# MONTANA RESOURCES LLP

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

## QUARTER 4, 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 fourth 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:[1]

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

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Method[2] sampler, and this monitoring does not attempt to determine compliance with the historic TSP standard that was superseded by a $PM_{10}$ standard in 1987.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

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

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

The MR samplers are visited approximately every five to eight days by BSB personnel. They remove the exposed particulate filters from both samplers and install pre-weighed clean filters for the next sampling episode. The primary operational difference between the two

[1] In July 2023 additional monitoring was initiated at two new locations in the Greeley area. Those monitoring results are being reported separately.

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

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

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

[3] The E-Sampler also collects hourly values of temperature and barometric pressure, but those values are 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 fourth 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 (56 µg/m$^3$ for the BGI sampler and 54 µg/m$^3$ for the BAM-1020 monitor, both on December 14) were well below the 24-hour standard of 150 µg/m$^3$.[4] The quarterly $PM_{10}$ averages from both samplers (20 µg/m$^3$ and 21 µg/m$^3$) were well below the Montana Annual $PM_{10}$ standard of 50 µg/m$^3$.[5]

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

[4] 40 CFR 50.6.

[5] 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 4, 2023

| Sample Collection Date (2023) | BGI PM10[1] (µg/m³) | BAM-1020[1] (µg/m³) | Arithmetic Difference (µg/m³) | Relative Difference (%) |
|---|---|---|---|---|
| Oct 03 | 5.5 | 7.0 | -1.5 | 25 |
| Oct 09 | 16.1 | 19.4 | -3.3 | 19 |
| Oct 15 | 17.8 | 17.9 | -0.1 | 1 |
| Oct 21 | 20.1 | 20.6 | -0.5 | 2 |
| Oct 27 | 13.5 | 9.9 | 3.6 | 31 |
| Nov 02 | 8.5 | 9.3 | -0.8 | 9 |
| Nov 08 | 7.7 | 9.9 | -2.2 | 26 |
| Nov 14 | 33.1 | 35.3 | -2.2 | 6 |
| Nov 20 | 9.4 | 12.0 | -2.6 | 24 |
| Nov 26 | 15.7 | 16.2 | -0.5 | 3 |
| Dec 02 | 5.1 | 8.3 | -3.2 | 48 |
| Dec 08 | 6.7 | 9.0 | -2.3 | 29 |
| Dec 14 | 56.1 | 54.2 | 1.9 | 3 |
| Dec 20 | 38.1 | 38.3 | -0.2 | 0 |
| Dec 26 | 43.7 | 47.5 | -3.8 | 8 |
| **Average** | **19.8** | **21.0** | **-1.2** | **6[2]** |

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

# 4.0 TSP SAMPLING DATA

Hourly TSP data were collected by the Bison E-Sampler beginning on March 1, 2019, at 1500 MST. Data were also collected continuously throughout the fourth quarter of 2023.

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[6] have been excluded from the reported data. A total of 370 hours of E-Sampler data were excluded from analysis during the fourth quarter for that reason.

[6] 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 fourth 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.[7] To facilitate direct comparability with the TSP data, hourly $PM_{10}$ and $PM_{2.5}$ values during suspected fog periods (and whenever TSP data were missing for other reasons) have been excluded from the calculations below, although the $PM_{10}$ and $PM_{2.5}$ monitors in use at the Greeley School are generally unaffected by fog.

Overall, the daily TSP averages from the E-Sampler TSP monitor were very similar to the $PM_{10}$ values from the BAM-1020 $PM_{10}$ monitor. 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 30 percent in October to 40 percent in December.

Temperatures were near normal in October, and well above normal in both November and December. Precipitation was slightly above normal in October, but well below normal in both November and December.

### Table 2: TSP, $PM_{10}$ and $PM_{2.5}$ Averages for Quarter 4, 2023

| Period 2023 | TSP (µg/m³) | $PM_{10}$ (µg/m³) | $PM_{2.5}$ (µg/m³) |
|---|---|---|---|
| October | 14 | 15 | 4.4 |
| November | 23 | 23 | 8.6 |
| December | 29 | 28 | 12.4 |
| **Quarter 4** | **22** | **22** | **8.7** |

[7] 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 October 2023

| Date 2023 | TSP (µg/m³) | $PM_{10}$ (µg/m³) | $PM_{2.5}$ (µg/m³) |
|---|---|---|---|
| Oct 1 | 2 | 4 | 2.2 |
| Oct 2 | 7 | 6 | 1.5 |
| Oct 3 | 12 | 8 | 2.8 |
| Oct 4 | 7 | 7 | 2.8 |
| Oct 5 | 14 | 15 | 4.4 |
| Oct 6 | 13 | 15 | 4.0 |
| Oct 7 | 14 | 16 | 4.6 |
| Oct 8 | 18 | 15 | 5.2 |
| Oct 9 | 19 | 19 | 4.4 |
| Oct 10 | 11 | 12 | 2.8 |
| Oct 11 | 3 | 6 | 1.9 |
| Oct 12 | 4 | 7 | 1.9 |
| Oct 13 | 9 | 7 | 3.0 |
| Oct 14 | 24 | 16 | 6.7 |
| Oct 15 | 25 | 18 | 5.9 |
| Oct 16 | 19 | 24 | 4.9 |
| Oct 17 | 7 | 15 | 2.9 |
| Oct 18 | 14 | 18 | 4.6 |
| Oct 19 | 16 | 21 | 5.9 |
| Oct 20 | 17 | 22 | 6.1 |
| Oct 21 | 20 | 21 | 7.2 |
| Oct 22 | 19 | 20 | 7.7 |
| Oct 23 | 5 | 8 | 2.9 |
| Oct 24 | ND | ND | ND |
| Oct 25 | ND | ND | ND |
| Oct 26 | ND | ND | ND |
| Oct 27 | ND | ND | ND |
| Oct 28 | ND | ND | ND |
| Oct 29 | ND | ND | ND |
| Oct 30 | ND | ND | ND |
| Oct 31 | ND | ND | ND |
| **Average** | **14** | **15** | **4.4** |

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

| Date 2023 | TSP (µg/m³) | $PM_{10}$ (µg/m³) | $PM_{2.5}$ (µg/m³) |
|---|---|---|---|
| Nov 1 | 25 | 21 | 14.6 |
| Nov 2 | 10 | 9 | 6.0 |
| Nov 3 | 8 | 12 | 7.1 |
| Nov 4 | 14 | 20 | 11.9 |
| Nov 5 | 5 | 7 | 3.9 |
| Nov 6 | 10 | 13 | 4.4 |
| Nov 7 | 10 | 10 | 6.1 |
| Nov 8 | 9 | 10 | 4.9 |
| Nov 9 | 35 | 36 | 13.8 |
| Nov 10 | 42 | 34 | 15.2 |
| Nov 11 | 16 | 13 | 5.8 |
| Nov 12 | 13 | 16 | 5.9 |
| Nov 13 | 26 | 33 | 9.1 |
| Nov 14 | 31 | 35 | 11.0 |
| Nov 15 | 21 | 28 | 6.7 |
| Nov 16 | 10 | 11 | 5.4 |
| Nov 17 | 24 | 26 | 8.0 |
| Nov 18 | 34 | 28 | 12.3 |
| Nov 19 | 15 | 11 | 5.7 |
| Nov 20 | 11 | 12 | 4.1 |
| Nov 21 | 47 | 44 | 13.9 |
| Nov 22 | 14 | 27 | 5.6 |
| Nov 23 | 10 | 9 | 3.2 |
| Nov 24 | 9 | 11 | 2.4 |
| Nov 25 | 27 | 19 | 9.1 |
| Nov 26 | 30 | 18 | 9.5 |
| Nov 27 | 51 | 48 | 15.7 |
| Nov 28 | 66 | 73 | 18.4 |
| Nov 29 | 66 | 49 | 18.5 |
| Nov 30 | 36 | 31 | 10.6 |
| **Average** | **23** | **23** | **8.6** |

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

| Date 2023 | TSP (µg/m³) | $PM_{10}$ (µg/m³) | $PM_{2.5}$ (µg/m³) |
|---|---|---|---|
| Dec 1 | 21 | 12 | 9.5 |
| Dec 2 | 9 | 8 | 3.4 |
| Dec 3 | 11 | 8 | 4.8 |
| Dec 4 | 6 | 5 | 3.5 |
| Dec 5 | 8 | 6 | 3.5 |
| Dec 6 | 13 | 13 | 6.5 |
| Dec 7 | 13 | 11 | 6.4 |
| Dec 8 | 8 | 9 | 3.8 |
| Dec 9 | 11 | 15 | 6.4 |
| Dec 10 | 4 | 11 | 3.6 |
| Dec 11 | 10 | 13 | 7.8 |
| Dec 12 | 5 | 9 | 3.7 |
| Dec 13 | 30 | 27 | 11.7 |
| Dec 14 | 58 | 56 | 24.4 |
| Dec 15 | 66 | 53 | 28.5 |
| Dec 16 | 57 | 58 | 26.6 |
| Dec 17 | 61 | 50 | 21.6 |
| Dec 18 | 54 | 59 | 20.2 |
| Dec 19 | 29 | 35 | 12.0 |
| Dec 20 | 41 | 38 | 16.6 |
| Dec 21 | 31 | 31 | 14.4 |
| Dec 22 | 24 | 25 | 10.4 |
| Dec 23 | 12 | 7 | 4.5 |
| Dec 24 | 40 | 39 | 16.0 |
| Dec 25 | 64 | 55 | 23.4 |
| Dec 26 | 61 | 59 | 17.6 |
| Dec 27 | 43 | 48 | 21.6 |
| Dec 28 | 48 | 47 | 19.7 |
| Dec 29 | 29 | 26 | 15.1 |
| Dec 30 | 37 | 38 | 19.3 |
| Dec 31 | 58 | 53 | 28.9 |
| **Average** | **29** | **28** | **12.4** |

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 fourth quarter.

- Figure 3 presents a wind rose for only those periods when the reported hourly TSP concentration was at or above 45 μg/m$^3$; this represents the upper 16 percent of valid TSP values.

- Figure 4 presents a wind rose for only those periods when the hourly TSP concentration was at or below 5 μg/m$^3$; this represents the lower 26 percent of valid TSP values.

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

Figure 2 shows a strong emphasis for northwesterly through northeasterly winds. Easterly winds were considerably less common than in most previous quarters; this continues the pattern seen during the third quarter of 2023. The average wind speed was 1.1 m/s (2.5 mph).

Figure 3 shows a wind rose for high[8] (≥45 μg/m$^3$) TSP concentrations. Wind directions during these periods showed a stronger emphasis for winds from the north and north-northeast, but the overall distribution was not greatly different from that shown in Figure 2. Wind speeds were minimally lower than for the quarter overall, averaging 0.9 m/s (2.0 mph).

Figure 4 shows a wind rose for low (≤5 μg/m$^3$) TSP concentrations. These periods showed an emphasis for winds from the northwest quadrant, similar to low-TSP periods during many previous quarters. Wind speeds during low-TSP periods were noticeably higher, averaging 1.8 m/s (4.0 mph).

## 4.2 TSP vs $PM_{10}$

A comparison was made between the gravimetrically-determined TSP data and the concurrent hourly data for $PM_{10}$. Unlike the data presented in Section 4.1, the TSP gravimetric data was collected over periods typically ranging from 5–8 days.[9] 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.

[8] 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.

[9] It is noted that two samples – collected from October 2-4 and November 13-15 – were collected over only two days.

The table shows that overall, the gravimetrically determined TSP concentrations from the E-Sampler were marginally higher than the concurrent $PM_{10}$ concentrations from the BAM-1020 monitor. On this basis, virtually all (~95 percent) of the airborne particulate was smaller than 10 microns; this is consistent with the analysis presented in Section 4.1.

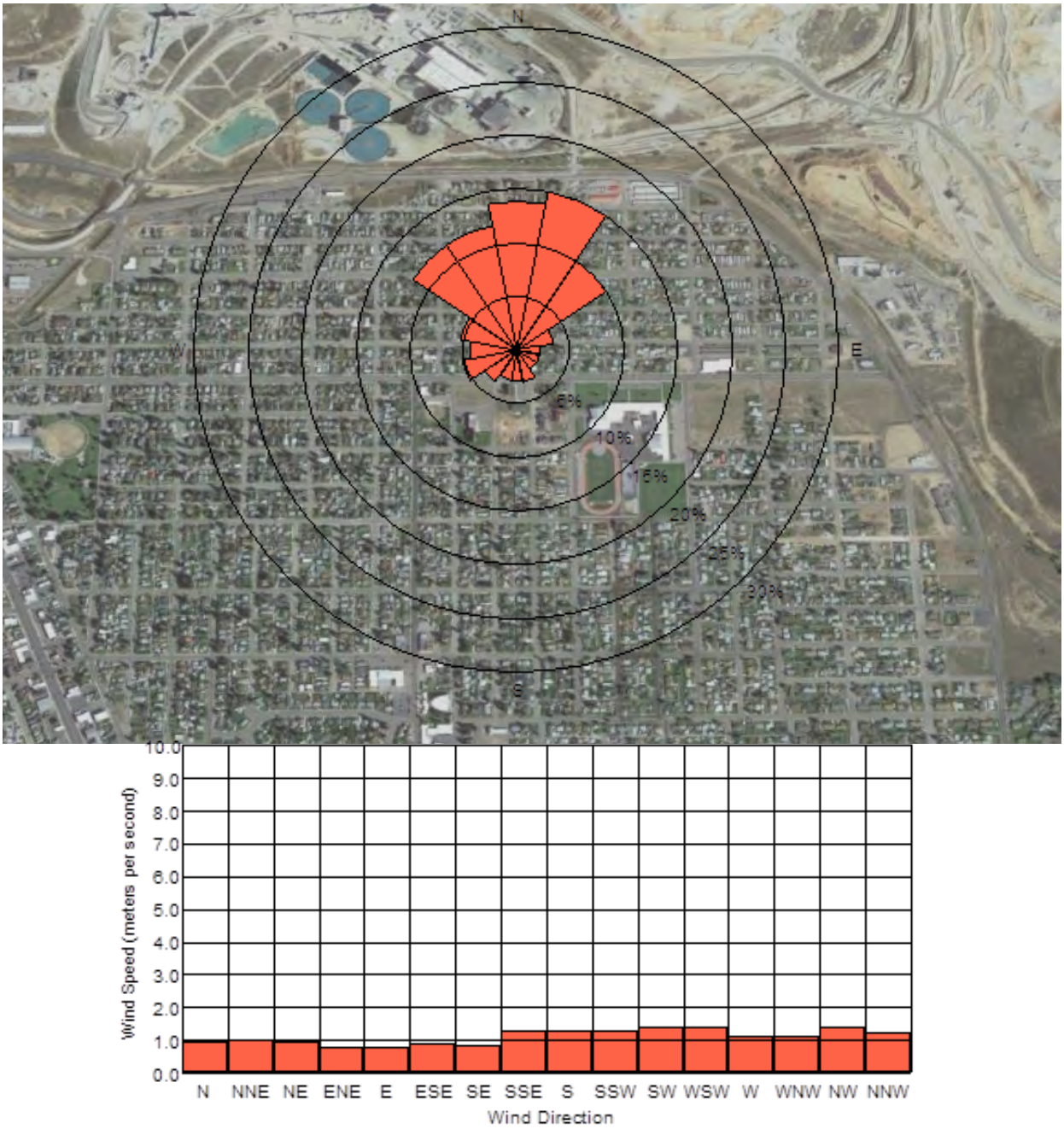
## Table 3: Summary: Gravimetric TSP vs Hourly $PM_{10}$ for Quarter 4, 2023

| Sampling Period (2023) | Average Gravimetric TSP ($\mu g/m^3$) | Average BAM-1020 $PM_{10}$ ($\mu g/m^3$) |
|---|---|---|
| 09/25-10/02 | 12.1 | 13.6 |
| 10/02-10/04 | 9.8 | 6.8 |
| 10/04-10/10 | 14.7 | 15.0 |
| 10/10-10/16 | 13.6 | 11.4 |
| 10/16-10/23 | 15.1 | 18.6 |
| 10/23-11/01* | 7.8* | 14.8 |
| 11/01-11/06 | 10.4 | 13.1 |
| 11/06-11/13 | 20.1 | 19.9 |
| 11/13-11/15 | 29.0 | 33.6 |
| 11/15-11/21 | 19.2 | 18.2 |
| 11/21-12/01 | 34.8 | 31.0 |
| 12/01-12/05 | 8.1 | 6.4 |
| 12/05-12/12 | 9.9 | 11.8 |
| 12/12-12/19 | 51.4 | 44.7 |
| 12/19-12/22 | 36.8 | 33.3 |
| 12/22-12/27 | 36.0 | 30.5 |
| **Average** | **21.4** | **20.5** |

*TSP result unrealistically low, possibly due to leak around filter or lost particulate matter. Data excluded from averages.

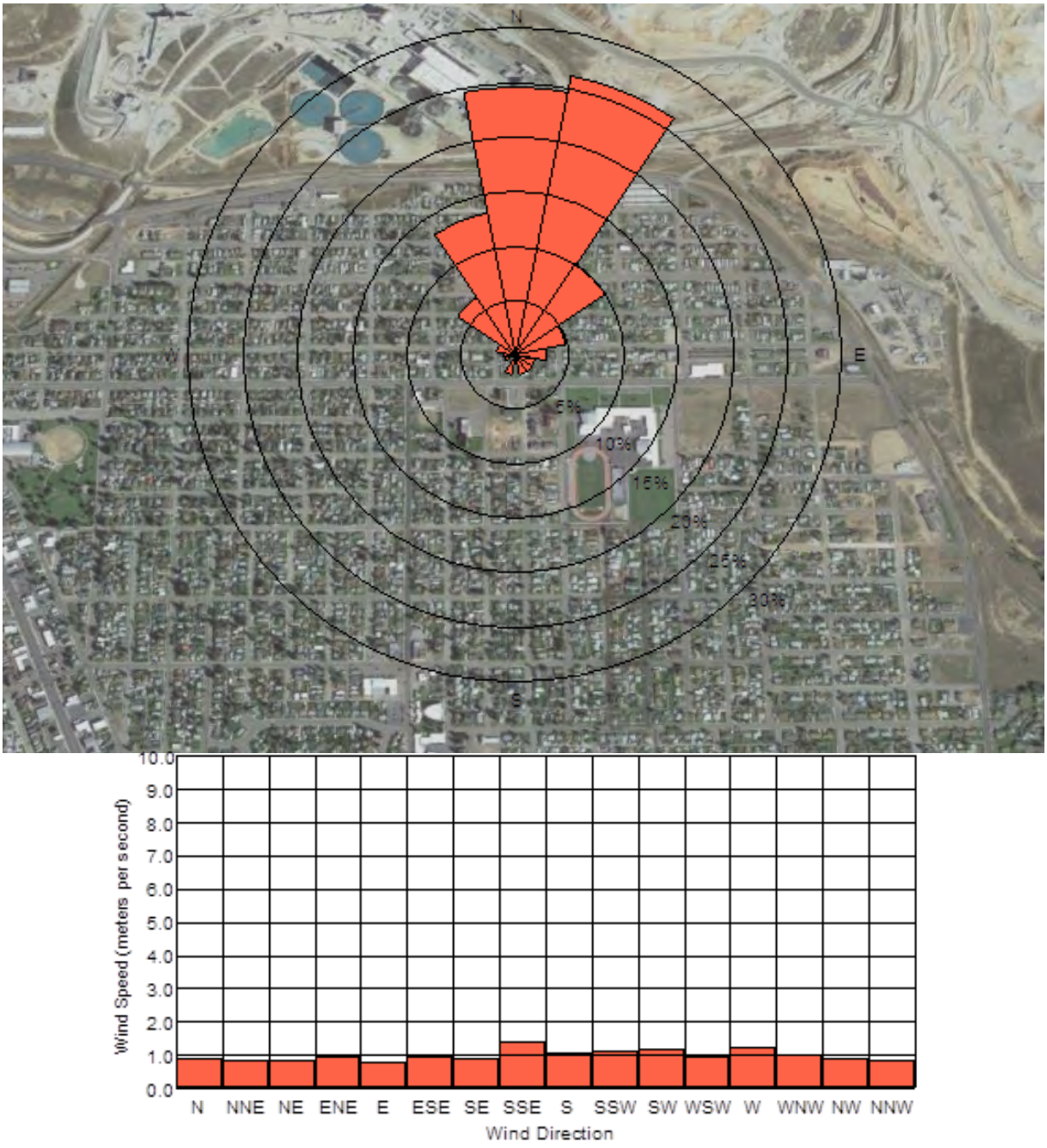
## Figure 2. Quarterly Wind Rose, Greeley School (All Hours)

**Fourth Quarter 2023 (direction wind was from)**



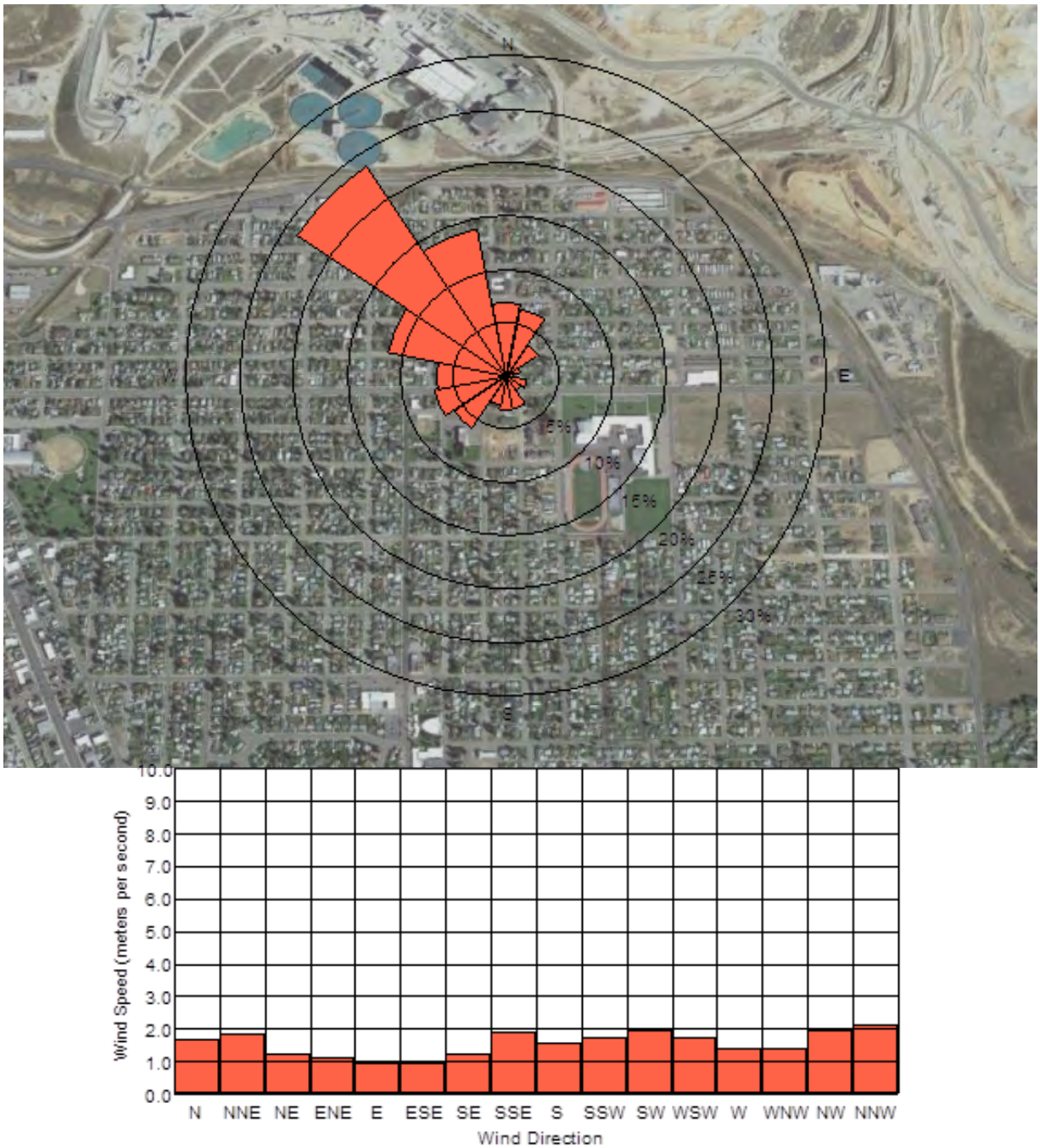
## Figure 3. Quarterly Wind Rose, Greeley School (TSP ≥45 µg/m³)

**Fourth Quarter 2023 (direction wind was from)**



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

**Fourth 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 TSP samples and fifteen $PM_{10}$ samples collected during the fourth quarter were analyzed for trace elements, as well as four Field Blanks and four filter lot blanks (Lab Blanks). All samples were successfully collected in the normal manner, with one exception:

- The TSP sample scheduled from October 23 to November 1 produced a TSP concentration that was 1) barely half of the MDEQ BAM-1020 $PM_{10}$ concentration, and 2) equal to the MDEQ BAM-1020 $PM_{2.5}$ concentration during the same period. This indicates that there may have been leakage around the filter during sampling, or that some of the captured particulate may have been lost after sampling. This also calls into question the trace element results for this sample (which were all non-detectable).

Tables 4a and 4b summarize the total particulate mass and ELI analytical results for samples collected during the fourth quarter. Detectable results were usually obtained for copper, while results for other elements (particularly arsenic, cadmium and molybdenum) were often non-detectable. Table 4c shows the Field Blank and Lab Blank results associated with the fourth 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 Blank, Field Blank and Method Blank concentrations for the fourth quarter were all non-detectable.

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

- All trace element concentrations in the individual $PM_{10}$ samples were below the applicable Guideline values. The closest approach to a Guideline was for manganese in the sample collected on December 14, with a concentration of 29 ng/$m^3$, or 58% of the lifetime exposure Guideline value of 50 ng/$m^3$. All quarterly averages were below the applicable Guideline values.

- The TSP sample for December 22 to December 27 had two trace element concentrations that exceeded their respective lifetime values:

- The arsenic concentration of 160 ng/$m^3$ was 1,067 percent of the Guideline value of 15 ng/$m^3$. However, the quarterly average concentration of 13 ng/$m^3$ was below that Guideline (which is a ***Lifetime*** exposure value). All other individual sample results were non-detectable for arsenic.

- The manganese concentration of 59 ng/$m^3$ was 118 percent of the Guideline value of 50 ng/$m^3$. The quarterly average concentration of 17 ng/$m^3$ was below that Guideline (which is also a ***Lifetime*** exposure value). All other individual manganese results were below the Guideline value.

- No obvious reason for these higher results could be identified. The average gravimetric TSP concentration of 36 µg/$m^3$ for this sample was higher than the quarterly average TSP concentration of 21µg/$m^3$, but not remarkably so. Three other samples also had average TSP concentrations of 35 µg/$m^3$ or higher yet were non-detectable for arsenic and substantially lower for manganese.

Table 6 shows the sources of the "Guideline" values used for these analyses, and their derivations.[10] 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.

[10] 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) |
|---|---|---|---|---|---|---|---|---|
| 10/02-10/04 | 54 | ND | ND | ND | ND | ND | ND | ND |
| 10/04-10/10 | 236 | ND | ND | 1 | 0.3 | 0.1 | ND | ND |
| 10/10-10/16 | 231 | ND | ND | 1 | ND | ND | ND | ND |
| 10/16-10/23 | 290 | ND | ND | 1 | ND | ND | ND | ND |
| 10/23-11/01 | 193 | ND (1) | ND (1) | ND (1) | ND (1) | ND (1) | ND (1) | ND (1) |
| 11/01-11/06 | 142 | ND | ND | 0.6 | ND | ND | ND | ND |
| 11/06-11/13 | 391 | ND | ND | 0.9 | ND | ND | ND | ND |
| 11/13-11/15 | 156 | ND | ND | 0.4 | ND | ND | ND | ND |
| 11/15-11/21 | 318 | ND | ND | 2 | ND | ND | 0.09 | 0.8 |
| 11/21-12/01 | 955 | ND | ND | 2 | 0.4 | 0.1 | 0.2 | 1 |
| 12/01-12/05 | 89 | ND | ND | ND | ND | ND | ND | ND |
| 12/05-12/12 | 191 | ND | ND | 0.7 | ND | ND | ND | ND |
| 12/12-12/19 | 988 | ND | 0.015 | 2.1 | 0.46 | 0.12 | 0.12 | 0.98 |
| 12/19-12/22 | 303 | ND | ND | 1.5 | 0.40 | ND | ND | 0.81 |
| 12/22-12/27 | 482 | 2.1 | 0.011 | 1.1 | 0.79 | ND | ND | 0.88 |
| 12/27-01/02 | 724 | ND | 0.013 | 1.6 | 0.31 | ND | 0.095 | 0.86 |

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

## 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) |
|---|---|---|---|---|---|---|---|---|
| 10/03 | 131 | ND | ND | ND | ND | ND | ND | ND |
| 10/09 | 386 | ND | ND | 1 | ND | 0.2 | ND | ND |
| 10/15 | 427 | ND | ND | 1 | ND | ND | ND | ND |
| 10/21 | 483 | ND | ND | 1 | 0.3 | 0.1 | ND | ND |
| 10/27 | 325 | ND | ND | 0.7 | ND | ND | ND | ND |
| 11/02 | 205 | ND | ND | ND | ND | ND | ND | ND |
| 11/08 | 184 | ND | ND | ND | ND | ND | ND | ND |
| 11/14 | 795 | ND | ND | 1 | 0.3 | ND | 0.1 | ND |
| 11/20 | 226 | ND | ND | ND | 0.3 | ND | ND | ND |
| 11/26 | 378 | ND | ND | 0.8 | ND | ND | 0.2 | ND |
| 12/02 | 122 | ND | ND | 0.4 | ND | ND | ND | ND |
| 12/08 | 162 | ND | ND | 0.9 | ND | ND | ND | ND |
| 12/14 | 1326 | ND | 0.018 | 2.3 | 0.69 | 0.074 | 0.14 | 1.3 |
| 12/20 | 916 | ND | 0.015 | 2.0 | 0.36 | 0.22 | 0.13 | 1.0 |
| 12/26 | 1050 | ND | 0.015 | 1.2 | 0.26 | ND | 0.096 | 0.94 |

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) |
|---|---|---|---|---|---|---|---|---|
| 11/22-LB | 0 | ND | ND | ND | ND | ND | ND | ND |
| 10/21-FFB | -2 | ND | ND | ND | ND | ND | ND | ND |
| 12/19-LB | -3 | ND | ND | ND | ND | ND | ND | ND |
| 11/14-FFB | 4 | ND | ND | ND | ND | ND | ND | ND |
| 01/18-LB | 3 | ND | ND | ND | ND | ND | ND | ND |
| 12/12-FFB | 3 | ND | ND | ND | ND | ND | ND | ND |
| 01/31-LB | -2 | ND | ND | ND | ND | ND | ND | ND |
| 01/02-FFB | 13 | 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 ($ng/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 10/02-10/04 | 5.49 | ND | ND | ND | ND | ND | ND | ND |
| 10/04-10/10 | 16.02 | ND | ND | 62 | 19 | 6.2 | ND | ND |
| 10/10-10/16 | 16.93 | ND | ND | 59 | ND | ND | ND | ND |
| 10/16-10/23 | 19.22 | ND | ND | 52 | ND | ND | ND | ND |
| 10/23-11/01 | 24.71 | (1) | (1) | (1) | (1) | (1) | (1) | (1) |
| 11/01-11/06 | 13.61 | ND | ND | 44 | ND | ND | ND | ND |
| 11/06-11/13 | 19.45 | ND | ND | 46 | ND | ND | ND | ND |
| 11/13-11/15 | 5.38 | ND | ND | 74 | ND | ND | ND | ND |
| 11/15-11/21 | 16.59 | ND | ND | 120 | ND | ND | 5.4 | 48 |
| 11/21-12/01 | 27.46 | ND | ND | 73 | 15 | 3.6 | 7.3 | 36 |
| 12/01-12/05 | 10.98 | ND | ND | ND | ND | ND | ND | ND |
| 12/05-12/12 | 19.22 | ND | ND | 36 | ND | ND | ND | ND |
| 12/12-12/19 | 19.22 | ND | 0.78 | 110 | 24 | 6.2 | 6.2 | 51 |
| 12/19-12/22 | 8.24 | ND | ND | 180 | 49 | ND | ND | 98 |
| 12/22-12/27 | 13.38 | 160 | 0.82 | 82 | 59 | ND | ND | 66 |
| 12/27-01/02 | 16.82 | ND | 0.77 | 95 | 18 | ND | 5.6 | 51 |
| Average ($ng/m^3$) * | | 13 | 0.38 | 70 | 17 | 3.5 | 3.6 | 38 |
| Guideline ($ng/m^3$) ** | | 15 | 10 | 2,000 | 50 | 400 | 150 | 47,619 |

(1) Suspect leakage in sample train or lost particulate. Results not included in calculations; all were non-detectable.

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

**The guideline values, except lead (Pb), are applicable to a lifetime or chronic exposure. The lead (Pb) guideline is an ambient air quality standard applicable to a 3-month average. The quarterly average lead concentration of 3.6 $ng/m^3$ was 2 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 ($ng/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 10/03 | 24.02 | ND | ND | ND | ND | ND | ND | ND |
| 10/09 | 24.02 | ND | ND | 42 | ND | 8.3 | ND | ND |
| 10/15 | 24.02 | ND | ND | 42 | ND | ND | ND | ND |
| 10/21 | 24.03 | ND | ND | 42 | 12 | 4.2 | ND | ND |
| 10/27 | 24.02 | ND | ND | 29 | ND | ND | ND | ND |
| 11/02 | 24.03 | ND | ND | ND | ND | ND | ND | ND |
| 11/08 | 24.02 | ND | ND | ND | ND | ND | ND | ND |
| 11/14 | 24.02 | ND | ND | 42 | 12 | ND | 4.2 | ND |
| 11/20 | 24.02 | ND | ND | ND | 12 | ND | ND | ND |
| 11/26 | 24.01 | ND | ND | 33 | ND | ND | 8.3 | ND |
| 12/02 | 24.01 | ND | ND | 17 | ND | ND | ND | ND |
| 12/08 | 24.01 | ND | ND | 37 | ND | ND | ND | ND |
| 12/14 | 23.64 | ND | 0.76 | 97 | 29 | 3.1 | 5.9 | 55 |
| 12/20 | 24.02 | ND | 0.62 | 83 | 15 | 9.2 | 5.4 | 42 |
| 12/26 | 24.01 | ND | 0.62 | 50 | 11 | ND | 4.0 | 39 |
| Average ($ng/m^3$) | | 1.7 | 0.29 | 36 | 9.9 | 3.2 | 3.1 | 22 |
| Guideline ($ng/m^3$) * | | 15 | 10 | 2,000 | 50 | 400 | 150 | 47,619 |

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

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

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

| Analyte | Dose/ Risk[A] | Source | Description | Time Period | Detectable TSP[D] | Detectable $PM_{10}$[E] |
|---|---|---|---|---|---|---|
| Arsenic (inorganic) | 15 | EPA / DPHHS[G] | RfC[B] | Lifetime | 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 October 31, November 15 and December 14.[11]

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 fourth quarter, as well as any corrective actions. Detailed verification check results are shown in Appendix F. Appendix G presents certifications for flow calibration standards used during the quarter.

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

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

[11] The calibration checks performed on January 3 and January 29, 2024, also are shown to demonstrate data validity through the end of the quarter.

## Table 8: Summary of Quarter 4, 2023 Calibration Verification Results

| Date | Calibration Check | Results | Limits | Actions |
|---|---|---|---|---|
| **10/31/2023** | BGI $PM_{10}$ Flow Verification (A) | -1.7% | ±4% | |
| | BGI $PM_{10}$ Flow Verification (B) | +1.9% | ±4% | |
| | BGI Ambient Temperature | -1.0°C | ±2.0°C | |
| | BGI Filter Temperature | -1.1°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) | +1.0% | ±5% | |
| | E-Sampler Flow Verification (B) | -1.0% | ±5% | |
| | E-Sampler Ambient Temperature | +0.7°C | ±2.0°C | |
| | E-Sampler Ambient Pressure | +101 Pa | ±1333 Pa | |
| | E-Sampler Leak Test | 0.0 LPM | ≤0.3 LPM | |
| | E-Sampler Relative Humidity | -3.0% RH | ±7% RH | |
| **11/15/2023** | BGI $PM_{10}$ Flow Verification (A) | -7.0% | ±4% | C |
| | BGI $PM_{10}$ Flow Verification (B) | +7.7% | ±4% | C |
| | BGI $PM_{10}$ Flow Verification (A) | +0.4% | ±4% | D |
| | BGI $PM_{10}$ Flow Verification (B) | -0.4% | ±4% | D |
| | BGI Ambient Temperature | +0.2°C | ±2.0°C | |
| | BGI Filter Temperature | -0.3°C | ±2.0°C | |
| | BGI Ambient Pressure | -4.3 mm Hg | ±10 mmHg | |
| | BGI Leak Test (pressure drop) | 1 cm $H_2O$ | ≤4 cm $H_20$ | |
| | E-Sampler Flow Verification (A) | -1.0% | ±5% | |
| | E-Sampler Flow Verification (B) | +1.0% | ±5% | |
| | E-Sampler Ambient Temperature | +0.4°C | ±2.0°C | |
| | E-Sampler Ambient Pressure | -95 Pa | ±1333 Pa | |
| | E-Sampler Leak Test | 0.0 LPM | ≤0.3 LPM | |
| | E-Sampler Relative Humidity | +2.5% RH | ±7% RH | |
| **12/14/2023** | BGI $PM_{10}$ Flow Verification (A) | +1.5% | ±4% | |
| | BGI $PM_{10}$ Flow Verification (B) | -1.5% | ±4% | |
| | BGI Ambient Temperature | +1.0°C | ±2.0°C | |
| | BGI Filter Temperature | +0.1°C | ±2.0°C | |
| | BGI Ambient Pressure | -3.6 mm Hg | ±10 mmHg | |
| | BGI Leak Test (pressure drop) | 2 cm $H_2O$ | ≤4 cm $H_20$ | |
| | E-Sampler Flow Verification (A) | +1.0% | ±5% | |
| | E-Sampler Flow Verification (B) | -1.0% | ±5% | |
| | E-Sampler Ambient Temperature | +1.0°C | ±2.0°C | |
| | E-Sampler Ambient Pressure | +60 Pa | ±1333 Pa | |
| | E-Sampler Leak Test | 0.0 LPM | ≤0.3 LPM | |
| | E-Sampler Relative Humidity | -5.2% RH | ±7% RH | |

| Date | Calibration Check | Results | Limits | Actions |
|---|---|---|---|---|
| **01/03/2024** | BGI $PM_{10}$ Flow Verification (A) | +0.5% | ±4% | E |
| | BGI $PM_{10}$ Flow Verification (B) | -0.4% | ±4% | E |
| | BGI $PM_{10}$ Flow Verification (A) | +0.5% | ±4% | F |
| | BGI $PM_{10}$ Flow Verification (B) | -0.5% | ±4% | F |
| | BGI Ambient Temperature | 0.0°C | ±2.0°C | |
| | BGI Filter Temperature | +0.1°C | ±2.0°C | |
| | BGI Ambient Pressure | -4.1 mm Hg | ±10 mmHg | |
| | BGI Leak Test (pressure drop) | 1 cm $H_2O$ | ≤4 cm $H_20$ | |
| **01/29/2024** | E-Sampler Flow Verification (A) | -0.5% | ±5% | |
| | E-Sampler Flow Verification (B) | +0.5% | ±5% | |
| | E-Sampler Ambient Temperature | +1.1°C | ±2.0°C | |
| | E-Sampler Ambient Pressure | +96 Pa | ±1333 Pa | |
| | E-Sampler Leak Test | 0.0 LPM | ≤0.3 LPM | |
| | E-Sampler Relative Humidity | -1.0% RH | ±7% RH | |

**Codes:**

A = Difference of reported flow from reference standard flow.
B = Difference of reference standard flow from design flow (16.7 LPM for BGI, 2.0 LPM for E-Sampler).
C = Large error possibly associated with use of new calibration instrument from a different manufacturer. Multipoint flow calibration performed.
D = Results after multipoint calibration.
E = Calibration check before sample pump replacement.
F = Calibration check after sample pump replacement.

# 7.0 QUARTERLY AUDIT/CALIBRATION RESULTS

An audit is performed once in each full calendar quarter. The checks and acceptance criteria are identical to those for monthly calibrations (see Table 7). The primary difference is that the audits are performed by a different person, using different calibration standards. Calibration adjustments then are made as necessary, based on the as-found audit results. The fourth quarter audit was performed on December 14, 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 4, 2023 Audit Results

| BGI PQ200 PM10 Sampler – Performance Audit | | | |
|---|---|---|---|
| Date: 12/14/2023 | Time:<br>1204 - 1230 MST | Sampler Serial Number: 1622 /<br>Greeley School | |
| Performed By: Daniel Bitz | | Observer: Steve Heck | |
| Ref Standard and S/N:<br>Tetra Cal SN 149645 | | Certification Date: 12-04-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading<br>(mm Hg) | Sampler<br>(a) | Audit<br>(b) | Difference<br>(a - b)<br>(must be ≤ ±10) |
| Ambient Pressure | 623 | 626.7 | -3.7 |
| **Temperature Sensor Verification** | | | |
| Reading<br>(degrees Celsius) | Sampler<br>(a) | Audit<br>(b) | Difference<br>(a - b)<br>(must be ≤ ±2ºC) |
| Ambient Temperature | -1.5 C | -1.5 C | 0.0 C |
| Filter Temperature | -1.0 C | -0.1 C | -0.9 C |
| **Leak Check** | | | |
| Vacuum Readings<br>(mm Hg) | Start<br>96 | End<br>94 | Pass ~~Fail~~ |
| **Flow Rate Verification** | | | |
| Reading<br>(liters per minute) | Sampler<br>(a) | Audit<br>(b) | % Difference<br>100*(a – b)/b<br>(must be ≤ ±4%) |
| Operating flow rate check | 16.70 | 16.28 | +2.6% |
| Reading<br>(liters per minute) | Audit<br>(b) | Design Flow Rate Standard<br>(c) | % Difference<br>100*(b–16.7)/16.7<br>(must be ≤ ±5%) |
| Design flow rate calculation | 16.28 | 16.7 | -2.5% |
| Comments:<br><br>No adjustments made. Removed operating filter during audit. | | | |

| **Met One E-Sampler – ~~Monthly Calibration Check~~ / Quarterly Audit** | | | |
|---|---|---|---|
| Date: 12/14/2023 | Time:<br>1137-1150 MST | Sampler Serial Number: X24429 | |
| Performed By: Daniel Bitz | | Location (field or lab): Greeley School | |
| Ref Standard & S/N:<br>1) Swift SN C13475 (Flow and BP)<br>2) Swift SN D16202 (Temp) | | Certification Date:<br>1) 07-28-2023<br>2) 11-08-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading<br>(Pascals) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(limit ≤ ±1333 Pa) |
| Ambient Pressure | 83,646 Pa | 627.1 mmHg<br>=83,606 Pa | +40 Pa |
| Pascals = mmHg * 133.322 | | Limit of ±1333 Pascals = ±10 mmHg | |
| **Temperature Sensor Verification** | | | |
| Reading<br>(degrees Celsius) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(must be ≤ ±2ºC) |
| Ambient Temperature | 7.4 C | 6.4 C | +1.0 C |
| **Leak Check** | | | |
| Leak Check Flow Rate | 0.0<br>LPM | (must be <0.4 LPM) | **Pass** ~~Fail~~ |
| **Flow Rate Verification** | | | |
| Reading<br>(liters per minute) | Sampler<br>(a) | Reference Standard<br>(b) | % Difference<br>100*(a – b)/b<br>(must be ≤ ±5%) |
| Audit standard flow rate check | 2.0 | 2.02 | -1.0% |
| Reading<br>(liters per minute) | Reference Standard<br>(b) | Design Flow Rate Standard<br>(c) | % Difference<br>100*(b–2.0)/2.0<br>(must be ≤ ±5%) |
| Design flow rate check | 2.02 | 2.0 | +1.0% |
| **Relative Humidity Verification**<br>(checked with Assmann Psychrometer) | | | |
| Dry Bulb Temp. °C | -2.8 | Calculated RH (a) | 64.2% |
| Wet Bulb Temp. °C | -4.8 | Sampler RH (b) | 59% |
| BP Inches Hg | 24.68 | Difference = a – b<br>(must be ≤7% RH) | -5.2% |

# 8.0 DATA COMPLETENESS

The percentages of data recovery for each Greeley School monitoring parameter reported by MR during the fourth quarter of 2023 are given in Table 10. The quarterly data recovery goal for hourly TSP is ≥80 percent,[12] and for relative humidity is ≥90 percent. The net data recovery was 91.6 percent for TSP and 100.0 percent for relative humidity.

The hourly TSP data loss was caused by the invalidation of the TSP sample collected from October 23 to November 1. The calculated average TSP concentration was only 7.8 $\mu g/m^3$, which was unrealistically low compared to the average MDEQ BAM-1020 $PM_{10}$ concentration of 14.8 $\mu g/m^3$, and to the BAM-1020 $PM_{2.5}$ concentration of 7.8 $\mu g/m^3$. It is suspected that 1) a filter leak was present during sampling, or that 2) some particulate may have been lost from the filter surface prior to analysis.

Data recovery statistics for the particulate filter samples are presented in Table 11. The quarterly data recovery goal for TSP and $PM_{10}$ filter samples is ≥80 percent for both the gravimetric and trace element analyses. The actual data recovery was 93.8 percent for the TSP gravimetric and trace element analyses, and 100.0 percent for the $PM_{10}$ gravimetric and trace element analyses. As noted above, the validity of the TSP sample collected from October 23 to November 1 is questionable; the analytical results for that sample are reported in Section 5.0 for completeness.

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

## Table 10: Quarterly Data Completeness Summary – Hourly Data

| Montana Resources LLP – Greeley School | | | | | |
|---|---|---|---|---|---|
| Parameter | Readings Possible[A] | Valid Readings | Percent Recovery | QA/QC Hours[B] | Net Percent Recovery |
| **October 2023** | | | | | |
| TSP | 617 | 467 | 75.7 | 6 | 76.7 |
| Relative Humidity | 744 | 744 | 100.0 | 0 | 100.0 |
| Total | 1361 | 1211 | 89.0 | 6 | 89.4 |
| **November 2023** | | | | | |
| TSP | 661 | 647 | 97.9 | 7 | 98.9 |
| Relative Humidity | 720 | 720 | 100.0 | 0 | 100.0 |
| Total | 1381 | 1367 | 99.0 | 7 | 99.5 |
| **December 2023** | | | | | |
| TSP | 560 | 548 | 97.9 | 8 | 99.3 |
| Relative Humidity | 744 | 744 | 100.0 | 0 | 100.0 |
| Total | 1304 | 1292 | 99.1 | 8 | 99.7 |
| **Quarter 4, 2023** | | | | | |
| TSP | 1838 | 1662 | 90.4 | 21 | 91.6 |
| Relative Humidity | 2208 | 2208 | 100.0 | 0 | 100.0 |
| Total | 4046 | 3870 | 95.7 | 21 | 96.2 |

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

## Table 11: Quarterly Data Completeness Summary – Filter Analysis Data

| Montana Resources LLP – Greeley School | | | |
|---|---|---|---|
| Parameter | Readings Possible | Valid Readings | Percent Recovery |
| **October 2023** | | | |
| TSP – Gravimetric | 5 | 4 | 80.0 |
| TSP – Trace Elements | 35 | 28 | 80.0 |
| $PM_{10}$ – Gravimetric | 5 | 5 | 100.0 |
| $PM_{10}$ – Trace Elements | 35 | 35 | 100.0 |
| Total | 80 | 72 | 90.0 |
| **November 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 |
| **December 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 |
| **Quarter 4, 2023** | | | |
| TSP – Gravimetric | 16 | 15 | 93.8 |
| TSP – Trace Elements | 112 | 105 | 93.8 |
| $PM_{10}$ – Gravimetric | 15 | 15 | 100.0 |
| $PM_{10}$ – Trace Elements | 105 | 105 | 100.0 |
| Total | 248 | 240 | 96.8 |
| Note: The TSP sample collected from Sep 25 to October 2 is not included in this tabulation because it was collected mostly in September, and was included in the Quarter 3, 2023 report. | | | |

# 9.0 COMPARISON TO AMBIENT AIR QUALITY STANDARDS

This study is not intended to determine compliance with the NAAQS[13] or the Montana ambient air quality standards[14] (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 fourth quarter of 2023.

Additionally, the analyses presented in Section 5.0 indicate that individual (per sample) airborne concentrations of the other six trace elements were generally well below the Guidelines presented in Table 6, except for the TSP arsenic and manganese results for December 22-27. However, the quarterly average concentrations for arsenic and manganese were below their respective ***Lifetime*** Guideline values.

## Table 12: Summary of Airborne Concentration vs. NAAQS

| Analyte | Observed Concentration (μg/m³) | Averaging Period | Ambient Standard (μg/m³) | Authority |
|---|---|---|---|---|
| $PM_{10}$ | 56[1] | 24-hour (max) | 150 | NAAQS & MAAQS |
| Pb | 0.007[2]<br>0.004[3] | 90-day | 1.50 | MAAQS |
| | | 3-month | 0.15 | NAAQS |
| TSP | 21[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 54 μg/m³.

[2] This value was the maximum from the filter-based TSP sampler, collected over a 6-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.

[13] 40 CFR 50 *et seq.*

[14] ARM 17.8.223

[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 4, 2023, based on gravimetric filter analysis.

# APPENDIX A: VALIDATED AMBIENT MONITORING DATA BY MONTH, FOURTH 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)
## October 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 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 2 | 1 | 2 | 4 | 1 | 3 | 4 | AO | AO | AO | AO | AO | AO | AO | AO | 2 | 4 | 1 |
| 2 | AO | AO | AO | AO | AO | AO | AO | AO | AO | AO | 14 | 6 | 3 | BA | 11 | 5 | 6 | 5 | 5 | 5 | 8 | 7 | 6 | 5 | 7 | 14 | 3 |
| 3 | 20 | 19 | 9 | 8 | 53 | 11 | 32 | 21 | 12 | 9 | 8 | 6 | 3 | 3 | 3 | 2 | 3 | 4 | 8 | 7 | 18 | AO | AO | AO | 12 | 53 | 2 |
| 4 | 5 | 4 | 9 | 3 | 8 | 11 | 17 | 9 | 8 | 11 | 7 | 8 | 7 | BA | 4 | 4 | 3 | 4 | 4 | 4 | 7 | 4 | 7 | 9 | 7 | 17 | 3 |
| 5 | 12 | 10 | 11 | 18 | 31 | 14 | 41 | 60 | 15 | 14 | 11 | 8 | 4 | 4 | 5 | 4 | 4 | 7 | 10 | 6 | 14 | 9 | 7 | 20 | 14 | 60 | 4 |
| 6 | 8 | 8 | 12 | AO | 8 | 18 | 55 | 28 | 13 | 12 | 11 | 10 | 7 | 6 | 5 | 6 | 4 | 7 | 8 | 12 | 8 | 18 | 26 | 14 | 13 | 55 | 4 |
| 7 | AO | AO | AO | AO | AO | AO | AO | AO | 22 | 18 | 21 | 15 | 10 | 4 | 1 | 2 | 2 | 7 | 23 | 12 | 21 | 28 | 21 | 21 | 14 | 28 | 1 |
| 8 | 49 | 24 | 15 | AO | AO | AO | AO | 52 | 15 | 23 | 25 | 28 | 11 | 9 | 7 | 4 | 4 | 8 | 12 | 9 | 16 | 15 | 18 | 11 | 18 | 52 | 4 |
| 9 | 14 | 14 | 15 | 15 | 18 | 28 | 68 | 36 | 15 | 44 | 47 | 28 | 18 | 9 | 9 | 8 | 9 | 24 | 18 | 7 | 7 | 7 | 4 | 4 | 19 | 68 | 4 |
| 10 | 4 | 6 | 7 | 10 | 9 | 11 | 16 | 28 | 23 | BA | 16 | 12 | 5 | 9 | 10 | 11 | 7 | 6 | 8 | 17 | 19 | 5 | 3 | 3 | 11 | 28 | 3 |
| 11 | AO | AO | AO | AO | AO | AO | AO | AO | 11 | 5 | 2 | 2 | 2 | 2 | 4 | 5 | 2 | 2 | 3 | 4 | 2 | 1 | 3 | 3 | 3 | 11 | 1 |
| 12 | 2 | 2 | 2 | 3 | 5 | 5 | 4 | 5 | 4 | 6 | 5 | 5 | 4 | 5 | 9 | 6 | 6 | 6 | 3 | 2 | 2 | 4 | 5 | 5 | 4 | 9 | 2 |
| 13 | 5 | 8 | 14 | 18 | 10 | 26 | 15 | 10 | 9 | 7 | 6 | 2 | 9 | 2 | 3 | 2 | 2 | 3 | 10 | 13 | 18 | 13 | 8 | 7 | 9 | 26 | 2 |
| 14 | AO | AO | AO | AO | AO | AO | AO | AO | 11 | 26 | 21 | 23 | 17 | 5 | 5 | 3 | 5 | 13 | 88 | 34 | 21 | 31 | 41 | 42 | 24 | 88 | 3 |
| 15 | 38 | 23 | 17 | 21 | 26 | 28 | 45 | 27 | 28 | 30 | 36 | 27 | 13 | 11 | 8 | 10 | 12 | 16 | 31 | 42 | 33 | 20 | 32 | 27 | 25 | 45 | 8 |
| 16 | 27 | 16 | 16 | 14 | AO | 25 | AO | 36 | 26 | 27 | 36 | 36 | 14 | BA | 9 | 9 | 8 | 8 | 15 | 16 | 18 | 21 | 17 | 14 | 19 | 36 | 8 |
| 17 | 12 | 7 | 3 | 4 | 14 | 10 | 5 | 5 | 3 | 3 | 6 | 7 | 7 | 9 | 5 | 3 | 3 | 3 | 3 | 4 | 4 | 12 | 18 | 23 | 7 | 23 | 3 |
| 18 | 22 | 6 | 3 | 13 | 19 | 31 | 28 | 25 | 12 | 17 | 19 | 6 | 3 | 3 | 2 | 3 | 4 | 5 | 8 | 11 | 12 | 21 | 27 | 28 | 14 | 31 | 2 |
| 19 | 33 | 13 | 9 | 9 | 20 | 41 | 28 | 41 | 20 | 15 | 27 | 8 | 4 | 3 | 3 | 3 | 5 | 13 | 14 | 10 | 14 | 16 | 17 | 18 | 16 | 41 | 3 |
| 20 | 16 | 25 | 10 | 8 | 8 | 20 | 23 | 34 | 28 | 32 | 30 | 11 | 7 | 3 | 5 | 4 | 6 | 8 | 16 | 15 | 18 | 19 | 33 | 25 | 17 | 34 | 3 |
| 21 | 16 | 17 | 13 | 11 | 29 | 63 | 38 | 33 | 26 | 17 | 19 | 17 | 15 | 8 | 8 | 8 | 9 | 15 | 16 | 18 | 15 | 18 | 19 | 26 | 20 | 63 | 8 |
| 22 | 16 | 18 | 15 | 12 | 23 | 57 | 47 | 36 | 23 | 26 | 26 | 21 | 18 | 14 | 10 | 20 | 9 | 10 | 15 | 9 | 7 | 12 | 7 | 12 | 19 | 57 | 7 |
| 23 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 7 | 4 | 5 | 5 | BA | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | 5 | 7 | 4 |
| 24 | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AO | AO | AO | | | |
| 25 | AO | AO | AO | AO | AO | AO | AO | AO | AO | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | | | |
| 26 | AM | AO | AO | AO | AM | AM | AO | AO | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | | | |
| 27 | AM | AM | AM | AO | AO | AO | AO | AO | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AO | AO | AO | AO | | | |
| 28 | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AO | | | |
| 29 | AO | AO | AO | AO | AO | AO | AO | AO | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AO | AO | AO | | | |
| 30 | AO | AO | AO | AO | AO | AO | AO | AO | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AO | AO | AO | | | |
| 31 | AO | AO | AO | AO | AO | AO | AO | AO | AM | AM | AM | AM | BF | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | AM | | | |
| Avg | 18 | 13 | 11 | 11 | 19 | 25 | 31 | 29 | 16 | 17 | 17 | 13 | 8 | 6 | 6 | 6 | 5 | 8 | 15 | 12 | 13 | 14 | 16 | 16 | 14 | 37 | 4 |
| Max | 49 | 25 | 17 | 21 | 53 | 63 | 68 | 60 | 28 | 44 | 47 | 36 | 18 | 14 | 11 | 20 | 12 | 24 | 88 | 42 | 33 | 31 | 41 | 42 | 25 | 88 | 8 |
| Min | 2 | 2 | 2 | 3 | 5 | 5 | 4 | 5 | 3 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 3 | 3 | 2 | 4 | 1 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# TSP - Met One E-Sampler (micrograms per cubic meter)
# November 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 | AM | AM | AO | AO | AO | AO | AO | AO | AM | AM | AM | AM | AM | BA | 5 | 6 | 6 | 13 | 23 | 21 | 37 | 42 | 49 | 45 | 25 | 49 | 5 |
| 2 | 40 | 24 | 17 | 12 | 20 | 8 | 6 | AO | 14 | 7 | 2 | 1 | 1 | 1 | 13 | 3 | 1 | 8 | 6 | 7 | 9 | 7 | 9 | 3 | 10 | 40 | 1 |
| 3 | 3 | 9 | 2 | 7 | 12 | 8 | 7 | 17 | 6 | 4 | 3 | 4 | 4 | 2 | 2 | 1 | 2 | 2 | 6 | 7 | 13 | 19 | 20 | 22 | 8 | 22 | 1 |
| 4 | AO | AO | AO | AO | AO | AO | AO | 14 | 19 | 12 | 14 | 25 | 28 | 23 | 16 | 20 | 19 | 5 | 5 | 7 | 5 | 10 | 8 | 11 | 14 | 28 | 5 |
| 5 | 16 | 9 | 9 | 6 | 3 | 3 | 3 | 3 | 5 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 2 | 3 | 1 | 5 | 11 | 7 | 16 | 11 | 5 | 16 | 0 |
| 6 | 8 | 14 | 18 | 4 | 4 | 21 | 14 | 9 | 15 | 12 | 12 | 7 | BA | 6 | 3 | 2 | 4 | 10 | 5 | 15 | 30 | 16 | 4 | 8 | 10 | 30 | 2 |
| 7 | 5 | 17 | 14 | AO | 14 | 18 | 17 | 47 | 23 | 7 | 4 | 2 | 3 | 3 | 3 | 4 | 3 | 4 | 4 | 8 | 12 | 4 | 3 | 1 | 10 | 47 | 1 |
| 8 | 6 | 2 | 3 | 5 | 4 | 10 | 9 | 15 | 27 | 5 | 4 | 3 | 2 | 3 | 4 | 3 | 5 | 9 | 8 | 4 | 3 | 5 | 41 | 33 | 9 | 41 | 2 |
| 9 | 58 | 37 | 46 | 29 | AO | AO | AO | AO | 24 | 21 | 31 | 10 | 10 | 10 | 6 | 7 | 9 | 29 | 36 | 75 | 60 | 76 | 80 | 41 | 35 | 80 | 6 |
| 10 | 71 | 88 | 71 | 47 | 31 | 37 | 45 | 39 | 53 | 48 | 45 | 42 | 20 | 9 | 8 | 7 | 8 | 19 | 27 | 31 | 30 | 45 | 92 | 93 | 42 | 93 | 7 |
| 11 | 90 | 80 | 49 | 12 | 7 | 8 | 13 | 19 | 15 | 8 | 6 | 5 | 6 | 3 | 4 | 3 | 6 | 6 | 4 | 4 | 12 | 11 | 6 | 4 | 16 | 90 | 3 |
| 12 | 6 | 9 | 4 | 3 | 4 | 5 | 30 | 19 | 15 | 9 | 6 | 4 | 4 | 4 | 3 | 2 | 7 | 11 | 33 | 26 | 21 | 28 | 22 | 27 | 13 | 33 | 2 |
| 13 | 21 | 28 | 15 | 8 | 20 | 18 | 30 | 33 | 45 | 29 | 33 | 40 | 40 | 17 | BA | 10 | 23 | 68 | 10 | 10 | 29 | 23 | 12 | 38 | 26 | 68 | 8 |
| 14 | 29 | 33 | 21 | 21 | 24 | 26 | 46 | 28 | 38 | 29 | 25 | 33 | 21 | 9 | 9 | 7 | 9 | 30 | 21 | 37 | 76 | 54 | 55 | 54 | 31 | 76 | 7 |
| 15 | 55 | 43 | 20 | 25 | 22 | 27 | 24 | 43 | 38 | 23 | 22 | 6 | BF | BA | BA | 3 | 3 | 12 | 29 | 21 | 7 | 8 | 8 | 7 | 21 | 55 | 3 |
| 16 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 4 | 8 | 10 | 10 | 10 | 4 | 2 | 2 | 3 | 4 | 4 | 5 | 14 | 27 | 66 | 23 | 20 | 10 | 66 | 2 |
| 17 | 24 | 18 | 19 | 44 | AO | AO | AO | AO | 44 | 23 | 16 | 25 | 23 | 8 | 7 | 5 | 7 | 12 | 15 | 21 | 38 | 33 | 23 | 65 | 24 | 65 | 5 |
| 18 | 58 | 62 | 56 | 86 | AO | AO | AO | AO | 49 | 43 | 19 | 27 | 24 | 10 | 7 | 8 | 12 | 9 | 23 | 60 | 45 | 14 | 34 | 27 | 34 | 86 | 7 |
| 19 | 28 | 48 | 38 | 40 | 16 | AO | AO | AO | 41 | 20 | 21 | 31 | 18 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 15 | 48 | 0 |
| 20 | 0 | 2 | 1 | 0 | 0 | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 4 | 10 | 17 | 20 | 38 | 46 | 63 | 52 | 11 | 63 | 0 |
| 21 | 58 | 34 | 74 | 52 | 35 | AO | AO | AO | 50 | 24 | 15 | 19 | 14 | 23 | BA | 51 | 41 | 61 | 76 | 85 | 43 | 65 | 63 | 66 | 47 | 85 | 14 |
| 22 | 33 | 14 | 17 | 19 | 13 | 8 | 9 | 32 | 28 | 21 | 15 | 24 | 7 | 5 | 6 | 5 | 10 | 14 | 19 | 5 | 3 | 10 | 3 | 10 | 14 | 33 | 3 |
| 23 | 19 | 17 | 25 | 29 | 17 | 10 | 8 | 16 | 15 | 12 | 19 | 4 | 5 | 1 | 1 | 1 | 4 | 5 | 4 | 3 | 5 | 8 | 8 | 4 | 10 | 29 | 1 |
| 24 | 5 | 3 | 5 | 4 | 11 | 5 | 5 | 7 | 14 | 14 | 4 | 3 | 3 | 6 | 3 | 3 | 7 | 22 | 38 | 15 | 10 | 10 | 14 | 9 | 9 | 38 | 3 |
| 25 | 17 | AO | AO | AO | AO | AO | AO | AO | 30 | 16 | 22 | 17 | 9 | 8 | 5 | 6 | 5 | 11 | 19 | 57 | 80 | 63 | 21 | 78 | 27 | 80 | 5 |
| 26 | 35 | 11 | 14 | 23 | AO | AO | AO | AO | AO | 18 | 13 | 25 | 16 | 3 | 4 | 20 | 14 | 11 | 8 | 19 | 118 | 55 | 92 | 64 | 30 | 118 | 3 |
| 27 | 75 | AO | AO | AO | AO | AO | AO | AO | 52 | 28 | 26 | 24 | 28 | 47 | 17 | 9 | 10 | 40 | 44 | 56 | 104 | 111 | 120 | 75 | 51 | 120 | 9 |
| 28 | 101 | 53 | 45 | 48 | AO | AO | AO | AO | 95 | 57 | 43 | 43 | 28 | 33 | 29 | 37 | 65 | 61 | 69 | 135 | 82 | 105 | 118 | 78 | 66 | 135 | 28 |
| 29 | 84 | 70 | 55 | 55 | 47 | 75 | 121 | 119 | 72 | 28 | 30 | 24 | 31 | 28 | 14 | 12 | 19 | 144 | 123 | 131 | 77 | 67 | 73 | 76 | 66 | 144 | 12 |
| 30 | 83 | 66 | 50 | 89 | 75 | 72 | AO | AO | 57 | 23 | 25 | 38 | 28 | 16 | 12 | 19 | 11 | 22 | 15 | 13 | 17 | 17 | AO | 14 | 36 | 89 | 11 |
| Avg | 37 | 31 | 27 | 27 | 18 | 19 | 22 | 26 | 32 | 19 | 17 | 17 | 14 | 10 | 7 | 9 | 11 | 22 | 23 | 30 | 35 | 34 | 37 | 35 | 23 | 66 | 5 |
| Max | 101 | 88 | 74 | 89 | 75 | 75 | 121 | 119 | 95 | 57 | 45 | 43 | 40 | 47 | 29 | 51 | 65 | 144 | 123 | 135 | 118 | 111 | 120 | 93 | 66 | 144 | 28 |
| Min | 0 | 2 | 1 | 0 | 0 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 | 16 | 0 |

# Montana Resources LLP
## Greeley School Air Monitoring Summary
## TSP - Met One E-Sampler (micrograms per cubic meter)
## December 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 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 82 | 54 | 26 | 25 | 2 | BA | 4 | 2 | 7 | 24 | 10 | 7 | 7 | 16 | 26 | 21 | 82 | 2 |
| 2 | 18 | 2 | 4 | 6 | 28 | 11 | 5 | 4 | 9 | 9 | 8 | 17 | 11 | 4 | 10 | 4 | 12 | 9 | 17 | 10 | AO | AO | 4 | 2 | 9 | 28 | 2 |
| 3 | 3 | 7 | 10 | 7 | 20 | 18 | 21 | 11 | 6 | 26 | 9 | 7 | 7 | 9 | 5 | 3 | 5 | 6 | 4 | 10 | 24 | 6 | 22 | 7 | 11 | 26 | 3 |
| 4 | 7 | 15 | 5 | 2 | 2 | 1 | 5 | 1 | 4 | 4 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 11 | 20 | 17 | 10 | 2 | 6 | 7 | 6 | 20 | 1 |
| 5 | 5 | 3 | 0 | 2 | 2 | 2 | 3 | 4 | 7 | 15 | 5 | 1 | 1 | 0 | BA | 1 | 2 | 4 | 5 | 24 | 14 | 10 | 15 | 56 | 8 | 56 | 0 |
| 6 | 16 | 19 | 10 | 5 | 11 | 11 | 23 | 39 | 33 | 55 | 25 | 11 | 2 | 5 | 2 | 5 | 3 | 2 | 5 | 6 | 10 | 12 | 4 | 1 | 13 | 55 | 1 |
| 7 | 1 | 3 | 7 | 13 | 2 | 2 | 2 | 1 | 1 | 1 | AV | AV | 1 | 2 | 1 | 1 | 3 | 11 | 37 | 27 | 127 | 23 | 12 | 13 | 13 | 127 | 1 |
| 8 | 15 | 24 | 38 | 24 | 26 | 12 | AO | 5 | 2 | 2 | 3 | 2 | 1 | 6 | 1 | 5 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 2 | 8 | 38 | 1 |
| 9 | 2 | 5 | 6 | 8 | 10 | 24 | AO | AO | AO | 37 | 23 | 22 | 7 | 3 | 2 | 4 | 10 | 21 | 7 | 6 | 7 | 16 | 13 | 6 | 11 | 37 | 2 |
| 10 | 3 | 2 | 2 | 1 | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 3 | 3 | 7 | AV | 3 | AO | AO | AO | 19 | AO | AO | AO | 14 | 4 | 19 | 1 |
| 11 | 14 | AO | 15 | 11 | 11 | 13 | AO | AO | 9 | 11 | 9 | 7 | 9 | 8 | 8 | 7 | AO | AO | AO | AO | AO | AO | AO | 8 | 10 | 15 | 7 |
| 12 | 3 | 2 | 8 | 8 | 10 | 3 | 2 | 2 | 7 | 2 | 2 | 3 | 1 | 1 | BA | 2 | 2 | 9 | 21 | AO | AO | AO | AO | AO | 5 | 21 | 1 |
| 13 | AO | AO | AO | AO | AO | AO | AO | AO | AO | AO | AO | AO | 22 | 27 | 22 | 22 | 35 | 43 | 36 | AO | AO | AO | AO | AO | 30 | 43 | 22 |
| 14 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 50 | 40 | AZ | BF | 37 | 31 | 39 | 50 | 57 | 69 | 113 | 71 | 66 | 60 | 75 | 58 | 113 | 31 |
| 15 | 90 | 84 | 58 | 64 | AO | AO | AO | AO | AO | 57 | 61 | 62 | AV | 57 | 56 | 61 | 55 | 60 | 46 | 70 | 63 | 69 | 85 | 82 | 66 | 90 | 46 |
| 16 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 58 | 43 | 50 | 48 | 60 | 61 | 62 | 58 | 52 | 69 | 45 | 52 | 52 | 54 | 86 | 57 | 86 | 43 |
| 17 | 105 | 80 | 64 | 56 | 39 | 58 | 47 | 64 | 80 | 42 | 66 | 61 | 93 | 30 | 10 | 6 | 32 | 42 | 57 | 56 | 78 | 79 | 93 | 128 | 61 | 128 | 6 |
| 18 | 71 | 52 | 75 | 68 | 56 | 52 | 54 | 56 | 71 | 47 | 35 | 56 | 50 | 57 | 53 | 41 | 66 | 56 | 70 | 47 | 53 | 33 | 38 | 27 | 54 | 75 | 27 |
| 19 | 22 | 20 | 19 | 18 | 19 | 18 | 19 | 45 | 20 | 22 | 33 | 19 | 28 | 35 | BA | 22 | 15 | 28 | 43 | 50 | 55 | 55 | 49 | 24 | 29 | 55 | 15 |
| 20 | 35 | 53 | 37 | 25 | 42 | 43 | 48 | 112 | 67 | 49 | 38 | 36 | 48 | 44 | 29 | 21 | 13 | 10 | 37 | 24 | 31 | 23 | 53 | 54 | 41 | 112 | 10 |
| 21 | 18 | 38 | AO | AO | AO | AO | AO | AO | AO | 22 | 27 | 23 | 38 | 14 | 5 | 3 | 13 | 21 | 19 | 37 | 60 | 59 | 80 | 57 | 31 | 80 | 3 |
| 22 | 60 | AO | AO | AO | AO | AO | AO | AO | AO | 48 | 28 | 36 | 26 | 12 | BA | 6 | 7 | 8 | 10 | 11 | 15 | 42 | 25 | 30 | 24 | 60 | 6 |
| 23 | 31 | AO | AO | AO | AO | 1 | 1 | 2 | 1 | 3 | 2 | 3 | 5 | 2 | 1 | 2 | 6 | 3 | 3 | 53 | 33 | 17 | 21 | 51 | 12 | 53 | 1 |
| 24 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 55 | 42 | 46 | 33 | 29 | 35 | 28 | 35 | 28 | 66 | AO | AO | AO | AO | AO | 40 | 66 | 28 |
| 25 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 121 | 79 | 48 | 57 | 43 | 39 | 50 | 63 | 53 | 88 | AO | AO | AO | AO | AO | 64 | 121 | 39 |
| 26 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 58 | 64 | 58 | 28 | 39 | 25 | 40 | 52 | 125 | 118 | 68 | AO | AO | AO | AO | 61 | 125 | 25 |
| 27 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 61 | 59 | BA | 41 | 29 | 17 | 19 | 49 | 35 | 48 | 50 | 48 | 67 | 19 | 66 | 43 | 67 | 17 |
| 28 | 100 | 67 | AO | 44 | 48 | 52 | 66 | 72 | 44 | 28 | 38 | 30 | 30 | 19 | 24 | 28 | 42 | 59 | 34 | 48 | 89 | AO | AO | AO | 48 | 100 | 19 |
| 29 | AO | AO | AO | AO | AO | AO | AO | AO | AO | AO | 30 | 28 | 22 | 15 | 18 | 14 | 17 | 24 | 32 | 49 | 69 | AO | AO | AO | 29 | 69 | 14 |
| 30 | AO | AO | AO | AO | AO | AO | AO | AO | AO | 30 | 28 | 22 | 23 | 25 | 27 | 23 | 54 | 36 | 57 | 41 | 64 | 36 | 55 | AO | 37 | 64 | 22 |
| 31 | AO | AO | AO | AO | AO | AO | AO | AO | AO | AO | 59 | 41 | 49 | 25 | 25 | 18 | 19 | 27 | 53 | 122 | 135 | 122 | AO | AO | 58 | 135 | 18 |
| Avg | 31 | 28 | 22 | 21 | 21 | 19 | 21 | 28 | 23 | 36 | 32 | 27 | 25 | 21 | 20 | 18 | 25 | 29 | 38 | 39 | 49 | 38 | 35 | 37 | 29 | 70 | 13 |
| Max | 105 | 84 | 75 | 68 | 56 | 58 | 66 | 112 | 80 | 121 | 79 | 62 | 93 | 60 | 61 | 62 | 66 | 125 | 118 | 122 | 135 | 122 | 93 | 128 | 66 | 135 | 46 |
| Min | 1 | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 4 | 15 | 0 |

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

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

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

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Temperature - MDEQ monitor (degrees Celsius)
# October 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 | 4.6 | 4.5 | 4.7 | 4.8 | 5.0 | 4.8 | 4.7 | 4.9 | 5.3 | 5.9 | 6.3 | 6.7 | 6.3 | 5.7 | 5.8 | 5.6 | 5.4 | 5.2 | 5.2 | 4.9 | 4.9 | 4.9 | 4.7 | 4.1 | 5.2 | 6.7 | 4.1 |
| 2 | 3.8 | 2.8 | 2.6 | 3.4 | 3.5 | 3.3 | 3.0 | 2.8 | 3.0 | 3.8 | 7.5 | 10.2 | 12.2 | 11.9 | 11.1 | 10.3 | 9.5 | 9.1 | 8.6 | 8.0 | 7.1 | 7.1 | 6.3 | 5.6 | 6.5 | 12.2 | 2.6 |
| 3 | 5.4 | 5.4 | 5.4 | 5.6 | 5.7 | 5.4 | 5.3 | 5.8 | 6.5 | 7.7 | 9.2 | 10.3 | 10.6 | 10.7 | 9.6 | 10.1 | 9.9 | 8.5 | 7.6 | 6.8 | 6.8 | 6.6 | 6.1 | 5.9 | 7.4 | 10.7 | 5.3 |
| 4 | 6.0 | 5.9 | 6.0 | 5.8 | 5.8 | 6.0 | 6.0 | 6.8 | 7.4 | 7.6 | 8.4 | 9.5 | 10.4 | 11.6 | 12.6 | 13.1 | 12.5 | 11.5 | 10.8 | 9.9 | 9.5 | 8.9 | 6.9 | 4.3 | 8.5 | 13.1 | 4.3 |
| 5 | 3.4 | 2.1 | 1.4 | 1.7 | 2.4 | 5.1 | 5.8 | 6.2 | 8.7 | 9.5 | 10.6 | 10.9 | 11.3 | 12.0 | 12.6 | 13.1 | 12.8 | 12.3 | 11.6 | 11.0 | 9.3 | 8.8 | 8.4 | 7.8 | 8.3 | 13.1 | 1.4 |
| 6 | 6.8 | 6.2 | 5.6 | 5.3 | 6.1 | 4.7 | 5.0 | 5.2 | 7.9 | 9.6 | 11.4 | 13.0 | 14.8 | 16.7 | 18.1 | 18.2 | 17.9 | 16.8 | 13.0 | 10.6 | 8.7 | 6.7 | 4.9 | 3.8 | 9.9 | 18.2 | 3.8 |
| 7 | 3.0 | 2.1 | 1.6 | 0.9 | 0.4 | 0.1 | -0.6 | 0.7 | 5.8 | 10.6 | 12.8 | 16.5 | 18.3 | 20.3 | 22.2 | 22.9 | 22.3 | 20.0 | 15.0 | 12.3 | 9.3 | 7.1 | 5.7 | 4.3 | 9.7 | 22.9 | -0.6 |
| 8 | 3.4 | 2.6 | 2.0 | 1.4 | 1.1 | 0.8 | 0.5 | 1.6 | 6.9 | 11.2 | 14.7 | 18.4 | 20.6 | 22.1 | 23.6 | 24.0 | 22.9 | 21.2 | 15.6 | 12.4 | 9.4 | 7.6 | 6.2 | 5.6 | 10.7 | 24.0 | 0.5 |
| 9 | 4.6 | 4.1 | 3.2 | 2.4 | 2.1 | 1.4 | 1.2 | 2.5 | 7.7 | 11.0 | 14.8 | 19.1 | 21.7 | 23.9 | 24.6 | 24.1 | 22.7 | 19.7 | 17.6 | 15.5 | 15.0 | 14.6 | 14.2 | 12.3 | 12.5 | 24.6 | 1.2 |
| 10 | 10.0 | 9.5 | 9.2 | 9.9 | 10.3 | 8.7 | 8.0 | 8.6 | 9.5 | 12.4 | 15.3 | 16.5 | 16.3 | 17.1 | 16.8 | 11.7 | 9.6 | 10.2 | 9.5 | 8.7 | 8.5 | 8.1 | 7.0 | 6.6 | 10.8 | 17.1 | 6.6 |
| 11 | 6.5 | 6.3 | 6.2 | 5.8 | 5.6 | 5.4 | 5.0 | 4.6 | 5.7 | 8.5 | 9.6 | 9.9 | 10.0 | 10.2 | 10.2 | 9.0 | 8.7 | 8.1 | 7.3 | 6.7 | 6.5 | 6.3 | 6.1 | 5.8 | 7.3 | 10.2 | 4.6 |
| 12 | 5.4 | 5.4 | 5.2 | 5.0 | 4.7 | 3.8 | 3.8 | 4.1 | 4.7 | 5.3 | 6.0 | 6.8 | 7.8 | 8.0 | 8.2 | 8.2 | 7.8 | 7.5 | 7.2 | 6.9 | 6.8 | 6.4 | 5.5 | 5.3 | 6.1 | 8.2 | 3.8 |
| 13 | 5.5 | 5.5 | 5.5 | 5.4 | 5.4 | 5.5 | 5.4 | 5.7 | 6.1 | 6.4 | 7.1 | 8.3 | 9.1 | 10.9 | 11.1 | 11.0 | 11.1 | 9.9 | 7.4 | 6.2 | 4.4 | 4.0 | 3.5 | 2.7 | 6.8 | 11.1 | 2.7 |
| 14 | 1.9 | 0.9 | 0.6 | -0.3 | -0.8 | -1.1 | -0.5 | 0.2 | 2.4 | 3.0 | 4.1 | 7.5 | 8.8 | 11.5 | 12.7 | 12.4 | 12.6 | 11.1 | 9.9 | 8.6 | 5.9 | 4.2 | 3.2 | 2.1 | 5.0 | 12.7 | -1.1 |
| 15 | 1.6 | 1.5 | 2.0 | 2.5 | 2.7 | 2.8 | 3.6 | 4.3 | 6.0 | 7.5 | 9.7 | 13.0 | 15.8 | 17.8 | 18.1 | 17.2 | 16.8 | 13.8 | 10.7 | 8.7 | 8.0 | 6.5 | 5.2 | 4.5 | 8.3 | 18.1 | 1.5 |
| 16 | 3.6 | 2.9 | 2.4 | 1.8 | 1.6 | 1.8 | 1.4 | 1.7 | 6.2 | 9.0 | 11.3 | 14.4 | 17.4 | 19.0 | 20.2 | 20.7 | 20.4 | 17.9 | 13.9 | 11.7 | 10.1 | 8.9 | 8.3 | 7.7 | 9.8 | 20.7 | 1.4 |
| 17 | 8.1 | 12.5 | 12.9 | 10.2 | 8.6 | 8.5 | 10.4 | 11.9 | 12.8 | 12.3 | 13.6 | 13.4 | 13.1 | 13.4 | 13.8 | 13.3 | 12.3 | 10.5 | 9.3 | 8.5 | 8.0 | 6.2 | 2.9 | 1.1 | 10.3 | 13.8 | 1.1 |
| 18 | -0.1 | -0.8 | -0.6 | -1.3 | -1.7 | -1.7 | -1.7 | -1.2 | 3.8 | 6.6 | 9.1 | 14.1 | 16.3 | 18.4 | 20.6 | 20.3 | 19.8 | 18.2 | 13.7 | 10.4 | 8.3 | 7.6 | 6.8 | 5.9 | 8.0 | 20.6 | -1.7 |
| 19 | 4.7 | 3.4 | 2.4 | 1.7 | 1.2 | 0.8 | 0.1 | 0.5 | 6.0 | 11.6 | 15.3 | 19.6 | 22.1 | 23.0 | 23.5 | 23.9 | 22.1 | 19.5 | 15.4 | 12.8 | 10.2 | 8.1 | 6.7 | 5.4 | 10.8 | 23.9 | 0.1 |
| 20 | 4.7 | 3.8 | 3.0 | 2.5 | 1.9 | 1.5 | 1.1 | 1.2 | 7.4 | 12.9 | 16.0 | 19.6 | 21.5 | 22.9 | 23.1 | 23.2 | 21.2 | 19.0 | 14.3 | 11.6 | 9.3 | 7.6 | 6.3 | 5.2 | 10.9 | 23.2 | 1.1 |
| 21 | 4.6 | 3.9 | 3.1 | 2.8 | 1.9 | 1.1 | 0.6 | 0.7 | 3.0 | 7.6 | 10.8 | 12.6 | 16.4 | 19.0 | 19.9 | 20.2 | 18.9 | 15.9 | 12.1 | 9.7 | 7.3 | 5.3 | 4.3 | 3.2 | 8.5 | 20.2 | 0.6 |
| 22 | 2.4 | 1.7 | 1.3 | 1.3 | 1.4 | 0.8 | 0.4 | 0.5 | 4.5 | 9.7 | 12.4 | 14.2 | 15.7 | 17.1 | 18.7 | 16.3 | 14.1 | 12.7 | 10.7 | 9.7 | 9.7 | 8.8 | 8.8 | 7.6 | 8.4 | 18.7 | 0.4 |
| 23 | 7.0 | 6.5 | 6.1 | 6.1 | 6.0 | 5.6 | 5.6 | 5.9 | 6.4 | 7.2 | 8.8 | 10.0 | 11.2 | 11.5 | 12.0 | 11.1 | 10.1 | 8.8 | 7.2 | 4.8 | 3.6 | 2.3 | 1.5 | 2.7 | 7.0 | 12.0 | 1.5 |
| 24 | 1.6 | 0.3 | -1.0 | -1.7 | -1.8 | -2.2 | -2.7 | -3.0 | 0.7 | 4.5 | 5.6 | 8.0 | 9.1 | 9.6 | 10.0 | 9.5 | 7.7 | 6.2 | 5.1 | 4.1 | 0.3 | -1.2 | -1.5 | -1.7 | 2.7 | 10.0 | -3.0 |
| 25 | -2.5 | -3.7 | -4.9 | -4.6 | -5.9 | -7.6 | -8.5 | -8.6 | -8.6 | -8.3 | -7.4 | -5.5 | -4.6 | -4.0 | -3.7 | -4.0 | -4.5 | -5.5 | -6.0 | -6.5 | -6.6 | -6.8 | -6.9 | -8.6 | -6.0 | -2.5 | -8.6 |
| 26 | -9.5 | -10.1 | -10.8 | -11.3 | -11.5 | -11.8 | -12.1 | -12.1 | -12.0 | -11.5 | -10.5 | -9.5 | -7.8 | -8.1 | -8.1 | -8.0 | -8.1 | -8.6 | -8.5 | -8.6 | -8.8 | -8.6 | -8.6 | -8.6 | -9.7 | -7.8 | -12.1 |
| 27 | -8.3 | -8.1 | -8.1 | -8.3 | -9.1 | -10.3 | -10.8 | -10.6 | -10.0 | -8.3 | -7.1 | -6.4 | -7.4 | -7.1 | -7.8 | -8.3 | -9.0 | -9.6 | -10.0 | -10.3 | -10.8 | -11.8 | -11.5 | -11.8 | -9.2 | -6.4 | -11.8 |
| 28 | -12.3 | -12.1 | -12.1 | -11.8 | -11.3 | -11.1 | -11.3 | -10.6 | -9.8 | -8.6 | -7.4 | -4.8 | -5.1 | -4.1 | -4.0 | -5.5 | -7.6 | -9.3 | -9.8 | -9.6 | -9.5 | -9.6 | -10.6 | -11.8 | -9.2 | -4.0 | -12.3 |
| 29 | -12.5 | -13.0 | -13.8 | -14.8 | -15.1 | -15.1 | -15.0 | -14.3 | -13.1 | -8.3 | -5.3 | -3.2 | -2.4 | -1.3 | -0.4 | -1.1 | -2.4 | -3.5 | -5.5 | -7.8 | -9.1 | -10.5 | -11.3 | -12.0 | -8.8 | -0.4 | -15.1 |
| 30 | -12.6 | -13.1 | -13.6 | -13.6 | -13.8 | -14.3 | -14.3 | -13.8 | -10.3 | -6.5 | -2.9 | -0.8 | 0.8 | 3.2 | 4.4 | 4.4 | 1.6 | -1.3 | -3.2 | -5.1 | -6.3 | -7.0 | -7.8 | -8.3 | -6.4 | 4.4 | -14.3 |
| 31 | -8.3 | -8.6 | -9.3 | -10.1 | -10.3 | -10.8 | -11.0 | -11.0 | -7.5 | -2.2 | 0.0 | 3.1 | 4.4 | 5.0 | 7.6 | 7.1 | 5.0 | 1.1 | -1.3 | -2.2 | -2.7 | -3.2 | -3.5 | -3.7 | -3.0 | 7.6 | -11.0 |
| Avg | 1.4 | 1.0 | 0.6 | 0.3 | 0.1 | -0.3 | -0.4 | 0.0 | 2.4 | 4.8 | 6.8 | 8.9 | 10.2 | 11.2 | 11.8 | 11.4 | 10.5 | 8.9 | 6.9 | 5.5 | 4.3 | 3.4 | 2.5 | 1.7 | 4.7 | 12.2 | -1.4 |
| Max | 10.0 | 12.5 | 12.9 | 10.2 | 10.3 | 8.7 | 10.4 | 11.9 | 12.8 | 12.9 | 16.0 | 19.6 | 22.1 | 23.9 | 24.6 | 24.1 | 22.9 | 21.2 | 17.6 | 15.5 | 15.0 | 14.6 | 14.2 | 12.3 | 12.5 | 24.6 | 6.6 |
| Min | -12.6 | -13.1 | -13.8 | -14.8 | -15.1 | -15.1 | -15.0 | -14.3 | -13.1 | -11.5 | -10.5 | -9.5 | -7.8 | -8.1 | -8.1 | -8.3 | -9.0 | -9.6 | -10.0 | -10.3 | -10.8 | -11.8 | -11.5 | -12.0 | -9.7 | -7.8 | -15.1 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Temperature - MDEQ monitor (degrees Celsius)
# November 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 | -3.7 | -4.1 | -4.9 | -5.5 | -6.5 | -7.3 | -8.0 | -8.3 | -5.1 | 0.2 | 2.8 | 4.8 | 7.9 | 10.2 | 9.9 | 9.0 | 8.1 | 5.2 | 2.8 | 1.3 | 0.9 | -0.4 | -0.8 | -0.4 | 0.3 | 10.2 | -8.3 |
| 2 | 0.3 | 0.3 | 0.4 | 0.7 | 1.2 | 2.0 | 2.4 | 2.3 | 3.2 | 5.4 | 7.9 | 8.6 | 9.0 | 9.0 | 9.1 | 9.1 | 8.5 | 7.3 | 6.9 | 7.6 | 7.1 | 6.1 | 5.5 | 6.3 | 5.3 | 9.1 | 0.3 |
| 3 | 5.4 | 5.1 | 5.2 | 2.9 | 1.3 | 1.1 | 1.5 | 0.0 | 3.5 | 6.8 | 8.4 | 8.3 | 8.9 | 9.2 | 10.7 | 10.3 | 8.8 | 7.1 | 4.8 | 3.0 | 1.6 | 0.0 | -1.1 | -2.0 | 4.6 | 10.7 | -2.0 |
| 4 | -2.7 | -3.4 | -3.5 | -4.0 | -4.3 | -3.5 | -1.8 | -1.5 | -0.3 | 1.1 | 2.8 | 4.2 | 5.1 | 7.0 | 7.5 | 7.7 | 7.7 | 7.7 | 7.5 | 6.7 | 6.0 | 5.1 | 5.6 | 5.7 | 2.6 | 7.7 | -4.3 |
| 5 | 4.5 | 4.5 | 5.3 | 5.8 | 6.3 | 6.0 | 5.6 | 4.3 | 4.1 | 5.5 | 7.4 | 9.8 | 9.6 | 8.7 | 8.7 | 8.4 | 7.7 | 6.3 | 5.6 | 5.0 | 2.7 | 3.1 | 1.2 | 1.3 | 5.7 | 9.8 | 1.2 |
| 6 | 1.2 | 0.3 | 0.2 | 0.2 | 0.5 | -0.2 | -0.3 | -0.6 | 1.5 | 3.9 | 6.6 | 8.7 | 9.4 | 9.2 | 9.4 | 7.0 | 5.0 | 4.7 | 4.3 | 4.1 | 3.6 | 4.4 | 3.0 | 1.3 | 3.6 | 9.4 | -0.6 |
| 7 | -0.5 | -0.8 | -0.8 | -1.3 | -1.3 | -2.2 | -1.3 | -2.4 | 0.3 | 2.7 | 5.0 | 5.5 | 5.8 | 5.3 | 5.7 | 5.5 | 4.9 | 3.8 | 2.5 | 2.4 | 2.0 | 2.6 | 2.3 | 1.7 | 2.0 | 5.8 | -2.4 |
| 8 | 0.8 | -0.2 | -0.8 | -1.3 | -0.8 | -0.4 | -0.3 | -1.0 | -1.7 | 1.4 | 3.1 | 4.4 | 4.5 | 5.0 | 4.7 | 4.8 | 3.1 | 1.9 | 1.2 | 0.7 | 0.4 | -0.2 | -2.4 | -3.9 | 1.0 | 5.0 | -3.9 |
| 9 | -5.0 | -6.0 | -6.5 | -7.3 | -7.9 | -8.5 | -8.5 | -8.5 | -6.4 | -2.2 | 0.7 | 3.6 | 4.7 | 6.1 | 7.8 | 7.2 | 5.0 | 1.8 | -0.6 | -1.5 | -2.5 | -2.7 | -2.9 | -3.2 | -1.8 | 7.8 | -8.5 |
| 10 | -4.1 | -4.9 | -4.9 | -4.1 | -4.3 | -3.5 | -2.7 | -3.0 | -1.5 | -0.2 | 1.3 | 2.5 | 4.1 | 3.7 | 3.7 | 2.8 | 2.3 | 1.2 | -0.1 | -1.2 | -3.2 | -3.5 | -3.9 | -3.5 | -1.1 | 4.1 | -4.9 |
| 11 | -2.7 | -2.2 | -2.4 | -2.5 | -2.9 | -1.8 | -1.1 | -0.1 | 1.2 | 3.6 | 5.9 | 7.2 | 7.3 | 9.3 | 9.1 | 8.8 | 8.4 | 8.1 | 7.8 | 7.2 | 6.6 | 5.2 | 3.6 | 3.4 | 3.6 | 9.3 | -2.9 |
| 12 | 2.1 | 2.4 | 0.2 | -0.8 | -0.3 | -0.5 | -1.7 | -3.2 | -0.5 | 5.4 | 7.1 | 9.6 | 9.9 | 10.1 | 10.8 | 10.4 | 9.2 | 7.0 | 4.5 | 2.8 | 1.9 | 2.5 | 1.4 | 0.9 | 3.8 | 10.8 | -3.2 |
| 13 | -0.1 | 0.0 | -0.8 | -1.7 | -1.2 | -1.0 | -0.8 | -1.2 | -0.8 | 0.6 | 3.7 | 5.2 | 7.6 | 10.5 | 10.9 | 11.7 | 10.2 | 7.3 | 6.1 | 4.9 | 2.3 | -0.1 | 1.0 | 0.3 | 3.1 | 11.7 | -1.7 |
| 14 | -2.0 | -2.5 | -3.5 | -4.1 | -4.0 | -4.3 | -5.0 | -5.1 | -3.9 | 0.3 | 3.4 | 6.5 | 7.4 | 8.9 | 8.8 | 10.3 | 9.1 | 4.2 | 1.8 | -0.6 | -2.0 | -2.7 | -3.0 | -2.7 | 0.6 | 10.3 | -5.1 |
| 15 | -2.2 | -1.2 | 1.4 | 1.0 | 0.0 | -0.2 | -0.8 | -0.8 | 0.0 | 4.5 | 7.6 | 12.1 | 12.7 | 13.6 | 13.8 | 13.4 | 11.5 | 8.8 | 5.7 | 7.9 | 9.8 | 10.0 | 9.6 | 8.6 | 6.1 | 13.8 | -2.2 |
| 16 | 8.2 | 6.7 | 5.3 | 4.4 | 2.5 | 1.3 | 0.3 | 0.0 | 0.7 | 2.1 | 4.1 | 6.6 | 7.1 | 8.5 | 9.3 | 8.0 | 6.5 | 4.9 | 3.6 | 1.1 | 0.3 | -1.7 | -2.2 | -2.7 | 3.5 | 9.3 | -2.7 |
| 17 | -3.2 | -3.7 | -4.4 | -5.3 | -5.6 | -6.0 | -6.6 | -6.5 | -5.0 | -1.7 | 1.3 | 5.1 | 6.3 | 9.3 | 10.5 | 10.9 | 8.8 | 4.7 | 2.3 | 0.5 | -1.7 | -3.0 | -3.7 | -4.9 | -0.1 | 10.9 | -6.6 |
| 18 | -5.5 | -6.4 | -6.8 | -7.1 | -7.5 | -8.0 | -8.3 | -8.5 | -7.1 | -2.5 | 0.4 | 3.8 | 6.0 | 8.5 | 9.9 | 9.7 | 8.0 | 4.9 | 2.6 | 0.3 | -0.3 | 0.2 | 0.3 | -1.6 | -0.6 | 9.9 | -8.5 |
| 19 | -2.9 | -3.9 | -4.4 | -4.1 | -3.9 | -4.4 | -5.0 | -5.1 | -3.2 | 0.9 | 1.3 | 1.2 | 2.2 | 2.9 | 3.0 | 2.2 | 1.8 | 1.4 | 0.9 | 0.4 | 0.2 | 0.1 | 0.1 | 0.3 | -0.8 | 3.0 | -5.1 |
| 20 | 0.3 | 0.3 | -0.3 | -0.5 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.1 | 0.5 | 1.4 | 2.2 | 3.4 | 4.6 | 4.7 | 3.4 | 0.9 | -0.5 | -2.2 | -3.5 | -4.6 | -5.1 | -5.5 | -0.2 | 4.7 | -5.5 |
| 21 | -6.4 | -6.5 | -6.5 | -7.0 | -7.6 | -8.1 | -8.1 | -8.5 | -7.6 | -3.5 | -0.3 | 1.9 | 4.3 | 5.5 | 5.7 | 5.5 | 4.0 | 1.5 | -0.8 | -1.7 | -1.7 | -2.5 | -2.5 | -3.0 | -2.2 | 5.7 | -8.5 |
| 22 | -1.8 | 1.0 | -0.8 | 0.4 | 1.6 | 1.7 | 2.0 | 1.5 | 2.2 | 3.8 | 5.9 | 6.7 | 6.8 | 5.3 | 3.7 | 3.7 | 3.5 | 1.9 | 0.9 | 2.0 | 2.3 | 1.9 | 2.0 | 0.4 | 2.4 | 6.8 | -1.8 |
| 23 | -0.6 | -1.7 | -2.2 | -2.5 | -2.5 | -2.2 | -2.0 | -1.8 | -1.8 | -2.0 | -1.7 | -1.3 | -1.8 | -1.7 | -2.5 | -3.4 | -3.9 | -4.0 | -4.1 | -4.5 | -4.8 | -5.0 | -5.3 | -5.4 | -2.9 | -0.6 | -5.4 |
| 24 | -5.5 | -5.6 | -6.0 | -7.0 | -7.1 | -6.5 | -6.9 | -7.3 | -7.5 | -7.4 | -6.6 | -5.9 | -5.6 | -5.3 | -5.0 | -5.3 | -6.0 | -6.3 | -6.6 | -8.1 | -8.3 | -7.9 | -7.6 | -8.0 | -6.6 | -5.0 | -8.3 |
| 25 | -9.1 | -10.5 | -11.3 | -11.5 | -11.8 | -12.1 | -12.6 | -13.1 | -13.3 | -9.8 | -7.3 | -4.9 | -4.4 | -2.2 | -0.1 | -1.0 | -2.2 | -4.6 | -6.1 | -7.1 | -8.8 | -9.8 | -10.1 | -10.3 | -8.1 | -0.1 | -13.3 |
| 26 | -9.3 | -8.5 | -8.3 | -9.6 | -10.6 | -11.5 | -12.0 | -12.3 | -12.1 | -8.5 | -5.3 | -1.7 | -0.1 | 1.4 | 3.3 | 2.7 | -0.6 | -2.7 | -3.2 | -4.3 | -5.4 | -6.8 | -8.5 | -9.5 | -6.0 | 3.3 | -12.3 |
| 27 | -10.1 | -10.8 | -11.3 | -12.0 | -12.1 | -12.6 | -12.8 | -13.0 | -12.3 | -7.5 | -4.5 | -2.5 | 0.2 | 2.3 | 5.4 | 5.6 | 2.9 | -0.8 | -2.7 | -4.0 | -5.5 | -6.5 | -7.0 | -8.0 | -5.8 | 5.6 | -13.0 |
| 28 | -9.3 | -10.1 | -11.0 | -11.8 | -12.5 | -13.0 | -13.5 | -13.6 | -13.3 | -7.8 | -3.9 | 0.4 | 1.4 | 3.6 | 6.2 | 5.8 | 3.1 | -1.0 | -3.7 | -5.5 | -7.3 | -8.5 | -9.3 | -10.1 | -6.0 | 6.2 | -13.6 |
| 29 | -11.0 | -11.8 | -12.1 | -12.6 | -12.1 | -11.6 | -11.0 | -11.6 | -11.6 | -6.5 | -3.2 | 1.1 | 0.8 | 2.9 | 5.7 | 5.3 | 1.2 | -1.6 | -3.5 | -5.4 | -4.9 | -5.1 | -6.5 | -7.5 | -5.5 | 5.7 | -12.6 |
| 30 | -7.9 | -8.3 | -9.1 | -10.5 | -11.3 | -12.1 | -12.8 | -13.1 | -11.8 | -9.3 | -5.5 | -2.5 | -1.5 | 0.1 | 0.6 | 0.2 | -0.6 | -1.6 | -2.2 | -2.5 | -3.4 | -4.8 | -5.1 | -5.1 | -5.8 | 0.6 | -13.1 |
| Avg | -2.8 | -3.1 | -3.5 | -4.0 | -4.2 | -4.3 | -4.4 | -4.8 | -3.7 | -0.7 | 1.6 | 3.7 | 4.6 | 5.7 | 6.4 | 6.0 | 4.6 | 2.7 | 1.3 | 0.3 | -0.5 | -1.2 | -1.7 | -2.2 | -0.2 | 6.7 | -6.0 |
| Max | 8.2 | 6.7 | 5.3 | 5.8 | 6.3 | 6.0 | 5.6 | 4.3 | 4.1 | 6.8 | 8.4 | 12.1 | 12.7 | 13.6 | 13.8 | 13.4 | 11.5 | 8.8 | 7.8 | 7.9 | 9.8 | 10.0 | 9.6 | 8.6 | 6.1 | 13.8 | 1.2 |
| Min | -11.0 | -11.8 | -12.1 | -12.6 | -12.5 | -13.0 | -13.5 | -13.6 | -13.3 | -9.8 | -7.3 | -5.9 | -5.6 | -5.3 | -5.0 | -5.3 | -6.0 | -6.3 | -6.6 | -8.1 | -8.8 | -9.8 | -10.1 | -10.3 | -8.1 | -5.0 | -13.6 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Temperature - MDEQ monitor (degrees Celsius)
# December 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 | -5.3 | -5.4 | -5.8 | -7.4 | -9.0 | -9.1 | -10.5 | -11.5 | -10.6 | -7.3 | -4.5 | -3.5 | -1.8 | -0.8 | -0.4 | -0.6 | -1.0 | -2.2 | -2.7 | -2.2 | -2.5 | -3.2 | -3.7 | -3.7 | -4.8 | -0.4 | -11.5 |
| 2 | -3.2 | -3.4 | -3.7 | -3.5 | -4.4 | -5.4 | -6.4 | -5.8 | -4.8 | -2.4 | -0.6 | -0.6 | -0.2 | 0.0 | -0.3 | -0.8 | -1.5 | -1.7 | -2.5 | -2.7 | -3.4 | -4.0 | -4.1 | -3.0 | -2.8 | 0.0 | -6.4 |
| 3 | -3.0 | -3.7 | -3.9 | -4.4 | -4.3 | -4.5 | -4.4 | -4.3 | -6.0 | -4.1 | -2.4 | -0.6 | -0.2 | 0.4 | 1.4 | 0.8 | -0.5 | -0.1 | -0.1 | -1.2 | -0.8 | 0.3 | -0.3 | 1.5 | -1.9 | 1.5 | -6.0 |
| 4 | 2.6 | 2.2 | 2.4 | 3.3 | 2.9 | 2.4 | 1.9 | 3.5 | 2.5 | 3.2 | 5.5 | 6.9 | 7.2 | 7.6 | 7.9 | 6.7 | 5.8 | 5.2 | 4.4 | 3.9 | 5.3 | 6.9 | 7.0 | 7.1 | 4.8 | 7.9 | 1.9 |
| 5 | 6.8 | 8.0 | 7.9 | 7.7 | 7.5 | 8.3 | 6.9 | 5.8 | 5.1 | 7.6 | 9.8 | 10.5 | 11.3 | 12.1 | 11.3 | 11.4 | 10.8 | 9.5 | 7.6 | 4.5 | 3.9 | 3.8 | 2.0 | 1.8 | 7.6 | 12.1 | 1.8 |
| 6 | 2.4 | 2.1 | 2.5 | 2.3 | -0.3 | -0.8 | -1.6 | -2.5 | -2.0 | 0.2 | 4.3 | 8.0 | 10.4 | 10.0 | 12.4 | 11.1 | 10.2 | 9.1 | 8.7 | 7.7 | 7.1 | 6.4 | 7.0 | 7.3 | 5.1 | 12.4 | -2.5 |
| 7 | 6.7 | 5.1 | 3.1 | 3.3 | 4.7 | 3.9 | 3.0 | 1.7 | 2.0 | 2.5 | 2.3 | 2.7 | 3.3 | 3.8 | 3.2 | 2.2 | 1.0 | -1.3 | -2.9 | -2.7 | -4.1 | -5.0 | -4.0 | -3.5 | 1.3 | 6.7 | -5.0 |
| 8 | -5.0 | -5.9 | -5.5 | -4.6 | -4.3 | -4.0 | -4.0 | -3.0 | -2.9 | -2.5 | -2.9 | -1.6 | -1.0 | -1.2 | -1.6 | -1.7 | -3.0 | -3.4 | -4.1 | -4.0 | -4.0 | -4.5 | -4.5 | -4.6 | -3.5 | -1.0 | -5.9 |
| 9 | -5.0 | -5.4 | -6.5 | -8.3 | -11.1 | -12.8 | -13.8 | -15.0 | -15.0 | -11.3 | -7.4 | -4.0 | -3.2 | -2.2 | -2.2 | -2.5 | -3.2 | -3.5 | -4.9 | -5.5 | -5.5 | -7.1 | -4.9 | -2.7 | -6.8 | -2.2 | -15.0 |
| 10 | -2.0 | -1.8 | -1.7 | -2.2 | -2.5 | -3.0 | -2.9 | -2.7 | -1.7 | -0.4 | 1.0 | 1.6 | 2.4 | 2.4 | 1.8 | 0.3 | 0.0 | 0.1 | 0.2 | 0.0 | -0.5 | -0.8 | -0.8 | -0.3 | -0.6 | 2.4 | -3.0 |
| 11 | -0.6 | -1.1 | -0.8 | -1.2 | -1.3 | -1.6 | -2.5 | -3.0 | -2.2 | -1.2 | -0.5 | 1.3 | 1.2 | 1.3 | 2.5 | 1.4 | 0.7 | 0.2 | -0.5 | -0.6 | -0.4 | -1.2 | -1.3 | -1.2 | -0.5 | 2.5 | -3.0 |
| 12 | -1.3 | -1.2 | -1.0 | -1.0 | -1.2 | -1.0 | -1.2 | -1.6 | -1.7 | -1.2 | -0.6 | -0.5 | -0.2 | 0.4 | 0.9 | 1.0 | -1.0 | -3.5 | -5.1 | -6.1 | -7.3 | -8.3 | -8.8 | -8.6 | -2.5 | 1.0 | -8.8 |
| 13 | -8.1 | -7.0 | -6.1 | -6.6 | -7.6 | -8.3 | -8.6 | -8.6 | -8.8 | -9.0 | -8.3 | -7.8 | -6.0 | -5.0 | -2.0 | -0.2 | -3.0 | -5.4 | -7.5 | -8.8 | -9.6 | -10.6 | -11.1 | -11.6 | -7.3 | -0.2 | -11.6 |
| 14 | -11.8 | -12.1 | -12.6 | -12.8 | -13.0 | -12.8 | -13.0 | -13.6 | -13.6 | -9.8 | -6.6 | -2.5 | -1.2 | 0.4 | 3.1 | 2.8 | 0.6 | -2.7 | -4.5 | -5.0 | -5.0 | -4.5 | -4.0 | -4.0 | -6.6 | 3.1 | -13.6 |
| 15 | -5.8 | -6.0 | -5.9 | -7.4 | -8.1 | -9.3 | -9.8 | -10.3 | -10.1 | -7.3 | -3.4 | -0.2 | 0.9 | 2.2 | 3.1 | 2.6 | 1.0 | -0.5 | -2.5 | -3.5 | -3.7 | -4.3 | -5.0 | -6.0 | -4.1 | 3.1 | -10.3 |
| 16 | -7.1 | -8.1 | -8.8 | -9.3 | -9.8 | -10.6 | -10.8 | -11.1 | -11.3 | -8.3 | -4.6 | -2.4 | 0.3 | 2.3 | 2.9 | 3.7 | 1.2 | -1.1 | -2.9 | -4.3 | -4.5 | -4.5 | -4.0 | -5.5 | -4.9 | 3.7 | -11.3 |
| 17 | -6.9 | -7.5 | -8.0 | -8.3 | -9.0 | -9.0 | -9.5 | -9.8 | -10.1 | -6.5 | -2.2 | 1.9 | 2.6 | 5.5 | 8.0 | 8.3 | 4.5 | -0.3 | -3.0 | -4.4 | -5.1 | -6.1 | -7.0 | -7.5 | -3.7 | 8.3 | -10.1 |
| 18 | -7.9 | -8.6 | -9.0 | -8.6 | -8.8 | -9.1 | -8.3 | -7.4 | -7.0 | -4.9 | -1.6 | -0.2 | 1.1 | 1.5 | 2.3 | 2.6 | 1.9 | 1.5 | 1.1 | 0.9 | 1.2 | 2.3 | 1.8 | 2.2 | -2.5 | 2.6 | -9.1 |
| 19 | 1.2 | 1.3 | -1.3 | -1.2 | -3.9 | -3.0 | -2.4 | -2.9 | -3.0 | -1.3 | 0.5 | 3.3 | 6.4 | 6.4 | 6.6 | 6.3 | 5.6 | 4.7 | 3.6 | 1.9 | 0.9 | 1.3 | 1.2 | 1.1 | 1.4 | 6.6 | -3.9 |
| 20 | 0.1 | -1.2 | -2.5 | -3.5 | -3.9 | -4.4 | -3.7 | -2.7 | -2.4 | 0.1 | 3.1 | 5.0 | 6.0 | 6.2 | 6.7 | 7.3 | 6.4 | 5.2 | 4.6 | 3.8 | 2.6 | 1.9 | 1.0 | -1.3 | 1.4 | 7.3 | -4.4 |
| 21 | -2.2 | -3.4 | -4.3 | -5.0 | -5.5 | -5.9 | -6.5 | -6.5 | -6.1 | -2.5 | -0.6 | 3.3 | 5.3 | 8.0 | 9.4 | 8.6 | 6.5 | 3.5 | 1.4 | -0.3 | -1.7 | -2.7 | -3.5 | -4.0 | -0.6 | 9.4 | -6.5 |
| 22 | -4.5 | -5.1 | -5.8 | -6.5 | -7.0 | -7.4 | -7.6 | -8.0 | -8.1 | -5.0 | -1.8 | 3.0 | 4.4 | 6.2 | 8.5 | 8.0 | 6.3 | 4.3 | 2.3 | 2.1 | 2.0 | 1.3 | 2.2 | 2.4 | -0.6 | 8.5 | -8.1 |
| 23 | 2.1 | 0.0 | -0.8 | -1.2 | -1.8 | -2.0 | -2.5 | -2.7 | -3.4 | -3.9 | -3.0 | -2.5 | -2.5 | -2.4 | -1.7 | -1.8 | -3.5 | -3.7 | -4.0 | -4.5 | -5.0 | -6.0 | -7.1 | -8.8 | -3.0 | 2.1 | -8.8 |
| 24 | -10.1 | -11.8 | -13.6 | -15.0 | -16.0 | -16.7 | -17.6 | -18.2 | -18.7 | -15.8 | -12.6 | -8.3 | -6.6 | -6.5 | -5.0 | -4.5 | -6.6 | -10.3 | -12.1 | -14.1 | -15.3 | -16.2 | -17.0 | -17.7 | -12.8 | -4.5 | -18.7 |
| 25 | -18.5 | -18.8 | -19.2 | -19.8 | -20.1 | -20.5 | -20.6 | -21.1 | -21.1 | -18.1 | -14.3 | -9.8 | -9.0 | -7.8 | -4.5 | -4.9 | -6.9 | -10.5 | -12.6 | -14.1 | -15.0 | -16.3 | -17.1 | -17.5 | -14.9 | -4.5 | -21.1 |
| 26 | -17.7 | -18.2 | -18.3 | -19.2 | -19.7 | -19.8 | -20.1 | -19.6 | -17.6 | -13.6 | -10.8 | -9.1 | -7.5 | -6.0 | -4.6 | -4.1 | -4.6 | -7.5 | -9.5 | -10.0 | -11.0 | -12.3 | -13.1 | -14.1 | -12.8 | -4.1 | -20.1 |
| 27 | -14.6 | -15.1 | -15.8 | -16.0 | -15.8 | -16.2 | -16.1 | -16.5 | -16.2 | -13.6 | -10.6 | -5.3 | -4.0 | -2.5 | -0.6 | -1.3 | -3.5 | -3.7 | -4.1 | -4.8 | -4.5 | -4.0 | -4.5 | -4.8 | -8.9 | -0.6 | -16.5 |
| 28 | -5.3 | -6.6 | -7.1 | -7.4 | -5.5 | -6.0 | -6.6 | -6.9 | -7.1 | -7.0 | -3.7 | 0.9 | 1.2 | 2.9 | 5.0 | 3.2 | 2.1 | -0.8 | -3.0 | -4.8 | -6.4 | -7.0 | -7.6 | -8.3 | -3.8 | 5.0 | -8.3 |
| 29 | -8.1 | -8.1 | -8.8 | -8.8 | -9.0 | -8.5 | -8.8 | -9.1 | -9.3 | -8.0 | -3.2 | 1.3 | 1.5 | 3.4 | 5.6 | 4.7 | 3.1 | -0.8 | -3.0 | -4.0 | -5.1 | -6.5 | -7.3 | -7.5 | -4.3 | 5.6 | -9.3 |
| 30 | -8.3 | -8.6 | -8.6 | -9.6 | -8.8 | -10.3 | -10.5 | -9.6 | -8.1 | -5.5 | -2.0 | 3.0 | 3.5 | 5.6 | 6.3 | 5.1 | 2.3 | 0.1 | -1.7 | -2.5 | -3.4 | -4.4 | -5.6 | -6.8 | -3.7 | 6.3 | -10.5 |
| 31 | -7.3 | -7.9 | -8.3 | -8.3 | -8.1 | -7.9 | -8.0 | -8.8 | -9.3 | -7.5 | -5.3 | -2.2 | 0.1 | 2.1 | 4.3 | 4.8 | 2.9 | -1.1 | -2.7 | -4.5 | -5.0 | -5.8 | -7.1 | -8.5 | -4.6 | 4.8 | -9.3 |
| Avg | -4.8 | -5.3 | -5.7 | -6.1 | -6.6 | -6.9 | -7.3 | -7.5 | -7.4 | -5.3 | -2.8 | -0.3 | 0.8 | 1.8 | 2.9 | 2.6 | 1.1 | -0.7 | -2.0 | -2.9 | -3.4 | -3.9 | -4.2 | -4.5 | -3.3 | 3.4 | -8.9 |
| Max | 6.8 | 8.0 | 7.9 | 7.7 | 7.5 | 8.3 | 6.9 | 5.8 | 5.1 | 7.6 | 9.8 | 10.5 | 11.3 | 12.1 | 12.4 | 11.4 | 10.8 | 9.5 | 8.7 | 7.7 | 7.1 | 6.9 | 7.0 | 7.3 | 7.6 | 12.4 | 1.9 |
| Min | -18.5 | -18.8 | -19.2 | -19.8 | -20.1 | -20.5 | -20.6 | -21.1 | -21.1 | -18.1 | -14.3 | -9.8 | -9.0 | -7.8 | -5.0 | -4.9 | -6.9 | -10.5 | -12.6 | -14.1 | -15.3 | -16.3 | -17.1 | -17.7 | -14.9 | -4.5 | -21.1 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Wind Direction - MDEQ monitor (degrees)
# October 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 | Prev |
| 1 | 247 | 226 | 218 | 251 | 214 | 245 | 245 | 208 | 250 | 2 | 91 | 188 | 226 | 272 | 251 | 259 | 245 | 232 | 242 | 301 | 321 | 281 | 254 | 327 | 251 |
| 2 | 44 | 187 | 48 | 37 | 297 | 272 | 213 | 213 | 153 | 59 | 10 | 348 | 318 | 308 | 323 | 309 | 312 | 306 | 298 | 309 | 307 | 321 | 323 | 351 | 321 |
| 3 | 261 | 224 | 277 | 35 | 244 | 178 | 231 | 199 | 250 | 261 | 325 | 309 | 320 | 321 | 337 | 356 | 290 | 257 | 304 | 218 | 254 | 235 | 205 | 189 | 265 |
| 4 | 289 | 316 | 295 | 320 | 323 | 312 | 308 | 65 | 239 | 157 | 315 | 302 | 278 | 278 | 274 | 312 | 311 | 312 | 309 | 311 | 317 | 328 | 287 | 76 | 306 |
| 5 | 357 | 316 | 329 | 318 | 336 | 27 | 330 | 325 | 360 | 22 | 30 | 351 | 333 | 307 | 312 | 310 | 328 | 335 | 358 | 320 | 199 | 173 | 195 | 177 | 332 |
| 6 | 141 | 132 | 333 | 320 | 109 | 329 | 298 | 335 | 345 | 25 | 320 | 323 | 344 | 351 | 303 | 226 | 339 | 297 | 209 | 177 | 149 | 269 | 279 | 293 | 310 |
| 7 | 316 | 328 | 328 | 316 | 317 | 286 | 312 | 313 | 17 | 343 | 324 | 325 | 319 | 330 | 356 | 351 | 340 | 204 | 216 | 143 | 204 | 280 | 348 | 33 | 321 |
| 8 | 346 | 8 | 340 | 17 | 339 | 332 | 330 | 298 | 205 | 359 | 349 | 336 | 335 | 325 | 353 | 226 | 231 | 242 | 123 | 88 | 193 | 284 | 250 | 30 | 324 |
| 9 | 202 | 344 | 1 | 24 | 56 | 1 | 357 | 7 | 295 | 360 | 351 | 339 | 23 | 208 | 223 | 190 | 188 | 33 | 287 | 8 | 37 | 211 | 102 | 103 | 360 |
| 10 | 29 | 65 | 110 | 13 | 109 | 145 | 330 | 89 | 118 | 27 | 16 | 56 | 154 | 341 | 332 | 183 | 31 | 38 | 112 | 156 | 160 | 143 | 109 | 79 | 80 |
| 11 | 310 | 35 | 40 | 121 | 215 | 164 | 254 | 188 | 198 | 299 | 314 | 316 | 326 | 316 | 339 | 348 | 335 | 329 | 340 | 346 | 343 | 337 | 350 | 348 | 326 |
| 12 | 339 | 339 | 339 | 343 | 356 | 351 | 330 | 331 | 328 | 330 | 327 | 321 | 321 | 21 | 26 | 28 | 14 | 33 | 28 | 105 | 72 | 131 | 165 | 153 | 2 |
| 13 | 113 | 128 | 222 | 270 | 293 | 225 | 267 | 198 | 142 | 173 | 155 | 137 | 161 | 141 | 165 | 150 | 167 | 123 | 234 | 309 | 359 | 325 | 338 | 356 | 187 |
| 14 | 325 | 13 | 333 | 332 | 352 | 319 | 339 | 264 | 336 | 251 | 31 | 23 | 24 | 4 | 353 | 227 | 230 | 289 | 25 | 54 | 81 | 29 | 268 | 323 | 340 |
| 15 | 24 | 315 | 323 | 292 | 315 | 318 | 304 | 344 | 221 | 89 | 13 | 359 | 349 | 327 | 236 | 319 | 1 | 340 | 156 | 84 | 155 | 35 | 116 | 17 | 346 |
| 16 | 112 | 25 | 342 | 342 | 49 | 358 | 342 | 345 | 118 | 15 | 5 | 342 | 19 | 338 | 345 | 343 | 334 | 306 | 56 | 166 | 255 | 78 | 148 | 49 | 10 |
| 17 | 134 | 243 | 120 | 40 | 148 | 122 | 223 | 225 | 284 | 303 | 277 | 311 | 319 | 321 | 319 | 323 | 327 | 336 | 344 | 345 | 342 | 302 | 138 | 300 | 308 |
| 18 | 354 | 179 | 345 | 65 | 342 | 326 | 342 | 325 | 305 | 17 | 37 | 43 | 65 | 324 | 286 | 299 | 318 | 314 | 126 | 99 | 64 | 81 | 61 | 40 | 8 |
| 19 | 8 | 34 | 34 | 96 | 354 | 321 | 32 | 310 | 109 | 344 | 359 | 43 | 319 | 320 | 314 | 262 | 265 | 296 | 167 | 140 | 162 | 15 | 128 | 99 | 7 |
| 20 | 77 | 68 | 60 | 41 | 52 | 58 | 356 | 10 | 145 | 46 | 360 | 354 | 14 | 295 | 310 | 290 | 317 | 312 | 55 | 172 | 267 | 325 | 142 | 312 | 9 |
| 21 | 93 | 36 | 94 | 74 | 47 | 35 | 29 | 355 | 137 | 88 | 25 | 5 | 12 | 6 | 32 | 206 | 233 | 359 | 95 | 95 | 205 | 330 | 272 | 325 | 38 |
| 22 | 360 | 23 | 316 | 330 | 328 | 334 | 333 | 353 | 317 | 353 | 1 | 348 | 12 | 338 | 322 | 311 | 20 | 42 | 122 | 28 | 100 | 108 | 38 | 194 | 359 |
| 23 | 170 | 71 | 77 | 132 | 230 | 180 | 285 | 333 | 8 | 195 | 326 | 2 | 357 | 337 | 336 | 324 | 324 | 295 | 184 | 28 | 311 | 342 | 15 | 27 | 341 |
| 24 | 358 | 51 | 5 | 76 | 80 | 317 | 45 | 291 | 356 | 2 | 7 | 356 | 21 | 310 | 298 | 273 | 265 | 271 | 317 | 50 | 239 | 254 | 231 | 270 | 331 |
| 25 | 256 | 275 | 270 | 293 | 260 | 227 | 229 | 243 | 229 | 236 | 245 | 266 | 257 | 329 | 280 | 290 | 218 | 207 | 209 | 198 | 270 | 282 | 299 | 262 | 255 |
| 26 | 245 | 233 | 234 | 249 | 245 | 239 | 243 | 243 | 252 | 231 | 248 | 246 | 13 | 15 | 40 | 54 | 45 | 103 | 69 | 200 | 161 | 153 | 138 | 135 | 217 |
| 27 | 175 | 160 | 131 | 224 | 245 | 229 | 247 | 247 | 222 | 246 | 281 | 251 | 255 | 250 | 247 | 242 | 246 | 248 | 224 | 223 | 249 | 176 | 180 | 183 | 227 |
| 28 | 169 | 156 | 160 | 174 | 88 | 211 | 227 | 223 | 245 | 278 | 326 | 342 | 24 | 49 | 247 | 246 | 241 | 241 | 160 | 169 | 247 | 148 | 10 | 83 | 209 |
| 29 | 164 | 267 | 185 | 72 | 154 | 187 | 189 | 178 | 148 | 81 | 52 | 341 | 358 | 338 | 334 | 327 | 334 | 351 | 228 | 174 | 173 | 317 | 267 | 201 | 227 |
| 30 | 86 | 350 | 52 | 94 | 323 | 52 | 67 | 54 | 159 | 162 | 1 | 8 | 39 | 336 | 329 | 292 | 272 | 155 | 159 | 291 | 339 | 346 | 351 | 306 | 9 |
| 31 | 325 | 324 | 332 | 340 | 339 | 359 | 19 | 4 | 156 | 335 | 328 | 48 | 20 | 25 | 48 | 346 | 22 | 24 | 319 | 334 | 318 | 320 | 320 | 331 | 350 |
| Prev | 1 | 356 | 352 | 4 | 332 | 304 | 306 | 300 | 230 | 350 | 348 | 343 | 348 | 329 | 318 | 293 | 305 | 310 | 203 | 109 | 249 | 311 | 265 | 4 | 325 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Wind Direction - MDEQ monitor (degrees)
# November 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 | Prev |
| 1 | 329 | 302 | 318 | 347 | 346 | 307 | 353 | 338 | 120 | 14 | 28 | 357 | 2 | 27 | 301 | 334 | 292 | 316 | 53 | 21 | 320 | 327 | 360 | 314 | 343 |
| 2 | 306 | 307 | 353 | 344 | 23 | 35 | 27 | 64 | 89 | 203 | 214 | 214 | 242 | 272 | 254 | 231 | 270 | 107 | 30 | 221 | 337 | 107 | 16 | 289 | 314 |
| 3 | 57 | 313 | 325 | 51 | 43 | 49 | 29 | 38 | 16 | 38 | 68 | 30 | 346 | 273 | 248 | 250 | 298 | 324 | 289 | 131 | 10 | 317 | 330 | 100 | 2 |
| 4 | 318 | 354 | 305 | 334 | 285 | 329 | 286 | 320 | 242 | 320 | 336 | 327 | 25 | 53 | 20 | 58 | 46 | 111 | 218 | 1 | 43 | 46 | 60 | 18 | 354 |
| 5 | 51 | 33 | 1 | 11 | 328 | 309 | 332 | 255 | 84 | 316 | 240 | 274 | 263 | 210 | 206 | 243 | 248 | 239 | 194 | 278 | 14 | 10 | 279 | 341 | 297 |
| 6 | 221 | 310 | 224 | 243 | 358 | 323 | 251 | 349 | 199 | 360 | 353 | 347 | 32 | 210 | 334 | 283 | 141 | 179 | 115 | 161 | 219 | 275 | 311 | 83 | 281 |
| 7 | 12 | 19 | 4 | 14 | 275 | 41 | 26 | 357 | 350 | 278 | 252 | 238 | 246 | 256 | 251 | 256 | 272 | 277 | 300 | 267 | 322 | 309 | 308 | 315 | 306 |
| 8 | 303 | 276 | 289 | 276 | 344 | 280 | 275 | 276 | 281 | 289 | 285 | 288 | 289 | 290 | 310 | 307 | 310 | 322 | 320 | 323 | 326 | 324 | 264 | 41 | 300 |
| 9 | 357 | 54 | 8 | 34 | 27 | 25 | 67 | 89 | 125 | 356 | 11 | 44 | 48 | 324 | 258 | 293 | 297 | 18 | 67 | 22 | 31 | 11 | 43 | 8 | 22 |
| 10 | 357 | 341 | 13 | 314 | 24 | 1 | 29 | 359 | 337 | 295 | 29 | 43 | 304 | 309 | 318 | 323 | 310 | 293 | 265 | 212 | 347 | 23 | 339 | 6 | 340 |
| 11 | 343 | 353 | 5 | 41 | 9 | 2 | 350 | 341 | 250 | 218 | 241 | 226 | 239 | 234 | 251 | 242 | 242 | 231 | 240 | 235 | 251 | 296 | 324 | 311 | 282 |
| 12 | 37 | 22 | 50 | 42 | 31 | 41 | 61 | 24 | 1 | 9 | 47 | 69 | 39 | 181 | 174 | 179 | 184 | 211 | 40 | 88 | 16 | 12 | 355 | 360 | 42 |
| 13 | 60 | 1 | 335 | 25 | 314 | 7 | 309 | 20 | 307 | 311 | 264 | 330 | 10 | 11 | 320 | 200 | 215 | 106 | 61 | 34 | 360 | 42 | 53 | 343 | 357 |
| 14 | 48 | 15 | 76 | 348 | 343 | 352 | 323 | 304 | 5 | 19 | 359 | 20 | 334 | 285 | 294 | 255 | 269 | 25 | 107 | 352 | 353 | 13 | 2 | 341 | 351 |
| 15 | 338 | 34 | 51 | 56 | 94 | 319 | 70 | 25 | 29 | 353 | 16 | 185 | 196 | 206 | 222 | 217 | 219 | 294 | 44 | 169 | 252 | 273 | 245 | 266 | 308 |
| 16 | 290 | 343 | 342 | 288 | 251 | 269 | 199 | 315 | 316 | 5 | 69 | 25 | 306 | 284 | 302 | 318 | 329 | 344 | 309 | 319 | 280 | 142 | 38 | 6 | 319 |
| 17 | 169 | 218 | 240 | 338 | 357 | 17 | 34 | 9 | 327 | 91 | 36 | 299 | 10 | 8 | 4 | 297 | 279 | 220 | 141 | 127 | 295 | 125 | 4 | 342 | 349 |
| 18 | 322 | 4 | 43 | 9 | 93 | 30 | 35 | 25 | 6 | 320 | 11 | 6 | 31 | 39 | 360 | 323 | 215 | 359 | 58 | 16 | 72 | 23 | 280 | 73 | 17 |
| 19 | 332 | 25 | 359 | 25 | 4 | 35 | 340 | 316 | 4 | 348 | 35 | 358 | 15 | 316 | 319 | 328 | 327 | 327 | 324 | 315 | 311 | 309 | 307 | 304 | 341 |
| 20 | 301 | 290 | 278 | 291 | 298 | 290 | 301 | 306 | 301 | 312 | 323 | 323 | 310 | 329 | 355 | 297 | 277 | 262 | 164 | 54 | 132 | 334 | 354 | 249 | 304 |
| 21 | 7 | 55 | 8 | 33 | 50 | 3 | 45 | 33 | 142 | 40 | 142 | 341 | 46 | 350 | 20 | 2 | 44 | 24 | 31 | 21 | 339 | 326 | 324 | 19 | 22 |
| 22 | 33 | 16 | 15 | 16 | 39 | 37 | 25 | 15 | 49 | 33 | 52 | 1 | 315 | 320 | 338 | 321 | 305 | 23 | 35 | 13 | 342 | 321 | 355 | 189 | 7 |
| 23 | 231 | 13 | 133 | 263 | 295 | 255 | 321 | 254 | 229 | 268 | 348 | 23 | 24 | 19 | 23 | 17 | 1 | 11 | 16 | 9 | 24 | 16 | 17 | 21 | 349 |
| 24 | 40 | 39 | 7 | 245 | 285 | 26 | 354 | 253 | 243 | 251 | 273 | 270 | 197 | 185 | 174 | 164 | 142 | 167 | 193 | 237 | 228 | 160 | 152 | 166 | 213 |
| 25 | 175 | 217 | 137 | 184 | 150 | 256 | 161 | 212 | 169 | 125 | 29 | 15 | 327 | 342 | 241 | 251 | 275 | 284 | 154 | 179 | 116 | 139 | 60 | 205 | 187 |
| 26 | 179 | 115 | 276 | 151 | 21 | 116 | 130 | 49 | 125 | 156 | 48 | 11 | 346 | 350 | 341 | 296 | 245 | 249 | 287 | 128 | 156 | 160 | 138 | 359 | 106 |
| 27 | 54 | 338 | 69 | 15 | 342 | 25 | 32 | 356 | 31 | 130 | 24 | 41 | 25 | 341 | 20 | 277 | 314 | 16 | 88 | 332 | 331 | 353 | 9 | 35 | 13 |
| 28 | 40 | 81 | 33 | 45 | 42 | 119 | 72 | 30 | 16 | 117 | 359 | 31 | 19 | 9 | 6 | 28 | 24 | 32 | 320 | 346 | 44 | 29 | 49 | 22 | 33 |
| 29 | 96 | 45 | 354 | 93 | 26 | 338 | 59 | 66 | 61 | 44 | 31 | 64 | 13 | 352 | 32 | 302 | 245 | 201 | 55 | 226 | 283 | 274 | 281 | 76 | 23 |
| 30 | 308 | 352 | 333 | 27 | 18 | 94 | 43 | 19 | 210 | 46 | 1 | 29 | 12 | 9 | 356 | 73 | 150 | 207 | 322 | 283 | 254 | 237 | 210 | 219 | 352 |
| Prev | 357 | 1 | 357 | 2 | 1 | 1 | 13 | 355 | 360 | 351 | 5 | 356 | 347 | 319 | 315 | 289 | 277 | 307 | 25 | 337 | 336 | 349 | 347 | 355 | 346 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Wind Direction - MDEQ monitor (degrees)
# December 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 | Prev |
| 1 | 212 | 315 | 345 | 82 | 50 | 20 | 343 | 4 | 142 | 346 | 21 | 266 | 336 | 232 | 231 | 229 | 240 | 296 | 297 | 287 | 264 | 337 | 281 | 3 | 310 |
| 2 | 295 | 345 | 336 | 348 | 343 | 118 | 10 | 359 | 299 | 305 | 319 | 164 | 172 | 233 | 201 | 147 | 119 | 357 | 331 | 297 | 312 | 30 | 16 | 322 | 331 |
| 3 | 296 | 301 | 308 | 254 | 338 | 8 | 356 | 323 | 29 | 20 | 1 | 17 | 33 | 22 | 259 | 311 | 38 | 7 | 27 | 27 | 28 | 32 | 29 | 36 | 359 |
| 4 | 63 | 325 | 38 | 298 | 333 | 319 | 314 | 301 | 126 | 358 | 329 | 318 | 295 | 245 | 289 | 257 | 257 | 97 | 45 | 40 | 246 | 220 | 214 | 205 | 306 |
| 5 | 173 | 216 | 184 | 195 | 268 | 190 | 179 | 62 | 44 | 180 | 183 | 205 | 207 | 219 | 204 | 198 | 191 | 292 | 333 | 32 | 47 | 337 | 55 | 355 | 201 |
| 6 | 18 | 334 | 5 | 358 | 4 | 1 | 341 | 353 | 6 | 10 | 348 | 356 | 264 | 16 | 168 | 168 | 172 | 182 | 177 | 187 | 178 | 136 | 154 | 149 | 17 |
| 7 | 166 | 142 | 4 | 207 | 309 | 153 | 20 | 319 | 322 | 322 | 321 | 316 | 297 | 305 | 276 | 253 | 300 | 208 | 26 | 293 | 150 | 39 | 30 | 351 | 313 |
| 8 | 12 | 10 | 350 | 297 | 280 | 14 | 292 | 321 | 330 | 332 | 355 | 325 | 333 | 328 | 316 | 319 | 323 | 319 | 343 | 325 | 329 | 333 | 326 | 322 | 330 |
| 9 | 327 | 297 | 277 | 57 | 84 | 76 | 84 | 66 | 41 | 118 | 43 | 12 | 348 | 226 | 208 | 200 | 164 | 182 | 12 | 6 | 355 | 30 | 37 | 190 | 41 |
| 10 | 222 | 213 | 222 | 255 | 39 | 21 | 12 | 25 | 12 | 26 | 30 | 8 | 4 | 24 | 354 | 36 | 29 | 40 | 7 | 10 | 322 | 43 | 347 | 18 | 9 |
| 11 | 16 | 2 | 345 | 49 | 34 | 121 | 95 | 11 | 170 | 47 | 11 | 305 | 44 | 36 | 71 | 4 | 6 | 337 | 331 | 344 | 326 | 129 | 324 | 51 | 21 |
| 12 | 53 | 42 | 12 | 306 | 279 | 317 | 287 | 300 | 270 | 299 | 315 | 261 | 259 | 281 | 167 | 341 | 315 | 73 | 341 | 325 | 46 | 359 | 104 | 325 | 324 |
| 13 | 130 | 28 | 36 | 44 | 41 | 51 | 37 | 47 | 33 | 54 | 43 | 35 | 16 | 12 | 23 | 26 | 26 | 14 | 50 | 32 | 359 | 68 | 50 | 60 | 39 |
| 14 | 16 | 53 | 65 | 117 | 31 | 37 | 149 | 35 | 46 | 76 | 73 | 16 | 32 | 20 | 353 | 25 | 257 | 113 | 1 | 336 | 343 | 281 | 70 | 347 | 33 |
| 15 | 344 | 68 | 354 | 32 | 21 | 28 | 3 | 64 | 76 | 13 | 28 | 35 | 23 | 356 | 12 | 5 | 20 | 81 | 339 | 42 | 7 | 348 | 317 | 14 | 19 |
| 16 | 22 | 53 | 29 | 35 | 15 | 79 | 68 | 326 | 28 | 115 | 353 | 11 | 344 | 17 | 360 | 8 | 19 | 44 | 46 | 16 | 5 | 3 | 11 | 52 | 24 |
| 17 | 40 | 4 | 94 | 39 | 53 | 350 | 57 | 5 | 65 | 8 | 306 | 12 | 350 | 31 | 31 | 37 | 9 | 2 | 1 | 4 | 350 | 348 | 7 | 16 | 17 |
| 18 | 17 | 80 | 1 | 29 | 33 | 40 | 13 | 15 | 359 | 19 | 30 | 5 | 347 | 32 | 16 | 302 | 19 | 1 | 35 | 22 | 7 | 22 | 43 | 25 | 18 |
| 19 | 40 | 14 | 60 | 34 | 43 | 344 | 293 | 28 | 352 | 339 | 47 | 337 | 16 | 28 | 27 | 51 | 44 | 14 | 54 | 44 | 354 | 53 | 26 | 26 | 23 |
| 20 | 307 | 26 | 10 | 33 | 321 | 357 | 16 | 315 | 27 | 15 | 200 | 32 | 20 | 6 | 47 | 29 | 25 | 46 | 33 | 48 | 51 | 46 | 56 | 53 | 23 |
| 21 | 24 | 7 | 343 | 347 | 339 | 336 | 2 | 31 | 19 | 343 | 346 | 345 | 25 | 355 | 30 | 312 | 11 | 54 | 43 | 5 | 27 | 8 | 348 | 347 | 4 |
| 22 | 331 | 348 | 345 | 346 | 50 | 348 | 359 | 64 | 34 | 348 | 357 | 358 | 44 | 12 | 177 | 219 | 180 | 9 | 81 | 29 | 33 | 12 | 45 | 342 | 13 |
| 23 | 338 | 337 | 342 | 326 | 327 | 318 | 317 | 319 | 307 | 313 | 317 | 303 | 317 | 325 | 319 | 322 | 335 | 338 | 350 | 305 | 192 | 158 | 268 | 17 | 321 |
| 24 | 183 | 63 | 237 | 19 | 120 | 259 | 342 | 262 | 349 | 161 | 119 | 57 | 76 | 3 | 25 | 20 | 5 | 72 | 315 | 356 | 310 | 323 | 258 | 335 | 360 |
| 25 | 44 | 288 | 4 | 92 | 250 | 42 | 255 | 109 | 10 | 148 | 89 | 125 | 32 | 68 | 9 | 20 | 28 | 57 | 340 | 51 | 56 | 337 | 282 | 1 | 31 |
| 26 | 119 | 332 | 60 | 64 | 317 | 142 | 329 | 351 | 312 | 25 | 34 | 193 | 51 | 18 | 18 | 11 | 19 | 25 | 46 | 61 | 5 | 335 | 1 | 353 | 18 |
| 27 | 64 | 268 | 52 | 295 | 290 | 358 | 4 | 330 | 316 | 8 | 23 | 108 | 359 | 3 | 8 | 6 | 23 | 10 | 9 | 360 | 4 | 196 | 344 | 11 | 360 |
| 28 | 333 | 3 | 33 | 40 | 356 | 339 | 7 | 360 | 360 | 359 | 85 | 342 | 17 | 17 | 3 | 19 | 360 | 19 | 1 | 351 | 17 | 20 | 32 | 155 | 11 |
| 29 | 11 | 26 | 15 | 163 | 10 | 44 | 8 | 46 | 67 | 350 | 49 | 3 | 346 | 18 | 356 | 26 | 21 | 46 | 39 | 15 | 347 | 23 | 36 | 8 | 22 |
| 30 | 9 | 15 | 8 | 342 | 25 | 44 | 360 | 37 | 294 | 38 | 338 | 343 | 22 | 360 | 10 | 33 | 19 | 37 | 28 | 23 | 1 | 23 | 354 | 7 | 11 |
| 31 | 350 | 35 | 16 | 19 | 11 | 18 | 322 | 41 | 13 | 109 | 46 | 355 | 359 | 31 | 32 | 353 | 23 | 93 | 323 | 33 | 298 | 336 | 47 | 39 | 17 |
| Prev | 12 | 2 | 7 | 13 | 1 | 20 | 358 | 6 | 11 | 14 | 14 | 354 | 1 | 360 | 359 | 354 | 8 | 30 | 10 | 7 | 356 | 12 | 11 | 11 | 7 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Standard Deviation of Wind Direction - MDEQ monitor (degrees)
# October 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 | 49 | 37 | 41 | 37 | 61 | 21 | 42 | 26 | 31 | 53 | 31 | 51 | 24 | 36 | 38 | 45 | 32 | 47 | 33 | 38 | 66 | 44 | 59 | 57 | 42 | 66 | 21 |
| 2 | 68 | 61 | 72 | 63 | 58 | 39 | 60 | 72 | 53 | 38 | 26 | 29 | 51 | 26 | 12 | 20 | 21 | 24 | 31 | 17 | 22 | 16 | 20 | 38 | 39 | 72 | 12 |
| 3 | 35 | 24 | 58 | 54 | 49 | 34 | 56 | 39 | 44 | 52 | 18 | 24 | 14 | 17 | 18 | 18 | 21 | 23 | 26 | 38 | 46 | 27 | 24 | 48 | 34 | 58 | 14 |
| 4 | 49 | 27 | 60 | 37 | 59 | 45 | 45 | 69 | 32 | 56 | 52 | 46 | 39 | 27 | 25 | 17 | 18 | 20 | 22 | 21 | 15 | 13 | 47 | 56 | 37 | 69 | 13 |
| 5 | 44 | 46 | 60 | 69 | 68 | 34 | 47 | 51 | 26 | 19 | 19 | 27 | 14 | 21 | 16 | 18 | 13 | 13 | 16 | 38 | 20 | 36 | 58 | 42 | 34 | 69 | 13 |
| 6 | 58 | 54 | 53 | 36 | 37 | 44 | 52 | 30 | 27 | 26 | 29 | 16 | 34 | 57 | 76 | 41 | 69 | 28 | 26 | 35 | 21 | 57 | 76 | 49 | 43 | 76 | 16 |
| 7 | 23 | 46 | 25 | 23 | 31 | 39 | 31 | 25 | 31 | 32 | 20 | 21 | 14 | 23 | 63 | 42 | 42 | 46 | 32 | 41 | 48 | 60 | 69 | 67 | 37 | 69 | 14 |
| 8 | 55 | 40 | 26 | 55 | 38 | 51 | 34 | 39 | 59 | 38 | 32 | 18 | 19 | 26 | 43 | 51 | 28 | 32 | 41 | 62 | 60 | 49 | 61 | 76 | 43 | 76 | 18 |
| 9 | 66 | 66 | 60 | 30 | 77 | 61 | 69 | 63 | 68 | 18 | 20 | 21 | 31 | 57 | 60 | 27 | 31 | 35 | 40 | 59 | 58 | 32 | 51 | 68 | 49 | 77 | 18 |
| 10 | 60 | 70 | 57 | 61 | 36 | 45 | 79 | 55 | 27 | 46 | 27 | 31 | 32 | 52 | 24 | 41 | 61 | 26 | 52 | 54 | 32 | 28 | 37 | 44 | 45 | 79 | 24 |
| 11 | 57 | 54 | 22 | 44 | 30 | 48 | 44 | 30 | 66 | 62 | 24 | 22 | 19 | 17 | 18 | 15 | 13 | 12 | 15 | 18 | 20 | 14 | 18 | 17 | 29 | 66 | 12 |
| 12 | 14 | 14 | 12 | 14 | 17 | 17 | 21 | 24 | 16 | 14 | 13 | 18 | 24 | 21 | 20 | 19 | 23 | 33 | 57 | 49 | 20 | 21 | 25 | 57 | 23 | 57 | 12 |
| 13 | 55 | 71 | 39 | 35 | 59 | 55 | 43 | 48 | 24 | 19 | 27 | 30 | 24 | 42 | 33 | 30 | 23 | 29 | 56 | 25 | 48 | 22 | 17 | 31 | 37 | 71 | 17 |
| 14 | 54 | 44 | 74 | 72 | 73 | 41 | 71 | 58 | 53 | 45 | 64 | 25 | 17 | 52 | 39 | 27 | 23 | 23 | 49 | 55 | 55 | 70 | 61 | 49 | 50 | 74 | 17 |
| 15 | 44 | 41 | 58 | 55 | 63 | 56 | 43 | 70 | 46 | 52 | 30 | 20 | 29 | 58 | 30 | 23 | 17 | 49 | 57 | 57 | 55 | 49 | 54 | 32 | 45 | 70 | 17 |
| 16 | 64 | 41 | 45 | 74 | 55 | 65 | 80 | 45 | 39 | 52 | 24 | 30 | 37 | 32 | 21 | 15 | 33 | 66 | 71 | 56 | 69 | 56 | 80 | 67 | 51 | 80 | 15 |
| 17 | 77 | 51 | 28 | 49 | 75 | 55 | 50 | 28 | 33 | 32 | 32 | 20 | 15 | 11 | 13 | 13 | 12 | 14 | 15 | 19 | 24 | 47 | 69 | 74 | 36 | 77 | 11 |
| 18 | 76 | 74 | 62 | 75 | 64 | 48 | 65 | 77 | 60 | 36 | 33 | 16 | 26 | 57 | 31 | 32 | 22 | 26 | 56 | 47 | 73 | 87 | 76 | 64 | 53 | 87 | 16 |
| 19 | 74 | 75 | 65 | 72 | 56 | 82 | 64 | 92 | 75 | 76 | 32 | 30 | 38 | 24 | 23 | 29 | 26 | 24 | 49 | 32 | 64 | 74 | 55 | 73 | 54 | 92 | 23 |
| 20 | 57 | 74 | 35 | 61 | 40 | 50 | 64 | 57 | 82 | 50 | 19 | 24 | 48 | 40 | 28 | 39 | 24 | 30 | 66 | 35 | 44 | 60 | 64 | 58 | 48 | 82 | 19 |
| 21 | 46 | 47 | 61 | 57 | 43 | 58 | 61 | 48 | 57 | 53 | 39 | 21 | 25 | 44 | 50 | 45 | 23 | 30 | 52 | 50 | 57 | 44 | 58 | 54 | 47 | 61 | 21 |
| 22 | 68 | 67 | 52 | 62 | 60 | 46 | 63 | 50 | 37 | 34 | 29 | 25 | 19 | 20 | 41 | 26 | 34 | 78 | 29 | 35 | 38 | 39 | 58 | 36 | 44 | 78 | 19 |
| 23 | 62 | 50 | 54 | 50 | 55 | 56 | 36 | 52 | 52 | 46 | 74 | 27 | 54 | 39 | 57 | 17 | 21 | 42 | 41 | 31 | 68 | 58 | 33 | 57 | 47 | 74 | 17 |
| 24 | 45 | 73 | 61 | 68 | 56 | 73 | 59 | 56 | 61 | 30 | 25 | 55 | 51 | 32 | 50 | 43 | 25 | 52 | 45 | 43 | 35 | 29 | 49 | 45 | 48 | 73 | 25 |
| 25 | 31 | 42 | 65 | 55 | 61 | 46 | 47 | 52 | 43 | 48 | 57 | 69 | 67 | 86 | 75 | 65 | 67 | 48 | 48 | 34 | 55 | 68 | 64 | 55 | 56 | 86 | 31 |
| 26 | 70 | 50 | 51 | 54 | 46 | 49 | 45 | 40 | 48 | 45 | 52 | 48 | 59 | 44 | 37 | 59 | 53 | 87 | 73 | 66 | 63 | 41 | 69 | 77 | 55 | 87 | 37 |
| 27 | 57 | 54 | 60 | 77 | 55 | 52 | 51 | 49 | 50 | 57 | 70 | 67 | 54 | 54 | 50 | 50 | 52 | 57 | 53 | 58 | 72 | 52 | 54 | 42 | 56 | 77 | 42 |
| 28 | 42 | 35 | 37 | 56 | 39 | 70 | 71 | 90 | 63 | 56 | 51 | 79 | 70 | 63 | 57 | 44 | 48 | 57 | 48 | 57 | 64 | 41 | 61 | 72 | 57 | 90 | 35 |
| 29 | 57 | 79 | 66 | 69 | 60 | 74 | 60 | 49 | 47 | 78 | 73 | 49 | 28 | 30 | 26 | 15 | 16 | 18 | 51 | 60 | 62 | 73 | 80 | 85 | 54 | 85 | 15 |
| 30 | 79 | 72 | 90 | 77 | 75 | 71 | 69 | 75 | 72 | 63 | 65 | 32 | 47 | 51 | 27 | 34 | 30 | 37 | 42 | 74 | 85 | 69 | 75 | 66 | 62 | 90 | 27 |
| 31 | 67 | 70 | 85 | 82 | 76 | 56 | 63 | 71 | 68 | 74 | 73 | 43 | 42 | 31 | 50 | 24 | 35 | 39 | 58 | 41 | 69 | 62 | 55 | 57 | 58 | 85 | 24 |
| Avg | 55 | 53 | 53 | 56 | 54 | 51 | 54 | 53 | 48 | 45 | 38 | 33 | 34 | 38 | 37 | 32 | 31 | 37 | 44 | 43 | 49 | 46 | 54 | 55 | 46 | 76 | 20 |
| Max | 79 | 79 | 90 | 82 | 77 | 82 | 80 | 92 | 82 | 78 | 74 | 79 | 70 | 86 | 76 | 65 | 69 | 87 | 73 | 74 | 85 | 87 | 80 | 85 | 62 | 92 | 42 |
| Min | 14 | 14 | 12 | 14 | 17 | 17 | 21 | 24 | 16 | 14 | 13 | 16 | 14 | 11 | 12 | 13 | 12 | 12 | 15 | 17 | 15 | 13 | 17 | 17 | 23 | 57 | 11 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Standard Deviation of Wind Direction - MDEQ monitor (degrees)
# November 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 | 33 | 61 | 54 | 58 | 73 | 82 | 88 | 64 | 76 | 45 | 49 | 22 | 17 | 54 | 53 | 42 | 44 | 60 | 55 | 73 | 58 | 59 | 62 | 72 | 56 | 88 | 17 |
| 2 | 67 | 75 | 64 | 54 | 66 | 36 | 46 | 51 | 85 | 19 | 21 | 22 | 48 | 57 | 37 | 23 | 39 | 48 | 77 | 71 | 67 | 70 | 35 | 55 | 51 | 85 | 19 |
| 3 | 51 | 38 | 46 | 62 | 69 | 57 | 62 | 52 | 30 | 17 | 32 | 45 | 35 | 31 | 30 | 26 | 33 | 19 | 71 | 72 | 62 | 64 | 50 | 66 | 47 | 72 | 17 |
| 4 | 64 | 58 | 45 | 69 | 61 | 79 | 73 | 71 | 70 | 77 | 75 | 50 | 67 | 63 | 43 | 52 | 56 | 55 | 52 | 54 | 39 | 53 | 25 | 50 | 58 | 79 | 25 |
| 5 | 43 | 68 | 64 | 56 | 48 | 39 | 17 | 56 | 48 | 44 | 33 | 33 | 32 | 18 | 16 | 27 | 28 | 31 | 74 | 48 | 38 | 47 | 48 | 61 | 42 | 74 | 16 |
| 6 | 41 | 51 | 81 | 78 | 63 | 66 | 80 | 57 | 60 | 43 | 47 | 37 | 47 | 36 | 26 | 49 | 29 | 45 | 71 | 60 | 47 | 78 | 25 | 64 | 53 | 81 | 25 |
| 7 | 62 | 68 | 64 | 60 | 62 | 67 | 36 | 59 | 75 | 60 | 23 | 18 | 18 | 23 | 19 | 19 | 26 | 23 | 25 | 57 | 50 | 17 | 20 | 16 | 40 | 75 | 16 |
| 8 | 19 | 30 | 30 | 64 | 50 | 29 | 26 | 35 | 50 | 25 | 26 | 32 | 29 | 28 | 20 | 24 | 19 | 16 | 14 | 13 | 13 | 18 | 54 | 71 | 31 | 71 | 13 |
| 9 | 84 | 75 | 81 | 58 | 61 | 66 | 60 | 69 | 80 | 62 | 26 | 24 | 43 | 42 | 54 | 43 | 33 | 56 | 37 | 64 | 46 | 61 | 78 | 88 | 58 | 88 | 24 |
| 10 | 80 | 77 | 80 | 74 | 71 | 64 | 65 | 66 | 87 | 55 | 53 | 42 | 31 | 25 | 14 | 20 | 44 | 58 | 54 | 61 | 48 | 55 | 58 | 64 | 56 | 87 | 14 |
| 11 | 66 | 73 | 64 | 40 | 55 | 53 | 60 | 64 | 51 | 37 | 23 | 23 | 21 | 27 | 29 | 21 | 23 | 17 | 19 | 19 | 22 | 57 | 38 | 44 | 39 | 73 | 17 |
| 12 | 38 | 57 | 47 | 34 | 43 | 54 | 52 | 40 | 33 | 16 | 16 | 31 | 68 | 28 | 28 | 20 | 17 | 48 | 34 | 74 | 82 | 67 | 80 | 70 | 45 | 82 | 16 |
| 13 | 71 | 68 | 77 | 69 | 73 | 74 | 71 | 73 | 83 | 91 | 74 | 47 | 22 | 21 | 37 | 33 | 25 | 63 | 51 | 41 | 70 | 70 | 47 | 81 | 60 | 91 | 21 |
| 14 | 61 | 68 | 62 | 59 | 76 | 69 | 84 | 74 | 74 | 80 | 27 | 52 | 52 | 38 | 32 | 51 | 31 | 46 | 57 | 78 | 77 | 73 | 83 | 82 | 62 | 84 | 27 |
| 15 | 82 | 58 | 48 | 69 | 55 | 62 | 66 | 60 | 49 | 46 | 36 | 20 | 16 | 19 | 17 | 17 | 16 | 22 | 54 | 80 | 36 | 27 | 19 | 28 | 42 | 82 | 16 |
| 16 | 28 | 17 | 29 | 38 | 30 | 46 | 60 | 51 | 57 | 51 | 67 | 57 | 46 | 45 | 34 | 22 | 15 | 29 | 44 | 40 | 76 | 64 | 62 | 42 | 44 | 76 | 15 |
| 17 | 62 | 67 | 63 | 48 | 60 | 68 | 72 | 68 | 51 | 60 | 33 | 69 | 21 | 45 | 24 | 31 | 34 | 48 | 38 | 60 | 61 | 67 | 61 | 48 | 52 | 72 | 21 |
| 18 | 83 | 75 | 72 | 72 | 74 | 64 | 71 | 70 | 76 | 72 | 26 | 33 | 17 | 23 | 15 | 26 | 28 | 50 | 59 | 44 | 69 | 40 | 54 | 71 | 54 | 83 | 15 |
| 19 | 62 | 70 | 69 | 73 | 73 | 65 | 76 | 55 | 73 | 35 | 62 | 47 | 28 | 13 | 13 | 14 | 13 | 16 | 19 | 16 | 14 | 21 | 19 | 23 | 40 | 76 | 13 |
| 20 | 26 | 27 | 36 | 40 | 37 | 36 | 29 | 23 | 27 | 19 | 14 | 23 | 40 | 62 | 34 | 44 | 27 | 23 | 72 | 49 | 62 | 71 | 73 | 74 | 40 | 74 | 14 |
| 21 | 68 | 81 | 75 | 64 | 70 | 48 | 74 | 63 | 63 | 65 | 54 | 38 | 43 | 27 | 21 | 45 | 27 | 51 | 71 | 68 | 76 | 83 | 87 | 90 | 61 | 90 | 21 |
| 22 | 24 | 50 | 59 | 67 | 42 | 64 | 56 | 39 | 69 | 39 | 32 | 32 | 15 | 17 | 13 | 31 | 64 | 32 | 28 | 18 | 24 | 30 | 43 | 37 | 39 | 69 | 13 |
| 23 | 49 | 38 | 58 | 63 | 60 | 69 | 56 | 58 | 50 | 29 | 50 | 20 | 24 | 26 | 19 | 20 | 29 | 28 | 29 | 28 | 29 | 21 | 26 | 25 | 38 | 69 | 19 |
| 24 | 26 | 27 | 44 | 52 | 79 | 24 | 58 | 61 | 51 | 46 | 57 | 65 | 57 | 60 | 53 | 48 | 61 | 53 | 53 | 51 | 53 | 57 | 55 | 42 | 51 | 79 | 24 |
| 25 | 71 | 64 | 61 | 57 | 52 | 61 | 75 | 67 | 55 | 61 | 77 | 49 | 51 | 65 | 64 | 27 | 37 | 62 | 62 | 77 | 78 | 55 | 50 | 75 | 61 | 78 | 27 |
| 26 | 70 | 70 | 78 | 63 | 61 | 69 | 66 | 66 | 61 | 63 | 72 | 47 | 39 | 45 | 50 | 26 | 44 | 44 | 51 | 74 | 76 | 61 | 64 | 60 | 59 | 78 | 26 |
| 27 | 71 | 61 | 60 | 68 | 69 | 69 | 66 | 69 | 76 | 71 | 58 | 60 | 62 | 20 | 33 | 43 | 38 | 72 | 71 | 59 | 76 | 72 | 67 | 76 | 62 | 76 | 20 |
| 28 | 57 | 63 | 75 | 60 | 77 | 73 | 79 | 59 | 62 | 63 | 67 | 60 | 40 | 31 | 28 | 10 | 25 | 63 | 56 | 66 | 75 | 62 | 65 | 74 | 58 | 79 | 10 |
| 29 | 79 | 54 | 83 | 83 | 72 | 75 | 68 | 81 | 62 | 64 | 64 | 81 | 45 | 25 | 35 | 25 | 21 | 25 | 55 | 65 | 66 | 70 | 59 | 71 | 60 | 83 | 21 |
| 30 | 67 | 77 | 66 | 73 | 67 | 47 | 56 | 75 | 71 | 74 | 68 | 62 | 28 | 42 | 36 | 36 | 40 | 40 | 39 | 46 | 36 | 68 | 71 | 83 | 57 | 83 | 28 |
| Avg | 57 | 59 | 61 | 61 | 62 | 59 | 62 | 60 | 62 | 51 | 45 | 41 | 37 | 35 | 31 | 31 | 32 | 41 | 50 | 54 | 54 | 55 | 53 | 60 | 51 | 79 | 19 |
| Max | 84 | 81 | 83 | 83 | 79 | 82 | 88 | 81 | 87 | 91 | 77 | 81 | 68 | 65 | 64 | 52 | 64 | 72 | 77 | 80 | 82 | 83 | 87 | 90 | 62 | 91 | 28 |
| Min | 19 | 17 | 29 | 34 | 30 | 24 | 17 | 23 | 27 | 16 | 14 | 18 | 15 | 13 | 13 | 10 | 13 | 16 | 14 | 13 | 13 | 17 | 19 | 16 | 31 | 69 | 10 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Standard Deviation of Wind Direction - MDEQ monitor (degrees)
# December 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 | 85 | 85 | 65 | 62 | 57 | 71 | 78 | 82 | 79 | 70 | 47 | 72 | 33 | 22 | 27 | 24 | 16 | 47 | 43 | 62 | 28 | 64 | 79 | 53 | 56 | 85 | 16 |
| 2 | 46 | 32 | 47 | 38 | 73 | 75 | 68 | 58 | 75 | 62 | 74 | 24 | 23 | 38 | 30 | 28 | 34 | 55 | 43 | 35 | 55 | 56 | 37 | 16 | 47 | 75 | 16 |
| 3 | 36 | 51 | 53 | 78 | 47 | 68 | 67 | 47 | 57 | 51 | 21 | 53 | 26 | 23 | 47 | 26 | 21 | 20 | 22 | 48 | 57 | 21 | 70 | 25 | 43 | 78 | 20 |
| 4 | 85 | 67 | 67 | 50 | 59 | 45 | 44 | 46 | 38 | 25 | 19 | 34 | 71 | 41 | 33 | 36 | 46 | 31 | 72 | 49 | 70 | 21 | 18 | 25 | 46 | 85 | 18 |
| 5 | 71 | 19 | 37 | 67 | 49 | 17 | 36 | 34 | 72 | 46 | 37 | 60 | 19 | 20 | 15 | 21 | 15 | 40 | 72 | 82 | 76 | 82 | 59 | 57 | 46 | 82 | 15 |
| 6 | 42 | 71 | 63 | 77 | 82 | 69 | 76 | 68 | 72 | 71 | 51 | 50 | 24 | 24 | 37 | 12 | 15 | 32 | 21 | 40 | 24 | 40 | 28 | 26 | 46 | 82 | 12 |
| 7 | 18 | 49 | 52 | 69 | 52 | 22 | 55 | 27 | 42 | 14 | 15 | 27 | 36 | 26 | 29 | 16 | 31 | 57 | 52 | 61 | 62 | 56 | 53 | 39 | 40 | 69 | 14 |
| 8 | 63 | 81 | 48 | 72 | 59 | 48 | 57 | 17 | 18 | 16 | 23 | 18 | 15 | 14 | 19 | 21 | 24 | 18 | 24 | 18 | 20 | 23 | 20 | 28 | 32 | 81 | 14 |
| 9 | 25 | 58 | 57 | 59 | 54 | 61 | 61 | 60 | 85 | 46 | 64 | 35 | 54 | 30 | 33 | 30 | 42 | 39 | 65 | 30 | 59 | 58 | 30 | 47 | 49 | 85 | 25 |
| 10 | 29 | 36 | 44 | 60 | 43 | 25 | 18 | 19 | 16 | 17 | 24 | 18 | 13 | 19 | 17 | 15 | 16 | 22 | 26 | 70 | 76 | 41 | 53 | 50 | 32 | 76 | 13 |
| 11 | 63 | 42 | 60 | 68 | 69 | 60 | 58 | 57 | 47 | 43 | 23 | 76 | 19 | 24 | 77 | 16 | 39 | 20 | 52 | 26 | 33 | 56 | 57 | 20 | 46 | 77 | 16 |
| 12 | 14 | 21 | 57 | 61 | 39 | 27 | 37 | 31 | 31 | 28 | 34 | 29 | 36 | 61 | 48 | 36 | 31 | 63 | 68 | 82 | 55 | 73 | 54 | 56 | 45 | 82 | 14 |
| 13 | 80 | 47 | 55 | 43 | 23 | 25 | 27 | 23 | 31 | 31 | 64 | 47 | 77 | 49 | 66 | 38 | 54 | 47 | 72 | 46 | 56 | 72 | 59 | 83 | 51 | 83 | 23 |
| 14 | 64 | 68 | 45 | 64 | 49 | 54 | 72 | 65 | 61 | 62 | 51 | 50 | 41 | 25 | 35 | 18 | 50 | 65 | 53 | 67 | 52 | 78 | 61 | 49 | 54 | 78 | 18 |
| 15 | 63 | 79 | 49 | 60 | 63 | 74 | 63 | 72 | 74 | 57 | 72 | 46 | 35 | 36 | 20 | 25 | 34 | 54 | 46 | 65 | 63 | 64 | 68 | 69 | 56 | 79 | 20 |
| 16 | 82 | 87 | 65 | 69 | 76 | 79 | 83 | 94 | 74 | 83 | 60 | 51 | 41 | 25 | 24 | 42 | 42 | 54 | 67 | 57 | 76 | 72 | 62 | 81 | 64 | 94 | 24 |
| 17 | 81 | 75 | 86 | 78 | 64 | 72 | 58 | 82 | 58 | 73 | 82 | 38 | 22 | 14 | 15 | 16 | 21 | 55 | 64 | 77 | 60 | 83 | 67 | 75 | 59 | 86 | 14 |
| 18 | 76 | 73 | 68 | 56 | 80 | 82 | 66 | 72 | 84 | 66 | 51 | 54 | 64 | 63 | 59 | 48 | 43 | 61 | 68 | 62 | 69 | 25 | 54 | 38 | 62 | 84 | 25 |
| 19 | 41 | 54 | 69 | 74 | 89 | 56 | 73 | 58 | 62 | 57 | 59 | 67 | 36 | 21 | 35 | 56 | 46 | 52 | 69 | 72 | 69 | 72 | 62 | 29 | 57 | 89 | 21 |
| 20 | 75 | 71 | 57 | 65 | 55 | 59 | 62 | 57 | 49 | 45 | 55 | 29 | 24 | 21 | 21 | 16 | 37 | 16 | 56 | 40 | 44 | 49 | 54 | 54 | 46 | 75 | 16 |
| 21 | 69 | 75 | 57 | 79 | 73 | 77 | 63 | 90 | 63 | 53 | 31 | 46 | 30 | 20 | 30 | 38 | 35 | 34 | 48 | 73 | 69 | 53 | 76 | 87 | 57 | 90 | 20 |
| 22 | 68 | 79 | 83 | 84 | 78 | 62 | 89 | 78 | 87 | 60 | 46 | 44 | 18 | 33 | 47 | 24 | 20 | 61 | 34 | 42 | 47 | 66 | 22 | 44 | 55 | 89 | 18 |
| 23 | 48 | 49 | 19 | 18 | 16 | 14 | 14 | 12 | 28 | 27 | 30 | 35 | 30 | 18 | 20 | 19 | 26 | 20 | 24 | 56 | 79 | 39 | 62 | 57 | 32 | 79 | 12 |
| 24 | 63 | 59 | 66 | 72 | 54 | 62 | 63 | 84 | 64 | 64 | 77 | 50 | 60 | 48 | 34 | 35 | 36 | 40 | 62 | 50 | 76 | 72 | 55 | 62 | 59 | 84 | 34 |
| 25 | 60 | 52 | 72 | 53 | 68 | 64 | 56 | 59 | 58 | 57 | 72 | 70 | 61 | 30 | 44 | 31 | 32 | 63 | 57 | 66 | 44 | 52 | 61 | 70 | 56 | 72 | 30 |
| 26 | 74 | 61 | 64 | 74 | 65 | 82 | 63 | 83 | 55 | 65 | 46 | 53 | 40 | 33 | 42 | 67 | 30 | 57 | 67 | 52 | 76 | 73 | 52 | 76 | 60 | 83 | 30 |
| 27 | 64 | 52 | 57 | 51 | 57 | 73 | 80 | 68 | 59 | 64 | 48 | 83 | 54 | 38 | 31 | 30 | 41 | 35 | 76 | 55 | 69 | 56 | 59 | 65 | 57 | 83 | 30 |
| 28 | 79 | 55 | 82 | 69 | 69 | 74 | 63 | 81 | 88 | 41 | 63 | 31 | 21 | 36 | 34 | 16 | 56 | 41 | 54 | 51 | 61 | 66 | 72 | 67 | 57 | 88 | 16 |
| 29 | 72 | 75 | 57 | 62 | 58 | 70 | 74 | 65 | 69 | 51 | 45 | 47 | 23 | 52 | 32 | 18 | 17 | 26 | 57 | 46 | 75 | 64 | 60 | 64 | 53 | 75 | 17 |
| 30 | 56 | 56 | 57 | 73 | 66 | 57 | 56 | 60 | 50 | 66 | 37 | 66 | 32 | 33 | 47 | 24 | 50 | 55 | 59 | 51 | 59 | 56 | 55 | 64 | 54 | 73 | 24 |
| 31 | 74 | 69 | 65 | 69 | 74 | 65 | 65 | 54 | 43 | 85 | 75 | 46 | 30 | 23 | 29 | 26 | 39 | 37 | 56 | 59 | 67 | 61 | 66 | 90 | 57 | 90 | 23 |
| Avg | 60 | 60 | 59 | 64 | 60 | 58 | 60 | 58 | 58 | 51 | 48 | 47 | 36 | 31 | 35 | 28 | 34 | 42 | 53 | 55 | 59 | 57 | 54 | 54 | 51 | 82 | 20 |
| Max | 85 | 87 | 86 | 84 | 89 | 82 | 89 | 94 | 88 | 85 | 82 | 83 | 77 | 63 | 77 | 67 | 56 | 65 | 76 | 82 | 79 | 83 | 79 | 90 | 64 | 94 | 34 |
| Min | 14 | 19 | 19 | 18 | 16 | 14 | 14 | 12 | 16 | 14 | 15 | 18 | 13 | 14 | 15 | 12 | 15 | 16 | 21 | 18 | 20 | 21 | 18 | 16 | 32 | 69 | 12 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Wind Speed - MDEQ monitor (meters per second)
# October 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 | 1.2 | 0.9 | 0.9 | 0.8 | 1.0 | 1.2 | 1.0 | 1.1 | 1.2 | 1.8 | 1.5 | 1.1 | 1.5 | 1.3 | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 0.6 | 0.4 | 0.7 | 0.5 | 0.5 | 1.0 | 1.8 | 0.4 |
| 2 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.6 | 0.8 | 0.9 | 1.1 | 1.5 | 1.5 | 2.1 | 2.5 | 1.9 | 1.9 | 1.7 | 1.2 | 1.4 | 1.3 | 2.0 | 2.0 | 0.6 | 1.2 | 2.5 | 0.4 |
| 3 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 | 0.8 | 0.5 | 0.5 | 0.6 | 1.0 | 2.1 | 2.0 | 2.5 | 2.6 | 2.1 | 2.5 | 1.7 | 1.6 | 1.2 | 0.8 | 0.6 | 0.7 | 0.9 | 0.6 | 1.2 | 2.6 | 0.4 |
| 4 | 0.8 | 1.3 | 0.6 | 0.6 | 0.6 | 0.7 | 0.5 | 0.5 | 0.8 | 0.8 | 0.9 | 0.9 | 1.3 | 1.8 | 1.9 | 2.6 | 2.5 | 2.2 | 1.9 | 1.8 | 2.0 | 1.8 | 0.8 | 0.5 | 1.3 | 2.6 | 0.5 |
| 5 | 0.7 | 0.5 | 0.5 | 0.6 | 0.7 | 0.9 | 0.6 | 0.6 | 0.7 | 1.0 | 1.0 | 1.4 | 2.5 | 1.9 | 2.3 | 1.9 | 2.5 | 1.7 | 1.2 | 0.8 | 1.0 | 0.8 | 0.5 | 0.5 | 1.1 | 2.5 | 0.5 |
| 6 | 0.5 | 0.5 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.5 | 1.1 | 1.3 | 1.4 | 1.9 | 1.5 | 1.2 | 1.1 | 1.4 | 1.1 | 1.1 | 1.3 | 0.8 | 1.0 | 0.5 | 0.4 | 0.5 | 1.0 | 1.9 | 0.4 |
| 7 | 0.5 | 0.4 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 0.4 | 0.7 | 0.9 | 1.3 | 1.4 | 1.9 | 1.5 | 1.2 | 1.0 | 0.7 | 0.7 | 0.7 | 0.8 | 0.4 | 0.4 | 0.3 | 0.4 | 0.8 | 1.9 | 0.3 |
| 8 | 0.5 | 0.3 | 0.5 | 0.3 | 0.5 | 0.4 | 0.6 | 0.4 | 0.5 | 1.0 | 1.0 | 1.5 | 1.9 | 1.7 | 1.5 | 1.4 | 1.4 | 0.7 | 0.6 | 0.5 | 0.4 | 0.4 | 0.4 | 0.6 | 0.8 | 1.9 | 0.3 |
| 9 | 0.6 | 0.7 | 0.5 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.4 | 1.3 | 1.2 | 1.3 | 1.4 | 1.6 | 1.5 | 2.2 | 1.8 | 0.8 | 1.6 | 1.9 | 1.8 | 1.7 | 1.2 | 0.7 | 1.1 | 2.2 | 0.4 |
| 10 | 0.6 | 0.6 | 0.7 | 1.1 | 1.3 | 0.8 | 0.5 | 0.7 | 0.9 | 0.7 | 1.3 | 1.3 | 1.5 | 2.0 | 1.7 | 2.7 | 1.0 | 1.3 | 0.9 | 0.5 | 0.7 | 1.1 | 0.7 | 0.7 | 1.1 | 2.7 | 0.5 |
| 11 | 0.5 | 0.5 | 0.4 | 0.4 | 0.5 | 0.7 | 0.6 | 0.8 | 0.6 | 1.1 | 2.1 | 2.0 | 2.4 | 2.4 | 3.1 | 3.7 | 3.9 | 3.1 | 3.0 | 2.1 | 2.4 | 2.9 | 2.9 | 3.0 | 1.9 | 3.9 | 0.4 |
| 12 | 3.2 | 2.6 | 3.5 | 3.5 | 2.7 | 2.5 | 1.3 | 1.6 | 2.5 | 2.3 | 2.7 | 2.1 | 1.7 | 2.0 | 2.3 | 2.5 | 2.2 | 1.6 | 1.0 | 1.3 | 1.4 | 1.2 | 0.9 | 0.5 | 2.0 | 3.5 | 0.5 |
| 13 | 0.5 | 0.3 | 0.5 | 0.5 | 0.3 | 0.4 | 0.5 | 0.7 | 1.0 | 1.9 | 1.7 | 1.6 | 2.2 | 1.7 | 1.6 | 1.6 | 2.2 | 1.0 | 0.7 | 0.8 | 0.6 | 0.8 | 0.7 | 0.5 | 1.0 | 2.2 | 0.3 |
| 14 | 0.6 | 0.6 | 0.4 | 0.4 | 0.6 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 1.2 | 1.0 | 1.2 | 1.3 | 1.7 | 1.4 | 0.5 | 0.4 | 0.4 | 0.5 | 0.6 | 0.5 | 0.5 | 0.7 | 1.7 | 0.4 |
| 15 | 0.4 | 0.5 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 0.3 | 0.4 | 0.5 | 0.7 | 1.3 | 1.7 | 1.8 | 1.8 | 1.4 | 0.7 | 0.5 | 0.5 | 0.4 | 0.4 | 0.5 | 0.4 | 0.7 | 0.7 | 1.8 | 0.3 |
| 16 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.7 | 0.6 | 0.5 | 0.6 | 0.6 | 1.0 | 0.9 | 1.3 | 1.4 | 1.7 | 1.6 | 1.3 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.7 | 0.6 | 0.8 | 1.7 | 0.4 |
| 17 | 0.6 | 1.1 | 1.2 | 0.7 | 0.9 | 0.8 | 1.0 | 2.1 | 1.9 | 1.7 | 2.5 | 3.1 | 4.3 | 5.6 | 4.6 | 4.3 | 3.8 | 3.5 | 3.1 | 2.8 | 1.6 | 1.0 | 0.4 | 0.4 | 2.2 | 5.6 | 0.4 |
| 18 | 0.6 | 0.6 | 0.7 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.5 | 0.7 | 1.0 | 1.7 | 1.4 | 1.6 | 1.8 | 1.6 | 2.1 | 2.0 | 0.5 | 0.5 | 0.4 | 0.6 | 0.5 | 0.4 | 0.9 | 2.1 | 0.4 |
| 19 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.7 | 0.6 | 0.7 | 0.3 | 0.7 | 1.0 | 1.6 | 1.4 | 2.3 | 2.2 | 2.2 | 2.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.5 | 0.4 | 0.9 | 2.3 | 0.3 |
| 20 | 0.6 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.8 | 1.3 | 1.5 | 1.4 | 1.8 | 1.9 | 1.7 | 1.5 | 1.5 | 0.4 | 0.9 | 0.5 | 0.4 | 0.3 | 0.5 | 0.9 | 1.9 | 0.3 |
| 21 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.4 | 0.4 | 1.0 | 1.0 | 1.1 | 1.3 | 1.3 | 1.5 | 1.3 | 0.6 | 0.7 | 0.5 | 0.4 | 0.4 | 0.5 | 0.6 | 0.7 | 1.5 | 0.4 |
| 22 | 0.5 | 0.4 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.6 | 0.7 | 1.0 | 1.1 | 1.2 | 1.2 | 1.3 | 2.7 | 2.5 | 1.1 | 1.1 | 0.7 | 0.8 | 0.9 | 0.7 | 1.0 | 0.9 | 2.7 | 0.4 |
| 23 | 0.7 | 0.5 | 0.6 | 0.6 | 0.5 | 0.5 | 0.7 | 0.6 | 1.1 | 1.0 | 0.8 | 1.2 | 1.0 | 1.3 | 1.1 | 2.2 | 1.9 | 0.7 | 0.7 | 0.5 | 0.6 | 0.5 | 0.7 | 0.7 | 0.9 | 2.2 | 0.5 |
| 24 | 0.5 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 | 0.7 | 0.6 | 0.9 | 1.0 | 1.1 | 1.3 | 1.6 | 1.1 | 0.9 | 1.0 | 1.2 | 1.3 | 1.4 | 1.7 | 1.5 | 1.0 | 1.0 | 1.0 | 1.7 | 0.5 |
| 25 | 1.7 | 2.2 | 2.0 | 1.5 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 2.0 | 1.8 | 1.6 | 1.8 | 1.5 | 1.5 | 1.6 | 2.4 | 2.3 | 2.1 | 1.9 | 1.4 | 1.2 | 1.4 | 1.8 | 1.8 | 2.4 | 1.2 |
| 26 | 1.2 | 1.6 | 1.5 | 1.5 | 1.6 | 1.5 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.6 | 1.4 | 1.4 | 1.1 | 1.2 | 1.1 | 1.0 | 1.3 | 1.2 | 1.2 | 1.4 | 1.7 | 1.0 |
| 27 | 1.3 | 1.3 | 1.2 | 1.1 | 1.4 | 1.5 | 1.5 | 1.5 | 1.4 | 1.6 | 1.4 | 1.5 | 1.7 | 1.6 | 1.7 | 1.7 | 1.4 | 1.3 | 1.1 | 1.0 | 0.9 | 0.9 | 1.0 | 1.2 | 1.3 | 1.7 | 0.9 |
| 28 | 1.5 | 1.2 | 1.2 | 1.0 | 1.3 | 1.0 | 0.9 | 0.9 | 1.2 | 1.5 | 1.7 | 1.5 | 1.6 | 1.5 | 2.0 | 2.1 | 1.7 | 1.4 | 1.0 | 1.1 | 1.1 | 1.2 | 0.9 | 0.8 | 1.3 | 2.1 | 0.8 |
| 29 | 0.9 | 0.9 | 0.8 | 0.7 | 0.9 | 0.9 | 0.9 | 1.1 | 1.3 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.7 | 2.1 | 2.2 | 1.9 | 1.6 | 1.1 | 1.0 | 0.7 | 0.8 | 0.8 | 1.2 | 2.2 | 0.7 |
| 30 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.6 | 0.8 | 1.0 | 1.2 | 1.3 | 1.4 | 1.0 | 0.8 | 1.2 | 1.0 | 1.0 | 0.8 | 1.3 | 1.3 | 1.1 | 1.0 | 1.0 | 0.9 | 1.0 | 1.4 | 0.6 |
| 31 | 1.0 | 1.0 | 0.9 | 0.8 | 0.7 | 0.7 | 0.8 | 0.7 | 1.1 | 1.2 | 1.0 | 0.9 | 0.8 | 1.0 | 0.6 | 0.8 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.8 | 1.2 | 0.4 |
| Avg | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 1.1 | 1.3 | 1.5 | 1.6 | 1.8 | 1.7 | 1.9 | 1.7 | 1.3 | 1.1 | 1.0 | 0.9 | 0.9 | 0.8 | 0.8 | 1.1 | 2.3 | 0.5 |
| Max | 3.2 | 2.6 | 3.5 | 3.5 | 2.7 | 2.5 | 1.7 | 2.1 | 2.5 | 2.3 | 2.7 | 3.1 | 4.3 | 5.6 | 4.6 | 4.3 | 3.9 | 3.5 | 3.1 | 2.8 | 2.4 | 2.9 | 2.9 | 3.0 | 2.2 | 5.6 | 1.2 |
| Min | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.4 | 0.6 | 0.9 | 0.8 | 0.8 | 0.6 | 0.8 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.7 | 1.2 | 0.3 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Wind Speed - MDEQ monitor (meters per second)
# November 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 | 0.7 | 1.1 | 1.1 | 1.2 | 1.2 | 1.0 | 1.1 | 0.9 | 1.1 | 0.8 | 0.6 | 1.0 | 1.0 | 0.9 | 0.8 | 0.6 | 0.6 | 0.6 | 0.5 | 0.4 | 0.6 | 0.6 | 0.6 | 0.9 | 0.8 | 1.2 | 0.4 |
| 2 | 0.7 | 0.8 | 0.7 | 0.5 | 0.7 | 1.0 | 0.8 | 0.8 | 0.6 | 1.6 | 1.8 | 1.7 | 1.0 | 0.9 | 1.5 | 2.2 | 1.2 | 0.7 | 0.5 | 0.6 | 0.5 | 0.4 | 0.5 | 0.5 | 0.9 | 2.2 | 0.4 |
| 3 | 0.5 | 0.6 | 1.1 | 0.8 | 0.6 | 0.8 | 0.8 | 0.8 | 1.0 | 1.3 | 1.2 | 0.8 | 1.1 | 1.7 | 1.8 | 2.1 | 1.6 | 1.9 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.5 | 1.0 | 2.1 | 0.5 |
| 4 | 0.7 | 0.7 | 0.7 | 0.9 | 1.2 | 1.1 | 0.6 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.7 | 0.6 | 0.7 | 1.1 | 1.0 | 0.8 | 0.7 | 0.8 | 0.7 | 1.0 | 0.7 | 0.8 | 1.2 | 0.6 |
| 5 | 0.6 | 0.8 | 0.8 | 0.6 | 0.8 | 1.5 | 2.4 | 0.6 | 0.7 | 1.5 | 1.3 | 1.7 | 2.4 | 2.5 | 2.7 | 1.8 | 1.1 | 0.8 | 0.9 | 0.7 | 0.6 | 0.9 | 0.7 | 1.0 | 1.2 | 2.7 | 0.6 |
| 6 | 0.8 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.9 | 0.8 | 1.0 | 0.9 | 0.9 | 1.0 | 2.0 | 1.4 | 1.6 | 1.2 | 0.8 | 0.9 | 1.3 | 1.3 | 1.3 | 2.9 | 0.7 | 1.1 | 2.9 | 0.6 |
| 7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.7 | 1.1 | 0.8 | 0.9 | 1.0 | 2.4 | 2.7 | 3.1 | 2.3 | 2.9 | 2.7 | 1.9 | 1.7 | 1.1 | 0.8 | 0.9 | 1.2 | 1.5 | 2.7 | 1.5 | 3.1 | 0.7 |
| 8 | 2.3 | 1.0 | 1.2 | 0.8 | 0.9 | 1.0 | 1.1 | 0.8 | 0.8 | 1.6 | 1.8 | 1.7 | 1.8 | 2.0 | 2.3 | 2.2 | 2.4 | 3.1 | 3.1 | 3.1 | 2.8 | 1.8 | 1.0 | 0.9 | 1.7 | 3.1 | 0.8 |
| 9 | 0.9 | 1.1 | 1.1 | 0.9 | 0.8 | 0.8 | 0.9 | 1.0 | 1.3 | 1.0 | 1.5 | 1.8 | 1.4 | 1.5 | 1.3 | 1.4 | 0.9 | 0.5 | 0.7 | 0.6 | 0.6 | 0.8 | 0.9 | 1.0 | 1.0 | 1.8 | 0.5 |
| 10 | 1.0 | 1.0 | 1.3 | 1.2 | 1.0 | 1.2 | 0.9 | 0.8 | 0.7 | 0.8 | 0.7 | 1.0 | 1.1 | 1.7 | 2.2 | 2.2 | 1.0 | 0.7 | 0.8 | 0.8 | 0.7 | 0.6 | 0.6 | 0.6 | 1.0 | 2.2 | 0.6 |
| 11 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.7 | 0.8 | 1.3 | 2.5 | 2.6 | 2.3 | 2.5 | 2.2 | 2.7 | 2.7 | 3.3 | 2.7 | 3.0 | 1.9 | 0.8 | 0.7 | 0.7 | 1.6 | 3.3 | 0.6 |
| 12 | 0.7 | 0.9 | 0.6 | 0.7 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 1.1 | 1.6 | 1.3 | 1.2 | 2.0 | 1.6 | 1.5 | 1.8 | 0.9 | 0.8 | 0.8 | 1.0 | 1.1 | 0.9 | 1.1 | 1.1 | 2.0 | 0.6 |
| 13 | 0.9 | 0.8 | 0.8 | 0.7 | 0.8 | 0.9 | 0.8 | 0.8 | 0.9 | 0.8 | 0.5 | 0.8 | 1.0 | 1.3 | 1.3 | 1.4 | 1.1 | 0.8 | 1.1 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.9 | 1.4 | 0.5 |
| 14 | 0.8 | 0.8 | 0.6 | 0.9 | 1.0 | 0.9 | 1.1 | 1.3 | 0.9 | 0.7 | 1.0 | 0.9 | 1.3 | 1.0 | 0.8 | 0.9 | 0.8 | 0.6 | 0.7 | 0.6 | 1.0 | 0.7 | 0.8 | 1.0 | 0.9 | 1.3 | 0.6 |
| 15 | 0.9 | 1.5 | 1.0 | 0.6 | 0.8 | 0.6 | 0.9 | 0.8 | 0.8 | 0.8 | 1.0 | 3.2 | 3.0 | 3.4 | 3.2 | 3.5 | 2.3 | 0.9 | 1.1 | 1.0 | 1.7 | 2.7 | 2.5 | 1.7 | 1.7 | 3.5 | 0.6 |
| 16 | 1.8 | 2.4 | 1.7 | 1.3 | 1.1 | 1.0 | 0.9 | 0.6 | 0.6 | 0.9 | 0.6 | 0.9 | 1.4 | 1.7 | 1.8 | 2.2 | 2.1 | 1.6 | 1.0 | 0.9 | 0.9 | 0.7 | 0.7 | 0.8 | 1.2 | 2.4 | 0.6 |
| 17 | 1.0 | 1.4 | 1.6 | 0.8 | 1.5 | 1.3 | 0.8 | 1.1 | 1.5 | 1.3 | 1.0 | 0.7 | 1.4 | 1.2 | 1.6 | 1.2 | 0.8 | 0.9 | 0.6 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 1.0 | 1.6 | 0.5 |
| 18 | 0.9 | 0.9 | 1.2 | 1.0 | 1.0 | 0.9 | 0.8 | 0.9 | 1.0 | 1.1 | 1.1 | 0.9 | 1.1 | 1.1 | 1.7 | 1.2 | 0.8 | 0.7 | 0.7 | 0.6 | 0.7 | 0.9 | 0.6 | 0.7 | 0.9 | 1.7 | 0.6 |
| 19 | 0.6 | 0.6 | 0.7 | 0.7 | 0.9 | 1.0 | 1.1 | 1.0 | 0.9 | 0.9 | 0.7 | 0.6 | 1.5 | 3.4 | 2.9 | 2.4 | 2.3 | 2.6 | 2.5 | 2.5 | 2.8 | 2.3 | 2.0 | 2.0 | 1.6 | 3.4 | 0.6 |
| 20 | 1.7 | 1.6 | 1.1 | 1.1 | 1.2 | 1.1 | 1.6 | 1.7 | 1.6 | 1.8 | 2.3 | 1.7 | 1.5 | 1.3 | 1.3 | 1.1 | 1.0 | 1.1 | 0.9 | 0.6 | 0.6 | 0.8 | 1.2 | 1.6 | 1.3 | 2.3 | 0.6 |
| 21 | 1.1 | 1.2 | 0.8 | 1.0 | 1.0 | 0.8 | 1.1 | 0.9 | 1.0 | 1.1 | 1.0 | 1.5 | 1.0 | 0.9 | 1.0 | 0.6 | 0.7 | 0.6 | 0.7 | 0.9 | 0.8 | 1.1 | 1.2 | 1.2 | 1.0 | 1.5 | 0.6 |
| 22 | 1.0 | 1.0 | 0.9 | 1.0 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 1.0 | 0.8 | 1.0 | 2.9 | 1.9 | 2.1 | 1.0 | 0.4 | 0.7 | 0.9 | 1.1 | 1.0 | 1.4 | 1.5 | 0.9 | 1.1 | 2.9 | 0.4 |
| 23 | 0.7 | 0.6 | 1.0 | 0.9 | 0.7 | 0.7 | 0.6 | 0.9 | 1.3 | 1.3 | 1.9 | 3.1 | 3.6 | 2.9 | 3.4 | 3.9 | 3.3 | 2.9 | 3.2 | 3.0 | 2.8 | 2.9 | 3.0 | 2.9 | 2.1 | 3.9 | 0.6 |
| 24 | 2.4 | 2.7 | 2.2 | 1.7 | 1.4 | 2.7 | 1.9 | 1.7 | 1.7 | 1.8 | 1.8 | 1.6 | 1.7 | 2.0 | 2.0 | 2.1 | 1.7 | 1.3 | 1.7 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.8 | 2.7 | 1.3 |
| 25 | 0.9 | 1.0 | 0.9 | 1.0 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 1.1 | 1.3 | 1.5 | 1.5 | 1.3 | 1.3 | 1.7 | 1.4 | 1.7 | 1.9 | 1.1 | 1.0 | 0.9 | 0.9 | 0.8 | 1.1 | 1.9 | 0.8 |
| 26 | 1.0 | 1.0 | 1.0 | 1.1 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 1.3 | 1.2 | 1.3 | 1.2 | 1.2 | 1.1 | 1.8 | 1.5 | 0.9 | 1.1 | 1.4 | 2.1 | 1.4 | 1.0 | 0.8 | 1.2 | 2.1 | 0.8 |
| 27 | 0.9 | 0.6 | 0.7 | 0.7 | 0.8 | 0.7 | 0.7 | 0.6 | 0.9 | 1.2 | 1.2 | 1.3 | 0.8 | 1.1 | 1.3 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.9 | 0.8 | 0.8 | 1.0 | 0.8 | 1.3 | 0.6 |
| 28 | 0.8 | 0.7 | 0.7 | 0.8 | 0.7 | 0.5 | 0.7 | 0.7 | 0.8 | 1.1 | 1.1 | 1.2 | 0.9 | 0.9 | 1.0 | 1.0 | 0.7 | 0.6 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 1.2 | 0.5 |
| 29 | 0.6 | 0.7 | 0.8 | 0.9 | 0.9 | 0.8 | 0.9 | 0.8 | 1.0 | 1.1 | 1.1 | 0.7 | 1.3 | 1.0 | 1.0 | 1.1 | 1.7 | 1.4 | 0.8 | 1.2 | 1.6 | 1.3 | 1.3 | 1.0 | 1.0 | 1.7 | 0.6 |
| 30 | 1.0 | 0.9 | 0.8 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 1.1 | 1.1 | 1.4 | 1.5 | 1.2 | 0.8 | 0.8 | 1.1 | 1.1 | 0.8 | 0.9 | 2.0 | 2.3 | 1.8 | 1.7 | 1.1 | 2.3 | 0.6 |
| Avg | 1.0 | 1.0 | 1.0 | 0.9 | 0.9 | 0.9 | 1.0 | 0.9 | 0.9 | 1.1 | 1.3 | 1.4 | 1.6 | 1.6 | 1.7 | 1.7 | 1.4 | 1.2 | 1.1 | 1.1 | 1.2 | 1.1 | 1.2 | 1.1 | 1.2 | 2.2 | 0.6 |
| Max | 2.4 | 2.7 | 2.2 | 1.7 | 1.5 | 2.7 | 2.4 | 1.7 | 1.7 | 1.8 | 2.5 | 3.2 | 3.6 | 3.4 | 3.4 | 3.9 | 3.3 | 3.3 | 3.2 | 3.1 | 2.8 | 2.9 | 3.0 | 2.9 | 2.1 | 3.9 | 1.3 |
| Min | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.7 | 0.5 | 0.6 | 0.8 | 0.7 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.5 | 0.5 | 0.8 | 1.2 | 0.4 |

# Montana Resources LLP
# Greeley School Air Monitoring Summary
# Wind Speed - MDEQ monitor (meters per second)
# December 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 | 1.6 | 1.1 | 1.1 | 1.3 | 0.9 | 1.0 | 1.0 | 1.1 | 1.0 | 1.2 | 1.1 | 1.7 | 1.2 | 2.1 | 1.8 | 2.1 | 2.4 | 0.9 | 0.7 | 0.8 | 1.3 | 0.6 | 0.6 | 0.7 | 1.2 | 2.4 | 0.6 |
| 2 | 1.3 | 0.8 | 0.7 | 1.0 | 0.8 | 2.1 | 1.3 | 1.2 | 1.3 | 1.1 | 1.2 | 1.9 | 2.0 | 1.8 | 1.9 | 1.6 | 1.8 | 1.5 | 1.7 | 1.7 | 1.4 | 0.9 | 1.2 | 2.6 | 1.5 | 2.6 | 0.7 |
| 3 | 1.6 | 1.2 | 0.9 | 1.2 | 0.7 | 0.8 | 0.8 | 1.2 | 1.0 | 1.1 | 1.2 | 0.8 | 1.3 | 1.3 | 1.4 | 1.2 | 1.9 | 1.7 | 1.2 | 0.9 | 1.0 | 1.3 | 1.1 | 1.1 | 1.2 | 1.9 | 0.7 |
| 4 | 0.8 | 1.1 | 0.9 | 1.3 | 1.1 | 0.8 | 1.2 | 1.8 | 1.1 | 1.8 | 1.8 | 1.5 | 0.9 | 1.5 | 1.6 | 1.1 | 0.7 | 0.8 | 0.8 | 0.9 | 1.1 | 1.8 | 1.6 | 1.1 | 1.2 | 1.8 | 0.7 |
| 5 | 0.9 | 1.9 | 0.8 | 0.8 | 1.0 | 2.1 | 0.6 | 1.0 | 0.5 | 1.1 | 1.4 | 1.3 | 2.4 | 2.6 | 2.5 | 2.2 | 1.9 | 1.4 | 1.0 | 0.7 | 0.9 | 0.9 | 0.8 | 0.6 | 1.3 | 2.6 | 0.5 |
| 6 | 0.9 | 0.8 | 1.1 | 1.0 | 0.9 | 0.8 | 0.8 | 0.7 | 0.8 | 0.6 | 0.7 | 0.8 | 2.1 | 1.5 | 3.0 | 3.4 | 2.2 | 1.5 | 2.6 | 2.2 | 1.7 | 1.1 | 2.2 | 2.3 | 1.5 | 3.4 | 0.6 |
| 7 | 2.1 | 0.9 | 0.8 | 0.9 | 1.2 | 1.8 | 1.1 | 2.9 | 1.8 | 3.2 | 2.1 | 1.4 | 1.4 | 2.5 | 2.4 | 2.8 | 1.3 | 0.7 | 0.9 | 0.9 | 1.8 | 1.1 | 1.2 | 0.9 | 1.6 | 3.2 | 0.7 |
| 8 | 0.8 | 1.3 | 0.9 | 1.0 | 1.1 | 0.9 | 1.5 | 3.0 | 2.6 | 2.3 | 1.9 | 2.4 | 3.0 | 3.5 | 2.0 | 2.2 | 1.5 | 2.3 | 2.0 | 2.8 | 3.0 | 2.6 | 2.8 | 2.1 | 2.1 | 3.5 | 0.8 |
| 9 | 2.2 | 1.6 | 1.6 | 0.9 | 0.9 | 0.7 | 0.9 | 0.7 | 0.9 | 1.0 | 1.1 | 1.5 | 1.6 | 2.5 | 2.0 | 2.1 | 1.8 | 2.5 | 1.5 | 1.5 | 1.3 | 1.3 | 1.7 | 1.9 | 1.5 | 2.5 | 0.7 |
| 10 | 2.1 | 1.6 | 1.4 | 0.8 | 1.0 | 1.4 | 1.6 | 1.5 | 1.7 | 1.5 | 1.2 | 1.2 | 1.2 | 0.9 | 1.3 | 1.0 | 0.9 | 0.9 | 0.9 | 0.7 | 0.6 | 0.7 | 0.6 | 0.8 | 1.1 | 2.1 | 0.6 |
| 11 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.6 | 0.7 | 0.9 | 0.6 | 1.3 | 0.8 | 0.4 | 0.8 | 0.5 | 0.6 | 0.4 | 0.8 | 0.7 | 0.6 | 0.6 | 1.6 | 0.7 | 1.6 | 0.4 |
| 12 | 1.7 | 1.5 | 0.7 | 0.7 | 0.7 | 1.1 | 0.9 | 0.9 | 1.3 | 1.1 | 1.3 | 1.5 | 1.2 | 1.0 | 1.2 | 1.1 | 1.1 | 0.6 | 0.6 | 1.0 | 1.3 | 0.9 | 1.4 | 0.9 | 1.1 | 1.7 | 0.6 |
| 13 | 1.0 | 1.1 | 1.3 | 1.8 | 1.9 | 2.0 | 1.9 | 2.0 | 1.7 | 1.6 | 1.4 | 1.3 | 1.4 | 1.6 | 1.3 | 0.7 | 0.8 | 0.8 | 0.9 | 0.8 | 0.7 | 0.8 | 0.7 | 0.6 | 1.3 | 2.0 | 0.6 |
| 14 | 0.9 | 0.9 | 0.7 | 0.7 | 0.8 | 1.0 | 0.8 | 0.7 | 0.8 | 0.9 | 1.2 | 1.2 | 0.9 | 1.0 | 0.7 | 0.8 | 0.9 | 0.8 | 0.6 | 1.0 | 0.9 | 1.2 | 1.4 | 0.8 | 0.9 | 1.4 | 0.6 |
| 15 | 1.0 | 1.3 | 0.9 | 1.0 | 1.1 | 0.8 | 0.9 | 0.6 | 1.0 | 1.0 | 1.3 | 1.0 | 0.8 | 0.9 | 0.8 | 1.0 | 0.9 | 0.7 | 0.5 | 0.6 | 0.6 | 0.9 | 1.2 | 1.0 | 0.9 | 1.3 | 0.5 |
| 16 | 1.0 | 0.9 | 0.8 | 0.9 | 0.7 | 0.9 | 0.9 | 1.0 | 0.9 | 1.1 | 0.9 | 0.8 | 0.8 | 1.0 | 0.8 | 0.8 | 0.6 | 0.7 | 0.6 | 0.8 | 1.5 | 1.3 | 1.0 | 1.1 | 0.9 | 1.5 | 0.6 |
| 17 | 1.0 | 1.2 | 1.1 | 1.0 | 0.9 | 1.0 | 1.0 | 0.8 | 0.9 | 0.9 | 0.9 | 0.7 | 0.9 | 1.2 | 1.4 | 1.0 | 0.7 | 0.7 | 0.5 | 0.7 | 1.0 | 1.1 | 1.0 | 1.2 | 1.0 | 1.4 | 0.5 |
| 18 | 1.1 | 1.0 | 0.8 | 1.2 | 0.9 | 0.9 | 0.8 | 1.0 | 1.1 | 1.1 | 1.1 | 1.0 | 0.7 | 0.9 | 1.0 | 0.8 | 0.8 | 0.7 | 0.5 | 0.8 | 1.0 | 1.2 | 1.1 | 0.8 | 0.9 | 1.2 | 0.5 |
| 19 | 0.8 | 0.8 | 1.0 | 0.9 | 1.0 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 1.0 | 0.9 | 0.8 | 1.0 | 0.8 | 0.8 | 0.6 | 0.8 | 0.6 | 0.7 | 0.9 | 0.6 | 0.7 | 0.8 | 0.8 | 1.0 | 0.6 |
| 20 | 0.5 | 0.7 | 0.6 | 0.6 | 0.9 | 0.8 | 0.7 | 0.6 | 0.6 | 0.7 | 0.7 | 0.9 | 0.9 | 0.8 | 1.1 | 1.0 | 0.7 | 1.0 | 0.7 | 0.6 | 0.7 | 0.7 | 0.8 | 0.7 | 0.7 | 1.1 | 0.5 |
| 21 | 0.8 | 0.8 | 0.7 | 1.0 | 1.1 | 1.3 | 0.9 | 1.1 | 1.2 | 0.7 | 1.0 | 1.0 | 1.0 | 1.4 | 1.4 | 0.7 | 0.5 | 0.8 | 0.7 | 0.7 | 0.7 | 0.8 | 0.9 | 1.2 | 0.9 | 1.4 | 0.5 |
| 22 | 1.3 | 1.3 | 1.3 | 1.0 | 1.1 | 1.0 | 0.9 | 1.1 | 0.9 | 1.0 | 0.8 | 0.8 | 1.1 | 1.3 | 1.7 | 1.7 | 1.4 | 0.9 | 0.8 | 0.9 | 0.9 | 0.7 | 0.9 | 0.8 | 1.1 | 1.7 | 0.7 |
| 23 | 1.2 | 2.3 | 1.7 | 1.3 | 2.0 | 2.6 | 2.0 | 2.6 | 1.9 | 1.6 | 1.2 | 1.4 | 1.5 | 2.3 | 1.7 | 1.9 | 1.5 | 1.8 | 1.9 | 1.3 | 1.8 | 1.9 | 1.0 | 1.1 | 1.7 | 2.6 | 1.0 |
| 24 | 0.8 | 1.2 | 0.8 | 0.6 | 0.5 | 0.6 | 0.8 | 0.6 | 0.8 | 0.9 | 1.0 | 1.1 | 1.3 | 1.3 | 1.4 | 1.2 | 0.7 | 0.6 | 0.7 | 0.8 | 0.6 | 0.7 | 0.8 | 0.9 | 0.9 | 1.4 | 0.5 |
| 25 | 0.6 | 0.8 | 0.9 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 1.1 | 1.4 | 1.5 | 1.3 | 1.1 | 1.0 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 1.0 | 0.9 | 0.9 | 1.5 | 0.6 |
| 26 | 0.8 | 1.1 | 1.1 | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 | 1.1 | 1.3 | 1.2 | 1.4 | 1.5 | 1.3 | 1.2 | 1.0 | 1.1 | 1.1 | 0.9 | 0.9 | 1.1 | 0.9 | 0.8 | 1.1 | 1.5 | 0.8 |
| 27 | 0.8 | 0.9 | 0.7 | 1.2 | 1.1 | 1.2 | 0.9 | 0.8 | 0.9 | 1.1 | 1.2 | 1.2 | 1.2 | 1.3 | 1.2 | 1.1 | 0.8 | 0.9 | 0.9 | 1.2 | 1.1 | 1.6 | 0.9 | 1.2 | 1.1 | 1.6 | 0.7 |
| 28 | 1.2 | 1.0 | 1.1 | 1.2 | 1.3 | 1.0 | 1.2 | 1.1 | 1.2 | 0.9 | 1.4 | 0.9 | 1.1 | 0.8 | 0.9 | 0.8 | 0.6 | 0.5 | 0.6 | 0.7 | 0.8 | 1.0 | 0.8 | 0.9 | 1.0 | 1.4 | 0.5 |
| 29 | 0.9 | 0.9 | 0.8 | 0.7 | 0.7 | 1.0 | 0.9 | 0.9 | 1.0 | 0.8 | 1.0 | 0.7 | 1.2 | 0.9 | 0.8 | 0.8 | 0.6 | 0.5 | 0.5 | 0.7 | 0.7 | 0.9 | 1.1 | 1.2 | 0.8 | 1.2 | 0.5 |
| 30 | 1.0 | 1.0 | 0.9 | 1.1 | 1.0 | 0.7 | 0.9 | 1.1 | 1.2 | 1.0 | 1.0 | 0.7 | 0.9 | 0.9 | 0.7 | 0.8 | 0.5 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 1.0 | 0.8 | 0.9 | 1.2 | 0.5 |
| 31 | 0.7 | 0.9 | 0.7 | 0.9 | 0.6 | 0.9 | 0.9 | 1.0 | 0.9 | 1.0 | 1.4 | 0.9 | 1.2 | 1.0 | 1.1 | 0.8 | 0.7 | 0.7 | 0.7 | 0.9 | 1.5 | 0.9 | 1.1 | 1.0 | 0.9 | 1.5 | 0.6 |
| Avg | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 | 1.1 | 1.0 | 1.2 | 1.1 | 1.2 | 1.2 | 1.1 | 1.3 | 1.4 | 1.4 | 1.3 | 1.1 | 1.0 | 0.9 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.8 | 0.6 |
| Max | 2.2 | 2.3 | 1.7 | 1.8 | 2.0 | 2.6 | 2.0 | 3.0 | 2.6 | 3.2 | 2.1 | 2.4 | 3.0 | 3.5 | 3.0 | 3.4 | 2.4 | 2.5 | 2.6 | 2.8 | 3.0 | 2.6 | 2.8 | 2.6 | 2.1 | 3.5 | 1.0 |
| Min | 0.5 | 0.7 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 | 0.7 | 0.6 | 0.7 | 0.8 | 0.4 | 0.7 | 0.5 | 0.5 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 1.0 | 0.4 |

# APPENDIX B: GRAVIMETRIC ANALYSIS DATA

**Quarter 4, 2023 Filter Analysis Results - Blanks - Greeley**

| FILTER | TYPE | DATE* | PRE WEIGHT (MG) | PRE-WEIGHT DATE | POST WEIGHT (MG) | POST-WEIGHT DATE | PART MASS (MG) | Analytical Batch |
|---|---|---|---|---|---|---|---|---|
| C1527180 | Lab | 22-Nov | 130.554 | 20-Sep | 130.554 | 11-Nov | 0.000 | B23110916 |
| C1527183 | Field | 21-Oct | 125.951 | 20-Sep | 125.949 | 11-Nov | -0.002 | B23110916 |
| C1667833 | Lab | 19-Dec | 122.010 | 16-Oct | 122.007 | 13-Dec | -0.003 | B23121016 |
| C1667840 | Field | 14-Nov | 122.207 | 16-Oct | 122.211 | 13-Dec | 0.004 | B23121016 |
| C1667819 | Lab | 18-Jan | 121.471 | 9-Nov | 121.474 | 3-Jan | 0.003 | B24010679 |
| C1667820 | Field | 12-Dec | 125.179 | 9-Nov | 125.182 | 3-Jan | 0.003 | B24010679 |
| C1667982 | Lab | 14-Nov | 123.069 | 30-Nov | 123.067 | 19-Jan | -0.002 | B24011012 |
| C1667986 | Field | 27-Sep | 119.402 | 30-Nov | 119.415 | 19-Jan | 0.013 | B24011012 |

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

**Quarter 4, 2023 Filter Analysis Results - PM10 - Greeley**

| FILTER | DATE | AVG FLOW LPM | HOURS | SAMPLE VOLUME (M3) | PRE WEIGHT (MG) | PRE-WEIGHT DATE | POST WEIGHT (MG) | POST-WEIGHT DATE | PART MASS (MG) | CONC (UG/M3) | DEQ (UG/M3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **C1527151** | 10/03 | 16.70 | 24:00 | 24.02 | 126.638 | 20-Sep | 126.769 | 11-Nov | 0.131 | 5.5 | 7.0 |
| **C1527176** | 10/09 | 16.70 | 24:00 | 24.02 | 127.163 | 20-Sep | 127.549 | 11-Nov | 0.386 | 16.1 | 19.4 |
| **C1527178** | 10/15 | 16.70 | 23:59 | 24.02 | 123.822 | 20-Sep | 124.249 | 11-Nov | 0.427 | 17.8 | 17.9 |
| **C1527181** | 10/21 | 16.70 | 24:00 | 24.03 | 127.667 | 20-Sep | 128.150 | 11-Nov | 0.483 | 20.1 | 20.6 |
| **C1667831** | 10/27 | 16.70 | 23:59 | 24.02 | 122.673 | 16-Oct | 122.998 | 13-Dec | 0.325 | 13.5 | 9.9 |
| **C1667834** | 11/02 | 16.70 | 23:59 | 24.03 | 122.441 | 16-Oct | 122.646 | 13-Dec | 0.205 | 8.5 | 9.3 |
| **C1667836** | 11/08 | 16.70 | 24:00 | 24.02 | 121.222 | 16-Oct | 121.406 | 13-Dec | 0.184 | 7.7 | 9.9 |
| **C1667838** | 11/14 | 16.70 | 24:00 | 24.02 | 121.460 | 16-Oct | 122.255 | 13-Dec | 0.795 | 33.1 | 35.3 |
| **C1667811** | 11/20 | 16.70 | 24:00 | 24.02 | 122.249 | 9-Nov | 122.475 | 3-Jan | 0.226 | 9.4 | 12.0 |
| **C1667813** | 11/26 | 16.70 | 24:00 | 24.01 | 118.953 | 9-Nov | 119.331 | 3-Jan | 0.378 | 15.7 | 16.2 |
| **C1667815** | 12/02 | 16.71 | 23:59 | 24.01 | 121.699 | 9-Nov | 121.821 | 3-Jan | 0.122 | 5.1 | 8.3 |
| **C1667817** | 12/08 | 16.70 | 24:00 | 24.01 | 121.255 | 9-Nov | 121.417 | 3-Jan | 0.162 | 6.7 | 9.0 |
| **C1667977** | 12/14 | 16.70 | 23:36 | 23.64 | 119.540 | 30-Nov | 120.866 | 19-Jan | 1.326 | 56.1 | 54.2 |
| **C1667979** | 12/20 | 16.70 | 24:00 | 24.02 | 122.800 | 30-Nov | 123.716 | 19-Jan | 0.916 | 38.1 | 38.3 |
| **C1667981** | 12/26 | 16.70 | 24:00 | 24.01 | 122.180 | 30-Nov | 123.230 | 19-Jan | 1.050 | 43.7 | 47.5 |

**Quarter 4, 2023 Filter Analysis Results - TSP Greeley**

| FILTER | START | END | HOURS | FLOW LPM | SAMPLE VOLUME (M3) | PRE WEIGHT (MG) | POST WEIGHT (MG) | CONC (UG/M3) | E-S CONC (UG/M3) | TRUE E-S MULT | MDEQ PM10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **C1523789** | 09/25 @ 15 | 10/02 @ 14 | 167 | 2.0 | 19.10 | 126.125 | 126.357 | 12.1 | 17.6 | 3.45 | 13.6 |
| **C1527152** | 10/02 @ 15 | 10/04 @ 14 | 48 | 2.0 | 5.49 | 129.460 | 129.514 | 9.8 | 9.8 | 5.02 | 6.8 |
| **C1527177** | 10/04 @ 15 | 10/10 @ 10 | 140 | 2.0 | 16.02 | 122.401 | 122.637 | 14.7 | 20.2 | 3.65 | 15.0 |
| **C1527179** | 10/10 @ 11 | 10/16 @ 14 | 148 | 2.0 | 16.93 | 126.195 | 126.426 | 13.6 | 18.0 | 3.79 | 11.4 |
| **C1527182** | 10/16 @ 15 | 10/23 @ 14 | 168 | 2.0 | 19.22 | 127.668 | 127.958 | 15.1 | 36.1 | 2.09 | 18.6 |
| **C1667832** | 10/23 @ 15 | 11/01 @ 14 | 216 | 2.0 | 24.71 | 123.613 | 123.806 | 7.8 | 42.4 | 0.92 | 14.8 |
| **C1667835** | 11/01 @ 15 | 11/06 @ 13 | 119 | 2.0 | 13.61 | 120.243 | 120.385 | 10.4 | 36.6 | 1.42 | 13.1 |
| **C1667837** | 11/06 @ 14 | 11/13 @ 15 | 170 | 2.0 | 19.45 | 122.012 | 122.403 | 20.1 | 45.1 | 2.23 | 19.9 |
| **C1667839** | 11/13 @ 16 | 11/15 @ 14 | 47 | 2.0 | 5.38 | 121.756 | 121.912 | 29.0 | 67.7 | 2.14 | 33.6 |
| **C1667812** | 11/15 @ 15 | 11/21 @ 15 | 145 | 2.0 | 16.59 | 118.691 | 119.009 | 19.2 | 38.9 | 2.46 | 18.2 |
| **C1667814** | 11/21 @ 16 | 12/01 @ 15 | 240 | 2.0 | 27.46 | 122.108 | 123.063 | 34.8 | 76.9 | 2.26 | 31.0 |
| **C1667816** | 12/01 @ 16 | 12/05 @ 15 | 96 | 2.0 | 10.98 | 120.169 | 120.258 | 8.1 | 16.6 | 2.44 | 6.4 |
| **C1667818** | 12/05 @ 16 | 12/12 @ 15 | 168 | 2.0 | 19.22 | 124.142 | 124.333 | 9.9 | 28.5 | 1.74 | 11.8 |
| **C1667978** | 12/12 @ 16 | 12/19 @ 15 | 168 | 2.0 | 19.22 | 122.986 | 123.974 | 51.4 | 126.5 | 2.03 | 44.7 |
| **C1667980** | 12/19 @ 16 | 12/22 @ 15 | 72 | 2.0 | 8.24 | 122.046 | 122.349 | 36.8 | 87.9 | 2.09 | 33.3 |
| **C1667983** | 12/22 @ 16 | 12/27 @ 12 | 117 | 2.0 | 13.38 | 123.079 | 123.561 | 36.0 | 62.2 | 2.89 | 30.5 |
| **C1667985** | 12/27 @ 13 | 01/02 @ 15 | 147 | 2.0 | 16.82 | 120.548 | 121.272 | 43.1 | 105.1 | 2.05 | |

Skeptical of these results, suspect leak or missing particulate.
**Will invalidate as 9977**

# APPENDIX C: WIND ROSE TABLES

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

| Fourth Quarter 2023 (All Data) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direction>>> | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | Total |
| Wind Speed (meters per second) | 0.1 - 1.0 | 9.5 | 10.3 | 7.0 | 2.9 | 2.0 | 1.6 | 1.5 | 1.3 | 1.4 | 1.4 | 1.3 | 1.6 | 2.4 | 2.3 | 4.9 | 6.5 | 57.9 |
| | 1.1 - 2.0 | 3.9 | 3.9 | 2.8 | 0.7 | 0.3 | 0.5 | 0.7 | 1.4 | 1.1 | 1.1 | 1.7 | 2.8 | 1.8 | 3.1 | 4.1 | 3.4 | 33.4 |
| | 2.1 - 3.0 | 0.3 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.3 | 0.4 | 0.5 | 0.8 | 0.3 | 0.0 | 2.2 | 1.3 | 7.2 |
| | 3.1 - 4.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 1.4 |
| | 4.1 - 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 |
| | 5.1 - 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 6.1 - 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 7.1 - 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 8.1 - 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 9.1 - 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 10.1 - 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 11.1 - 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 12.1 - 13.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 13.1 - 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 14.1 - 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 15.1 - 16.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 16.1 - 17.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 17.1 - 18.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 18.1 - 19.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 19.1 - 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | > 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Calm | | | | | | | | | | | | | | | | | 0.0 |
| | Total | 13.8 | 14.9 | 9.9 | 3.6 | 2.3 | 2.2 | 2.3 | 3.1 | 2.9 | 2.9 | 3.7 | 5.2 | 4.4 | 5.4 | 11.7 | 11.8 | 100.0 |
| | Average Speed | 1.0 | 1.0 | 0.9 | 0.8 | 0.8 | 0.9 | 0.9 | 1.3 | 1.3 | 1.3 | 1.5 | 1.4 | 1.2 | 1.2 | 1.4 | 1.2 | 1.1 |

**Table C-2. Quarterly Wind Rose Summary, Greeley School TSP ≥ 45**

| Fourth Quarter 2023 (TSP ≥45 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 | 18.5 | 20.7 | 8.1 | 3.7 | 2.6 | 1.1 | 1.5 | 0.7 | 0.0 | 0.7 | 0.0 | 0.7 | 0.0 | 1.1 | 4.1 | 11.1 | 74.8 |
| | 1.1 - 2.0 | 5.9 | 5.2 | 1.9 | 1.1 | 0.4 | 0.7 | 0.4 | 0.7 | 0.4 | 1.1 | 0.4 | 0.4 | 1.1 | 0.7 | 2.2 | 2.2 | 24.8 |
| | 2.1 - 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| | 3.1 - 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 4.1 - 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 5.1 - 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 6.1 - 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 7.1 - 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 8.1 - 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 9.1 - 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 10.1 - 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 11.1 - 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 12.1 - 13.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 13.1 - 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 14.1 - 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 15.1 - 16.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 16.1 - 17.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 17.1 - 18.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 18.1 - 19.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 19.1 - 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | > 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Calm | | | | | | | | | | | | | | | | | 0.0 |
| | Total | 24.4 | 25.9 | 10.0 | 4.8 | 3.0 | 1.9 | 1.9 | 1.9 | 0.4 | 1.9 | 0.4 | 1.1 | 1.1 | 1.9 | 6.3 | 13.3 | 100.0 |
| | Average Speed | 0.9 | 0.9 | 0.9 | 1.0 | 0.8 | 1.0 | 0.9 | 1.4 | 1.1 | 1.2 | 1.2 | 1.0 | 1.3 | 1.0 | 0.9 | 0.9 | 0.9 |

## Table C-3. Quarterly Wind Rose Summary, Greeley School TSP ≤ 5

| Fourth Quarter 2023 (TSP ≤5 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 | 1.2 | 1.2 | 1.9 | 0.5 | 0.5 | 1.4 | 0.2 | 0.5 | 0.7 | 0.7 | 0.5 | 1.7 | 2.1 | 1.4 | 1.9 | 1.9 | 18.2 |
| | 1.1 - 2.0 | 3.8 | 3.1 | 1.2 | 0.9 | 0.2 | 0.7 | 1.4 | 1.2 | 1.9 | 0.9 | 2.6 | 2.4 | 3.5 | 9.9 | 11.1 | 4.0 | 48.8 |
| | 2.1 - 3.0 | 1.7 | 0.9 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.7 | 1.2 | 2.6 | 2.6 | 0.9 | 0.0 | 9.2 | 5.7 | 27.4 |
| | 3.1 - 4.0 | 0.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.7 | 2.4 | 5.2 |
| | 4.1 - 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.5 |
| | 5.1 - 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 6.1 - 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 7.1 - 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 8.1 - 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 9.1 - 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 10.1 - 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 11.1 - 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 12.1 - 13.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 13.1 - 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 14.1 - 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 15.1 - 16.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 16.1 - 17.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 17.1 - 18.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 18.1 - 19.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 19.1 - 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | > 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Calm | | | | | | | | | | | | | | | | | 0.0 |
| | Total | 6.8 | 6.4 | 3.5 | 1.4 | 0.7 | 2.1 | 1.7 | 3.3 | 3.3 | 2.8 | 5.9 | 6.8 | 6.6 | 11.3 | 23.3 | 13.9 | 100.0 |
| | Average Speed | 1.7 | 1.9 | 1.3 | 1.1 | 1.0 | 0.9 | 1.3 | 1.9 | 1.6 | 1.8 | 2.0 | 1.8 | 1.5 | 1.4 | 2.0 | 2.2 | 1.8 |

# APPENDIX D: LABORATORY ANALYSIS REPORTS

# ANALYTICAL SUMMARY REPORT

November 29, 2023

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

Work Order: B23110916 Quote ID: B4795

Project Name: Montana Resources/Greely School

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 11/13/2023 for analysis.

| Lab ID | Client Sample ID | Collect Date | Receive Date | Matrix | Test |
|---|---|---|---|---|---|
| B23110916-001 | Particulate Filter #C1527151 PM10 | 10/03/23 00:00 | 11/13/23 | Air | Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G |
| B23110916-002 | Particulate Filter #C1527152 TSP 10/2-10/4 | 10/04/23 00:00 | 11/13/23 | Air | Same As Above |
| B23110916-003 | Particulate Filter #C1527176 PM10 | 10/09/23 00:00 | 11/13/23 | Air | Same As Above |
| B23110916-004 | Particulate Filter #C1527177 TSP 10/4-10/10 | 10/10/23 00:00 | 11/13/23 | Air | Same As Above |
| B23110916-005 | Particulate Filter #C1527178 PM10 | 10/15/23 00:00 | 11/13/23 | Air | Same As Above |
| B23110916-006 | Particulate Filter #C1527179 TSP 10/10-10/16 | 10/16/23 00:00 | 11/13/23 | Air | Same As Above |
| B23110916-007 | Particulate Filter #C1527180 Lab Blank | 09/21/23 16:00 | 11/13/23 | Air | Same As Above |
| B23110916-008 | Particulate Filter #C1527181 PM10 | 10/21/23 00:00 | 11/13/23 | Air | Same As Above |
| B23110916-009 | Particulate Filter #C1527182 TSP 10/16-10/23 | 10/23/23 00:00 | 11/13/23 | Air | Same As Above |
| B23110916-010 | Particulate Filter #C1527183 Field Blank | 10/21/23 08:30 | 11/13/23 | 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:** B23110916-001
**Client Sample ID:** Particulate Filter #C1527151 PM10

**Report Date:** 11/29/23
**Collection Date:** 10/03/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 05:57 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 05:57 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 11/22/23 05:57 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 05:57 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 05:57 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 11/22/23 05:57 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 05:57 / 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:** B23110916-002
**Client Sample ID:** Particulate Filter #C1527152 TSP 10/2-10/4

**Report Date:** 11/29/23
**Collection Date:** 10/04/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:03 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:03 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:03 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:03 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:03 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:03 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:03 / 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:** B23110916-003
**Client Sample ID:** Particulate Filter #C1527176 PM10

**Report Date:** 11/29/23
**Collection Date:** 10/09/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:09 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:09 / jks |
| Copper | 1 | ug/filter | | 1 | | E200.8 | 11/22/23 06:09 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:09 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:09 / jks |
| Molybdenum | 0.2 | ug/filter | J | 1 | | E200.8 | 11/28/23 15:14 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:09 / 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:** B23110916-004
**Client Sample ID:** Particulate Filter #C1527177 TSP 10/4-10/10

**Report Date:** 11/29/23
**Collection Date:** 10/10/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:16 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:16 / jks |
| Copper | 1 | ug/filter | | 1 | | E200.8 | 11/22/23 06:16 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:16 / jks |
| Manganese | 0.3 | ug/filter | J | 1 | | E200.8 | 11/23/23 04:04 / aem |
| Molybdenum | 0.1 | ug/filter | J | 1 | | E200.8 | 11/23/23 04:04 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:16 / 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:** B23110916-005
**Client Sample ID:** Particulate Filter #C1527178 PM10

**Report Date:** 11/29/23
**Collection Date:** 10/15/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:35 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:35 / jks |
| Copper | 1 | ug/filter | | 1 | | E200.8 | 11/22/23 06:35 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:35 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:35 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:35 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:35 / 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:** B23110916-006
**Client Sample ID:** Particulate Filter #C1527179 TSP 10/10-10/16

**Report Date:** 11/29/23
**Collection Date:** 10/16/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:41 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:41 / jks |
| Copper | 1 | ug/filter | | 1 | | E200.8 | 11/22/23 06:41 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:41 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:41 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:41 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:41 / jks |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School
**Lab ID:** B23110916-007
**Client Sample ID:** Particulate Filter #C1527180 Lab Blank

**Report Date:** 11/29/23
**Collection Date:** 09/21/23 16:00
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:48 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:48 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:48 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:48 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:48 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:48 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:48 / 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:** B23110916-008
**Client Sample ID:** Particulate Filter #C1527181 PM10

**Report Date:** 11/29/23
**Collection Date:** 10/21/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:54 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:54 / jks |
| Copper | 1 | ug/filter | | 1 | | E200.8 | 11/22/23 06:54 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:54 / jks |
| Manganese | 0.3 | ug/filter | J | 1 | | E200.8 | 11/23/23 04:11 / aem |
| Molybdenum | 0.1 | ug/filter | J | 1 | | E200.8 | 11/23/23 04:11 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 06:54 / 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:** B23110916-009
**Client Sample ID:** Particulate Filter #C1527182 TSP 10/16-10/23

**Report Date:** 11/29/23
**Collection Date:** 10/23/23
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:00 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:00 / jks |
| Copper | 1 | ug/filter | | 1 | | E200.8 | 11/22/23 07:00 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:00 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:00 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:00 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:00 / 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:** B23110916-010
**Client Sample ID:** Particulate Filter #C1527183 Field Blank

**Report Date:** 11/29/23
**Collection Date:** 10/21/23 08:30
**DateReceived:** 11/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:07 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:07 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:07 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:07 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:07 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:07 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 11/22/23 07:07 / 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:** B23110916 **Report Date:** 11/29/23

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.8** | | | | | | | | | Analytical Run: ICPMS208-B_231120A | |
| **Lab ID: QCS** | 7 | Initial Calibration Verification Standard | | | | | | | | 11/22/23 01:58 |
| Arsenic | | 0.0506 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| Cadmium | | 0.0260 | mg/L | 0.0010 | 104 | 90 | 110 | | | |
| Copper | | 0.0535 | mg/L | 0.010 | 107 | 90 | 110 | | | |
| Lead | | 0.0497 | mg/L | 0.0010 | 99 | 90 | 110 | | | |
| Manganese | | 0.260 | mg/L | 0.0050 | 104 | 90 | 110 | | | |
| Molybdenum | | 0.0504 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| Zinc | | 0.0519 | mg/L | 0.0050 | 104 | 90 | 110 | | | |
| **Lab ID: CCV** | 7 | Continuing Calibration Verification Standard | | | | | | | | 11/22/23 05:06 |
| Arsenic | | 0.0485 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Cadmium | | 0.0480 | mg/L | 0.0010 | 96 | 90 | 110 | | | |
| Copper | | 0.0518 | mg/L | 0.010 | 104 | 90 | 110 | | | |
| Lead | | 0.0463 | mg/L | 0.0010 | 93 | 90 | 110 | | | |
| Manganese | | 0.0493 | mg/L | 0.0050 | 99 | 90 | 110 | | | |
| Molybdenum | | 0.0468 | mg/L | 0.0050 | 94 | 90 | 110 | | | |
| Zinc | | 0.0506 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| **Lab ID: CCV** | 7 | Continuing Calibration Verification Standard | | | | | | | | 11/22/23 06:22 |
| Arsenic | | 0.0482 | mg/L | 0.0050 | 96 | 90 | 110 | | | |
| Cadmium | | 0.0483 | mg/L | 0.0010 | 97 | 90 | 110 | | | |
| Copper | | 0.0515 | mg/L | 0.010 | 103 | 90 | 110 | | | |
| Lead | | 0.0471 | mg/L | 0.0010 | 94 | 90 | 110 | | | |
| Manganese | | 0.0491 | mg/L | 0.0050 | 98 | 90 | 110 | | | |
| Molybdenum | | 0.0470 | mg/L | 0.0050 | 94 | 90 | 110 | | | |
| Zinc | | 0.0512 | mg/L | 0.0050 | 102 | 90 | 110 | | | |
| **Method: E200.8** | | | | | | | | | | Batch: 185055 |
| **Lab ID: MB-185055** | 7 | Method Blank | | | | Run: ICPMS208-B_231120A | | | | 11/22/23 02:49 |
| 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-185055** | 7 | Laboratory Control Sample | | | | Run: ICPMS208-B_231120A | | | | 11/22/23 02:55 |
| Arsenic | | 92.3 | ug/filter | 1.0 | 92 | 85 | 115 | | | |
| Cadmium | | 50.6 | ug/filter | 1.0 | 101 | 85 | 115 | | | |
| Copper | | 94.7 | ug/filter | 1.0 | 95 | 85 | 115 | | | |
| Lead | | 97.8 | ug/filter | 1.0 | 98 | 85 | 115 | | | |
| Manganese | | 446 | ug/filter | 1.0 | 89 | 85 | 115 | | | |
| Molybdenum | | 101 | ug/filter | 1.0 | 101 | 85 | 115 | | | |
| Zinc | | 93.2 | ug/filter | 1.0 | 93 | 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:** B23110916 **Report Date:** 11/29/23

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.8** | | | | | | | | | | Batch: 185055 |
| **Lab ID: LCSD-185055** | 7 | Laboratory Control Sample Duplicate | | | | Run: ICPMS208-B_231120A | | | | 11/22/23 03:01 |
| Arsenic | | 94.1 | ug/filter | 1.0 | 94 | 85 | 115 | | | |
| Cadmium | | 50.1 | ug/filter | 1.0 | 100 | 85 | 115 | | | |
| Copper | | 95.1 | ug/filter | 1.0 | 95 | 85 | 115 | | | |
| Lead | | 96.9 | ug/filter | 1.0 | 97 | 85 | 115 | | | |
| Manganese | | 459 | ug/filter | 1.0 | 92 | 85 | 115 | | | |
| Molybdenum | | 98.9 | ug/filter | 1.0 | 99 | 85 | 115 | | | |
| Zinc | | 94.3 | ug/filter | 1.0 | 94 | 85 | 115 | | | |
| **Method: E200.8** | | | | | | | | | | Analytical Run: ICPMS208-B_231122B |
| **Lab ID: CCV** | 2 | Continuing Calibration Verification Standard | | | | | | | | 11/23/23 03:07 |
| Manganese | | 0.0485 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Molybdenum | | 0.0477 | mg/L | 0.0050 | 95 | 90 | 110 | | | |
| **Lab ID: QCS** | 2 | Initial Calibration Verification Standard | | | | | | | | 11/24/23 03:47 |
| Manganese | | 0.248 | mg/L | 0.0050 | 99 | 90 | 110 | | | |
| Molybdenum | | 0.0472 | mg/L | 0.0050 | 94 | 90 | 110 | | | |
| **Method: E200.8** | | | | | | | | | | Batch: 185055 |
| **Lab ID: MB-185055** | 2 | Method Blank | | | | Run: ICPMS208-B_231122B | | | | 11/23/23 03:01 |
| Manganese | | ND | ug/filter | 0.2 | | | | | | |
| Molybdenum | | ND | ug/filter | 0.07 | | | | | | |
| **Method: E200.8** | | | | | | | | | | Analytical Run: ICPMS208-B_231127A |
| **Lab ID: QCS** | | Initial Calibration Verification Standard | | | | | | | | 11/28/23 08:11 |
| Molybdenum | | 0.0507 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| **Lab ID: CCV** | | Continuing Calibration Verification Standard | | | | | | | | 11/28/23 13:59 |
| Molybdenum | | 0.0468 | mg/L | 0.0050 | 94 | 90 | 110 | | | |
| **Method: E200.8** | | | | | | | | | | Batch: 185055 |
| **Lab ID: MB-185055** | | Method Blank | | | | Run: ICPMS208-B_231127A | | | | 11/28/23 14:55 |
| Molybdenum | | ND | ug/filter | 0.07 | | | | | | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# Work Order Receipt Checklist

## Bison Engineering

## B23110916

Login completed by: Danielle N. Harris
Date Received: 11/13/2023

Reviewed by: lcadreau
Received by: aag

Reviewed Date: 11/16/2023
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.

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

### Contact and Corrective Action Comments:

None

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 | 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 DH |
| Sampler Name | Sampler Phone |
| Sample Origin State | Montana |
| EPA/State Compliance | ☒ Yes ☐ No |

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

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

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

| | Sample Identification *(Name, Location, Interval, etc.)* | Collection Date | Collection Time | Number of Containers | Matrix *(See Codes Above)* | Arsenic | Cadmium | Copper | Lead | Manganese | Molybdenum | Zinc | | | See Attached | RUSH TAT | ELI LAB ID *Laboratory Use Only* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Particulate filter #C1527151 PM10 | 10/3/23 | 24 hr composite | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | B23110916 |
| 2 | Particulate filter #C1527152 TSP 10/2 - 10/4 | 10/2→10/4 | continuous | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 3 | Particulate filter #C1527176 PM10 | 10/9/23 | 24 hr composite | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 4 | Particulate filter #C1527177 TSP 10/4 - 10/10 | 10/4→10/10 | continuous | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 5 | Particulate filter #C1527178 PM10 | 10/15/23 | 24 hr composite | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 6 | Particulate filter #C1527179 TSP 10/10 - 10/16 | 10/10→10/16 | continuous | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 7 | Particulate filter #C1527180 Lab Blank | 9/21/23 | 1600 | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 8 | Particulate filter #C1527181 PM10 | 10/21/23 | 24 hr composite | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 9 | Particulate filter #C1527182 TSP 10/16 - 10/23 | 10/16→10/23 | continuous | 1 | Teflon filter | X | X | X | X | X | X | X | | | | | |
| 10 | Particulate filter #C1527183 Field Blank | 10/21/23 | 0830 | 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 | 10/13/23 0951 | Don V. Milmine | | | |
| | Relinquished by (print) | Date/Time | Signature | Received by Laboratory (print) | Date/Time | Signature |
| | | | | G. Bertin | 13 Nov 23 0951 | |

**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

December 28, 2023

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

Work Order: B23121016 Quote ID: B4795

Project Name: Montana Resources / Greely School DH

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 12/13/2023 for analysis.

| Lab ID | Client Sample ID | Collect Date | Receive Date | Matrix | Test |
|---|---|---|---|---|---|
| B23121016-001 | Particulate Filter #C1667831 PM10 | 10/27/23 00:00 | 12/13/23 | Air | Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G |
| B23121016-002 | Particulate Filter #C1667832 TSP 10/23-11/1 | 11/01/23 00:00 | 12/13/23 | Air | Same As Above |
| B23121016-003 | Particulate Filter #C1667833 Lab Blank | 10/16/23 13:30 | 12/13/23 | Air | Same As Above |
| B23121016-004 | Particulate Filter #C1667834 PM10 | 11/02/23 00:00 | 12/13/23 | Air | Same As Above |
| B23121016-005 | Particulate Filter #C1667835 TSP 11/1-11/6 | 11/06/23 00:00 | 12/13/23 | Air | Same As Above |
| B23121016-006 | Particulate Filter #C1667836 PM10 | 11/08/23 00:00 | 12/13/23 | Air | Same As Above |
| B23121016-007 | Particulate Filter #C1667837 TSP 11/6-11/13 | 11/13/23 00:00 | 12/13/23 | Air | Same As Above |
| B23121016-008 | Particulate Filter #C1667838 PM10 | 11/14/23 00:00 | 12/13/23 | Air | Same As Above |
| B23121016-009 | Particulate Filter #C1667839 TSP 11/13-11/15 | 11/15/23 00:00 | 12/13/23 | Air | Same As Above |
| B23121016-010 | Particulate Filter #C1667840 PM10 Field Blank | 11/14/23 10:20 | 12/13/23 | 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 DH
**Work Order:** B23121016

**Report Date:** 12/28/23

# 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 DH
**Lab ID:** B23121016-001
**Client Sample ID:** Particulate Filter #C1667831 PM10

**Report Date:** 12/28/23
**Collection Date:** 10/27/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 15:43 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:12 / jks |
| Copper | 0.7 | ug/filter | J | 1 | | E200.8 | 12/19/23 15:43 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:12 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:12 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:12 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:12 / 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 DH
**Lab ID:** B23121016-002
**Client Sample ID:** Particulate Filter #C1667832 TSP 10/23-11/1

**Report Date:** 12/28/23
**Collection Date:** 11/01/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 16:53 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:18 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:18 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:18 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:18 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:18 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:18 / jks |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-003
**Client Sample ID:** Particulate Filter #C1667833 Lab Blank

**Report Date:** 12/28/23
**Collection Date:** 10/16/23 13:30
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 16:59 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:24 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:24 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:24 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:24 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:24 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:24 / jks |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-004
**Client Sample ID:** Particulate Filter #C1667834 PM10

**Report Date:** 12/28/23
**Collection Date:** 11/02/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 17:05 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:41 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:41 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:41 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:41 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:41 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:41 / jks |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-005
**Client Sample ID:** Particulate Filter #C1667835 TSP 11/1-11/6

**Report Date:** 12/28/23
**Collection Date:** 11/06/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 15:49 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:47 / jks |
| Copper | 0.6 | ug/filter | J | 1 | | E200.8 | 12/19/23 15:49 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:47 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:47 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:47 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:47 / jks |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-006
**Client Sample ID:** Particulate Filter #C1667836 PM10

**Report Date:** 12/28/23
**Collection Date:** 11/08/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:53 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:53 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:53 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:53 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:53 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:53 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:53 / jks |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-007
**Client Sample ID:** Particulate Filter #C1667837 TSP 11/6-11/13

**Report Date:** 12/28/23
**Collection Date:** 11/13/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 15:55 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:59 / jks |
| Copper | 0.9 | ug/filter | J | 1 | | E200.8 | 12/19/23 15:55 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:59 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:59 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:59 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 11:59 / jks |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-008
**Client Sample ID:** Particulate Filter #C1667838 PM10

**Report Date:** 12/28/23
**Collection Date:** 11/14/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 16:00 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:05 / jks |
| Copper | 1 | ug/filter | | 1 | | E200.8 | 12/19/23 12:05 / jks |
| Lead | 0.1 | ug/filter | J | 1 | | E200.8 | 12/19/23 16:00 / jks |
| Manganese | 0.3 | ug/filter | J | 1 | | E200.8 | 12/19/23 16:00 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:05 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:05 / jks |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-009
**Client Sample ID:** Particulate Filter #C1667839 TSP 11/13-11/15

**Report Date:** 12/28/23
**Collection Date:** 11/15/23
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 16:18 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:11 / jks |
| Copper | 0.4 | ug/filter | J | 1 | | E200.8 | 12/19/23 16:18 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:11 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:11 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:11 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:11 / jks |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources / Greely School DH
**Lab ID:** B23121016-010
**Client Sample ID:** Particulate Filter #C1667840 PM10 Field Blank

**Report Date:** 12/28/23
**Collection Date:** 11/14/23 10:20
**DateReceived:** 12/13/23
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 12/19/23 16:24 / jks |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:16 / jks |
| Copper | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:16 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:16 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:16 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:16 / jks |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 12/19/23 12:16 / 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:** B23121016 **Report Date:** 12/28/23

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E200.8 | | | | | | | | | Analytical Run: ICPMS207-B_231218A | |
| **Lab ID:** QCS | 7 | Initial Calibration Verification Standard | | | | | | | | 12/19/23 09:43 |
| Arsenic | | 0.0537 | mg/L | 0.0050 | 107 | 90 | 110 | | | |
| Cadmium | | 0.0264 | mg/L | 0.0010 | 106 | 90 | 110 | | | |
| Copper | | 0.0498 | mg/L | 0.010 | 100 | 90 | 110 | | | |
| Lead | | 0.0500 | mg/L | 0.0010 | 100 | 90 | 110 | | | |
| Manganese | | 0.265 | mg/L | 0.0050 | 106 | 90 | 110 | | | |
| Molybdenum | | 0.0507 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| Zinc | | 0.0540 | mg/L | 0.0050 | 108 | 90 | 110 | | | |
| **Lab ID:** CCV | 7 | Continuing Calibration Verification Standard | | | | | | | | 12/19/23 08:43 |
| Arsenic | | 0.0509 | mg/L | 0.0050 | 102 | 90 | 110 | | | |
| Cadmium | | 0.0493 | mg/L | 0.0010 | 99 | 90 | 110 | | | |
| Copper | | 0.0475 | mg/L | 0.010 | 95 | 90 | 110 | | | |
| Lead | | 0.0511 | mg/L | 0.0010 | 102 | 90 | 110 | | | |
| Manganese | | 0.0472 | mg/L | 0.0050 | 94 | 90 | 110 | | | |
| Molybdenum | | 0.0493 | mg/L | 0.0050 | 99 | 90 | 110 | | | |
| Zinc | | 0.0508 | mg/L | 0.0050 | 102 | 90 | 110 | | | |
| **Lab ID:** CCV | 7 | Continuing Calibration Verification Standard | | | | | | | | 12/19/23 11:29 |
| Arsenic | | 0.0524 | mg/L | 0.0050 | 105 | 90 | 110 | | | |
| Cadmium | | 0.0519 | mg/L | 0.0010 | 104 | 90 | 110 | | | |
| Copper | | 0.0479 | mg/L | 0.010 | 96 | 90 | 110 | | | |
| Lead | | 0.0496 | mg/L | 0.0010 | 99 | 90 | 110 | | | |
| Manganese | | 0.0480 | mg/L | 0.0050 | 96 | 90 | 110 | | | |
| Molybdenum | | 0.0508 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| Zinc | | 0.0520 | mg/L | 0.0050 | 104 | 90 | 110 | | | |
| **Lab ID:** QCS | 7 | Initial Calibration Verification Standard | | | | | | | | 12/19/23 14:38 |
| Arsenic | | 0.0503 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| Cadmium | | 0.0252 | mg/L | 0.0010 | 101 | 90 | 110 | | | |
| Copper | | 0.0483 | mg/L | 0.010 | 97 | 90 | 110 | | | |
| Lead | | 0.0483 | mg/L | 0.0010 | 97 | 90 | 110 | | | |
| Manganese | | 0.261 | mg/L | 0.0050 | 104 | 90 | 110 | | | |
| Molybdenum | | 0.0491 | mg/L | 0.0050 | 98 | 90 | 110 | | | |
| Zinc | | 0.0512 | mg/L | 0.0050 | 102 | 90 | 110 | | | |
| **Lab ID:** CCV | 7 | Continuing Calibration Verification Standard | | | | | | | | 12/19/23 14:44 |
| Arsenic | | 0.0487 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Cadmium | | 0.0496 | mg/L | 0.0010 | 99 | 90 | 110 | | | |
| Copper | | 0.0462 | mg/L | 0.010 | 92 | 90 | 110 | | | |
| Lead | | 0.0478 | mg/L | 0.0010 | 96 | 90 | 110 | | | |
| Manganese | | 0.0460 | mg/L | 0.0050 | 92 | 90 | 110 | | | |
| Molybdenum | | 0.0497 | mg/L | 0.0050 | 99 | 90 | 110 | | | |
| Zinc | | 0.0497 | mg/L | 0.0050 | 99 | 90 | 110 | | | |
| **Lab ID:** CCV | 7 | Continuing Calibration Verification Standard | | | | | | | | 12/19/23 16:06 |
| Arsenic | | 0.0491 | mg/L | 0.0050 | 98 | 90 | 110 | | | |
| Cadmium | | 0.0485 | mg/L | 0.0010 | 97 | 90 | 110 | | | |

**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:** B23121016 **Report Date:** 12/28/23

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** **E200.8** | | | | | | | | | | Analytical Run: ICPMS207-B_231218A |
| **Lab ID:** **CCV** | 7 | Continuing Calibration Verification Standard | | | | | | | | 12/19/23 16:06 |
| Copper | | 0.0464 | mg/L | 0.010 | 93 | 90 | 110 | | | |
| Lead | | 0.0458 | mg/L | 0.0010 | 92 | 90 | 110 | | | |
| Manganese | | 0.0463 | mg/L | 0.0050 | 93 | 90 | 110 | | | |
| Molybdenum | | 0.0486 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Zinc | | 0.0500 | mg/L | 0.0050 | 100 | 90 | 110 | | | |
| **Method:** **E200.8** | | | | | | | | | | Batch: 185739 |
| **Lab ID:** **MB-185739** | 7 | Method Blank | | | | Run: ICPMS207-B_231218A | | | | 12/19/23 10:40 |
| Arsenic | | ND | ug/filter | 0.08 | | | | | | |
| Cadmium | | ND | ug/filter | 0.009 | | | | | | |
| Copper | | ND | ug/filter | 0.3 | | | | | | |
| Lead | | ND | ug/filter | 0.09 | | | | | | |
| Manganese | | ND | ug/filter | 0.2 | | | | | | |
| Molybdenum | | ND | ug/filter | 0.07 | | | | | | |
| Zinc | | ND | ug/filter | 0.8 | | | | | | |
| **Lab ID:** **LCS-185739** | 7 | Laboratory Control Sample | | | | Run: ICPMS207-B_231218A | | | | 12/19/23 10:46 |
| Arsenic | | 97.2 | ug/filter | 1.0 | 97 | 85 | 115 | | | |
| Cadmium | | 55.4 | ug/filter | 1.0 | 111 | 85 | 115 | | | |
| Copper | | 105 | ug/filter | 1.0 | 105 | 85 | 115 | | | |
| Lead | | 106 | ug/filter | 1.0 | 106 | 85 | 115 | | | |
| Manganese | | 493 | ug/filter | 1.0 | 99 | 85 | 115 | | | |
| Molybdenum | | 111 | ug/filter | 1.0 | 111 | 85 | 115 | | | |
| Zinc | | 107 | ug/filter | 1.0 | 107 | 85 | 115 | | | |
| **Lab ID:** **LCSD-185739** | 7 | Laboratory Control Sample Duplicate | | | | Run: ICPMS207-B_231218A | | | | 12/19/23 11:00 |
| Arsenic | | 87.9 | ug/filter | 1.0 | 88 | 85 | 115 | | | |
| Cadmium | | 49.2 | ug/filter | 1.0 | 98 | 85 | 115 | | | |
| Copper | | 106 | ug/filter | 1.0 | 106 | 85 | 115 | | | |
| Lead | | 95.1 | ug/filter | 1.0 | 95 | 85 | 115 | | | |
| Manganese | | 505 | ug/filter | 1.0 | 101 | 85 | 115 | | | |
| Molybdenum | | 98.0 | ug/filter | 1.0 | 98 | 85 | 115 | | | |
| Zinc | | 109 | ug/filter | 1.0 | 109 | 85 | 115 | | | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# Work Order Receipt Checklist

## Bison Engineering

## B23121016

Login completed by: Addison A. Gilbert
Date Received: 12/13/2023
Reviewed by: cjohnson
Received by: CMJ
Reviewed Date: 12/19/2023
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: | 4.7°C Blue Ice | | |
| Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4"). | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | Not Applicable ☑ |

### Standard Reporting Procedures:

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

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

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

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

### Contact and Corrective Action Comments:

None

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 | 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 DH |
| Sampler Name | Sampler Phone |
| Sample Origin State: Montana | EPA/State Compliance ☒ Yes ☐ No |

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

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

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

| | Sample Identification (Name, Location, Interval, etc.) | Collection Date | Collection Time | Number of Containers | Matrix (See Codes Above) | Arsenic | Cadmium | Copper | Lead | Manganese | Molybdenum | Zinc | | | See Attached | RUSH TAT | ELI LAB ID (Laboratory Use Only) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Particulate filter #C1667831 PM10 | 10/27/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | 1523121016 |
| 2 | Particulate filter #C1667832 TSP 10/23-11/1 | 10/23→11/1 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 3 | Particulate filter #C1667833 Lab Blank | 10/16/23 | 1330 | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 4 | Particulate filter #C1667834 PM10 | 11/2/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 5 | Particulate filter #C1667835 TSP 11/1-11/6 | 11/1→11/6 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 6 | Particulate filter #C1667836 PM10 | 11/8/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 7 | Particulate filter #C1667837 TSP 11/6-11/13 | 11/6→11/13 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 8 | Particulate filter #C1667838 PM10 | 11/14/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 9 | Particulate filter #C1667839 TSP 11/13 - 11/15 | 11/13→11/15 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 10 | Particulate filter #C1667840 PM10 Field Blank | 11/14/23 | 1020 | 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 | 12/13/23 1527 | Don V. Milmine | | | |
| | Relinquished by (print) | Date/Time | Signature | Received by Laboratory (print) | Date/Time | Signature |
| | | | | Crystal Jones | 12/13/23 1526 | |

**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

January 23, 2024

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

Work Order: B24010679 Quote ID: B4795

Project Name: Montana Resources/Greely School DH

Energy Laboratories Inc Billings MT received the following 10 samples for Bison Engineering on 1/11/2024 for analysis.

| Lab ID | Client Sample ID | Collect Date | Receive Date | Matrix | Test |
|---|---|---|---|---|---|
| B24010679-001 | Patriculate filter C1667811 PM10 | 11/20/23 00:00 | 01/11/24 | Air | Metals on air filter by ICP/ICPMS Nitric acid-extraction by 40CFR50G |
| B24010679-002 | Patriculate filter C1667812 TSP | 11/21/23 00:00 | 01/11/24 | Air | Same As Above |
| B24010679-003 | Patriculate filter C1667813 PM10 | 11/26/23 00:00 | 01/11/24 | Air | Same As Above |
| B24010679-004 | Patriculate filter C1667814 TSP | 12/01/23 00:00 | 01/11/24 | Air | Same As Above |
| B24010679-005 | Patriculate filter C1667815 PM10 | 12/02/23 00:00 | 01/11/24 | Air | Same As Above |
| B24010679-006 | Patriculate filter C1667816 TSP | 12/05/23 00:00 | 01/11/24 | Air | Same As Above |
| B24010679-007 | Patriculate filter C1667817 PM10 | 12/08/23 00:00 | 01/11/24 | Air | Same As Above |
| B24010679-008 | Patriculate filter C1667818 TSP | 12/12/23 00:00 | 01/11/24 | Air | Same As Above |
| B24010679-009 | Patriculate filter C1667819 Lab Blank | 11/09/23 14:05 | 01/11/24 | Air | Same As Above |
| B24010679-010 | Patriculate filter C1667820 Field Blank | 12/12/23 13:06 | 01/11/24 | Air | Same As Above |

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

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

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

Report Approved By:

**CLIENT:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Work Order:** B24010679

**Report Date:** 01/23/24

# CASE NARRATIVE

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

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-001
**Client Sample ID:** Patriculate filter C1667811 PM10

**Report Date:** 01/23/24
**Collection Date:** 11/20/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 09:34 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 09:34 / aem |
| Copper | ND | ug/filter | | 1 | | E200.8 | 01/18/24 09:34 / aem |
| Lead | ND | ug/filter | | 1 | | E200.8 | 01/18/24 09:34 / aem |
| Manganese | 0.3 | ug/filter | J | 1 | | E200.8 | 01/19/24 17:41 / jks |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 09:34 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 09:34 / aem |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-002
**Client Sample ID:** Patriculate filter C1667812 TSP

**Report Date:** 01/23/24
**Collection Date:** 11/21/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:04 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:04 / aem |
| Copper | 2 | ug/filter | | 1 | | E200.8 | 01/18/24 10:04 / aem |
| Lead | 0.09 | ug/filter | J | 1 | | E200.8 | 01/19/24 17:47 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:04 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:04 / aem |
| Zinc | 0.8 | ug/filter | J | 1 | | E200.8 | 01/18/24 10:04 / 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 DH
**Lab ID:** B24010679-003
**Client Sample ID:** Patriculate filter C1667813 PM10

**Report Date:** 01/23/24
**Collection Date:** 11/26/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:11 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:11 / aem |
| Copper | 0.8 | ug/filter | J | 1 | | E200.8 | 01/18/24 10:11 / aem |
| Lead | 0.2 | ug/filter | J | 1 | | E200.8 | 01/19/24 17:53 / jks |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:11 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:11 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:11 / aem |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-004
**Client Sample ID:** Patriculate filter C1667814 TSP

**Report Date:** 01/23/24
**Collection Date:** 12/01/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:17 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:17 / aem |
| Copper | 2 | ug/filter | | 1 | | E200.8 | 01/18/24 10:17 / aem |
| Lead | 0.2 | ug/filter | J | 1 | | E200.8 | 01/19/24 17:59 / jks |
| Manganese | 0.4 | ug/filter | J | 1 | | E200.8 | 01/18/24 10:17 / aem |
| Molybdenum | 0.1 | ug/filter | J | 1 | | E200.8 | 01/18/24 10:17 / aem |
| Zinc | 1 | ug/filter | | 1 | | E200.8 | 01/18/24 10:17 / aem |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-005
**Client Sample ID:** Patriculate filter C1667815 PM10

**Report Date:** 01/23/24
**Collection Date:** 12/02/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:23 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:23 / aem |
| Copper | 0.4 | ug/filter | J | 1 | | E200.8 | 01/19/24 18:06 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:23 / aem |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:23 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:23 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:23 / aem |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-006
**Client Sample ID:** Patriculate filter C1667816 TSP

**Report Date:** 01/23/24
**Collection Date:** 12/05/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:29 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:29 / aem |
| Copper | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:29 / aem |
| Lead | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:29 / aem |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:29 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:29 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:29 / aem |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-007
**Client Sample ID:** Patriculate filter C1667817 PM10

**Report Date:** 01/23/24
**Collection Date:** 12/08/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:35 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:35 / aem |
| Copper | 0.9 | ug/filter | J | 1 | | E200.8 | 01/19/24 18:12 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:35 / aem |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:35 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:35 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:35 / aem |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-008
**Client Sample ID:** Patriculate filter C1667818 TSP

**Report Date:** 01/23/24
**Collection Date:** 12/12/23
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:41 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:41 / aem |
| Copper | 0.7 | ug/filter | J | 1 | | E200.8 | 01/19/24 18:18 / jks |
| Lead | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:41 / aem |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:41 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:41 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:41 / aem |

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-009
**Client Sample ID:** Patriculate filter C1667819 Lab Blank

**Report Date:** 01/23/24
**Collection Date:** 11/09/23 14:05
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:47 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:47 / aem |
| Copper | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:47 / aem |
| Lead | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:47 / aem |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:47 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:47 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:47 / aem |

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Bison Engineering
**Project:** Montana Resources/Greely School DH
**Lab ID:** B24010679-010
**Client Sample ID:** Patriculate filter C1667820 Field Blank

**Report Date:** 01/23/24
**Collection Date:** 12/12/23 13:06
**DateReceived:** 01/11/24
**Matrix:** Air

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS IN AIR** | | | | | | | |
| Arsenic | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:54 / aem |
| Cadmium | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:54 / aem |
| Copper | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:54 / aem |
| Lead | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:54 / aem |
| Manganese | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:54 / aem |
| Molybdenum | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:54 / aem |
| Zinc | ND | ug/filter | | 1 | | E200.8 | 01/18/24 10:54 / 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:** B24010679 **Report Date:** 01/23/24

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.8** | | | | | | | | | Analytical Run: ICPMS208-B_240117A | |
| **Lab ID: QCS** | 7 | Initial Calibration Verification Standard | | | | | | | | 01/18/24 02:31 |
| Arsenic | | 0.0503 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| Cadmium | | 0.0246 | mg/L | 0.0010 | 99 | 90 | 110 | | | |
| Copper | | 0.0516 | mg/L | 0.010 | 103 | 90 | 110 | | | |
| Lead | | 0.0488 | mg/L | 0.0010 | 98 | 90 | 110 | | | |
| Manganese | | 0.254 | mg/L | 0.0050 | 102 | 90 | 110 | | | |
| Molybdenum | | 0.0476 | mg/L | 0.0050 | 95 | 90 | 110 | | | |
| Zinc | | 0.0522 | mg/L | 0.0050 | 104 | 90 | 110 | | | |
| **Lab ID: CCV** | 7 | Continuing Calibration Verification Standard | | | | | | | | 01/18/24 08:26 |
| Arsenic | | 0.0483 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Cadmium | | 0.0478 | mg/L | 0.0010 | 96 | 90 | 110 | | | |
| Copper | | 0.0491 | mg/L | 0.010 | 98 | 90 | 110 | | | |
| Lead | | 0.0482 | mg/L | 0.0010 | 96 | 90 | 110 | | | |
| Manganese | | 0.0480 | mg/L | 0.0050 | 96 | 90 | 110 | | | |
| Molybdenum | | 0.0461 | mg/L | 0.0050 | 92 | 90 | 110 | | | |
| Zinc | | 0.0486 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| **Lab ID: CCV** | 7 | Continuing Calibration Verification Standard | | | | | | | | 01/18/24 09:52 |
| Arsenic | | 0.0496 | mg/L | 0.0050 | 99 | 90 | 110 | | | |
| Cadmium | | 0.0488 | mg/L | 0.0010 | 98 | 90 | 110 | | | |
| Copper | | 0.0499 | mg/L | 0.010 | 100 | 90 | 110 | | | |
| Lead | | 0.0483 | mg/L | 0.0010 | 97 | 90 | 110 | | | |
| Manganese | | 0.0483 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Molybdenum | | 0.0469 | mg/L | 0.0050 | 94 | 90 | 110 | | | |
| Zinc | | 0.0503 | mg/L | 0.0050 | 101 | 90 | 110 | | | |
| **Method: E200.8** | | | | | | | | | | Batch: 186368 |
| **Lab ID: MB-186368** | 7 | Method Blank | | | | Run: ICPMS208-B_240117A | | | | 01/18/24 07:49 |
| 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-186368** | 7 | Laboratory Control Sample | | | | Run: ICPMS208-B_240117A | | | | 01/18/24 07:55 |
| Arsenic | | 98.0 | ug/filter | 1.0 | 98 | 85 | 115 | | | |
| Cadmium | | 48.3 | ug/filter | 1.0 | 97 | 85 | 115 | | | |
| Copper | | 100 | ug/filter | 5.0 | 100 | 85 | 115 | | | |
| Lead | | 98.6 | ug/filter | 1.0 | 99 | 85 | 115 | | | |
| Manganese | | 486 | ug/filter | 3.0 | 97 | 85 | 115 | | | |
| Molybdenum | | 93.1 | ug/filter | 1.0 | 93 | 85 | 115 | | | |
| Zinc | | 99.3 | ug/filter | 10 | 99 | 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:** B24010679 **Report Date:** 01/23/24

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** **E200.8** | | | | | | | | | | Batch: 186368 |
| **Lab ID:** **LCSD-186368** | 7 | Laboratory Control Sample Duplicate | | | | Run: ICPMS208-B_240117A | | | | 01/18/24 08:02 |
| Arsenic | | 95.9 | ug/filter | 1.0 | 96 | 85 | 115 | | | |
| Cadmium | | 48.8 | ug/filter | 1.0 | 98 | 85 | 115 | | | |
| Copper | | 98.0 | ug/filter | 5.0 | 98 | 85 | 115 | | | |
| Lead | | 97.2 | ug/filter | 1.0 | 97 | 85 | 115 | | | |
| Manganese | | 471 | ug/filter | 3.0 | 94 | 85 | 115 | | | |
| Molybdenum | | 93.9 | ug/filter | 1.0 | 94 | 85 | 115 | | | |
| Zinc | | 97.4 | ug/filter | 10 | 97 | 85 | 115 | | | |
| **Method:** **E200.8** | | | | | | | | | | Analytical Run: ICPMS208-B_240119A |
| **Lab ID:** **QCS** | 3 | Initial Calibration Verification Standard | | | | | | | | 01/19/24 13:18 |
| Copper | | 0.0500 | mg/L | 0.010 | 100 | 90 | 110 | | | |
| Lead | | 0.0484 | mg/L | 0.0010 | 97 | 90 | 110 | | | |
| Manganese | | 0.244 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| **Lab ID:** **CCV** | 3 | Continuing Calibration Verification Standard | | | | | | | | 01/19/24 17:23 |
| Copper | | 0.0512 | mg/L | 0.010 | 102 | 90 | 110 | | | |
| Lead | | 0.0498 | mg/L | 0.0010 | 100 | 90 | 110 | | | |
| Manganese | | 0.0476 | mg/L | 0.0050 | 95 | 90 | 110 | | | |
| **Method:** **E200.8** | | | | | | | | | | Batch: 186368 |
| **Lab ID:** **MB-186368** | 3 | Method Blank | | | | Run: ICPMS208-B_240119A | | | | 01/19/24 16:34 |
| Copper | | ND | ug/filter | 0.3 | | | | | | |
| Lead | | ND | ug/filter | 0.09 | | | | | | |
| Manganese | | ND | ug/filter | 0.2 | | | | | | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# Work Order Receipt Checklist

## Bison Engineering

## B24010679

Login completed by: Danielle N. Harris
Date Received: 1/11/2024

Reviewed by: agilbert
Received by: DNH

Reviewed Date: 1/15/2024
Carrier name: Hand Deliver

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on all shipping container(s)/cooler(s)? | Yes ☐ | No ☐ | Not Present ☑ |
| Custody seals intact on all sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes ☑ | No ☐ | |
| Temp Blank received in all shipping container(s)/cooler(s)? | Yes ☑ | No ☐ | Not Applicable ☐ |
| Container/Temp Blank temperature: | 2.0°C Blue Ice | | |
| Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4"). | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | Not Applicable ☑ |

### Standard Reporting Procedures:

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

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

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

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

### Contact and Corrective Action Comments:

None

# Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

www.energylab.com



## Account Information *(Billing information)*

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

## Report Information *(if different than Account Information)*

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

## Comments

Analyze per history

## Project Information

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

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

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

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

| | Sample Identification *(Name, Location, Interval, etc.)* | Collection Date | Collection Time | Number of Containers | Matrix *(See Codes Above)* | Arsenic | Cadmium | Copper | Lead | Manganese | Molybdenum | Zinc | | | See Attached | RUSH TAT | ELI LAB ID *Laboratory Use Only* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Particulate filter C1667811 PM10 | 11/20/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | B24010679 |
| 2 | Particulate filter C1667812 TSP 11/15-11/21 | 11/15→11/21 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 3 | Particulate filter C1667813 PM10 | 11/26/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 4 | Particulate filter C1667814 TSP 11/21-12/1 | 11/21→12/1 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 5 | Particulate filter C1667815 PM10 | 12/2/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 6 | Particulate filter C1667816 TSP 12/1-12/5 | 12/1→12/5 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 7 | Particulate filter C1667817 PM10 | 12/8/23 | 24 hr composite | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 8 | Particulate filter C1667818 TSP 12/5-12/12 | 12/5→12/12 | continuous | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 9 | Particulate filter C1667819 Lab Blank | 11/9/23 | 1405 | 1 | on Teflon filter | x | x | x | x | x | x | x | | | | | |
| 10 | Particulate filter C1667820 Field Blank | 12/12/23 | 1306 | 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 | 1/11/24 1520 | Don V. Milmine | | | |
| | Relinquished by (print) | Date/Time | Signature | Received by Laboratory (print) | Date/Time | Signature |
| | | | | Debbie Helms | 1/11/24 1520 | |

**LABORATORY USE ONLY**

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

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

ELI-COC-10/18 v.3

# ANALYTICAL SUMMARY REPORT

March 15, 2024

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

Work Order: B24011012 Quote ID: B4795

Project Name: Montana Resources/Greely School DH

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

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

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

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

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

Report Approved By:

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

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

# CASE NARRATIVE

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

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

Revised Date: 3/15/2024

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

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

**Report Definitions:**

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

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

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

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

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

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

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

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Revised Date:** 03/15/24

**Client:** Bison Engineering

**Work Order:** B24011012

**Report Date:** 02/02/24

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

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Revised Date:** 03/15/24

**Client:** Bison Engineering

**Work Order:** B24011012

**Report Date:** 02/02/24

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

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# Work Order Receipt Checklist

## Bison Engineering

## B24011012

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

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

### Standard Reporting Procedures:

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

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

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

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

### Contact and Corrective Action Comments:

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

# Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

www.energylab.com



## Account Information (Billing information)

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

## Report Information (if different than Account Information)

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

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

## Comments

Analyze per history

## Project Information

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

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

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

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

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

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

**LABORATORY USE ONLY**

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

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

ELI-COC-10/18 v.3

# 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: 10/31/2023 | Time: 1210 - 1228 MST | Sampler Serial Number: 1622 | |
| Performed By: Steve Heck | | Location (field or lab): Greeley School | |
| Ref Standard & S/N:<br>1) Delta Cal SN 1293 (CAE Rental) | | Certification Date:<br>1) 09-30-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading<br>(mm Hg) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(must be ≤ ± 10) |
| Ambient Pressure | 624 mm Hg | 627.5 mmHg | -3.5 |
| **Temperature Sensor Verification** | | | |
| Reading<br>(degrees Celsius) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(must be ≤ ± 2ºC) |
| Ambient Temperature | 4.6 C | 5.6 C | -1.0 C |
| Filter Temperature | 2.9 C | 4.0 C | -1.1 C |
| **Leak Check** | | | |
| Vacuum Readings<br>(cm $H_2O$) | Start<br>99 | End<br>98 | Pass ~~Fail~~ |
| **Flow Rate Verification** | | | |
| Reading<br>(liters per minute) | Sampler<br>(a) | Reference Standard<br>(b) | % Difference<br>100*(a – b)/b<br>(must be ≤ ± 4%) |
| Operating flow rate check | 16.72 | 17.01 | -1.7% |
| Reading<br>(liters per minute) | Reference Standard<br>(b) | Design Flow Rate Standard<br>(c) | % Difference<br>100*(b–16.7)/16.7<br>(must be ≤ ± 5%) |
| Design flow rate calculation | 17.01 | 16.7 | +1.9% |
| No adjustments made. Exposed sample filter removed temporarily for calibration checks. | | | |

| **Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~** | | | |
|---|---|---|---|
| Date: 10/31/2023 | Time: 1225-1250 MST | Sampler Serial Number: X24429 | |
| Performed By: Steve Heck | | Location (field or lab): Greeley School | |
| Ref Standard & S/N:<br>1) Swift Meter SN C14999 (Flow/BP)<br>2) Delta Cal SN 1293 (CAE Rental) (Temp)<br>3) RH – BTM Airport | | Certification Date:<br>1) 07-28-2023<br>2) 09-30-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading (Pascals) | Sampler (a) | Reference Standard (b) | Difference (a - b) (limit ≤ ± 1333 Pa) |
| Ambient Pressure | 83,841 Pa | 628.1 mm Hg = 83,740 Pa | +101 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 | 12.0 C | 11.3 C | +0.7 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 | 1.98 | +1.0 % |
| Reading (liters per minute) | Reference Standard (b) | Design Flow Rate Standard (c) | % Difference 100*(b–2.0)/2.0 (must be ≤ ± 5%) |
| Design flow rate check | 1.98 | 2.0 | -1.0 % |
| **Relative Humidity Verification** (checked against Butte Airport) | | | |
| Dry Bulb Temp. °C | ----- | Calculated RH (a) | 55% |
| Wet Bulb Temp. °C | ----- | Sampler RH (b) | 52% |
| BP Inches Hg | ----- | Difference = a – b (must be ≤7% RH) | -3% |

Could not determine wet bulb temperature from psychrometer due to near freezing wet bulb temp.
Used concurrent RH from Butte Airport as a check.

| BGI PQ200 PM10 Sampler – Monthly Calibration Checks | | | |
|---|---|---|---|
| Date: 11/15/2023 | Time: 1205 - 1235 MST | Sampler Serial Number: 1622 | |
| Performed By: Steve Heck | | Location (field or lab): Greeley School | |
| Ref Standard & S/N:<br>1) Swift 25.0 Meter S/N D16202 | | Certification Date:<br>1) 11-08-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading<br>(mm Hg) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(must be ≤ ± 10) |
| Ambient Pressure | 616 mm Hg | 620.3 mmHg | -4.3 |
| **Temperature Sensor Verification** | | | |
| Reading<br>(degrees Celsius) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(must be ≤ ± 2ºC) |
| Ambient Temperature | 12.6 C | 12.4 C | +0.2 C |
| Filter Temperature | 13.6 C | 13.9 C | -0.3 C |
| **Leak Check** | | | |
| Vacuum Readings<br>(cm $H_2O$) | Start<br>96 | End<br>95 | Pass ~~Fail~~ |
| **Flow Rate Verification** | | | |
| Reading<br>(liters per minute) | Sampler<br>(a) | Reference Standard<br>(b) | % Difference<br>100*(a – b)/b<br>(must be ≤ ± 4%) |
| Operating flow rate check | 16.72 | 17.98 | -7.0% |
| Reading<br>(liters per minute) | Reference Standard<br>(b) | Design Flow Rate Standard<br>(c) | % Difference<br>100*(b–16.7)/16.7<br>(must be ≤ ± 5%) |
| Design flow rate calculation | 17.98 | 16.7 | +7.7% |

Exposed sample filter removed temporarily for calibration checks.

Performed multipoint calibration, operating flow after adjustment at 16.63 LPM.
Flows set at 15.00 LPM, 18.40 LPM and 16.70 LPM.

Suspect large error at verification check due to using a different calibration standard than has been used in the past.

| **Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~** | | | |
|---|---|---|---|
| Date: 11/15/2023 | Time: 1220-1300 MST | Sampler Serial Number: X24429 | |
| Performed By: Steve Heck | | Location (field or lab): Greeley School | |
| Ref Standard & S/N:<br>1) Swift Meter SN C14999 (Flow/BP)<br>2) Swift 25.0 SN D16202 (Temp) | | Certification Date:<br>1) 07-28-2023<br>2) 11-08-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading (Pascals) | Sampler (a) | Reference Standard (b) | Difference (a - b) (limit ≤ ± 1333 Pa) |
| Ambient Pressure | 82,728 Pa | 619.8 mm Hg = 82,633 Pa | -95 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 | 13.0 C | 12.6 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 | 2.02 | -1.0 % |
| 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 | 2.02 | 2.0 | +1.0 % |
| **Relative Humidity Verification** | | | |
| Dry Bulb Temp. °C | 13.3 | Calculated RH (a) | 23.5% |
| Wet Bulb Temp. °C | 4.4 | Sampler RH (b) | 26% |
| BP Inches Hg | 24.40 | Difference = a – b (must be ≤7% RH) | +2.5% |

| BGI PQ200 PM10 Sampler – Monthly Calibration Checks | | | |
|---|---|---|---|
| Date: 12/14/2023 | Time: 1205 - 1231 MST | Sampler Serial Number: 1622 | |
| Performed By: Steve Heck | | Location (field or lab): Greeley School | |
| Ref Standard & S/N:<br>1) Swift 25.0 Meter S/N D16202 | | Certification Date:<br>1) 11-08-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading<br>(mm Hg) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(must be ≤ ± 10) |
| Ambient Pressure | 623 mm Hg | 626.6 mmHg | -3.6 |
| **Temperature Sensor Verification** | | | |
| Reading<br>(degrees Celsius) | Sampler<br>(a) | Reference Standard<br>(b) | Difference<br>(a - b)<br>(must be ≤ ± 2ºC) |
| Ambient Temperature | -1.1 C | -2.1 C | +1.0 C |
| Filter Temperature | -1.0 C | -1.1 C | +0.1 C |
| **Leak Check** | | | |
| Vacuum Readings<br>(cm $H_2O$) | Start<br>96 | End<br>94 | Pass ~~Fail~~ |
| **Flow Rate Verification** | | | |
| Reading<br>(liters per minute) | Sampler<br>(a) | Reference Standard<br>(b) | % Difference<br>100*(a – b)/b<br>(must be ≤ ± 4%) |
| Operating flow rate check | 16.70 | 16.45 | +1.5% |
| Reading<br>(liters per minute) | Reference Standard<br>(b) | Design Flow Rate Standard<br>(c) | % Difference<br>100*(b–16.7)/16.7<br>(must be ≤ ± 5%) |
| Design flow rate calculation | 16.45 | 16.7 | -1.5% |
| Exposed sample filter removed temporarily for calibration checks. | | | |

| **Met One E-Sampler – Monthly Calibration Check / ~~Quarterly Audit~~** | | | |
|---|---|---|---|
| Date: 12/14/2023 | Time: 1137-1155 MST | Sampler Serial Number: X24429 | |
| Performed By: Steve Heck | | Location (field or lab): Greeley School | |
| Ref Standard & S/N:<br>1) Swift Meter SN C14999 (Flow/BP)<br>2) Tetra Cal SN 149645 (Temp) | | Certification Date:<br>1) 07-28-2023<br>2) 12-04-2023 | |
| **Barometric Pressure Sensor Verification** | | | |
| Reading (Pascals) | Sampler (a) | Reference Standard (b) | Difference (a - b) (limit ≤ ± 1333 Pa) |
| Ambient Pressure | 83,626 Pa | 626.8 mm Hg = 83,566 Pa | +60 Pa |
| Pascals = mmHg * 133.322 | | Limit of ±1333 Pascals = ±10 mmHg | |
| **Temperature Sensor Verification** | | | |
| Reading (degrees Celsius) | Sampler (a) | Reference Standard (b) | Difference (a - b) (must be ≤ ± 2ºC) |
| Ambient Temperature | 4.4 C | 3.4 C | +1.0 C |
| **Leak Check** | | | |
| Leak Check Flow Rate | 0.0 LPM | (must be <0.4 LPM) | **Pass** ~~Fail~~ |
| **Flow Rate Verification** | | | |
| Reading (liters per minute) | Sampler (a) | Reference Standard (b) | % Difference 100*(a – b)/b (must be ≤ ± 5%) |
| Audit standard flow rate check | 2.0 | 1.98 | +1.0 % |
| Reading (liters per minute) | Reference Standard (b) | Design Flow Rate Standard (c) | % Difference 100*(b–2.0)/2.0 (must be ≤ ± 5%) |
| Design flow rate check | 1.98 | 2.0 | -1.0 % |
| **Relative Humidity Verification** | | | |
| Dry Bulb Temp. °C | -2.8 | Calculated RH (a) | 64.2% |
| Wet Bulb Temp. °C | -4.8 | Sampler RH (b) | 59% |
| BP Inches Hg | 24.68 | Difference = a – b (must be ≤7% RH) | -5.2% |

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

Unexposed sample filter removed temporarily for calibration checks.

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

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

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

# APPENDIX G: CALIBRATION STANDARD CERTIFICATION SHEETS

MesaLabs

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

# CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

Calibration Report #: 1293-30092023
DeltaCal Serial Number: 1293
Calibration Technician: Elsy Lasky
Date: 30-Sep-2023
Recommended Recal Date: 30-Sep-2024

CleanAir
This certification corresponds to CleanAir asset # **209234**

## Critical Venturi Flow Meter

Max Uncertainty = 0.346%

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

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

**Brand:** Eutechnics
**TE Number:** TE12242 **Serial Number:** A11441
**Std Cal Date:** 5-Oct-22 **Std Cal Due Date:** 5-Oct-23

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

## Barometric and Absolute Pressure

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

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

**DeltaCal:**

Barometric pressure (set): 617.00 mmHg

## Results of Venturi Calibration

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

Venturi

| | | | | |
|---|---|---|---|---|
| TE20007 | Q= 3.87511 | ΔP ^ | 0.52547 | Overall Uncertainty: 0.35% |
| TE20005 | Q= 3.83179 | ΔP ^ | 0.52078 | 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. :** | 1293 |
| **Firmware Version:** | 4.00P |

| Date | Technician |
|---|---|
| 30Sep2023 | Elsy Lasky |

| | | |
|---|---|---|
| Ambient Pressure: | 617 | mmHg |
| Ambient Temperature: | 22.9 | °C |

**Range 1**

| | |
|---|---|
| Venturi | TE20007 |
| Type | 2B |
| Flow range | 1.40 - 6.0 LPM |

| Test # | Static Pressure mmHg | Barometric Pressure mmHg | Venturi Qa LPM | DUT Qa LPM | % error % |
|---|---|---|---|---|---|
| 1 | 137.88 | 616.5 | 1.914 | 1.921 | 0.366 |
| 2 | 209.21 | 616.5 | 2.935 | 2.942 | 0.239 |
| 3 | 266.44 | 616.5 | 3.754 | 3.779 | 0.666 |
| 4 | 322.57 | 616.5 | 4.558 | 4.592 | 0.746 |
| 5 | 372.08 | 616.5 | 5.266 | 5.291 | 0.475 |
| 6 | 411.32 | 616.5 | 5.828 | 5.869 | 0.704 |
| | Maximum allowable error at any flow rate is 0.75%. | | | Average | 0.532 |
| | | | | Result | PASS |

**Range 2**

| | |
|---|---|
| Venturi | TE20005 |
| Type | 1B |
| Flow range | 6 - 30.00 LPM |

CleanAir®
This certification corresponds to CleanAir asset # **209234**

| Test # | Static Pressure mmHg | Barometric Pressure mmHg | Venturi Qa LPM | DUT Qa LPM | % error % |
|---|---|---|---|---|---|
| 1 | 134.01 | 616.5 | 6.497 | 6.527 | 0.462 |
| 2 | 203.26 | 616.5 | 9.933 | 9.879 | -0.544 |
| 3 | 265.22 | 616.5 | 13.007 | 12.919 | -0.677 |
| 4 | 326.25 | 616.5 | 16.035 | 15.947 | -0.549 |
| 5 | 364.74 | 616.5 | 17.945 | 17.861 | -0.468 |
| 6 | 406.24 | 616.5 | 20.004 | 19.864 | -0.700 |
| | Maximum allowable error at any flow rate is 0.75%. | | | Average | -0.413 |
| | | | | Result | PASS |

**Performed By:** Elsy Lasky **Date:** 30-Sep-2023

**Approved By:** Leonard Reinert, Quality Specialist **Date:** 03 OCT 2023

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. :** | 1293 |
| **Firmware Version:** | 4.00P |

| Date | Technician |
|---|---|
| 30Sep2023 | Elsy Lasky |

| | | |
|---|---|---|
| Ambient Pressure: | 617 | mmHg |
| Ambient Temperature: | 22.9 | °C |

| | As Received Temp. Press. Calibration | | | | As Shipped Temp. Press. Calibration | | | |
|---|---|---|---|---|---|---|---|---|
| | **DUT** | **Standard** | **Diff** | **+/- 1 mmHg** | **DUT** | **Standard** | **Diff** | **+/-1 mmHg** |
| **$Pres_{AMB}$ mmHg** | 617 | 617.3 | -0.3 | Pass | 616.5 | 616.8 | -0.3 | Pass |
| | **DUT** | **Standard** | **Diff** | **+/- 1 °C** | **DUT** | **Standard** | **Diff** | **+/- 1 °C** |
| **$Temp_{AMB}$ °C** | 22.8 | 22.7 | 0.1 | Pass | 23 | 22.9 | 0.1 | Pass |
| **Temp $_{Filter}$ °C** | 22.8 | 22.7 | 0.1 | Pass | 23 | 22.9 | 0.1 | Pass |

| | Offset | New Offset |
|---|---|---|
| PresAMB | | 0.3 |
| TempAMB | | -0.1 |
| Temp Filter | | -0.1 |

## Range 1

| | |
|---|---|
| Venturi | TE20007 |
| Type | 2B |
| Flow range | 1.40 - 6.0 LPM |

CleanAir®
This certification corresponds to CleanAir asset # **209234**

| Test # | Static Pressure mmHg | Barometric Pressure mmHg | Venturi Qa LPM | DUT Qa LPM | % error % |
|---|---|---|---|---|---|
| 1 | 141.56 | 617.0 | 1.964 | 1.945 | -0.967 |
| 2 | 216.23 | 617.0 | 3.032 | 2.986 | -1.517 |
| 3 | 271.79 | 617.0 | 3.826 | 3.778 | -1.255 |
| 4 | 324.28 | 617.0 | 4.577 | 4.503 | -1.617 |
| 5 | 381.40 | 617.0 | 5.394 | 5.287 | -1.984 |
| 6 | 430.87 | 617.0 | 6.101 | 5.982 | -1.950 |
| Maximum allowable error at any flow rate is 0.75%. | | | | Average | -1.548 |
| | | | | Result | FAIL |

## Range 2

| | |
|---|---|
| Venturi | TE20005 |
| Type | 1B |
| Flow range | 6 - 30.00 LPM |

| Test # | Static Pressure mmHg | Barometric Pressure mmHg | Venturi Qa LPM | DUT Qa LPM | % error % |
|---|---|---|---|---|---|
| 1 | 136.11 | 617.0 | 6.592 | 6.450 | -2.154 |
| 2 | 204.48 | 617.0 | 9.979 | 9.844 | -1.353 |
| 3 | 266.17 | 617.0 | 13.035 | 12.866 | -1.297 |
| 4 | 328.04 | 617.0 | 16.105 | 15.921 | -1.143 |
| 5 | 369.17 | 617.0 | 18.138 | 17.943 | -1.075 |
| 6 | 406.38 | 617.0 | 19.981 | 19.820 | -0.806 |
| Maximum allowable error at any flow rate is 0.75%. | | | | Average | -1.304 |
| | | | | Result | FAIL |

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

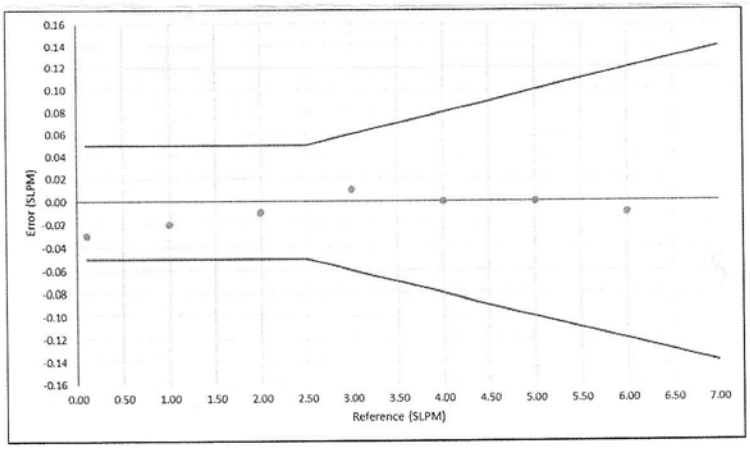
# *Certificate of Calibration*

## *Model Swift 6.0*

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

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

| Flow Calibration | | | |
|---|---|---|---|
| Standard (SLPM) | Swift 6.0 (SLPM) | Acceptable Range | In Tolerance |
| 1.000 | 0.98 | 0.95 - 1.05 | Yes |
| 2.000 | 1.99 | 1.95 - 2.05 | Yes |
| 3.000 | 3.01 | 2.94 - 3.06 | Yes |
| 4.000 | 4.00 | 3.92 - 4.08 | Yes |
| 5.000 | 5.00 | 4.90 - 5.10 | Yes |
| 6.000 | 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 |
| 22.6 | 22.1 | Yes |
| Temperature Accuracy: ±1.0°C | | |

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

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

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

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

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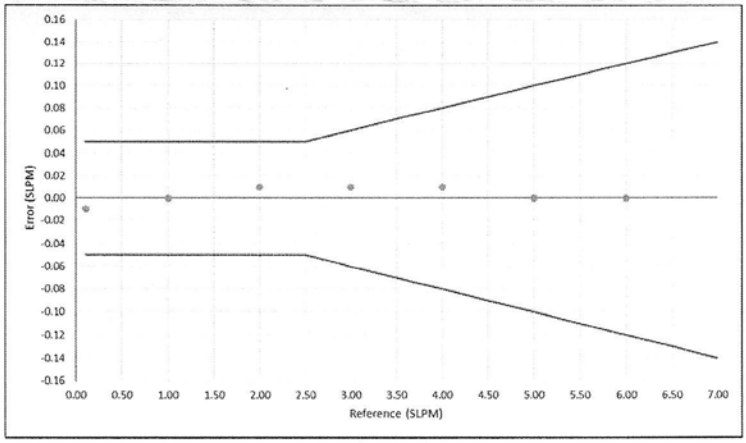
# *Certificate of Calibration*

## *Model Swift 6.0*

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

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

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




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

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

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

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

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

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Lakewood, CO 80228
NIST Traceable Calibration Facility

# CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

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

## Critical Venturi Flow Meter

Max Uncertainty = 0.346%

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

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

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

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

## Barometric and Absolute Pressure

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

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

**TetraCal:**

Barometric pressure (set): 617.20 mmHg

## Results of Venturi Calibration

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

Venturi

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

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# As Shipped Calibration Data for TetraCal

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

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

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

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

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

Melissa Sardoni

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

Leonard Rainert

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# As-Found data for TetraCal

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

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

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

**Range 1: 1.2 - 6.00 LPM**

| | |
|---|---|
| Venturi | TE20004 |
| Type | 1A |
| Flow range | 6 - 30.00 LPM |

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

**Range 2: 6.00 - 30.0 LPM**

| | |
|---|---|
| Venturi | TE20006 |
| Type | 2A |
| Flow range | 1.40 - 6.0 LPM |

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

**Range 3: NP**

| | |
|---|---|
| Venturi | TE20008 |
| Type | 3A |
| Flow range | 0.40 - 1.20 LPM |

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

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# *Certificate of Calibration*

## *Model Swift 25.0*

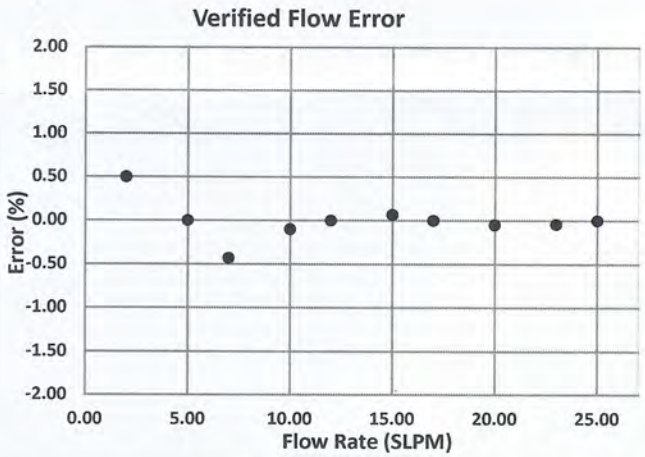
Serial Number : D16202

Firmware: R1.0.2

Calibrated Date: 11/8/2023

Calibrated By: J.Taylor

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




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

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

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

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

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

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

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