

**SANDFIRE RESOURCES AMERICA, INC.
BLACK BUTTE COPPER PROJECT
METEOROLOGICAL
MONITORING PROGRAM
Quarterly Data Report
Fourth Quarter 2021**

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CERTIFICATION OF DATA INTEGRITY

Bison Engineering, Inc., certifies the data in this report is an accurate summary of the meteorological conditions measured at the Black Butte Copper Project monitoring site. Every 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*, the *State of Montana Ambient Air Monitoring Program Quality Assurance Project Plan (April 2013)*, and the Environmental Protection Agency's *Quality Assurance Handbook for Air Pollution Measurement Systems: Volume I, A Field Guide to Environmental Quality Assurance (April 1994)*, *Volume II, Ambient Air Quality Program (May 2013)*, and *Volume IV, Meteorological Measurements (March 2008)*.

Preparer: Don Milmine.

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Title: Project Engineer

Date: February 9, 2022

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Date: February 9, 2022

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APPENDICES

Appendix A: Meteorological Data

Appendix B: Performance Audit Reports

1.0 INTRODUCTION

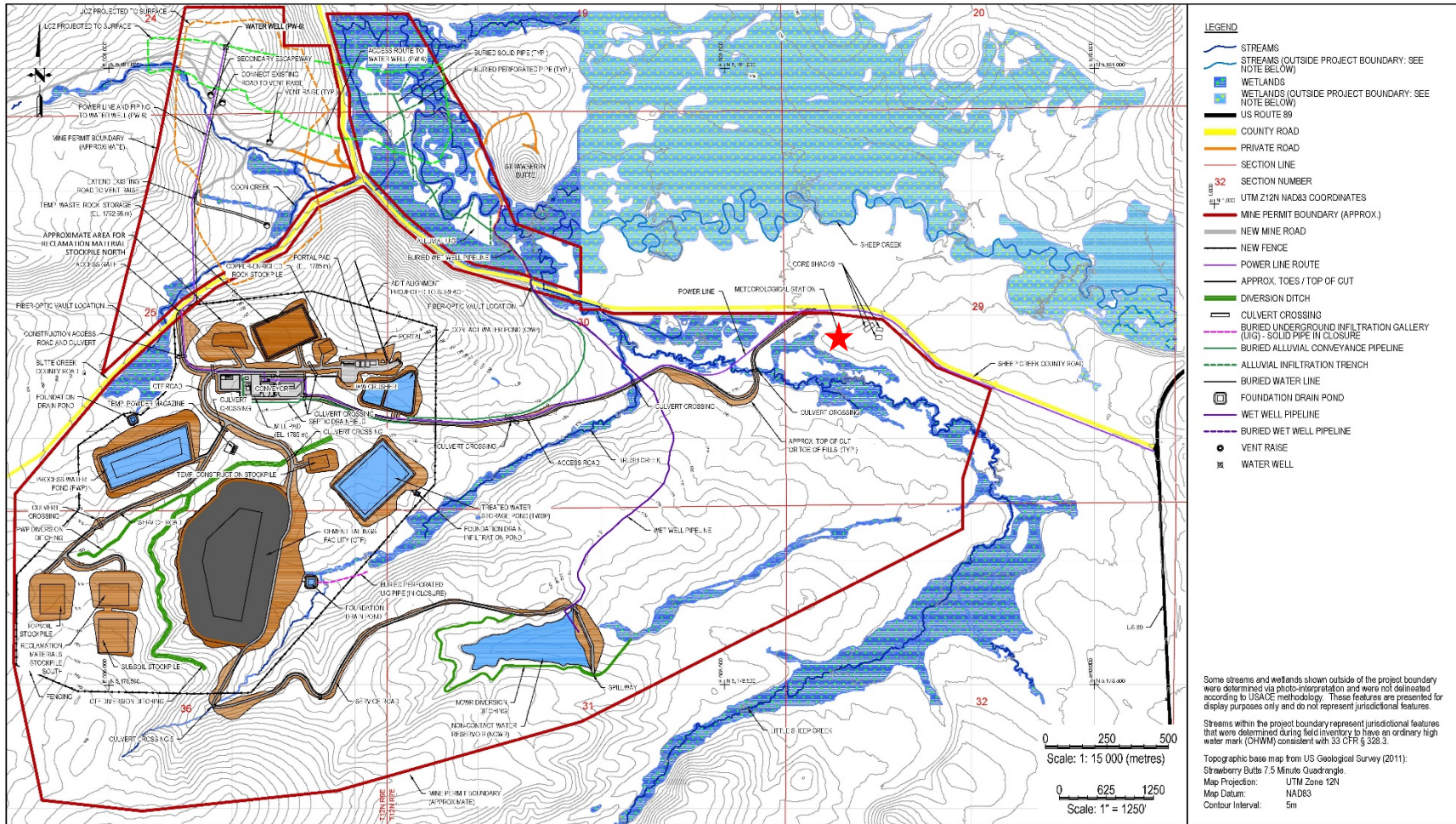
Sandfire Resources America, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately characterize the local meteorology and collect baseline data in support of an operating permit application and various environmental studies.

The meteorological monitoring system was installed in April 2012. The site is operated by Bison Engineering, Inc., of Helena and Billings. Figure 1 shows the current location of the monitoring site, depicted by a red star. It is located to the west-southwest of the core shed buildings. On February 6, 2018, the tower was shut down and moved to a new location approximately 300 feet southwest of the original location, where monitoring resumed on March 7, 2018. Relocation activities were documented in the monitoring report for the first quarter of 2018.

This report presents the data collected during the fourth quarter (October through December) of 2021. 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 the data completeness achieved, and the periods of missing data also are presented. Appendix A presents hourly meteorological data collected.

On June 23, 2015, an evaporation pan and manual precipitation gauge were installed adjacent to the existing meteorological system. The evaporation data will be used for hydrological / water balance studies. The manual rain gauge was installed to provide a backup data source for the existing automatic rain gauge, which has experienced occasional mechanical problems. Also, the automatic rain gauge is sometimes unreliable for measuring frozen precipitation. Neither the evaporation pan nor the manual rain gauge was operated during the fourth quarter of 2021. The automatic precipitation gauge operated well throughout fourth quarter of 2021.

Figure 1. Monitoring Site Location



Prepared by Tetra Tech Inc. (Revised October 2018 to include alluvial UIG as included in the December 2018 Integrated Discharge Permit Application Narrative Report by Hydrometrics that was revised in February 2018, Completeness Determination by MT DEQ on May 25, 2018.)



FIGURE 1.3
Facilities Site Plan
Black Butte Copper Project
Mine Operating Permit Application
Meagher County, Montana

2.0 MONITORING SYSTEM OPERATIONS

Monitoring activities continued in the normal manner during the fourth quarter of 2021. Data were downloaded and reviewed by Bison at least once a week and examined for suspect behavior. All instruments were operational throughout the quarter. However, the station battery power failed in October, which resulted in the loss of 70 hours of data between October 15 and October 18. On November 9 and 10, 33 hours of data were lost for the same reason.

Steve Heck of Bison conducted performance audits of the meteorological system on October 1, 2021. No calibration adjustments were made to any of the instrumentation. However, both temperature sensor aspirator fans were replaced for annual preventive maintenance. That audit was reported in the third quarter report, as it was originally scheduled to be performed during the third quarter.

Don Milmine conducted performance audits of the meteorological system on December 22, 2021, as documented in Appendix B. No calibration adjustments were made to any of the instrumentation.

3.0 PERFORMANCE AUDIT DATA

Steve Heck of Bison conducted performance audits of the meteorological system on October 1, 2021. No calibration adjustments were made to any of the instrumentation. However, both temperature sensor aspirator fans were replaced for annual preventive maintenance. Those audit results were reported in the third quarter report.

Don Milmine conducted performance audits of the meteorological system on December 22, 2021. No calibration adjustments were made to any of the instrumentation. The audit data are presented in Appendix B of this report.

4.0 CALIBRATION DATA

Steve Heck of Bison conducted performance audits of the meteorological system on October 1, 2021, as discussed in Section 3.0. All of the as-found audit results were satisfactory, and no calibration adjustments were needed. The aspirator fans were replaced as preventive maintenance.

Don Milmine conducted performance audits of the meteorological system on December 22, 2021. No calibration adjustments were made to any of the instrumentation. The audit data are presented in Appendix B of this report. All as-found audit results were satisfactory, and no calibration adjustments were needed.

5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the fourth quarter of 2021 are given in Tables 1 and 2. In these tables, the number of possible data values during each month of the quarter is given, together with the number of valid readings and the number of hours spent on quality assurance activities (such as calibrations, performance audits, and maintenance on the sensors). The quality assurance hours are added to the number of hours of valid data to compute the net percentage data recovery, which was 95.4 percent for each parameter for the quarter overall.

All instruments were operational throughout the quarter. However, the station battery power failed in October, which resulted in the loss of 70 hours of data between October 15 and October 18. On November 9 and 10, 33 hours of data were lost for the same reason. Minimal amounts of data were lost during the performance audits conducted on October 1 and December 22.

Table 1. Monthly Data Completeness

October 2021					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	671	90.2	3	90.6
Wind Direction	744	671	90.2	3	90.6
Standard Deviation	744	671	90.2	3	90.6
9-Meter Temperature	744	671	90.2	3	90.6
2-Meter Temperature	744	671	90.2	3	90.6
9-2 M Delta Temperature	744	671	90.2	3	90.6
Solar Radiation	744	671	90.2	3	90.6
Barometric Pressure	744	674	90.6	0	90.6
Relative Humidity	744	671	90.2	3	90.6
Precipitation	744	672	90.3	2	90.6
Total	7,440	6,714	90.2	26	90.6

Table 1. Monthly Data Completeness (Continued)

November 2021					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	689	95.7	0	95.7
Wind Direction	720	689	95.7	0	95.7
Standard Deviation	720	689	95.7	0	95.7
9-Meter Temperature	720	689	95.7	0	95.7
2-Meter Temperature	720	689	95.7	0	95.7
9-2 M Delta Temperature	720	689	95.7	0	95.7
Solar Radiation	720	689	95.7	0	95.7
Barometric Pressure	720	689	95.7	0	95.7
Relative Humidity	720	689	95.7	0	95.7
Precipitation	720	689	95.7	0	95.7
Total	7,200	6,890	95.7	0	95.7

Table 1. Monthly Data Completeness (Continued)

December 2021					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	741	99.6	3	100.0
Wind Direction	744	741	99.6	3	100.0
Standard Deviation	744	741	99.6	3	100.0
9-Meter Temperature	744	741	99.6	3	100.0
2-Meter Temperature	744	741	99.6	3	100.0
9-2 M Delta Temperature	744	741	99.6	3	100.0
Solar Radiation	744	741	99.6	3	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	741	99.6	3	100.0
Precipitation	744	742	99.7	2	100.0
Total	7,440	7,414	99.7	26	100.0

Table 2. Quarterly Data Completeness

Fourth Quarter 2021					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,101	95.2	6	95.4
Wind Direction	2,208	2,101	95.2	6	95.4
Standard Deviation	2,208	2,101	95.2	6	95.4
9-Meter Temperature	2,208	2,101	95.2	6	95.4
2-Meter Temperature	2,208	2,101	95.2	6	95.4
9-2 M Delta Temperature	2,208	2,101	95.2	6	95.4
Solar Radiation	2,208	2,101	95.2	6	95.4
Barometric Pressure	2,208	2,107	95.4	0	95.4
Relative Humidity	2,208	2,101	95.2	6	95.4
Precipitation	2,208	2,103	95.2	4	95.4
Total	22,080	21,018	95.2	52	95.4

6.0 MONITORING DATA

The hourly data values collected at the monitoring site are given in the data tables in Appendix A. Each of these tables presents one month's data for one parameter in the monitoring system. In addition, the average, maximum, and minimum values for each parameter for each day are listed (for wind direction, the prevailing wind direction for the day is given). For those hours with missing data, a code is given that explains the reason the data were missing. These codes are given in Table 3.

Monthly and quarterly wind rose distributions from the monitoring site are presented in Tables 4 through 7. These tables give the percentage frequency of occurrence of winds from 16 cardinal directions and from 22 wind speed ranges. These same data are presented graphically in Figures 2 through 5. In the wind rose figures, the length of each "petal" of the rose is proportional to the percentage of time the wind blew from that direction. On the bottom of each figure is a histogram showing the average wind speed from each of the cardinal wind directions.

Table 3. Missing Data Codes

Mnemonic Code	Description	Equivalent AIRS Null Value Reason Code
Sc	Scheduled but not collected	9972
Ti	Sample time out of limits	9973
Fi	Filter damage	9976
Op	Voided by operator	9978
Mi	Miscellaneous void	9979
ND	Machine malfunction	9980
Wx	Bad weather	9981
Co	Collection error	9983
Lb	Lab error	9984
QA	Poor quality assurance results	9985
ZS	Manual zero/span check	9986
Wa	Monitoring waived	9987
Pw	Power failure	9988
Wi	Wildlife damage	9989
AZ	Automatic zero/span check	9991
Au	Performance audit	9992
Ma	Routine maintenance/repairs	9993
Ca	Multipoint calibration	9995
PZ	Precision/zero/span	9998

Table 4. Monthly Wind Rose Summary, Black Butte Copper Project Met Tower

October 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.1	0.7	0.6	0.7	0.9	1.8	3.0	2.1	1.0	0.3	0.4	0.1	0.6	0.0	0.4	1.2	14.1
	1.1 - 2.0	0.7	0.4	1.0	1.2	3.7	4.5	5.8	1.9	1.9	0.3	0.7	1.2	1.2	1.2	0.1	0.6	26.6
	2.1 - 3.0	0.3	0.4	0.3	0.9	2.1	1.6	1.5	1.9	1.0	0.4	0.3	0.6	0.7	0.6	0.6	0.1	13.5
	3.1 - 4.0	0.3	0.0	0.1	0.6	0.6	0.4	0.3	1.6	1.0	0.6	0.4	0.7	2.7	1.0	0.3	0.1	11.0
	4.1 - 5.0	0.3	0.3	0.4	0.0	0.0	0.3	0.6	1.2	1.0	0.9	0.7	0.9	2.8	0.7	0.1	0.0	10.4
	5.1 - 6.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	1.8	0.1	1.0	0.3	0.7	2.7	1.2	0.3	0.0	8.8
	6.1 - 7.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4	0.4	0.9	0.7	0.9	3.3	1.0	0.4	0.0	8.5
	7.1 - 8.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.7	0.7	1.3	0.1	0.0	0.0	3.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.1	0.0	0.1	0.6	0.3	0.0	0.0	2.1
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.4
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.6
	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	0.1	0.0	0.0	0.0	0.1
	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	0.1	0.0	0.0	0.1
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calm																		0.0
Total		1.8	1.9	3.1	3.7	7.3	8.6	11.3	11.7	7.3	5.0	4.7	6.1	16.6	6.4	2.4	2.1	100.0
Average Speed		2.4	1.9	2.9	2.1	1.8	1.8	1.7	3.3	3.2	4.8	4.7	4.5	5.2	4.5	3.6	1.4	3.4

Table 5. Monthly Wind Rose Summary, Black Butte Copper Project Met Tower

November 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.9	0.7	0.6	1.6	0.6	2.8	3.9	2.3	0.6	0.3	0.3	0.3	0.1	0.6	0.1	0.6	16.3
	1.1 - 2.0	0.6	0.7	1.3	1.9	3.8	3.2	5.8	2.3	1.7	0.6	0.7	1.2	1.6	0.7	1.2	0.7	28.0
	2.1 - 3.0	0.3	0.0	0.0	0.6	0.7	1.0	1.3	0.7	0.1	0.1	0.4	0.6	1.9	1.6	1.7	0.1	11.3
	3.1 - 4.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.9	0.4	0.0	1.2	2.0	1.3	0.1	0.0	7.4
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.6	0.7	1.5	2.5	2.0	0.1	0.1	8.3
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.6	0.1	0.7	3.6	1.6	0.6	0.0	7.7
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.9	0.6	3.3	1.5	0.3	0.0	7.0
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4	2.2	1.0	0.0	0.0	4.2
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.3	0.0	0.0	0.0	2.5
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	1.7	1.3	0.0	0.0	3.6
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.9	0.3	0.0	0.0	2.0
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.9
	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	0.4	0.0	0.0	0.0	0.4
	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	0.3	0.0	0.0	0.0	0.3
	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	0.1	0.0	0.0	0.1
	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		1.7	1.5	1.9	4.1	5.4	7.4	11.6	6.5	3.8	3.0	4.9	7.0	23.2	12.2	4.2	1.6	100.0
Average Speed		1.2	1.1	1.3	1.3	1.7	1.5	1.5	1.9	2.4	4.3	5.8	4.5	6.2	5.3	2.9	1.8	3.7

Table 6. Monthly Wind Rose Summary, Black Butte Copper Project Met Tower

December 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.5	0.4	1.1	0.5	2.0	2.4	2.7	3.0	1.2	0.4	0.7	0.4	0.5	0.9	0.7	0.4	17.9
	1.1 - 2.0	0.4	0.3	0.9	0.7	2.0	2.0	4.6	2.2	0.8	0.0	0.5	0.8	2.0	2.0	1.5	1.1	21.9
	2.1 - 3.0	0.1	0.0	0.0	0.0	1.6	0.8	1.5	1.5	0.8	0.7	1.1	0.7	2.2	2.6	1.3	0.0	14.8
	3.1 - 4.0	0.0	0.0	0.0	0.0	0.3	0.1	0.4	1.1	0.8	0.4	0.1	1.1	1.6	2.2	1.8	0.3	10.1
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.7	0.0	0.3	0.3	0.8	0.3	0.8	1.5	2.2	2.0	0.5	0.3	9.6
	5.1 - 6.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.8	0.0	0.7	2.4	1.3	0.5	0.0	7.2
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.5	0.5	2.0	0.9	0.0	0.1	5.4
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.1	1.9	0.9	0.0	0.0	3.8
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.3	0.0	1.1	0.9	0.0	0.0	3.9
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.0	0.7	0.9	0.0	0.0	2.3
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.4	0.5	0.1	0.0	0.0	1.9
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.7	0.0	0.0	1.1
	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	0.1	0.0	0.0	0.1
	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		1.2	0.7	2.0	1.2	6.6	5.4	9.4	8.4	5.8	4.7	6.7	6.2	17.3	15.8	6.3	2.2	100.0
Average Speed		1.7	0.9	1.0	1.2	1.8	1.3	1.6	1.9	3.4	5.4	5.7	4.2	5.1	4.8	2.8	2.4	3.5

Table 7. Quarterly Wind Rose Summary, Black Butte Copper Project Met Tower

Fourth Quarter 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.5	0.6	0.8	1.0	1.2	2.3	3.2	2.5	1.0	0.3	0.5	0.3	0.4	0.5	0.4	0.7	16.2
	1.1 - 2.0	0.6	0.5	1.1	1.2	3.1	3.2	5.4	2.1	1.5	0.3	0.7	1.0	1.6	1.3	1.0	0.8	25.4
	2.1 - 3.0	0.2	0.1	0.1	0.5	1.5	1.1	1.4	1.4	0.7	0.4	0.6	0.6	1.6	1.6	1.2	0.1	13.3
	3.1 - 4.0	0.1	0.0	0.0	0.2	0.4	0.3	0.4	1.0	0.9	0.5	0.2	1.0	2.1	1.5	0.8	0.1	9.5
	4.1 - 5.0	0.1	0.1	0.1	0.0	0.2	0.1	0.3	0.6	0.7	0.6	0.8	1.3	2.5	1.6	0.3	0.1	9.4
	5.1 - 6.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.8	0.4	0.8	0.1	0.7	2.9	1.4	0.5	0.0	7.8
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.7	0.7	0.7	2.9	1.1	0.2	0.0	6.9
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.6	0.4	1.8	0.7	0.0	0.0	3.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.5	0.0	1.3	0.4	0.0	0.0	2.9
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.9	0.8	0.0	0.0	2.1
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.2	0.6	0.1	0.0	0.0	1.5
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.3	0.0	0.0	0.7
	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	0.1	0.0	0.0	0.0	0.2
	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	0.1	0.0	0.0	0.0	0.1
	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		1.6	1.3	2.3	2.9	6.4	7.1	10.7	8.8	5.6	4.3	5.5	6.4	19.0	11.6	4.4	1.9	100.0
Average Speed		1.8	1.4	1.9	1.7	1.8	1.6	1.6	2.5	3.1	4.9	5.4	4.4	5.6	4.9	3.0	1.9	3.5

Figure 2. Monthly Wind Rose, Black Butte Copper Project Met Tower

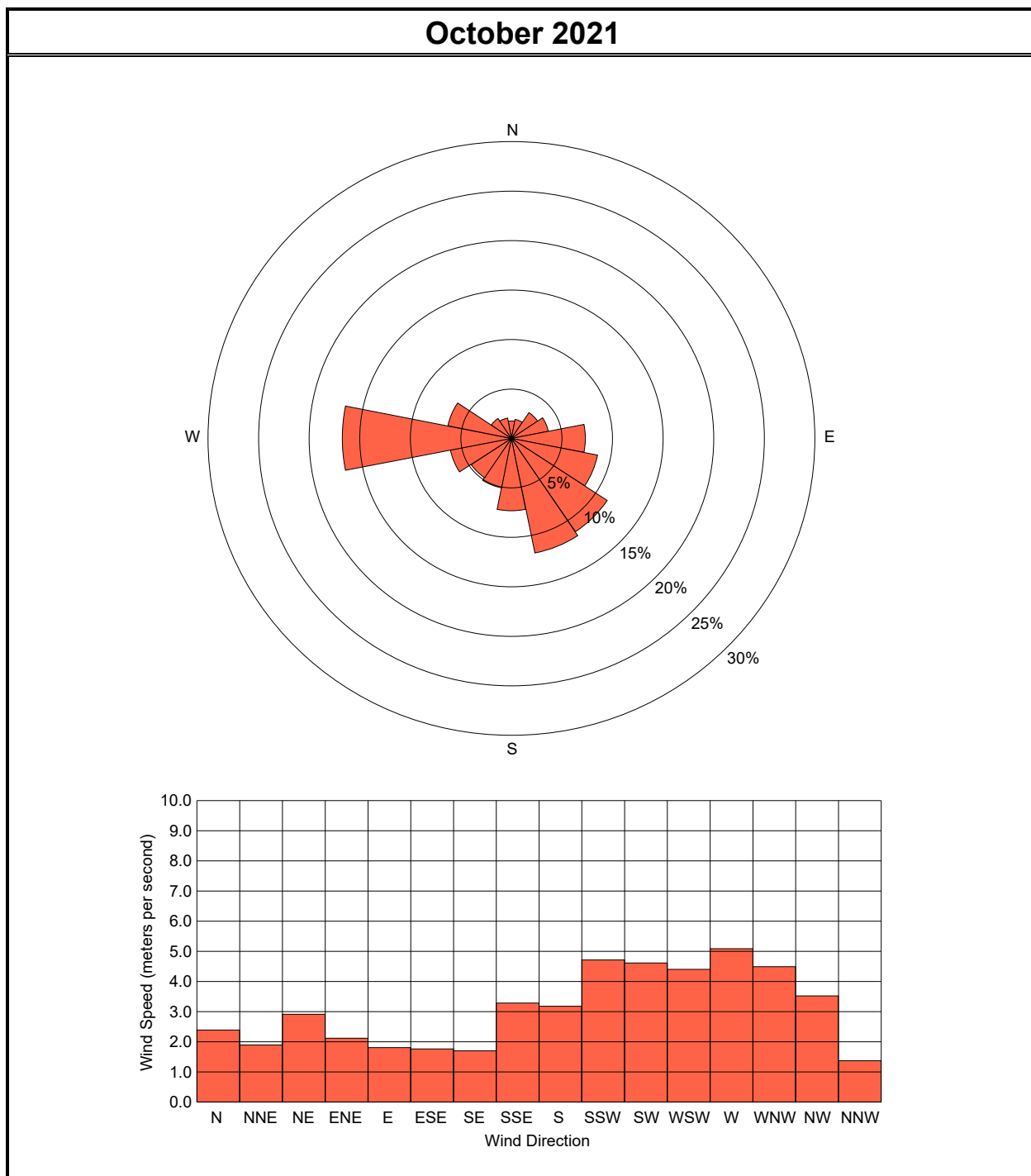


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

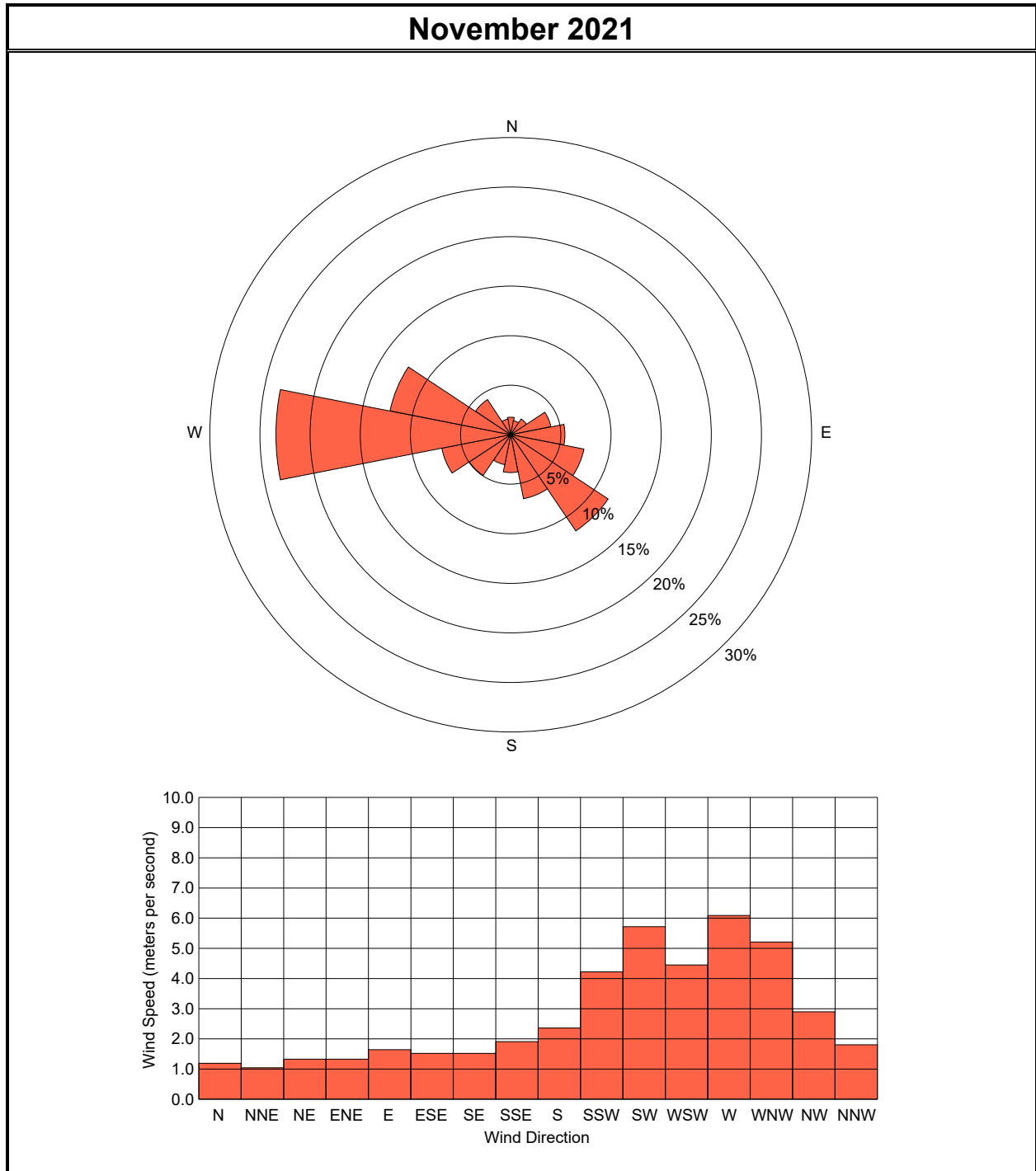


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

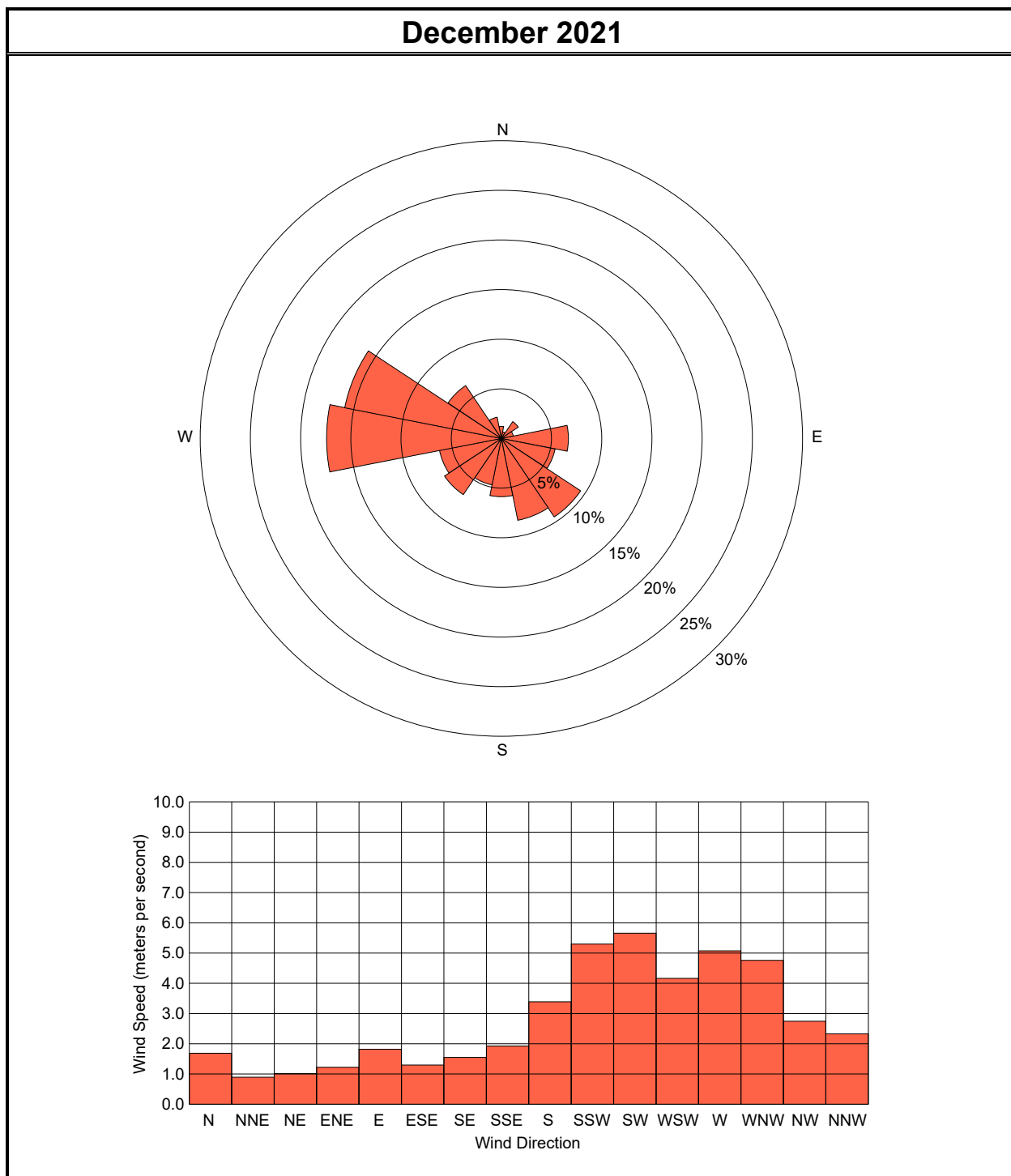
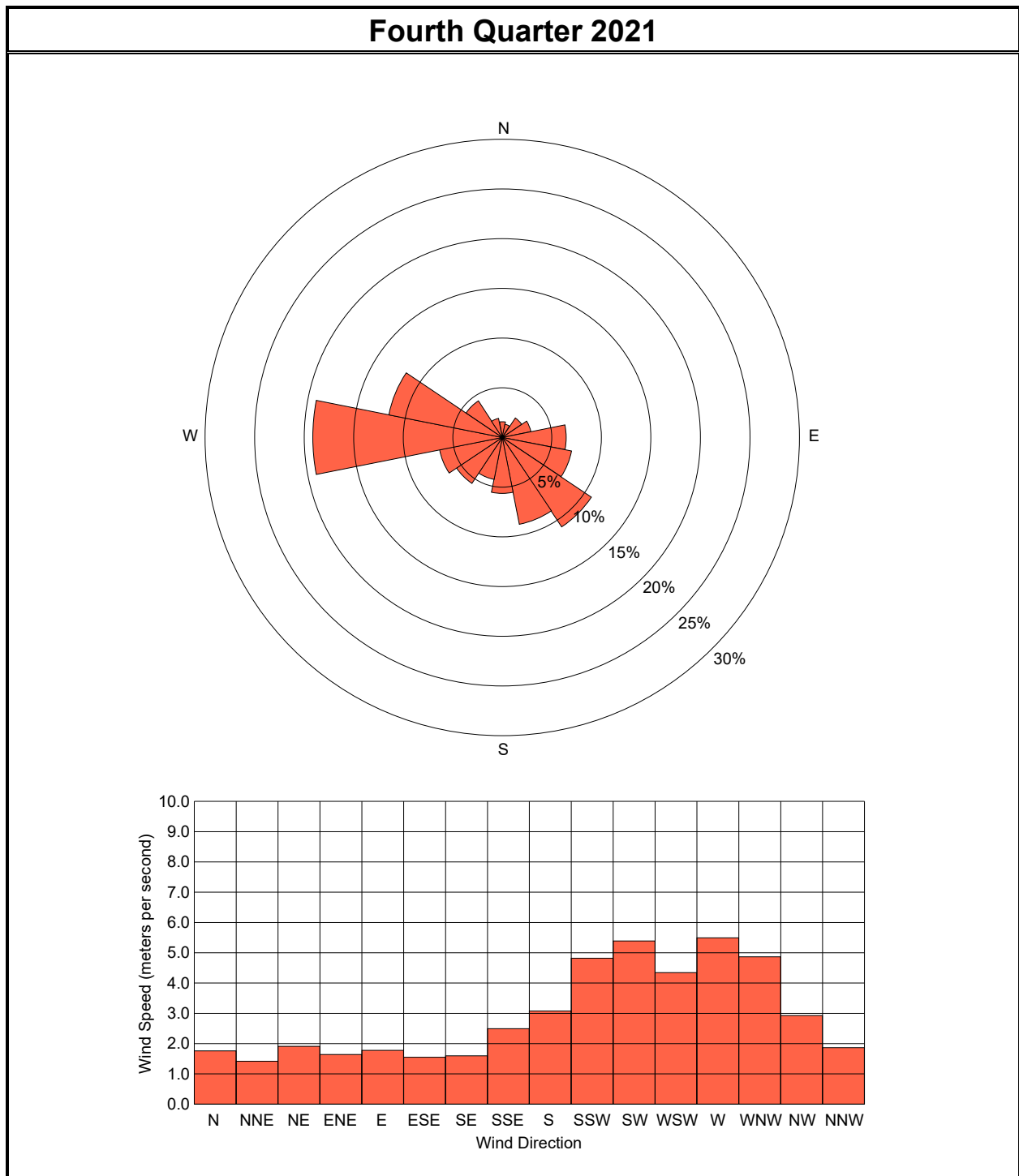


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



APPENDIX A: HOURLY AIR QUALITY AND METEOROLOGICAL DATA, FOURTH QUARTER 2021

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
October 2021

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.8	1.1	0.9	1.1	1.4	0.8	1.1	0.7	0.8	1.1	Au	Au	Au	5.3	3.9	3.5	4.2	3.1	1.2	1.8	1.9	1.4	1.1	1.0	2.0	5.3	0.7
2	1.6	1.0	0.6	1.0	1.4	0.9	1.3	0.5	0.8	1.8	4.2	5.7	7.0	6.4	6.0	6.2	4.9	3.1	1.7	2.6	2.2	2.3	1.8	1.4	2.8	7.0	0.5
3	1.1	1.3	1.2	1.4	0.9	1.2	1.0	0.8	0.8	1.0	5.2	6.7	6.1	6.9	6.6	6.0	3.7	1.8	1.9	3.4	2.7	1.9	1.9	1.4	2.8	6.9	0.8
4	1.2	1.5	1.5	2.0	1.7	1.9	2.2	1.5	1.1	1.8	5.8	5.6	5.7	5.4	6.5	7.3	6.5	3.6	2.4	2.3	1.5	1.1	2.0	1.9	3.1	7.3	1.1
5	1.7	2.5	1.7	2.0	2.0	2.2	1.9	1.4	1.6	4.1	5.0	6.0	6.7	7.1	6.6	6.3	5.5	3.7	2.8	2.7	3.4	3.1	1.8	1.9	3.5	7.1	1.4
6	1.7	1.4	1.3	3.2	6.0	1.9	3.0	3.4	1.9	2.1	3.9	5.7	6.0	7.2	4.9	3.5	3.6	4.3	3.3	1.2	2.3	2.1	1.9	1.6	3.2	7.2	1.2
7	1.4	1.2	1.0	0.9	0.6	0.9	0.7	0.9	0.8	6.0	6.3	5.2	4.5	3.7	3.0	1.6	2.1	2.4	1.6	1.5	1.3	1.6	1.4	0.8	2.1	6.3	0.6
8	0.9	1.2	0.6	0.8	0.4	0.8	0.2	0.7	1.1	0.7	2.7	3.7	3.2	2.4	1.5	3.8	2.6	2.1	2.3	1.4	1.3	1.3	0.8	1.0	1.6	3.8	0.2
9	0.9	1.1	0.9	0.7	0.7	0.7	1.1	1.0	1.7	3.8	4.8	3.7	4.8	5.8	6.6	7.5	6.5	4.4	3.3	2.9	1.3	1.4	3.4	2.8	3.0	7.5	0.7
10	3.5	1.8	1.8	2.2	1.4	1.5	1.7	2.0	2.5	4.9	5.3	6.0	5.8	7.1	7.8	7.3	6.3	8.3	6.6	6.7	5.8	6.3	6.1	3.8	4.7	8.3	1.4
11	1.5	2.3	4.6	4.8	4.4	1.3	1.0	1.3	2.0	2.5	2.2	3.9	5.9	4.5	4.4	4.0	3.1	2.6	3.3	2.2	3.1	2.2	2.1	2.3	3.0	5.9	1.0
12	2.9	2.1	1.8	2.0	0.8	1.5	1.5	1.0	2.2	2.7	3.3	2.8	2.6	2.9	3.5	3.4	4.6	5.3	5.0	4.2	3.6	3.2	2.9	2.9	2.9	5.3	0.8
13	2.2	2.7	2.1	1.3	1.1	0.9	0.7	1.0	1.2	4.1	4.9	4.7	5.9	5.7	6.1	5.8	6.7	5.4	4.2	3.9	3.5	3.3	3.7	4.6	3.6	6.7	0.7
14	4.4	4.1	5.4	5.6	5.3	3.4	3.9	3.3	2.5	5.1	6.2	6.9	6.5	7.9	7.3	7.8	6.9	6.7	6.2	6.4	6.3	5.8	5.0	2.6	5.5	7.9	2.5
15	0.8	1.2	1.5	0.9	1.6	2.4	1.0	1.0	1.9	5.8	9.4	8.2	8.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	9.4	0.8
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.7	5.5	4.9	6.5	7.6	5.7	2.6	5.4	2.8	2.6	1.7	1.7	1.7	4.1	7.6	1.7
19	1.5	1.2	1.3	1.6	1.3	1.4	1.4	1.0	1.0	1.3	4.3	6.4	7.9	8.3	7.9	8.8	8.3	7.0	6.9	3.0	2.7	1.5	1.6	1.9	3.7	8.8	1.0
20	4.0	2.1	2.3	0.6	0.6	0.7	0.9	0.6	0.5	1.0	2.8	3.8	4.7	5.7	6.1	6.1	4.0	3.5	1.7	1.2	1.8	1.5	1.6	1.3	2.5	6.1	0.5
21	0.8	1.3	0.9	1.0	1.1	0.7	1.0	0.9	1.3	0.9	2.5	4.9	5.2	5.7	6.0	4.5	3.2	1.4	2.0	2.0	1.6	1.7	1.4	1.5	2.2	6.0	0.7
22	1.9	1.4	1.7	1.8	1.6	1.0	1.2	1.4	0.8	1.0	2.8	4.7	4.3	4.2	4.7	5.0	3.5	4.1	3.9	4.2	4.7	4.7	5.6	2.3	3.0	5.6	0.8
23	2.7	6.3	7.4	4.9	6.6	4.1	2.7	3.1	3.3	3.6	6.4	6.4	7.1	7.5	6.6	5.6	4.5	3.8	1.8	1.8	2.0	2.4	2.0	1.1	4.3	7.5	1.1
24	1.5	0.9	1.1	1.1	1.0	1.2	1.2	1.1	0.7	4.1	6.4	6.5	8.1	8.9	8.3	5.4	5.7	4.5	4.4	3.7	3.5	2.2	4.8	4.6	3.8	8.9	0.7
25	3.2	2.8	2.3	2.3	3.1	2.1	1.5	1.5	3.5	6.9	7.1	4.1	2.7	2.0	2.7	2.5	1.5	1.6	3.1	4.4	3.7	1.5	1.7	0.8	2.9	7.1	0.8
26	1.1	1.2	2.2	1.2	1.8	1.5	2.2	1.1	1.2	2.8	5.3	8.2	8.7	7.6	8.0	7.7	6.6	4.1	3.4	4.4	4.5	3.9	1.4	1.5	3.8	8.7	1.1
27	2.2	2.8	2.0	2.3	4.5	4.2	5.0	6.8	6.5	7.8	8.3	9.9	10.8	12.2	12.0	10.2	8.3	6.9	7.2	5.8	4.4	3.4	1.2	1.2	6.1	12.2	1.2
28	2.7	2.6	3.5	1.8	2.0	3.8	1.8	1.5	0.6	0.8	1.7	2.7	1.8	2.3	3.1	2.3	4.3	2.3	3.8	4.3	5.2	6.5	7.1	7.7	3.2	7.7	0.6
29	6.2	1.8	2.2	2.3	3.1	4.6	4.4	3.1	3.4	8.2	9.2	10.1	6.3	5.6	7.2	10.3	7.7	6.8	5.6	6.2	6.3	6.6	5.0	6.2	5.8	10.3	1.8
30	5.3	2.6	2.1	0.9	0.9	1.0	1.3	0.9	0.9	2.4	3.6	5.0	6.0	6.1	5.3	5.0	4.7	3.5	1.1	1.0	1.0	1.0	0.6	1.0	2.6	6.1	0.6
31	0.8	0.7	0.6	0.6	0.6	0.8	0.7	0.7	0.7	2.2	4.7	5.2	5.8	5.5	5.9	5.5	5.1	5.7	3.5	1.4	1.3	1.2	0.8	1.2	2.6	5.9	0.6
Avg	2.2	1.9	2.0	1.9	2.1	1.8	1.7	1.6	1.7	3.2	4.9	5.5	5.8	5.9	5.9	5.7	5.0	4.1	3.6	3.2	3.1	2.7	2.6	2.3	3.4	7.3	1.0
Max	6.2	6.3	7.4	5.6	6.6	4.6	5.0	6.8	6.5	8.2	9.4	10.1	10.8	12.2	12.0	10.3	8.3	8.3	7.2	6.7	6.3	6.6	7.1	7.7	6.1	12.2	2.5
Min	0.8	0.7	0.6	0.6	0.4	0.7	0.2	0.5	0.5	0.7	1.7	2.7	1.8	2.0	1.5	1.6	1.5	1.4	1.1	1.0	1.0	1.0	0.6	0.8	1.6	3.8	0.2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
November 2021

A-2

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.0	1.4	0.7	0.7	0.6	0.7	0.6	0.7	0.8	0.6	1.2	2.2	3.1	3.9	5.0	5.7	7.0	5.2	1.0	0.8	1.1	1.2	1.0	0.7	2.0	7.0	0.6
2	0.7	0.9	0.6	1.0	1.0	0.8	1.1	1.0	0.7	0.6	1.3	4.6	3.9	4.2	5.2	6.4	4.7	3.0	1.2	1.2	1.9	1.6	1.1	1.1	2.1	6.4	0.6
3	1.0	1.0	1.1	0.9	1.0	0.8	0.7	1.0	0.7	0.7	2.1	4.0	4.9	5.3	4.6	4.3	1.6	1.5	2.7	1.9	1.2	1.6	1.6	1.5	2.0	5.3	0.7
4	1.7	1.6	1.9	1.9	2.7	2.8	1.8	2.0	1.5	1.2	1.5	3.3	7.0	5.1	2.9	5.4	4.3	6.5	8.6	3.6	2.6	2.3	2.4	3.3	3.2	8.6	1.2
5	1.3	4.1	6.7	5.1	5.7	5.0	3.9	2.8	4.0	3.1	5.0	5.2	4.9	6.1	5.5	6.2	4.9	1.6	2.2	0.9	1.2	1.9	1.3	1.8	3.8	6.7	0.9
6	4.7	5.6	3.8	7.1	6.4	3.5	1.9	1.7	1.1	0.9	3.7	6.8	5.6	4.3	3.8	2.2	1.2	1.3	3.6	2.3	3.8	3.5	2.1	1.8	3.4	7.1	0.9
7	4.3	2.3	2.3	2.7	2.7	1.6	1.2	2.5	1.5	2.7	6.9	9.3	7.4	7.0	6.6	7.0	5.8	4.6	4.1	2.1	1.2	1.6	1.3	1.3	3.7	9.3	1.2
8	1.1	1.0	0.9	0.9	0.9	0.8	1.0	0.9	0.9	0.7	3.4	4.2	4.6	4.0	3.9	2.9	2.5	1.6	1.4	1.3	1.3	2.0	1.8	1.7	1.9	4.6	0.7
9	1.5	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	2.2	1.5
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.2	7.9	11.2	10.3	9.1	9.4	7.5	5.1	4.3	1.8	1.4	2.4	2.4	2.2	6.1	11.2	1.4
11	1.3	1.5	0.9	0.8	0.6	0.6	0.6	0.9	0.8	0.8	0.9	1.8	3.6	3.6	3.2	2.9	1.8	1.2	0.6	1.3	1.3	2.3	1.2	1.2	1.5	3.6	0.6
12	0.9	0.9	1.0	1.0	0.6	0.4	1.1	0.9	0.8	0.9	0.8	0.8	1.0	1.0	1.7	0.7	1.3	2.0	2.0	1.8	1.1	3.0	7.3	7.6	1.7	7.6	0.4
13	6.5	10.6	10.6	9.1	8.9	7.0	7.5	9.7	10.0	9.8	10.4	9.8	9.1	9.9	8.0	7.6	7.3	7.1	9.9	6.8	5.6	5.9	2.8	1.5	8.0	10.6	1.5
14	2.4	1.8	1.1	1.1	0.7	0.8	0.9	0.8	1.9	1.8	3.6	9.8	10.3	9.0	9.6	6.8	5.6	8.0	8.0	6.1	3.1	1.6	5.7	4.2	4.4	10.3	0.7
15	2.4	1.8	5.2	7.8	5.7	5.3	6.9	6.6	6.1	7.4	7.8	8.7	10.7	10.8	9.4	6.4	6.0	6.0	9.8	12.0	10.5	11.9	10.8	11.4	7.8	12.0	1.8
16	10.4	8.1	6.4	9.2	13.1	14.0	12.4	12.4	11.2	10.6	10.3	10.1	12.1	14.1	11.9	9.8	8.7	7.2	5.8	5.0	5.2	5.2	5.1	5.3	9.3	14.1	5.0
17	4.4	4.3	3.5	2.1	1.0	0.4	2.6	1.8	1.5	4.6	6.0	6.1	6.7	5.9	7.0	4.6	3.0	1.5	2.5	1.8	2.0	1.2	2.0	2.0	3.3	7.0	0.4
18	1.8	1.6	1.8	1.6	1.9	2.5	1.8	2.0	1.4	1.5	2.9	3.0	2.8	3.2	1.4	1.2	2.0	2.2	2.6	1.1	0.8	0.6	0.8	1.5	1.8	3.2	0.6
19	0.8	1.2	1.3	0.8	0.9	1.2	1.4	2.1	2.1	3.3	4.1	2.3	1.6	0.9	2.4	2.0	1.7	1.2	2.1	1.7	2.6	2.0	1.8	1.2	1.8	4.1	0.8
20	2.3	1.8	1.6	1.4	3.4	1.8	1.0	1.2	1.8	2.2	5.5	6.6	7.9	8.1	9.3	7.4	4.5	3.0	2.7	1.6	1.5	2.0	1.6	1.8	3.4	9.3	1.0
21	1.9	1.7	1.8	1.4	0.9	1.0	0.8	0.9	1.3	2.7	6.8	7.6	8.4	8.4	8.6	7.6	6.4	5.6	4.2	2.4	4.9	5.1	4.2	3.7	4.1	8.6	0.8
22	2.0	1.6	2.0	3.3	2.2	1.6	1.4	1.8	3.4	4.6	4.7	4.1	4.0	4.0	4.0	4.5	4.8	3.2	3.2	1.6	0.9	1.2	1.1	1.1	2.8	4.8	0.9
23	1.0	1.0	0.8	0.6	1.3	0.8	0.8	1.2	0.9	1.1	1.0	1.3	3.4	5.6	6.6	6.3	5.3	3.3	5.4	5.4	6.0	4.5	4.5	2.7	2.9	6.6	0.6
24	3.1	2.4	0.8	1.0	0.5	0.5	0.8	0.8	0.8	6.2	4.8	5.4	6.8	6.6	5.9	5.7	3.8	1.6	1.5	1.6	2.0	1.3	1.0	1.0	2.7	6.8	0.5
25	0.9	0.9	0.9	1.0	1.3	1.5	6.9	2.7	6.7	6.4	4.9	5.1	6.4	3.0	1.2	1.9	1.9	4.4	2.7	2.1	7.3	5.2	3.4	3.5	3.4	7.3	0.9
26	2.8	4.7	4.8	2.5	3.1	2.3	2.4	3.5	1.7	1.8	4.9	5.3	6.0	9.8	8.9	10.4	9.1	9.8	6.3	7.5	9.1	7.9	6.5	5.3	5.7	10.4	1.7
27	4.1	3.6	1.3	1.0	2.7	5.1	4.6	1.3	1.1	1.5	1.7	3.6	4.6	5.7	5.6	4.4	2.6	1.4	2.0	1.6	1.3	1.0	1.1	1.0	2.7	5.7	1.0
28	1.3	2.0	4.7	9.9	6.2	2.5	2.1	1.6	1.6	3.7	6.2	7.7	8.2	8.9	7.8	4.7	1.5	3.2	2.1	1.8	1.7	3.8	6.2	7.0	4.4	9.9	1.3
29	6.9	7.2	6.6	4.3	2.1	1.6	1.6	1.8	1.4	4.9	5.8	6.2	8.1	7.7	4.6	5.2	3.4	0.6	2.2	1.9	0.6	1.4	1.0	1.1	3.7	8.1	0.6
30	1.3	2.0	1.7	1.9	1.5	2.6	1.6	2.4	3.0	1.8	1.9	1.1	2.7	4.4	5.3	6.8	8.5	9.4	8.2	8.6	5.1	4.6	1.7	4.4	3.9	9.4	1.1
Avg	2.6	2.8	2.7	2.9	2.8	2.5	2.5	2.5	2.5	3.3	4.4	5.4	6.1	6.2	5.8	5.4	4.4	3.9	3.9	3.1	3.0	3.1	2.9	2.9	3.7	7.6	1.1
Max	10.4	10.6	10.6	9.9	13.1	14.0	12.4	12.4	11.2	10.6	10.4	10.1	12.1	14.1	11.9	10.4	9.1	9.8	9.9	12.0	10.5	11.9	10.8	11.4	9.3	14.1	5.0
Min	0.7	0.9	0.6	0.6	0.5	0.4	0.6	0.7	0.7	0.6	0.8	0.8	1.0	0.9	1.2	0.7	1.2	0.6	0.6	0.8	0.6	0.6	0.8	0.7	1.5	2.2	0.4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
December 2021

A-3

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	5.6	4.5	2.2	2.5	3.8	2.8	4.6	6.7	7.4	7.9	6.8	8.4	10.2	8.5	10.1	10.1	10.3	8.4	8.6	9.0	7.0	7.9	7.6	4.3	6.9	10.3	2.2
2	2.9	4.3	2.9	4.9	5.3	5.2	4.4	4.8	3.6	7.0	Au	Au	Au	10.1	9.1	10.1	7.9	7.6	8.8	7.7	7.7	4.0	4.4	4.3	6.0	10.1	2.9
3	3.5	1.8	1.2	1.1	1.0	0.8	0.6	0.9	0.7	0.8	2.4	4.2	4.2	4.8	5.0	2.8	2.2	2.1	1.7	1.1	2.3	2.6	2.3	3.7	2.2	5.0	0.6
4	3.5	2.3	1.2	2.8	1.8	1.1	1.5	1.1	0.8	1.5	1.3	0.6	2.0	7.2	11.4	13.2	11.6	9.9	10.9	10.9	11.3	9.2	9.6	7.6	5.6	13.2	0.6
5	8.7	6.9	4.5	5.6	6.5	4.5	3.9	4.5	3.8	4.3	5.0	4.9	4.2	5.0	4.2	3.9	3.3	1.2	1.7	1.0	0.8	0.9	1.0	0.7	3.8	8.7	0.7
6	0.9	0.7	0.7	0.7	0.6	0.6	0.7	1.3	1.4	1.3	1.0	1.1	1.1	1.2	1.0	2.2	3.1	4.1	4.2	2.7	2.8	1.5	0.8	0.6	1.5	4.2	0.6
7	0.7	0.6	0.8	0.5	0.6	0.5	0.9	2.9	3.6	2.9	6.0	7.9	7.8	8.0	9.1	8.5	6.7	6.0	7.2	6.0	3.6	2.4	3.7	1.6	4.1	9.1	0.5
8	2.3	4.3	3.9	2.1	2.3	2.8	6.4	6.2	7.2	8.1	9.2	8.6	11.1	8.1	4.5	5.8	7.2	9.4	8.2	6.4	8.1	11.1	12.0	9.1	6.9	12.0	2.1
9	8.2	8.0	5.7	5.4	4.6	4.0	5.3	2.2	2.1	2.0	5.4	5.4	6.5	6.3	4.9	4.5	3.8	1.3	1.4	2.7	1.8	1.4	1.5	1.2	4.0	8.2	1.2
10	2.3	2.1	2.1	1.6	1.6	1.4	0.6	0.8	1.1	0.8	4.1	7.6	9.9	9.7	10.0	8.5	6.2	6.8	7.7	7.3	7.0	7.1	7.0	5.1	4.9	10.0	0.6
11	6.0	4.5	5.0	6.3	4.3	2.5	8.3	5.1	5.1	8.3	8.4	10.1	10.2	9.0	5.5	4.7	4.4	6.2	5.3	5.3	7.0	6.6	6.4	10.2	6.4	10.2	2.5
12	9.1	5.7	5.9	8.7	6.8	9.1	8.5	8.8	7.0	7.3	7.8	8.7	10.7	10.9	9.1	6.5	4.4	2.1	2.5	0.9	1.5	1.9	0.6	1.4	6.1	10.9	0.6
13	0.8	1.1	0.9	0.7	0.7	1.1	1.3	1.0	1.9	2.2	2.8	3.8	2.9	3.3	3.0	4.4	5.1	2.8	2.1	2.6	2.5	4.2	3.4	2.6	2.4	5.1	0.7
14	4.5	3.4	3.7	3.7	3.3	5.6	3.8	2.8	4.1	3.6	3.1	5.2	6.3	9.7	5.5	4.5	5.7	3.7	4.2	2.4	3.1	3.4	2.1	4.6	4.3	9.7	2.1
15	6.0	5.0	4.0	5.4	6.4	6.1	5.3	4.5	4.6	6.2	5.9	5.3	6.1	5.6	6.1	4.2	3.6	2.9	4.5	1.9	1.5	1.8	1.1	1.6	4.4	6.4	1.1
16	1.2	1.4	1.8	1.4	1.4	1.2	0.8	0.8	0.8	0.5	0.8	0.8	1.5	3.2	2.3	1.2	3.3	2.1	1.5	1.6	1.7	2.2	1.2	1.5	1.5	3.3	0.5
17	5.4	6.7	5.9	5.7	4.0	4.6	3.2	2.6	1.0	1.1	1.6	1.2	0.9	1.9	2.0	1.0	1.2	1.5	1.7	1.1	0.8	1.4	0.9	0.8	2.4	6.7	0.8
18	1.2	0.9	1.3	1.7	1.8	2.4	2.2	2.3	2.6	2.5	3.6	4.1	4.2	4.2	3.4	3.7	2.1	2.8	3.6	5.5	3.3	2.3	4.6	10.4	3.2	10.4	0.9
19	11.2	8.3	5.9	3.5	6.7	7.9	8.5	8.6	4.9	4.2	2.5	2.6	3.4	1.9	4.0	3.4	3.8	2.8	1.6	2.0	2.2	1.9	1.2	2.2	4.4	11.2	1.2
20	1.4	0.6	0.9	0.7	0.6	0.7	0.4	0.5	1.0	1.7	1.6	1.4	2.0	2.0	2.2	1.9	1.2	1.1	1.0	1.9	8.7	8.3	9.8	7.4	2.5	9.8	0.4
21	7.2	5.9	5.7	8.6	3.6	2.4	2.6	3.9	3.6	6.0	7.4	5.4	6.6	5.6	6.9	5.6	5.1	5.6	6.4	4.9	4.2	2.2	1.9	1.4	4.9	8.6	1.4
22	4.2	4.8	2.7	1.4	1.4	1.2	2.0	2.5	2.3	6.5	5.7	6.6	5.0	5.2	3.5	3.5	2.0	1.6	2.8	2.1	1.7	1.6	1.8	2.7	3.1	6.6	1.2
23	2.7	1.5	2.0	2.3	4.9	4.2	3.7	2.5	2.5	2.9	3.5	1.0	1.2	1.1	3.0	4.4	6.2	8.0	4.9	11.4	9.6	6.5	6.7	4.8	4.2	11.4	1.0
24	4.0	2.7	3.7	3.4	1.9	1.6	2.3	1.1	0.6	0.8	1.2	0.8	1.2	2.2	2.7	1.3	2.2	2.5	1.5	1.5	2.2	3.2	1.8	1.4	2.0	4.0	0.6
25	0.9	0.6	0.5	0.9	0.4	0.8	0.8	1.1	0.9	1.0	0.9	1.5	4.5	4.5	2.9	2.3	2.3	1.0	2.3	5.5	4.0	2.4	4.3	3.4	2.1	5.5	0.4
26	1.6	1.6	2.0	2.0	5.4	3.7	4.0	2.9	3.9	2.4	1.5	3.5	1.6	3.1	2.6	4.4	3.7	1.6	1.3	1.6	1.0	1.2	1.0	1.3	2.5	5.4	1.0
27	1.1	0.9	0.6	1.1	2.1	1.5	1.0	1.0	1.1	0.9	1.0	1.2	0.9	0.6	0.7	1.1	1.1	1.0	0.8	0.9	0.8	0.5	0.2	0.3	0.9	2.1	0.2
28	0.2	0.5	0.5	0.9	1.3	1.4	0.9	0.8	1.2	1.8	1.1	2.7	5.3	5.3	4.7	3.5	1.9	1.2	1.2	0.9	1.7	3.2	1.6	2.8	1.9	5.3	0.2
29	3.3	5.3	3.4	3.5	2.4	1.5	0.6	0.3	0.2	0.2	0.2	0.5	0.8	0.4	0.7	1.2	1.3	1.2	0.4	0.3	0.3	0.2	0.9	1.7	1.3	5.3	0.2
30	1.5	1.4	0.8	1.0	1.2	1.0	0.8	0.9	1.0	2.0	1.7	1.6	2.7	3.7	3.1	2.5	2.1	1.5	3.1	1.7	1.7	1.0	1.0	0.6	1.7	3.7	0.6
31	1.5	2.3	2.1	1.9	1.7	1.9	2.4	2.5	2.1	2.5	2.8	3.0	3.2	3.7	4.1	2.3	1.9	0.6	1.0	1.0	0.8	0.9	0.7	0.5	2.0	4.1	0.5
Avg	3.7	3.2	2.7	3.0	2.9	2.8	3.0	2.8	2.7	3.3	3.5	4.0	4.6	5.0	4.8	4.4	4.1	3.6	3.7	3.6	3.6	3.4	3.3	3.3	3.5	7.6	1.0
Max	11.2	8.3	5.9	8.7	6.8	9.1	8.5	8.8	7.4	8.3	9.2	10.1	11.1	10.9	11.4	13.2	11.6	9.9	10.9	11.4	11.3	11.1	12.0	10.4	6.9	13.2	2.9
Min	0.2	0.5	0.5	0.5	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.5	0.8	0.4	0.7	1.0	1.1	0.6	0.4	0.3	0.3	0.2	0.2	0.3	0.9	2.1	0.2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
October 2021

A-4

Day	<< Hour >>																								Prev
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	127	107	103	91	131	113	143	94	6	352	Au	Au	Au	309	331	326	356	351	338	32	108	66	45	26	38
2	86	108	62	108	141	153	144	117	306	226	209	239	266	267	264	272	270	277	119	88	67	81	94	123	149
3	88	41	82	116	109	147	138	147	203	60	257	268	262	254	279	276	265	237	131	85	87	92	99	126	138
4	116	117	123	129	124	125	117	110	76	261	205	200	202	198	203	205	212	195	131	109	92	55	123	119	145
5	110	30	99	100	91	108	84	131	128	148	191	197	216	227	217	218	225	193	115	109	106	101	117	123	138
6	123	127	171	194	245	183	221	220	143	146	204	239	260	251	258	240	224	229	265	132	85	91	261	277	207
7	219	139	94	139	137	148	130	137	232	150	144	150	145	152	191	74	97	96	133	127	353	85	131	68	132
8	94	163	182	164	139	143	125	142	163	37	161	158	163	144	94	117	143	180	143	134	118	63	14	330	134
9	336	55	314	31	281	216	119	28	327	296	283	276	252	261	258	257	256	257	262	258	219	271	280	259	277
10	242	240	134	103	61	47	235	309	299	263	265	276	252	249	243	283	291	288	298	291	303	312	296	358	282
11	142	1	7	27	28	110	211	349	53	30	334	51	62	49	37	70	57	36	60	68	71	82	98	78	52
12	55	59	100	145	130	154	133	306	64	82	91	105	165	174	169	164	158	147	141	140	153	146	148	123	130
13	148	145	197	67	163	161	187	128	94	275	273	268	271	273	272	283	266	267	267	263	274	275	284	268	244
14	265	267	277	282	271	272	270	281	315	293	277	277	278	276	272	275	278	276	278	275	282	280	270	293	278
15	159	97	96	113	239	253	38	69	353	277	271	274	255	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	256
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	36	47	105	49	49	41	77	60	310	242	249	272	299	23
19	265	173	170	187	172	152	134	329	116	269	276	158	153	156	157	157	153	155	152	155	159	169	182	193	170
20	158	163	153	179	166	79	130	125	162	27	144	169	189	204	199	209	182	176	116	86	100	73	109	98	145
21	97	119	144	139	125	172	56	163	175	336	281	274	277	279	286	292	314	133	87	54	75	121	123	123	131
22	131	144	127	133	146	114	121	145	116	344	160	202	204	191	194	205	180	157	181	163	172	177	154	157	159
23	149	199	231	274	260	275	238	269	278	245	273	256	253	268	256	269	275	272	348	114	133	106	98	20	253
24	146	138	152	148	136	171	140	158	78	161	183	178	183	190	189	176	168	163	167	161	128	132	146	159	157
25	153	114	89	125	113	87	144	132	149	180	183	178	184	256	187	163	179	284	286	297	301	177	191	171	170
26	249	288	294	287	340	252	276	283	22	326	280	284	278	281	281	266	279	268	272	272	252	258	220	137	277
27	158	191	154	169	232	244	233	248	262	275	274	278	276	285	268	276	280	279	278	276	268	267	206	258	252
28	272	272	286	278	287	273	284	298	234	91	102	81	107	197	237	194	208	232	235	218	207	216	208	216	233
29	215	147	20	84	167	224	111	101	171	202	210	217	210	227	214	215	217	305	291	279	272	289	300	305	225
30	309	304	139	144	157	183	148	119	249	285	291	308	289	282	287	258	265	302	159	273	264	150	271	153	245
31	135	152	117	146	176	155	346	333	342	121	170	160	161	166	159	160	160	156	156	111	120	101	35	92	138
Prev	150	135	128	134	156	164	150	136	139	280	231	229	227	231	234	231	228	228	178	146	147	126	164	138	184

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
November 2021

A-5

	<< 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	71	134	103	102	68	72	58	135	23	3	88	161	181	177	166	164	163	151	150	70	87	85	105	104	111	
2	143	162	124	144	164	138	130	139	237	80	20	257	246	260	262	257	255	268	278	138	107	64	72	103	166	
3	73	60	72	105	139	114	300	106	110	346	58	275	273	286	285	267	267	126	109	92	139	128	133	160	110	
4	142	113	143	144	129	126	135	108	52	9	170	150	177	180	183	201	188	233	270	252	133	146	278	249	164	
5	251	285	279	268	276	291	264	293	290	259	252	263	263	238	219	198	193	190	115	59	114	137	314	269	252	
6	221	193	172	243	264	274	90	134	152	268	237	266	281	280	285	295	17	161	243	100	141	146	121	125	210	
7	286	309	247	274	306	175	209	96	93	324	266	263	277	264	276	277	273	245	232	292	93	120	118	159	256	
8	150	129	138	157	138	141	140	120	134	336	178	225	261	259	249	243	217	156	138	157	101	113	140	157	161	
9	148	128	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	138	
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	259	260	262	268	274	271	285	280	275	285	259	233	80	74	82	271
11	43	61	28	71	30	360	349	65	144	282	20	346	268	278	293	277	259	297	185	92	78	73	46	67	17	
12	358	168	346	151	120	161	143	104	224	158	355	21	317	81	338	148	105	90	56	53	132	216	231	247	116	
13	268	270	252	268	268	264	264	278	281	283	280	283	284	279	281	280	278	284	286	316	287	287	323	46	282	
14	77	117	128	18	42	90	136	180	109	248	249	250	257	266	263	254	258	284	291	300	302	195	272	256	250	
15	269	251	265	247	249	243	222	228	219	233	233	229	225	225	225	219	196	193	214	209	205	216	229	246	229	
16	265	267	259	261	266	274	269	268	278	271	267	285	280	283	286	279	269	278	281	282	292	314	315	303	279	
17	294	282	289	294	207	195	319	296	267	275	262	270	267	276	266	271	279	305	107	71	99	173	141	139	263	
18	135	142	144	144	153	134	140	146	163	146	143	157	165	175	154	47	236	111	109	143	254	118	154	77	144	
19	297	137	104	128	153	152	9	148	124	204	246	269	355	105	290	334	268	297	87	31	312	328	185	127	171	
20	282	219	256	247	266	266	102	307	310	314	268	265	264	272	264	263	268	277	267	320	79	97	118	87	272	
21	64	109	64	65	59	111	6	128	115	312	286	283	277	264	272	285	283	271	267	268	279	285	307	296	301	
22	274	3	35	85	108	104	135	136	116	103	144	154	164	164	187	206	213	132	111	137	129	99	85	89	127	
23	121	154	138	140	136	114	104	154	143	271	341	13	300	277	260	262	271	284	289	287	291	289	303	317	261	
24	316	283	151	99	286	38	229	39	188	288	288	283	279	283	279	271	274	278	110	128	104	97	151	131	256	
25	138	181	134	139	190	317	291	306	299	303	330	319	316	296	220	216	159	195	197	251	228	252	266	263	247	
26	280	246	243	265	267	4	288	88	177	326	264	269	262	264	272	284	282	288	289	288	284	284	280	273	276	
27	258	257	146	36	288	279	275	109	94	171	240	259	260	279	292	273	267	153	90	91	114	104	195	136	217	
28	176	106	234	219	226	305	306	304	330	209	250	268	273	266	267	266	91	213	154	186	284	277	278	270	252	
29	259	264	271	294	349	285	170	146	124	252	267	276	266	262	287	308	294	167	238	41	128	94	161	129	249	
30	57	97	123	81	169	126	237	287	222	86	78	195	329	288	271	287	278	283	278	262	252	273	245	233	249	
Prev	237	176	164	159	201	161	212	136	164	280	265	262	267	259	261	261	252	235	213	137	152	138	190	160	234	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
December 2021

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Day	<< Hour >>																								Prev
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	253	239	214	249	253	188	234	251	248	232	244	268	261	261	254	255	254	268	278	282	288	271	269	243	253
2	229	235	241	243	248	239	232	242	221	247	Au	Au	Au	293	289	279	274	287	289	299	286	279	278	286	263
3	307	261	156	145	91	147	92	10	357	69	304	300	294	298	304	290	273	281	325	253	245	161	152	163	276
4	175	145	169	152	235	118	144	110	130	107	90	225	327	286	279	291	288	282	277	277	283	285	280	282	236
5	293	297	296	304	336	333	323	318	322	272	278	287	291	258	278	263	257	226	173	177	138	156	151	179	271
6	149	122	149	145	281	196	296	338	13	159	212	290	311	94	291	319	304	304	299	286	264	294	12	19	292
7	317	247	122	80	137	44	34	293	298	308	279	268	269	275	282	277	273	274	279	274	272	284	243	331	286
8	212	243	212	210	219	249	218	212	224	231	219	231	225	236	230	252	293	287	287	280	265	285	283	281	245
9	274	281	275	275	298	308	304	283	218	233	268	269	262	259	270	279	279	173	158	236	148	100	40	155	258
10	99	99	98	75	89	135	114	131	162	100	253	261	269	271	265	276	273	284	280	273	270	272	271	272	241
11	273	285	268	246	245	206	216	187	198	216	220	226	218	214	197	196	184	198	197	196	209	199	193	201	215
12	192	178	185	190	192	199	198	189	194	201	209	219	221	222	224	231	263	188	206	93	119	145	216	87	194
13	153	223	117	170	165	133	137	151	144	164	136	152	148	129	110	142	182	84	111	98	97	85	91	94	133
14	93	111	170	173	192	179	177	175	189	168	174	175	185	190	163	145	165	160	273	283	316	318	294	342	184
15	355	320	303	297	293	293	286	293	264	266	271	265	270	281	266	272	275	263	284	188	130	125	101	125	276
16	162	136	130	138	147	143	114	216	150	88	323	142	240	248	218	184	255	274	137	147	137	161	106	135	161
17	265	288	284	267	280	272	267	266	55	20	59	341	7	302	307	294	53	90	91	119	64	117	134	165	334
18	156	165	155	145	150	134	136	136	128	121	99	88	86	87	131	178	156	178	134	195	166	133	192	229	144
19	223	211	194	192	231	220	223	223	228	252	324	312	304	294	322	300	298	302	282	267	293	257	310	273	265
20	264	336	324	317	146	295	127	278	122	152	132	138	138	141	137	110	138	130	164	295	296	298	282	277	186
21	275	299	309	297	333	82	351	327	303	288	286	295	286	284	280	290	300	281	281	284	300	315	310	69	302
22	236	241	267	112	119	91	55	221	302	234	254	262	264	260	253	268	267	128	87	112	127	67	81	97	203
23	107	90	118	136	182	264	253	265	132	192	263	334	41	43	188	181	197	202	187	285	291	279	277	272	218
24	262	283	300	288	108	94	85	46	22	133	175	123	280	294	255	82	100	119	110	129	139	155	118	142	123
25	89	150	250	187	194	358	290	161	233	105	134	144	147	190	190	161	161	147	157	167	159	158	162	162	165
26	142	343	321	312	314	299	301	291	282	278	307	308	273	299	272	299	297	277	164	318	164	156	161	146	284
27	99	95	125	356	321	297	302	185	354	139	50	130	118	164	183	247	343	157	97	229	169	140	144	153	141
28	128	136	110	89	90	54	66	76	311	284	264	260	271	273	269	281	278	288	275	261	276	302	295	306	287
29	270	293	326	282	285	282	166	110	145	90	326	42	283	40	330	319	258	120	106	106	117	119	120	77	43
30	137	128	154	34	354	98	275	247	100	338	302	300	284	297	318	279	235	277	323	287	273	93	184	56	295
31	327	288	305	273	271	289	316	293	301	295	276	281	300	258	256	278	255	123	125	121	156	137	175	88	271
Prev	213	231	212	215	226	210	232	235	223	202	256	257	266	262	254	259	257	227	213	238	214	187	202	169	235

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
October 2021

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Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	20	38	47	48	11	84	38	70	97	51	Au	Au	Au	18	22	21	16	17	40	84	44	100	85	44	48	100	11
2	45	80	68	53	16	49	24	84	75	98	22	25	17	20	17	19	14	15	83	33	17	22	49	31	41	98	14
3	64	63	48	42	71	54	61	50	76	95	27	18	22	14	21	19	16	65	18	9	14	29	39	46	41	95	9
4	60	34	41	30	26	28	29	44	89	82	16	18	20	19	17	15	12	33	17	34	28	55	25	34	34	89	12
5	59	60	59	42	43	37	39	34	30	23	24	16	19	18	20	18	10	28	26	20	19	14	21	19	29	60	10
6	20	36	73	67	11	88	39	21	31	23	25	17	19	16	18	23	10	28	44	49	40	78	84	98	40	98	10
7	84	50	30	67	78	19	84	76	78	25	8	9	9	8	57	81	24	12	32	26	98	57	42	61	46	98	8
8	65	84	91	65	103	55	48	25	87	92	13	10	9	45	31	32	32	16	19	16	36	67	61	42	48	103	9
9	56	20	67	77	76	83	47	81	48	17	11	30	25	18	18	12	11	14	12	8	50	30	13	15	35	83	8
10	11	45	40	38	82	85	75	50	26	17	22	23	18	20	22	16	10	9	12	11	13	10	19	74	31	85	9
11	66	81	18	14	12	32	48	57	64	68	64	49	14	37	29	25	27	38	26	55	37	26	27	14	39	81	12
12	18	25	27	15	53	35	43	56	48	19	21	49	16	12	12	9	6	9	7	10	8	11	8	17	22	56	6
13	9	8	64	85	24	28	80	71	42	38	21	21	24	17	18	12	13	16	12	13	10	12	14	9	28	85	8
14	8	9	9	11	11	13	9	15	24	14	11	12	16	13	11	12	11	11	10	9	9	10	10	33	13	33	8
15	51	33	41	69	30	19	60	54	86	15	13	16	16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	39	86	13
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19	20	24	10	11	14	25	13	76	31	48	80	73	34	80	10
19	66	56	54	67	94	90	39	71	88	73	90	17	10	10	9	7	7	6	6	24	19	40	36	64	43	94	6
20	9	40	20	73	68	72	67	67	85	51	36	18	26	15	20	17	14	39	32	88	89	41	36	50	45	89	9
21	68	55	50	50	66	73	100	94	95	71	54	19	16	21	19	19	19	34	43	33	40	49	42	23	48	100	16
22	16	24	22	23	18	62	30	28	85	59	28	22	21	25	21	13	37	31	13	16	10	10	9	14	27	85	9
23	49	9	29	11	11	14	40	38	23	16	16	15	17	14	20	20	15	10	62	27	75	25	27	81	28	81	9
24	61	77	67	35	61	42	36	33	66	23	19	24	17	19	13	13	11	6	11	8	9	36	7	10	29	77	6
25	13	42	62	30	26	36	93	60	38	16	15	13	19	65	15	8	33	19	12	12	15	85	72	96	37	96	8
26	56	54	12	54	48	94	55	90	32	53	12	10	12	13	13	10	13	13	15	10	11	12	39	17	31	94	10
27	46	36	54	52	16	19	11	17	17	19	17	11	11	10	14	12	10	9	10	13	8	9	87	51	23	87	8
28	17	22	15	41	37	14	19	22	96	50	28	19	39	62	37	33	15	22	18	16	16	11	10	9	28	96	9
29	13	52	32	42	70	21	64	28	44	15	12	14	24	28	19	11	11	23	12	11	11	9	14	7	24	70	7
30	6	19	76	58	60	71	53	39	88	21	22	20	22	10	12	16	13	40	46	70	86	33	47	72	42	88	6
31	43	19	54	80	97	72	41	75	64	94	14	11	12	12	9	9	8	5	8	35	64	25	64	25	39	97	5
Avg	39	42	45	48	47	50	49	52	62	44	26	20	19	22	19	18	15	21	24	29	32	34	38	40	35	86	9
Max	84	84	91	85	103	94	100	94	97	98	90	49	41	65	57	81	37	65	83	88	98	100	87	98	48	103	16
Min	6	8	9	11	11	13	9	15	17	14	8	9	9	8	9	7	6	5	6	8	8	9	7	7	13	33	5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
November 2021

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Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	49	18	55	41	61	83	88	46	62	51	79	37	19	16	9	7	5	12	77	79	34	42	74	69	46	88	5
2	91	61	60	30	40	67	37	67	96	64	76	19	21	18	16	12	11	11	76	60	33	44	41	51	46	96	11
3	74	58	62	73	97	74	89	82	81	85	93	19	18	18	17	18	34	63	16	33	44	40	37	45	53	97	16
4	39	27	26	31	18	19	27	31	68	59	48	41	13	21	40	18	23	18	18	38	81	69	59	29	36	81	13
5	64	19	9	11	10	14	18	23	22	42	19	24	21	23	21	14	8	60	18	96	60	74	92	47	34	96	8
6	25	8	27	25	13	17	68	46	65	85	53	12	15	20	20	17	75	63	40	70	9	16	23	20	35	85	8
7	45	23	29	19	17	60	63	48	47	81	17	13	12	20	12	13	10	9	18	74	48	48	52	73	35	81	9
8	57	49	62	57	49	63	40	80	65	74	37	24	17	17	19	29	28	22	20	59	56	21	13	13	40	80	13
9	24	44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	34	44	24
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	13	11	13	13	13	11	11	11	11	31	36	24	17	47	18	47	11
11	39	53	42	63	85	70	92	88	82	79	80	84	15	17	15	28	20	55	79	54	39	19	55	51	54	92	15
12	31	81	81	53	88	50	98	41	81	78	81	60	90	68	53	71	37	48	50	58	88	90	9	11	62	98	9
13	9	11	10	13	9	10	10	13	11	10	11	10	11	10	11	11	10	13	11	11	14	14	24	22	12	24	9
14	15	41	35	36	58	94	51	81	70	30	27	13	12	15	13	13	17	12	11	17	33	101	14	23	35	101	11
15	48	83	61	10	8	13	8	9	9	12	13	12	9	10	11	13	18	17	12	9	10	11	12	13	18	83	8
16	11	16	16	11	11	12	10	12	14	12	14	12	13	12	12	15	12	9	9	10	10	12	9	8	12	16	8
17	11	8	14	30	52	68	11	24	35	13	16	16	16	18	11	14	14	88	38	50	32	49	16	23	28	88	8
18	22	28	18	20	26	20	24	18	49	20	15	16	21	13	22	57	83	39	40	55	65	63	80	95	38	95	13
19	66	58	65	84	78	69	73	90	41	29	17	36	44	83	41	57	65	41	26	88	34	25	75	52	56	90	17
20	33	89	32	41	11	31	86	46	33	30	21	15	11	14	11	11	13	16	17	91	36	17	46	40	33	91	11
21	46	26	49	82	79	71	78	60	39	36	12	11	14	11	15	12	13	14	15	24	9	11	31	21	32	82	9
22	48	37	45	32	56	49	70	30	27	24	10	11	21	21	18	17	27	65	21	62	70	54	75	47	39	75	10
23	39	79	83	37	56	66	69	33	85	99	75	42	22	19	16	10	12	12	10	10	10	9	7	14	38	99	7
24	30	29	78	52	45	71	77	59	68	10	9	11	10	12	11	12	17	75	50	31	51	61	54	66	41	78	9
25	91	77	74	53	75	89	15	21	13	18	15	12	11	88	66	70	50	22	46	30	9	13	23	16	42	91	9
26	22	12	14	30	41	84	88	58	91	75	14	14	17	11	14	10	11	9	12	12	10	9	11	18	29	91	9
27	13	14	71	86	33	12	11	68	36	62	50	12	14	12	9	13	14	62	56	41	66	86	95	59	41	95	9
28	90	47	68	9	9	31	28	66	83	40	15	17	14	12	15	32	86	59	65	71	70	13	13	12	40	90	9
29	12	11	12	24	56	77	43	55	79	39	20	18	12	9	25	21	20	65	43	77	94	93	61	56	43	94	9
30	56	76	68	80	71	47	88	47	73	87	61	79	48	17	13	15	12	12	13	13	18	14	58	20	45	88	12
Avg	41	41	45	40	45	51	52	48	54	47	35	24	20	22	20	22	26	35	32	47	40	39	41	37	38	82	11
Max	91	89	83	86	97	94	98	90	96	99	93	84	90	88	66	71	86	88	79	96	94	101	95	95	62	101	24
Min	9	8	9	9	8	10	8	9	9	10	9	10	9	9	9	7	5	9	9	9	9	9	7	8	12	16	5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
December 2021

A-9

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	12	19	70	67	19	51	17	12	16	14	16	13	9	11	10	9	10	11	13	12	14	12	12	22	20	70	9
2	17	15	21	17	12	16	12	13	25	15	Au	Au	Au	12	13	11	10	10	12	10	14	16	10	16	14	25	10
3	13	32	45	44	62	88	55	56	75	51	31	12	17	15	14	16	28	38	20	79	43	21	11	8	36	88	8
4	13	39	69	19	84	39	9	36	35	19	58	64	17	16	15	11	11	12	12	12	11	10	11	12	26	84	9
5	9	13	8	11	20	9	26	14	10	14	12	12	15	11	13	9	10	60	30	30	92	83	21	61	25	92	8
6	25	101	31	74	98	81	83	64	64	20	80	76	44	87	53	30	23	8	7	14	15	37	82	97	54	101	7
7	63	88	79	87	78	79	92	19	22	26	11	9	10	10	10	11	9	10	11	11	15	55	37	68	38	92	9
8	51	21	92	50	39	27	22	20	13	14	12	12	10	11	33	26	13	11	11	12	13	10	10	11	23	92	10
9	11	10	12	11	16	17	14	45	51	68	13	12	14	11	12	14	17	32	73	53	63	85	92	31	32	92	10
10	76	56	37	39	39	26	40	45	96	89	77	13	9	12	12	12	10	10	11	11	11	11	12	15	32	96	9
11	14	19	20	16	17	84	15	17	19	14	16	12	14	17	33	24	22	14	19	15	15	14	15	10	20	84	10
12	12	11	11	12	13	10	11	10	9	9	11	12	12	11	11	20	17	43	20	79	70	13	85	47	23	85	9
13	91	73	58	77	55	51	79	28	25	19	19	8	10	11	17	57	36	14	19	19	35	8	19	29	36	91	8
14	29	21	10	19	54	11	55	20	11	10	17	12	17	13	12	13	7	9	64	16	22	31	23	22	22	64	7
15	12	10	7	9	7	8	10	11	11	10	10	11	15	13	9	14	14	21	11	56	44	32	38	23	17	56	7
16	38	31	27	27	25	39	61	102	48	72	48	68	102	19	32	45	22	89	20	40	39	41	55	36	47	102	19
17	27	12	19	9	15	13	18	25	99	91	25	62	64	20	20	55	58	25	32	65	82	45	57	30	40	99	9
18	37	73	39	15	12	16	18	18	18	20	16	9	9	9	28	54	32	20	18	19	54	55	65	9	28	73	9
19	9	12	13	22	15	11	12	10	10	27	20	34	13	19	12	13	16	21	23	20	15	22	21	17	17	34	9
20	35	72	73	36	78	48	85	79	48	10	15	19	17	15	17	53	42	62	54	34	14	10	11	11	39	85	10
21	9	16	12	15	58	44	60	52	42	14	11	20	13	14	11	14	13	13	9	11	15	21	22	91	25	91	9
22	38	10	21	63	39	67	64	51	81	13	15	16	13	10	12	15	26	52	50	61	59	41	43	22	37	81	10
23	20	79	40	26	49	22	25	33	31	59	13	56	55	100	12	11	13	15	25	19	11	17	11	12	31	100	11
24	16	21	15	55	26	28	48	42	64	78	68	60	84	23	18	72	33	28	43	54	21	11	18	36	40	84	11
25	94	74	87	95	74	49	90	39	79	64	79	30	8	24	17	9	10	38	11	7	10	16	13	15	43	95	7
26	31	76	38	49	7	10	69	64	24	34	33	8	72	28	50	29	43	45	71	38	59	76	45	84	45	84	7
27	91	77	60	73	17	54	75	91	86	44	68	89	52	82	64	33	74	80	67	91	56	42	38	35	64	91	17
28	54	56	57	42	36	51	69	43	68	19	73	45	12	11	9	15	13	22	23	22	25	8	13	31	34	73	8
29	15	14	28	14	20	44	46	69	79	85	77	70	34	89	30	22	81	30	82	74	56	88	77	74	54	89	14
30	75	76	91	84	101	89	102	57	70	84	18	22	13	15	12	23	46	68	16	45	40	90	94	75	59	102	12
31	31	25	15	21	21	32	7	18	10	11	12	12	13	6	5	27	20	54	89	38	90	56	61	85	32	90	5
Avg	34	40	39	39	39	39	45	39	43	36	32	30	26	24	20	25	25	31	31	34	36	35	36	37	34	83	10
Max	94	101	92	95	101	89	102	102	99	91	80	89	102	100	64	72	81	89	89	91	92	90	94	97	64	102	19
Min	9	10	7	9	7	8	7	10	9	9	10	8	8	6	5	9	7	8	7	7	10	8	10	8	14	25	5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-Meter Temperature (Degrees Celsius)
October 2021

A-10

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-1.7	-2.5	-2.4	-2.8	-3.0	-3.5	-3.8	-1.7	4.6	11.7	Au	Au	Au	15.8	15.5	15.6	14.6	13.8	12.4	11.9	10.0	8.3	7.1	4.8	7.4	15.8	-3.8
2	2.7	0.9	0.0	-0.4	-1.0	-1.7	-2.2	-1.1	4.5	12.2	14.4	15.5	16.2	17.1	17.5	17.8	17.5	16.2	12.1	7.6	5.1	2.9	0.6	-1.1	7.2	17.8	-2.2
3	-1.8	-1.7	-1.9	-2.3	-3.1	-3.7	-4.2	-3.1	3.6	11.8	16.4	17.0	18.1	19.2	19.6	19.9	19.4	17.3	12.3	9.1	6.7	5.1	3.8	2.7	7.5	19.9	-4.2
4	1.9	0.9	0.5	0.2	-0.3	-0.4	-0.8	1.1	8.6	16.5	19.6	20.4	21.1	21.9	22.3	22.3	21.8	19.4	13.4	8.9	6.9	5.5	3.9	3.3	10.0	22.3	-0.8
5	2.5	6.0	5.3	3.5	2.3	1.8	1.5	2.0	9.7	17.3	19.5	20.8	21.6	22.1	22.1	22.1	21.8	20.8	15.8	12.5	10.6	9.0	7.1	6.0	11.8	22.1	1.5
6	5.8	5.8	7.1	12.8	15.8	14.8	13.6	13.6	13.5	13.4	14.6	16.1	18.1	18.7	18.3	18.0	17.5	16.5	13.6	11.8	10.7	9.8	9.5	8.5	13.2	18.7	5.8
7	6.3	4.7	2.7	1.5	0.7	-0.1	-0.3	0.4	3.7	9.5	9.1	8.6	8.0	7.8	8.2	7.7	8.3	8.2	6.1	5.1	4.7	5.3	4.4	3.2	5.2	9.5	-0.3
8	2.9	2.9	1.7	1.1	0.2	0.1	-0.4	0.0	2.3	5.0	8.1	9.2	8.7	8.4	9.2	10.6	10.0	9.1	8.3	7.3	6.5	4.7	3.7	3.7	5.1	10.6	-0.4
9	4.1	4.4	4.2	4.1	3.8	2.1	1.6	1.7	4.9	6.6	7.0	7.2	8.9	9.7	10.4	10.4	9.9	8.4	6.6	5.5	2.8	1.4	3.7	3.4	5.5	10.4	1.4
10	3.1	2.8	0.5	-1.3	-1.8	-1.2	1.6	3.7	5.1	6.9	7.9	9.4	10.2	11.1	11.8	11.1	11.0	9.9	8.5	7.9	6.1	5.2	4.4	1.6	5.6	11.8	-1.8
11	1.0	0.9	0.9	0.3	-0.5	-1.5	-2.5	-2.5	-1.6	-1.7	-1.5	-1.6	-1.6	-1.2	-1.1	-1.4	-1.5	-1.8	-2.0	-2.0	-1.8	-1.9	-2.1	-2.2	-1.3	1.0	-2.5
12	-2.4	-2.5	-2.5	-3.4	-4.1	-4.9	-4.7	-4.8	-2.6	-1.7	-1.4	-1.3	-1.6	-1.7	-1.8	-1.9	-2.3	-2.7	-2.9	-2.9	-3.0	-3.1	-3.2	-3.1	-2.8	-1.3	-4.9
13	-3.2	-3.2	-3.3	-4.6	-5.7	-5.3	-5.0	-4.6	-2.8	-1.4	-0.4	0.0	1.3	1.4	2.0	1.6	1.1	0.1	-0.8	-1.4	-1.6	-1.7	-1.7	-1.8	-1.7	2.0	-5.7
14	-1.7	-1.6	-1.4	-1.3	-1.5	-1.6	-1.9	-2.0	-1.6	-0.6	-0.3	0.2	0.8	0.9	0.9	1.0	0.7	0.3	0.0	-0.1	-0.2	-0.3	-0.5	-1.3	-0.5	1.0	-2.0
15	-2.6	-3.8	-4.1	-4.6	-2.1	-1.8	-2.3	-1.8	-0.2	2.4	3.7	5.0	6.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-0.5	6.0	-4.6
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.8	15.4	14.7	13.9	13.4	12.0	9.7	8.8	6.8	4.5	3.4	2.5	1.5	9.3	15.4	1.5
19	0.2	-1.2	-2.2	-3.6	-3.5	-4.8	-5.4	-6.1	-2.7	3.2	5.8	7.9	8.7	8.9	9.1	8.6	7.2	5.0	3.0	1.4	2.0	1.8	3.6	3.6	2.1	9.1	-6.1
20	0.8	-0.7	-2.9	-4.1	-4.6	-6.2	-6.8	-7.2	-3.6	1.7	7.9	9.1	9.9	10.5	11.7	11.1	10.4	9.1	5.1	2.8	1.4	-0.8	-1.7	-2.6	2.1	11.7	-7.2
21	-3.4	-3.8	-3.6	-3.6	-2.8	-1.7	-0.8	-0.1	1.8	4.7	9.0	9.9	10.1	11.1	12.1	11.9	11.3	8.0	4.1	2.4	0.5	-0.6	-1.6	-2.3	3.0	12.1	-3.8
22	-2.8	-2.4	-3.3	-3.4	-3.1	-3.4	-3.8	-3.1	-0.7	7.0	13.2	15.2	16.1	16.3	16.8	16.6	15.9	14.1	12.5	12.3	11.7	10.8	10.1	8.2	7.1	16.8	-3.8
23	9.1	10.7	9.3	5.3	4.1	3.4	3.0	2.4	3.3	4.5	5.5	6.2	7.1	7.5	7.4	7.2	6.3	5.4	4.3	2.3	1.1	-0.9	-3.0	-4.3	4.5	10.7	-4.3
24	-5.4	-4.8	-4.8	-5.2	-4.4	-5.1	-6.3	-6.6	-3.9	5.4	7.3	8.4	9.7	10.0	9.5	9.3	8.9	8.4	8.3	7.7	7.0	6.5	7.0	8.0	3.1	10.0	-6.6
25	7.6	7.2	6.5	4.9	4.9	5.3	4.6	4.3	9.3	10.5	9.4	8.3	8.4	8.1	7.7	6.8	6.3	6.0	5.3	4.6	3.5	3.3	2.7	2.7	6.2	10.5	2.7
26	1.8	1.5	1.6	1.5	1.4	1.1	1.0	0.6	0.9	1.8	3.5	4.1	4.4	4.6	4.9	4.8	4.5	3.5	2.4	3.1	3.5	3.4	3.0	2.0	2.7	4.9	0.6
27	2.4	3.0	0.0	1.0	3.1	3.2	2.9	2.9	3.0	2.1	2.6	3.8	4.4	4.6	4.6	4.4	3.5	2.6	2.0	1.8	1.3	0.7	-0.3	-0.9	2.4	4.6	-0.9
28	-0.5	0.2	1.3	1.6	1.8	2.0	1.9	1.8	1.9	2.7	3.3	4.3	5.8	8.0	9.4	9.9	10.4	10.4	10.8	10.4	10.2	10.1	9.8	9.9	5.7	10.8	-0.5
29	9.7	9.6	9.2	9.1	9.4	10.3	7.9	6.5	9.9	12.1	12.4	13.0	13.4	13.5	13.9	13.6	13.4	10.6	8.3	6.8	6.3	6.0	4.1	2.3	9.6	13.9	2.3
30	0.7	-0.7	-2.4	-3.3	-4.4	-5.4	-5.7	-4.3	-2.0	-0.9	-0.1	0.1	0.3	0.1	-0.2	-1.1	-2.6	-4.2	-5.2	-6.3	-7.6	-9.0	-10.1	-11.1	-3.6	0.7	-11.1
31	-12.1	-12.7	-13.7	-14.0	-14.1	-14.1	-12.7	-10.4	-8.6	-4.3	-2.8	-2.1	-2.0	-1.7	-1.4	-1.6	-2.2	-3.9	-5.4	-6.2	-8.1	-10.0	-11.7	-12.5	-7.8	-1.4	-14.1
Avg	0.9	0.7	0.1	-0.4	-0.4	-0.8	-1.1	-0.7	2.2	5.7	7.5	8.6	9.1	9.6	9.8	9.6	9.1	7.9	6.0	4.7	3.6	2.7	2.0	1.1	4.1	10.4	-2.6
Max	9.7	10.7	9.3	12.8	15.8	14.8	13.6	13.6	13.5	17.3	19.6	20.8	21.6	22.1	22.3	22.3	21.8	20.8	15.8	12.5	11.7	10.8	10.1	9.9	13.2	22.3	5.8
Min	-12.1	-12.7	-13.7	-14.0	-14.1	-14.1	-12.7	-10.4	-8.6	-4.3	-2.8	-2.1	-2.0	-1.7	-1.8	-1.9	-2.6	-4.2	-5.4	-6.3	-8.1	-10.0	-11.7	-12.5	-7.8	-1.4	-14.1

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-Meter Temperature (Degrees Celsius)
November 2021

A-11

	<< 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	-14.0	-14.7	-15.2	-16.2	-16.9	-17.5	-17.6	-17.6	-15.0	-10.0	-4.3	-0.9	0.8	2.4	2.9	2.7	0.3	-1.5	-2.6	-3.7	-5.5	-7.4	-8.4	-9.8	-7.9	2.9	-17.6	
2	-10.0	-10.3	-11.1	-11.1	-11.2	-11.4	-11.6	-11.0	-7.4	-2.9	3.3	5.6	6.6	7.1	7.3	7.1	6.0	5.0	3.8	1.4	-1.8	-3.4	-4.6	-5.3	-2.5	7.3	-11.6	
3	-5.7	-6.3	-6.2	-7.2	-6.9	-6.6	-6.0	-5.2	-4.2	-0.4	5.1	7.0	8.2	9.2	9.6	10.4	9.4	5.9	2.9	1.5	0.8	0.2	-1.0	-1.0	0.6	10.4	-7.2	
4	-0.3	-0.8	-0.6	-0.2	1.0	1.9	1.5	0.5	1.6	4.8	9.8	12.0	12.9	12.7	12.8	12.7	12.6	11.5	7.3	5.2	4.4	3.1	3.8	4.2	5.6	12.9	-0.8	
5	4.1	5.3	5.4	4.7	4.4	3.5	3.2	3.3	4.0	4.8	6.0	6.8	8.0	8.6	9.1	9.5	8.7	6.7	4.0	1.0	0.9	4.2	3.5	3.7	5.1	9.5	0.9	
6	5.4	7.4	6.2	8.0	7.5	6.7	4.3	0.9	0.3	1.5	5.7	7.2	7.1	6.9	7.0	6.8	6.0	4.7	4.8	3.0	2.7	2.4	1.9	0.3	4.8	8.0	0.3	
7	0.2	0.1	-0.8	-1.0	-0.8	-3.1	-4.3	-5.1	-5.4	-1.4	0.2	1.0	0.9	1.1	1.0	1.5	0.6	-0.8	-1.8	-4.5	-5.6	-7.1	-8.4	-10.3	-2.2	1.5	-10.3	
8	-10.9	-11.3	-12.5	-13.3	-13.6	-14.1	-14.0	-13.9	-11.6	-6.7	-0.5	1.1	1.7	2.3	3.0	3.1	1.8	-2.6	-3.8	-5.5	-7.8	-8.3	-10.0	-9.6	-6.5	3.1	-14.1	
9	-10.8	-10.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-10.6	-10.4	-10.8	
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-1.4	-0.8	-0.3	0.0	-0.1	-0.1	-0.2	-1.8	-2.5	-3.2	-4.9	-6.5	-8.0	-10.5	-11.7	-3.5	0.0	-11.7
11	-12.3	-13.2	-14.1	-15.0	-15.3	-15.5	-15.4	-15.1	-13.3	-9.1	-5.3	-2.7	-1.8	-1.3	-1.1	-0.8	-1.1	-1.8	-3.4	-4.2	-6.0	-6.3	-7.6	-8.1	-7.9	-0.8	-15.5	
12	-7.5	-7.3	-6.5	-5.6	-4.7	-4.6	-3.9	-3.3	-2.3	-1.0	-0.1	1.0	1.4	2.7	4.1	4.5	4.5	3.9	3.7	4.6	4.4	7.3	9.5	9.3	0.6	9.5	-7.5	
13	8.9	8.4	6.6	6.3	6.0	5.6	5.3	4.8	4.5	4.2	4.0	4.2	4.1	4.5	4.7	4.7	4.1	3.4	2.6	2.2	2.7	2.2	1.5	-0.6	4.4	8.9	-0.6	
14	-0.9	-0.9	-0.8	-0.8	-0.8	-0.5	-0.3	0.3	2.4	6.9	8.9	10.8	11.5	11.9	12.0	11.7	11.2	11.1	10.9	10.9	10.2	8.8	10.2	10.0	6.4	12.0	-0.9	
15	9.2	9.1	9.5	9.9	8.6	8.9	9.3	9.6	9.7	11.1	11.9	12.4	12.5	13.4	13.5	13.6	13.3	12.6	11.9	11.4	10.7	11.3	11.1	10.5	11.0	13.6	8.6	
16	5.4	3.0	2.4	1.6	0.0	-1.3	-2.6	-3.3	-3.5	-3.7	-3.8	-3.4	-3.2	-3.0	-2.8	-2.8	-4.0	-5.0	-5.4	-5.5	-5.7	-6.4	-6.7	-6.8	-2.8	5.4	-6.8	
17	-7.1	-7.8	-8.1	-8.9	-9.7	-9.0	-8.7	-8.7	-9.4	-7.6	-6.7	-5.8	-5.0	-4.3	-4.0	-4.1	-4.9	-6.5	-8.6	-10.7	-12.2	-13.3	-14.7	-14.7	-8.4	-4.0	-14.7	
18	-15.1	-13.7	-13.4	-12.8	-11.5	-11.5	-10.9	-10.2	-8.6	-4.5	-0.4	0.6	1.4	1.5	1.5	1.2	1.1	-0.4	-1.0	-1.1	-1.9	-2.2	-2.6	-2.6	-4.9	1.5	-15.1	
19	-2.4	-2.7	-2.2	-2.0	-2.3	-2.1	-1.3	1.4	2.0	2.6	2.7	2.4	2.9	3.5	3.6	2.1	2.2	1.1	1.1	1.3	1.4	0.5	-0.7	-0.2	0.6	3.6	-2.7	
20	0.1	0.0	-0.9	-1.7	-1.2	-2.5	-3.8	-4.7	-3.9	-1.8	-0.8	0.0	0.5	0.5	0.2	-0.2	-1.6	-2.2	-2.8	-3.3	-4.9	-6.7	-7.7	-9.0	-2.4	0.5	-9.0	
21	-9.5	-10.2	-10.9	-11.4	-11.0	-10.5	-10.2	-9.8	-7.9	-2.7	1.1	2.2	2.6	3.1	3.6	3.4	3.1	3.2	3.1	3.0	3.2	3.9	4.0	4.0	-2.1	4.0	-11.4	
22	4.0	2.4	1.9	-1.2	-2.6	-3.1	-4.3	-4.6	-2.3	3.0	6.5	7.2	8.5	9.2	9.0	8.5	8.0	4.4	0.9	-1.6	-2.8	-5.2	-6.5	-7.5	1.3	9.2	-7.5	
23	-8.6	-9.7	-10.4	-10.3	-11.5	-12.3	-12.6	-13.1	-12.9	-8.1	-3.4	1.5	3.4	3.1	2.2	0.3	-1.3	-2.0	-2.0	-2.4	-3.6	-4.5	-5.1	-5.4	-5.4	3.4	-13.1	
24	-5.6	-6.1	-6.5	-6.2	-6.3	-6.2	-6.1	-6.5	-5.7	-3.9	-3.7	-2.8	-2.8	-2.1	-2.2	-2.1	-2.7	-3.5	-5.7	-9.4	-10.8	-11.7	-12.6	-12.3	-6.0	-2.1	-12.6	
25	-11.0	-9.6	-10.0	-10.9	-10.7	-7.8	1.7	1.7	2.2	2.8	2.7	3.1	3.5	3.5	3.7	4.0	5.0	5.1	5.4	6.2	5.9	5.8	5.9	5.7	0.6	6.2	-11.0	
26	5.1	5.8	5.7	5.0	3.7	3.6	0.8	2.7	0.7	3.7	6.8	6.9	6.6	6.6	6.5	6.4	6.1	5.4	4.7	4.3	4.0	3.8	3.4	3.2	4.6	6.9	0.7	
27	2.5	1.9	0.8	0.3	1.5	1.8	0.5	-0.2	-0.1	0.4	1.1	2.5	3.6	4.1	4.7	4.8	3.7	0.8	-1.0	-2.1	-2.7	-3.3	-3.0	-2.4	0.8	4.8	-3.3	
28	-1.9	0.1	4.5	6.6	6.4	6.0	6.3	5.4	4.8	8.3	10.3	11.0	11.3	11.6	11.7	10.9	10.3	9.8	9.0	8.5	8.5	8.9	8.9	8.7	7.7	11.7	-1.9	
29	8.2	7.7	7.6	7.6	7.4	5.9	3.9	2.7	2.5	6.1	7.3	7.1	6.2	5.4	5.1	3.2	1.8	1.5	1.6	0.9	-0.6	0.2	0.0	-2.3	4.0	8.2	-2.3	
30	-1.7	-1.4	-2.0	-1.7	-1.2	-0.4	-0.8	0.7	1.6	0.7	1.0	0.9	3.1	4.4	5.0	5.5	5.4	5.2	5.3	5.6	6.1	5.9	6.2	7.1	2.5	7.1	-2.0	
Avg	-2.8	-2.9	-2.9	-3.1	-3.3	-3.4	-3.5	-3.5	-2.8	-0.1	2.2	3.4	4.0	4.4	4.6	4.4	3.7	2.5	1.4	0.4	-0.4	-0.9	-1.4	-1.8	-0.0	5.2	-7.1	
Max	9.2	9.1	9.5	9.9	8.6	8.9	9.3	9.6	9.7	11.1	11.9	12.4	12.9	13.4	13.5	13.6	13.3	12.6	11.9	11.4	10.7	11.3	11.1	10.5	11.0	13.6	8.6	
Min	-15.1	-14.7	-15.2	-16.2	-16.9	-17.5	-17.6	-17.6	-15.0	-10.0	-6.7	-5.8	-5.0	-4.3	-4.0	-4.1	-4.9	-6.5	-8.6	-10.7	-12.2	-13.3	-14.7	-14.7	-10.6	-10.4	-17.6	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-Meter Temperature (Degrees Celsius)
December 2021

A-12

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	7.3	7.6	7.4	7.6	8.5	8.3	9.0	9.7	10.3	10.7	11.4	11.9	12.2	13.0	14.0	13.8	13.4	13.1	12.9	12.5	12.0	11.8	11.6	11.1	10.9	14.0	7.3
2	10.7	10.8	10.6	10.4	10.5	10.4	9.9	10.6	10.5	11.1	Au	Au	Au	9.8	9.5	8.9	7.7	7.0	6.7	6.1	5.6	5.0	4.9	4.5	8.6	11.1	4.5
3	3.5	2.3	0.0	-1.6	-2.8	-4.3	-4.5	-5.4	-5.3	-2.6	2.0	3.7	4.0	4.4	4.2	3.7	3.3	2.7	2.5	1.9	1.6	0.2	-0.4	-1.3	0.5	4.4	-5.4
4	-1.8	-1.9	-1.8	-1.6	-1.6	-1.7	-1.8	-1.7	-1.5	-1.0	0.5	1.9	3.2	5.0	5.6	5.0	4.8	4.7	2.9	3.3	3.0	2.6	1.8	0.8	1.2	5.6	-1.9
5	-0.6	-1.8	-2.6	-3.2	-5.1	-7.0	-7.7	-8.5	-9.0	-9.0	-9.1	-8.8	-8.7	-8.8	-8.8	-9.7	-11.1	-12.2	-14.7	-16.5	-17.4	-16.5	-16.3	-18.3	-9.6	-0.6	-18.3
6	-19.4	-21.0	-21.2	-21.2	-19.0	-17.5	-15.9	-13.7	-11.7	-10.1	-8.7	-7.5	-6.8	-6.0	-6.2	-6.0	-5.1	-4.6	-4.5	-4.7	-5.7	-7.8	-9.9	-10.5	-11.0	-4.5	-21.2
7	-10.5	-10.1	-10.8	-12.7	-14.8	-14.4	-8.8	-4.5	-3.2	-2.8	-0.7	0.1	0.7	1.1	1.5	1.5	1.1	0.8	0.9	0.8	0.7	0.7	1.0	0.9	-3.4	1.5	-14.8
8	0.5	1.6	1.1	0.3	1.4	2.0	2.3	2.5	2.8	3.3	3.6	3.7	3.6	3.5	2.8	2.9	1.8	0.9	0.0	-0.5	-1.3	-2.6	-3.3	-4.2	1.2	3.7	-4.2
9	-5.2	-5.8	-6.5	-6.8	-7.2	-7.8	-7.7	-8.2	-8.7	-7.3	-6.1	-5.7	-5.5	-5.7	-5.7	-5.7	-5.9	-7.0	-8.2	-8.6	-9.8	-8.6	-8.0	-8.8	-7.1	-5.2	-9.8
10	-9.7	-12.1	-13.9	-15.7	-17.2	-18.0	-16.1	-15.9	-15.0	-13.0	-8.1	-6.6	-6.2	-5.8	-5.8	-6.4	-7.1	-7.3	-6.8	-6.4	-6.3	-6.1	-6.0	-5.6	-9.9	-5.6	-18.0
11	-5.2	-4.9	-4.7	-4.9	-4.8	-4.8	-3.8	-3.7	-3.5	-2.4	-1.8	-1.1	-0.7	0.3	1.0	0.4	-0.3	-1.4	-1.9	-1.8	-2.0	-1.9	-2.0	-2.0	-2.4	1.0	-5.2
12	-1.8	-1.7	-1.5	-1.9	-1.8	-1.4	-1.6	-1.8	-2.0	-1.3	0.4	1.6	2.3	2.6	2.4	2.1	0.8	-1.6	-1.5	-1.9	-2.2	-2.7	-2.4	-2.5	-0.8	2.6	-2.7
13	-3.6	-3.3	-3.0	-3.2	-3.7	-3.1	-2.4	-2.2	-1.6	-1.2	-0.5	0.1	1.3	2.0	2.3	2.7	1.5	0.1	0.3	0.7	0.1	-0.2	-1.3	-1.3	-0.8	2.7	-3.7
14	-0.1	0.6	2.5	2.7	2.7	4.0	3.2	2.1	3.2	3.2	5.0	5.5	5.1	3.9	2.1	2.2	1.6	1.1	-0.3	-1.1	-2.3	-2.2	-3.3	-3.2	1.6	5.5	-3.3
15	-4.0	-4.9	-5.6	-6.1	-6.5	-6.7	-7.3	-7.8	-8.6	-8.8	-8.7	-8.5	-7.9	-7.9	-8.0	-8.8	-8.6	-8.4	-8.3	-10.6	-13.8	-16.6	-18.1	-19.4	-9.2	-4.0	-19.4
16	-20.3	-20.7	-21.0	-22.1	-22.0	-21.8	-21.2	-18.0	-15.5	-13.3	-11.6	-8.8	-6.7	-5.4	-5.5	-5.6	-5.2	-5.6	-6.6	-6.7	-6.4	-6.3	-7.0	-6.9	-12.1	-5.2	-22.1
17	-13.1	-15.9	-17.4	-20.0	-21.0	-22.2	-22.7	-22.8	-23.7	-23.6	-21.6	-19.6	-16.0	-14.3	-13.6	-13.3	-15.9	-19.6	-21.4	-23.3	-23.5	-24.0	-24.2	-24.5	-19.9	-13.1	-24.5
18	-25.1	-25.0	-24.5	-22.8	-21.0	-19.9	-18.0	-15.4	-13.3	-11.0	-8.8	-7.3	-6.8	-5.7	-2.9	-1.6	-2.1	-1.6	-1.1	-1.0	-0.4	-1.2	-0.3	2.2	-9.8	2.2	-25.1
19	2.3	1.5	0.6	0.8	2.8	2.1	1.7	0.7	0.4	0.6	-0.1	-1.8	-4.2	-5.0	-7.3	-9.2	-11.1	-11.8	-12.4	-12.8	-13.1	-13.4	-13.2	-13.5	-4.8	2.8	-13.5
20	-13.7	-13.6	-13.6	-13.5	-13.2	-13.3	-12.9	-12.6	-11.7	-10.3	-9.1	-7.6	-4.9	-3.4	-2.3	-1.2	-1.0	-1.4	-1.9	-1.5	-0.1	-0.5	-0.8	-1.9	-6.9	-0.1	-13.7
21	-2.8	-3.4	-3.8	-3.1	-5.2	-5.9	-4.0	-2.1	-0.8	0.0	1.0	1.4	1.7	1.7	2.3	2.4	3.0	3.1	3.2	2.8	2.8	2.5	0.8	-0.7	-0.1	3.2	-5.9
22	1.8	2.8	1.6	-1.1	-3.8	-6.6	-7.5	0.3	0.4	1.7	2.4	2.6	2.4	2.2	2.1	2.1	1.3	-2.3	-4.1	-6.0	-8.3	-8.6	-6.5	-4.3	-1.5	2.8	-8.6
23	-6.0	-6.3	-5.5	-5.9	-2.3	-0.3	-0.7	-0.7	-1.2	-1.1	-0.6	-0.7	-0.8	0.0	1.2	1.5	1.6	0.7	-0.2	-2.2	-3.1	-3.9	-4.8	-5.3	-1.9	1.6	-6.3
24	-6.6	-6.9	-7.2	-7.1	-10.0	-13.6	-14.7	-16.0	-16.4	-16.5	-14.7	-12.4	-7.3	-4.8	-4.4	-4.6	-8.7	-11.8	-12.6	-12.6	-10.0	-9.7	-11.3	-14.1	-10.6	-4.4	-16.5
25	-14.8	-15.3	-15.3	-14.3	-13.1	-12.4	-12.1	-11.6	-11.8	-12.4	-10.1	-7.7	-5.5	-4.9	-4.8	-5.3	-7.5	-7.5	-8.1	-9.6	-10.3	-11.1	-10.7	-10.8	-10.3	-4.8	-15.3
26	-10.7	-11.7	-13.8	-14.8	-15.4	-16.0	-19.1	-19.7	-21.4	-21.7	-20.9	-20.8	-20.3	-20.5	-20.8	-21.7	-23.4	-22.7	-21.8	-22.6	-24.0	-25.9	-27.0	-27.1	-20.2	-10.7	-27.1
27	-26.2	-25.5	-24.7	-23.9	-23.8	-23.6	-23.4	-22.6	-23.6	-23.4	-23.1	-21.4	-17.7	-14.3	-13.0	-13.7	-17.3	-18.3	-19.6	-21.3	-23.6	-25.5	-26.2	-27.0	-21.8	-13.0	-27.0
28	-28.1	-28.9	-29.2	-27.4	-23.6	-25.3	-21.6	-18.1	-16.4	-15.8	-15.5	-14.6	-13.5	-13.2	-13.2	-13.2	-13.6	-13.9	-14.0	-14.1	-14.0	-13.5	-13.7	-14.7	-17.9	-13.2	-29.2
29	-19.5	-20.0	-20.6	-22.0	-23.5	-24.5	-26.3	-28.4	-29.9	-30.5	-29.0	-25.7	-22.6	-20.2	-18.8	-18.7	-21.1	-23.6	-25.8	-26.6	-27.4	-28.1	-27.1	-24.3	-24.3	-18.7	-30.5
30	-23.2	-23.0	-22.0	-20.2	-18.6	-17.7	-16.3	-15.2	-13.6	-12.8	-11.9	-11.3	-10.7	-10.4	-10.6	-11.0	-13.0	-15.9	-15.6	-15.6	-17.3	-19.4	-19.7	-19.0	-16.0	-10.4	-23.2
31	-18.8	-18.9	-19.2	-19.9	-20.2	-20.3	-20.5	-21.1	-21.5	-21.9	-22.4	-22.3	-22.6	-23.0	-23.1	-23.6	-24.7	-26.4	-29.7	-30.3	-30.3	-28.4	-27.1	-26.7	-23.5	-18.8	-30.3
Avg	-8.5	-8.9	-9.2	-9.5	-9.5	-9.8	-9.4	-8.8	-8.5	-7.8	-7.2	-6.3	-5.3	-4.2	-4.0	-4.2	-5.2	-6.2	-6.8	-7.4	-8.0	-8.4	-8.7	-9.0	-7.5	-2.2	-14.0
Max	10.7	10.8	10.6	10.4	10.5	10.4	9.9	10.6	10.5	11.1	11.4	11.9	12.2	13.0	14.0	13.8	13.4	13.1	12.9	12.5	12.0	11.8	11.6	11.1	10.9	14.0	7.3
Min	-28.1	-28.9	-29.2	-27.4	-23.8	-25.3	-26.3	-28.4	-29.9	-30.5	-29.0	-25.7	-22.6	-23.0	-23.1	-23.6	-24.7	-26.4	-29.7	-30.3	-30.3	-28.4	-27.1	-27.1	-24.3	-18.8	-30.5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
2-Meter Temperature (Degrees Celsius)
October 2021

A-13

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-3.7	-4.2	-4.0	-4.6	-4.9	-5.4	-5.4	-2.3	5.2	12.7	Au	Au	Au	16.7	16.2	16.1	14.6	13.5	11.9	11.4	9.7	7.2	6.0	3.3	6.8	16.7	-5.4
2	0.8	-0.4	-1.5	-1.8	-2.7	-3.3	-3.8	-1.5	5.1	12.6	15.0	16.2	17.2	18.0	18.3	18.4	17.8	15.3	10.5	7.0	4.3	0.9	-1.4	-2.9	6.6	18.4	-3.8
3	-3.4	-3.2	-3.7	-4.3	-4.8	-5.8	-5.9	-3.9	3.9	12.1	17.0	17.8	18.9	20.0	20.5	20.6	19.5	16.3	10.7	8.3	4.7	2.8	1.9	0.7	6.7	20.6	-5.9
4	0.2	-1.1	-1.8	-1.9	-2.3	-2.5	-3.1	0.3	8.9	17.0	20.2	21.0	21.9	22.7	23.0	22.8	21.9	17.9	11.4	6.9	4.9	3.4	1.2	0.4	8.9	23.0	-3.1
5	0.3	4.9	4.1	1.2	0.0	0.0	-0.7	0.9	9.9	17.8	20.1	21.4	22.2	22.6	22.5	22.2	21.8	20.1	14.5	11.2	9.4	7.1	4.3	3.0	10.9	22.6	-0.7
6	2.8	4.0	5.9	11.9	15.6	14.3	12.9	13.5	13.5	13.5	14.9	16.4	18.8	19.3	18.8	18.1	17.4	16.2	13.4	11.4	10.4	9.5	9.2	8.1	12.9	19.3	2.8
7	5.7	3.7	1.9	0.8	0.1	-0.4	-0.7	0.1	3.9	10.2	9.2	8.7	8.2	8.0	8.3	7.9	8.4	8.0	5.3	4.3	4.3	5.1	3.9	2.4	4.9	10.2	-0.7
8	2.3	2.2	0.9	0.5	-0.1	-0.1	-0.7	-0.1	2.3	5.3	8.4	9.4	8.7	8.5	9.5	11.1	10.1	8.8	7.9	6.9	5.7	4.2	3.2	3.3	4.9	11.1	-0.7
9	3.9	4.3	4.0	3.8	3.2	1.2	0.7	1.1	4.8	6.7	7.3	7.5	9.5	10.5	11.1	10.9	10.2	7.9	5.4	4.0	0.7	-0.3	2.7	2.5	5.2	11.1	-0.3
10	1.9	2.0	-1.1	-2.5	-3.5	-3.5	-1.4	3.2	5.1	7.3	8.5	10.3	10.9	11.7	12.5	11.7	11.4	9.7	8.1	7.7	5.9	5.0	4.4	1.5	5.3	12.5	-3.5
11	0.8	0.7	0.8	0.2	-0.5	-1.4	-2.4	-2.3	-1.6	-1.5	-1.2	-1.4	-1.4	-0.9	-0.7	-1.1	-1.3	-1.8	-2.0	-2.0	-1.8	-1.9	-2.1	-2.2	-1.2	0.8	-2.4
12	-2.4	-2.5	-2.5	-3.4	-4.3	-5.2	-5.2	-5.4	-2.6	-1.4	-1.2	-1.0	-1.4	-1.4	-1.5	-1.7	-2.1	-2.5	-2.8	-2.8	-2.9	-3.0	-3.1	-3.1	-2.7	-1.0	-5.4
13	-3.3	-3.2	-3.4	-5.3	-6.3	-5.5	-5.0	-4.4	-2.6	-0.8	0.2	0.6	2.1	1.9	2.5	1.7	1.3	0.1	-0.8	-1.4	-1.6	-1.7	-1.8	-1.8	-1.6	2.5	-6.3
14	-1.7	-1.6	-1.5	-1.5	-1.7	-1.8	-2.0	-2.3	-1.5	-0.4	-0.1	0.5	1.1	1.2	1.1	1.1	0.7	0.3	0.0	-0.1	-0.2	-0.3	-0.5	-1.6	-0.5	1.2	-2.3
15	-3.6	-5.8	-5.2	-5.1	-2.6	-2.5	-3.0	-3.0	-0.1	2.8	4.1	5.7	6.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-0.9	6.8	-5.8
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.5	16.0	15.1	14.2	13.9	12.0	9.5	8.6	6.5	3.6	2.7	1.8	0.4	9.2	16.0	0.4
19	-0.6	-2.3	-3.3	-4.5	-4.7	-6.0	-6.9	-7.2	-2.6	3.9	6.7	8.8	9.6	9.9	9.9	9.1	7.4	4.5	2.5	0.0	0.8	0.4	2.0	2.2	1.6	9.9	-7.2
20	0.0	-1.2	-3.9	-4.9	-5.8	-7.6	-8.4	-7.8	-3.6	2.3	8.4	9.5	10.3	11.0	12.3	11.2	10.5	8.4	3.5	0.5	0.0	-2.5	-3.2	-4.1	1.5	12.3	-8.4
21	-4.9	-5.3	-4.8	-4.5	-3.3	-2.2	-1.3	-0.4	2.0	5.0	9.4	10.3	10.7	11.8	12.9	12.3	11.1	6.9	2.9	1.4	-1.1	-2.5	-3.6	-4.2	2.4	12.9	-5.3
22	-4.3	-4.4	-5.1	-5.1	-4.8	-5.1	-5.3	-4.5	-0.8	7.7	13.7	15.9	16.7	16.8	17.1	16.8	15.8	13.7	12.1	11.9	11.4	10.5	9.8	7.5	6.6	17.1	-5.3
23	7.6	10.2	9.1	5.1	4.0	3.2	2.7	1.9	3.1	4.6	6.0	6.8	7.8	8.4	8.1	7.4	6.2	4.9	3.7	1.2	0.1	-1.6	-4.2	-5.7	4.2	10.2	-5.7
24	-6.7	-6.0	-6.2	-6.1	-5.1	-6.5	-8.0	-8.0	-3.8	6.0	7.9	8.9	10.4	10.5	9.7	9.4	8.9	8.3	8.2	7.4	6.4	5.7	6.5	7.8	2.7	10.5	-8.0
25	7.1	6.4	5.4	4.0	4.0	4.1	3.3	2.9	9.1	10.6	9.4	8.4	8.6	8.3	7.7	6.9	6.3	5.9	5.2	4.5	3.4	3.2	2.6	2.5	5.8	10.6	2.5
26	1.5	1.3	1.3	1.3	1.1	0.7	0.7	0.3	0.7	1.7	3.7	4.4	4.7	4.9	5.3	5.3	4.6	2.8	1.7	2.8	3.3	3.2	2.5	1.6	2.6	5.3	0.3
27	2.0	2.4	-0.6	0.4	2.8	2.9	2.5	2.8	3.0	2.2	2.9	4.1	4.8	5.2	5.1	4.9	3.6	2.3	1.7	1.4	0.7	0.1	-1.3	-1.6	2.3	5.2	-1.6
28	-1.4	-0.5	1.0	1.4	1.7	1.9	1.8	1.6	2.0	2.9	3.4	4.5	6.0	8.2	9.5	9.9	10.3	10.0	10.5	9.9	10.0	9.9	9.5	9.6	5.6	10.5	-1.4
29	9.3	9.3	8.5	8.5	8.7	10.1	7.1	5.2	9.8	12.4	12.7	13.4	13.9	13.8	14.1	13.6	13.3	10.5	8.3	6.5	6.0	5.8	3.9	2.0	9.4	14.1	2.0
30	0.3	-1.6	-3.6	-4.2	-5.4	-6.5	-7.0	-5.2	-1.9	-0.5	0.4	0.8	1.0	1.1	0.6	-0.5	-2.4	-4.6	-6.1	-7.1	-8.5	-10.1	-11.2	-12.4	-3.9	1.1	-12.4
31	-13.5	-14.2	-14.8	-15.2	-15.4	-15.0	-12.8	-10.5	-8.3	-3.7	-2.2	-1.3	-1.1	-0.9	-0.7	-1.1	-2.1	-4.3	-6.3	-7.5	-9.2	-11.8	-12.7	-13.9	-8.3	-0.7	-15.4
Avg	-0.1	-0.2	-0.9	-1.3	-1.3	-1.7	-2.0	-1.3	2.2	6.0	7.9	9.0	9.7	10.1	10.3	10.0	9.2	7.5	5.4	4.0	2.9	1.8	1.1	0.2	3.7	10.8	-3.8
Max	9.3	10.2	9.1	11.9	15.6	14.3	12.9	13.5	13.5	17.8	20.2	21.4	22.2	22.7	23.0	22.8	21.9	20.1	14.5	11.9	11.4	10.5	9.8	9.6	12.9	23.0	2.8
Min	-13.5	-14.2	-14.8	-15.2	-15.4	-15.0	-12.8	-10.5	-8.3	-3.7	-2.2	-1.4	-1.4	-1.4	-1.5	-1.7	-2.4	-4.6	-6.3	-7.5	-9.2	-11.8	-12.7	-13.9	-8.3	-1.0	-15.4

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
2-Meter Temperature (Degrees Celsius)
November 2021

A-14

	<< 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	-15.2	-16.1	-16.5	-17.5	-18.0	-18.6	-18.9	-19.1	-14.7	-9.4	-3.7	-0.4	1.5	3.0	3.6	3.2	0.3	-2.0	-3.5	-5.2	-6.7	-8.7	-9.9	-11.1	-8.5	3.6	-19.1	
2	-11.2	-11.6	-12.4	-12.5	-12.8	-12.9	-12.8	-12.1	-7.2	-2.5	4.0	6.2	7.3	7.7	7.8	7.5	6.1	4.7	3.2	0.1	-2.8	-4.4	-6.0	-6.5	-3.0	7.8	-12.9	
3	-7.1	-7.8	-8.1	-8.7	-8.1	-7.5	-7.1	-6.2	-4.3	-0.4	5.5	7.4	8.7	9.7	9.8	10.8	9.1	3.8	2.3	0.8	0.0	-0.8	-2.0	-2.3	-0.1	10.8	-8.7	
4	-1.4	-1.7	-1.6	-1.6	-0.1	0.7	0.2	-0.5	1.5	5.0	10.0	12.3	13.3	13.0	13.0	12.7	12.4	11.1	7.0	5.0	3.8	2.3	3.2	3.4	5.1	13.3	-1.7	
5	3.5	4.8	5.0	4.4	4.1	3.1	2.5	2.8	3.8	5.0	6.4	7.4	8.5	9.0	9.4	9.8	8.1	5.6	2.8	-0.6	-1.3	2.1	1.6	1.1	4.5	9.8	-1.3	
6	2.6	6.3	4.2	7.7	7.2	5.9	3.1	0.0	-0.3	1.5	5.6	7.4	7.4	7.3	7.4	6.8	5.5	4.1	4.5	2.7	2.5	2.3	1.5	-0.9	4.3	7.7	-0.9	
7	-0.1	-0.1	-1.1	-1.4	-1.3	-4.3	-5.5	-5.8	-5.4	-1.1	0.5	1.4	1.4	1.4	1.1	1.7	0.6	-1.6	-4.0	-5.6	-7.1	-8.9	-10.2	-11.8	-2.8	1.7	-11.8	
8	-12.3	-13.1	-13.9	-14.9	-15.3	-15.7	-15.8	-16.0	-11.8	-6.0	0.0	1.6	2.3	2.8	3.5	3.5	0.8	-3.6	-5.2	-8.1	-9.7	-10.2	-12.0	-11.9	-7.5	3.5	-16.0	
9	-12.8	-12.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-12.6	-12.3	-12.8	
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-1.2	-0.5	0.1	0.3	0.3	0.3	0.0	-1.8	-2.8	-3.6	-5.7	-7.2	-9.3	-11.0	-12.8	-3.7	0.3	-12.8
11	-13.1	-14.5	-15.5	-16.1	-16.4	-16.6	-16.6	-16.1	-13.2	-8.9	-5.1	-2.6	-1.6	-1.1	-0.7	-0.5	-1.1	-2.3	-4.7	-4.8	-6.8	-6.6	-8.5	-8.6	-8.4	-0.5	-16.6	
12	-7.8	-7.6	-6.6	-5.5	-4.6	-4.5	-3.8	-3.2	-2.2	-0.9	0.0	1.2	1.3	2.7	4.3	4.5	4.3	3.8	3.3	4.0	3.8	6.4	9.2	9.0	0.5	9.2	-7.8	
13	8.5	8.1	6.4	6.1	5.7	5.4	5.2	4.6	4.3	4.1	4.1	4.3	4.3	4.9	5.0	4.6	4.0	3.3	2.6	2.1	2.6	2.1	1.4	-0.6	4.3	8.5	-0.6	
14	-0.9	-0.9	-0.9	-0.8	-0.8	-0.5	-0.2	0.2	1.7	5.8	8.4	10.7	11.4	11.7	11.9	11.5	10.9	10.8	10.5	10.4	9.4	7.5	9.6	9.5	6.1	11.9	-0.9	
15	8.5	8.1	8.9	9.6	7.8	8.3	8.9	9.2	9.3	11.0	12.0	12.5	12.6	13.5	13.5	13.4	12.8	12.2	11.6	11.2	10.5	11.0	11.0	10.4	10.7	13.5	7.8	
16	5.3	2.9	2.2	1.4	-0.2	-1.5	-2.8	-3.4	-3.5	-3.5	-3.5	-3.1	-2.9	-2.6	-2.5	-2.4	-3.9	-5.1	-5.5	-5.6	-5.9	-6.5	-6.9	-6.9	-2.8	5.3	-6.9	
17	-7.2	-7.8	-8.3	-9.4	-9.7	-8.9	-8.8	-8.9	-9.7	-7.3	-6.2	-5.1	-4.2	-3.6	-3.4	-3.8	-5.3	-7.4	-9.4	-11.5	-13.2	-15.1	-16.1	-16.2	-8.6	-3.4	-16.2	
18	-16.3	-14.8	-14.2	-13.5	-12.7	-12.8	-12.3	-11.3	-9.2	-4.4	-0.1	0.8	1.6	1.6	1.5	1.1	0.7	-0.9	-1.4	-1.4	-2.4	-2.8	-3.3	-3.3	-5.4	1.6	-16.3	
19	-3.1	-3.3	-2.6	-2.5	-2.8	-2.5	-2.1	0.6	1.8	2.6	2.7	2.6	3.2	3.5	3.4	1.7	1.9	0.9	0.9	1.0	1.1	-0.1	-1.6	-0.6	0.3	3.5	-3.3	
20	-0.3	-0.4	-1.1	-2.0	-1.6	-3.4	-5.5	-6.3	-4.5	-1.5	-0.6	0.3	0.9	0.9	0.5	0.0	-1.8	-2.4	-3.3	-3.9	-5.8	-7.4	-8.4	-9.9	-2.8	0.9	-9.9	
21	-10.0	-11.1	-11.7	-12.1	-11.6	-11.2	-11.0	-10.5	-8.5	-2.9	1.3	2.7	3.0	3.4	3.9	3.4	2.9	2.9	2.7	2.4	2.4	3.6	3.6	3.4	-2.5	3.9	-12.1	
22	3.4	1.1	-0.3	-2.2	-3.2	-3.8	-5.7	-6.3	-2.9	2.8	6.6	7.3	8.9	9.4	9.1	8.2	6.8	3.0	-0.1	-3.8	-5.1	-7.6	-8.7	-9.7	0.3	9.4	-9.7	
23	-10.8	-12.0	-12.5	-12.8	-13.9	-14.0	-14.9	-15.0	-13.4	-7.8	-3.2	1.6	3.7	3.2	2.3	0.4	-1.3	-2.0	-2.0	-2.4	-3.7	-4.6	-5.3	-6.0	-6.1	3.7	-15.0	
24	-5.8	-6.2	-6.6	-6.3	-6.2	-6.2	-6.5	-6.7	-6.1	-4.0	-3.6	-2.6	-2.8	-2.0	-2.2	-2.1	-3.1	-4.6	-8.5	-11.3	-11.7	-12.6	-14.0	-13.2	-6.5	-2.0	-14.0	
25	-11.0	-10.1	-11.1	-12.5	-11.7	-8.7	1.3	1.3	1.8	2.6	2.4	2.9	3.3	3.2	3.5	3.5	4.2	4.5	4.6	5.5	5.6	5.5	5.4	5.3	0.1	5.6	-12.5	
26	4.7	5.6	5.4	4.3	1.9	2.2	-0.6	1.5	-0.5	2.8	6.8	6.8	6.5	6.6	6.4	6.3	5.9	5.2	4.3	4.0	3.7	3.5	3.2	2.9	4.1	6.8	-0.6	
27	2.0	0.9	-0.4	-0.5	0.9	1.4	0.4	-0.4	-0.3	0.3	1.1	2.6	3.8	4.4	5.0	4.9	2.8	-0.2	-1.6	-2.8	-3.6	-4.2	-3.7	-3.0	0.4	5.0	-4.2	
28	-2.9	-1.0	3.8	6.5	6.3	5.6	5.7	4.8	4.1	8.0	10.4	11.2	11.5	11.7	11.6	10.6	9.7	9.1	7.8	7.3	7.7	8.4	8.5	8.4	7.3	11.7	-2.9	
29	7.9	7.4	7.3	7.3	6.9	4.8	2.5	1.9	1.7	5.9	7.6	7.3	6.3	5.5	5.0	3.1	1.6	1.2	1.2	0.4	-1.2	-0.4	-0.9	-3.2	3.6	7.9	-3.2	
30	-3.3	-2.3	-2.7	-2.1	-1.7	-0.9	-1.2	-0.1	0.8	0.3	0.4	0.3	2.6	3.8	4.5	5.2	5.2	5.0	5.1	5.4	6.0	5.6	5.9	6.7	2.0	6.7	-3.3	
Avg	-3.7	-3.8	-3.7	-3.8	-4.0	-4.2	-4.4	-4.3	-3.1	-0.1	2.4	3.6	4.3	4.7	4.8	4.5	3.4	1.9	0.7	-0.4	-1.2	-1.7	-2.2	-2.7	-0.5	5.2	-8.2	
Max	8.5	8.1	8.9	9.6	7.8	8.3	8.9	9.2	9.3	11.0	12.0	12.5	13.3	13.5	13.5	13.4	12.8	12.2	11.6	11.2	10.5	11.0	11.0	10.4	10.7	13.5	7.8	
Min	-16.3	-16.1	-16.5	-17.5	-18.0	-18.6	-18.9	-19.1	-14.7	-9.4	-6.2	-5.1	-4.2	-3.6	-3.4	-3.8	-5.3	-7.4	-9.4	-11.5	-13.2	-15.1	-16.1	-16.2	-12.6	-12.3	-19.1	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
2-Meter Temperature (Degrees Celsius)
December 2021

A-15

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	7.1	7.4	7.1	7.2	8.0	7.5	8.6	9.4	10.0	10.6	11.4	11.8	12.1	12.9	13.9	13.6	13.2	12.9	12.6	12.2	11.6	11.5	11.3	10.7	10.6	13.9	7.1
2	10.0	10.5	10.3	10.0	10.2	10.1	9.5	10.4	10.3	11.0	Au	Au	Au	9.8	9.6	8.9	7.5	6.8	6.5	5.9	5.4	4.7	4.8	4.2	8.4	11.0	4.2
3	2.8	1.4	-1.1	-2.4	-4.1	-5.5	-6.1	-6.7	-6.1	-2.4	2.5	4.2	4.6	4.7	4.3	3.5	2.8	2.2	2.1	1.5	1.4	0.1	-0.5	-1.2	0.1	4.7	-6.7
4	-1.9	-1.9	-1.8	-1.6	-1.6	-1.8	-2.0	-1.7	-1.5	-0.9	0.7	2.1	3.6	5.3	5.9	5.1	4.7	4.7	2.8	3.2	2.9	2.5	1.8	0.8	1.2	5.9	-2.0
5	-0.7	-1.8	-2.6	-3.2	-5.0	-7.1	-7.8	-8.5	-9.0	-8.9	-8.9	-8.4	-8.4	-8.6	-8.7	-9.6	-11.2	-12.7	-15.8	-18.1	-18.3	-16.5	-17.2	-20.2	-9.9	-0.7	-20.2
6	-21.2	-22.5	-23.2	-22.0	-19.0	-17.5	-15.8	-13.8	-11.7	-10.0	-8.5	-7.4	-6.6	-5.9	-6.1	-5.9	-5.2	-4.6	-4.6	-4.8	-5.8	-8.5	-10.8	-10.8	-11.3	-4.6	-23.2
7	-11.0	-10.7	-12.0	-14.5	-16.5	-15.3	-10.6	-4.9	-3.2	-2.9	-0.8	0.1	0.7	1.0	1.4	1.4	0.9	0.5	0.6	0.6	0.5	0.4	0.7	0.5	-3.9	1.4	-16.5
8	-0.5	1.1	0.5	-0.4	1.0	1.5	2.0	2.3	2.7	3.2	3.4	3.5	3.5	3.4	2.7	2.8	1.6	0.7	-0.3	-0.7	-1.4	-2.8	-3.6	-4.5	0.9	3.5	-4.5
9	-5.4	-6.1	-6.8	-7.1	-7.5	-8.3	-8.2	-8.7	-9.8	-7.2	-6.1	-5.5	-5.4	-5.5	-5.7	-5.8	-6.2	-7.6	-9.6	-10.7	-10.8	-9.5	-8.5	-9.6	-7.6	-5.4	-10.8
10	-10.2	-12.4	-14.3	-16.9	-18.3	-18.8	-16.6	-16.2	-15.1	-12.8	-7.7	-6.4	-6.2	-5.7	-5.8	-6.5	-7.4	-7.5	-7.0	-6.5	-6.5	-6.3	-6.2	-5.7	-10.1	-5.7	-18.8
11	-5.3	-5.0	-4.8	-5.0	-4.9	-5.2	-3.9	-3.9	-3.6	-2.4	-1.8	-1.1	-0.8	0.4	1.1	0.5	-0.3	-1.4	-1.9	-1.9	-2.1	-2.1	-2.2	-2.1	-2.5	1.1	-5.3
12	-1.9	-1.8	-1.6	-1.9	-1.9	-1.5	-1.6	-1.9	-2.2	-1.5	0.5	1.6	2.4	2.6	2.4	2.0	0.4	-2.9	-3.1	-3.2	-3.8	-3.3	-3.1	-3.3	-1.2	2.6	-3.8
13	-4.4	-3.8	-3.4	-3.7	-4.6	-3.8	-2.7	-2.3	-1.6	-1.2	-0.4	0.2	1.3	1.9	2.1	2.4	1.5	0.1	0.0	0.4	-0.5	-0.7	-2.0	-2.4	-1.1	2.4	-4.6
14	-0.5	0.0	1.8	2.2	2.2	3.6	2.3	1.1	2.5	2.6	4.9	5.3	4.9	3.8	2.1	2.1	1.5	1.1	-0.3	-1.1	-2.2	-2.3	-3.3	-3.4	1.3	5.3	-3.4
15	-4.1	-5.0	-5.6	-6.1	-6.4	-6.7	-7.2	-7.8	-8.5	-8.7	-8.6	-8.3	-7.7	-7.8	-8.0	-9.0	-8.7	-8.5	-8.5	-11.9	-15.3	-18.0	-19.6	-21.0	-9.5	-4.1	-21.0
16	-22.2	-22.9	-22.7	-23.9	-23.7	-23.6	-21.8	-18.3	-15.6	-13.1	-11.5	-8.8	-6.4	-5.3	-5.5	-5.7	-5.3	-6.0	-7.0	-7.1	-6.6	-7.1	-7.5	-7.4	-12.7	-5.3	-23.9
17	-13.0	-15.8	-17.6	-20.2	-20.9	-22.3	-22.7	-22.8	-24.0	-23.6	-21.2	-19.0	-15.1	-13.6	-13.1	-13.1	-16.5	-21.0	-23.2	-25.0	-25.1	-25.6	-26.2	-26.9	-20.3	-13.0	-26.9
18	-26.8	-26.8	-26.5	-24.8	-23.2	-21.7	-18.9	-15.9	-13.5	-11.1	-8.9	-7.4	-6.8	-5.7	-3.1	-1.7	-2.3	-1.9	-1.5	-1.5	-0.7	-1.6	-1.0	2.0	-10.5	2.0	-26.8
19	2.1	1.2	0.1	0.2	2.5	2.0	1.6	0.7	0.3	0.5	-0.2	-1.5	-3.9	-4.6	-7.0	-9.0	-11.0	-11.7	-12.3	-12.7	-13.0	-13.3	-13.1	-13.5	-4.8	2.5	-13.5
20	-13.6	-13.5	-13.5	-13.4	-13.1	-13.3	-13.0	-12.5	-11.6	-10.2	-9.0	-7.4	-4.7	-3.3	-2.3	-1.1	-1.1	-1.6	-2.1	-1.7	-0.1	-0.6	-1.0	-2.2	-6.9	-0.1	-13.6
21	-3.2	-4.0	-4.8	-3.6	-6.5	-7.5	-4.9	-2.6	-1.1	-0.2	0.9	1.3	1.6	1.6	2.2	2.2	2.7	2.9	2.9	2.5	2.5	2.0	0.0	-1.9	-0.6	2.9	-7.5
22	1.3	2.3	-0.2	-2.0	-5.3	-8.3	-9.4	-1.1	-0.9	1.1	2.0	2.4	2.2	2.0	1.8	1.9	0.7	-3.9	-5.0	-7.6	-10.3	-10.1	-9.2	-6.5	-2.6	2.4	-10.3
23	-7.4	-8.3	-6.9	-7.5	-3.6	-0.5	-0.8	-0.8	-1.2	-1.1	-0.6	-0.5	-0.6	-0.1	1.0	1.2	1.3	0.5	-0.5	-2.4	-3.3	-4.2	-5.2	-5.7	-2.4	1.3	-8.3
24	-7.2	-7.5	-7.9	-8.1	-12.2	-14.9	-15.9	-17.2	-17.8	-17.5	-15.5	-12.6	-8.0	-4.9	-4.8	-5.0	-10.1	-13.6	-14.5	-15.1	-12.7	-11.2	-12.9	-15.8	-11.8	-4.8	-17.8
25	-16.0	-16.8	-16.9	-15.3	-13.5	-12.4	-12.7	-12.6	-13.0	-13.5	-10.5	-7.8	-5.6	-5.0	-4.9	-6.0	-8.6	-8.7	-9.0	-9.7	-10.6	-11.3	-11.1	-11.0	-10.9	-4.9	-16.9
26	-10.8	-12.4	-14.2	-15.0	-15.4	-15.8	-18.9	-19.6	-21.2	-21.6	-20.7	-20.5	-20.1	-20.3	-20.6	-21.5	-23.2	-22.4	-21.8	-22.7	-25.4	-27.5	-28.5	-27.9	-20.3	-10.8	-28.5
27	-26.8	-25.7	-24.8	-23.7	-23.7	-23.5	-23.2	-22.5	-23.9	-24.0	-23.1	-21.7	-17.6	-14.7	-13.2	-14.1	-18.4	-19.7	-20.9	-22.9	-25.7	-28.0	-28.7	-29.7	-22.5	-13.2	-29.7
28	-30.4	-31.1	-31.0	-30.5	-28.2	-27.5	-24.5	-20.2	-17.1	-16.0	-15.5	-14.7	-14.0	-13.3	-13.2	-13.3	-13.6	-14.0	-14.1	-14.2	-14.1	-13.5	-13.7	-14.7	-18.9	-13.2	-31.1
29	-19.7	-20.1	-21.0	-22.3	-24.1	-25.0	-27.8	-29.8	-31.3	-31.5	-29.3	-25.4	-22.2	-20.1	-18.2	-18.8	-22.2	-25.8	-27.6	-28.2	-28.6	-29.8	-29.7	-27.2	-25.2	-18.2	-31.5
30	-25.7	-24.6	-22.8	-20.4	-19.1	-17.7	-16.6	-15.5	-14.0	-13.1	-11.9	-11.1	-10.6	-10.5	-10.6	-11.1	-13.7	-16.9	-15.7	-15.8	-17.8	-20.2	-20.3	-19.5	-16.5	-10.5	-25.7
31	-18.8	-18.8	-19.2	-19.9	-20.0	-20.2	-20.5	-21.1	-21.4	-21.8	-22.5	-22.2	-22.5	-23.1	-23.1	-24.0	-25.3	-27.5	-31.1	-32.2	-30.8	-28.5	-27.2	-26.7	-23.7	-18.8	-32.2
Avg	-9.2	-9.5	-9.9	-10.2	-10.3	-10.4	-10.0	-9.2	-8.8	-8.0	-7.2	-6.2	-5.2	-4.1	-4.0	-4.3	-5.5	-6.7	-7.4	-8.1	-8.6	-9.1	-9.5	-9.8	-8.0	-2.3	-15.3
Max	10.0	10.5	10.3	10.0	10.2	10.1	9.5	10.4	10.3	11.0	11.4	11.8	12.1	12.9	13.9	13.6	13.2	12.9	12.6	12.2	11.6	11.5	11.3	10.7	10.6	13.9	7.1
Min	-30.4	-31.1	-31.0	-30.5	-28.2	-27.5	-27.8	-29.8	-31.3	-31.5	-29.3	-25.4	-22.5	-23.1	-23.1	-24.0	-25.3	-27.5	-31.1	-32.2	-30.8	-29.8	-29.7	-29.7	-25.2	-18.8	-32.2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-2 M Delta Temperature (Degrees Celsius)
October 2021

A-16

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.99	1.71	1.59	1.82	1.90	1.82	1.63	0.53	-0.60	-0.98	Au	Au	Au	-0.84	-0.71	-0.51	-0.07	0.33	0.47	0.43	0.31	1.09	1.11	1.45	0.59	1.90	-0.98
2	1.85	1.28	1.43	1.46	1.75	1.66	1.62	0.33	-0.62	-0.46	-0.57	-0.72	-0.96	-0.95	-0.78	-0.68	-0.36	0.86	1.61	0.68	0.85	1.93	2.08	1.84	0.63	2.08	-0.96
3	1.60	1.54	1.83	2.00	1.75	2.09	1.75	0.85	-0.34	-0.34	-0.60	-0.82	-0.88	-0.84	-0.93	-0.70	-0.07	1.03	1.64	0.77	2.00	2.33	1.86	1.96	0.81	2.33	-0.93
4	1.75	2.04	2.36	2.10	2.01	2.08	2.31	0.73	-0.28	-0.53	-0.62	-0.64	-0.77	-0.76	-0.62	-0.48	-0.12	1.58	2.01	2.02	1.99	2.13	2.68	2.87	1.08	2.87	-0.77
5	2.14	1.04	1.25	2.23	2.34	1.88	2.19	1.10	-0.18	-0.56	-0.52	-0.59	-0.61	-0.50	-0.33	-0.14	0.00	0.69	1.30	1.30	1.16	1.91	2.77	3.01	0.95	3.01	-0.61
6	3.08	1.86	1.19	0.88	0.20	0.53	0.74	0.07	0.03	-0.10	-0.28	-0.31	-0.63	-0.59	-0.49	-0.18	0.08	0.31	0.22	0.45	0.30	0.29	0.30	0.40	0.35	3.08	-0.63
7	0.55	0.99	0.88	0.65	0.56	0.31	0.41	0.35	-0.19	-0.67	-0.11	-0.17	-0.19	-0.18	-0.10	-0.14	-0.13	0.21	0.82	0.74	0.46	0.20	0.48	0.80	0.27	0.99	-0.67
8	0.60	0.69	0.78	0.60	0.35	0.25	0.24	0.16	-0.04	-0.21	-0.32	-0.22	-0.07	-0.15	-0.29	-0.49	-0.13	0.31	0.46	0.32	0.77	0.52	0.56	0.39	0.21	0.78	-0.49
9	0.20	0.16	0.19	0.32	0.62	0.93	0.92	0.63	0.15	-0.09	-0.27	-0.26	-0.68	-0.81	-0.69	-0.51	-0.24	0.51	1.27	1.50	2.14	1.73	1.00	0.95	0.40	2.14	-0.81
10	1.24	0.79	1.62	1.25	1.69	2.36	3.04	0.46	-0.08	-0.38	-0.55	-0.97	-0.68	-0.62	-0.71	-0.51	-0.39	0.19	0.37	0.17	0.13	0.23	0.08	0.10	0.37	3.04	-0.97
11	0.23	0.26	0.14	0.08	0.00	-0.08	-0.09	-0.11	-0.05	-0.20	-0.21	-0.24	-0.24	-0.33	-0.38	-0.27	-0.17	-0.01	0.01	0.03	0.01	0.02	0.06	0.00	-0.06	0.26	-0.38
12	0.06	0.02	0.00	-0.02	0.15	0.35	0.45	0.52	-0.06	-0.20	-0.25	-0.30	-0.26	-0.24	-0.24	-0.19	-0.13	-0.11	-0.11	-0.07	-0.07	-0.09	-0.09	-0.04	-0.04	0.52	-0.30
13	0.04	0.01	0.11	0.74	0.54	0.17	-0.04	-0.14	-0.17	-0.59	-0.68	-0.58	-0.81	-0.52	-0.50	-0.12	-0.20	-0.01	-0.02	0.01	0.00	0.00	0.02	0.04	-0.11	0.74	-0.81
14	0.03	0.05	0.09	0.14	0.22	0.21	0.17	0.25	-0.09	-0.18	-0.16	-0.26	-0.27	-0.33	-0.20	-0.15	-0.07	0.00	0.01	0.01	0.03	0.06	0.03	0.27	-0.01	0.27	-0.33
15	1.07	1.98	1.10	0.45	0.52	0.73	0.72	1.22	-0.10	-0.35	-0.34	-0.69	-0.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42	1.98	-0.81
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-0.70	-0.61	-0.40	-0.38	-0.43	0.06	0.29	0.29	0.30	0.90	0.70	0.77	1.03	0.14	1.03	-0.70
19	0.81	1.13	1.13	0.90	1.25	1.22	1.46	1.06	-0.17	-0.67	-0.85	-0.92	-0.94	-0.92	-0.78	-0.54	-0.21	0.48	0.47	1.35	1.26	1.43	1.60	1.41	0.46	1.60	-0.94
20	0.78	0.50	0.96	0.87	1.15	1.37	1.59	0.63	-0.02	-0.60	-0.42	-0.38	-0.37	-0.44	-0.57	-0.18	-0.11	0.72	1.54	2.28	1.34	1.67	1.53	1.44	0.64	2.28	-0.60
21	1.51	1.56	1.20	0.96	0.41	0.45	0.47	0.34	-0.10	-0.34	-0.38	-0.40	-0.53	-0.68	-0.82	-0.36	0.23	1.16	1.16	1.05	1.70	1.89	2.00	1.86	0.60	2.00	-0.82
22	1.57	2.00	1.80	1.79	1.68	1.71	1.47	1.41	0.14	-0.67	-0.47	-0.65	-0.52	-0.48	-0.33	-0.19	0.06	0.34	0.39	0.40	0.30	0.30	0.27	0.70	0.54	2.00	-0.67
23	1.48	0.57	0.21	0.27	0.11	0.19	0.28	0.57	0.23	-0.10	-0.56	-0.55	-0.63	-0.93	-0.62	-0.18	0.13	0.47	0.58	1.15	1.05	0.65	1.23	1.43	0.29	1.48	-0.93
24	1.22	1.26	1.39	0.84	0.72	1.42	1.75	1.40	-0.07	-0.50	-0.58	-0.59	-0.71	-0.50	-0.21	-0.10	0.02	0.13	0.12	0.30	0.61	0.80	0.52	0.16	0.39	1.75	-0.71
25	0.49	0.75	1.09	0.92	0.85	1.29	1.29	1.39	0.29	-0.14	-0.01	-0.11	-0.20	-0.15	-0.08	-0.06	0.01	0.08	0.10	0.08	0.11	0.11	0.18	0.12	0.35	1.39	-0.20
26	0.37	0.18	0.34	0.23	0.28	0.39	0.26	0.29	0.19	0.06	-0.15	-0.33	-0.31	-0.24	-0.40	-0.45	-0.13	0.66	0.76	0.35	0.20	0.14	0.42	0.39	0.15	0.76	-0.45
27	0.37	0.67	0.70	0.62	0.27	0.26	0.41	0.12	-0.04	-0.05	-0.28	-0.31	-0.44	-0.56	-0.50	-0.45	-0.03	0.27	0.28	0.32	0.55	0.59	0.93	0.66	0.18	0.93	-0.56
28	0.89	0.69	0.37	0.21	0.14	0.10	0.11	0.20	-0.01	-0.16	-0.11	-0.17	-0.19	-0.20	-0.07	0.00	0.12	0.41	0.29	0.45	0.23	0.25	0.32	0.32	0.17	0.89	-0.20
29	0.41	0.32	0.68	0.64	0.65	0.26	0.75	1.37	0.20	-0.29	-0.31	-0.40	-0.54	-0.33	-0.21	0.00	0.12	0.16	0.07	0.31	0.32	0.28	0.16	0.32	0.21	1.37	-0.54
30	0.46	0.93	1.14	0.89	1.06	1.12	1.26	0.91	-0.18	-0.37	-0.57	-0.63	-0.72	-0.99	-0.91	-0.61	-0.23	0.47	0.87	0.90	0.89	1.08	0.99	1.33	0.38	1.33	-0.99
31	1.28	1.37	1.07	1.20	1.29	0.88	0.04	0.04	-0.23	-0.59	-0.67	-0.87	-0.86	-0.82	-0.73	-0.53	-0.10	0.43	0.91	1.27	1.05	1.72	1.01	1.40	0.40	1.72	-0.87
Avg	1.00	0.94	0.95	0.89	0.87	0.93	0.97	0.60	-0.09	-0.37	-0.41	-0.44	-0.56	-0.55	-0.49	-0.33	-0.07	0.43	0.64	0.67	0.74	0.86	0.89	0.95	0.37	1.61	-0.68
Max	3.08	2.04	2.36	2.23	2.34	2.36	3.04	1.41	0.29	0.06	-0.01	1.02	-0.07	-0.15	-0.07	0.00	0.23	1.58	2.01	2.28	2.14	2.33	2.77	3.01	1.08	3.08	-0.20
Min	0.03	0.01	0.00	-0.02	0.00	-0.08	-0.09	-0.14	-0.62	-0.98	-0.85	-0.97	-0.96	-0.99	-0.93	-0.70	-0.39	-0.11	-0.11	-0.07	-0.07	-0.09	-0.09	-0.04	-0.11	0.26	-0.99

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-2 M Delta Temperature (Degrees Celsius)
November 2021

A-17

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.24	1.38	1.27	1.37	1.05	1.06	1.33	1.54	-0.34	-0.60	-0.58	-0.57	-0.68	-0.68	-0.67	-0.43	-0.01	0.44	0.99	1.52	1.19	1.23	1.53	1.35	0.58	1.54	-0.68
2	1.21	1.31	1.22	1.36	1.62	1.44	1.24	1.23	-0.23	-0.44	-0.62	-0.60	-0.60	-0.56	-0.48	-0.42	-0.14	0.26	0.62	1.36	0.92	1.03	1.41	1.24	0.56	1.62	-0.62
3	1.42	1.51	1.94	1.51	1.29	0.95	1.05	0.99	0.12	0.02	-0.42	-0.44	-0.52	-0.51	-0.24	-0.32	0.38	2.11	0.64	0.73	0.78	0.99	1.03	1.30	0.68	2.11	-0.52
4	1.09	0.93	1.09	1.39	1.16	1.25	1.34	1.02	0.10	-0.27	-0.20	-0.29	-0.39	-0.31	-0.15	0.00	0.24	0.37	0.23	0.15	0.60	0.77	0.61	0.80	0.48	1.39	-0.39
5	0.67	0.47	0.31	0.29	0.32	0.37	0.64	0.51	0.17	-0.25	-0.38	-0.54	-0.53	-0.40	-0.35	-0.26	0.60	1.16	1.23	1.69	2.24	2.09	1.95	2.52	0.60	2.52	-0.54
6	2.75	1.19	1.97	0.30	0.27	0.80	1.16	0.84	0.68	0.03	0.15	-0.12	-0.34	-0.41	-0.41	0.02	0.45	0.60	0.27	0.30	0.18	0.12	0.47	1.24	0.52	2.75	-0.41
7	0.33	0.19	0.22	0.36	0.52	1.21	1.17	0.72	0.02	-0.26	-0.25	-0.38	-0.41	-0.30	-0.16	-0.26	0.09	0.79	2.21	1.12	1.52	1.80	1.80	1.46	0.56	2.21	-0.41
8	1.39	1.71	1.40	1.61	1.71	1.59	1.79	2.04	0.19	-0.64	-0.46	-0.51	-0.56	-0.50	-0.49	-0.35	0.98	1.01	1.37	2.61	1.88	1.85	1.87	2.38	0.99	2.61	-0.64
9	2.03	1.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.97	2.03	1.92
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	-0.14	-0.26	-0.39	-0.34	-0.47	-0.47	-0.20	0.00	0.29	0.45	0.84	0.65	1.24	0.41	1.09	0.18	1.24	-0.47
11	0.88	1.23	1.33	1.10	1.03	1.12	1.21	0.98	-0.05	-0.14	-0.20	-0.15	-0.16	-0.28	-0.37	-0.33	-0.03	0.53	1.30	0.62	0.81	0.32	0.82	0.51	0.50	1.33	-0.37
12	0.35	0.31	0.14	-0.04	-0.10	-0.09	-0.09	-0.07	-0.08	-0.11	-0.16	-0.13	0.02	-0.05	-0.12	0.01	0.28	0.09	0.33	0.55	0.65	0.88	0.28	0.31	0.13	0.88	-0.16
13	0.38	0.23	0.18	0.25	0.27	0.19	0.13	0.16	0.13	0.10	-0.01	-0.14	-0.16	-0.43	-0.29	0.05	0.14	0.14	0.07	0.09	0.10	0.07	0.11	-0.02	0.07	0.38	-0.43
14	-0.02	0.03	0.09	0.07	-0.03	0.00	-0.02	0.10	0.73	1.08	0.49	0.13	0.11	0.16	0.18	0.21	0.34	0.38	0.39	0.49	0.79	1.33	0.60	0.51	0.34	1.33	-0.03
15	0.66	1.00	0.59	0.38	0.86	0.55	0.41	0.40	0.40	0.05	-0.04	-0.11	-0.02	-0.12	0.01	0.22	0.43	0.43	0.26	0.23	0.26	0.27	0.15	0.11	0.31	1.00	-0.12
16	0.05	0.12	0.19	0.20	0.21	0.21	0.16	0.09	-0.04	-0.17	-0.24	-0.26	-0.30	-0.35	-0.37	-0.41	-0.13	0.12	0.14	0.12	0.14	0.07	0.23	0.06	-0.01	0.23	-0.41
17	0.04	0.05	0.14	0.51	0.11	-0.11	0.08	0.15	0.26	-0.34	-0.50	-0.70	-0.78	-0.75	-0.60	-0.32	0.43	0.89	0.76	0.81	1.06	1.80	1.35	1.36	0.24	1.80	-0.78
18	1.16	1.05	0.83	0.79	1.06	1.30	1.41	1.10	0.55	-0.11	-0.23	-0.25	-0.17	-0.07	0.06	0.18	0.36	0.52	0.37	0.32	0.53	0.64	0.65	0.65	0.53	1.41	-0.25
19	0.71	0.57	0.30	0.53	0.45	0.41	0.77	0.75	0.13	-0.02	-0.07	-0.17	-0.32	-0.06	0.20	0.41	0.37	0.17	0.18	0.30	0.29	0.64	0.84	0.34	0.32	0.84	-0.32
20	0.43	0.45	0.23	0.37	0.42	0.87	1.67	1.62	0.63	-0.29	-0.22	-0.36	-0.44	-0.39	-0.30	-0.21	0.26	0.23	0.44	0.52	0.98	0.68	0.65	0.91	0.38	1.67	-0.44
21	0.50	0.84	0.79	0.71	0.67	0.70	0.75	0.70	0.54	0.20	-0.19	-0.44	-0.31	-0.31	-0.31	0.02	0.19	0.32	0.37	0.55	0.78	0.38	0.39	0.63	0.35	0.84	-0.44
22	0.52	1.29	2.25	1.07	0.56	0.69	1.41	1.72	0.67	0.21	-0.11	-0.10	-0.41	-0.20	-0.05	0.32	1.15	1.40	1.13	2.19	2.33	2.39	2.20	2.19	1.03	2.39	-0.41
23	2.13	2.30	2.09	2.46	2.42	1.75	2.26	1.92	0.46	-0.27	-0.25	-0.14	-0.33	-0.09	-0.02	-0.05	-0.02	0.00	0.03	0.07	0.06	0.10	0.21	0.59	0.74	2.46	-0.33
24	0.23	0.12	0.11	0.06	-0.03	-0.02	0.35	0.25	0.35	0.06	-0.13	-0.23	-0.03	-0.15	0.03	0.01	0.40	1.03	2.73	1.89	0.83	0.84	1.38	0.96	0.46	2.73	-0.23
25	-0.05	0.44	1.07	1.59	0.95	0.75	0.38	0.39	0.41	0.24	0.23	0.14	0.19	0.26	0.24	0.52	0.80	0.62	0.76	0.65	0.30	0.32	0.45	0.35	0.50	1.59	-0.05
26	0.34	0.26	0.37	0.73	1.76	1.41	1.52	1.18	1.25	0.87	0.02	0.05	0.08	0.06	0.10	0.13	0.16	0.24	0.32	0.32	0.30	0.28	0.28	0.25	0.51	1.76	0.02
27	0.46	0.92	1.18	0.90	0.66	0.42	0.10	0.29	0.16	0.08	-0.07	-0.11	-0.18	-0.23	-0.38	-0.04	0.92	1.08	0.59	0.70	0.93	0.86	0.67	0.52	0.43	1.18	-0.38
28	0.97	1.15	0.65	0.15	0.14	0.47	0.60	0.67	0.68	0.30	-0.11	-0.19	-0.16	-0.09	0.06	0.22	0.60	0.69	1.19	1.13	0.86	0.55	0.40	0.33	0.47	1.19	-0.19
29	0.33	0.30	0.28	0.28	0.44	1.11	1.43	0.87	0.87	0.20	-0.24	-0.23	-0.11	-0.03	0.06	0.16	0.15	0.34	0.45	0.44	0.63	0.63	0.98	0.92	0.43	1.43	-0.24
30	1.60	0.95	0.71	0.43	0.46	0.50	0.42	0.82	0.78	0.45	0.55	0.53	0.50	0.60	0.43	0.31	0.21	0.20	0.20	0.20	0.13	0.26	0.28	0.31	0.49	1.60	0.13
Avg	0.82	0.84	0.82	0.74	0.72	0.75	0.88	0.82	0.34	-0.01	-0.16	-0.23	-0.25	-0.23	-0.17	-0.03	0.33	0.57	0.69	0.78	0.78	0.84	0.83	0.87	0.47	1.60	-0.27
Max	2.75	2.30	2.25	2.46	2.42	1.75	2.26	2.04	1.25	1.08	0.55	0.53	0.50	0.60	0.43	0.52	1.15	2.11	2.73	2.61	2.33	2.39	2.20	2.52	1.97	2.75	1.92
Min	-0.05	0.03	0.09	-0.04	-0.10	-0.11	-0.09	-0.07	-0.34	-0.64	-0.62	-0.70	-0.78	-0.75	-0.67	-0.43	-0.14	0.00	0.03	0.07	0.06	0.07	0.11	-0.02	-0.01	0.23	-0.78

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-2 M Delta Temperature (Degrees Celsius)
December 2021

A-18

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.21	0.16	0.36	0.40	0.44	0.78	0.38	0.34	0.22	0.10	0.06	0.07	0.09	0.10	0.07	0.15	0.21	0.24	0.29	0.33	0.37	0.28	0.26	0.40	0.26	0.78	0.06
2	0.67	0.29	0.31	0.33	0.31	0.35	0.41	0.18	0.21	0.05	Au	Au	Au	-0.08	-0.06	0.00	0.14	0.19	0.13	0.16	0.21	0.31	0.16	0.26	0.22	0.67	-0.08
3	0.67	0.91	1.05	0.80	1.29	1.17	1.61	1.25	0.86	-0.29	-0.54	-0.56	-0.60	-0.33	-0.07	0.18	0.43	0.49	0.37	0.35	0.24	0.11	0.04	-0.01	0.39	1.61	-0.60
4	0.02	0.05	0.05	0.00	0.01	0.13	0.21	0.00	-0.04	-0.13	-0.18	-0.18	-0.34	-0.26	-0.35	-0.17	0.08	0.05	0.06	0.09	0.11	0.07	0.02	0.01	-0.03	0.21	-0.35
5	0.01	0.00	0.00	0.01	-0.01	0.02	0.03	0.07	-0.05	-0.08	-0.19	-0.32	-0.29	-0.20	-0.11	-0.08	0.06	0.49	1.13	1.59	0.86	0.04	0.98	1.95	0.25	1.95	-0.32
6	1.77	1.41	1.98	0.84	-0.01	-0.04	-0.08	0.05	0.01	-0.10	-0.14	-0.07	-0.16	-0.12	-0.15	-0.10	0.05	0.07	0.09	0.08	0.11	0.77	0.98	0.38	0.32	1.98	-0.16
7	0.45	0.55	1.18	1.93	1.76	0.88	1.81	0.41	0.05	0.09	0.11	0.02	0.02	0.06	0.11	0.12	0.17	0.27	0.28	0.25	0.21	0.29	0.30	0.46	0.49	1.93	0.02
8	1.01	0.46	0.56	0.79	0.32	0.46	0.31	0.25	0.19	0.14	0.16	0.17	0.15	0.14	0.04	0.08	0.14	0.21	0.28	0.19	0.11	0.20	0.30	0.30	0.29	1.01	0.04
9	0.22	0.24	0.32	0.30	0.30	0.55	0.52	0.55	1.17	-0.10	0.01	-0.13	-0.13	-0.12	0.00	0.09	0.22	0.61	1.38	2.13	1.03	0.83	0.48	0.88	0.47	2.13	-0.13
10	0.51	0.22	0.46	1.22	1.16	0.78	0.50	0.31	0.04	-0.15	-0.31	-0.18	-0.05	-0.10	-0.05	0.10	0.27	0.29	0.19	0.11	0.18	0.23	0.20	0.15	0.25	1.22	-0.31
11	0.14	0.11	0.12	0.15	0.12	0.38	0.09	0.12	0.11	0.06	0.02	0.01	0.10	-0.04	-0.18	-0.02	0.07	0.07	0.03	0.06	0.13	0.14	0.12	0.08	0.08	0.38	-0.18
12	0.07	0.11	0.10	0.04	0.05	0.07	0.06	0.12	0.24	0.12	-0.07	-0.02	0.00	0.05	0.07	0.12	0.41	1.31	1.65	1.29	1.58	0.64	0.70	0.81	0.40	1.65	-0.07
13	0.85	0.47	0.35	0.42	0.92	0.73	0.28	0.12	0.08	0.05	-0.04	-0.03	-0.03	0.08	0.22	0.28	0.07	0.06	0.23	0.33	0.64	0.52	0.74	1.05	0.35	1.05	-0.04
14	0.42	0.59	0.69	0.51	0.54	0.41	0.89	1.00	0.71	0.59	0.07	0.19	0.22	0.14	0.01	0.09	0.07	0.06	-0.01	0.01	-0.01	0.06	0.07	0.15	0.31	1.00	-0.01
15	0.10	0.10	0.05	0.00	-0.05	-0.04	-0.05	-0.04	-0.01	-0.05	-0.08	-0.16	-0.16	-0.13	-0.05	0.14	0.03	0.05	0.16	1.33	1.47	1.41	1.49	1.56	0.29	1.56	-0.16
16	1.96	2.21	1.63	1.82	1.73	1.82	0.55	0.29	0.14	-0.15	-0.10	-0.05	-0.26	-0.11	-0.05	0.10	0.18	0.40	0.35	0.34	0.23	0.75	0.53	0.46	0.62	2.21	-0.26
17	-0.05	-0.07	0.15	0.17	-0.05	0.15	0.05	0.08	0.35	0.05	-0.50	-0.57	-0.91	-0.73	-0.45	-0.24	0.52	1.39	1.67	1.70	1.67	1.61	1.94	2.44	0.43	2.44	-0.91
18	1.77	1.81	2.06	2.07	2.14	1.72	0.99	0.50	0.13	0.05	0.16	0.03	-0.02	0.01	0.11	0.09	0.20	0.29	0.39	0.47	0.32	0.50	0.74	0.20	0.70	2.14	-0.02
19	0.20	0.31	0.48	0.66	0.24	0.16	0.11	0.09	0.12	0.10	0.06	-0.21	-0.36	-0.33	-0.24	-0.18	-0.15	-0.13	-0.12	-0.11	-0.10	-0.10	-0.09	-0.06	0.01	0.66	-0.36
20	-0.09	-0.08	-0.09	-0.10	-0.03	0.04	-0.02	-0.11	-0.06	-0.10	-0.14	-0.13	-0.11	-0.11	-0.07	-0.05	0.10	0.15	0.22	0.22	0.05	0.03	0.14	0.28	-0.00	0.28	-0.14
21	0.34	0.61	0.92	0.55	1.33	1.64	0.91	0.37	0.29	0.27	0.15	0.10	0.10	0.12	0.16	0.23	0.25	0.19	0.24	0.35	0.38	0.53	0.92	1.22	0.51	1.64	0.10
22	0.48	0.51	1.76	0.92	1.47	1.75	1.89	1.47	1.41	0.52	0.34	0.27	0.14	0.21	0.30	0.17	0.62	1.63	0.87	1.65	1.93	1.53	2.76	2.24	1.12	2.76	0.14
23	1.45	1.92	1.30	1.62	1.28	0.24	0.05	0.05	0.09	0.02	0.00	-0.19	-0.21	0.08	0.24	0.26	0.22	0.19	0.31	0.15	0.17	0.25	0.38	0.41	0.43	1.92	-0.21
24	0.63	0.55	0.77	0.97	2.10	1.38	1.20	1.25	1.35	0.93	0.85	0.23	0.65	0.08	0.41	0.41	1.45	1.83	1.88	2.52	2.68	1.53	1.58	1.71	1.21	2.68	0.08
25	1.17	1.54	1.62	0.99	0.34	0.02	0.57	0.90	1.19	1.14	0.43	0.08	0.08	0.18	0.12	0.68	1.12	1.19	0.90	0.11	0.30	0.26	0.38	0.15	0.64	1.62	0.02
26	0.15	0.71	0.40	0.27	-0.02	-0.16	-0.14	-0.15	-0.18	-0.16	-0.25	-0.27	-0.25	-0.22	-0.22	-0.17	-0.15	-0.15	0.01	0.18	1.41	1.56	1.45	0.80	0.19	1.56	-0.27
27	0.70	0.22	0.04	-0.14	-0.13	-0.13	-0.13	-0.03	0.32	0.57	0.03	0.26	-0.07	0.37	0.13	0.43	1.08	1.38	1.35	1.60	2.05	2.51	2.42	2.65	0.73	2.65	-0.14
28	2.22	2.15	1.92	3.05	4.58	2.17	2.95	2.05	0.75	0.24	0.09	0.09	0.47	0.07	0.02	0.08	0.00	0.03	0.10	0.08	0.15	0.02	0.03	0.01	0.97	4.58	0.00
29	0.08	0.09	0.32	0.33	0.67	0.58	1.45	1.45	1.33	1.04	0.35	-0.28	-0.37	-0.13	-0.63	0.15	1.06	2.22	1.71	1.53	1.26	1.64	2.73	2.90	0.90	2.90	-0.63
30	2.50	1.61	0.87	0.24	0.42	0.02	0.34	0.34	0.40	0.25	0.03	-0.10	-0.05	0.11	-0.07	0.15	0.83	0.99	0.12	0.18	0.49	0.79	0.60	0.42	0.48	2.50	-0.10
31	0.00	-0.06	0.03	0.01	-0.05	-0.06	-0.06	-0.03	-0.08	-0.07	0.03	-0.06	-0.16	0.08	0.06	0.39	0.60	1.11	1.43	1.90	0.51	0.11	-0.03	0.06	0.24	1.90	-0.16
Avg	0.67	0.64	0.70	0.68	0.75	0.58	0.57	0.43	0.37	0.16	0.01	-0.07	-0.08	-0.04	-0.02	0.11	0.33	0.55	0.57	0.68	0.67	0.63	0.75	0.78	0.44	1.73	-0.17
Max	2.50	2.21	2.06	3.05	4.58	2.17	2.95	2.05	1.41	1.14	0.85	0.27	0.65	0.37	0.41	0.68	1.45	2.22	1.88	2.52	2.68	2.51	2.76	2.90	1.21	4.58	0.14
Min	-0.09	-0.08	-0.09	-0.14	-0.13	-0.16	-0.14	-0.15	-0.18	-0.29	-0.54	-0.57	-0.91	-0.73	-0.63	-0.24	-0.15	-0.15	-0.12	-0.11	-0.10	-0.10	-0.09	-0.06	-0.03	0.21	-0.91

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (Watts per Square Meter)
October 2021

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0	0	0	0	0	0	12	137	307	482	Au	Au	Au	329	299	206	46	15	0	0	0	0	0	0	141	482	0
2	0	0	0	0	0	0	14	143	293	456	580	658	678	643	552	402	235	56	1	0	0	0	0	0	196	678	0
3	0	0	0	0	0	0	11	59	332	364	522	644	684	663	555	433	156	47	1	0	0	0	0	0	186	684	0
4	0	0	0	0	0	0	8	122	292	451	570	650	672	634	549	416	214	28	0	0	0	0	0	0	192	672	0
5	0	0	0	0	0	0	9	108	278	429	493	572	584	474	315	195	143	59	0	0	0	0	0	0	152	584	0
6	0	0	0	0	0	0	3	56	98	143	218	288	477	471	339	153	76	9	0	0	0	0	0	0	97	477	0
7	0	0	0	0	0	0	13	58	255	306	136	159	159	86	53	80	116	51	0	0	0	0	0	0	61	306	0
8	0	0	0	0	0	0	3	57	93	187	180	145	101	143	375	409	79	8	0	0	0	0	0	0	74	409	0
9	0	0	0	0	0	0	4	43	68	68	140	174	676	606	507	378	213	31	0	0	0	0	0	0	121	676	0
10	0	0	0	0	0	0	9	79	108	318	441	658	490	473	531	301	230	39	0	0	0	0	0	0	153	658	0
11	0	0	0	0	0	0	1	19	36	94	94	144	182	214	180	123	58	11	0	0	0	0	0	0	48	214	0
12	0	0	0	0	0	0	2	22	88	108	116	105	83	82	71	40	18	4	0	0	0	0	0	0	31	116	0
13	0	0	0	0	0	0	2	38	102	379	373	364	491	250	226	73	135	6	0	0	0	0	0	0	102	491	0
14	0	0	0	0	0	0	2	19	94	117	132	196	139	241	103	77	30	4	0	0	0	0	0	0	48	241	0
15	0	0	0	0	0	0	3	33	109	264	253	489	616	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	136	616	0
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	527	493	260	292	368	102	9	0	0	0	0	0	0	158	527	0
19	0	0	0	0	0	0	1	48	279	505	507	557	577	545	457	326	162	14	0	0	0	0	0	0	166	577	0
20	0	0	0	0	0	0	2	54	194	282	291	245	272	358	429	139	118	12	0	0	0	0	0	0	100	429	0
21	0	0	0	0	0	0	0	14	74	205	193	188	283	374	432	202	91	6	0	0	0	0	0	0	86	432	0
22	0	0	0	0	0	0	2	43	171	358	396	588	461	353	250	144	64	3	0	0	0	0	0	0	118	588	0
23	0	0	0	0	0	0	0	25	66	97	390	345	460	513	384	96	36	3	0	0	0	0	0	0	101	513	0
24	0	0	0	0	0	0	1	28	213	356	469	433	550	363	165	87	45	1	0	0	0	0	0	0	113	550	0
25	0	0	0	0	0	0	0	15	99	131	103	155	198	109	74	47	17	0	0	0	0	0	0	0	40	198	0
26	0	0	0	0	0	0	0	17	49	129	201	350	282	211	282	318	104	4	0	0	0	0	0	0	81	350	0
27	0	0	0	0	0	0	1	23	101	106	346	333	428	483	399	320	89	2	0	0	0	0	0	0	110	483	0
28	0	0	0	0	0	0	0	9	45	100	54	105	164	104	55	41	24	0	0	0	0	0	0	0	29	164	0
29	0	0	0	0	0	0	0	20	138	324	310	397	482	302	238	55	3	0	0	0	0	0	0	0	95	482	0
30	0	0	0	0	0	0	0	21	143	301	362	396	450	512	416	293	106	2	0	0	0	0	0	0	125	512	0
31	0	0	0	0	0	0	0	21	174	349	501	581	523	482	401	265	104	2	0	0	0	0	0	0	142	581	0
Avg	0	0	0	0	0	0	4	48	154	265	306	388	420	367	319	214	101	15	0	0	0	0	0	0	109	483	0
Max	0	0	0	0	0	0	14	143	332	505	580	806	684	663	555	433	235	59	1	0	0	0	0	0	196	806	0
Min	0	0	0	0	0	0	0	9	36	68	54	105	83	82	53	40	3	0	0	0	0	0	0	0	29	116	0

**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (Watts per Square Meter)
December 2021**

	<< 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	0	0	0	0	0	0	0	20	90	95	113	96	84	99	32	5	0	0	0	0	0	0	0	26	113	0
2	0	0	0	0	0	0	0	0	15	50	Au	Au	Au	91	88	46	10	0	0	0	0	0	0	0	14	91	0
3	0	0	0	0	0	0	0	3	42	216	294	322	299	174	73	21	1	0	0	0	0	0	0	0	60	322	0
4	0	0	0	0	0	0	0	0	12	67	115	124	142	199	296	163	11	0	0	0	0	0	0	0	47	296	0
5	0	0	0	0	0	0	0	1	20	50	164	325	271	275	126	62	17	0	0	0	0	0	0	0	55	325	0
6	0	0	0	0	0	0	0	0	17	51	64	41	61	81	37	14	1	0	0	0	0	0	0	0	15	81	0
7	0	0	0	0	0	0	0	0	29	73	155	188	192	130	124	56	6	0	0	0	0	0	0	0	40	192	0
8	0	0	0	0	0	0	0	3	33	83	79	56	56	44	86	79	19	0	0	0	0	0	0	0	22	86	0
9	0	0	0	0	0	0	0	1	29	188	125	235	233	186	84	44	4	0	0	0	0	0	0	0	47	235	0
10	0	0	0	0	0	0	0	0	20	117	323	274	189	313	253	125	14	0	0	0	0	0	0	0	68	323	0
11	0	0	0	0	0	0	0	0	17	42	105	176	87	321	375	109	9	0	0	0	0	0	0	0	52	375	0
12	0	0	0	0	0	0	0	0	13	64	194	145	179	116	56	48	6	0	0	0	0	0	0	0	34	194	0
13	0	0	0	0	0	0	0	0	16	48	60	143	160	95	57	28	0	0	0	0	0	0	0	0	25	160	0
14	0	0	0	0	0	0	0	0	15	96	274	140	66	69	59	23	6	0	0	0	0	0	0	0	31	274	0
15	0	0	0	0	0	0	0	0	21	72	178	336	279	157	135	42	3	0	0	0	0	0	0	0	51	336	0
16	0	0	0	0	0	0	0	0	12	33	44	89	197	175	73	28	5	0	0	0	0	0	0	0	27	197	0
17	0	0	0	0	0	0	0	0	33	145	273	380	384	354	274	158	16	0	0	0	0	0	0	0	84	384	0
18	0	0	0	0	0	0	0	0	21	30	38	41	40	55	52	34	5	0	0	0	0	0	0	0	13	55	0
19	0	0	0	0	0	0	0	0	7	42	84	128	174	145	72	28	3	0	0	0	0	0	0	0	28	174	0
20	0	0	0	0	0	0	0	0	6	35	48	60	99	108	61	98	12	0	0	0	0	0	0	0	22	108	0
21	0	0	0	0	0	0	0	1	23	65	252	173	124	104	72	84	18	0	0	0	0	0	0	0	38	252	0
22	0	0	0	0	0	0	0	0	33	161	294	372	456	216	142	110	29	0	0	0	0	0	0	0	76	456	0
23	0	0	0	0	0	0	0	0	12	47	130	97	142	151	101	40	6	0	0	0	0	0	0	0	30	151	0
24	0	0	0	0	0	0	0	0	23	144	182	350	383	357	280	165	21	0	0	0	0	0	0	0	79	383	0
25	0	0	0	0	0	0	0	0	16	35	103	181	369	218	203	95	8	0	0	0	0	0	0	0	51	369	0
26	0	0	0	0	0	0	0	0	5	40	89	141	136	113	102	36	6	0	0	0	0	0	0	0	28	141	0
27	0	0	0	0	0	0	0	0	8	38	104	142	211	205	190	103	6	0	0	0	0	0	0	0	42	211	0
28	0	0	0	0	0	0	0	0	13	49	76	112	146	163	194	74	5	0	0	0	0	0	0	0	35	194	0
29	0	0	0	0	0	0	0	0	11	58	217	408	449	416	309	179	28	0	0	0	0	0	0	0	86	449	0
30	0	0	0	0	0	0	0	0	3	16	27	55	85	73	77	70	22	0	0	0	0	0	0	0	18	85	0
31	0	0	0	0	0	0	0	0	18	54	115	200	258	282	294	205	23	0	0	0	0	0	0	0	60	294	0
Avg	0	0	0	0	0	0	0	0	18	74	143	185	199	176	143	77	10	0	0	0	0	0	0	0	42	236	0
Max	0	0	0	0	0	0	0	3	42	216	323	408	456	416	375	205	29	0	0	0	0	0	0	0	86	456	0
Min	0	0	0	0	0	0	0	0	3	16	27	41	40	44	37	14	0	0	0	0	0	0	0	0	13	55	0

A-21

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (inches of mercury)
October 2021

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	24.56	24.56	24.56	24.58	24.59	24.59	24.59	24.61	24.62	24.62	24.62	24.62	24.61	24.61	24.61	24.61	24.62	24.63	24.63	24.64	24.65	24.66	24.65	24.65	24.61	24.66	24.56
2	24.65	24.65	24.65	24.64	24.63	24.63	24.62	24.62	24.63	24.62	24.61	24.60	24.58	24.56	24.54	24.54	24.53	24.53	24.54	24.54	24.55	24.55	24.54	24.54	24.59	24.65	24.53
3	24.53	24.53	24.53	24.53	24.53	24.53	24.54	24.53	24.56	24.56	24.55	24.54	24.53	24.52	24.51	24.50	24.51	24.52	24.52	24.53	24.53	24.53	24.53	24.54	24.53	24.56	24.50
4	24.53	24.53	24.53	24.53	24.53	24.53	24.53	24.54	24.55	24.54	24.53	24.52	24.50	24.47	24.46	24.44	24.44	24.45	24.45	24.45	24.46	24.45	24.45	24.45	24.49	24.55	24.44
5	24.45	24.45	24.44	24.45	24.45	24.46	24.47	24.47	24.49	24.48	24.47	24.46	24.45	24.43	24.42	24.41	24.41	24.41	24.42	24.42	24.41	24.40	24.39	24.38	24.44	24.49	24.38
6	24.37	24.36	24.37	24.38	24.36	24.36	24.36	24.36	24.35	24.35	24.36	24.35	24.34	24.32	24.33	24.33	24.34	24.36	24.40	24.41	24.41	24.42	24.44	24.43	24.37	24.44	24.32
7	24.44	24.44	24.45	24.45	24.46	24.46	24.46	24.47	24.47	24.47	24.47	24.47	24.46	24.45	24.44	24.44	24.44	24.43	24.44	24.45	24.45	24.45	24.44	24.43	24.45	24.47	24.43
8	24.43	24.42	24.41	24.41	24.40	24.40	24.40	24.40	24.40	24.40	24.39	24.39	24.37	24.36	24.34	24.33	24.33	24.34	24.34	24.34	24.33	24.32	24.32	24.32	24.37	24.43	24.32
9	24.32	24.32	24.32	24.31	24.31	24.32	24.33	24.35	24.37	24.38	24.39	24.39	24.38	24.37	24.36	24.36	24.37	24.38	24.37	24.38	24.37	24.37	24.38	24.38	24.36	24.39	24.31
10	24.36	24.36	24.35	24.34	24.34	24.33	24.34	24.34	24.35	24.34	24.33	24.32	24.30	24.28	24.26	24.26	24.26	24.26	24.28	24.29	24.31	24.30	24.31	24.31	24.31	24.31	24.26
11	24.31	24.31	24.29	24.30	24.29	24.31	24.32	24.32	24.33	24.32	24.34	24.35	24.35	24.35	24.36	24.36	24.38	24.39	24.41	24.42	24.44	24.45	24.45	24.45	24.45	24.36	24.45
12	24.46	24.46	24.46	24.46	24.44	24.44	24.44	24.44	24.43	24.42	24.41	24.41	24.39	24.37	24.36	24.36	24.36	24.36	24.35	24.34	24.33	24.32	24.29	24.29	24.39	24.46	24.29
13	24.28	24.27	24.26	24.24	24.24	24.24	24.24	24.24	24.23	24.25	24.25	24.25	24.24	24.24	24.23	24.22	24.22	24.23	24.25	24.25	24.25	24.26	24.27	24.26	24.25	24.25	24.22
14	24.26	24.26	24.27	24.27	24.27	24.28	24.29	24.30	24.32	24.33	24.34	24.34	24.34	24.34	24.35	24.37	24.38	24.40	24.42	24.43	24.44	24.46	24.47	24.48	24.35	24.48	24.26
15	24.48	24.50	24.50	24.49	24.50	24.50	24.51	24.52	24.53	24.53	24.53	24.53	24.52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24.51	24.53	24.48
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24.27	24.26	24.27	24.29	24.30	24.32	24.35	24.36	24.38	24.40	24.41	24.43	24.44	24.34	24.44	24.26
19	24.44	24.44	24.44	24.47	24.47	24.48	24.49	24.51	24.52	24.54	24.54	24.53	24.52	24.52	24.51	24.51	24.52	24.53	24.54	24.53	24.53	24.53	24.53	24.52	24.51	24.54	24.44
20	24.51	24.50	24.50	24.50	24.50	24.49	24.49	24.50	24.49	24.49	24.48	24.47	24.46	24.45	24.44	24.45	24.45	24.45	24.47	24.48	24.49	24.50	24.51	24.50	24.48	24.51	24.44
21	24.51	24.51	24.51	24.51	24.52	24.52	24.52	24.53	24.54	24.55	24.55	24.55	24.54	24.53	24.52	24.51	24.51	24.51	24.50	24.50	24.49	24.49	24.47	24.46	24.51	24.55	24.46
22	24.45	24.45	24.44	24.43	24.42	24.41	24.40	24.38	24.39	24.38	24.36	24.33	24.30	24.27	24.24	24.23	24.21	24.19	24.18	24.15	24.14	24.12	24.12	24.10	24.30	24.45	24.10
23	24.09	24.08	24.10	24.12	24.14	24.15	24.15	24.16	24.17	24.18	24.17	24.15	24.14	24.14	24.14	24.15	24.16	24.16	24.16	24.16	24.16	24.17	24.17	24.18	24.15	24.18	24.08
24	24.18	24.18	24.18	24.18	24.18	24.20	24.19	24.20	24.19	24.19	24.19	24.16	24.13	24.12	24.12	24.11	24.08	24.08	24.09	24.08	24.06	24.06	24.05	24.06	24.14	24.20	24.05
25	24.05	24.03	24.04	24.03	24.02	24.02	24.00	24.01	24.01	24.00	24.01	24.02	24.02	24.02	24.01	24.02	24.03	24.03	24.05	24.06	24.06	24.06	24.07	24.07	24.08	24.03	24.08
26	24.07	24.08	24.09	24.10	24.10	24.11	24.12	24.14	24.15	24.15	24.17	24.17	24.18	24.18	24.20	24.21	24.23	24.24	24.24	24.24	24.24	24.25	24.26	24.26	24.17	24.26	24.07
27	24.26	24.26	24.25	24.25	24.26	24.25	24.25	24.26	24.28	24.30	24.33	24.35	24.36	24.37	24.40	24.43	24.46	24.48	24.50	24.51	24.53	24.54	24.55	24.54	24.37	24.55	24.25
28	24.54	24.55	24.56	24.56	24.57	24.57	24.57	24.57	24.57	24.57	24.57	24.56	24.55	24.54	24.53	24.52	24.51	24.49	24.49	24.48	24.47	24.46	24.45	24.44	24.53	24.57	24.44
29	24.43	24.43	24.41	24.40	24.38	24.37	24.35	24.35	24.35	24.33	24.31	24.30	24.28	24.26	24.23	24.21	24.22	24.26	24.29	24.30	24.31	24.32	24.37	24.38	24.33	24.43	24.21
30	24.40	24.42	24.43	24.44	24.46	24.47	24.49	24.50	24.52	24.53	24.54	24.55	24.54	24.55	24.54	24.54	24.55	24.55	24.58	24.59	24.60	24.62	24.63	24.63	24.53	24.63	24.40
31	24.63	24.63	24.63	24.62	24.61	24.61	24.61	24.61	24.61	24.59	24.58	24.58	24.57	24.56	24.55	24.54	24.54	24.54	24.56	24.57	24.59	24.60	24.61	24.60	24.59	24.63	24.54
Avg	24.39	24.39	24.39	24.39	24.39	24.39	24.40	24.40	24.41	24.41	24.41	24.40	24.39	24.37	24.37	24.37	24.37	24.38	24.39	24.39	24.39	24.40	24.40	24.40	24.39	24.46	24.32
Max	24.65	24.65	24.65	24.64	24.63	24.63	24.62	24.62	24.63	24.62	24.62	24.62	24.61	24.61	24.61	24.61	24.62	24.63	24.63	24.64	24.65	24.66	24.65	24.65	24.61	24.66	24.56
Min	24.05	24.03	24.04	24.03	24.02	24.02	24.00	24.01	24.01	24.00	24.01	24.02	24.02	24.01	24.02	24.03	24.03	24.05	24.06	24.06	24.06	24.06	24.05	24.06	24.03	24.08	24.00

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (inches of mercury)
November 2021

A-23

	<< 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	24.60	24.60	24.60	24.60	24.60	24.60	24.59	24.60	24.60	24.59	24.57	24.57	24.56	24.55	24.54	24.53	24.53	24.53	24.53	24.53	24.54	24.55	24.54	24.55	24.57	24.60	24.53	
2	24.54	24.54	24.53	24.53	24.53	24.53	24.53	24.53	24.53	24.54	24.57	24.57	24.56	24.55	24.55	24.56	24.59	24.59	24.60	24.59	24.59	24.60	24.62	24.62	24.56	24.62	24.53	
3	24.63	24.62	24.62	24.62	24.61	24.61	24.60	24.60	24.60	24.61	24.61	24.60	24.58	24.56	24.56	24.55	24.55	24.53	24.52	24.52	24.51	24.50	24.49	24.47	24.57	24.63	24.47	
4	24.45	24.44	24.43	24.42	24.40	24.39	24.38	24.36	24.36	24.35	24.34	24.32	24.29	24.27	24.26	24.23	24.21	24.21	24.25	24.28	24.27	24.27	24.27	24.28	24.32	24.45	24.21	
5	24.31	24.33	24.34	24.33	24.34	24.34	24.36	24.38	24.41	24.43	24.43	24.42	24.40	24.37	24.36	24.36	24.34	24.33	24.33	24.32	24.31	24.31	24.31	24.31	24.35	24.43	24.31	
6	24.29	24.28	24.28	24.29	24.29	24.27	24.27	24.28	24.29	24.31	24.32	24.33	24.32	24.32	24.31	24.30	24.29	24.30	24.31	24.30	24.29	24.28	24.28	24.27	24.29	24.33	24.27	
7	24.30	24.32	24.33	24.35	24.36	24.36	24.38	24.39	24.40	24.40	24.41	24.40	24.40	24.40	24.41	24.41	24.43	24.44	24.44	24.44	24.46	24.47	24.48	24.49	24.40	24.49	24.30	
8	24.49	24.49	24.50	24.50	24.50	24.51	24.51	24.52	24.52	24.51	24.52	24.52	24.51	24.50	24.50	24.50	24.50	24.50	24.52	24.53	24.54	24.54	24.54	24.52	24.51	24.54	24.49	
9	24.49	24.48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24.48	24.49	24.48	
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24.42	24.43	24.41	24.42	24.43	24.45	24.46	24.47	24.48	24.50	24.52	24.53	24.54	24.55	24.47	24.55	24.41	
11	24.56	24.56	24.56	24.56	24.55	24.54	24.54	24.53	24.53	24.53	24.52	24.53	24.52	24.53	24.54	24.56	24.56	24.58	24.59	24.59	24.60	24.61	24.62	24.63	24.56	24.63	24.52	
12	24.62	24.62	24.61	24.59	24.58	24.58	24.57	24.57	24.57	24.57	24.58	24.57	24.55	24.53	24.52	24.51	24.50	24.49	24.46	24.44	24.43	24.41	24.39	24.38	24.53	24.62	24.38	
13	24.40	24.41	24.42	24.43	24.43	24.44	24.43	24.44	24.47	24.49	24.50	24.51	24.51	24.51	24.51	24.52	24.53	24.54	24.55	24.53	24.52	24.51	24.50	24.48	24.48	24.55	24.40	
14	24.44	24.41	24.39	24.38	24.36	24.35	24.34	24.33	24.34	24.34	24.34	24.31	24.30	24.30	24.30	24.31	24.32	24.32	24.32	24.32	24.31	24.32	24.33	24.33	24.34	24.44	24.30	
15	24.34	24.34	24.33	24.33	24.33	24.33	24.33	24.33	24.33	24.32	24.30	24.27	24.23	24.21	24.18	24.15	24.12	24.09	24.06	24.02	24.01	23.97	23.96	23.95	24.20	24.34	23.95	
16	23.98	24.00	24.02	24.03	24.05	24.11	24.13	24.15	24.19	24.21	24.22	24.23	24.24	24.25	24.27	24.30	24.32	24.34	24.37	24.39	24.41	24.43	24.45	24.48	24.23	24.48	23.98	
17	24.51	24.52	24.54	24.55	24.56	24.57	24.58	24.59	24.59	24.60	24.60	24.59	24.58	24.58	24.59	24.60	24.61	24.62	24.63	24.63	24.63	24.62	24.60	24.59	24.59	24.63	24.51	
18	24.57	24.56	24.54	24.52	24.49	24.47	24.45	24.44	24.43	24.41	24.41	24.39	24.37	24.36	24.35	24.34	24.33	24.33	24.32	24.32	24.31	24.31	24.31	24.31	24.40	24.57	24.31	
19	24.31	24.30	24.30	24.29	24.28	24.27	24.27	24.28	24.28	24.29	24.29	24.29	24.28	24.27	24.27	24.28	24.30	24.31	24.33	24.34	24.35	24.37	24.38	24.39	24.30	24.39	24.27	
20	24.41	24.42	24.43	24.43	24.44	24.44	24.45	24.47	24.49	24.51	24.52	24.52	24.51	24.51	24.51	24.55	24.55	24.58	24.59	24.62	24.63	24.66	24.67	24.67	24.52	24.67	24.41	
21	24.69	24.70	24.69	24.68	24.68	24.68	24.67	24.67	24.67	24.65	24.64	24.63	24.62	24.60	24.59	24.60	24.60	24.59	24.59	24.59	24.59	24.58	24.58	24.58	24.63	24.70	24.58	
22	24.59	24.58	24.58	24.57	24.56	24.56	24.55	24.55	24.53	24.53	24.52	24.49	24.47	24.44	24.41	24.39	24.37	24.36	24.34	24.33	24.31	24.30	24.29	24.28	24.45	24.59	24.28	
23	24.27	24.25	24.24	24.22	24.20	24.19	24.17	24.15	24.14	24.12	24.10	24.10	24.09	24.08	24.10	24.11	24.12	24.14	24.15	24.17	24.20	24.23	24.26	24.30	24.17	24.30	24.08	
24	24.32	24.34	24.37	24.39	24.40	24.42	24.45	24.47	24.49	24.52	24.54	24.55	24.55	24.57	24.57	24.59	24.60	24.60	24.61	24.63	24.64	24.63	24.63	24.63	24.52	24.64	24.32	
25	24.60	24.58	24.57	24.57	24.57	24.56	24.57	24.58	24.57	24.58	24.61	24.59	24.58	24.58	24.58	24.58	24.56	24.54	24.53	24.52	24.50	24.50	24.50	24.49	24.56	24.61	24.49	
26	24.49	24.47	24.46	24.45	24.43	24.42	24.40	24.39	24.39	24.40	24.41	24.40	24.39	24.38	24.38	24.38	24.38	24.38	24.41	24.42	24.43	24.45	24.46	24.47	24.42	24.49	24.38	
27	24.48	24.48	24.49	24.50	24.52	24.53	24.54	24.54	24.54	24.55	24.55	24.55	24.54	24.52	24.52	24.52	24.50	24.50	24.50	24.50	24.49	24.47	24.46	24.45	24.51	24.55	24.45	
28	24.45	24.46	24.49	24.47	24.48	24.49	24.48	24.48	24.49	24.47	24.47	24.46	24.45	24.44	24.43	24.44	24.44	24.44	24.44	24.43	24.43	24.44	24.45	24.46	24.46	24.49	24.43	
29	24.47	24.47	24.47	24.47	24.47	24.48	24.47	24.47	24.47	24.46	24.47	24.47	24.44	24.44	24.45	24.48	24.51	24.54	24.56	24.55	24.56	24.58	24.58	24.58	24.50	24.58	24.44	
30	24.58	24.56	24.53	24.51	24.48	24.46	24.45	24.45	24.44	24.45	24.45	24.43	24.42	24.41	24.42	24.43	24.42	24.43	24.44	24.44	24.46	24.47	24.46	24.47	24.46	24.58	24.41	
Avg	24.45	24.45	24.45	24.45	24.45	24.45	24.45	24.45	24.45	24.45	24.46	24.45	24.44	24.43	24.43	24.43	24.43	24.44	24.44	24.44	24.44	24.45	24.45	24.45	24.44	24.44	24.53	24.36
Max	24.69	24.70	24.69	24.68	24.68	24.68	24.67	24.67	24.67	24.65	24.64	24.63	24.62	24.60	24.59	24.60	24.61	24.62	24.63	24.63	24.64	24.66	24.67	24.67	24.63	24.70	24.58	
Min	23.98	24.00	24.02	24.03	24.05	24.11	24.13	24.15	24.14	24.12	24.10	24.10	24.09	24.08	24.10	24.11	24.12	24.09	24.06	24.02	24.01	23.97	23.96	23.95	24.17	24.30	23.95	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (inches of mercury)
December 2021

	<< 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	24.48	24.47	24.48	24.47	24.45	24.44	24.43	24.42	24.44	24.44	24.46	24.44	24.42	24.41	24.41	24.42	24.41	24.41	24.41	24.41	24.42	24.42	24.41	24.43	24.48	24.41	
	2	24.40	24.38	24.37	24.35	24.35	24.34	24.32	24.32	24.32	24.33	24.34	24.34	24.35	24.36	24.37	24.38	24.40	24.41	24.42	24.43	24.43	24.45	24.46	24.47	24.38	24.47	24.32
	3	24.47	24.47	24.46	24.45	24.46	24.46	24.47	24.48	24.48	24.49	24.51	24.49	24.48	24.47	24.47	24.47	24.47	24.48	24.48	24.48	24.47	24.46	24.45	24.47	24.51	24.45	
	4	24.44	24.41	24.40	24.37	24.35	24.34	24.32	24.30	24.28	24.26	24.23	24.21	24.18	24.16	24.15	24.14	24.14	24.13	24.14	24.14	24.15	24.16	24.16	24.16	24.24	24.44	24.13
	5	24.15	24.16	24.17	24.18	24.21	24.26	24.30	24.34	24.39	24.43	24.46	24.46	24.46	24.47	24.48	24.50	24.52	24.53	24.54	24.53	24.53	24.53	24.52	24.50	24.40	24.54	24.15
	6	24.49	24.47	24.44	24.43	24.41	24.40	24.38	24.35	24.31	24.28	24.24	24.20	24.17	24.14	24.13	24.14	24.15	24.16	24.17	24.18	24.19	24.20	24.21	24.21	24.27	24.49	24.13
	7	24.21	24.21	24.21	24.21	24.20	24.19	24.18	24.17	24.17	24.17	24.19	24.19	24.18	24.19	24.19	24.20	24.20	24.21	24.21	24.21	24.21	24.20	24.19	24.18	24.19	24.21	24.17
	8	24.14	24.14	24.14	24.11	24.09	24.07	24.04	24.02	23.99	23.97	23.95	23.93	23.90	23.88	23.86	23.85	23.87	23.90	23.92	23.93	23.93	23.94	23.96	23.98	23.98	24.14	23.85
	9	24.00	24.01	24.03	24.04	24.04	24.04	24.06	24.06	24.07	24.08	24.08	24.07	24.05	24.04	24.04	24.05	24.05	24.06	24.07	24.07	24.08	24.08	24.08	24.08	24.06	24.08	24.00
	10	24.08	24.09	24.09	24.10	24.10	24.12	24.13	24.15	24.16	24.17	24.16	24.15	24.15	24.14	24.15	24.16	24.18	24.19	24.19	24.19	24.18	24.18	24.18	24.18	24.15	24.19	24.08
	11	24.16	24.16	24.16	24.14	24.14	24.15	24.12	24.11	24.09	24.08	24.07	24.05	24.05	24.06	24.06	24.05	24.05	24.04	24.05	24.05	24.04	24.02	24.01	24.00	24.08	24.16	24.00
	12	23.99	23.99	23.99	23.98	23.96	23.95	23.96	23.96	23.96	23.97	23.98	23.97	23.96	23.96	23.98	24.01	24.05	24.06	24.08	24.10	24.11	24.11	24.13	24.14	24.01	24.14	23.95
	13	24.14	24.15	24.15	24.15	24.14	24.15	24.16	24.17	24.16	24.16	24.17	24.15	24.14	24.13	24.12	24.13	24.15	24.14	24.13	24.13	24.10	24.09	24.09	24.08	24.14	24.17	24.08
	14	24.07	24.07	24.05	24.03	24.03	24.01	23.99	23.99	23.99	23.97	23.97	23.95	23.93	23.91	23.92	23.92	23.92	23.92	23.93	23.93	23.93	23.94	23.95	23.96	23.97	24.07	23.91
	15	23.97	23.97	23.99	24.01	24.03	24.05	24.07	24.09	24.11	24.13	24.15	24.15	24.15	24.15	24.15	24.17	24.18	24.19	24.18	24.19	24.19	24.19	24.19	24.19	24.12	24.19	23.97
	16	24.18	24.17	24.17	24.16	24.14	24.13	24.14	24.14	24.13	24.13	24.13	24.11	24.09	24.07	24.07	24.08	24.08	24.09	24.10	24.10	24.10	24.09	24.09	24.10	24.12	24.18	24.07
	17	24.12	24.17	24.21	24.25	24.28	24.31	24.34	24.37	24.39	24.43	24.45	24.46	24.45	24.45	24.45	24.45	24.46	24.47	24.48	24.48	24.48	24.49	24.48	24.48	24.39	24.49	24.12
	18	24.48	24.48	24.47	24.47	24.46	24.44	24.44	24.42	24.40	24.38	24.37	24.35	24.32	24.29	24.29	24.28	24.27	24.26	24.22	24.20	24.20	24.17	24.15	24.13	24.33	24.48	24.13
	19	24.13	24.14	24.14	24.14	24.12	24.12	24.13	24.15	24.16	24.16	24.17	24.17	24.18	24.18	24.19	24.21	24.23	24.26	24.28	24.29	24.31	24.33	24.35	24.37	24.20	24.37	24.12
	20	24.38	24.38	24.38	24.39	24.38	24.36	24.34	24.33	24.32	24.31	24.29	24.27	24.24	24.22	24.21	24.19	24.18	24.17	24.16	24.15	24.17	24.20	24.23	24.25	24.27	24.39	24.15
	21	24.27	24.28	24.29	24.29	24.30	24.30	24.29	24.29	24.30	24.32	24.32	24.32	24.30	24.27	24.26	24.24	24.24	24.25	24.24	24.22	24.21	24.21	24.21	24.20	24.27	24.32	24.20
	22	24.19	24.19	24.17	24.16	24.15	24.15	24.15	24.14	24.13	24.13	24.13	24.13	24.12	24.11	24.10	24.10	24.10	24.09	24.08	24.09	24.08	24.07	24.05	24.05	24.12	24.19	24.05
	23	24.04	24.03	24.01	23.99	23.97	23.95	23.94	23.92	23.90	23.89	23.87	23.83	23.78	23.73	23.69	23.64	23.61	23.59	23.59	23.63	23.65	23.68	23.71	23.73	23.81	24.04	23.59
	24	23.75	23.77	23.79	23.79	23.79	23.81	23.81	23.81	23.81	23.83	23.83	23.81	23.81	23.81	23.80	23.81	23.81	23.82	23.81	23.81	23.81	23.80	23.82	23.83	23.81	23.83	23.75
	25	23.82	23.81	23.83	23.84	23.86	23.88	23.88	23.92	23.94	23.97	23.97	23.95	23.94	23.94	23.94	23.94	23.96	23.95	23.95	23.93	23.92	23.90	23.88	23.86	23.91	23.97	23.81
	26	23.82	23.78	23.78	23.75	23.73	23.72	23.73	23.73	23.73	23.77	23.78	23.79	23.79	23.80	23.82	23.84	23.89	23.92	23.94	23.96	23.95	23.95	23.93	23.93	23.83	23.96	23.72
	27	23.91	23.90	23.90	23.90	23.89	23.87	23.87	23.87	23.86	23.86	23.86	23.84	23.82	23.79	23.77	23.77	23.78	23.78	23.79	23.78	23.77	23.77	23.77	23.78	23.83	23.91	23.77
	28	23.78	23.78	23.79	23.80	23.81	23.82	23.84	23.85	23.86	23.87	23.88	23.88	23.87	23.86	23.85	23.85	23.86	23.87	23.87	23.88	23.89	23.89	23.89	23.90	23.85	23.90	23.78
	29	23.92	23.93	23.95	23.96	23.97	23.97	23.97	23.96	23.97	23.97	23.97	23.99	23.96	23.94	23.93	23.93	23.92	23.91	23.89	23.87	23.85	23.83	23.81	23.79	23.92	23.99	23.79
	30	23.79	23.78	23.80	23.81	23.81	23.80	23.80	23.81	23.81	23.82	23.83	23.82	23.81	23.81	23.82	23.84	23.85	23.86	23.88	23.88	23.88	23.88	23.89	23.89	23.83	23.89	23.78
	31	23.90	23.90	23.92	23.92	23.93	23.94	23.95	23.97	23.99	24.01	24.04	24.04	24.04	24.06	24.09	24.09	24.09	24.09	24.09	24.10	24.11	24.13	24.14	24.14	24.03	24.14	23.90
Avg	24.12	24.12	24.12	24.12	24.11	24.11	24.11	24.12	24.12	24.12	24.12	24.11	24.10	24.09	24.09	24.09	24.10	24.10	24.11	24.11	24.11	24.11	24.11	24.11	24.11	24.11	24.20	24.01
Max	24.49	24.48	24.48	24.47	24.46	24.46	24.47	24.48	24.48	24.48	24.49	24.51	24.49	24.48	24.47	24.48	24.50	24.52	24.53	24.54	24.53	24.53	24.53	24.52	24.50	24.47	24.54	24.45
Min	23.75	23.77	23.78	23.75	23.73	23.72	23.73	23.73	23.73	23.77	23.78	23.79	23.78	23.73	23.69	23.64	23.61	23.59	23.59	23.63	23.65	23.68	23.71	23.73	23.81	23.83	23.59	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (Percent)
October 2021

A-25

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	75.3	76.5	77.4	78.6	79.9	81.4	80.9	70.3	50.2	33.1	28.8	25.2	27.3	30.8	31.5	31.9	36.6	39.0	43.1	45.2	52.1	60.1	63.6	71.1	53.7	81.4	25.2
2	75.9	81.2	83.7	84.8	86.0	87.5	88.7	79.9	63.2	41.8	34.5	30.4	24.0	21.9	22.6	22.8	23.6	27.1	36.8	48.8	54.7	64.1	70.6	75.0	55.4	88.7	21.9
3	76.4	76.5	76.7	78.7	79.8	81.4	81.3	77.5	56.0	33.5	22.2	21.2	18.5	16.9	18.2	17.8	18.3	22.9	32.3	39.2	45.5	51.4	54.8	58.0	48.1	81.4	16.9
4	58.6	62.7	64.6	65.1	65.9	66.4	68.4	57.5	37.6	21.0	12.1	11.3	10.8	9.7	9.0	9.0	9.8	14.4	24.1	33.0	37.9	42.1	47.9	49.2	37.0	68.4	9.0
5	51.3	41.4	43.3	50.4	55.0	56.2	57.9	54.7	33.9	19.1	14.4	12.2	10.1	9.1	9.8	11.4	12.5	14.6	25.0	31.0	35.5	39.4	45.5	50.1	32.7	57.9	9.1
6	51.2	50.8	47.7	40.7	37.3	42.2	48.1	50.8	50.6	53.0	48.7	40.9	30.6	26.5	29.8	31.2	31.9	34.7	49.8	61.8	67.5	72.3	76.5	84.4	48.3	84.4	26.5
7	89.1	90.8	91.4	91.9	92.1	92.2	92.4	92.5	92.7	67.3	69.3	76.5	79.9	79.6	82.1	87.0	83.8	84.1	88.9	90.8	90.7	90.6	90.9	91.2	86.6	92.7	67.3
8	91.9	92.0	92.0	92.3	92.4	92.6	92.5	92.6	93.1	92.8	83.4	72.6	78.2	81.3	73.6	61.9	58.0	61.0	68.8	72.6	77.8	83.7	86.3	87.1	82.1	93.1	58.0
9	85.0	85.0	86.3	86.0	87.1	89.5	91.1	91.3	88.9	79.6	71.7	69.3	55.8	45.4	35.4	32.9	31.9	35.2	41.8	44.2	55.7	62.1	56.3	60.3	65.3	91.3	31.9
10	64.4	63.5	72.3	78.2	79.1	79.4	73.6	59.8	52.2	46.6	44.6	41.9	40.8	37.7	34.5	35.8	34.5	34.6	36.0	41.2	51.7	51.7	43.1	72.0	52.9	79.4	34.5
11	73.8	71.0	55.8	52.0	61.4	72.8	84.2	87.4	74.1	72.3	71.5	69.5	64.0	65.1	64.6	64.2	61.3	59.8	59.5	56.1	54.8	57.0	59.3	60.3	65.5	87.4	52.0
12	59.6	60.7	63.1	72.9	81.4	83.6	78.4	80.0	71.3	64.8	63.9	65.2	71.2	71.6	72.7	74.7	78.9	80.9	82.1	79.9	81.4	82.2	82.0	79.4	74.2	83.6	59.6
13	80.2	80.4	81.0	84.4	85.7	85.6	85.4	85.0	76.6	63.9	59.2	54.4	46.3	43.6	40.8	41.7	50.0	58.3	69.8	75.7	79.3	79.9	81.3	80.4	69.5	85.7	40.8
14	78.6	77.9	75.6	72.2	70.9	72.4	74.5	73.5	71.0	67.7	62.1	56.0	51.1	52.1	51.7	51.9	54.6	57.5	59.2	61.1	62.6	62.7	63.1	65.8	64.4	78.6	51.1
15	71.7	77.5	77.7	80.6	78.1	76.4	77.2	78.5	71.0	55.5	50.5	46.4	43.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	68.1	80.6	43.8
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25.1	23.8	25.0	24.7	23.4	29.5	36.7	38.2	49.0	62.7	67.4	71.9	76.3	42.6	76.3	23.4
19	79.4	83.6	86.3	85.7	86.9	87.1	87.5	86.1	81.4	61.6	56.5	46.1	40.9	39.7	38.3	36.7	40.2	49.6	63.7	72.1	60.2	60.8	59.0	59.3	64.5	87.5	36.7
20	70.8	75.0	83.1	87.1	87.6	86.8	86.8	85.6	82.6	65.0	49.7	47.9	45.5	44.1	37.2	39.0	41.5	48.5	61.3	71.1	74.1	80.1	82.5	86.1	67.5	87.6	37.2
21	87.0	87.1	87.8	87.1	86.7	85.9	85.3	84.6	81.2	70.1	50.3	45.6	44.4	41.3	38.1	38.9	41.3	52.7	66.1	71.1	78.5	81.9	84.7	86.6	69.3	87.8	38.1
22	88.0	87.6	88.2	88.7	88.7	88.4	88.4	88.2	82.8	58.7	34.9	30.6	29.4	30.1	29.7	30.6	32.5	37.8	44.3	44.2	45.5	49.2	52.8	58.9	58.3	88.7	29.4
23	54.2	39.1	47.6	71.3	77.6	81.3	78.5	76.2	69.9	63.3	54.9	47.3	40.8	38.5	37.6	38.5	43.7	48.8	52.5	61.2	64.7	69.9	76.5	81.2	59.0	81.3	37.6
24	83.1	82.9	83.6	84.3	84.5	85.6	86.9	86.5	83.8	55.1	46.1	42.0	35.4	35.0	36.7	38.3	39.8	42.2	45.2	48.9	53.3	58.2	59.9	58.1	60.6	86.9	35.0
25	58.7	61.0	64.5	68.7	70.1	71.3	74.8	77.1	62.8	61.6	72.2	83.5	82.4	81.6	82.2	85.6	87.3	87.3	86.7	86.6	86.4	87.0	89.2	89.5	77.4	89.5	58.7
26	88.2	86.3	86.4	85.4	84.1	82.2	77.5	78.0	75.8	73.9	66.5	60.5	56.9	54.0	50.1	52.2	51.3	53.3	58.4	54.6	53.7	54.9	57.4	63.6	66.9	88.2	50.1
27	63.3	60.6	73.8	71.4	60.1	58.6	60.7	62.2	64.7	75.3	70.3	50.4	42.4	37.9	41.5	40.8	43.9	47.7	49.9	52.6	56.1	60.6	66.0	68.7	57.5	75.3	37.9
28	68.1	67.4	63.2	61.3	61.6	63.1	64.0	66.2	65.7	60.0	59.9	58.0	55.0	53.2	53.7	54.7	54.3	56.7	53.9	53.3	53.1	53.6	54.1	53.0	58.6	68.1	53.0
29	53.0	53.0	54.9	54.7	53.7	48.7	58.1	66.8	50.4	40.5	40.1	36.7	35.6	34.0	34.5	36.9	38.0	53.6	64.8	72.8	72.1	70.3	80.4	81.2	53.5	81.2	34.0
30	78.5	80.8	84.2	85.5	86.7	86.6	87.6	87.7	79.4	72.2	69.3	63.1	58.8	57.4	58.6	66.3	72.2	76.5	78.3	79.0	80.6	83.2	82.9	82.9	76.6	87.7	57.4
31	81.9	81.7	80.7	80.5	80.5	80.9	81.5	81.9	78.7	68.6	60.3	53.9	53.4	52.5	50.9	52.3	55.1	64.3	70.9	72.9	77.5	79.6	81.8	82.2	71.0	82.2	50.9
Avg	72.8	72.6	74.0	75.7	76.5	77.4	78.3	77.1	69.3	58.5	52.4	47.7	44.7	43.4	42.5	43.2	44.9	49.3	55.4	59.6	63.1	66.3	68.6	71.9	61.8	82.9	38.9
Max	91.9	92.0	92.0	92.3	92.4	92.6	92.5	92.6	93.1	92.8	83.4	83.5	82.4	81.6	82.2	87.0	87.3	87.3	88.9	90.8	90.7	90.6	90.9	91.2	86.6	93.1	67.3
Min	51.2	39.1	43.3	40.7	37.3	42.2	48.1	50.8	33.9	19.1	12.1	11.3	10.1	9.1	9.0	9.0	9.8	14.4	24.1	31.0	35.5	39.4	43.1	49.2	32.7	57.9	9.0

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (Percent)
November 2021

A-26

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	80.9	80.7	79.9	78.9	78.4	77.9	77.4	77.0	73.7	69.7	59.6	45.7	43.2	36.6	34.7	36.5	48.2	55.8	59.2	63.9	68.5	72.6	76.7	79.6	64.8	80.9	34.7
2	80.6	80.1	80.4	81.5	81.2	82.0	81.4	81.9	75.5	70.2	57.2	56.2	55.2	55.4	55.3	57.4	61.7	66.3	70.5	75.7	84.0	85.3	86.4	87.2	72.9	87.2	55.2
3	87.1	86.5	86.1	85.5	85.9	86.2	85.9	86.7	87.3	83.9	61.5	53.5	50.6	47.3	46.8	43.3	48.1	63.2	71.6	75.5	79.1	80.8	84.3	86.1	73.0	87.3	43.3
4	85.8	85.5	85.4	84.9	83.5	80.5	82.1	83.1	76.8	67.1	45.5	36.8	34.8	35.1	35.7	37.1	39.4	47.2	73.5	83.6	85.4	88.6	85.0	85.0	67.8	88.6	34.8
5	84.7	74.7	70.4	72.2	72.1	75.2	75.9	71.6	65.8	61.0	52.3	45.0	38.1	37.4	33.8	29.9	31.2	36.6	45.3	58.1	62.9	56.0	58.0	59.2	57.0	84.7	29.9
6	56.6	44.7	51.0	38.7	41.5	44.2	54.5	65.9	70.6	66.8	50.5	41.6	43.1	42.2	41.0	42.4	47.7	53.1	56.5	76.0	82.8	82.9	84.6	86.8	56.9	86.8	38.7
7	87.2	81.3	74.8	69.3	59.8	69.6	72.9	75.4	73.0	56.8	50.2	44.9	43.4	42.8	42.5	37.9	41.7	49.9	60.5	67.2	72.3	76.2	77.2	79.8	62.8	87.2	37.9
8	81.4	80.3	80.7	80.0	80.3	79.6	79.7	79.1	75.1	70.6	45.7	32.8	30.0	27.9	25.6	23.6	29.2	44.6	51.0	60.4	65.4	67.4	72.5	73.2	59.8	81.4	23.6
9	74.9	74.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	74.5	74.9	74.0
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	53.8	52.7	52.7	48.7	52.5	50.3	45.2	56.6	55.8	58.0	63.7	68.8	74.2	77.6	79.2	59.3	79.2	45.2
11	79.9	79.3	80.5	79.8	79.4	79.0	78.6	78.8	78.8	78.7	78.3	63.3	56.7	55.1	53.5	56.5	61.3	64.9	72.9	74.6	77.5	77.8	80.8	81.8	72.8	81.8	53.5
12	81.7	81.9	82.0	81.7	80.7	84.2	86.1	85.8	84.6	83.2	80.8	80.6	85.4	86.2	83.6	82.9	83.9	86.6	88.2	84.4	85.8	75.3	60.0	58.3	81.4	88.2	58.3
13	59.3	61.8	69.5	61.0	60.6	65.7	67.1	58.8	55.0	51.3	47.4	45.1	44.2	39.0	34.1	32.3	32.9	36.5	46.5	51.5	44.3	52.9	61.7	84.1	52.6	84.1	32.3
14	89.5	88.3	88.5	88.2	88.2	88.4	88.3	88.0	85.4	74.9	67.0	57.4	52.1	47.5	43.6	43.1	42.9	41.6	42.6	40.3	42.1	46.7	38.2	35.8	62.9	89.5	35.8
15	37.7	37.7	36.0	33.4	38.0	36.5	34.6	32.6	32.0	27.7	25.5	25.0	24.1	21.5	20.3	21.0	22.6	24.6	26.9	29.9	33.6	29.2	29.5	34.5	29.8	38.0	20.3
16	71.0	80.1	71.4	56.1	49.9	37.5	38.2	41.3	42.7	45.6	47.3	39.6	37.6	36.0	35.5	37.3	48.2	52.3	54.8	55.0	55.9	67.1	67.0	68.6	51.5	80.1	35.5
17	70.5	76.2	77.6	78.1	82.3	82.3	80.4	78.6	77.1	65.9	59.2	53.4	49.2	45.2	43.8	43.3	46.5	52.8	61.3	67.8	71.2	74.9	76.7	75.9	66.3	82.3	43.3
18	75.8	74.7	73.8	72.6	71.2	70.7	66.7	65.2	63.3	57.1	27.7	22.8	21.9	21.7	22.9	25.9	27.9	34.0	35.4	36.2	40.9	44.7	52.6	56.3	48.4	75.8	21.7
19	55.6	58.4	56.7	58.9	61.0	62.1	61.4	59.0	59.2	61.5	69.9	75.3	69.7	66.3	68.0	81.1	82.6	87.3	88.9	86.7	83.7	87.4	89.6	88.0	71.6	89.6	55.6
20	84.8	82.2	83.2	84.5	77.7	79.7	83.7	83.2	77.5	65.4	63.9	60.2	58.3	56.3	53.8	53.5	59.6	62.1	65.9	68.5	74.0	78.7	80.6	82.6	71.7	84.8	53.5
21	82.5	82.1	82.3	81.5	81.9	81.2	81.3	81.6	82.2	65.4	39.7	34.4	32.4	31.8	31.0	32.3	33.0	31.9	32.3	32.1	32.2	28.7	27.9	27.5	52.1	82.5	27.5
22	27.9	32.6	38.9	46.6	51.0	53.9	59.1	62.1	55.0	44.0	33.2	31.9	27.4	24.1	24.4	25.7	26.3	36.3	46.9	56.8	61.5	67.6	70.7	73.4	44.9	73.4	24.1
23	74.4	76.9	77.7	77.9	78.0	78.1	78.5	78.6	72.5	67.9	60.5	41.9	31.2	33.8	39.9	55.9	74.3	84.2	85.6	82.8	81.6	81.0	81.7	80.9	69.8	85.6	31.2
24	81.3	84.1	85.9	85.2	85.3	85.9	85.6	85.8	84.2	71.2	67.6	61.0	57.1	53.5	51.7	52.3	54.7	57.6	67.2	74.8	78.8	79.8	80.5	81.2	73.0	85.9	51.7
25	81.0	79.9	80.7	81.4	81.7	77.0	32.4	33.1	34.2	33.9	41.4	41.7	44.5	47.0	46.3	47.5	38.3	36.4	38.3	38.6	39.2	41.3	42.2	41.9	50.0	81.7	32.4
26	42.6	38.3	37.9	38.9	45.4	43.6	54.3	46.7	54.0	45.6	36.8	40.2	42.4	48.2	51.0	51.0	52.4	58.6	63.6	58.3	56.0	55.6	57.6	58.7	49.1	63.6	36.8
27	63.4	64.3	69.6	72.3	68.9	67.5	81.7	89.3	89.0	85.3	81.4	73.3	65.7	59.1	53.4	52.7	60.6	70.6	76.9	80.2	82.8	83.5	84.3	83.3	73.3	89.3	52.7
28	83.6	79.0	65.8	55.0	60.1	63.6	64.4	70.8	79.3	63.9	51.5	46.6	43.1	39.5	38.2	41.2	44.2	43.1	45.9	47.7	45.4	45.0	44.6	44.3	54.4	83.6	38.2
29	46.5	48.1	48.3	44.5	44.4	51.1	60.0	63.7	66.2	53.8	49.9	54.7	58.3	61.7	63.8	77.9	87.1	87.2	87.8	88.5	89.4	89.1	84.8	87.5	66.4	89.4	44.4
30	86.6	84.2	84.2	85.1	83.9	81.0	83.1	75.0	66.3	69.7	71.3	75.0	58.0	52.0	51.4	55.6	63.2	65.8	65.8	65.2	64.1	69.1	65.9	63.0	70.2	86.6	51.4
Avg	72.2	71.7	71.4	69.8	69.7	70.2	70.5	70.7	69.2	62.5	54.3	49.4	46.4	44.9	44.0	45.6	49.9	54.7	60.0	63.6	65.8	67.6	68.2	69.8	61.7	81.8	40.6
Max	89.5	88.3	88.5	88.2	88.2	88.4	88.3	89.3	89.0	85.3	81.4	80.6	85.4	86.2	83.6	82.9	87.1	87.3	88.9	88.5	89.4	89.1	89.6	88.0	81.4	89.6	74.0
Min	27.9	32.6	36.0	33.4	38.0	36.5	32.4	32.6	32.0	27.7	25.5	22.8	21.9	21.5	20.3	21.0	22.6	24.6	26.9	29.9	32.2	28.7	27.9	27.5	29.8	38.0	20.3

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (Percent)
December 2021

A-27

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	64.0	64.6	65.7	65.8	63.7	66.0	61.8	58.9	56.2	56.0	54.5	53.1	51.6	47.8	43.7	43.4	44.4	45.4	46.2	48.0	51.5	53.5	55.2	56.8	54.9	66.0	43.4
2	58.4	56.1	55.2	54.5	53.7	54.7	55.3	50.5	50.6	49.3	Au	Au	Au	52.9	47.0	39.6	39.4	40.1	43.7	49.2	51.5	52.9	51.0	54.3	50.5	58.4	39.4
3	60.3	65.0	73.7	78.2	80.8	84.5	85.6	85.9	84.0	75.8	59.9	48.9	44.1	37.8	33.7	36.2	38.4	41.0	39.5	41.0	47.4	57.6	63.9	68.3	59.6	85.9	33.7
4	71.6	72.8	74.3	74.4	74.3	75.8	77.4	76.3	74.8	72.5	65.6	59.4	55.4	51.5	54.1	56.2	56.6	57.4	72.8	59.3	52.5	53.5	56.8	62.2	64.9	77.4	51.5
5	74.0	83.5	83.7	82.9	79.7	72.5	71.8	71.8	77.8	75.8	76.6	72.5	71.4	73.9	72.0	76.0	79.0	80.4	80.4	78.7	78.8	78.5	78.1	76.4	76.9	83.7	71.4
6	76.3	74.5	73.8	74.3	76.2	77.0	78.3	79.6	79.3	78.2	71.6	71.3	68.1	67.8	75.6	83.5	85.8	84.6	82.2	81.2	82.3	85.3	84.4	83.2	78.1	85.8	67.8
7	82.9	83.2	82.1	80.1	79.0	79.6	83.8	87.3	84.1	80.0	76.2	75.0	72.4	70.3	67.9	67.6	68.5	69.1	66.5	65.6	65.7	64.8	63.4	61.8	74.0	87.3	61.8
8	65.1	57.9	60.0	62.7	57.1	55.7	52.3	50.7	49.3	48.7	47.9	47.3	49.5	50.4	58.0	62.3	63.5	58.5	48.0	51.2	59.1	59.5	46.3	44.2	54.4	65.1	44.2
9	46.3	52.2	54.7	56.9	60.0	61.7	58.5	57.4	61.3	51.9	52.1	52.6	54.4	60.9	59.0	55.9	56.2	61.7	65.6	66.8	67.4	65.9	63.8	68.3	58.8	68.3	46.3
10	69.3	73.8	76.8	78.8	77.9	77.3	77.7	77.6	77.9	75.8	64.7	64.7	61.3	57.0	50.8	47.3	50.0	51.9	52.2	53.6	53.7	52.6	56.4	55.7	64.0	78.8	47.3
11	53.9	54.5	53.5	53.4	52.8	54.7	50.5	50.0	49.6	47.0	45.8	45.1	44.9	42.4	39.9	42.7	47.3	57.9	62.6	59.4	56.0	53.0	54.1	54.7	51.1	62.6	39.9
12	57.8	57.0	55.9	63.9	63.5	56.4	58.7	60.5	60.2	58.7	52.2	50.3	47.8	47.3	49.4	47.9	59.1	71.2	70.9	70.5	73.5	79.1	81.3	82.7	61.5	82.7	47.3
13	84.3	84.9	87.5	87.9	87.7	87.4	87.7	88.5	85.7	81.2	77.7	74.1	68.5	65.5	63.9	62.7	74.2	88.1	85.5	80.0	79.7	76.6	78.6	78.6	79.9	88.5	62.7
14	73.9	71.9	63.2	59.7	60.8	54.3	59.9	62.6	56.5	57.0	45.7	46.4	49.7	59.5	76.6	75.2	81.2	84.6	86.4	85.3	86.9	82.0	87.1	77.9	68.5	87.1	45.7
15	72.5	76.2	79.3	78.9	80.8	80.7	80.1	79.9	74.2	69.1	67.0	63.6	63.5	65.7	68.3	72.0	70.3	63.5	58.6	66.3	75.5	77.9	78.1	76.8	72.4	80.8	58.6
16	75.4	74.9	75.2	73.5	73.4	73.1	74.3	76.6	78.8	80.4	81.4	81.5	67.8	62.3	64.5	66.6	64.8	67.9	75.0	77.6	78.0	79.9	81.0	80.6	74.4	81.5	62.3
17	76.8	75.1	72.5	69.6	70.7	69.5	69.4	69.9	70.3	63.6	61.2	55.6	50.0	54.6	56.6	54.2	67.0	75.9	75.2	73.2	72.7	72.0	71.1	70.4	67.4	76.8	50.0
18	70.5	70.0	70.3	72.2	73.2	74.3	76.1	78.3	79.4	77.5	71.2	68.1	73.3	71.3	59.6	56.0	63.6	65.2	64.4	64.4	61.8	65.1	66.6	56.0	68.7	79.4	56.0
19	54.7	57.0	59.8	60.0	51.3	52.4	54.3	56.9	57.5	53.9	65.6	81.7	80.5	80.2	81.1	80.9	80.1	80.3	80.3	79.9	80.0	79.7	80.4	79.6	69.5	81.7	51.3
20	79.8	79.9	79.9	80.2	80.4	80.4	80.7	80.9	81.5	81.2	80.9	80.8	79.6	77.2	76.3	74.6	76.7	79.9	83.3	83.1	82.2	85.8	76.8	71.5	79.7	85.8	71.5
21	63.7	59.2	62.1	57.1	66.0	71.2	68.8	69.5	67.1	65.6	60.9	58.8	63.1	64.4	62.5	63.1	62.1	61.1	60.2	59.1	58.9	60.4	70.8	76.5	63.8	76.5	57.1
22	53.9	44.5	53.0	59.8	71.8	78.4	81.4	46.6	43.0	37.8	38.2	40.9	43.3	46.5	47.7	47.6	50.4	65.7	68.6	74.1	79.1	80.9	77.9	72.9	58.5	81.4	37.8
23	76.0	78.4	76.5	78.9	72.0	76.8	78.6	86.1	86.9	86.3	83.8	81.2	84.0	78.6	71.3	68.3	66.6	72.5	77.4	81.0	65.4	58.8	56.3	49.4	74.6	86.9	49.4
24	55.4	58.2	62.3	59.5	72.2	77.5	77.5	79.2	79.4	74.6	70.4	54.4	46.6	42.5	42.6	42.6	65.1	75.0	75.5	79.6	77.4	81.3	80.4	80.6	67.1	81.3	42.5
25	79.9	79.1	78.4	79.4	80.5	81.1	80.8	81.8	80.9	80.8	81.8	72.9	60.9	51.3	47.4	53.2	63.0	66.7	68.8	68.8	69.3	72.8	72.1	72.0	71.8	81.8	47.4
26	75.3	76.9	79.0	79.2	79.5	78.4	74.0	74.2	72.1	71.3	71.7	70.1	70.0	71.2	71.4	70.9	71.3	71.6	71.0	71.8	71.2	70.5	69.5	69.2	73.0	79.5	69.2
27	69.5	70.4	70.6	71.4	71.4	71.5	71.9	72.4	71.4	71.2	66.9	66.7	63.7	65.1	65.0	63.8	75.3	76.5	74.7	73.2	71.8	69.8	69.0	67.9	70.0	76.5	63.7
28	67.0	66.3	66.3	67.1	69.5	69.4	71.5	75.5	77.2	77.5	78.0	75.2	66.5	64.2	65.0	66.3	74.2	78.9	78.5	78.9	78.8	77.2	78.6	78.0	72.7	78.9	64.2
29	72.9	71.0	68.9	68.7	69.5	70.5	70.9	68.6	66.9	66.0	64.9	58.4	52.8	54.0	54.0	59.6	68.0	73.8	70.7	69.1	68.2	67.5	67.8	70.9	66.4	73.8	52.8
30	70.7	71.8	72.6	74.5	75.6	76.8	77.6	78.6	79.8	80.6	81.5	81.9	79.6	75.8	75.9	74.2	73.6	78.3	79.3	77.8	77.3	76.4	75.1	75.4	76.7	81.9	70.7
31	75.8	75.1	74.9	74.0	74.0	73.9	74.0	73.0	72.6	71.1	69.2	67.0	64.9	67.9	68.0	65.9	69.3	69.3	68.5	67.9	67.1	68.1	68.3	68.8	70.4	75.8	64.9
Avg	68.6	68.9	69.7	70.2	70.9	71.4	71.7	71.1	70.5	68.3	66.2	64.0	61.6	60.6	60.3	60.5	64.7	68.2	68.8	68.9	69.1	69.6	69.7	69.1	67.6	78.6	53.9
Max	84.3	84.9	87.5	87.9	87.7	87.4	87.7	88.5	86.9	86.3	83.8	81.9	84.0	80.2	81.1	83.5	85.8	88.1	86.4	85.3	86.9	85.8	87.1	83.2	79.9	88.5	71.5
Min	46.3	44.5	53.0	53.4	51.3	52.4	50.5	46.6	43.0	37.8	38.2	40.9	43.3	37.8	33.7	36.2	38.4	40.1	39.5	41.0	47.4	52.6	46.3	44.2	50.5	58.4	33.7

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
October 2021

A-28

Day	<< Hour >>																								Tot Max	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Au	Au	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.14	0.07
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	0.00
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.01	0.02	0.02	0.02	0.01	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.22	0.06
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.05
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.06	0.06	0.74	0.09	0.04	0.01	0.03	0.02	0.06	0.00	0.03	0.00	0.01	0.46	0.22
Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.06	0.03	0.70	0.07	0.02	0.01	0.03	0.02	0.05	0.00	0.03	0.00	0.01	0.22	0.07

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
November 2021

	<< 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	Tot	Max
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.08	0.00	0.00	0.00	0.00	0.15	0.08
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	0.00
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.05
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.04
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.03	0.01	0.01	0.00	0.05	0.03	0.03	0.07	0.08	0.00	0.00	0.00	0.00	0.41	0.00
Max	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.03	0.01	0.01	0.00	0.04	0.02	0.02	0.06	0.08	0.00	0.00	0.00	0.00	0.15	0.08

**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
December 2021**

[illegible]

A-30

APPENDIX B: PERFORMANCE AUDIT REPORTS
FOURTH QUARTER 2021



Bison Engineering

Preliminary Meteorological Parameters Audit Form

Audit Dates: 12/22/2021 Tower Lowered : 10:45 MST Tower Back Up : 13:35 MST
 Client: Tintina Resources
 Site: Black Butte
 AUDITOR: Don Milmine PRECEDING CALIBRATION BY: Steve Heck

Temperature

Audit Device: Control Company - digital thermometer Model 4000
 Meter S/N: 140251289 Temperature Sensor: Climatronics 100093
 Last certified: Jul 30, 2021 S/N X17929 (Upper), S/N X17927 (Lower) - Matched Set

Temperature bath results

	9m	9m	2m	2m	9m - 2m	
Audit	DAS	DAS	DAS	DAS	DAS	Both of the fans were working properly
Value	Value	Diff.	Value	Diff.	Diff.	
°C	°C	°C	°C	°C	°C	
0.00	0.13	0.13	0.13	0.13	0.00	
14.46	14.48	0.02	14.48	0.02	0.00	
33.26	33.32	0.06	33.32	0.06	0.00	

Wind Direction

Sensor height: 9 Meter	Sensor (Make/model number): Climatronics/ 102083	Serial Number : P1336C	Crossarm orientation (from nextar Q4-06 GPS): 359.5 / 179.5	Setpoint	Clockwise	Linearity Check from DAS		
						Counter-CW	Diff CW	Diff CCW
GPS location at sensor:				0	3.0	3.0	3.0	3.0
N 46.77269 deg , W 110.882525 deg				30	32.7	32.7	2.7	2.7
GPS location at sighting point:				60	62.9	62.9	2.9	2.9
N 46.77232 deg , W 110.88252 deg				90	92.9	93.0	2.9	3.0
Sensor response aligned with crossarm (as found): 180.8				120	123.0	122.8	3.0	2.8
Sensor response aligned with crossarm (as left): 180.1				150	152.9	152.7	2.9	2.7
				180	182.9	182.7	2.9	2.7
				210	212.4	212.1	2.4	2.1
				240	242.6	242.4	2.6	2.4
				270	272.8	272.5	2.8	2.5
				300	303.0	302.5	3.0	2.5
				330	332.7	332.3	2.7	2.3
						Max Diff	0.8	-0.9

Threshold Torque: 3.6 g-cm
 (torque disk)

Wind Speed

Sensor height: 9 Meter
 Sensor (Make/model number): Climatronics/ 102083
 Serial Number : P1336C
 Calibration device: Weathertronics 300 rpm synchronous motor
 Weathertronics 600 rpm synchronous motor

Synchronous motor checks

Known	Known	DAS	DAS
Value	Value	Value	Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
50	1.29	1.30	0.01
100	2.35	2.37	0.02

Threshold Torque: 0.2 gm-cm CWR
 (torque disk) 0.3 gm-cm CCWR

Synchronous motor checks (continued)

Known Value	Known Value	DAS Value	DAS Diff.
RPM	m/s	m/s	m/s
200	4.48	4.51	0.03
300	6.66	6.66	0.00
400	8.74	8.80	0.06
600	13.1	13.1	0.00
800	17.3	17.4	0.12
990	21.3	21.5	0.11

Solar Radiation

Audit Device: : LI-COR Pyranometer Model LI-200 S/N PY71543

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1301	35.9	37.3	3.9	0.1

Relative Humidity

Site Sensor: Met One 083E-0-35
Sensor Height: 2 meters
Reference Std: Control Company Model 4185 Humidity sensor Jul 24, 2021 NIST cal by "Innocal"

Audit Meter: 54.7
Station RH: 53.4 %RH
Diff: -1.3 %RH

Barometric Pressure

Audit Device: Vaisala Model PTB330(50-1100) S/N HO850001 MesaLabs NIST cal Sep 2, 2021
Checked against Bison Mercury barometer (Butte) September 2019

Audit Value: 24.29 in Hg
Station Value: 24.37 in Hg
Diff: 0.08 in Hg

Precipitation

Rain Gauge = Met One Model 375D, Serial No. X15682
Level checked OK
Wind Screen in place
8" opening
300 ml water added
Calibration is 8.24 ml per tip
Known audit value is $300 / 8.24 = 36.4$ tips (so 36 or 37 full tips expected)
Unit registered 35 tips
% difference from expected = -2.8%

Signature Site Operator : _____

Signature Auditor :  _____