	10.6	9.8	9.9	9.5	9.6	9.7	11.5	13.3	14.5	17.3	20.3	21.7	17.6	18.4	18.8	20.1	20.2	17.0	15.0	13.8	12.8	11.6	9.0	14.3	21.7	9.0
23	7.6	6.2	5.8	5.7	5.7	6.0	7.0	8.7	10.3	12.0	13.2	15.7	18.5	18.6	18.8	19.8	19.7	20.4	20.0	18.2	17.4	15.0	13.1	12.7	13.2	20.4	5.7
24	12.0	11.1	10.4	9.4	8.6	8.8	9.7	12.8	14.6	16.8	18.2	12.7	11.5	12.7	13.7	13.2	12.5	11.4	9.2	8.8	8.7	8.9	8.8	8.6	11.4	18.2	8.6
25	8.4	8.7	8.7	8.6	8.6	8.4	8.3	8.4	9.6	11.0	12.3	13.9	15.0	12.5	12.7	13.5	14.2	14.2	12.9	11.8	10.5	10.1	9.4	8.8	10.9	15.0	8.3
26	8.8	8.5	8.2	7.4	7.2	8.2	8.8	9.6	9.2	10.7	12.4	14.4	15.4	16.1	14.1	15.8	15.3	14.2	10.2	10.3	9.8	9.0	9.1	8.8	10.9	16.1	7.2
27	8.8	8.5	8.4	8.1	7.8	8.0	8.5	9.1	10.1	11.9	12.8	10.7	13.7	15.7	14.0	14.3	15.2	12.8	10.1	9.8	8.9	8.4	8.4	8.4	10.5	15.7	7.8
28	8.4	8.2	8.1	8.0	6.9	7.0	8.5	11.0	12.8	13.1	15.0	16.4	18.8	16.5	13.6	13.1	13.6	13.3	11.8	10.7	10.7	9.6	8.0	6.9	11.2	18.8	6.9
29	6.0	5.4	4.9	4.5	4.9	5.3	7.5	10.8	12.4	14.5	15.2	16.8	18.3	16.5	16.7	19.8	20.9	21.3	18.4	16.7	14.3	12.4	10.7	9.0	12.6	21.3	4.5
30	8.7	8.6	8.6	8.1	6.9	6.8	9.8	11.9	15.1	17.3	18.7	18.7	20.6	19.6	21.4	22.8	21.7	17.1	17.4	18.2	15.5	14.2	13.8	11.2	14.7	22.8	6.8
31	9.9	9.7	8.3	7.3	6.8	7.7	9.1	10.9	13.5	16.3	16.3	17.4	19.0	12.8	14.7	16.2	16.4	16.1	14.4	13.6	12.4	11.7	11.5	11.0	12.6	19.0	6.8
Avg	8.4	7.8	7.2	6.7	6.6	6.6	7.7	9.5	11.4	13.3	14.9	15.8	16.5	16.2	15.9	16.1	15.8	15.2	14.0	13.1	12.0	11.0	10.1	9.1	11.7	18.6	5.0
Max	14.6	17.5	18.2	20.0	20.5	20.9	21.8	19.0	18.5	20.1	22.8	25.3	26.7	26.0	26.6	26.4	26.1	25.3	24.0	21.8	19.7	17.7	15.7	14.2	17.1	26.7	9.0
Min	2.6	1.7	1.5	0.9	0.4	0.2	1.1	1.7	2.7	4.3	7.8	5.2	3.1	4.1	4.5	2.6	2.9	3.4	4.5	3.7	2.9	2.2	2.1	2.5	4.9	9.2	0.2

Montana Resources LLP
Greeley School Air Monitoring Summary
Temperature - MDEQ monitor (degrees Celsius)
June 2023

	<< 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	10.9	10.2	8.8	7.7	7.8	8.2	8.8	9.7	12.6	14.8	16.6	18.1	14.6	14.5	16.2	17.1	16.2	15.7	14.7	13.7	11.6	11.4	11.0	10.2	12.5	18.1	7.7
2	9.9	9.0	9.2	9.2	9.1	9.2	9.6	10.3	10.8	11.7	12.0	12.9	13.0	12.5	12.3	12.6	12.4	12.3	12.0	11.5	11.1	10.5	10.2	10.1	11.0	13.0	9.0
3	9.7	9.4	9.3	9.2	9.1	9.0	9.1	9.3	9.9	10.5	11.0	11.4	11.6	11.6	11.9	11.5	11.2	11.0	11.0	10.9	10.7	10.5	10.3	9.2	10.3	11.9	9.0
4	7.6	6.8	6.7	6.4	6.2	6.5	7.3	7.8	10.0	13.4	15.9	17.2	18.6	20.3	21.7	21.8	21.1	21.0	19.6	18.1	17.1	15.3	13.8	13.5	13.9	21.8	6.2
5	12.8	11.7	11.5	11.0	10.8	10.1	12.4	14.3	15.8	18.4	19.7	21.3	20.5	21.4	18.9	15.8	18.0	18.8	18.8	16.2	13.9	12.6	12.6	12.0	15.4	21.4	10.1
6	10.5	9.5	8.8	8.0	7.4	7.5	10.6	12.9	15.1	19.0	21.4	22.4	23.9	22.3	22.3	21.3	18.7	12.8	13.7	14.4	13.7	12.4	11.5	11.3	14.6	23.9	7.4
7	11.4	10.7	10.1	9.3	9.1	10.6	12.3	13.7	14.5	16.1	18.7	21.0	23.2	24.9	23.6	25.2	22.5	23.2	23.2	20.7	18.9	17.0	15.6	15.4	17.1	25.2	9.1
8	15.2	14.3	13.2	11.8	10.9	11.5	13.1	14.6	15.9	14.3	12.1	13.9	16.8	18.7	15.7	14.1	14.5	14.5	14.5	14.1	13.3	13.1	13.0	12.9	14.0	18.7	10.9
9	12.5	12.1	11.7	11.1	10.8	10.8	11.8	13.8	16.3	17.9	17.3	18.9	20.5	20.9	22.2	23.0	22.0	22.2	20.4	18.9	17.9	15.8	13.3	12.8	16.5	23.0	10.8
10	12.0	11.1	10.3	9.5	8.9	9.1	10.9	12.2	14.5	16.3	18.3	20.1	20.9	20.2	21.9	18.1	16.7	17.2	16.8	15.7	14.2	12.9	11.4	10.6	14.6	21.9	8.9
11	10.1	9.5	9.1	9.0	9.3	9.8	11.6	13.8	15.2	17.9	18.8	19.4	17.3	15.2	19.0	20.9	17.4	16.0	16.1	13.2	12.2	11.6	11.7	11.7	14.0	20.9	9.0
12	11.5	11.2	11.2	11.1	11.0	11.0	11.2	12.0	12.5	12.9	13.3	13.2	13.9	15.3	11.6	11.7	12.3	12.9	14.0	13.4	12.0	11.4	10.9	10.4	12.2	15.3	10.4
13	10.0	9.4	9.1	9.1	9.4	9.2	9.4	10.4	12.0	13.5	15.9	18.6	19.0	19.2	18.9	16.0	15.5	15.3	17.5	16.3	13.7	12.9	12.1	12.1	13.5	19.2	9.1
14	12.6	12.6	12.6	11.6	10.8	11.1	11.7	11.5	11.6	11.4	14.0	16.4	17.2	17.8	18.3	18.5	18.1	16.7	15.7	14.3	12.8	11.1	10.4	9.9	13.7	18.5	9.9
15	9.4	7.6	8.0	7.5	5.2	5.2	6.1	9.9	11.6	13.0	13.6	13.7	13.7	12.5	11.9	11.6	11.6	11.8	11.6	11.8	10.0	8.6	7.7	6.7	10.0	13.7	5.2
16	6.4	6.0	4.9	3.9	2.9	3.2	6.0	8.5	11.1	13.4	15.2	16.2	17.9	19.0	20.1	20.0	20.8	20.5	19.4	18.0	16.1	14.6	11.8	10.1	12.8	20.8	2.9
17	9.0	8.6	8.8	9.3	9.4	9.2	9.8	9.9	10.2	12.0	13.6	14.5	15.3	15.1	16.2	16.2	15.5	16.7	13.1	12.7	12.5	11.7	10.9	10.5	12.1	16.7	8.6
18	10.3	10.6	10.5	10.7	11.0	11.1	8.8	7.3	6.6	7.0	8.2	9.3	11.4	12.8	14.4	14.4	14.8	15.2	13.6	11.1	10.0	9.1	7.4	5.6	10.5	15.2	5.6
19	5.3	5.1	3.6	2.7	2.3	2.8	4.0	5.4	6.5	8.7	10.4	11.6	11.7	10.3	7.8	8.4	11.3	12.0	11.3	10.5	9.1	7.7	5.2	4.5	7.4	12.0	2.3
20	4.4	3.9	3.7	4.0	3.9	3.8	4.6	6.5	7.6	9.1	10.8	11.2	12.9	12.6	10.5	8.6	7.0	7.0	8.3	6.9	6.3	5.6	4.6	4.2	7.0	12.9	3.7
21	3.8	2.6	1.9	1.0	0.5	0.5	2.9	5.8	7.9	9.2	11.2	12.7	13.4	12.9	11.7	12.3	10.3	11.0	10.9	9.8	8.7	7.0	5.0	3.7	7.4	13.4	0.5
22	2.8	1.4	1.1	0.4	-0.2	0.3	3.5	6.5	9.9	12.6	15.1	16.3	17.7	18.6	19.4	20.0	20.4	20.5	19.5	17.6	15.8	14.5	12.7	11.1	11.6	20.5	-0.2
23	9.3	8.3	7.1	6.8	6.3	6.5	9.5	12.8	15.1	16.7	18.7	19.5	19.1	19.4	17.9	15.1	10.5	10.4	11.3	11.0	10.8	10.2	9.6	9.6	12.1	19.5	6.3
24	9.5	9.3	9.0	8.4	8.2	8.5	9.1	10.0	11.4	14.1	17.0	18.1	17.5	16.8	19.2	18.6	21.1	20.5	20.1	19.1	17.1	15.9	12.3	11.8	14.3	21.1	8.2
25	10.6	9.4	8.3	7.4	6.6	6.4	9.0	11.5	14.1	17.3	19.6	21.7	19.4	19.3	20.3	20.8	13.2	12.6	13.3	12.7	12.0	11.3	10.2	9.6	13.2	21.7	6.4
26	8.7	7.7	7.9	6.7	5.9	6.1	8.6	10.2	12.2	16.8	18.6	20.0	21.2	20.0	19.2	18.1	16.4	17.1	16.3	14.8	13.9	12.9	11.4	10.2	13.4	21.2	5.9
27	9.7	9.5	8.6	8.2	8.0	7.5	9.6	12.2	14.4	16.8	19.3	19.7	20.0	20.6	18.7	18.2	17.2	16.6	16.6	15.9	14.8	13.4	12.5	12.0	14.2	20.6	7.5
28	11.4	11.6	11.3	10.2	9.9	10.3	11.2	12.2	13.3	14.1	15.6	16.0	16.2	17.8	16.6	17.9	16.3	16.1	15.8	15.2	13.7	11.9	10.9	9.7	13.5	17.9	9.7
29	9.1	8.1	7.5	6.7	6.3	6.4	9.3	12.0	14.0	17.3	20.3	21.3	22.7	22.9	23.4	25.0	24.7	22.9	22.7	21.9	19.2	16.6	14.4	12.6	16.1	25.0	6.3
30	11.2	10.6	9.7	9.1	8.4	8.7	12.7	15.3	18.5	20.7	23.7	12.2	25.4	26.0	27.1	27.3	26.9	26.9	26.2	25.0	22.8	20.0	17.6	15.7	18.7	27.3	8.4
Avg	9.6	8.9	8.4	7.9	7.5	7.7	9.1	10.7	12.4	14.2	15.9	16.6	17.5	17.7	17.6	17.3	16.5	16.2	15.9	14.8	13.5	12.3	11.1	10.3	12.9	19.1	7.2
Max	15.2	14.3	13.2	11.8	11.0	11.5	13.1	15.3	18.5	20.7	23.7	22.4	25.4	26.0	27.1	27.3	26.9	26.9	26.2	25.0	22.8	20.0	17.6	15.7	18.7	27.3	10.9
Min	2.8	1.4	1.1	0.4	-0.2	0.3	2.9	5.4	6.5	7.0	8.2	9.3	11.4	10.3	7.8	8.4	7.0	7.0	8.3	6.9	6.3	5.6	4.6	3.7	7.0	11.9	-0.2

Montana Resources LLP
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April 2023

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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	198	277	165	169	134	74	190	67	86	159	187	183	198	209	274	327	32	313	332	109	175	186	207	208	182
2	84	253	21	87	109	117	141	153	347	170	320	291	317	350	342	286	319	300	237	112	120	130	175	151	101
3	154	132	156	203	163	173	184	132	336	38	95	277	5	114	94	58	72	21	44	41	37	33	30	27	79
4	48	40	39	75	70	73	48	55	46	62	74	137	174	129	140	124	38	25	356	28	47	54	104	37	66
5	175	150	124	153	159	95	149	140	80	40	36	51	226	277	288	250	261	298	285	274	208	124	121	141	164
6	163	154	158	126	154	155	151	127	85	29	1	25	53	106	106	194	198	196	186	154	127	324	79	138	131
7	359	186	169	196	141	127	156	147	94	42	33	18	359	214	193	189	196	158	173	195	55	170	103	116	145
8	167	215	156	170	63	57	201	10	217	221	219	235	231	232	231	233	258	254	259	320	247	21	52	51	227
9	213	42	61	146	57	174	183	141	96	96	360	189	170	178	191	199	198	205	221	164	349	39	170	296	161
10	323	223	189	265	258	186	206	219	316	322	329	184	188	178	180	177	170	171	172	153	134	322	279	201	212
11	265	258	314	312	303	21	11	12	199	197	221	227	234	239	237	252	277	280	256	255	263	224	232	248	260
12	231	231	239	234	239	215	230	165	110	205	244	246	242	240	236	246	250	306	243	250	190	251	267	267	236
13	298	283	301	277	283	301	316	320	326	332	329	330	325	318	315	318	319	338	295	188	198	158	124	114	305
14	142	167	146	72	170	160	128	163	171	56	4	40	96	357	248	215	216	227	230	265	342	360	205	94	159
15	32	152	153	95	129	130	127	125	140	356	35	15	156	156	168	172	189	180	196	155	275	79	50	143	133
16	123	229	93	144	126	197	130	89	17	17	11	202	197	194	190	177	186	176	186	213	131	254	335	77	161
17	287	280	203	214	210	170	91	201	4	355	22	211	233	333	19	58	247	12	232	252	242	230	227	233	250
18	237	251	271	201	25	134	266	1	359	356	263	43	148	315	342	347	360	358	351	340	331	305	312	330	326
19	5	341	332	328	328	325	338	332	325	320	318	326	321	329	324	348	331	354	353	327	351	344	328	147	335
20	281	324	281	162	117	138	177	220	288	304	307	323	353	321	320	325	329	10	360	351	59	214	110	120	319
21	70	86	71	52	51	61	60	35	24	67	51	10	329	345	265	272	203	295	6	46	191	236	217	237	26
22	223	217	225	217	180	215	216	82	22	19	36	18	43	353	320	359	6	346	325	328	330	198	166	167	318
23	155	84	160	161	137	183	100	98	353	345	339	339	348	357	149	178	198	173	196	178	115	128	78	149	134
24	142	79	97	132	30	272	67	295	333	354	339	307	266	288	297	286	270	280	271	265	280	263	278	262	295
25	227	268	294	344	343	307	110	289	237	310	35	41	315	16	65	330	350	340	316	307	295	287	192	205	315
26	151	115	78	104	143	86	93	120	8	4	77	68	46	19	255	298	322	318	308	334	2	177	89	10	49
27	238	26	27	41	310	356	309	327	319	328	16	35	32	10	20	50	26	338	341	326	152	286	86	119	2
28	154	140	208	106	108	132	81	118	18	356	42	22	48	60	49	349	335	354	1	341	174	130	274	208	63
29	249	215	267	209	36	255	128	156	339	22	3	26	37	29	351	351	339	334	333	324	220	211	140	253	321
30	291	239	250	267	258	315	196	340	347	336	342	35	194	83	55	23	58	114	115	105	170	252	342	37	343
Prev	203	209	175	161	122	145	143	108	9	5	3	356	295	329	280	284	288	310	283	284	199	231	149	158	274

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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	226	255	310	297	21	317	282	33	352	326	356	101	106	116	105	112	101	97	94	96	75	262	170	114	64
2	284	307	312	286	278	289	209	329	319	334	357	336	103	153	113	114	106	119	169	155	54	344	281	316	317
3	327	166	188	282	241	249	280	281	323	327	349	354	331	54	183	203	156	121	108	146	183	210	293	185	239
4	237	181	246	262	266	233	254	254	321	290	58	94	115	97	103	108	113	155	122	207	194	206	252	267	203
5	232	316	100	140	159	138	154	62	79	189	189	193	195	196	186	188	170	143	135	125	154	165	157	158	160
6	188	188	127	220	251	250	300	287	37	11	29	180	19	4	133	159	330	25	105	179	174	157	148	62	150
7	149	178	143	113	139	57	173	86	40	358	348	38	4	24	138	79	54	272	171	166	191	159	166	158	117
8	193	297	55	110	41	62	22	81	53	57	358	45	43	50	332	70	55	341	331	349	341	199	135	141	41
9	98	310	186	165	145	144	211	65	30	108	135	267	282	4	40	28	26	37	350	6	69	240	147	161	80
10	153	164	184	189	94	137	215	204	18	354	41	39	353	338	357	325	99	354	351	21	115	330	321	306	17
11	35	161	257	349	316	267	199	205	308	54	12	359	339	340	48	45	22	353	37	177	188	334	183	276	340
12	218	304	334	10	32	92	129	61	28	111	103	12	15	14	20	10	15	27	27	22	90	60	34	84	39
13	232	289	192	227	30	35	27	34	36	45	32	61	39	42	355	15	13	14	15	291	257	264	263	276	357
14	280	296	339	143	38	76	113	75	66	12	320	86	155	106	286	269	273	258	278	283	282	272	19	27	335
15	59	165	185	161	186	222	188	250	266	131	136	311	303	259	263	205	166	184	171	44	30	358	30	265	205
16	252	221	133	147	86	107	129	67	43	15	355	326	305	312	306	291	277	288	286	319	359	47	41	252	336
17	210	246	252	265	238	257	266	251	233	180	325	322	328	347	338	71	115	159	165	223	210	281	241	259	251
18	262	254	216	280	169	210	209	29	333	333	344	301	231	92	320	178	112	90	70	50	142	138	157	224	208
19	213	237	281	249	294	258	232	71	303	339	2	354	107	89	120	60	340	322	322	335	294	178	190	153	296
20	237	247	258	281	213	304	193	224	4	8	40	120	233	277	243	303	221	185	300	92	162	274	293	169	249
21	274	184	254	251	252	251	181	241	305	347	327	28	199	323	135	45	253	176	185	298	308	299	194	183	253
22	282	224	251	263	263	245	275	263	128	5	7	160	201	333	337	344	334	298	317	343	341	343	352	198	298
23	197	182	210	196	200	224	217	138	263	48	15	30	145	154	168	198	117	151	174	114	170	199	91	94	165
24	221	259	274	264	253	261	268	359	357	14	122	269	63	43	62	66	139	285	310	215	239	229	250	253	274
25	252	251	248	248	258	250	254	258	265	245	301	281	27	242	359	35	289	269	222	219	247	251	270	250	263
26	241	268	245	253	234	275	252	257	317	245	207	315	333	208	306	320	41	278	354	87	240	247	235	272	269
27	258	239	263	252	230	235	232	229	83	344	298	149	104	146	287	36	299	261	240	255	245	257	256	260	251
28	258	256	268	260	248	258	261	19	64	349	2	345	275	205	7	344	166	244	168	298	302	281	254	232	279
29	249	256	175	260	219	261	239	352	23	13	15	86	334	270	56	18	141	227	213	357	257	227	236	259	271
30	268	264	271	267	251	261	214	341	356	333	308	193	196	357	57	161	187	301	160	235	270	336	332	165	267
31	174	288	252	265	239	247	280	129	357	357	31	50	252	59	17	15	332	13	257	244	288	307	284	259	301
Prev	234	242	237	243	237	245	227	345	360	2	7	16	350	25	24	46	84	282	201	272	230	257	238	220	272

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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	257	263	254	245	266	252	255	267	300	125	332	285	244	349	37	30	307	290	7	147	241	268	264	268	278
2	259	263	264	261	256	263	264	265	258	239	339	145	359	349	352	16	23	12	359	80	21	305	282	274	304
3	259	265	267	267	266	265	262	265	266	268	276	267	265	263	257	265	264	260	258	262	255	257	256	258	263
4	268	262	240	258	177	140	130	354	32	7	14	52	140	176	167	44	41	37	96	111	184	250	183	182	137
5	204	198	262	258	268	240	55	357	328	33	104	83	316	351	273	344	326	316	306	295	222	196	231	247	287
6	263	263	261	264	263	262	236	360	347	345	312	213	174	233	183	110	260	103	166	135	25	96	131	117	228
7	111	115	131	179	99	88	31	3	25	10	353	357	346	129	205	288	31	23	36	43	27	200	1	358	41
8	330	221	160	56	19	20	17	15	12	63	161	252	357	34	252	22	287	289	296	304	283	41	2	50	352
9	3	43	14	116	4	22	21	43	2	331	20	23	262	348	322	332	118	254	274	273	322	270	82	180	353
10	64	11	2	73	65	359	103	50	358	10	360	347	221	51	34	35	40	44	331	247	251	271	277	275	9
11	278	275	295	294	309	302	296	11	333	2	30	48	187	24	314	6	49	148	148	352	247	277	270	304	319
12	267	41	78	299	301	303	308	299	269	298	288	241	123	235	151	157	163	172	175	185	193	210	150	170	222
13	136	169	142	154	166	169	81	25	351	296	294	275	135	163	188	336	58	174	9	332	294	275	270	277	224
14	279	16	18	8	344	345	316	295	303	319	317	274	285	284	294	303	309	326	327	330	338	356	355	356	324
15	308	279	334	337	13	151	117	39	348	325	10	334	321	322	322	318	320	295	273	286	162	121	135	282	325
16	92	243	164	284	316	153	14	30	69	50	18	343	303	266	275	264	296	318	324	330	351	305	155	182	319
17	176	176	51	137	232	130	13	262	266	211	231	96	116	72	63	266	274	61	187	340	338	345	297	259	235
18	281	279	276	280	271	277	287	316	334	324	323	309	297	278	252	270	277	305	317	332	334	315	280	230	294
19	323	346	203	168	220	213	302	315	344	331	348	348	318	273	326	352	318	310	317	316	323	305	245	264	306
20	275	246	277	282	281	275	291	316	308	59	46	356	309	290	312	333	134	230	343	316	352	297	319	110	308
21	72	105	342	336	239	317	7	322	42	12	307	317	324	338	342	59	93	128	187	223	330	137	101	326	358
22	175	318	266	285	310	327	282	358	355	345	43	159	149	174	193	355	5	335	86	103	104	257	293	4	329
23	65	59	329	11	326	330	355	360	1	359	336	101	104	109	150	257	275	291	300	296	22	258	265	267	337
24	272	271	261	276	262	264	260	273	305	334	348	353	330	346	299	360	308	263	318	323	208	216	101	103	295
25	302	299	285	266	254	271	197	7	12	358	354	126	189	295	231	349	281	334	134	130	72	126	78	294	303
26	263	256	253	267	356	250	70	350	2	18	35	4	338	182	201	287	2	29	287	328	337	167	147	167	316
27	296	224	189	313	154	125	148	315	9	14	46	12	39	339	272	354	2	42	24	62	180	207	221	123	11
28	17	244	345	178	168	24	82	11	358	43	47	236	330	8	37	15	185	57	207	209	272	183	164	162	35
29	222	265	251	309	286	225	90	34	5	24	8	21	327	331	4	312	329	333	18	16	294	177	178	238	324
30	296	24	355	33	175	313	333	326	4	349	26	356	340	330	306	280	350	329	331	326	321	201	189	202	330
Prev	278	271	280	281	276	278	345	342	344	354	356	344	306	319	282	336	332	331	319	319	306	244	229	243	313

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

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

Montana Resources LLP
Greeley School Air Monitoring Summary
Standard Deviation of Wind Direction - MDEQ monitor (degrees)
June 2023

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

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Speed - MDEQ monitor (meters per second)
April 2023

	<< 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	0.8	0.7	0.7	0.8	0.5	0.7	0.7	0.8	0.6	3.0	3.2	3.9	3.8	4.3	3.5	2.5	2.0	2.4	2.3	1.2	2.2	2.7	2.9	2.6	2.0	4.3	0.5
2	1.1	1.8	1.0	0.9	0.9	1.1	1.1	1.6	1.4	2.0	2.2	2.3	2.9	3.0	3.2	1.9	2.6	1.6	1.5	1.2	1.4	1.4	1.6	1.2	1.7	3.2	0.9
3	1.1	0.8	0.9	0.8	0.9	0.9	1.0	1.1	1.6	1.4	1.2	1.3	1.9	3.0	3.0	2.3	2.6	3.7	3.6	5.2	5.5	4.3	2.5	2.6	2.2	5.5	0.8
4	2.3	2.7	2.2	2.1	2.4	2.5	3.1	2.9	2.2	2.5	2.7	2.5	3.0	3.1	2.8	2.8	3.5	2.8	2.9	1.9	3.6	3.5	2.4	0.9	2.6	3.6	0.9
5	1.2	1.0	1.1	1.0	1.3	0.7	1.0	1.5	1.3	1.4	1.5	1.8	2.3	2.2	2.1	2.9	2.6	2.4	1.8	0.7	1.3	1.2	1.2	1.0	1.5	2.9	0.7
6	0.8	1.0	1.1	0.8	1.1	1.1	1.1	1.0	1.5	1.6	1.5	1.8	1.6	1.6	1.7	2.6	2.9	2.8	2.7	2.6	1.6	0.5	0.5	0.5	1.5	2.9	0.5
7	0.6	1.0	1.0	1.0	0.8	0.8	1.1	1.2	0.9	0.9	1.0	1.5	1.4	1.5	2.8	3.2	3.2	2.9	1.7	1.1	1.1	1.1	0.8	1.2	1.4	3.2	0.6
8	1.1	0.7	0.7	0.8	0.7	0.6	0.6	0.5	1.8	3.0	3.0	2.8	2.9	2.9	2.9	2.6	2.0	1.9	1.2	0.8	0.8	0.5	0.5	0.4	1.5	3.0	0.4
9	0.7	0.5	0.5	0.6	0.6	0.6	0.8	0.6	0.5	1.0	1.3	1.1	2.2	3.3	3.4	2.9	2.3	2.3	1.2	0.8	0.5	0.5	0.5	0.6	1.2	3.4	0.5
10	0.6	0.7	1.0	0.9	0.9	1.0	1.0	0.8	0.8	0.9	1.5	3.0	3.0	3.9	4.2	3.8	3.2	3.2	2.4	2.4	2.1	0.8	0.8	1.3	1.8	4.2	0.6
11	1.5	1.2	0.8	0.7	0.6	0.6	0.8	0.5	2.8	3.4	2.9	3.7	3.8	4.2	4.5	3.9	2.4	2.3	1.8	2.0	1.5	1.6	1.5	1.5	2.1	4.5	0.5
12	1.2	1.0	1.3	1.4	1.3	0.8	0.7	0.8	0.6	1.0	1.7	1.7	1.9	1.9	1.7	1.6	1.2	0.9	0.9	0.9	0.7	0.9	1.4	1.3	1.2	1.9	0.6
13	0.9	1.1	1.2	1.1	1.3	1.1	1.1	1.7	2.0	2.8	2.4	3.2	3.7	2.3	1.6	1.6	1.3	0.9	0.7	0.7	1.1	0.8	1.0	1.5	1.5	3.7	0.7
14	1.6	1.4	0.7	0.9	1.1	1.2	0.9	1.3	1.6	1.5	1.0	0.8	1.4	1.4	1.5	2.6	2.3	1.6	1.0	1.3	2.3	2.1	0.8	0.6	1.4	2.6	0.6
15	0.6	1.3	1.2	0.7	1.2	1.6	1.4	1.7	1.5	1.3	1.0	1.5	1.9	1.9	2.5	2.6	3.0	2.9	2.2	1.0	0.7	0.8	0.5	0.5	1.5	3.0	0.5
16	0.4	0.6	0.5	0.6	0.5	0.5	0.7	0.7	1.0	0.9	1.3	2.3	3.9	4.4	4.4	4.3	4.6	4.7	4.3	2.2	0.9	2.2	1.4	0.6	2.0	4.7	0.4
17	0.6	0.5	0.7	0.8	1.5	1.2	0.5	0.6	1.1	1.0	0.9	2.1	2.5	1.8	1.4	3.1	2.2	2.8	2.0	1.2	1.4	1.4	1.3	0.9	1.4	3.1	0.5
18	1.1	0.7	0.9	0.6	0.9	0.6	0.9	0.9	1.1	1.1	3.0	1.7	1.7	3.3	1.8	2.5	3.7	3.9	4.5	3.6	1.9	1.2	1.4	1.0	1.8	4.5	0.6
19	1.7	2.4	2.6	2.5	2.5	2.6	2.5	2.9	3.0	2.9	2.9	2.4	2.7	3.1	3.4	2.3	2.9	2.6	2.0	1.7	1.3	1.2	1.2	1.0	2.3	3.4	1.0
20	0.9	1.1	1.0	1.6	0.7	1.2	1.0	1.4	1.3	2.1	2.1	3.2	2.7	2.1	2.8	2.6	2.8	2.5	2.0	1.2	0.5	0.6	0.5	0.5	1.6	3.2	0.5
21	1.3	1.0	1.4	1.4	1.2	1.0	0.9	0.8	1.0	0.9	1.1	0.8	2.5	1.8	1.3	1.7	1.3	2.5	1.1	0.5	1.0	1.5	1.1	1.2	1.3	2.5	0.5
22	0.9	1.0	1.0	1.2	0.8	0.4	0.5	0.6	1.0	1.3	1.7	1.6	1.9	1.7	1.4	1.5	1.5	1.9	1.8	1.6	1.3	0.9	1.0	0.4	1.2	1.9	0.4
23	1.0	0.4	0.7	1.5	1.0	0.7	0.9	0.5	0.9	1.7	2.1	2.2	1.7	1.9	1.7	2.0	1.5	1.9	2.9	2.0	1.1	0.8	0.5	0.9	1.4	2.9	0.4
24	0.6	0.4	0.7	0.7	0.5	0.4	0.8	0.8	1.2	1.7	1.7	1.4	2.4	2.2	2.2	2.0	1.7	1.0	0.9	1.0	0.8	0.7	0.9	0.6	1.1	2.4	0.4
25	0.5	0.5	0.5	0.7	0.6	0.5	0.6	0.6	0.8	0.7	0.9	0.9	1.1	1.3	1.1	1.1	1.2	1.1	2.0	1.5	1.3	1.1	0.9	0.6	0.9	2.0	0.5
26	0.6	0.6	0.7	0.6	0.7	0.6	0.7	0.7	1.0	1.6	1.5	1.8	1.8	1.4	1.4	1.6	2.3	1.5	1.4	1.8	0.5	0.7	0.7	1.0	1.1	2.3	0.5
27	0.9	0.6	0.7	1.2	1.2	1.1	2.4	3.3	3.3	3.8	4.3	6.6	6.0	3.5	3.2	3.2	2.7	3.1	2.2	1.1	1.3	0.7	0.4	0.5	2.4	6.6	0.4
28	0.5	0.5	0.6	0.7	0.5	0.7	0.5	0.7	0.8	1.0	1.4	1.4	1.9	1.8	1.7	1.7	2.2	2.0	1.0	0.6	0.8	0.8	0.4	0.4	1.0	2.2	0.4
29	0.5	0.4	0.5	0.6	0.5	0.4	0.7	0.4	0.8	1.0	1.2	1.5	1.8	2.5	1.6	2.3	2.3	1.9	1.8	1.4	1.3	0.9	0.7	0.6	1.1	2.5	0.4
30	0.4	0.5	0.6	0.4	0.5	0.4	0.8	0.7	0.8	1.2	1.5	1.8	1.5	1.8	2.1	1.7	1.6	2.6	2.8	3.0	1.7	0.9	0.7	0.9	1.3	3.0	0.4
Avg	0.9	0.9	0.9	1.0	1.0	0.9	1.0	1.1	1.3	1.7	1.9	2.2	2.5	2.5	2.4	2.4	2.4	2.4	2.0	1.6	1.4	1.3	1.1	1.0	1.6	3.3	0.6
Max	2.3	2.7	2.6	2.5	2.5	2.6	3.1	3.3	3.3	3.8	4.3	6.6	6.0	4.4	4.5	4.3	4.6	4.7	4.5	5.2	5.5	4.3	2.9	2.6	2.6	6.6	1.0
Min	0.4	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.5	0.7	0.9	0.8	1.1	1.3	1.1	1.1	1.2	0.9	0.7	0.5	0.5	0.5	0.4	0.4	0.9	1.9	0.4

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Speed - MDEQ monitor (meters per second)
May 2023

	<< 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	0.8	0.6	0.6	0.7	0.6	0.6	0.9	1.1	1.1	1.5	3.1	3.4	3.8	4.2	4.1	3.8	3.4	3.8	4.3	3.9	1.8	2.6	1.7	2.2	4.3	0.6
2	0.8	0.7	0.5	0.6	0.6	0.6	0.7	0.9	0.9	1.3	1.2	1.3	2.2	3.4	2.9	3.2	3.7	4.5	4.6	1.9	1.3	1.1	1.3	0.6	1.7	4.6	0.5
3	0.6	0.9	0.5	0.6	0.7	0.7	0.6	0.7	1.5	1.4	1.5	2.0	1.8	1.9	1.4	2.2	2.8	2.6	1.4	1.4	1.2	0.8	0.6	0.7	1.3	2.8	0.5
4	0.9	1.1	0.6	0.7	0.7	0.8	0.7	0.7	1.4	1.6	2.3	3.0	3.9	3.2	3.6	3.8	3.3	4.6	1.3	1.5	1.0	1.8	1.9	1.7	1.9	4.6	0.6
5	2.6	1.5	0.7	1.6	1.5	0.7	0.7	0.8	1.4	4.2	4.4	4.0	3.9	4.8	4.6	3.9	3.6	3.5	2.4	1.8	0.9	2.8	2.1	1.4	2.5	4.8	0.7
6	0.6	0.9	1.2	0.6	1.1	1.3	1.3	1.0	1.0	1.8	1.5	1.7	2.4	2.1	1.7	2.1	1.3	2.0	0.7	0.9	0.9	0.8	0.7	0.5	1.3	2.4	0.5
7	0.8	0.6	0.9	0.6	1.4	0.7	0.9	1.2	1.2	1.2	1.5	1.5	1.8	1.9	1.6	2.4	1.5	1.0	1.4	0.8	0.7	1.0	1.1	0.6	1.2	2.4	0.6
8	0.9	1.0	1.1	0.8	0.4	0.4	0.6	0.8	0.8	1.6	1.5	1.4	1.8	1.8	1.2	1.5	1.1	0.9	1.2	1.2	1.2	0.7	0.6	0.9	1.1	1.8	0.4
9	0.8	0.8	1.1	0.8	1.0	1.0	0.7	0.6	0.8	0.8	2.0	2.2	2.7	1.3	1.6	1.6	1.1	1.2	2.0	1.6	0.7	0.6	0.8	0.8	1.2	2.7	0.6
10	1.1	1.2	0.7	0.7	0.9	1.0	0.8	0.8	1.0	1.1	1.2	1.3	1.2	1.7	1.3	1.2	2.5	3.7	2.3	1.4	1.8	0.7	0.7	0.4	1.3	3.7	0.4
11	0.5	0.7	0.7	0.4	0.7	0.6	1.2	1.1	1.1	1.5	1.3	1.7	2.4	2.2	1.7	2.9	1.7	2.1	2.8	1.3	0.7	0.6	0.7	0.6	1.3	2.9	0.4
12	0.6	0.4	0.3	0.4	0.4	0.5	0.7	0.7	1.0	1.5	1.4	2.2	2.0	2.8	2.6	2.6	2.9	3.4	3.4	3.2	1.2	2.2	1.6	1.0	1.6	3.4	0.3
13	0.5	0.8	0.8	0.6	3.8	3.7	3.5	2.8	2.7	2.8	2.5	1.8	2.2	2.0	1.7	1.7	2.0	2.5	1.9	1.5	1.5	2.1	2.2	1.7	2.1	3.8	0.5
14	1.3	1.1	1.5	1.7	1.7	2.2	3.5	2.5	2.5	2.0	2.0	2.5	2.3	1.7	0.7	1.8	2.5	2.0	1.1	1.0	1.4	2.7	0.6	1.1	1.8	3.5	0.6
15	0.8	1.8	2.8	2.3	2.3	2.2	2.0	2.4	1.4	1.1	1.4	0.8	0.8	2.1	2.8	0.5	0.7	0.8	1.1	1.4	2.6	3.6	3.1	2.6	1.8	3.6	0.5
16	1.0	0.6	0.4	0.6	0.4	0.6	0.5	0.6	0.9	1.2	1.4	1.5	1.8	2.3	1.9	1.9	1.8	1.5	1.4	1.7	1.9	2.3	1.3	0.9	1.3	2.3	0.4
17	1.0	1.7	2.7	3.5	1.8	3.4	4.4	2.0	1.2	1.0	1.2	1.3	1.7	1.4	1.7	2.2	2.5	2.4	1.9	1.1	0.9	0.6	1.6	3.4	1.9	4.4	0.6
18	4.0	1.8	1.5	0.5	0.7	0.4	0.6	0.7	0.7	1.3	1.3	1.3	1.4	1.4	1.2	1.5	2.3	2.1	1.8	1.5	1.3	1.3	0.5	0.6	1.3	4.0	0.4
19	0.5	0.5	0.7	0.6	0.4	0.5	0.6	0.6	0.6	1.0	1.3	1.2	1.4	1.5	1.7	1.4	1.4	2.4	1.7	1.3	1.1	1.1	0.7	0.6	1.0	2.4	0.4
20	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.7	0.7	1.1	1.2	1.6	1.4	1.7	1.9	1.6	1.5	2.1	2.0	2.8	2.0	1.0	0.5	1.5	1.2	2.8	0.5
21	0.7	1.1	0.6	0.6	0.7	0.6	0.7	0.6	0.8	1.0	1.4	1.5	1.9	1.6	2.2	1.4	1.3	2.3	1.4	1.0	1.4	1.5	1.2	1.3	1.2	2.3	0.6
22	0.6	1.1	1.0	1.9	2.5	2.9	3.3	4.5	1.0	1.2	1.4	2.2	3.5	4.4	3.0	2.8	2.0	2.1	3.2	2.7	1.9	1.8	1.2	1.5	2.2	4.5	0.6
23	1.6	1.4	1.1	0.9	0.9	1.0	1.0	0.8	1.1	1.3	1.0	1.3	2.7	3.1	2.0	1.9	1.9	1.9	1.3	1.8	1.9	2.2	3.8	2.3	1.7	3.8	0.8
24	1.4	1.1	1.9	2.9	3.3	3.7	4.4	0.9	1.2	1.4	1.2	2.0	1.1	1.9	2.2	2.1	1.2	2.8	2.6	1.2	2.0	1.7	2.0	2.5	2.0	4.4	0.9
25	2.1	1.6	1.9	1.9	2.0	2.3	2.4	2.5	1.8	0.8	0.7	1.2	0.8	1.8	1.8	1.8	1.8	1.6	1.5	2.0	1.6	2.8	2.8	1.9	1.8	2.8	0.7
26	1.2	1.0	1.2	0.9	1.0	1.6	2.6	1.5	0.9	1.8	1.1	1.4	1.6	1.7	1.4	1.7	1.8	2.0	1.7	1.0	1.1	1.6	2.8	1.6	1.5	2.8	0.9
27	1.3	1.1	1.3	1.8	1.4	1.2	2.1	1.3	0.8	1.2	1.3	2.0	1.1	1.1	1.6	1.6	1.6	2.1	1.1	2.4	2.2	1.9	2.4	2.6	1.6	2.6	0.8
28	2.8	3.1	2.8	2.8	1.5	1.4	2.2	0.8	1.2	1.2	1.3	2.0	1.7	2.6	2.4	1.2	1.3	1.9	1.6	0.5	0.9	0.6	1.2	1.7	1.7	3.1	0.5
29	0.7	0.5	0.5	0.6	0.5	0.4	0.5	0.6	0.9	1.5	1.7	1.3	1.4	2.2	1.5	1.4	1.5	1.5	1.8	1.1	0.6	0.7	0.7	1.4	1.1	2.2	0.4
30	2.1	2.4	2.6	2.8	2.0	1.3	0.9	1.0	1.0	1.9	1.7	2.6	2.2	2.3	1.2	1.9	3.0	1.9	2.1	1.3	1.0	0.7	0.6	1.3	1.7	3.0	0.6
31	0.8	0.6	1.6	3.0	1.0	0.6	0.5	0.8	0.9	1.5	0.8	1.1	2.2	1.8	2.5	2.4	1.7	1.9	2.2	1.2	1.0	0.9	1.7	2.6	1.5	3.0	0.5
Avg	1.2	1.1	1.2	1.3	1.2	1.3	1.5	1.2	1.1	1.5	1.5	1.8	2.0	2.2	2.1	2.1	2.0	2.3	2.0	1.6	1.4	1.5	1.5	1.4	1.6	3.3	0.6
Max	4.0	3.1	2.8	3.5	3.8	3.7	4.4	4.5	2.7	4.2	4.4	4.0	3.9	4.8	4.6	4.1	3.8	4.6	4.6	4.3	3.9	3.6	3.8	3.4	2.5	4.8	0.9
Min	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.6	0.6	0.8	0.7	0.8	0.8	1.1	0.7	0.5	0.7	0.8	0.7	0.5	0.6	0.6	0.5	0.4	1.0	1.8	0.3

Montana Resources LLP
Greeley School Air Monitoring Summary
Wind Speed - MDEQ monitor (meters per second)
June 2023

	<< 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	3.2	2.7	2.4	2.6	2.3	3.0	3.2	2.6	0.8	1.1	1.6	1.8	2.7	1.6	2.3	2.3	2.5	1.9	1.3	1.4	2.8	2.6	3.3	3.6	2.3	3.6	0.8
2	3.7	3.3	3.3	3.3	3.6	3.8	3.9	3.8	2.8	1.1	0.7	0.9	1.3	1.6	1.9	2.2	2.7	2.7	1.3	0.6	0.8	0.8	1.6	2.4	2.3	3.9	0.6
3	3.4	4.6	4.6	4.3	4.2	3.9	4.4	5.0	4.6	4.8	4.2	2.7	1.7	1.4	1.9	3.1	3.7	2.5	2.5	2.6	2.5	2.2	2.2	2.2	3.3	5.0	1.4
4	2.6	2.4	1.6	1.2	0.8	0.9	0.9	0.8	1.2	1.2	1.4	1.6	1.7	1.7	1.4	1.9	1.6	1.4	1.4	1.0	1.4	1.2	0.9	0.6	1.4	2.6	0.6
5	1.1	0.8	0.9	1.6	2.3	1.9	0.9	0.8	1.3	1.0	1.0	1.2	1.5	1.8	2.9	1.3	1.3	1.9	1.6	1.5	1.5	1.7	1.5	1.5	1.5	2.9	0.8
6	2.8	3.2	3.2	2.8	2.7	2.8	1.4	0.8	1.3	0.9	1.2	2.0	1.9	2.0	1.3	2.0	1.9	5.4	10.4	12.5	14.0	1.6	10.7	7.7	4.0	14.0	0.8
7	1.3	1.6	1.0	0.8	0.7	0.5	0.7	1.0	1.1	1.1	1.4	1.8	1.9	1.4	2.0	1.8	4.0	2.8	2.4	2.0	1.5	1.1	0.7	0.9	1.5	4.0	0.5
8	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.7	1.3	2.0	0.8	0.8	1.1	1.0	2.0	1.8	1.1	1.1	1.2	0.7	0.6	0.6	0.7	0.6	0.9	2.0	0.6
9	0.6	0.6	0.6	0.8	0.7	0.6	1.0	0.6	1.0	1.1	1.6	1.8	1.7	2.3	1.9	1.8	1.1	1.8	1.6	1.5	1.3	1.3	0.8	0.8	1.2	2.3	0.6
10	0.6	0.5	0.6	0.5	0.6	0.6	0.6	1.0	1.2	1.5	1.5	1.8	1.4	1.6	1.9	3.8	2.2	1.5	1.4	0.9	1.6	2.4	2.4	2.4	1.4	3.8	0.5
11	2.0	2.1	1.2	1.0	1.2	1.1	2.4	1.4	1.9	1.5	1.9	1.9	1.8	1.7	1.4	1.9	2.3	1.4	1.6	1.6	2.1	2.4	1.3	0.7	1.7	2.4	0.7
12	0.6	0.3	0.5	0.6	0.8	0.8	1.0	1.1	1.1	0.9	1.2	0.9	1.1	1.2	4.0	4.5	10.8	12.0	10.2	5.8	0.7	1.1	1.1	0.8	2.6	12.0	0.3
13	0.7	0.7	0.6	0.5	1.0	0.8	0.5	0.9	1.1	1.8	2.0	1.2	1.3	2.4	2.1	1.5	1.2	1.1	0.8	1.2	1.4	2.1	3.4	2.6	1.4	3.4	0.5
14	1.9	0.8	0.7	0.6	0.7	1.2	2.9	3.4	3.4	3.0	1.9	2.8	2.7	2.9	2.8	2.6	2.7	3.7	4.1	4.6	3.6	3.0	2.2	1.7	2.5	4.6	0.6
15	1.4	0.5	1.5	1.1	0.6	0.7	0.6	0.7	1.3	1.3	1.6	1.5	2.1	2.6	2.2	1.8	1.4	0.9	1.1	0.9	0.7	1.0	0.7	0.5	1.2	2.6	0.5
16	0.6	0.5	0.6	0.6	0.5	0.5	0.9	1.1	0.9	1.3	1.7	2.0	1.8	1.7	1.7	1.9	1.9	2.3	2.4	2.6	2.1	1.0	1.1	0.5	1.3	2.6	0.5
17	0.6	0.6	0.6	0.7	0.6	0.8	0.9	1.5	2.5	1.3	1.8	0.9	1.0	1.9	0.8	1.4	1.6	1.5	2.1	0.9	0.7	0.5	0.8	2.5	1.2	2.5	0.5
18	2.9	3.1	3.9	4.1	4.1	4.5	4.0	3.0	2.7	2.7	2.3	2.0	1.7	2.0	3.1	2.1	2.1	2.1	2.5	3.7	2.9	1.6	0.6	0.6	2.7	4.5	0.6
19	1.4	1.2	0.8	0.7	0.7	0.8	0.7	0.8	0.9	1.5	2.0	2.0	1.5	2.4	2.9	2.4	2.4	2.5	2.4	2.0	1.9	1.2	0.9	1.0	1.5	2.9	0.7
20	1.0	0.8	0.6	0.7	0.8	0.8	0.8	1.7	1.3	1.9	1.9	2.1	1.8	2.2	2.4	2.4	1.9	1.7	1.6	1.9	2.0	1.2	0.8	0.7	1.5	2.4	0.6
21	0.9	0.6	0.7	0.4	0.5	0.7	0.7	0.9	1.3	2.1	1.5	1.8	1.4	1.6	2.6	1.8	2.1	1.5	1.8	0.9	0.6	0.9	0.6	0.5	1.2	2.6	0.4
22	0.6	0.6	0.7	0.7	0.7	0.7	0.6	1.1	1.3	1.7	1.9	1.6	1.6	1.8	1.8	1.7	1.9	1.9	2.0	2.8	2.5	0.9	0.8	0.8	1.4	2.8	0.6
23	0.6	0.6	0.5	0.6	0.4	0.4	0.6	0.8	1.0	1.6	1.5	2.6	2.7	2.4	2.8	2.8	2.2	1.7	1.8	1.2	1.9	1.6	3.0	2.6	1.6	3.0	0.4
24	2.8	2.8	2.4	2.7	2.2	1.9	2.1	2.6	1.2	0.9	1.1	2.1	2.0	1.8	1.9	1.8	1.2	1.1	1.3	0.9	0.6	1.3	1.6	0.8	1.7	2.8	0.6
25	0.7	0.6	1.2	1.4	0.7	0.5	0.5	0.8	1.1	1.3	1.6	2.0	2.3	1.4	1.8	1.6	2.9	1.6	1.3	0.5	0.6	0.5	0.6	1.0	1.2	2.9	0.5
26	1.1	1.5	1.5	1.2	0.6	0.6	0.7	1.0	1.3	0.9	1.4	1.8	1.6	2.9	1.7	2.5	3.2	2.0	2.1	2.0	1.0	1.2	1.1	0.5	1.5	3.2	0.5
27	0.6	0.6	0.7	0.5	0.6	0.5	0.7	0.8	1.2	1.2	1.6	1.9	3.3	2.2	3.0	2.9	1.6	2.5	1.7	2.1	2.6	1.5	0.9	1.0	1.5	3.3	0.5
28	0.6	0.5	0.6	0.6	1.0	0.6	0.5	0.6	0.8	0.7	0.8	1.6	2.1	2.1	3.4	2.4	2.3	1.4	1.5	0.7	0.6	0.8	0.8	0.4	1.1	3.4	0.4
29	0.6	1.2	1.5	0.8	0.6	0.5	0.5	0.7	1.1	1.2	1.2	1.4	1.6	1.8	1.5	1.8	1.9	1.8	2.1	1.7	0.8	0.8	0.8	0.4	1.2	2.1	0.4
30	0.3	0.4	0.5	0.4	0.3	0.5	0.4	0.8	1.0	1.4	1.4	1.6	2.1	1.9	2.0	2.0	2.4	2.4	2.3	1.9	1.5	1.2	1.2	0.9	1.3	2.4	0.3
Avg	1.4	1.3	1.3	1.3	1.2	1.3	1.3	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.2	2.2	2.4	2.3	2.4	2.2	2.0	1.4	1.6	1.4	1.7	3.7	0.6
Max	3.7	4.6	4.6	4.3	4.2	4.5	4.4	5.0	4.6	4.8	4.2	2.8	3.3	2.9	4.0	4.5	10.8	12.0	10.4	12.5	14.0	3.0	10.7	7.7	4.0	14.0	1.4
Min	0.3	0.3	0.5	0.4	0.3	0.4	0.4	0.6	0.8	0.7	0.7	0.8	1.0	1.0	0.8	1.3	1.1	0.9	0.8	0.5	0.6	0.5	0.6	0.4	0.9	2.0	0.3

APPENDIX B: GRAVIMETRIC ANALYSIS DATA

Quarter 2, 2023 Filter Analysis Results - Blanks

FILTER	TYPE	DATE*	PRE WEIGHT (MG)	PRE-WEIGHT DATE	POST WEIGHT (MG)	POST-WEIGHT DATE	PART MASS (MG)
P0333806	Lab	8-May	138.600	7-Mar	138.600	27-Apr	0.000
P0333830	Field	6-Apr	140.208	7-Mar	140.209	27-Apr	0.001
P0333829	Lab	3-Jun	138.876	31-Mar	138.872	23-May	-0.004
D9075513	Field	3-Apr	171.827	31-Mar	171.831	23-May	0.004
P0908118	Lab	3-Jul	143.125	28-Apr	143.130	22-Jun	0.005
P0908125	Field	25-May	143.713	28-Apr	143.720	22-Jun	0.007
P0908107	Lab	17-Jul	141.972	24-May	141.973	11-Jul	0.001
P0908115	Field	17-Jun	142.004	24-May	142.010	11-Jul	0.006
P0908127	Lab	16-Aug	145.546	16-Jun	145.548	7-Aug	0.002

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

Quarter 2, 2023 Filter Analysis Results - PM10

FILTER	DATE	AVG FLOW LPM	HOURS	SAMPLE VOLUME (M3)	PRE WEIGHT (MG)	POST WEIGHT (MG)	PART MASS (MG)
P0333811	04/06	16.70	24:00	24.00	139.547	140.022	0.475
P0333801	04/12	16.71	23:59	24.02	136.995	137.090	0.095
P0333826	04/18	16.71	23:59	24.02	140.553	140.889	0.336
T4195457	04/24	16.70	23:59	24.03	142.438	142.853	0.415
D9075505	04/30	16.70	23:59	24.02	171.391	172.141	0.750
P0908116	05/06	16.70	23:59	24.01	143.387	143.467	0.080
P0908120	05/12	16.70	24:00	24.02	143.620	143.938	0.318
P0908122	05/18	16.70	23:59	24.03	139.292	140.741	1.449
P0908124	05/24	16.70	23:59	24.02	143.191	143.345	0.154
P0908106	05/30	16.70	23:59	24.02	144.510	144.799	0.289
P0908109	06/05	16.70	23:59	24.02	143.352	143.542	0.190
P0908111	06/11	16.70	23:59	24.03	143.396	143.625	0.229
P0908113	06/17	16.70	23:59	24.03	146.372	146.601	0.229
P0908101	06/23	16.70	23:59	24.02	144.331	144.611	0.280
P0908103	06/29	16.70	23:59	24.02	142.651	142.855	0.204

Quarter 2, 2023 Filter Analysis Results - TSP

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
P0333810	03/29 @ 16	04/02 @ 09	90	2.0	10.30	139.030	139.126	0.096	9.3	17.0	2.74	6.7
P0333827	04/02 @ 10	04/10 @ 09	192	2.0	21.96	140.842	141.307	0.465	21.2	23.7	4.47	18.2
P0333802	04/10 @ 10	04/17 @ 08	167	2.0	19.10	138.733	139.045	0.312	16.3	18.1	4.51	13.4
P0333828	04/17 @ 09	04/19 @ 08	48	2.0	5.49	141.251	141.333	0.082	14.9	20.8	3.59	11.9
D9075500	04/19 @ 09	04/25 @ 09	145	2.0	16.59	167.113	167.288	0.175	10.5	13.7	3.85	10.0
D9075512	04/25 @ 10	05/01 @ 14	142	2.0	16.24	171.057	171.391	0.334	20.6	29.4	3.50	26.3
P0908117	05/01 @ 15	05/09 @ 07	185	2.0	21.16	144.983	145.213	0.230	10.9	14.8	3.67	14.2
P0908119	05/09 @ 08	05/15 @ 14	151	2.0	17.27	140.045	140.155	0.110	6.4	9.4	3.39	8.6
P0908121	05/15 @ 15	05/22 @ 14	168	2.0	19.22	143.909	144.442	0.533	27.7	134.6	1.03	33.0
P0908123	05/22 @ 15	05/25 @ 11	69	2.0	7.89	143.677	143.730	0.053	6.7	8.1	4.14	7.2
P0908108	05/25 @ 12	05/31 @ 08	141	2.0	16.13	143.823	143.973	0.150	9.3	10.7	4.35	7.4
P0908110	05/31 @ 09	06/07 @ 08	168	2.0	19.22	142.737	142.912	0.175	9.1	13.2	3.45	9.8
P0908112	06/07 @ 09	06/13 @ 11	147	2.0	16.82	143.664	143.835	0.171	10.2	14.5	3.51	10.9
P0908114	06/13 @ 12	06/21 @ 13	194	2.0	22.19	142.626	142.829	0.203	9.1	15.5	2.95	9.3
P0908102	06/21 @ 14	06/27 @ 09	140	2.0	16.02	141.888	141.971	0.083	5.2	9.7	2.67	9.1
P0908104	06/27 @ 10	07/03 @ 10	145	2.0	16.59	143.649	144.001	0.352	21.2	20.9	5.08	

APPENDIX C: WIND ROSE TABLES

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

Second Quarter 2023 (All Wind 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	2.2	2.4	1.6	1.7	2.0	1.4	2.5	2.5	2.7	2.1	2.1	2.7	2.5	2.7	2.2	1.8	34.9
	1.1 - 2.0	4.7	2.7	3.0	1.1	0.8	1.3	1.7	2.2	1.8	1.5	2.1	3.5	2.9	2.6	3.5	4.3	39.6
	2.1 - 3.0	1.0	1.1	0.8	0.7	0.5	0.6	0.3	0.7	1.1	0.9	0.7	1.5	3.3	0.8	1.8	1.7	17.5
	3.1 - 4.0	0.3	0.4	0.5	0.1	0.3	0.4	0.1	0.1	0.5	0.3	0.1	0.4	1.1	0.1	0.3	0.4	5.4
	4.1 - 5.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.1	0.0	0.1	0.7	0.0	0.0	0.1	1.9
	5.1 - 6.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	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	8.2	6.7	6.0	3.6	3.6	4.0	4.8	5.8	6.6	5.0	5.0	8.1	10.4	6.1	7.8	8.3	100.0
	Average Speed	1.5	1.7	1.7	1.3	1.3	1.8	1.4	1.5	1.9	1.6	1.4	1.6	2.0	1.3	1.6	1.7	1.6

Table C-2. Quarterly Wind Rose Summary, Greeley School TSP ≥ 30

Second Quarter 2023 (TSP ≥30 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	2.7	3.3	3.3	1.1	2.7	1.6	4.9	3.3	5.4	4.9	3.8	4.9	2.7	3.8	5.4	4.3	58.2
	1.1 - 2.0	3.8	2.2	2.7	1.1	1.6	1.1	2.7	2.7	2.2	0.5	1.6	0.0	0.5	1.6	2.7	5.4	32.6
	2.1 - 3.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.5	0.5	4.3
	3.1 - 4.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5	2.2
	4.1 - 5.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
	5.1 - 6.0	0.0	0.5	0.5	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	1.1
	6.1 - 7.0	0.0	0.0	0.5	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	0.5
	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	7.1	7.6	2.2	5.4	3.3	7.6	6.0	7.6	5.4	5.4	5.4	4.3	5.4	9.2	10.9	100.0
	Average Speed	1.1	1.8	1.9	1.1	1.3	1.1	0.9	0.9	1.0	0.8	0.9	0.8	1.3	0.8	1.1	1.4	1.2

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

Second Quarter 2023 (TSP ≤6 µg/m³)																	
	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	0.7	0.7	1.0	2.2	1.6	1.0	1.3	2.1	1.3	1.3	1.6	1.2	1.5	2.8	1.2	1.5	23.2
	1.1 - 2.0	5.8	3.1	4.1	1.8	0.9	1.2	2.2	2.5	1.5	1.5	1.8	4.1	3.3	4.4	5.2	5.3	48.7
	2.1 - 3.0	1.2	1.3	0.9	1.0	1.0	0.7	0.1	1.2	1.3	0.7	0.6	0.9	3.0	1.6	3.6	2.4	21.6
	3.1 - 4.0	0.7	0.4	0.4	0.0	0.1	0.1	0.1	0.0	0.6	0.4	0.0	0.4	0.7	0.1	0.4	0.6	5.5
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.9
	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	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	8.4	5.6	6.5	5.0	3.7	3.1	4.0	5.8	5.0	4.3	4.0	6.7	8.7	9.0	10.4	9.8	100.0
	Average Speed	1.8	1.9	1.7	1.3	1.5	1.6	1.7	1.4	2.0	1.9	1.4	1.7	2.0	1.4	1.9	1.8	1.7

APPENDIX D: ANALYTICAL LABORATORY RESULTS

ANALYTICAL SUMMARY REPORT

May 09, 2023

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

Work Order: B23042052 Quote ID: B4795

Project Name: Montana Resources/Greely School

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 4/28/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23042052-001	Particulate filter #P0333803 PM10	03/19/23 0:00	04/28/23	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B23042052-002	Particulate filter #P0333804 TSP 3/17-3/22	03/22/23 0:00	04/28/23	Air	Same As Above
B23042052-003	Particulate filter #P0333805 PM10	03/25/23 0:00	04/28/23	Air	Same As Above
B23042052-004	Particulate filter #P0333806 Lab Blank	03/07/23 15:54	04/28/23	Air	Same As Above
B23042052-005	Particulate filter #P0333807 TSP 3/22-3/29	03/29/23 0:00	04/28/23	Air	Same As Above
B23042052-006	Particulate filter #P0333808 PM10	03/31/23 0:00	04/28/23	Air	Same As Above
B23042052-007	Particulate filter #P0333810 TSP 3/29-4/2	04/02/23 0:00	04/28/23	Air	Same As Above
B23042052-008	Particulate filter #P0333811 PM10	04/06/23 0:00	04/28/23	Air	Same As Above
B23042052-009	Particulate filter #P0333827 TSP 4/2-4/10	04/10/23 0:00	04/28/23	Air	Same As Above
B23042052-010	Particulate filter #P0333830TSP Field Blank	04/06/23 9:56	04/28/23	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
Work Order: B23042052

Report Date: 05/09/23

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
Project: Montana Resources/Greely School
Lab ID: B23042052-001
Client Sample ID: Particulate filter #P0333803 PM10

Report Date: 05/09/23
Collection Date: 03/19/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.2	ug/filter	J	1		E200.8	05/08/23 22:03 / aem
Cadmium	0.01	ug/filter	J	1		E200.8	05/08/23 22:03 / aem
Copper	1	ug/filter		1		E200.8	05/08/23 22:03 / aem
Lead	0.1	ug/filter	J	1		E200.8	05/08/23 22:03 / aem
Manganese	0.3	ug/filter	J	1		E200.8	05/08/23 22:03 / aem
Molybdenum	0.09	ug/filter	J	1		E200.8	05/08/23 22:03 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:03 / 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
Lab ID: B23042052-002
Client Sample ID: Particulate filter #P0333804 TSP 3/17-3/22

Report Date: 05/09/23
Collection Date: 03/22/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 22:09 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 22:09 / aem
Copper	0.8	ug/filter	J	1		E200.8	05/08/23 22:09 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 22:09 / aem
Manganese	ND	ug/filter		1		E200.8	05/08/23 22:09 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 22:09 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:09 / 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

Client: Bison Engineering
Project: Montana Resources/Greely School
Lab ID: B23042052-003
Client Sample ID: Particulate filter #P0333805 PM10

Report Date: 05/09/23
Collection Date: 03/25/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 22:15 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 22:15 / aem
Copper	ND	ug/filter		1		E200.8	05/08/23 22:15 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 22:15 / aem
Manganese	0.4	ug/filter	J	1		E200.8	05/08/23 22:15 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 22:15 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:15 / 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
Lab ID: B23042052-004
Client Sample ID: Particulate filter #P0333806 Lab Blank

Report Date: 05/09/23
Collection Date: 03/07/23 15:54
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 22:21 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 22:21 / aem
Copper	ND	ug/filter		1		E200.8	05/08/23 22:21 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 22:21 / aem
Manganese	ND	ug/filter		1		E200.8	05/08/23 22:21 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 22:21 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:21 / 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
Lab ID: B23042052-005
Client Sample ID: Particulate filter #P0333807 TSP 3/22-3/29

Report Date: 05/09/23
Collection Date: 03/29/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 22:27 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 22:27 / aem
Copper	0.9	ug/filter	J	1		E200.8	05/08/23 22:27 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 22:27 / aem
Manganese	0.3	ug/filter	J	1		E200.8	05/08/23 22:27 / aem
Molybdenum	0.08	ug/filter	J	1		E200.8	05/08/23 22:27 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:27 / 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
Lab ID: B23042052-006
Client Sample ID: Particulate filter #P0333808 PM10

Report Date: 05/09/23
Collection Date: 03/31/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 22:45 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 22:45 / aem
Copper	0.4	ug/filter	J	1		E200.8	05/08/23 22:45 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 22:45 / aem
Manganese	ND	ug/filter		1		E200.8	05/08/23 22:45 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 22:45 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:45 / 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
Lab ID: B23042052-007
Client Sample ID: Particulate filter #P0333810 TSP 3/29-4/2

Report Date: 05/09/23
Collection Date: 04/02/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 22:51 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 22:51 / aem
Copper	ND	ug/filter		1		E200.8	05/08/23 22:51 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 22:51 / aem
Manganese	ND	ug/filter		1		E200.8	05/08/23 22:51 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 22:51 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:51 / 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

Client: Bison Engineering
Project: Montana Resources/Greely School
Lab ID: B23042052-008
Client Sample ID: Particulate filter #P0333811 PM10

Report Date: 05/09/23
Collection Date: 04/06/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 22:57 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 22:57 / aem
Copper	0.8	ug/filter	J	1		E200.8	05/08/23 22:57 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 22:57 / aem
Manganese	0.3	ug/filter	J	1		E200.8	05/08/23 22:57 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 22:57 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 22:57 / 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
Lab ID: B23042052-009
Client Sample ID: Particulate filter #P0333827 TSP 4/2-4/10

Report Date: 05/09/23
Collection Date: 04/10/23
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.2	ug/filter	J	1		E200.8	05/08/23 23:03 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 23:03 / aem
Copper	0.9	ug/filter	J	1		E200.8	05/08/23 23:03 / aem
Lead	0.09	ug/filter	J	1		E200.8	05/08/23 23:03 / aem
Manganese	0.3	ug/filter	J	1		E200.8	05/08/23 23:03 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 23:03 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 23:03 / 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
Lab ID: B23042052-010
Client Sample ID: Particulate filter #P0333830TSP Field Blank

Report Date: 05/09/23
Collection Date: 04/06/23 09:56
DateReceived: 04/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	05/08/23 23:09 / aem
Cadmium	ND	ug/filter		1		E200.8	05/08/23 23:09 / aem
Copper	ND	ug/filter		1		E200.8	05/08/23 23:09 / aem
Lead	ND	ug/filter		1		E200.8	05/08/23 23:09 / aem
Manganese	ND	ug/filter		1		E200.8	05/08/23 23:09 / aem
Molybdenum	ND	ug/filter		1		E200.8	05/08/23 23:09 / aem
Zinc	ND	ug/filter		1		E200.8	05/08/23 23:09 / 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)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Bison Engineering **Work Order:** B23042052 **Report Date:** 05/09/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS207-B_230508A	
Lab ID: QCS	7	Initial Calibration Verification Standard								05/08/23 18:25
Arsenic		0.0514	mg/L	0.0050	103	90	110			
Cadmium		0.0258	mg/L	0.0010	103	90	110			
Copper		0.0532	mg/L	0.010	106	90	110			
Lead		0.0482	mg/L	0.010	96	90	110			
Manganese		0.247	mg/L	0.010	99	90	110			
Molybdenum		0.0492	mg/L	0.0050	98	90	110			
Zinc		0.0532	mg/L	0.010	106	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								05/08/23 21:08
Arsenic		0.0495	mg/L	0.0050	99	90	110			
Cadmium		0.0502	mg/L	0.0010	100	90	110			
Copper		0.0509	mg/L	0.010	102	90	110			
Lead		0.0488	mg/L	0.010	98	90	110			
Manganese		0.0490	mg/L	0.010	98	90	110			
Molybdenum		0.0489	mg/L	0.0050	98	90	110			
Zinc		0.0506	mg/L	0.010	101	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								05/08/23 22:33
Arsenic		0.0498	mg/L	0.0050	100	90	110			
Cadmium		0.0500	mg/L	0.0010	100	90	110			
Copper		0.0508	mg/L	0.010	102	90	110			
Lead		0.0472	mg/L	0.010	94	90	110			
Manganese		0.0490	mg/L	0.010	98	90	110			
Molybdenum		0.0486	mg/L	0.0050	97	90	110			
Zinc		0.0512	mg/L	0.010	102	90	110			
Method: E200.8									Batch: 178451	
Lab ID: MB-178451	7	Method Blank				Run: ICPMS207-B_230508A				05/08/23 21:38
Arsenic		0.1	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-178451	7	Laboratory Control Sample				Run: ICPMS207-B_230508A				05/08/23 21:44
Arsenic		104	ug/filter	1.0	104	85	115			
Cadmium		52.4	ug/filter	1.0	105	85	115			
Copper		102	ug/filter	1.0	102	85	115			
Lead		100	ug/filter	1.0	101	85	115			
Manganese		501	ug/filter	1.0	100	85	115			
Molybdenum		106	ug/filter	1.0	106	85	115			
Zinc		100	ug/filter	1.0	100	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:** B23042052 **Report Date:** 05/09/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 178451
Lab ID: LCSD-178451	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_230508A				05/08/23 21:50
Arsenic		102	ug/filter	1.0	102	85	115			
Cadmium		50.5	ug/filter	1.0	101	85	115			
Copper		99.2	ug/filter	1.0	99	85	115			
Lead		99.3	ug/filter	1.0	99	85	115			
Manganese		490	ug/filter	1.0	98	85	115			
Molybdenum		103	ug/filter	1.0	103	85	115			
Zinc		98.3	ug/filter	1.0	98	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B23042052

Login completed by: Tyler J. Gasser
Date Received: 4/28/2023

Reviewed by: darcy
Received by: kkw

Reviewed Date: 5/5/2023
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:	3.4°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.

Contact and Corrective Action Comments:

None

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	Shelly Brown-Argott
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.	Montana Resources / Greely School
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 #P0333803 PM10	3/19/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					B23042052
2	Particulate filter #P0333804 TSP 3/17-3/22	3/17/23 → 3/22/23	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
3	Particulate filter #P0333805 PM10	3/25/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
4	Particulate filter #P0333806 Lab Blank	3/7/23	1554	1	on Teflon filter	x	x	x	x	x	x	x					
5	Particulate filter #P0333807 TSP 3/22-3/29	3/22/23 → 3/29/23	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
6	Particulate filter #P0333808 PM10	3/31/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
7	Particulate filter #P0333810 TSP 3/29-4/2	3/29/23 → 4/2/23		1	on Teflon filter	x	x	x	x	x	x	x					
8	Particulate filter #P0333811 PM10	4/6/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
9	Particulate filter #P0333827 TSP 4/2-4/10	4/2/23 → 4/10/23	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
10	Particulate filter #P0333830TSP Field Blank	4/6/23	0956	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	4/28/23	Don V. Milmine	Kelly Wilson	4/28/23 16:09	Kelly Wilson
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	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

June 06, 2023

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

Work Order: B23052320 Quote ID: B4795

Project Name: Montana Resources / Greely School

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 5/25/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23052320-001	Particulate filter #P0333801 PM10	04/12/23 00:00	05/25/23	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B23052320-002	Particulate filter #P0333802 TSP 4/10 - 4/17	04/17/23 00:00	05/25/23	Air	Same As Above
B23052320-003	Particulate filter #P0333826 PM10	04/18/23 00:00	05/25/23	Air	Same As Above
B23052320-004	Particulate filter #P0333828 TSP 4/17 - 4/19	04/19/23 00:00	05/25/23	Air	Same As Above
B23052320-005	Particulate filter #P0333829 Lab Blank	03/31/23 13:34	05/25/23	Air	Same As Above
B23052320-006	Particulate filter #T4195457 PM10	04/24/23 00:00	05/25/23	Air	Same As Above
B23052320-007	Particulate filter filter #D9075500 TSP 4/19 - 4/25	04/25/23 00:00	05/25/23	Air	Same As Above
B23052320-008	Particulate filter #D9075505 PM10	04/30/23 00:00	05/25/23	Air	Same As Above
B23052320-009	Particulate filter #D9075512 TSP 4/25 - 5/1	05/01/23 00:00	05/25/23	Air	Same As Above
B23052320-010	Particulate filter #D9075513 TSP Field Blank	04/30/23 10:09	05/25/23	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
Project: Montana Resources / Greely School
Lab ID: B23052320-001
Client Sample ID: Particulate filter #P0333801 PM10

Report Date: 06/06/23
Collection Date: 04/12/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	06/03/23 11:39 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 11:39 / aem
Copper	ND	ug/filter		1		E200.8	06/03/23 11:39 / aem
Lead	ND	ug/filter		1		E200.8	06/03/23 11:39 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 11:39 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 11:39 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 11:39 / 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
Lab ID: B23052320-002
Client Sample ID: Particulate filter #P0333802 TSP 4/10 - 4/17

Report Date: 06/06/23
Collection Date: 04/17/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	06/03/23 11:45 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 11:45 / aem
Copper	0.5	ug/filter	J	1		E200.8	06/03/23 11:45 / aem
Lead	ND	ug/filter		1		E200.8	06/03/23 11:45 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 11:45 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 11:45 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 11:45 / aem

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
Lab ID: B23052320-003
Client Sample ID: Particulate filter #P0333826 PM10

Report Date: 06/06/23
Collection Date: 04/18/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	06/03/23 11:51 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 11:51 / aem
Copper	1	ug/filter		1		E200.8	06/03/23 11:51 / aem
Lead	0.1	ug/filter	J	1		E200.8	06/03/23 11:51 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 11:51 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 11:51 / aem
Zinc	3	ug/filter		1		E200.8	06/03/23 11:51 / 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

Client: Bison Engineering
Project: Montana Resources / Greely School
Lab ID: B23052320-004
Client Sample ID: Particulate filter #P0333828 TSP 4/17 - 4/19

Report Date: 06/06/23
Collection Date: 04/19/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.5	ug/filter	J	1		E200.8	06/03/23 11:57 / aem
Cadmium	0.02	ug/filter	J	1		E200.8	06/03/23 11:57 / aem
Copper	2	ug/filter		1		E200.8	06/03/23 11:57 / aem
Lead	2	ug/filter		1		E200.8	06/03/23 11:57 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 11:57 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 11:57 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 11:57 / 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
Lab ID: B23052320-005
Client Sample ID: Particulate filter #P0333829 Lab Blank

Report Date: 06/06/23
Collection Date: 03/31/23 13:34
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	06/03/23 12:46 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 12:46 / aem
Copper	ND	ug/filter		1		E200.8	06/03/23 12:46 / aem
Lead	ND	ug/filter		1		E200.8	06/03/23 12:46 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 12:46 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 12:46 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 12:46 / 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
Lab ID: B23052320-006
Client Sample ID: Particulate filter #T4195457 PM10

Report Date: 06/06/23
Collection Date: 04/24/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.08	ug/filter	J	1		E200.8	06/03/23 12:52 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 12:52 / aem
Copper	0.8	ug/filter	J	1		E200.8	06/03/23 12:52 / aem
Lead	ND	ug/filter		1		E200.8	06/03/23 12:52 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 12:52 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 12:52 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 12:52 / 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
Lab ID: B23052320-007
Client Sample ID: Particulate filter filter #D9075500 TSP 4/19 - 4/25

Report Date: 06/06/23
Collection Date: 04/25/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	06/03/23 12:58 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 12:58 / aem
Copper	0.5	ug/filter	J	1		E200.8	06/03/23 12:58 / aem
Lead	ND	ug/filter		1		E200.8	06/03/23 12:58 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 12:58 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 12:58 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 12:58 / aem

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
Lab ID: B23052320-008
Client Sample ID: Particulate filter #D9075505 PM10

Report Date: 06/06/23
Collection Date: 04/30/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.09	ug/filter	J	1		E200.8	06/03/23 13:04 / aem
Cadmium	0.02	ug/filter	J	1		E200.8	06/03/23 13:04 / aem
Copper	1	ug/filter		1		E200.8	06/03/23 13:04 / aem
Lead	ND	ug/filter		1		E200.8	06/03/23 13:04 / aem
Manganese	0.5	ug/filter	J	1		E200.8	06/03/23 13:04 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 13:04 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 13:04 / 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
Lab ID: B23052320-009
Client Sample ID: Particulate filter #D9075512 TSP 4/25 - 5/1

Report Date: 06/06/23
Collection Date: 05/01/23
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	06/03/23 13:10 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 13:10 / aem
Copper	0.7	ug/filter	J	1		E200.8	06/03/23 13:10 / aem
Lead	0.1	ug/filter	J	1		E200.8	06/03/23 13:10 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 13:10 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 13:10 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 13:10 / 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
Lab ID: B23052320-010
Client Sample ID: Particulate filter #D9075513 TSP Field Blank

Report Date: 06/06/23
Collection Date: 04/30/23 10:09
DateReceived: 05/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	06/03/23 13:16 / aem
Cadmium	ND	ug/filter		1		E200.8	06/03/23 13:16 / aem
Copper	ND	ug/filter		1		E200.8	06/03/23 13:16 / aem
Lead	ND	ug/filter		1		E200.8	06/03/23 13:16 / aem
Manganese	ND	ug/filter		1		E200.8	06/03/23 13:16 / aem
Molybdenum	ND	ug/filter		1		E200.8	06/03/23 13:16 / aem
Zinc	ND	ug/filter		1		E200.8	06/03/23 13:16 / 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

Client: Bison Engineering **Work Order:** B23052320 **Report Date:** 06/06/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**									Analytical Run: ICPMS207-B_230602A	
Lab ID: **QCS**	7	Initial Calibration Verification Standard								06/03/23 06:49
Arsenic		0.0498	mg/L	0.0050	100	90	110			
Cadmium		0.0250	mg/L	0.0010	100	90	110			
Copper		0.0524	mg/L	0.010	105	90	110			
Lead		0.0480	mg/L	0.0010	96	90	110			
Manganese		0.243	mg/L	0.0050	97	90	110			
Molybdenum		0.0468	mg/L	0.0050	94	90	110			
Zinc		0.0524	mg/L	0.0050	105	90	110			
Lab ID: **CCV**	7	Continuing Calibration Verification Standard								06/03/23 11:15
Arsenic		0.0492	mg/L	0.0050	98	90	110			
Cadmium		0.0480	mg/L	0.0010	96	90	110			
Copper		0.0504	mg/L	0.010	101	90	110			
Lead		0.0469	mg/L	0.0010	94	90	110			
Manganese		0.0481	mg/L	0.0050	96	90	110			
Molybdenum		0.0473	mg/L	0.0050	95	90	110			
Zinc		0.0505	mg/L	0.0050	101	90	110			
Lab ID: **CCV**	7	Continuing Calibration Verification Standard								06/03/23 12:34
Arsenic		0.0488	mg/L	0.0050	98	90	110			
Cadmium		0.0476	mg/L	0.0010	95	90	110			
Copper		0.0494	mg/L	0.010	99	90	110			
Lead		0.0472	mg/L	0.0010	94	90	110			
Manganese		0.0475	mg/L	0.0050	95	90	110			
Molybdenum		0.0471	mg/L	0.0050	94	90	110			
Zinc		0.0501	mg/L	0.0050	100	90	110			
Method: **E200.8**									Batch: 179286	
Lab ID: **MB-179286**	7	Method Blank				Run: ICPMS207-B_230602A				06/03/23 11:03
Arsenic		0.1	ug/filter	0.08						
Cadmium		0.01	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-179286**	7	Laboratory Control Sample				Run: ICPMS207-B_230602A				06/03/23 11:09
Arsenic		98.0	ug/filter	1.0	98	85	115			
Cadmium		49.1	ug/filter	1.0	98	85	115			
Copper		101	ug/filter	1.0	101	85	115			
Lead		100	ug/filter	1.0	100	85	115			
Manganese		504	ug/filter	1.0	101	85	115			
Molybdenum		102	ug/filter	1.0	102	85	115			
Zinc		98.4	ug/filter	1.0	98	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:** B23052320 **Report Date:** 06/06/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 179286
Lab ID: **LCSD-179286**	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_230602A				06/03/23 11:27
Arsenic		98.0	ug/filter	1.0	98	85	115			
Cadmium		49.2	ug/filter	1.0	98	85	115			
Copper		100	ug/filter	1.0	100	85	115			
Lead		100	ug/filter	1.0	100	85	115			
Manganese		498	ug/filter	1.0	100	85	115			
Molybdenum		103	ug/filter	1.0	103	85	115			
Zinc		98.1	ug/filter	1.0	98	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B23052320

Login completed by: Tyler J. Gasser
Date Received: 5/25/2023

Reviewed by: darcy
Received by: htm

Reviewed Date: 6/3/2023
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:	1.1°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.

Contact and Corrective Action Comments:

None

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	Shelly Brown-argott
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.	Montana Resources / Greely School
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 #P0333801 PM10	4/12/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					B23052320
2	Particulate filter #P0333802 TSP 4/10 - 4/17	4/10-4/17	continuous	1	on teflon filter	x	x	x	x	x	x	x					
3	Particulate filter #P0333826 PM10	4/18/23	24 hr composite	1	on teflon filter	x	x	x	x	x	x	x					
4	Particulate filter #P0333828 TSP 4/17 - 4/19	4/17-4/19	continuous	1	Teflon filter	x	x	x	x	x	x	x					
5	Particulate filter #P0333829 Lab Blank	3/31/23	1334	1	Teflon filter	x	x	x	x	x	x	x					
6	Particulate filter #T4195457 PM10	4/24/23	24 hr composite	1	Teflon filter	x	x	x	x	x	x	x					
7	Particulate filter #D9075500 TSP 4/19 - 4/25	4/19-4/25	continuous	1	Teflon filter	x	x	x	x	x	x	x					
8	Particulate filter #D9075505 PM10	4/30/23	24 hr composite	1	Teflon filter	x	x	x	x	x	x	x					
9	Particulate filter #D9075512 TSP 4/25 - 5/1	4/25-5/1	continuous	1	Teflon filter	x	x	x	x	x	x	x					
10	Particulate filter #D9075513 TSP Field Blank	4/30/23	1009	1	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	5/25/23 1130	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Hayden Moore	5/25/23 1130	

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)*
				1.1	Y	Y			

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

July 07, 2023

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

Work Order: B23062079 Quote ID: B4795

Project Name: Montana Resources/Greely School

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 6/23/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23062079-001	Particulate filter #P0908116 PM10	05/06/23 00:00	06/23/23	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B23062079-002	Particulate filter #P0908117 TSP 5/1-5/9	05/09/23 00:00	06/23/23	Air	Same As Above
B23062079-003	Particulate filter #P0908118 Lab Blank	04/28/23 15:21	06/23/23	Air	Same As Above
B23062079-004	Particulate filter #P0908119 TSP 5/9-5/15	05/15/23 00:00	06/23/23	Air	Same As Above
B23062079-005	Particulate filter #P0908120 PM10	05/12/23 00:00	06/23/23	Air	Same As Above
B23062079-006	Particulate filter #P0908121 TSP 5/15-5/22	05/22/23 00:00	06/23/23	Air	Same As Above
B23062079-007	Particulate filter #P0908122 PM10	05/18/23 00:00	06/23/23	Air	Same As Above
B23062079-008	Particulate filter #P0908123 TSP 5/22-5/25	05/25/23 00:00	06/23/23	Air	Same As Above
B23062079-009	Particulate filter #P0908124 PM10	05/24/23 00:00	06/23/23	Air	Same As Above
B23062079-010	Particulate filter #P0908125 Field Blank	05/25/23 10:47	06/23/23	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
Work Order: B23062079

Report Date: 07/07/23

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
Project: Montana Resources/Greely School
Lab ID: B23062079-001
Client Sample ID: Particulate filter #P0908116 PM10

Report Date: 07/07/23
Collection Date: 05/06/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 06:50 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 06:50 / jks
Copper	ND	ug/filter		1		E200.8	07/03/23 06:50 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 06:50 / jks
Manganese	ND	ug/filter		1		E200.8	07/03/23 06:50 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 06:50 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 06:50 / 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
Lab ID: B23062079-002
Client Sample ID: Particulate filter #P0908117 TSP 5/1-5/9

Report Date: 07/07/23
Collection Date: 05/09/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 06:56 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 06:56 / jks
Copper	0.4	ug/filter	J	1		E200.8	07/03/23 06:56 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 06:56 / jks
Manganese	ND	ug/filter		1		E200.8	07/03/23 06:56 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 06:56 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 06:56 / 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
Lab ID: B23062079-003
Client Sample ID: Particulate filter #P0908118 Lab Blank

Report Date: 07/07/23
Collection Date: 04/28/23 15:21
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:02 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 07:02 / jks
Copper	ND	ug/filter		1		E200.8	07/03/23 07:02 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:02 / jks
Manganese	ND	ug/filter		1		E200.8	07/03/23 07:02 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:02 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 07:02 / 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
Lab ID: B23062079-004
Client Sample ID: Particulate filter #P0908119 TSP 5/9-5/15

Report Date: 07/07/23
Collection Date: 05/15/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:08 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 07:08 / jks
Copper	ND	ug/filter		1		E200.8	07/03/23 07:08 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:08 / jks
Manganese	0.3	ug/filter	J	1		E200.8	07/03/23 07:08 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:08 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 07:08 / 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
Lab ID: B23062079-005
Client Sample ID: Particulate filter #P0908120 PM10

Report Date: 07/07/23
Collection Date: 05/12/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:14 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 07:14 / jks
Copper	0.7	ug/filter	J	1		E200.8	07/03/23 07:14 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:14 / jks
Manganese	0.4	ug/filter	J	1		E200.8	07/03/23 07:14 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:14 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 07:14 / 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
Lab ID: B23062079-006
Client Sample ID: Particulate filter #P0908121 TSP 5/15-5/22

Report Date: 07/07/23
Collection Date: 05/22/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:20 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 07:20 / jks
Copper	1	ug/filter		1		E200.8	07/03/23 07:20 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:20 / jks
Manganese	ND	ug/filter		1		E200.8	07/03/23 07:20 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:20 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 07:20 / 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
Lab ID: B23062079-007
Client Sample ID: Particulate filter #P0908122 PM10

Report Date: 07/07/23
Collection Date: 05/18/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:26 / jks
Cadmium	0.01	ug/filter	J	1		E200.8	07/03/23 07:26 / jks
Copper	0.8	ug/filter	J	1		E200.8	07/03/23 07:26 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:26 / jks
Manganese	0.4	ug/filter	J	1		E200.8	07/03/23 07:26 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:26 / jks
Zinc	1	ug/filter		1		E200.8	07/03/23 07:26 / 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
Lab ID: B23062079-008
Client Sample ID: Particulate filter #P0908123 TSP 5/22-5/25

Report Date: 07/07/23
Collection Date: 05/25/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:45 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 07:45 / jks
Copper	ND	ug/filter		1		E200.8	07/03/23 07:45 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:45 / jks
Manganese	ND	ug/filter		1		E200.8	07/03/23 07:45 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:45 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 07:45 / 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
Lab ID: B23062079-009
Client Sample ID: Particulate filter #P0908124 PM10

Report Date: 07/07/23
Collection Date: 05/24/23
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:51 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 07:51 / jks
Copper	ND	ug/filter		1		E200.8	07/03/23 07:51 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:51 / jks
Manganese	ND	ug/filter		1		E200.8	07/03/23 07:51 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:51 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 07:51 / 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
Lab ID: B23062079-010
Client Sample ID: Particulate filter #P0908125 Field Blank

Report Date: 07/07/23
Collection Date: 05/25/23 10:47
DateReceived: 06/23/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/03/23 07:57 / jks
Cadmium	ND	ug/filter		1		E200.8	07/03/23 07:57 / jks
Copper	ND	ug/filter		1		E200.8	07/03/23 07:57 / jks
Lead	ND	ug/filter		1		E200.8	07/03/23 07:57 / jks
Manganese	ND	ug/filter		1		E200.8	07/03/23 07:57 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/03/23 07:57 / jks
Zinc	ND	ug/filter		1		E200.8	07/03/23 07:57 / 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

Client: Bison Engineering **Work Order:** B23062079 **Report Date:** 07/07/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS207-B_230701A	
Lab ID: QCS	7	Initial Calibration Verification Standard								07/03/23 05:43
Arsenic		0.0487	mg/L	0.0050	97	90	110			
Cadmium		0.0250	mg/L	0.0010	100	90	110			
Copper		0.0503	mg/L	0.010	101	90	110			
Lead		0.0470	mg/L	0.0010	94	90	110			
Manganese		0.237	mg/L	0.0050	95	90	110			
Molybdenum		0.0489	mg/L	0.0050	98	90	110			
Zinc		0.0518	mg/L	0.0050	104	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								07/03/23 06:14
Arsenic		0.0493	mg/L	0.0050	99	90	110			
Cadmium		0.0506	mg/L	0.0010	101	90	110			
Copper		0.0499	mg/L	0.010	100	90	110			
Lead		0.0470	mg/L	0.0010	94	90	110			
Manganese		0.0468	mg/L	0.0050	94	90	110			
Molybdenum		0.0508	mg/L	0.0050	102	90	110			
Zinc		0.0518	mg/L	0.0050	104	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								07/03/23 07:33
Arsenic		0.0495	mg/L	0.0050	99	90	110			
Cadmium		0.0493	mg/L	0.0010	99	90	110			
Copper		0.0502	mg/L	0.010	100	90	110			
Lead		0.0481	mg/L	0.0010	96	90	110			
Manganese		0.0473	mg/L	0.0050	95	90	110			
Molybdenum		0.0498	mg/L	0.0050	99	90	110			
Zinc		0.0520	mg/L	0.0050	104	90	110			
Method: E200.8										Batch: 180281
Lab ID: MB-180281	7	Method Blank				Run: ICPMS207-B_230701A				07/03/23 06:26
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-180281	7	Laboratory Control Sample				Run: ICPMS207-B_230701A				07/03/23 06:32
Arsenic		99.8	ug/filter	1.0	100	85	115			
Cadmium		50.7	ug/filter	1.0	101	85	115			
Copper		100	ug/filter	1.0	100	85	115			
Lead		100	ug/filter	1.0	100	85	115			
Manganese		488	ug/filter	1.0	98	85	115			
Molybdenum		110	ug/filter	1.0	110	85	115			
Zinc		100	ug/filter	1.0	100	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:** B23062079 **Report Date:** 07/07/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 180281
Lab ID: **LCSD-180281**	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_230701A				07/03/23 06:38
Arsenic		101	ug/filter	1.0	101	85	115			
Cadmium		51.4	ug/filter	1.0	103	85	115			
Copper		101	ug/filter	1.0	101	85	115			
Lead		101	ug/filter	1.0	101	85	115			
Manganese		494	ug/filter	1.0	99	85	115			
Molybdenum		113	ug/filter	1.0	113	85	115			
Zinc		101	ug/filter	1.0	101	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B23062079

Login completed by: Lyndsi E. LeProwse
Date Received: 6/23/2023

Reviewed by: tedwards
Received by: htm

Reviewed Date: 6/28/2023
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 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.

Contact and Corrective Action Comments:

The sample identification indicated on the container label for sample eight is Particulate filter #P0908123 TSP 5/22-5/25 and on the Chain of Custody it is Particulate filter #D9077963 TSP 5/22-5/25. 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 Brown-Argott
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	MTR221018
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

Project Information

Project Name, PWSID, Permit, etc.	Montana Resources / Greely School
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 #P0908116 PM10	5/6/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					BZ 3062079
2	Particulate filter #P0908117 TSP 5/1 - 5/9	5/1-5/9	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
3	Particulate filter #P0908118 Lab Blank	4/28/23	1521	1	on Teflon filter	x	x	x	x	x	x	x					
4	Particulate filter #P0908119 TSP 5/9 - 5/15	5/9-5/15	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
5	Particulate filter #P0908120 PM10	5/12/23	24-hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
6	Particulate filter #P0908121 TSP 5/15 - 5/22	5/15-5/22	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
7	Particulate filter #P0908122 PM10	5/18/23	24-hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
8	Particulate filter #D9077963 TSP 5/22 - 5/25	5/22-5/25	continuous	1	on Teflon filter	x	x	x	x	x	x	x					
9	Particulate filter #P0908124 PM10	5/24/23	24-hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
10	Particulate filter #P0908125 Field Blank	5/25/23	1047	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	6/23/23 1629	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Hayden Moor	6/23/23 1629	

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)*
				3.2	Y	Y			

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

July 20, 2023

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

Work Order: B23070893 Quote ID: B4795

Project Name: Montana Resources/Greely School

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 7/12/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23070893-001	Particluate filter #P0908106 PM10	05/30/23 00:00	07/12/23	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B23070893-002	Particluate filter #P0908107 Lab Blank	05/24/23 15:30	07/12/23	Air	Same As Above
B23070893-003	Particluate filter #P0908108 TSP 5/25-5/31	05/31/23 00:00	07/12/23	Air	Same As Above
B23070893-004	Particluate filter #P0908109 PM10	06/02/23 00:00	07/12/23	Air	Same As Above
B23070893-005	Particluate filter #P0908110 TSP 5/31-6/7	06/07/23 00:00	07/12/23	Air	Same As Above
B23070893-006	Particluate filter #P0908111 PM10	06/11/23 00:00	07/12/23	Air	Same As Above
B23070893-007	Particluate filter #P0908112 TSP 6/7-6/11	06/11/23 00:00	07/12/23	Air	Same As Above
B23070893-008	Particluate filter #P0908113 PM10	06/17/23 00:00	07/12/23	Air	Same As Above
B23070893-009	Particluate filter #P0908114 TSP 6/13-6/21	06/21/23 00:00	07/12/23	Air	Same As Above
B23070893-010	Particluate filter #P0908115 Field Blank	06/17/23 11:12	07/12/23	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
Work Order: B23070893

Report Date: 07/20/23

CASE NARRATIVE

Due to laboratory error, half of sample Particluate filter #P0908111 PM10 (B23070893-006) was unusable for analysis. Proceed with analysis on the usable half per client request. The prep factor was adjusted accordingly.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School
Lab ID: B23070893-001
Client Sample ID: Particluate filter #P0908106 PM10

Report Date: 07/20/23
Collection Date: 05/30/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.09	ug/filter	J	1		E200.8	07/17/23 20:48 / jks
Cadmium	0.01	ug/filter	J	1		E200.8	07/17/23 20:48 / jks
Copper	1	ug/filter		1		E200.8	07/17/23 20:48 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 20:48 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 20:48 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 20:48 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 20:48 / 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
Lab ID: B23070893-002
Client Sample ID: Particluate filter #P0908107 Lab Blank

Report Date: 07/20/23
Collection Date: 05/24/23 15:30
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 20:54 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 20:54 / jks
Copper	ND	ug/filter		1		E200.8	07/17/23 20:54 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 20:54 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 20:54 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 20:54 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 20:54 / 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
Lab ID: B23070893-003
Client Sample ID: Particluate filter #P0908108 TSP 5/25-5/31

Report Date: 07/20/23
Collection Date: 05/31/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:00 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:00 / jks
Copper	0.5	ug/filter	J	1		E200.8	07/17/23 21:00 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:00 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:00 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:00 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 21:00 / 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
Lab ID: B23070893-004
Client Sample ID: Particluate filter #P0908109 PM10

Report Date: 07/20/23
Collection Date: 06/02/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:06 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:06 / jks
Copper	ND	ug/filter		1		E200.8	07/17/23 21:06 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:06 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:06 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:06 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 21:06 / 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
Lab ID: B23070893-005
Client Sample ID: Particluate filter #P0908110 TSP 5/31-6/7

Report Date: 07/20/23
Collection Date: 06/07/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:12 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:12 / jks
Copper	0.3	ug/filter	J	1		E200.8	07/17/23 21:12 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:12 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:12 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:12 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 21:12 / 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
Lab ID: B23070893-006
Client Sample ID: Particluate filter #P0908111 PM10

Report Date: 07/20/23
Collection Date: 06/11/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:18 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:18 / jks
Copper	ND	ug/filter		1		E200.8	07/17/23 21:18 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:18 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:18 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:18 / jks
Zinc	ND	ug/filter	D	2		E200.8	07/17/23 21:18 / jks

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Bison Engineering
Project: Montana Resources/Greely School
Lab ID: B23070893-007
Client Sample ID: Particluate filter #P0908112 TSP 6/7-6/11

Report Date: 07/20/23
Collection Date: 06/11/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:24 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:24 / jks
Copper	0.3	ug/filter	J	1		E200.8	07/17/23 21:24 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:24 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:24 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:24 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 21:24 / 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
Lab ID: B23070893-008
Client Sample ID: Particluate filter #P0908113 PM10

Report Date: 07/20/23
Collection Date: 06/17/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:42 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:42 / jks
Copper	ND	ug/filter		1		E200.8	07/17/23 21:42 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:42 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:42 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:42 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 21:42 / 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
Lab ID: B23070893-009
Client Sample ID: Particluate filter #P0908114 TSP 6/13-6/21

Report Date: 07/20/23
Collection Date: 06/21/23
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:48 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:48 / jks
Copper	0.5	ug/filter	J	1		E200.8	07/17/23 21:48 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:48 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:48 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:48 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 21:48 / 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
Lab ID: B23070893-010
Client Sample ID: Particluate filter #P0908115 Field Blank

Report Date: 07/20/23
Collection Date: 06/17/23 11:12
DateReceived: 07/12/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	07/17/23 21:54 / jks
Cadmium	ND	ug/filter		1		E200.8	07/17/23 21:54 / jks
Copper	ND	ug/filter		1		E200.8	07/17/23 21:54 / jks
Lead	ND	ug/filter		1		E200.8	07/17/23 21:54 / jks
Manganese	ND	ug/filter		1		E200.8	07/17/23 21:54 / jks
Molybdenum	ND	ug/filter		1		E200.8	07/17/23 21:54 / jks
Zinc	ND	ug/filter		1		E200.8	07/17/23 21:54 / 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

Client: Bison Engineering **Work Order:** B23070893 **Report Date:** 07/20/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS207-B_230717A	
Lab ID: QCS	7	Initial Calibration Verification Standard								07/17/23 20:05
Arsenic		0.0510	mg/L	0.0050	102	90	110			
Cadmium		0.0263	mg/L	0.0010	105	90	110			
Copper		0.0526	mg/L	0.010	105	90	110			
Lead		0.0488	mg/L	0.0010	98	90	110			
Manganese		0.253	mg/L	0.0050	101	90	110			
Molybdenum		0.0492	mg/L	0.0050	98	90	110			
Zinc		0.0529	mg/L	0.0050	106	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								07/17/23 20:11
Arsenic		0.0501	mg/L	0.0050	100	90	110			
Cadmium		0.0514	mg/L	0.0010	103	90	110			
Copper		0.0512	mg/L	0.010	102	90	110			
Lead		0.0486	mg/L	0.0010	97	90	110			
Manganese		0.0495	mg/L	0.0050	99	90	110			
Molybdenum		0.0500	mg/L	0.0050	100	90	110			
Zinc		0.0515	mg/L	0.0050	103	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								07/17/23 21:30
Arsenic		0.0496	mg/L	0.0050	99	90	110			
Cadmium		0.0510	mg/L	0.0010	102	90	110			
Copper		0.0510	mg/L	0.010	102	90	110			
Lead		0.0483	mg/L	0.0010	97	90	110			
Manganese		0.0495	mg/L	0.0050	99	90	110			
Molybdenum		0.0498	mg/L	0.0050	99	90	110			
Zinc		0.0528	mg/L	0.0050	106	90	110			
Method: E200.8										Batch: 180802
Lab ID: MB-180802	7	Method Blank				Run: ICPMS207-B_230717A				07/17/23 20:23
Arsenic		0.1	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-180802	7	Laboratory Control Sample				Run: ICPMS207-B_230717A				07/17/23 20:30
Arsenic		98.3	ug/filter	1.0	98	85	115			
Cadmium		53.1	ug/filter	1.0	106	85	115			
Copper		100	ug/filter	1.0	100	85	115			
Lead		100	ug/filter	1.0	101	85	115			
Manganese		484	ug/filter	1.0	97	85	115			
Molybdenum		105	ug/filter	1.0	105	85	115			
Zinc		100	ug/filter	1.0	100	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:** B23070893 **Report Date:** 07/20/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 180802
Lab ID: LCSD-180802	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_230717A				07/17/23 20:36
Arsenic		99.9	ug/filter	1.0	100	85	115			
Cadmium		53.7	ug/filter	1.0	107	85	115			
Copper		100	ug/filter	1.0	101	85	115			
Lead		99.4	ug/filter	1.0	99	85	115			
Manganese		489	ug/filter	1.0	98	85	115			
Molybdenum		105	ug/filter	1.0	105	85	115			
Zinc		100	ug/filter	1.0	100	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B23070893

Login completed by: Lyndsi E. LeProwse
Date Received: 7/12/2023

Reviewed by: ysmith
Received by: dac

Reviewed Date: 7/19/2023
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:	4.0°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.

Contact and Corrective Action Comments:

None

Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

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Account Information *(Billing information)*

Company/Name	Bison Engineering, Inc.
Contact	Shelley Brown-Argott
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

Project Information

Project Name, PWSID, Permit, etc.	Montana Resources / Greely School
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 #P0908106 PM10	5/30/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					B23070693
2	Particulate filter #P0908107 Lab Blank	5/24/23	1530	1	on Teflon filter	x	x	x	x	x	x	x					
3	Particulate filter #P0908108 TSP 5/25 - 5/31	5/25→5/31		1	on Teflon filter	x	x	x	x	x	x	x					
4	Particulate filter #P0908109 PM10	6/2/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
5	Particulate filter #P0908110 TSP 5/31 - 6/7	5/31→6/7		1	on Teflon filter	x	x	x	x	x	x	x					
6	Particulate filter #P0908111 PM10	6/11/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
7	Particulate filter #P0908112 TSP 6/7 - 6/11	6/7→6/11		1	on Teflon filter	x	x	x	x	x	x	x					
8	Particulate filter #DP0908113 PM10	6/17/23	24 hr composite	1	on Teflon filter	x	x	x	x	x	x	x					
9	Particulate filter #P0908114 TSP 6/13 - 6/21	6/13→6/21		1	on Teflon filter	x	x	x	x	x	x	x					
10	Particulate filter #P0908115 Field Blank	6/17/23	1112	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	7/12/23 1651	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Taylor Ehrlich	7/13/23 1651	

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)*
				4.0	(Y) N	(Y) N			

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

August 17, 2023

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

Work Order: B23080630 Quote ID: B4795

Project Name: Montana Resources/Greely School

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 8/7/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23080630-001	Particulate Filter #P0908101 PM10	06/23/23 00:00	08/07/23	Air	Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G
B23080630-002	Particulate Filter #P0908102 TSP 6/21-6/27	06/27/23 00:00	08/07/23	Air	Same As Above
B23080630-003	Particulate Filter #P0908103 PM10	06/29/23 00:00	08/07/23	Air	Same As Above
B23080630-004	Particulate Filter #P0908104 TSP 6/27-7/3	07/03/23 00:00	08/07/23	Air	Same As Above
B23080630-005	Particulate Filter #P0908105 PM10	07/05/23 00:00	08/07/23	Air	Same As Above
B23080630-006	Particulate Filter #P0908126 TSP 7/3-7/10	07/10/23 00:00	08/07/23	Air	Same As Above
B23080630-007	Particulate Filter #P0908127 Lab Blank	06/16/23 15:30	08/07/23	Air	Same As Above
B23080630-008	Particulate Filter #DP0908128 PM10	07/11/23 00:00	08/07/23	Air	Same As Above
B23080630-009	Particulate Filter #P0908129 TSP 7/10-7/18	07/18/23 00:00	08/07/23	Air	Same As Above
B23080630-010	Particulate Filter #P0908130 PM10	07/17/23 00:00	08/07/23	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
Work Order: B23080630

Report Date: 08/17/23

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
Project: Montana Resources/Greely School
Lab ID: B23080630-001
Client Sample ID: Particulate Filter #P0908101 PM10

Report Date: 08/17/23
Collection Date: 06/23/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	08/16/23 14:19 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 14:19 / jks
Copper	0.5	ug/filter	J	1		E200.8	08/16/23 14:19 / jks
Lead	0.2	ug/filter	J	1		E200.8	08/16/23 14:19 / jks
Manganese	ND	ug/filter		1		E200.8	08/16/23 14:19 / jks
Molybdenum	0.09	ug/filter	J	1		E200.8	08/16/23 14:19 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 14:19 / 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

Client: Bison Engineering
Project: Montana Resources/Greely School
Lab ID: B23080630-002
Client Sample ID: Particulate Filter #P0908102 TSP 6/21-6/27

Report Date: 08/17/23
Collection Date: 06/27/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	08/16/23 14:25 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 14:25 / jks
Copper	ND	ug/filter		1		E200.8	08/16/23 14:25 / jks
Lead	ND	ug/filter		1		E200.8	08/16/23 14:25 / jks
Manganese	0.6	ug/filter	J	1		E200.8	08/16/23 14:25 / jks
Molybdenum	ND	ug/filter		1		E200.8	08/16/23 14:25 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 14:25 / 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
Lab ID: B23080630-003
Client Sample ID: Particulate Filter #P0908103 PM10

Report Date: 08/17/23
Collection Date: 06/29/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.08	ug/filter	J	1		E200.8	08/16/23 14:31 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 14:31 / jks
Copper	1	ug/filter		1		E200.8	08/16/23 14:31 / jks
Lead	ND	ug/filter		1		E200.8	08/16/23 14:31 / jks
Manganese	ND	ug/filter		1		E200.8	08/16/23 14:31 / jks
Molybdenum	0.1	ug/filter	J	1		E200.8	08/16/23 14:31 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 14:31 / 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
Lab ID: B23080630-004
Client Sample ID: Particulate Filter #P0908104 TSP 6/27-7/3

Report Date: 08/17/23
Collection Date: 07/03/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	08/16/23 14:37 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 14:37 / jks
Copper	2	ug/filter		1		E200.8	08/16/23 14:37 / jks
Lead	0.1	ug/filter	J	1		E200.8	08/16/23 14:37 / jks
Manganese	ND	ug/filter		1		E200.8	08/16/23 14:37 / jks
Molybdenum	0.4	ug/filter	J	1		E200.8	08/16/23 14:37 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 14:37 / 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
Lab ID: B23080630-005
Client Sample ID: Particulate Filter #P0908105 PM10

Report Date: 08/17/23
Collection Date: 07/05/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	08/16/23 14:43 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 14:43 / jks
Copper	1	ug/filter		1		E200.8	08/16/23 14:43 / jks
Lead	ND	ug/filter		1		E200.8	08/16/23 14:43 / jks
Manganese	ND	ug/filter		1		E200.8	08/16/23 14:43 / jks
Molybdenum	0.1	ug/filter	J	1		E200.8	08/16/23 14:43 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 14:43 / 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
Lab ID: B23080630-006
Client Sample ID: Particulate Filter #P0908126 TSP 7/3-7/10

Report Date: 08/17/23
Collection Date: 07/10/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	08/16/23 14:49 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 14:49 / jks
Copper	2	ug/filter		1		E200.8	08/16/23 14:49 / jks
Lead	0.1	ug/filter	J	1		E200.8	08/16/23 14:49 / jks
Manganese	0.4	ug/filter	J	1		E200.8	08/16/23 14:49 / jks
Molybdenum	0.4	ug/filter	J	1		E200.8	08/16/23 14:49 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 14:49 / 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
Lab ID: B23080630-007
Client Sample ID: Particulate Filter #P0908127 Lab Blank

Report Date: 08/17/23
Collection Date: 06/16/23 15:30
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	ND	ug/filter		1		E200.8	08/16/23 14:55 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 14:55 / jks
Copper	ND	ug/filter		1		E200.8	08/16/23 14:55 / jks
Lead	ND	ug/filter		1		E200.8	08/16/23 14:55 / jks
Manganese	ND	ug/filter		1		E200.8	08/16/23 14:55 / jks
Molybdenum	ND	ug/filter		1		E200.8	08/16/23 14:55 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 14:55 / 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
Lab ID: B23080630-008
Client Sample ID: Particulate Filter #DP0908128 PM10

Report Date: 08/17/23
Collection Date: 07/11/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	08/16/23 15:14 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 15:14 / jks
Copper	2	ug/filter		1		E200.8	08/16/23 15:14 / jks
Lead	0.09	ug/filter	J	1		E200.8	08/16/23 15:14 / jks
Manganese	ND	ug/filter		1		E200.8	08/16/23 15:14 / jks
Molybdenum	0.2	ug/filter	J	1		E200.8	08/16/23 15:14 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 15:14 / 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
Lab ID: B23080630-009
Client Sample ID: Particulate Filter #P0908129 TSP 7/10-7/18

Report Date: 08/17/23
Collection Date: 07/18/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	08/16/23 15:20 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 15:20 / jks
Copper	2	ug/filter		1		E200.8	08/16/23 15:20 / jks
Lead	ND	ug/filter		1		E200.8	08/16/23 15:20 / jks
Manganese	ND	ug/filter		1		E200.8	08/16/23 15:20 / jks
Molybdenum	0.5	ug/filter	J	1		E200.8	08/16/23 15:20 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 15:20 / 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
Lab ID: B23080630-010
Client Sample ID: Particulate Filter #P0908130 PM10

Report Date: 08/17/23
Collection Date: 07/17/23
DateReceived: 08/07/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS IN AIR							
Arsenic	0.1	ug/filter	J	1		E200.8	08/16/23 15:50 / jks
Cadmium	ND	ug/filter		1		E200.8	08/16/23 15:50 / jks
Copper	3	ug/filter		1		E200.8	08/16/23 15:50 / jks
Lead	0.1	ug/filter	J	1		E200.8	08/16/23 15:50 / jks
Manganese	0.5	ug/filter	J	1		E200.8	08/16/23 15:50 / jks
Molybdenum	0.6	ug/filter	J	1		E200.8	08/16/23 15:50 / jks
Zinc	ND	ug/filter		1		E200.8	08/16/23 15:50 / 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)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Bison Engineering **Work Order:** B23080630 **Report Date:** 08/17/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS207-B_230816A	
Lab ID: QCS	7	Initial Calibration Verification Standard								08/16/23 12:30
Arsenic		0.0502	mg/L	0.0050	100	90	110			
Cadmium		0.0254	mg/L	0.0010	101	90	110			
Copper		0.0532	mg/L	0.010	106	90	110			
Lead		0.0515	mg/L	0.0010	103	90	110			
Manganese		0.258	mg/L	0.0050	103	90	110			
Molybdenum		0.0501	mg/L	0.0050	100	90	110			
Zinc		0.0533	mg/L	0.0050	107	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								08/16/23 13:43
Arsenic		0.0502	mg/L	0.0050	100	90	110			
Cadmium		0.0517	mg/L	0.0010	103	90	110			
Copper		0.0526	mg/L	0.010	105	90	110			
Lead		0.0519	mg/L	0.0010	104	90	110			
Manganese		0.0517	mg/L	0.0050	103	90	110			
Molybdenum		0.0506	mg/L	0.0050	101	90	110			
Zinc		0.0523	mg/L	0.0050	105	90	110			
Lab ID: CCV	7	Continuing Calibration Verification Standard								08/16/23 15:01
Arsenic		0.0504	mg/L	0.0050	101	90	110			
Cadmium		0.0522	mg/L	0.0010	104	90	110			
Copper		0.0526	mg/L	0.010	105	90	110			
Lead		0.0491	mg/L	0.0010	98	90	110			
Manganese		0.0507	mg/L	0.0050	101	90	110			
Molybdenum		0.0506	mg/L	0.0050	101	90	110			
Zinc		0.0530	mg/L	0.0050	106	90	110			
Method: E200.8										Batch: 180752
Lab ID: MB-180752	7	Method Blank				Run: ICPMS207-B_230816A				08/16/23 13:55
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-180752	7	Laboratory Control Sample				Run: ICPMS207-B_230816A				08/16/23 14:01
Arsenic		99.8	ug/filter	1.0	100	85	115			
Cadmium		53.3	ug/filter	1.0	107	85	115			
Copper		102	ug/filter	1.0	102	85	115			
Lead		96.0	ug/filter	1.0	96	85	115			
Manganese		504	ug/filter	1.0	101	85	115			
Molybdenum		107	ug/filter	1.0	107	85	115			
Zinc		101	ug/filter	1.0	101	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:** B23080630 **Report Date:** 08/17/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.8**										Batch: 180752
Lab ID: **LCSD-180752**	7	Laboratory Control Sample Duplicate				Run: ICPMS207-B_230816A				08/16/23 14:07
Arsenic		100	ug/filter	1.0	100	85	115			
Cadmium		53.0	ug/filter	1.0	106	85	115			
Copper		102	ug/filter	1.0	102	85	115			
Lead		95.7	ug/filter	1.0	96	85	115			
Manganese		500	ug/filter	1.0	100	85	115			
Molybdenum		106	ug/filter	1.0	106	85	115			
Zinc		101	ug/filter	1.0	101	85	115			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Bison Engineering

B23080630

Login completed by: Yvonna E. Smith
Date Received: 8/7/2023
Reviewed by: cindy
Received by: tjg
Reviewed Date: 8/9/2023
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:	4.6°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.

Contact and Corrective Action Comments:

None

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 Brown-Argott
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

Project Information

Project Name, PWSID, Permit, etc.	Montana Resources / Greely School
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 #P0908101 PM10	6/23/23	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					B230801630
2	Particulate filter #P0908102 TSP 6/21-6/27	6/21→6/27	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
3	Particulate filter #P0908103 PM10	6/29/23	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					
4	Particulate filter #P0908104 TSP 6/27-7/3	6/27→7/3	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
5	Particulate filter #P0908105 PM10	7/5/23	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					
6	Particulate filter #P0908126 TSP 7/3-7/10	7/3→7/10	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
7	Particulate filter #P0908127 Lab Blank	6/16/23	1530	1	on Teflon filter	X	X	X	X	X	X	X					
8	Particulate filter #DP0908128 PM10	7/11/23	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					
9	Particulate filter #P0908129 TSP 7/10-7/18	7/10→7/18	continuous	1	on Teflon filter	X	X	X	X	X	X	X					
10	Particulate filter #P0908130 PM10	7/17/23	24 hr composite	1	on Teflon filter	X	X	X	X	X	X	X					

	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Custody Record MUST be signed	Don Milmine	8/1/23 1543	Don V. Milmine			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Ellie Cassen	8/1/23 1543	

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)*
				4.6	Y N	Y N			

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: 04/26/2023	Time: 0905 - 0915 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Field	
Ref Standard & S/N: 1) Delta Cal SN 1288		Certification Date: 1) 09-20-2022	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	622 mm Hg	626.0 mmHg	-4.0
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	6.1 C	6.7 C	-0.6 C
Filter Temperature	6.7 C	6.5 C	+0.2 C
Leak Check			
Vacuum Readings (mm Hg)	Start 103	End 102	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–16.67)/16.67 (must be ≤ ± 5%)
Design flow rate calculation	16.70	16.67	+0.2%
No adjustments made. Unexposed sample filter removed temporarily for calibration checks.			

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 04/26/2023 (before pump replacement)	Time: 0910 – 0940 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Field	
Ref Standard & S/N: 1) Tetra Cal SN 149645 (Temp.) 2) Swift Meter SN 14999 (Flow/BP)		Certification Date: 1) 07-08-2022 2) 06-03-2022	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	83,546 Pa	627.6 mm Hg = 83,673 Pa	-127 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	10.6 C	10.2 C	+0.4 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	2.04	-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	2.04	2.0	+2.0 %
Relative Humidity Verification (checked with Assmann Psychrometer)			
Dry Bulb Temp. °C	-----	Calculated RH (a)	-----
Wet Bulb Temp. °C	-----	Sampler RH (b)	-----
BP Inches Hg	-----	Difference = a – b (must be ≤7% RH)	-----

Removed exposed filter during calibration. Replaced pump after calibration.

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 04/26/2023 (after pump replacement)	Time: 1600 – 1627 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Field	
Ref Standard & S/N: 1) Tetra Cal SN 149645 (Temp.) 2) Swift Meter SN 14999 (Flow/BP)		Certification Date: 1) 07-08-2022 2) 06-03-2022	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	83,156 Pa	624.7 mm Hg = 83,286 Pa	-130 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	15.2 C	14.6 C	+0.6 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 (checked with Assmann Psychrometer)			
Dry Bulb Temp. °C	15.0 C	Calculated RH (a)	23.5%
Wet Bulb Temp. °C	5.6 C	Sampler RH (b)	25%
BP Inches Hg	24.59	Difference = a – b (must be ≤7% RH)	+1.5%

Reinstalled exposed filter after calibration.

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 05/31/2023	Time: 1025 - 1045 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Field	
Ref Standard & S/N: 1) Delta Cal SN 1288		Certification Date: 1) 09-20-2022	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	616 mm Hg	620.0 mmHg	-4.0
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	16.6 C	16.6 C	0.0 C
Filter Temperature	17.3 C	16.8 C	+0.5 C
Leak Check			
Vacuum Readings (mm Hg)	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	16.72	16.93	-1.2%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.67)/16.67 (must be ≤ ± 5%)
Design flow rate calculation	16.93	16.67	+1.6%
No adjustments made. Unexposed sample filter removed temporarily for calibration checks.			

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 05/31/2023	Time: 1035 – 1105 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Field	
Ref Standard & S/N: 1) Tetra Cal SN 149645 (Temp.) 2) Swift Meter SN 14999 (Flow/BP)		Certification Date: 1) 07-08-2022 2) 06-03-2022	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	82,765 Pa	621.6 mm Hg = 82,873 Pa	-108 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	17.5 C	17.1 C	+0.4 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 (checked with Assmann Psychrometer)			
Dry Bulb Temp. °C	16.2 C	Calculated RH (a)	53.6%
Wet Bulb Temp. °C	10.6 C	Sampler RH (b)	53%
BP Inches Hg	24.47	Difference = a – b (must be ≤7% RH)	-0.6%

Reinstalled exposed filter after calibration.

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 06/21/2023	Time: 0905 - 0925 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Field	
Ref Standard & S/N: 1) Delta Cal SN 1288		Certification Date: 1) 09-20-2022	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	623 mm Hg	626.5 mmHg	-3.5
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	9.4 C	9.4 C	0.0 C
Filter Temperature	10.7 C	10.3 C	+0.4 C
Leak Check			
Vacuum Readings (mm Hg)	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	16.95	-1.4%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.67)/16.67 (must be ≤ ± 5%)
Design flow rate calculation	16.95	16.67	+1.7%
No adjustments made. Exposed sample filter removed temporarily for calibration checks.			

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 06/21/2023	Time: 0935 – 0955 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Field	
Ref Standard & S/N: 1) Tetra Cal SN 149645 (Temp.) 2) Swift Meter SN 14999 (Flow/BP)		Certification Date: 1) 07-28-2022 2) 06-03-2022	

Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	83,644 Pa	628.2 mm Hg = 83,753 Pa	-109 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	12.4 C	12.0 C	+0.4 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	2.04	-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	2.04	2.0	+2.0 %

Relative Humidity Verification (checked with Assmann Psychrometer)			
Dry Bulb Temp. °C	10.7 C	Calculated RH (a)	43.9%
Wet Bulb Temp. °C	5.0 C	Sampler RH (b)	41%
BP Inches Hg	24.53	Difference = a – b (must be ≤7% RH)	-2.9%

Reinstalled exposed filter after calibration.

BGI PQ200 PM10 Sampler – Monthly Calibration Checks			
Date: 07/18/2023	Time: 0930 - 0942 MST	Sampler Serial Number: 1622	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Delta Cal SN 1288		Certification Date: 1) 09-20-2022	
Barometric Pressure Sensor Verification			
Reading (mm Hg)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 10)
Ambient Pressure	623 mm Hg	626.0 mmHg	-3.0
Temperature Sensor Verification			
Reading (degrees Celsius)	Sampler (a)	Reference Standard (b)	Difference (a - b) (must be ≤ ± 2ºC)
Ambient Temperature	19.6 C	19.7 C	-0.1 C
Filter Temperature	21.3 C	21.3 C	0.0 C
Leak Check			
Vacuum Readings (mm Hg)	Start 94	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	16.72	16.99	-1.6%
Reading (liters per minute)	Reference Standard (b)	Design Flow Rate Standard (c)	% Difference 100*(b–16.67)/16.67 (must be ≤ ± 5%)
Design flow rate calculation	16.99	16.7	+1.7%
No adjustments made. Exposed sample filter removed temporarily for calibration checks.			

Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~			
Date: 07/18/2023	Time: 0940–0950 MST	Sampler Serial Number: X24429	
Performed By: Steve Heck		Location (field or lab): Greeley School	
Ref Standard & S/N: 1) Delta Cal SN 1288 (Temp.) 2) Swift Meter SN 14999 (Flow/BP)		Certification Date: 1) 07-28-2022 2) 06-03-2022**	
Barometric Pressure Sensor Verification			
Reading (Pascals)	Sampler (a)	Reference Standard (b)	Difference (a - b) (limit ≤ ± 1333 Pa)
Ambient Pressure	83,566 Pa	627.6 mm Hg = 83,673 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	25.9 C	26.0 C	-0.1 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 (checked with Assmann Psychrometer)			
Dry Bulb Temp. °C	21.0 C	Calculated RH (a)	24.8%
Wet Bulb Temp. °C	9.9 C	Sampler RH (b)	21%
BP Inches Hg	24.71	Difference = a – b (must be ≤7% RH)	-3.8%

Reinstalled exposed filter after calibration.
**Expired calibration due to delay in getting return authorization from vendor. Item shipped to vendor on July 19, 2023.

APPENDIX G: CALIBRATION STANDARD CERTIFICATION SHEETS

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

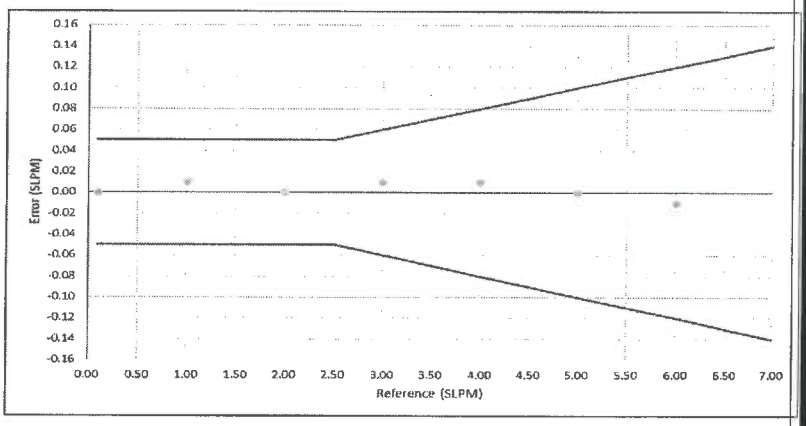
Certificate of Calibration

Model Swift 6.0

Serial Number: C14999
Firmware Version: 83373 R. 1.0.0

Calibration Date: 6/3/2022
Calibrated By: R. von Krohn

Flow Calibration			
Standard (SLPM)	Swift 6.0 (SLPM)	Acceptable Range	In Tolerance
1.000	1.01	0.95 - 1.05	Yes
2.000	2.00	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	5.99	5.88 - 6.12	Yes
Flow Accuracy: ±2% of reading or ±0.05 LPM, whichever is greater			



Temperature		
Standard (°C)	Swift (°C)	In Tolerance
24.6	23.6	Yes
Temperature Accuracy: ±1.0°C		

Pressure		
Standard (mbar)	Swift (mbar)	In Tolerance
969.5	966.9	Yes
Pressure Accuracy: ±16 mbar		

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

Standards	Model	SN	Cal Due
Air Flow Meter (Flow & Temp)	M-10SLPM-D/5M	261769	Nov 06, 2022
BAROMETRIC PRESSURE	092	A11355	May 17, 2023

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 #: 1288-20092022
DeltaCal Serial Number: 1288
Calibration Technician: Zabdiel Pimentel
Date: 20-Sep-2022
Recommended Recal Date: 20-Sep-2023

Critical Venturi Flow Meter

Max Uncertainty = 0.346%

TE20004	6 - 30.00 LPM	Calibration Due:	11-Jul-2023
TE20006	1.40 - 6.0 LPM	Calibration Due:	11-Jul-2023

Room Temperature: +- 0.03°C from -5°C - 70°C **Room Temperature:** 21.90 °C

Brand: Eutechnics
TE Number: TE12306 **Serial Number:** 308304
Std Cal Date: 8-Apr-22 **Std Cal Due Date:** 8-Apr-23

Ambient Temperature (set): 21.9 °C
Aux (filter) Temperature (set): 21.9 °C

Barometric and Absolute Pressure

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

TE Number: TE20204 **Serial Number:** U1220935
Std Cal Date: 21-Apr-22 **Std Cal Due Date:** 21-Apr-23

DeltaCal:
Barometric pressure (set): 620.5 mmHg

Results of Venturi Calibration

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

Venturi

TE20004	Q= 4.02226	ΔP ^	0.51536	Overall Uncertainty: 0.35%
TE20006	Q= 3.95205	ΔP ^	0.52799	Overall Uncertainty: 0.35%

MesaLabs

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

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
20Sep2022	Zabdiel Pimentel

Ambient Pressure:	620.5	mmHg
Ambient Temperature:	21.9	°C

Range 1

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	135.35	620.5	6.529	6.507	-0.337
2	206.14	620.5	10.037	10.001	-0.359
3	268.17	620.5	13.111	13.050	-0.465
4	308.39	620.5	15.104	15.041	-0.417
5	349.07	620.5	17.120	17.036	-0.491
6	396.15	620.5	19.453	19.381	-0.370
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.406
				Result	PASS

Range 2

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	158.39	620.5	2.179	2.185	0.275
2	220.42	620.5	3.061	3.067	0.196
3	268.19	620.5	3.740	3.764	0.642
4	326.20	620.5	4.564	4.544	-0.438
5	365.29	620.5	5.122	5.113	-0.176
6	424.33	620.5	5.961	5.967	0.101
	Maximum allowable error at any flow rate is 0.75%.			Average	0.100
				Result	PASS

Performed By: Zabdiel Pimentel **Date:** 20-Sep-2022

Approved By: Casey Reitz **Date:** 20Sep2022

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
20Sep2022	Zabdiel Pimentel

Ambient Pressure:	620.5	mmHg
Ambient Temperature:	21.9	°C

	As Received Temp. Press. Calibration				As Shipped Temp. Press. Calibration			
	DUT	Standard	Diff	+/- 1 mmHg	DUT	Standard	Diff	+/-1 mmHg
$Pres_{AMB}$ mmHg	618.5	620.5	-2	Fail	620.5	620.5	0	Pass
	DUT	Standard	Diff	+/- 1 °C	DUT	Standard	Diff	+/- 1 °C
$Temp_{AMB}$ °C	21.8	21.9	-0.1	Pass	21.9	21.9	0	Pass
$Temp_{Filter}$ °C	21.8	21.9	-0.1	Pass	21.9	21.9	0	Pass

	Offset	New Offset
PresAMB	1	3
TempAMB	0	0.1
Temp Filter	-0.05	0.05

Range 1

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	135.35	620.5	6.529	6.507	-0.337
2	206.14	620.5	10.037	10.001	-0.359
3	268.17	620.5	13.111	13.050	-0.465
4	308.39	620.5	15.104	15.041	-0.417
5	349.07	620.5	17.120	17.036	-0.491
6	396.15	620.5	19.453	19.381	-0.370
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.406
				Result	PASS

Range 2

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	158.39	620.5	2.179	2.185	0.275
2	220.42	620.5	3.061	3.067	0.196
3	268.19	620.5	3.740	3.764	0.642
4	326.20	620.5	4.564	4.544	-0.438
5	365.29	620.5	5.122	5.113	-0.176
6	424.33	620.5	5.961	5.967	0.101
	Maximum allowable error at any flow rate is 0.75%.			Average	0.100
				Result	PASS

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

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

Calibration Report #: 149645-28072022
TetraCal Serial Number: 149645
Calibration Technician: Zabdiel Pimentel
Date: 28-Jul-2022
Recommended Recal Date: 28-Jul-2023

Critical Venturi Flow Meter

Max Uncertainty = 0.346%

TE20008	0.40 - 1.20 LPM	Calibration Due:	11-Jul-2023
TE20006	1.40 - 6.0 LPM	Calibration Due:	11-Jul-2023
TE20004	6 - 30.00 LPM	Calibration Due:	11-Jul-2023

Room Temperature: +- 0.03°C from -5°C - 70°C **Room Temperature:** 21.30 °C
Brand: Eutechnics

TE Number:	TE12306	**Serial Number:**	308304
Std Cal Date:	8-Apr-22	**Std Cal Due Date:**	8-Apr-23

Ambient Temperature (set): 21.2 °C
Aux (filter) Temperature (set): 21.2 °C

Barometric and Absolute Pressure

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

TE Number:	TE20204	**Serial Number:**	U1220935
Std Cal Date:	21-Apr-22	**Std Cal Due Date:**	21-Apr-23

TetraCal:

Barometric pressure (set): 624.0 mmHg

Results of Venturi Calibration

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

Venturi				
TE20008	Q1 = 0.21591	ΔP ^	0.52858	Overall Uncertainty: 0.35%
TE20006	Q2 = 1.15476	ΔP ^	0.53155	Overall Uncertainty: 0.35%
TE20004	Q3 = 5.40292	ΔP ^	0.51990	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 (Legacy)	Date	Technician	
Flow Range: 0.40 -30.00 LPM	28Jul2022	Zabdiel Pimentel	
Serial No. : 149645	Ambient Pressure:	624.0	mmHg
Firmware Version: 3.41P	Ambient Temperature:	21.3	°C

Range 1: 0.40 - 1.20 LPM

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	232.86	624.0	0.524	0.524	0.000
2	365.39	624.0	0.840	0.835	-0.595
3	509.97	624.0	1.184	1.185	0.084
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.170
				Result	PASS

Range 2: 1.4 - 6.00 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	123.70	624.0	1.676	1.671	-0.298
2	246.33	624.0	3.410	3.393	-0.499
3	425.61	624.0	5.944	5.960	0.269
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.176
				Result	PASS

Range 3: 6.00 - 30.0 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	126.00	624.0	6.022	6.023	0.017
2	372.14	624.5	18.122	18.024	-0.541
3	601.27	624.5	29.389	29.568	0.609
	Maximum allowable error at any flow rate is 0.75%.			Average	0.028
				Result	PASS

Performed By: Zabdiel Pimentel **Date:** 28-Jul-2022

Approved By: Casey Reitz **Date:** 28Jul2022

MesaLabs

Mesa Labs 12100 W. 6th Ave Lakewood, CO 80228

NIST Traceable Calibration Facility

As-Found data for TetraCal

Unit Type: TetraCal TC12 (Legacy)		Date	Technician
Flow Range: 0.40 -30.00 LPM		28Jul2022	Zabdiel Pimentel
Serial No. : 149645		Ambient Pressure:	624.0 mmHg
Firmware Version:	3.41P	Ambient Temperature:	21.3 °C

	As Received Temp. Press. Calibration				As Shipped Temp. Press. Calibration			
	DUT	**Standard**	**Diff**	**+/- 1 mmHg**	**DUT**	**Standard**	**Diff**	**+/-1 mmHg**
$Pres_{AMB}$ mmHg	669.0	624.0	45	Fail	624.0	624.0	0	Pass
	DUT	**Standard**	**Diff**	**+/- 1 °C**	**DUT**	**Standard**	**Diff**	**+/- 1 °C**
$Temp_{AMB}$ °C	21.4	21.3	0.1	Pass	21.2	21.2	0	Pass
Temp $_{Filter}$ °C	21.5	21.3	0.2	Pass	21.2	21.2	0	Pass

	Offset	New Offset
PresAMB	-2	-47
TempAMB	0.35	0.25
Temp Filter	0.35	0.15

Range 1: 0.40 - 1.20 LPM

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	238.68	624.0	0.538	0.534	-0.743
2	368.77	624.0	0.848	0.837	-1.297
3	516.54	624.0	1.199	1.193	-0.500
	Maximum allowable error at any flow rate is 0.75%.			Average	-0.847
				Result	FAIL

Range 2: 1.4 - 6.00 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	120.69	624.0	1.632	1.607	-1.532
2	254.23	624.0	3.518	3.372	-4.150
3	428.42	624.0	5.982	5.713	-4.497
	Maximum allowable error at any flow rate is 0.75%.			Average	-3.393
				Result	FAIL

Range 3: 6.00 - 30.0 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	128.88	624.0	6.163	6.248	1.379
2	370.85	624.0	18.067	18.049	-0.100
3	601.02	624.0	29.390	29.650	0.885
	Maximum allowable error at any flow rate is 0.75%.			Average	0.721
				Result	FAIL