

**SANDFIRE RESOURCES, INC.
BLACK BUTTE COPPER
PROJECT AMBIENT AIR
MONITORING PROGRAM
Quarterly Data Report
Fourth Quarter 2020**

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February 11, 2021

CERTIFICATION OF DATA INTEGRITY

Bison Engineering, Inc., certifies the data in this report is an accurate summary of the air quality conditions measured at the Black Butte Copper Project air 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)*.

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Date: February 11, 2021

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APPENDICES

Appendix A: Meteorological Data

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1.0 INTRODUCTION

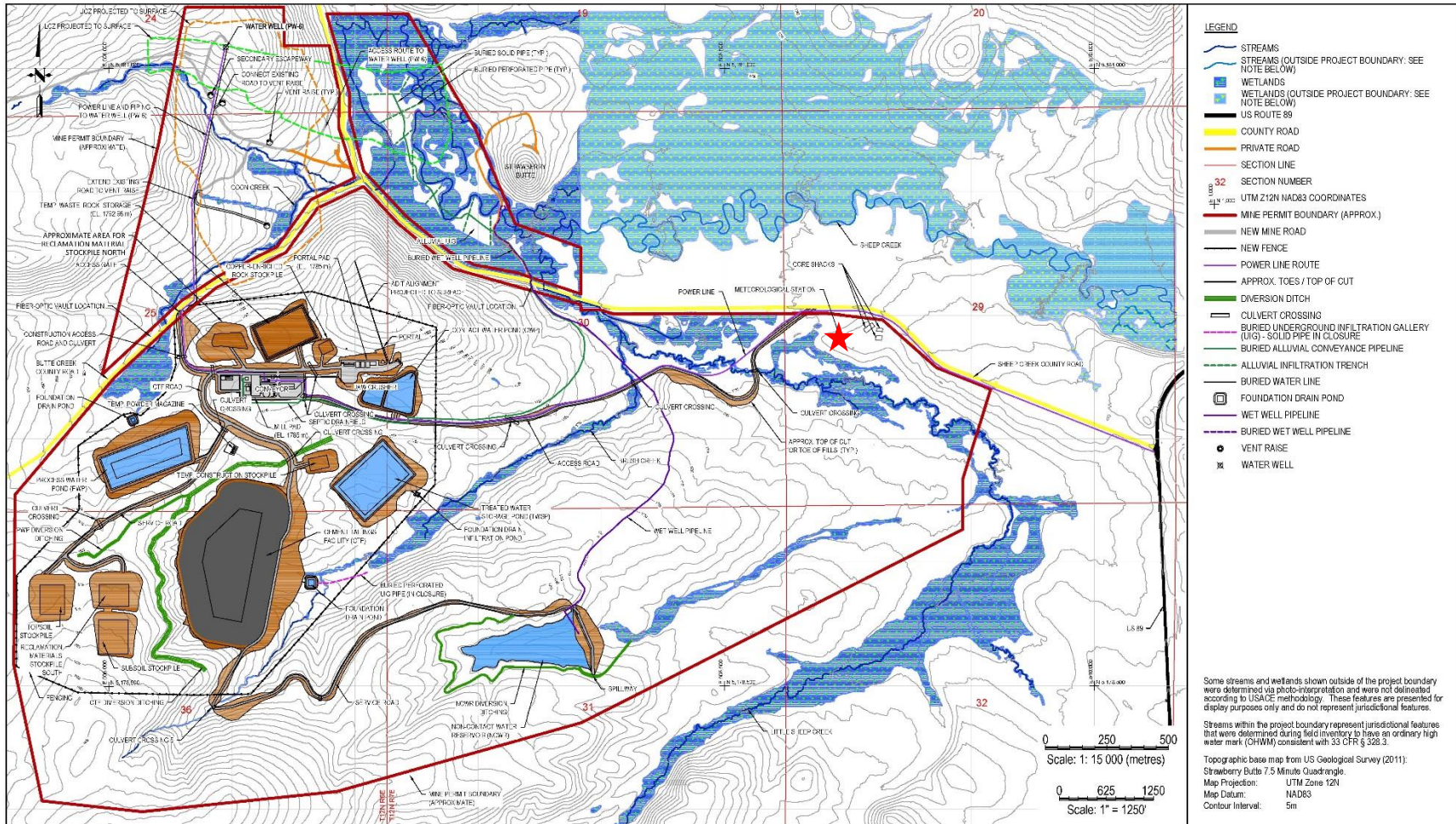
Sandfire Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately 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 2020. 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. The automatic precipitation gauge operated well throughout the fourth quarter of 2020. The evaporation gauge and manual rain gauge were not operated during the fourth quarter of 2020.

Figure 1. Monitoring Site Location



Prepared by Tetra Tech Inc. (Revised October 2018 to include alluvial UG 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 2020. Data were downloaded and reviewed by Bison at least once a week and examined for suspect behavior. All instruments were operational throughout the quarter.

Don Milmine of Bison conducted performance audits of the meteorological system on December 30, 2020. No calibration adjustments were made to any of the instrumentation.

3.0 PERFORMANCE AUDIT DATA

Don Milmine of Bison conducted performance audits of the meteorological system on December 30, 2020. All audit results were satisfactory and no calibration adjustments were necessary.

The Bison report of the audits is presented in Appendix B.

4.0 CALIBRATION DATA

Don Milmine of Bison conducted performance audits of the meteorological system on December 30, 2020, as discussed in Section 3.0. All of the 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 2020 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.

During the fourth quarter there was a portion of December 28 for which the wind speed anemometer appeared to be iced and frozen; those data were flagged as invalid. Overall net data recovery for the quarter was 99.4 percent for wind speed and 100.0 percent for all other parameters.

Table 1. Monthly Data Completeness

October 2020					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	744	100.0	0	100.0
Wind Direction	744	744	100.0	0	100.0
Standard Deviation	744	744	100.0	0	100.0
9-Meter Temperature	744	744	100.0	0	100.0
2-Meter Temperature	744	744	100.0	0	100.0
9-2 M Delta Temperature	744	744	100.0	0	100.0
Solar Radiation	744	744	100.0	0	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	744	100.0	0	100.0
Precipitation	744	744	100.0	0	100.0
Total	7,440	7,440	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

November 2020					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	720	100.0	0	100.0
Wind Direction	720	720	100.0	0	100.0
Standard Deviation	720	720	100.0	0	100.0
9-Meter Temperature	720	720	100.0	0	100.0
2-Meter Temperature	720	720	100.0	0	100.0
9-2 M Delta Temperature	720	720	100.0	0	100.0
Solar Radiation	720	720	100.0	0	100.0
Barometric Pressure	720	720	100.0	0	100.0
Relative Humidity	720	720	100.0	0	100.0
Precipitation	720	720	100.0	0	100.0
Total	7,200	7,200	100.0	0	100.0

Table 1. Monthly Data Completeness (Continued)

December 2020					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	726	97.6	4	98.1
Wind Direction	744	740	99.5	4	100.0
Standard Deviation	744	740	99.5	4	100.0
9-Meter Temperature	744	740	99.5	4	100.0
2-Meter Temperature	744	740	99.5	4	100.0
9-2 M Delta Temperature	744	740	99.5	4	100.0
Solar Radiation	744	740	99.5	4	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	744	100.0	0	100.0
Precipitation	744	743	99.9	1	100.0
Total	7,440	7,397	99.4	29	99.8

Table 2. Quarterly Data Completeness

Fourth Quarter 2020					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,190	99.2	4	99.4
Wind Direction	2,208	2,204	99.8	4	100.0
Standard Deviation	2,208	2,204	99.8	4	100.0
9-Meter Temperature	2,208	2,204	99.8	4	100.0
2-Meter Temperature	2,208	2,204	99.8	4	100.0
9-2 M Delta Temperature	2,208	2,204	99.8	4	100.0
Solar Radiation	2,208	2,204	99.8	4	100.0
Barometric Pressure	2,208	2,208	100.0	0	100.0
Relative Humidity	2,208	2,208	100.0	0	100.0
Precipitation	2,208	2,207	100.0	1	100.0
Total	22,080	22,037	99.8	29	99.9

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 EPA 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 2020																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	1.1	0.9	1.2	1.3	1.5	2.8	2.8	1.5	0.3	0.1	0.3	0.0	0.4	0.1	0.7	1.3	16.4
	1.1 - 2.0	0.7	0.5	1.2	2.3	3.6	3.5	4.6	2.3	1.1	0.7	0.5	1.1	0.9	0.8	0.8	0.7	25.3
	2.1 - 3.0	0.0	0.1	0.4	0.5	1.5	1.5	0.8	1.5	0.7	0.1	0.4	1.7	1.7	1.6	1.2	0.5	14.4
	3.1 - 4.0	0.1	0.0	0.1	0.3	0.1	0.1	0.3	1.5	0.4	0.1	0.5	1.3	2.2	2.2	1.5	0.3	11.0
	4.1 - 5.0	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.5	0.0	0.5	0.1	1.1	3.2	1.7	0.8	0.4	9.0
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.5	2.6	1.2	0.8	0.5	5.9
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.4	1.7	1.2	0.5	0.1	4.4
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.3	1.7	0.7	0.4	0.1	3.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	1.2	1.3	0.0	0.0	3.0
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	2.6	0.1	0.0	0.0	3.2
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.2	0.3	0.0	0.0	1.7
	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	0.4	0.4	0.0	0.0	0.8
	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	0.3	0.3	0.0	0.0	0.5
	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	0.1	0.0	0.0	0.4
	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		2.2	1.6	3.1	4.4	6.7	7.9	8.6	7.5	2.7	2.2	3.1	6.7	20.4	12.1	6.7	4.0	100.0
Average Speed		1.6	1.1	1.6	1.5	1.6	1.4	1.4	2.3	2.6	4.4	4.5	3.9	6.2	5.4	3.7	2.8	3.5

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

November 2020																		
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	0.4	0.4	0.3	1.0	0.7	1.3	0.7	0.4	0.3	0.0	0.1	0.3	0.4	0.4	0.3	7.1
	1.1 - 2.0	0.4	1.0	0.8	1.4	4.0	6.4	9.2	3.9	1.1	0.7	0.4	0.6	0.6	0.4	0.4	0.4	31.7
	2.1 - 3.0	0.0	0.0	0.3	0.6	0.8	1.9	2.5	1.0	0.6	0.1	0.3	0.7	3.1	1.7	0.6	0.0	14.0
	3.1 - 4.0	0.0	0.0	0.1	0.1	1.0	0.8	1.0	1.1	1.4	0.1	0.6	1.1	1.8	2.4	0.7	0.3	12.5
	4.1 - 5.0	0.1	0.0	0.0	0.0	0.3	0.0	0.3	0.7	0.8	0.6	0.1	1.0	2.1	1.7	0.1	0.4	8.2
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	1.0	0.3	0.1	0.7	0.8	3.3	0.8	0.0	0.1	7.5
	6.1 - 7.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.6	0.4	0.1	0.6	0.6	2.8	0.8	0.0	0.1	6.4
	7.1 - 8.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.7	0.1	0.4	3.2	0.6	0.6	0.6	6.8
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.6	0.1	1.1	0.1	0.1	0.1	2.8
	9.1 - 10.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.8	0.0	0.0	0.4	1.9
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.4
	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	0.3	0.0	0.0	0.0	0.4
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	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		1.1	1.5	1.7	2.4	7.2	9.9	14.4	9.4	5.1	3.5	3.9	5.6	19.4	9.0	2.9	2.9	100.0
Average Speed		4.2	1.7	1.7	1.8	2.0	1.8	1.8	3.0	3.4	5.6	5.9	4.5	5.6	4.2	3.7	5.7	3.6

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

December 2020																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	1.7	1.5	2.1	0.8	2.6	3.6	5.1	4.1	1.2	0.1	0.7	0.3	0.6	0.6	0.4	1.0	26.3
	1.1 - 2.0	0.6	1.0	2.1	2.3	3.4	4.8	4.7	4.0	1.0	0.3	1.0	0.6	1.0	1.0	1.1	0.6	29.2
	2.1 - 3.0	0.0	0.0	0.1	0.6	1.9	1.4	1.4	0.3	0.4	0.4	0.4	1.1	2.3	1.1	1.1	0.6	13.1
	3.1 - 4.0	0.0	0.0	0.0	0.1	0.1	0.4	0.3	1.2	0.4	0.0	0.3	1.1	1.4	1.7	1.0	0.1	8.1
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.1	0.7	0.0	0.3	0.8	1.7	1.8	0.7	0.4	7.6
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.4	0.4	3.0	0.7	0.3	0.0	5.2
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.6	1.2	0.6	0.1	0.0	3.0
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.1	1.2	0.7	0.1	0.0	2.8
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.4	0.4	0.4	0.0	2.6
	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	0.1	0.3	0.3	0.1	0.0	1.0
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	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	0.3	0.3	0.0	0.0	0.0	0.6
	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	0.1	0.0	0.0	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		2.2	2.5	4.3	3.9	8.3	10.2	11.6	10.9	4.3	1.1	3.9	5.6	14.7	8.7	5.4	2.6	100.0
Average Speed		0.8	1.0	1.1	1.6	1.5	1.4	1.3	1.8	2.6	3.5	3.5	4.6	5.2	4.3	3.6	2.1	2.7

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

Fourth Quarter 2020																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	1.0	1.0	1.2	0.8	1.7	2.4	3.1	2.1	0.6	0.2	0.3	0.1	0.4	0.4	0.5	0.9	16.6
	1.1 - 2.0	0.5	0.8	1.4	2.0	3.7	4.9	6.1	3.4	1.1	0.5	0.6	0.7	0.8	0.7	0.8	0.5	28.7
	2.1 - 3.0	0.0	0.0	0.3	0.5	1.4	1.6	1.6	0.9	0.5	0.2	0.4	1.2	2.4	1.5	1.0	0.4	13.8
	3.1 - 4.0	0.0	0.0	0.1	0.2	0.4	0.5	0.5	1.3	0.7	0.1	0.5	1.2	1.8	2.1	1.1	0.2	10.5
	4.1 - 5.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.8	0.5	0.4	0.2	1.0	2.3	1.7	0.5	0.4	8.3
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.4	0.6	3.0	0.9	0.4	0.2	6.2
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.4	0.5	1.9	0.9	0.2	0.1	4.6
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	2.1	0.6	0.4	0.2	4.5
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	1.2	0.6	0.2	0.0	2.8
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	1.2	0.1	0.0	0.1	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	0.0	0.0	0.5	0.1	0.0	0.0	0.8
	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	0.3	0.1	0.0	0.0	0.5
	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	0.1	0.2	0.1	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	0.1	0.0	0.0	0.0	0.2
	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	0.1
	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		1.8	1.9	3.0	3.6	7.4	9.3	11.5	9.3	4.0	2.2	3.6	6.0	18.2	10.0	5.0	3.2	100.0
Average Speed		1.8	1.2	1.4	1.6	1.7	1.6	1.6	2.3	2.9	4.8	4.6	4.3	5.7	4.7	3.7	3.5	3.3

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

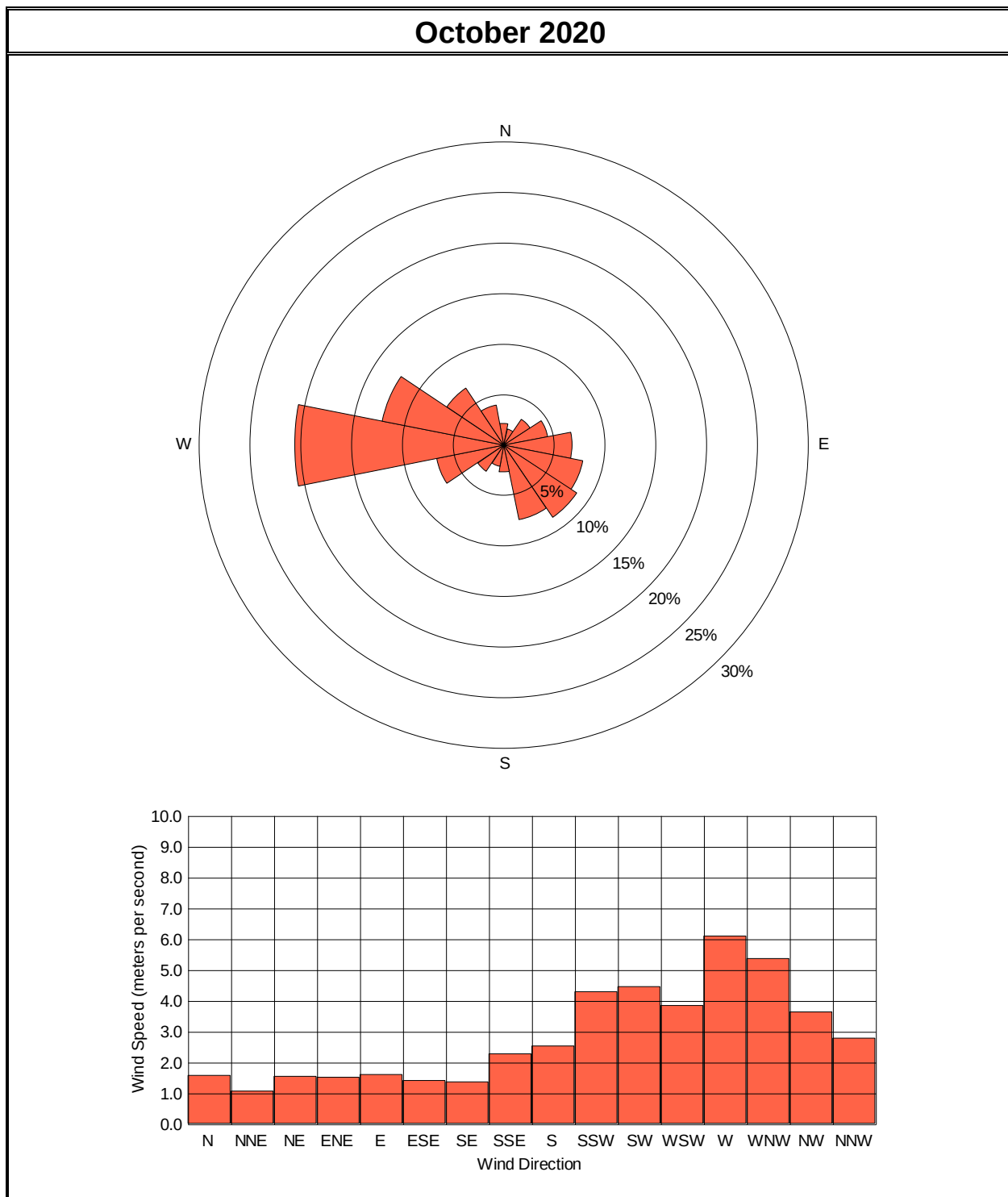


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

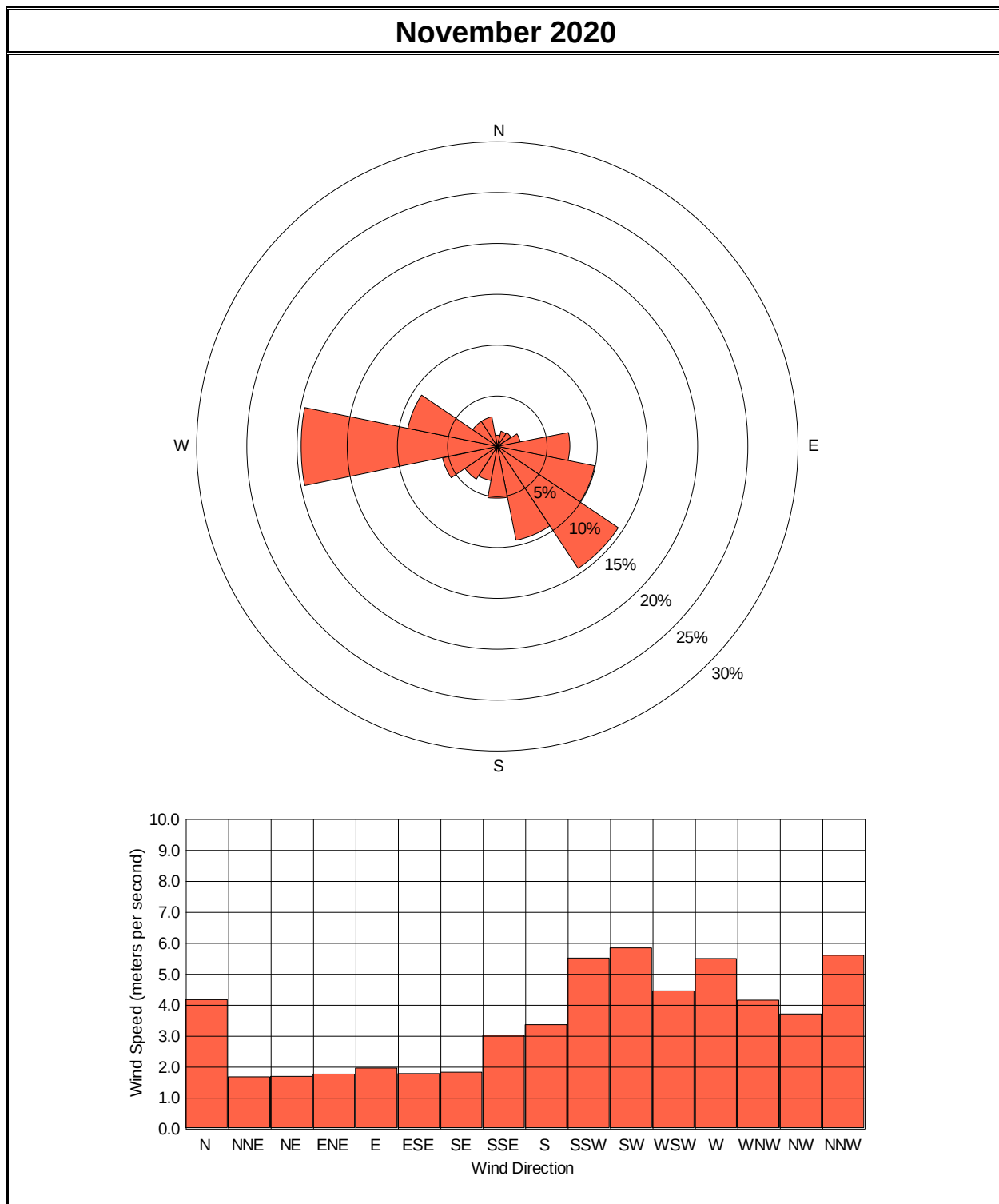


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

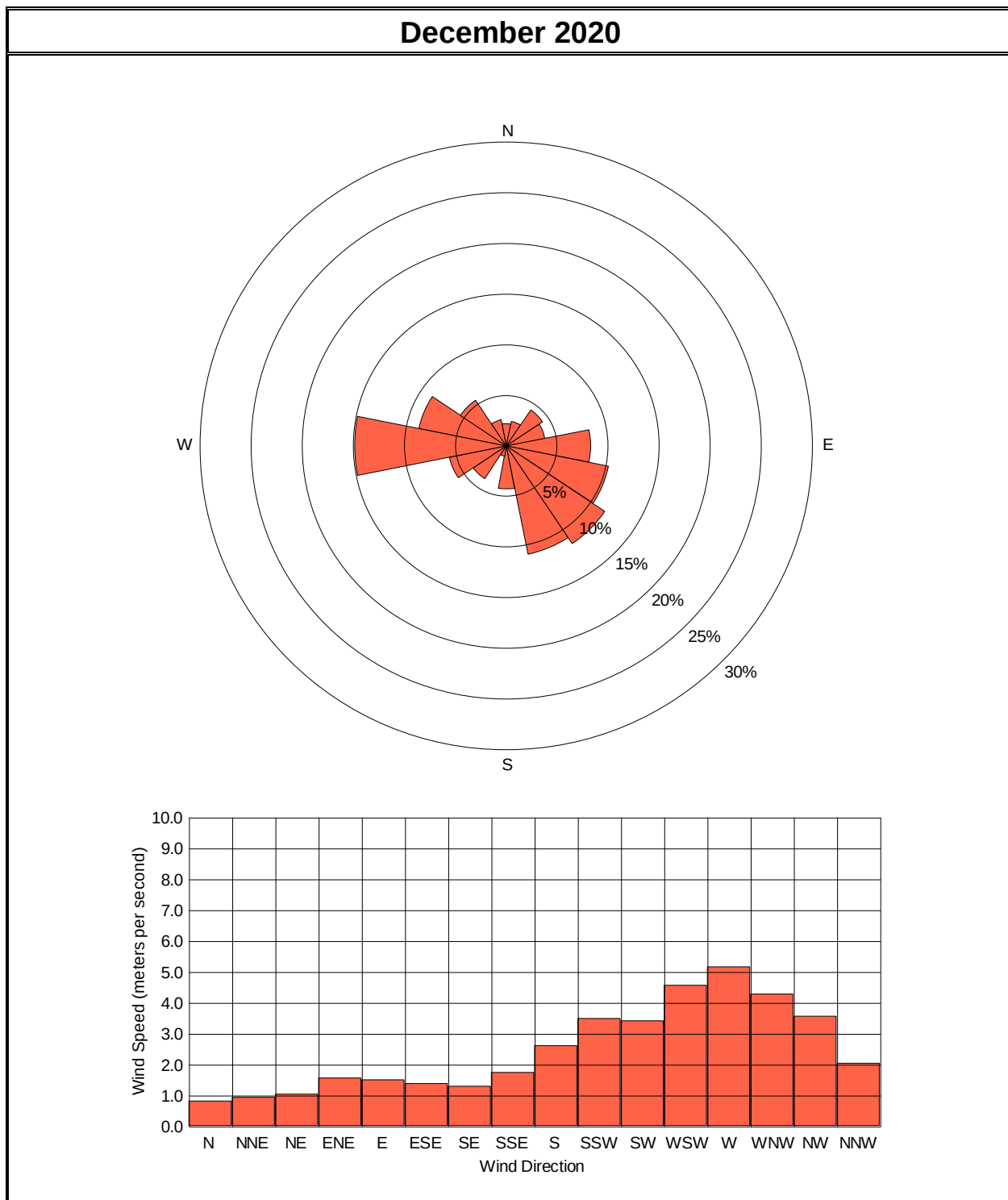
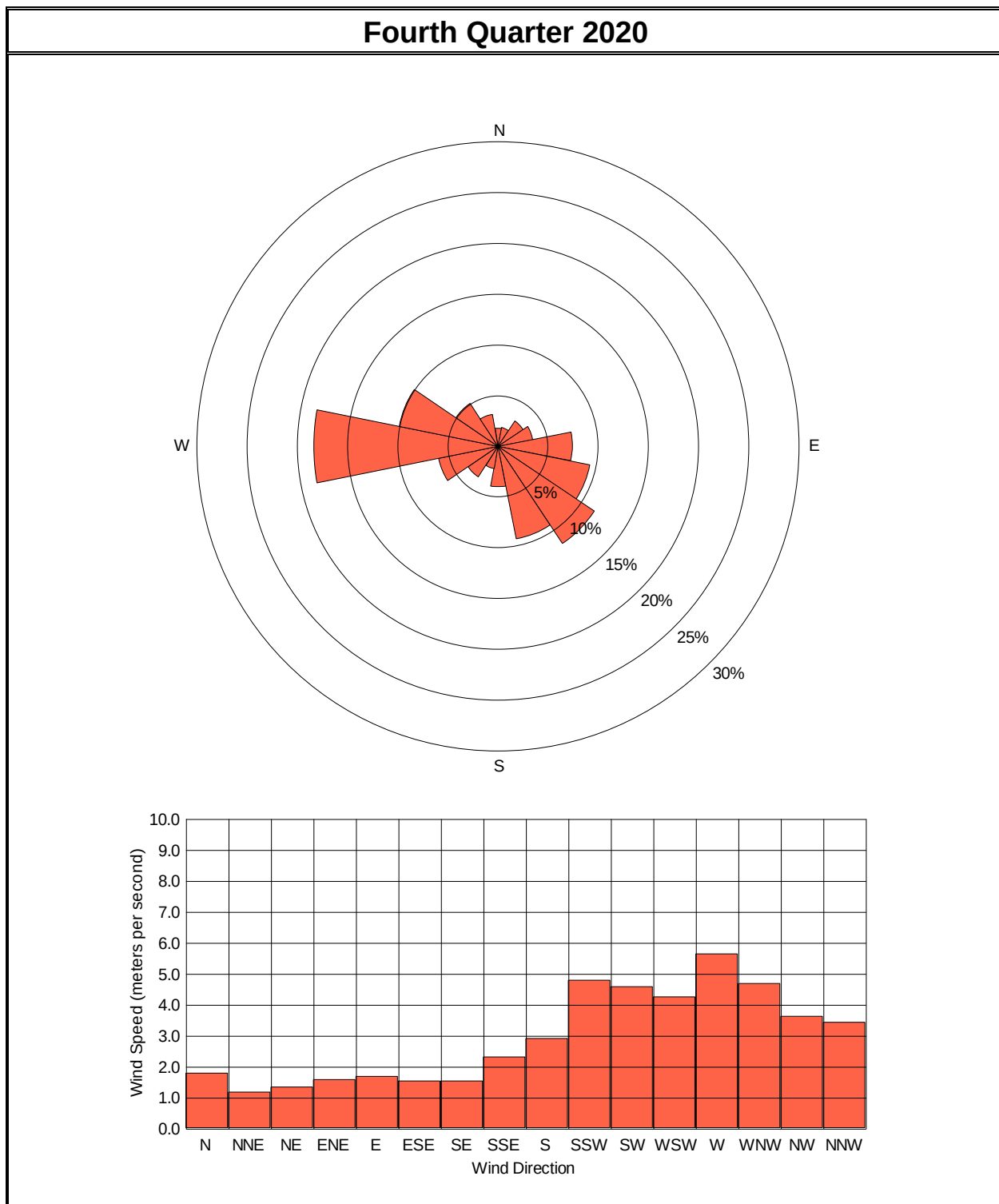


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



**APPENDIX A: HOURLY AIR QUALITY AND
METEOROLOGICAL DATA, FOURTH QUARTER 2020**

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
October 2020

A-1

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	1.2	1.3	0.9	1.0	0.8	0.9	0.9	1.1	0.6	0.9	1.1	3.2	4.7	4.4	4.5	4.4	3.8	2.6	1.0	1.8	2.2	1.8	1.3	1.1	2.0	4.7	0.6
2	1.0	0.9	0.9	0.9	0.7	0.6	0.7	0.7	0.8	2.7	5.4	5.8	5.6	5.8	6.6	6.2	5.3	3.5	1.6	1.2	1.3	1.6	1.1	0.5	2.6	6.6	0.5
3	0.5	0.6	0.9	0.6	0.9	1.0	1.3	0.7	0.8	0.8	2.0	3.7	3.3	3.8	3.6	3.1	2.0	1.8	2.4	2.7	1.6	1.1	1.2	1.5	1.7	3.8	0.5
4	1.6	1.2	1.5	1.1	1.0	0.9	1.2	1.1	1.0	1.9	5.7	6.6	6.8	8.2	8.6	8.3	6.8	5.3	3.8	3.6	5.3	5.0	4.5	1.7	3.9	8.6	0.9
5	2.5	2.1	1.4	1.9	1.6	1.9	1.3	1.2	1.1	4.2	6.9	6.0	6.7	7.2	7.1	6.4	5.9	4.5	3.4	1.6	1.3	1.3	1.7	3.7	3.5	7.2	1.1
6	2.5	1.8	2.0	1.6	1.8	1.6	1.7	1.2	1.0	4.5	6.8	9.1	9.7	9.4	9.2	9.2	7.0	5.2	2.4	1.8	2.4	1.7	1.9	1.3	4.0	9.7	1.0
7	1.2	1.3	1.3	0.8	1.0	1.0	1.2	1.3	0.8	0.8	1.4	2.5	3.9	4.3	4.4	4.0	6.2	5.3	2.9	1.7	2.0	2.5	2.9	2.8	2.4	6.2	0.8
8	1.6	1.0	0.7	1.2	0.9	1.1	1.4	1.2	0.8	0.9	3.7	6.5	5.6	7.9	7.4	5.8	4.4	4.4	4.2	2.7	1.6	1.3	1.1	1.6	2.9	7.9	0.7
9	1.9	4.3	4.0	3.4	3.2	2.6	2.0	1.7	0.9	1.2	4.2	5.0	6.6	6.2	5.5	4.4	2.6	1.0	2.0	2.6	1.7	1.3	1.3	1.2	2.9	6.6	0.9
10	1.4	1.4	1.4	1.6	1.5	1.4	0.8	1.2	0.9	4.2	6.9	7.4	8.8	10.8	7.5	7.5	10.1	10.7	11.4	9.5	2.9	5.5	5.9	8.3	5.4	11.4	0.8
11	7.5	5.2	6.7	8.1	9.8	8.5	7.4	7.3	8.4	7.7	9.4	10.1	10.8	9.2	9.7	10.1	8.8	5.0	2.2	3.1	6.1	3.4	3.1	4.6	7.2	10.8	2.2
12	4.1	4.4	3.5	3.7	3.8	1.8	2.1	1.7	4.5	8.0	10.0	11.4	13.1	13.9	11.6	13.0	11.0	9.8	9.3	9.4	8.1	8.3	7.1	5.6	7.5	13.9	1.7
13	1.9	1.5	1.4	1.8	0.7	1.3	1.0	1.2	1.1	1.4	4.2	3.7	7.7	7.2	5.5	4.8	3.0	7.5	10.8	11.0	13.0	13.6	13.0	12.9	5.5	13.6	0.7
14	11.7	8.1	9.4	8.0	8.0	9.7	8.8	7.3	10.0	9.3	9.5	8.2	6.7	7.1	6.4	3.9	3.2	4.4	3.3	4.3	2.2	1.3	1.6	0.9	6.4	11.7	0.9
15	0.5	1.1	0.7	1.1	1.1	1.0	0.9	0.5	0.5	1.6	4.7	5.5	7.1	6.6	6.0	6.9	5.9	4.8	5.1	4.9	4.4	3.0	3.0	3.0	3.3	7.1	0.5
16	2.3	2.5	2.5	4.1	4.4	1.9	1.3	2.2	1.8	1.7	3.3	4.5	4.4	5.5	5.7	3.0	5.4	7.1	8.2	9.2	6.9	7.4	7.8	6.3	4.6	9.2	1.3
17	5.2	3.6	3.7	3.9	3.5	2.8	1.7	2.4	1.9	1.6	2.0	2.0	3.2	3.3	5.2	5.0	4.5	4.4	3.7	3.6	2.2	1.8	2.1	2.1	3.1	5.2	1.6
18	1.4	0.9	0.5	0.4	0.7	0.9	1.1	2.7	2.8	3.6	4.3	3.4	2.6	2.7	1.2	0.5	0.6	0.5	0.3	0.5	0.3	0.3	0.5	0.5	1.4	4.3	0.3
19	0.5	0.5	0.5	0.4	0.6	0.7	0.5	1.5	1.9	2.7	2.7	2.7	3.2	2.6	3.4	5.9	4.2	5.1	3.7	2.3	4.9	6.1	3.5	2.8	2.6	6.1	0.4
20	5.9	6.3	7.1	5.2	3.5	3.1	3.0	1.8	0.9	2.2	4.9	6.1	5.6	4.7	5.1	4.6	2.8	2.5	1.3	2.3	1.3	1.7	1.7	1.1	3.5	7.1	0.9
21	1.0	1.0	1.9	1.2	1.1	1.6	1.7	1.7	1.0	1.0	2.1	3.6	8.3	8.6	6.2	5.7	7.3	4.8	6.2	6.1	6.3	4.9	5.7	5.9	4.0	8.6	1.0
22	4.5	3.9	4.4	4.8	5.4	5.6	3.9	4.7	4.2	2.8	2.9	2.0	2.4	2.5	2.4	2.0	3.5	4.0	3.8	2.9	2.6	3.3	2.6	3.2	3.5	5.6	2.0
23	3.0	2.2	1.6	2.5	2.0	1.4	1.9	1.2	1.3	2.9	3.4	3.1	3.7	3.1	2.1	2.4	2.5	4.2	4.6	3.2	2.5	2.6	3.5	2.9	2.7	4.6	1.2
24	2.9	2.6	2.6	3.7	3.2	3.1	3.8	3.9	4.3	4.5	3.7	3.4	1.9	3.1	2.4	4.6	4.0	2.5	2.0	1.0	1.0	2.0	0.8	0.8	2.8	4.6	0.8
25	0.6	0.5	0.5	0.6	0.4	0.8	0.9	0.6	0.7	0.6	0.5	0.6	0.7	1.0	2.7	2.4	1.9	0.8	1.4	0.9	0.9	1.2	1.5	1.2	1.0	2.7	0.4
26	0.9	0.9	1.0	0.9	1.1	0.9	0.7	0.8	0.7	0.5	0.9	1.5	1.5	2.3	2.7	2.0	2.1	2.3	2.5	1.6	2.3	2.1	1.3	1.6	1.5	2.7	0.5
27	3.6	2.3	1.5	3.3	2.9	2.0	1.5	1.3	1.0	1.5	2.9	2.3	2.3	2.3	2.7	1.9	2.1	1.8	2.1	3.0	2.2	1.9	1.5	1.3	2.1	3.6	1.0
28	0.9	1.3	1.2	0.8	0.8	0.7	1.0	0.8	1.6	1.2	2.0	1.2	3.2	3.4	3.1	3.1	3.7	4.2	4.0	2.6	2.7	2.0	2.5	2.5	2.1	4.2	0.7
29	2.0	5.0	3.6	1.9	1.2	1.7	1.6	4.0	8.2	8.7	8.6	10.1	9.1	8.0	6.9	5.1	5.7	4.3	2.0	2.3	2.6	2.1	1.6	1.2	4.5	10.1	1.2
30	1.7	1.7	1.5	1.3	1.6	1.2	1.3	1.4	1.0	2.3	4.9	8.7	8.1	9.3	9.4	10.2	11.6	11.5	7.1	7.1	10.2	9.4	6.1	10.2	5.8	11.6	1.0
31	6.8	3.6	3.2	3.9	3.6	2.2	2.5	2.2	4.2	4.7	4.9	4.7	5.0	5.2	5.1	4.6	2.0	1.4	1.3	1.0	1.0	0.9	1.3	1.3	3.2	6.8	0.9
Avg	2.7	2.4	2.4	2.4	2.3	2.1	2.0	2.0	2.3	3.0	4.4	5.0	5.6	5.8	5.5	5.2	4.8	4.4	3.9	3.6	3.4	3.3	3.1	3.1	3.5	7.3	0.9
Max	11.7	8.1	9.4	8.1	9.8	9.7	8.8	7.3	10.0	9.3	10.0	11.4	13.1	13.9	11.6	13.0	11.6	11.5	11.4	11.0	13.0	13.6	13.0	12.9	7.5	13.9	2.2
Min	0.5	0.5	0.5	0.4	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.7	1.0	1.2	0.5	0.6	0.5	0.3	0.5	0.3	0.3	0.5	0.5	1.0	2.7	0.3

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
November 2020

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	1.6	1.3	1.1	1.3	1.6	1.6	1.3	1.5	1.4	1.1	1.4	3.6	4.6	5.0	4.9	4.1	3.2	1.5	3.1	3.0	2.6	1.7	1.8	1.4	2.3	5.0	1.1
2	1.5	1.3	1.6	1.2	1.5	1.7	1.9	1.7	1.3	0.9	1.0	2.3	4.5	5.1	4.6	3.1	2.0	2.1	1.8	1.6	1.3	1.2	1.3	1.4	2.0	5.1	0.9
3	1.6	1.3	1.1	1.2	1.4	1.2	0.8	0.8	1.0	0.9	1.2	3.3	5.1	6.8	7.0	5.7	3.4	1.4	1.8	1.6	1.4	1.1	0.7	1.2	2.2	7.0	0.7
4	1.7	3.6	4.3	2.9	3.2	2.0	1.9	1.3	1.6	6.0	7.4	7.1	7.9	5.8	2.3	1.2	2.4	1.4	1.6	2.0	1.6	1.4	1.5	1.1	3.0	7.9	1.1
5	1.2	1.3	1.4	1.5	1.4	3.1	3.8	6.1	9.8	11.3	9.5	8.5	8.0	8.4	8.3	6.8	6.4	5.3	5.9	4.9	4.0	2.9	7.1	8.8	5.7	11.3	1.2
6	6.2	3.1	3.0	3.4	1.7	1.6	1.7	1.3	1.5	4.0	6.5	5.6	7.6	7.2	5.6	6.3	6.4	4.5	4.3	5.2	5.6	6.3	5.1	3.7	4.5	7.6	1.3
7	3.4	3.2	1.5	2.0	0.8	1.1	0.9	0.9	0.8	1.7	4.8	5.8	6.4	4.5	3.8	3.4	3.4	5.3	1.8	5.0	6.9	6.8	7.4	10.8	3.8	10.8	0.8
8	9.4	9.1	6.6	4.9	7.7	9.0	6.0	7.8	7.1	8.5	9.3	9.7	7.7	7.9	7.3	7.6	7.3	5.9	4.4	4.5	4.4	4.5	4.1	4.3	6.9	9.7	4.1
9	4.0	3.6	2.9	3.0	1.5	0.9	0.7	1.1	1.8	0.8	0.7	1.6	1.9	1.5	2.4	2.8	1.3	1.1	1.7	1.4	1.2	1.2	1.2	1.4	1.7	4.0	0.7
10	2.0	1.9	2.0	1.2	0.8	0.9	0.8	1.1	1.2	1.0	0.8	2.7	4.2	6.6	7.8	7.1	7.8	3.5	3.1	5.1	4.1	4.7	2.8	2.9	3.2	7.8	0.8
11	3.5	3.0	2.8	2.1	2.5	3.7	4.3	3.4	3.3	4.4	3.8	5.6	5.6	6.0	5.0	4.0	2.4	1.0	1.2	1.1	1.1	0.7	0.3	0.5	3.0	6.0	0.3
12	0.4	0.8	0.8	0.9	2.3	1.0	1.3	1.2	1.3	1.2	4.8	5.7	5.4	2.4	2.3	3.0	2.3	2.4	1.1	1.7	2.4	3.6	3.7	3.3	2.3	5.7	0.4
13	2.4	2.8	4.6	3.3	2.5	3.5	5.9	3.9	5.8	6.2	7.3	8.5	16.3	14.1	4.5	9.0	7.9	5.5	4.0	4.3	3.2	4.9	4.5	7.2	5.9	16.3	2.4
14	5.8	6.4	6.2	5.8	6.4	6.5	6.8	7.6	7.7	9.1	7.5	8.0	8.6	9.9	9.3	9.2	7.0	5.0	3.5	2.7	3.6	1.8	1.5	1.6	6.1	9.9	1.5
15	0.9	1.4	1.5	1.1	3.5	3.2	2.2	1.6	1.6	3.5	2.6	4.1	8.5	9.1	10.3	11.2	9.4	8.8	10.2	8.6	8.6	8.3	7.2	7.5	5.6	11.2	0.9
16	7.2	6.4	6.3	5.5	3.8	3.7	1.5	2.1	0.7	0.8	0.7	1.9	2.1	2.0	2.2	3.2	3.1	2.7	2.4	1.8	1.6	1.1	1.5	3.8	2.8	7.2	0.7
17	2.8	3.2	2.5	3.5	3.8	5.6	2.7	4.2	3.5	3.7	3.0	4.7	4.7	3.9	2.3	5.6	6.5	8.5	5.8	4.2	6.5	5.7	3.1	2.9	4.3	8.5	2.3
18	4.2	4.1	3.9	3.1	2.2	2.4	1.0	4.4	3.6	3.2	1.5	1.6	2.1	1.7	3.4	3.0	1.7	1.8	1.3	0.2	1.2	2.6	1.8	7.0	2.6	7.0	0.2
19	4.1	2.2	3.0	3.6	3.8	1.8	2.8	2.8	1.7	1.0	5.2	6.8	5.1	6.6	7.8	5.7	4.5	4.5	3.8	6.0	4.9	6.2	5.5	4.2	4.3	7.8	1.0
20	2.6	3.9	4.1	3.6	3.1	3.0	3.0	1.6	0.8	2.4	6.0	7.0	6.1	6.7	5.4	4.2	3.5	1.7	1.2	2.1	1.7	1.3	1.1	1.4	3.2	7.0	0.8
21	1.4	1.3	1.4	1.3	2.0	1.4	1.6	1.7	2.6	2.7	5.4	7.5	9.1	7.4	7.5	7.8	7.2	5.3	4.9	1.4	1.4	1.7	1.7	1.3	3.6	9.1	1.3
22	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.4	1.7	2.5	1.8	1.9	3.6	3.0	3.2	3.1	3.7	2.4	2.6	2.2	2.2	1.4	1.5	2.0	3.7	0.7
23	1.8	2.3	2.2	1.3	1.2	1.6	1.3	1.0	1.1	0.8	1.0	1.7	3.2	3.6	4.5	4.8	4.4	4.0	4.2	3.5	3.4	2.8	3.2	1.9	2.5	4.8	0.8
24	1.5	1.5	1.3	1.9	1.0	1.7	4.0	4.6	4.6	6.9	7.4	8.8	7.1	6.2	5.4	4.4	2.7	1.5	1.7	1.4	1.8	2.0	2.5	1.6	3.5	8.8	1.0
25	1.3	1.2	1.1	1.3	1.7	2.3	1.6	1.1	1.8	2.0	4.3	4.6	6.7	6.3	5.7	5.6	6.0	7.4	5.4	3.3	3.1	2.9	3.7	2.2	3.4	7.4	1.1
26	2.8	1.3	1.7	2.2	2.6	5.7	6.0	6.7	6.9	6.7	5.8	8.0	8.0	8.9	8.8	7.0	5.9	4.0	5.5	4.0	2.8	3.2	2.9	2.5	5.0	8.9	1.3
27	1.3	2.1	3.8	2.2	1.9	1.4	1.2	1.1	1.3	1.2	0.9	0.8	1.3	2.6	6.5	6.2	2.1	1.5	1.4	1.3	1.5	0.9	1.3	1.2	2.0	6.5	0.8
28	1.4	2.3	2.1	1.9	1.8	1.1	1.5	0.8	1.2	0.9	1.6	7.1	6.7	7.8	8.0	7.5	5.4	3.9	3.9	3.2	1.7	2.2	1.4	1.8	3.2	8.0	0.8
29	1.5	1.2	1.2	1.4	1.2	1.3	1.2	1.2	1.4	0.7	0.8	2.2	1.7	2.3	3.2	2.5	1.4	1.6	2.0	1.8	2.3	1.9	2.4	2.8	1.7	3.2	0.7
30	2.8	3.0	2.2	2.1	2.4	1.9	1.5	4.3	2.7	2.3	7.6	8.0	8.0	7.8	10.0	7.2	11.2	6.9	5.2	5.4	8.9	9.0	6.6	4.0	5.5	11.2	1.5
Avg	2.8	2.7	2.6	2.4	2.4	2.6	2.4	2.7	2.8	3.3	4.1	5.2	5.9	5.9	5.6	5.4	4.7	3.8	3.4	3.2	3.2	3.2	3.0	3.2	3.6	7.8	1.1
Max	9.4	9.1	6.6	5.8	7.7	9.0	6.8	7.8	9.8	11.3	9.5	9.7	16.3	14.1	10.3	11.2	11.2	8.8	10.2	8.6	8.9	9.0	7.4	10.8	6.9	16.3	4.1
Min	0.4	0.8	0.8	0.9	0.8	0.9	0.7	0.8	0.7	0.7	0.7	0.8	1.3	1.5	2.2	1.2	1.3	1.0	1.1	0.2	1.1	0.7	0.3	0.5	1.7	3.2	0.2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Speed (meters per second)
December 2020

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	5.0	7.2	7.5	6.3	6.4	7.5	4.1	4.4	4.9	4.3	2.7	4.8	3.2	4.3	5.5	2.3	1.3	1.1	0.8	1.0	1.1	1.1	1.0	0.7	3.7	7.5	0.7
2	0.6	0.5	0.5	0.4	0.4	0.3	0.6	0.6	0.5	0.3	0.3	0.6	0.8	0.8	1.3	1.3	1.3	1.5	1.7	1.3	0.9	0.7	1.0	0.7	0.8	1.7	0.3
3	0.6	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.5	0.9	1.3	2.1	3.1	1.5	0.9	1.0	1.4	0.8	1.0	1.0	0.8	3.1	0.2
4	1.2	0.9	1.2	1.0	1.0	1.1	1.1	0.8	0.7	1.1	0.5	0.5	0.5	1.5	1.2	1.6	1.7	2.0	1.4	2.3	1.8	1.8	1.3	1.1	1.2	2.3	0.5
5	1.1	1.1	0.5	1.1	0.6	0.7	0.9	0.5	0.5	0.3	0.3	0.7	0.8	0.9	0.9	1.5	2.6	2.1	2.5	1.7	1.8	2.1	1.4	1.5	1.2	2.6	0.3
6	1.8	2.0	1.8	0.9	1.5	1.5	1.1	0.9	0.9	0.8	0.6	0.6	1.6	2.7	2.8	1.5	2.1	2.9	2.4	2.1	1.8	1.9	1.7	1.8	1.7	2.9	0.6
7	1.5	1.5	1.2	1.5	1.1	1.6	0.7	0.6	0.7	0.6	0.9	1.4	4.4	3.5	2.2	2.7	1.6	1.2	2.5	1.8	2.6	1.5	1.8	1.5	1.7	4.4	0.6
8	1.3	1.1	0.8	1.2	1.1	1.3	1.1	1.1	1.3	2.6	1.9	1.6	7.5	8.0	6.8	6.4	4.1	2.2	2.2	1.4	1.0	1.2	1.2	1.3	2.5	8.0	0.8
9	1.4	1.9	1.8	1.4	2.4	1.6	1.6	1.6	1.0	0.8	0.7	4.3	5.0	6.9	7.2	8.1	5.8	5.4	4.6	3.4	2.5	2.6	2.0	1.2	3.1	8.1	0.7
10	0.8	0.9	0.6	1.2	0.8	0.8	0.9	0.7	0.6	0.8	0.7	2.4	3.1	2.9	1.8	2.0	1.5	1.3	1.6	1.5	1.2	1.3	0.9	0.8	1.3	3.1	0.6
11	0.7	0.8	0.9	0.8	0.7	0.6	1.2	0.7	0.8	1.7	4.4	5.2	5.0	4.2	3.4	4.8	5.8	4.4	4.3	3.8	4.1	3.1	3.4	2.3	2.8	5.8	0.6
12	1.4	0.6	0.4	0.7	0.4	0.7	1.4	1.0	0.6	0.6	1.1	3.3	2.9	4.4	3.7	3.5	4.0	5.4	3.2	3.6	3.5	2.2	2.3	2.1	2.2	5.4	0.4
13	1.4	1.1	0.5	0.7	1.0	1.3	1.0	2.2	2.0	2.2	3.2	3.8	3.3	2.9	3.5	2.4	2.4	3.0	2.8	0.9	0.8	0.9	1.0	0.6	1.9	3.8	0.5
14	0.9	1.1	0.3	1.0	0.6	0.5	0.7	1.8	1.3	1.7	2.2	2.4	2.5	4.8	4.3	5.1	4.2	4.7	4.1	2.7	2.6	2.9	3.7	1.7	2.4	5.1	0.3
15	2.5	2.5	1.2	1.9	1.2	2.7	2.4	1.1	1.9	2.1	4.4	7.1	6.1	4.4	2.6	1.7	1.8	1.9	2.2	2.0	3.7	3.9	2.6	2.2	2.8	7.1	1.1
16	4.2	5.7	5.8	5.4	5.1	4.8	5.6	5.9	5.0	6.4	7.7	7.5	8.8	8.7	7.2	5.2	2.3	1.5	1.8	1.5	2.2	1.4	1.5	1.2	4.7	8.8	1.2
17	1.3	1.7	4.7	3.8	3.3	3.1	4.8	3.5	2.7	1.8	2.7	4.3	5.8	6.9	6.5	5.5	3.5	6.1	5.0	4.6	3.5	1.8	1.5	1.8	3.8	6.9	1.3
18	1.3	0.7	0.6	0.6	1.2	1.2	1.2	0.6	2.4	4.5	5.2	6.8	6.6	8.3	8.2	6.0	5.2	5.2	4.0	2.8	1.3	1.5	2.1	1.9	3.3	8.3	0.6
19	3.0	3.2	4.4	5.2	9.0	5.9	6.8	8.3	7.4	6.5	7.9	8.6	8.7	8.1	8.6	9.1	9.1	7.1	5.8	6.0	4.5	2.3	1.3	2.7	6.2	9.1	1.3
20	6.1	7.6	6.3	7.4	5.8	4.3	3.7	9.6	12.3	14.1	12.7	10.4	12.6	12.6	13.1	11.2	9.0	8.2	7.7	7.1	4.1	4.8	5.5	4.8	8.4	14.1	3.7
21	2.0	1.9	1.7	2.7	2.7	1.2	1.3	2.0	1.3	1.4	1.6	1.1	0.6	0.5	1.0	1.0	0.5	1.0	0.9	1.6	1.8	9.1	8.8	6.1	2.2	9.1	0.5
22	5.1	7.1	4.1	4.3	7.1	5.0	2.5	9.3	8.3	6.5	9.8	9.1	8.8	8.9	8.5	7.2	8.2	7.0	5.7	4.5	3.7	3.9	5.6	4.6	6.4	9.8	2.5
23	4.8	2.3	1.6	1.7	1.5	1.1	0.7	0.8	0.6	0.5	0.6	0.8	1.9	3.8	4.9	5.6	2.4	1.2	1.7	2.2	1.6	1.9	1.1	1.0	1.9	5.6	0.5
24	1.3	1.4	1.0	1.1	0.8	0.7	0.7	0.7	0.9	0.9	1.0	0.8	0.9	2.3	3.9	3.1	4.7	3.3	3.3	2.5	2.3	2.1	1.4	1.2	1.8	4.7	0.7
25	0.8	1.2	1.0	0.8	0.7	0.7	1.1	1.2	2.0	1.1	1.6	0.9	0.6	0.9	1.0	1.0	1.4	2.2	1.3	1.2	1.6	1.1	2.5	1.9	1.2	2.5	0.6
26	1.0	1.7	1.4	4.3	6.9	3.9	3.6	1.5	2.6	1.4	1.1	2.7	4.0	4.0	5.5	5.3	3.7	3.6	1.2	1.0	1.2	0.7	1.0	4.0	2.8	6.9	0.7
27	3.9	4.0	5.4	2.9	3.4	2.7	4.1	2.4	3.6	2.3	4.1	6.8	6.1	5.8	5.8	5.1	5.2	2.2	1.2	1.0	0.5	1.3	1.3	1.0	3.4	6.8	0.5
28	0.6	0.5	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	Wx	0.6	1.9	2.6	2.1	1.5	0.6	0.5	0.5	1.1	2.6	0.5
29	0.9	0.7	0.5	0.4	0.3	0.4	0.5	0.6	0.4	0.4	0.3	1.6	3.6	3.8	3.7	3.0	2.1	1.4	1.5	2.2	1.4	1.7	1.5	1.1	1.4	3.8	0.3
30	1.0	0.9	1.0	1.1	0.7	0.9	0.6	0.8	0.7	Au	Au	Au	Au	3.7	6.0	3.6	1.9	1.4	2.2	2.1	2.1	2.3	2.4	1.9	1.9	6.0	0.6
31	1.4	1.9	1.7	3.4	3.1	2.5	1.8	1.5	1.3	1.0	1.4	1.5	1.2	1.3	3.2	4.3	2.3	1.4	1.1	1.5	1.1	2.6	4.7	3.6	2.1	4.7	1.0
Avg	2.0	2.1	2.0	2.2	2.4	2.0	1.9	2.2	2.3	2.4	2.8	3.5	4.0	4.4	4.5	4.1	3.4	3.1	2.7	2.4	2.1	2.2	2.2	1.9	2.7	5.8	0.8
Max	6.1	7.6	7.5	7.4	9.0	7.5	6.8	9.6	12.3	14.1	12.7	10.4	12.6	12.6	13.1	11.2	9.1	8.2	7.7	7.1	4.5	9.1	8.8	6.1	8.4	14.1	3.7
Min	0.6	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.5	0.5	0.9	1.0	0.5	1.0	0.8	0.9	0.5	0.6	0.5	0.5	0.8	1.7	0.2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
October 2020

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	110	131	109	86	137	147	147	147	350	353	352	294	260	285	292	288	305	306	116	119	87	64	72	43	72
2	53	52	50	77	83	102	59	75	143	292	284	272	291	306	293	285	300	302	5	83	96	121	176	117	38
3	100	76	80	104	118	119	125	133	337	14	307	304	283	256	265	265	258	226	118	99	92	90	89	100	101
4	119	137	145	144	121	125	134	146	329	333	288	281	277	285	279	285	299	313	292	290	295	297	313	84	280
5	98	91	65	65	86	106	73	84	360	271	256	264	275	245	249	257	260	262	255	229	135	87	95	75	140
6	56	98	77	72	89	84	90	119	89	261	259	264	266	253	276	274	273	267	246	121	76	88	69	73	90
7	18	99	111	132	342	108	119	129	199	2	323	229	211	199	210	219	148	162	154	136	132	129	110	88	142
8	109	87	64	125	132	139	135	150	307	351	302	257	284	261	277	274	273	269	256	253	178	262	256	288	249
9	278	271	292	276	248	112	110	107	339	15	270	261	232	262	248	256	247	173	112	98	93	123	116	163	220
10	145	160	149	144	126	129	158	160	89	134	169	188	193	213	216	217	212	271	284	279	247	269	272	282	194
11	281	275	292	277	255	276	278	272	272	277	278	272	270	275	280	267	264	270	176	256	274	241	216	237	265
12	203	156	148	132	231	77	102	87	272	271	267	266	261	261	276	282	281	278	278	277	276	283	295	306	260
13	289	196	159	122	52	153	22	153	164	141	215	188	209	216	223	255	293	272	268	268	281	282	281	283	228
14	289	278	274	277	273	266	265	269	279	277	278	289	302	297	301	280	268	273	284	284	243	173	207	225	271
15	37	58	89	66	75	92	77	48	330	316	298	300	283	297	312	267	255	285	276	269	268	284	264	246	312
16	242	255	250	261	263	278	121	112	91	80	81	304	283	262	255	255	255	278	277	280	267	305	334	315	273
17	329	325	311	294	281	265	276	232	279	233	183	263	274	256	263	256	258	285	302	308	308	212	181	265	270
18	254	333	261	103	122	145	203	160	163	161	162	166	154	149	159	110	13	290	130	140	60	322	41	276	153
19	354	229	271	162	176	337	109	228	291	298	294	267	260	235	249	274	291	290	301	273	273	280	293	285	272
20	275	283	307	296	289	275	307	309	326	247	277	283	280	287	269	281	241	213	309	315	12	42	118	106	290
21	130	125	83	103	129	126	287	86	150	50	274	262	291	300	311	322	325	345	342	316	310	308	325	327	333
22	324	338	1	357	347	340	336	340	348	342	326	310	284	259	276	247	223	184	152	158	159	154	157	159	298
23	151	154	119	85	92	119	133	140	144	132	152	155	154	173	139	111	147	163	164	163	169	176	167	179	146
24	276	288	292	313	312	312	321	311	318	320	312	358	347	134	139	41	50	69	341	10	307	151	168	152	330
25	21	322	122	119	140	146	137	123	113	136	126	126	32	354	268	252	251	138	43	328	2	350	53	75	87
26	66	90	26	339	109	102	40	116	124	132	30	31	348	267	263	259	279	14	94	90	109	108	129	47	69
27	294	340	52	64	56	44	153	169	107	357	317	290	305	287	290	303	308	331	48	67	82	60	57	108	15
28	65	75	93	334	102	90	63	168	97	52	254	295	276	269	270	257	257	261	247	87	103	125	116	128	113
29	186	269	110	173	143	150	240	262	284	287	282	276	265	267	276	262	272	276	166	104	60	85	128	134	227
30	117	136	141	131	149	174	168	143	151	131	195	220	232	214	234	266	289	269	283	294	284	286	266	287	212
31	276	268	294	302	275	335	308	328	291	296	280	258	259	268	273	256	257	205	143	166	151	133	116	55	268
Prev	22	120	85	96	123	119	116	139	323	321	275	268	269	259	262	266	270	267	258	250	144	155	141	125	255

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
November 2020

A-5

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	18	98	114	115	90	84	35	70	23	16	322	286	266	279	255	253	250	153	101	66	72	57	66	69	58
2	139	125	130	145	113	141	119	138	157	85	338	277	249	250	260	284	263	97	116	93	95	95	96	49	128
3	104	146	166	148	149	136	93	145	107	25	196	170	237	238	229	223	212	152	112	80	70	109	70	112	141
4	75	281	266	277	277	312	188	165	97	262	273	279	266	281	274	212	260	125	113	115	104	114	121	162	221
5	154	124	132	136	32	216	234	213	223	220	223	221	229	235	227	235	237	236	220	207	181	159	210	212	206
6	227	47	56	72	39	87	132	152	143	168	151	150	150	148	150	151	156	138	132	147	149	155	152	151	137
7	149	146	61	108	298	136	175	34	131	351	152	172	189	191	191	172	235	292	294	339	329	12	2	346	166
8	349	344	350	340	329	336	338	331	327	325	327	333	333	318	313	309	307	299	291	293	290	289	293	289	319
9	297	295	281	272	298	289	133	69	1	313	343	340	335	297	304	268	280	152	153	127	127	16	13	196	308
10	140	138	138	110	97	151	160	132	137	46	22	286	285	268	259	256	267	267	280	291	284	263	284	274	238
11	269	299	321	300	310	343	351	314	307	328	308	264	262	262	249	250	267	87	90	111	146	208	187	153	282
12	167	128	146	204	250	243	20	84	132	105	256	260	258	228	266	191	136	111	119	119	104	118	119	145	158
13	139	151	199	138	129	156	141	165	150	127	151	167	202	199	180	207	198	218	139	176	176	198	235	279	174
14	270	270	271	266	267	265	264	270	274	278	275	274	276	279	280	278	286	291	300	290	291	223	131	137	271
15	56	100	121	178	182	162	192	86	83	191	183	196	225	246	260	273	270	280	283	279	274	286	279	275	226
16	285	293	286	273	273	284	235	64	146	100	322	139	141	148	150	138	121	96	122	126	88	118	93	93	134
17	107	98	175	103	96	82	119	97	100	89	113	154	161	170	165	195	189	198	190	166	183	159	139	158	142
18	164	169	174	257	269	272	107	262	225	182	180	108	99	115	138	159	107	114	130	137	116	125	89	219	154
19	294	275	275	258	264	150	189	155	109	273	234	250	277	287	269	263	259	250	261	255	267	273	255	274	256
20	282	283	279	280	268	277	303	239	144	261	284	264	263	263	263	280	300	187	141	110	97	129	123	97	252
21	118	147	139	165	109	341	250	222	239	239	271	265	265	256	275	277	275	270	294	142	128	115	96	118	217
22	112	78	122	148	146	132	125	137	138	134	92	133	136	151	143	151	108	102	88	123	138	128	164	135	128
23	100	86	113	68	45	117	104	96	142	92	313	356	309	271	271	317	283	255	271	283	296	273	245	249	304
24	171	160	160	137	145	174	250	247	263	260	267	261	269	269	275	276	291	267	140	128	137	138	131	133	207
25	158	205	152	180	121	138	145	115	86	50	174	179	244	286	262	273	279	282	294	284	292	284	297	297	229
26	284	84	253	265	257	278	275	278	274	271	276	264	263	257	261	268	266	274	273	262	248	247	265	232	265
27	275	48	91	58	89	111	113	136	141	129	17	268	109	262	275	293	289	173	149	110	121	163	130	134	127
28	148	121	125	73	54	82	97	121	91	297	163	274	267	283	278	286	284	294	324	332	308	321	194	152	284
29	167	126	138	111	117	104	141	140	136	175	2	121	160	271	284	279	129	130	126	131	121	133	140	132	137
30	132	133	137	137	145	119	82	81	123	110	187	195	204	196	218	254	278	267	257	267	270	278	277	282	195
Prev	156	128	153	157	132	149	147	134	136	175	259	234	240	247	248	248	252	209	174	151	149	164	153	171	195

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Wind Direction (degrees)
December 2020

A-6

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	284	290	288	288	294	288	301	324	331	323	332	328	319	314	314	261	188	138	168	158	306	85	138	119	295
2	130	41	81	117	129	91	158	128	68	227	137	46	320	349	299	278	51	90	72	49	102	75	106	138	89
3	132	133	145	145	138	133	100	106	121	142	350	22	26	351	5	55	72	22	359	16	59	5	63	22	67
4	35	351	32	61	56	351	59	15	37	40	4	301	5	313	1	333	103	94	50	90	33	90	89	83	36
5	121	155	91	143	107	134	154	164	127	195	273	330	1	339	340	77	106	105	113	142	115	122	166	147	124
6	137	113	120	102	132	153	112	116	88	166	163	40	316	282	286	288	83	89	67	100	59	66	89	97	102
7	66	117	38	95	84	120	84	19	104	23	48	201	293	308	298	276	53	37	73	107	85	93	81	109	69
8	148	154	148	148	133	61	34	48	109	74	87	107	282	276	269	265	262	90	103	127	128	149	138	175	126
9	114	137	118	123	127	129	58	65	127	168	107	284	290	299	288	299	295	271	283	307	328	340	165	150	170
10	139	156	104	117	146	142	126	149	105	98	50	276	246	216	246	271	216	150	113	106	82	148	138	97	141
11	163	226	118	132	11	14	313	341	340	166	154	144	151	158	164	158	158	155	151	162	155	160	160	147	152
12	163	30	177	166	255	87	73	28	36	86	7	337	293	266	283	274	263	280	296	289	285	292	279	252	295
13	259	243	162	103	156	153	126	111	118	105	107	144	157	153	155	130	115	86	93	127	91	184	278	151	137
14	145	134	169	154	274	338	230	323	296	332	318	329	325	284	285	270	272	262	282	285	304	270	256	259	280
15	263	219	233	272	277	270	251	216	169	207	257	259	248	248	257	95	99	145	186	286	268	267	267	265	242
16	260	265	249	258	267	266	271	274	273	266	264	262	263	262	272	273	285	169	132	137	131	133	147	121	244
17	148	133	159	177	163	150	190	180	145	151	183	183	221	251	268	259	247	280	272	268	298	246	126	114	198
18	47	147	181	156	110	91	125	165	264	257	267	263	270	259	267	262	261	261	281	263	177	171	214	137	218
19	195	216	237	242	236	227	256	261	242	248	260	252	264	273	280	281	283	272	263	270	271	245	186	242	251
20	214	228	222	227	224	231	250	264	256	249	249	259	277	276	279	276	273	274	269	278	292	273	273	290	259
21	226	285	268	276	257	225	257	293	336	95	152	145	159	186	2	301	287	123	141	109	55	206	209	179	219
22	182	180	186	183	186	187	201	251	286	295	294	316	315	302	308	317	320	317	317	312	310	307	303	300	279
23	330	315	292	111	45	96	140	111	149	120	108	65	322	290	286	295	308	105	61	82	46	80	130	137	73
24	153	125	114	142	145	161	114	135	159	156	253	219	313	101	131	92	88	119	123	122	131	111	125	137	133
25	79	137	137	132	108	118	158	150	76	150	147	154	163	289	52	160	122	136	124	150	141	168	139	129	135
26	225	71	41	217	218	154	187	142	101	154	167	237	256	269	275	280	271	288	166	165	24	184	45	274	208
27	272	285	290	286	288	314	304	309	306	318	280	271	272	271	269	269	279	270	146	125	355	103	80	75	290
28	27	51	30	47	110	110	120	138	143	105	263	325	358	358	342	314	186	108	89	101	97	80	99	97	77
29	128	113	132	56	91	55	107	92	277	326	331	305	247	262	287	279	262	123	69	92	68	93	78	97	76
30	96	49	87	119	155	179	175	50	111	Au	Au	Au	Au	304	284	303	340	137	136	126	135	74	182	117	119
31	85	114	111	236	252	258	325	214	135	134	129	22	33	13	297	254	260	235	116	112	207	264	257	258	217
Prev	150	147	143	151	160	143	153	125	115	156	237	286	290	284	291	280	262	141	116	126	71	137	146	140	172

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
October 2020

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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	36	21	46	79	20	43	36	30	69	63	47	44	22	20	16	13	11	14	49	36	23	17	48	43	35	79	11
2	66	45	29	50	68	70	56	46	68	72	13	17	40	27	15	12	13	41	71	39	34	33	47	91	44	91	12
3	83	61	44	61	32	26	28	25	44	52	62	17	34	31	33	25	41	55	15	20	72	37	40	22	40	83	15
4	23	15	15	52	51	53	37	78	85	80	15	15	16	16	13	11	16	9	12	12	10	12	32	29	29	85	9
5	27	43	56	27	71	33	32	50	52	31	14	18	22	16	16	16	14	11	10	69	51	68	42	27	34	71	10
6	43	41	42	64	47	57	65	68	85	62	19	16	12	12	19	15	13	10	33	83	44	61	24	43	41	85	10
7	74	63	74	67	32	49	38	20	62	68	89	52	27	31	29	33	8	6	15	18	14	12	19	29	39	89	6
8	29	39	62	24	25	27	20	46	81	51	66	15	19	24	18	11	14	14	10	31	37	38	84	63	35	84	10
9	51	33	17	10	39	18	24	70	78	60	34	20	14	21	19	17	15	68	17	19	40	63	26	42	34	78	10
10	40	55	51	16	39	28	51	29	94	68	12	15	14	14	17	12	12	23	10	11	31	17	13	9	28	94	9
11	11	13	13	13	12	13	13	12	12	14	14	13	13	15	13	17	19	12	43	62	13	19	34	14	18	62	11
12	31	44	43	42	21	37	27	34	56	15	13	13	15	14	14	10	11	14	11	10	11	11	15	13	22	56	10
13	60	48	36	31	96	32	79	29	57	91	16	17	12	11	12	15	19	14	12	16	11	11	11	10	31	96	10
14	10	12	14	13	14	13	11	14	11	13	12	14	13	12	20	16	19	12	11	10	43	78	88	62	22	88	10
15	57	59	51	42	37	35	28	53	59	54	17	21	13	33	11	16	15	11	8	10	11	14	10	12	28	59	8
16	14	21	18	11	19	92	47	44	28	18	12	53	19	12	12	19	12	12	11	10	12	30	14	14	23	92	10
17	13	16	22	10	12	18	21	25	18	37	32	24	23	12	7	9	8	16	19	17	23	65	28	19	21	65	7
18	25	26	37	85	18	18	61	9	7	6	6	9	10	12	25	92	34	45	45	31	69	76	80	91	38	92	6
19	67	91	102	78	50	59	87	48	53	19	24	18	28	21	20	14	18	12	17	14	17	9	49	29	39	102	9
20	10	17	12	18	10	26	18	37	67	53	15	11	13	15	13	14	33	11	37	14	30	68	21	31	25	68	10
21	40	32	40	48	38	72	31	42	43	51	46	18	12	23	15	13	8	19	20	13	10	9	9	8	28	72	8
22	10	11	15	12	14	13	15	12	15	40	21	39	44	46	31	73	22	38	8	8	13	8	10	6	22	73	6
23	6	12	28	14	18	33	24	21	31	22	12	11	15	17	17	20	19	5	6	7	11	12	8	26	16	33	5
24	18	15	14	14	12	12	9	9	11	7	15	20	52	13	41	15	16	14	76	72	88	19	67	44	28	88	7
25	89	97	69	61	97	89	35	36	56	72	65	19	28	82	22	9	28	49	29	59	60	41	38	45	53	97	9
26	74	51	76	65	61	39	69	58	67	92	66	20	72	22	15	38	28	61	39	70	29	41	68	91	55	92	15
27	14	68	60	11	23	78	44	62	78	50	29	27	36	28	27	40	39	42	22	32	56	42	29	66	42	78	11
28	69	57	48	93	76	87	85	75	71	78	36	77	38	12	18	17	11	13	9	41	43	31	28	20	47	93	9
29	75	14	73	74	49	78	40	32	8	9	9	12	8	10	13	14	10	14	74	25	28	46	40	47	33	78	8
30	43	67	40	67	25	56	48	45	80	44	38	13	16	13	12	22	12	14	12	14	9	12	13	9	30	80	9
31	13	8	13	11	12	22	24	48	11	12	21	17	17	20	17	14	35	48	48	52	36	61	80	75	30	80	8
Avg	39	39	41	41	37	43	39	39	50	45	29	22	23	21	18	21	18	23	26	30	32	34	36	36	33	80	9
Max	89	97	102	93	97	92	87	78	94	92	89	77	72	82	41	92	41	68	76	83	88	78	88	91	55	102	15
Min	6	8	12	10	10	12	9	9	7	6	6	9	8	10	7	9	8	5	6	7	9	8	8	6	16	33	5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
November 2020

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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	77	53	73	41	73	75	47	66	81	60	49	24	18	21	15	12	13	54	50	34	19	44	31	41	45	81	12
2	38	33	42	24	33	14	28	21	33	99	30	81	21	15	17	26	37	33	17	29	57	42	78	47	37	99	14
3	43	50	43	51	58	45	69	63	82	87	67	27	19	14	14	10	12	60	27	46	44	50	57	32	45	87	10
4	44	36	23	15	54	95	62	45	57	45	17	14	13	16	50	57	26	62	37	26	41	54	65	62	42	95	13
5	76	86	90	53	69	57	29	16	10	10	11	14	15	13	14	13	12	11	13	16	14	28	12	10	29	90	10
6	29	39	42	16	38	63	67	36	41	10	10	13	8	8	11	7	7	24	13	10	8	8	9	9	22	67	7
7	16	27	72	42	73	54	57	95	55	80	10	13	13	13	14	19	64	24	75	18	14	25	22	16	38	95	10
8	19	19	19	14	13	15	13	11	15	11	12	13	14	10	10	8	8	13	10	9	10	8	8	8	12	19	8
9	9	10	13	8	18	56	25	70	49	31	57	13	15	55	24	22	81	54	31	44	46	35	68	52	37	81	8
10	19	21	22	39	46	71	47	62	76	56	76	14	14	12	9	10	10	14	29	16	22	7	12	12	30	76	7
11	11	24	19	17	25	28	34	11	10	15	9	7	6	7	10	7	40	84	25	24	23	75	73	24	25	84	6
12	45	64	42	43	16	61	53	59	30	85	16	15	14	42	48	28	21	19	68	40	27	13	44	35	39	85	13
13	33	33	11	51	28	14	13	17	20	12	18	21	13	12	35	18	16	22	21	20	13	10	18	16	20	51	10
14	13	12	13	12	15	13	12	11	11	11	13	12	11	11	11	13	10	11	11	15	11	73	63	55	18	73	10
15	96	92	56	67	16	26	23	84	49	14	43	36	22	13	12	10	10	11	9	12	12	11	11	11	31	96	9
16	10	12	14	11	12	9	43	46	76	79	68	38	11	13	8	11	23	20	28	24	49	96	58	17	32	96	8
17	19	17	14	35	22	6	56	23	28	16	42	8	8	15	52	15	10	9	11	7	12	14	12	17	20	56	6
18	9	11	11	38	13	18	75	47	16	22	46	26	18	32	17	12	28	29	13	0	37	28	65	42	27	75	0
19	37	45	20	17	18	34	48	91	43	88	15	15	18	18	15	13	15	13	18	13	17	11	13	15	27	91	11
20	24	14	14	14	17	16	14	63	61	39	15	13	15	13	19	17	10	89	81	28	22	32	40	41	30	89	10
21	51	29	60	94	46	93	99	71	48	49	21	17	11	12	14	11	10	9	22	39	34	43	25	38	39	99	9
22	62	95	40	18	24	28	31	27	22	22	17	35	50	16	14	10	19	38	34	21	16	18	47	48	31	95	10
23	49	21	26	45	38	30	31	64	84	52	65	61	20	18	16	25	17	8	9	11	10	17	14	20	31	84	8
24	36	30	27	18	64	59	12	16	14	13	14	12	14	16	15	17	14	89	39	26	46	31	26	25	28	89	12
25	39	82	83	79	63	29	81	69	73	60	53	38	18	13	11	11	10	9	9	13	13	23	37	61	41	83	9
26	16	58	30	26	39	12	11	11	12	12	13	12	9	10	10	11	10	13	12	15	13	10	18	26	17	58	9
27	89	60	27	54	50	43	60	70	47	70	55	65	96	73	15	13	37	36	22	51	59	59	53	48	52	96	13
28	53	56	58	53	77	58	58	64	43	61	62	11	10	13	13	18	12	16	9	10	17	13	66	13	36	77	9
29	44	48	23	33	38	45	29	18	19	69	87	28	62	32	15	14	62	26	19	26	31	28	14	14	34	87	14
30	13	15	20	27	24	56	73	34	19	49	31	13	16	14	14	17	12	10	13	15	11	12	12	15	22	73	10
Avg	37	40	35	35	37	41	43	46	41	44	35	24	20	19	18	16	22	30	26	22	25	31	36	29	31	81	10
Max	96	95	90	94	77	95	99	95	84	99	87	81	96	73	52	57	81	89	81	51	59	96	78	62	52	99	14
Min	9	10	11	8	12	6	11	11	10	10	9	7	6	7	8	7	7	8	9	0	8	7	8	8	12	19	0

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Standard Deviation of Wind Direction (degrees)
December 2020

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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	9	9	8	9	9	8	18	14	13	12	13	10	10	10	8	71	37	60	53	72	73	89	77	73	32	89	8
2	78	84	85	56	47	97	67	84	92	84	76	69	53	33	28	15	89	22	27	48	58	55	94	44	62	97	15
3	58	36	59	41	47	42	46	58	32	77	73	41	51	36	16	14	37	28	51	73	60	52	72	67	49	77	14
4	74	66	66	54	45	75	49	56	87	68	75	74	56	31	78	17	45	41	37	24	60	62	59	47	56	87	17
5	40	33	73	37	57	51	36	36	48	60	61	28	35	25	23	63	26	18	23	24	40	25	36	30	39	73	18
6	21	21	28	63	31	32	40	66	59	74	90	62	41	19	17	49	59	41	50	47	53	57	65	61	48	90	17
7	68	65	66	75	62	57	92	70	84	86	85	99	19	16	32	27	61	58	26	69	33	71	62	57	60	99	16
8	54	56	70	65	60	81	80	74	70	29	56	64	37	9	8	10	10	37	24	36	61	20	73	75	48	81	8
9	78	48	39	54	40	30	49	49	60	61	59	53	12	11	11	13	12	12	13	10	25	35	62	26	36	78	10
10	47	44	84	31	74	83	54	37	30	50	70	30	14	38	43	24	56	28	29	58	87	86	59	80	52	87	14
11	68	82	72	48	55	71	44	67	69	39	10	11	12	9	9	7	7	6	7	5	6	8	8	13	31	82	5
12	20	85	55	38	77	37	37	37	67	76	43	8	23	13	14	15	10	10	18	12	8	11	24	13	31	85	8
13	24	25	74	34	64	47	80	34	19	21	26	13	9	9	10	10	26	20	41	39	84	53	59	76	37	84	9
14	25	17	52	26	51	89	77	15	34	25	31	24	40	8	10	12	10	7	19	16	13	15	8	36	28	89	7
15	14	36	53	52	43	20	11	90	27	23	15	14	15	18	19	58	26	69	55	76	30	35	34	26	36	90	11
16	16	14	10	14	11	10	11	11	10	9	10	11	11	12	13	17	33	94	41	26	18	48	27	84	23	94	9
17	44	50	13	19	38	23	15	14	16	50	24	36	13	15	11	13	13	18	13	15	15	79	48	34	26	79	11
18	63	74	90	67	67	54	52	95	25	15	12	12	18	12	13	11	12	13	13	17	78	67	52	47	41	95	11
19	28	43	14	15	10	18	14	15	11	12	11	8	11	14	11	11	9	12	12	14	13	37	55	25	18	55	8
20	12	13	16	11	15	22	13	11	11	10	11	13	12	13	11	11	11	11	10	14	13	13	12	23	13	23	10
21	78	94	67	16	10	33	57	32	58	46	59	32	44	96	68	84	94	35	72	65	72	14	11	18	52	96	10
22	24	10	15	14	11	12	19	35	11	12	13	8	8	12	8	9	8	8	9	11	14	7	10	9	12	35	7
23	12	20	68	42	36	58	45	55	72	74	71	66	63	16	14	10	71	49	48	36	57	66	55	52	48	74	10
24	53	69	58	46	61	40	78	55	36	58	71	103	54	45	22	10	12	23	17	23	25	35	32	30	44	103	10
25	75	50	78	54	87	56	51	30	45	67	15	58	74	76	65	64	59	14	28	49	50	74	54	28	54	87	14
26	89	44	78	18	10	70	59	51	22	15	102	28	15	14	12	10	10	20	93	71	77	88	76	14	45	102	10
27	14	12	12	16	18	18	14	23	15	33	17	11	12	12	14	10	11	60	55	33	73	35	34	44	25	73	10
28	89	54	41	43	28	28	26	47	47	84	72	72	19	10	17	29	86	22	18	30	23	52	47	59	43	89	10
29	53	38	77	92	36	69	58	73	84	79	101	62	13	15	13	20	21	60	67	18	34	60	59	66	53	101	13
30	62	70	68	70	74	87	91	86	77	Au	Au	Au	Au	51	13	20	44	12	15	20	20	41	48	51	51	91	12
31	54	34	58	16	21	32	51	89	74	65	86	26	96	67	51	13	19	58	53	36	63	21	15	10	46	96	10
Avg	47	45	53	40	42	47	46	49	45	47	49	38	30	25	22	24	33	31	33	35	43	46	46	43	40	83	11
Max	89	94	90	92	87	97	92	95	92	86	102	103	96	96	78	84	94	94	93	76	87	89	94	84	62	103	18
Min	9	9	8	9	9	8	11	11	10	9	10	8	8	8	8	7	7	6	7	5	6	7	8	9	12	23	5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-Meter Temperature (Degrees Celsius)
October 2020

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	-2.7	-2.9	-3.1	-3.8	-4.1	-4.2	-2.8	1.6	8.7	12.3	14.7	15.9	16.9	17.7	18.1	18.0	17.0	14.4	11.0	8.0	6.2	3.3	1.8	6.7	18.1	-4.2
2	1.8	0.5	-0.3	-0.7	-1.0	-1.4	-2.0	-1.6	2.1	12.3	15.7	16.6	17.5	17.9	18.0	17.6	17.2	15.8	13.7	10.1	7.3	4.3	2.4	1.2	7.7	18.0	-2.0
3	0.8	-0.8	-1.1	-1.8	-2.2	-2.5	-3.4	-2.4	2.3	9.7	14.5	15.7	16.8	17.6	18.1	18.5	18.7	17.1	10.9	7.9	5.2	3.8	2.3	1.8	7.0	18.7	-3.4
4	1.2	1.1	-0.3	-1.8	-1.1	-1.2	-1.9	-1.5	3.5	12.3	17.3	18.8	20.4	20.9	21.0	21.1	20.7	19.2	17.4	15.8	15.4	14.6	13.0	10.2	10.7	21.1	-1.9
5	7.2	5.3	6.5	8.6	5.0	2.3	1.1	1.1	5.9	12.3	14.1	14.9	15.8	16.5	17.5	18.2	18.1	17.2	14.6	12.1	11.1	10.4	10.4	8.0	10.6	18.2	1.1
6	4.5	2.9	2.0	1.2	0.8	0.4	-0.3	0.5	6.8	16.0	18.4	19.4	20.0	20.4	20.9	21.3	21.0	19.9	17.7	14.1	8.6	6.5	5.4	3.5	10.5	21.3	-0.3
7	3.2	2.7	1.6	0.5	0.6	0.3	-0.3	0.6	6.3	13.4	17.3	18.9	19.7	20.6	21.5	21.5	19.7	16.3	14.1	13.1	11.5	11.7	10.4	6.5	10.5	21.5	-0.3
8	4.6	3.1	2.4	1.8	1.1	-0.1	-1.1	-0.5	3.9	11.2	17.1	18.9	19.3	20.1	20.2	19.5	18.9	18.2	16.8	15.3	11.1	10.1	9.5	10.7	10.5	20.2	-1.1
9	10.6	11.7	11.2	10.0	8.8	6.4	2.6	3.0	4.8	10.5	14.0	14.3	15.0	16.0	17.0	17.5	17.3	13.5	8.4	6.5	4.1	2.3	0.8	0.2	9.4	17.5	0.2
10	-0.8	-0.7	-1.2	-0.6	-1.0	-2.1	-2.5	-1.8	3.7	15.1	18.2	18.8	20.0	20.8	20.5	19.8	19.3	15.7	11.5	9.1	6.3	5.9	4.9	4.7	8.5	20.8	-2.5
11	4.8	4.3	3.9	3.5	2.8	1.9	1.6	1.9	2.4	3.0	4.0	5.0	5.6	5.4	5.9	6.0	5.0	3.8	1.2	1.5	3.9	3.5	3.4	4.3	3.7	6.0	1.2
12	4.2	3.4	2.3	3.1	3.2	2.7	2.6	2.5	5.6	7.1	7.9	8.5	9.2	8.9	9.1	8.5	8.1	6.9	6.4	5.9	5.3	5.0	4.4	4.0	5.6	9.2	2.3
13	2.8	0.0	-2.2	-2.8	-2.8	-2.5	-2.1	-1.3	0.4	1.9	4.6	6.5	8.5	8.2	8.3	8.2	7.4	7.6	7.8	7.8	7.5	5.8	5.9	5.5	3.8	8.5	-2.8
14	4.3	3.9	3.5	3.6	3.3	2.9	2.6	2.5	3.1	3.1	2.9	0.5	0.2	0.3	1.3	1.1	1.2	1.3	0.8	0.8	-0.3	-1.1	-1.0	-1.5	1.6	4.3	-1.5
15	-2.3	-2.4	-2.3	-3.8	-5.3	-6.4	-6.5	-6.4	-4.3	-1.0	-0.8	0.0	2.0	1.3	1.8	2.8	1.5	1.6	1.1	0.3	-0.1	-0.8	-1.4	-1.5	-1.4	2.8	-6.5
16	-1.5	-1.6	-0.7	-0.2	0.4	-0.1	-1.5	-1.7	-0.9	-0.1	0.6	4.5	6.4	7.1	7.8	7.8	8.8	9.5	9.5	9.3	8.4	6.4	1.9	0.5	3.4	9.5	-1.7
17	-0.9	-2.2	-3.2	-3.7	-4.0	-4.6	-4.6	-4.8	-4.4	-4.1	-3.8	-4.0	-3.9	-3.7	-4.3	-5.4	-6.4	-6.6	-6.9	-7.4	-7.4	-7.3	-7.8	-8.3	-5.0	-0.9	-8.3
18	-8.5	-8.4	-8.3	-8.2	-7.9	-7.6	-7.4	-7.4	-7.3	-6.8	-6.4	-6.0	-5.4	-5.2	-4.7	-3.8	-3.7	-3.6	-3.4	-3.4	-3.5	-3.4	-3.1	-2.7	-5.7	-2.7	-8.5
19	-2.5	-2.1	-1.8	-1.6	-1.1	-0.8	-0.2	0.2	2.0	2.9	3.6	4.3	5.0	5.5	5.5	5.1	5.0	4.9	4.2	3.5	4.4	4.7	4.1	4.0	2.5	5.5	-2.5
20	4.2	3.8	2.0	1.2	0.8	0.5	0.1	-0.6	-0.3	1.1	2.7	3.0	3.3	3.3	3.6	3.7	3.4	2.6	1.0	0.8	0.7	0.6	-0.3	-0.9	1.7	4.2	-0.9
21	-1.4	-1.7	-1.2	-1.6	-1.3	-1.3	-1.4	-1.5	-1.2	-0.6	0.3	1.0	2.4	2.6	0.6	-0.1	-1.5	-2.9	-4.1	-5.4	-6.6	-7.2	-7.4	-7.5	-2.0	2.6	-7.5
22	-7.8	-8.1	-8.6	-9.2	-9.8	-10.3	-10.3	-10.2	-9.8	-8.7	-8.0	-7.4	-7.0	-6.7	-6.6	-6.1	-6.1	-6.8	-8.0	-8.4	-8.6	-8.7	-8.7	-8.7	-8.3	-6.1	-10.3
23	-9.0	-10.7	-12.0	-12.1	-12.2	-12.2	-12.7	-13.8	-10.9	-7.2	-6.0	-5.1	-4.5	-5.0	-5.7	-5.6	-6.1	-7.4	-8.1	-8.2	-8.0	-7.9	-8.7	-8.9	-8.7	-4.5	-13.8
24	-10.2	-11.9	-12.0	-12.2	-12.6	-13.0	-13.1	-12.9	-12.7	-12.0	-11.0	-10.4	-10.0	-10.5	-10.7	-11.2	-12.5	-14.0	-15.8	-16.7	-18.6	-20.4	-22.1	-22.7	-13.7	-10.0	-22.7
25	-23.3	-24.0	-25.0	-26.3	-27.5	-28.4	-28.9	-29.7	-28.9	-25.6	-22.5	-18.5	-15.9	-14.5	-13.7	-13.5	-14.2	-17.0	-20.4	-21.3	-22.7	-22.8	-23.9	-25.3	-22.2	-13.5	-29.7
26	-26.3	-26.5	-26.8	-25.7	-25.2	-25.1	-24.9	-24.3	-22.4	-19.6	-15.0	-10.5	-8.1	-7.5	-7.1	-6.5	-6.5	-7.7	-11.7	-12.6	-12.8	-13.1	-12.5	-8.3	-16.1	-6.5	-26.8
27	-6.0	-6.4	-7.0	-7.1	-7.4	-8.7	-8.1	-7.5	-6.9	-5.1	-1.3	0.4	1.4	2.4	2.9	2.9	2.5	1.7	0.8	-1.0	-3.1	-4.4	-5.0	-6.2	-3.2	2.9	-8.7
28	-7.1	-7.4	-7.3	-7.7	-6.8	-5.6	-4.6	-3.2	-1.3	2.8	4.2	4.9	5.6	5.7	5.7	5.8	5.7	5.7	5.0	3.6	3.2	2.0	1.1	2.2	0.5	5.8	-7.7
29	3.7	6.2	3.8	3.4	4.6	3.9	3.8	5.5	7.9	8.2	8.8	9.5	10.1	10.6	10.8	10.2	9.8	9.3	5.8	1.3	0.0	-1.2	-2.6	-3.6	5.4	10.8	-3.6
30	-4.4	-4.3	-4.7	-4.9	-5.1	-5.7	-5.4	-5.2	-2.6	5.8	11.4	13.0	13.2	13.7	14.5	13.8	8.5	5.9	4.5	4.1	4.3	4.5	4.3	3.9	3.5	14.5	-5.7
31	3.1	2.3	1.3	0.8	0.7	-1.2	-1.6	-1.1	0.7	1.6	2.5	3.4	4.3	5.0	5.5	5.5	4.7	1.8	-1.4	-2.8	-4.3	-4.6	-5.2	-5.6	0.6	5.5	-5.6
Avg	-1.7	-2.3	-2.9	-3.1	-3.4	-4.0	-4.3	-4.0	-1.6	2.2	4.4	5.6	6.5	6.9	7.2	7.2	6.6	5.4	3.5	2.2	1.0	0.2	-0.7	-1.2	1.2	7.8	-6.0
Max	10.6	11.7	11.2	10.0	8.8	6.4	3.8	5.5	7.9	16.0	18.4	19.4	20.4	20.9	21.5	21.5	21.0	19.9	17.7	15.8	15.4	14.6	13.0	10.7	10.7	21.5	2.3
Min	-26.3	-26.5	-26.8	-26.3	-27.5	-28.4	-28.9	-29.7	-28.9	-25.6	-22.5	-18.5	-15.9	-14.5	-13.7	-13.5	-14.2	-17.0	-20.4	-21.3	-22.7	-22.8	-23.9	-25.3	-22.2	-13.5	-29.7

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-Meter Temperature (Degrees Celsius)
November 2020

A-11

Day	<< Hour >>																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	-5.8	-5.8	-6.2	-6.6	-6.3	-5.9	-6.0	-6.2	-3.7	1.6	7.8	10.3	11.6	12.6	13.1	13.2	12.0	9.7	4.3	2.3	1.2	-0.7	-0.6	-1.7	1.8	13.2	-6.6
2	-2.5	-3.1	-3.4	-3.7	-3.7	-3.6	-3.7	-4.3	-1.5	3.6	9.0	13.1	14.9	15.6	16.3	16.6	14.5	8.1	2.8	0.4	-0.9	-1.9	-2.4	-2.3	3.2	16.6	-4.3
3	-2.7	-3.0	-3.4	-4.0	-4.3	-5.1	-5.0	-5.1	-3.4	1.6	8.9	14.5	15.9	16.7	16.7	16.3	15.4	9.0	4.6	1.4	0.3	0.1	-0.6	-0.3	3.5	16.7	-5.1
4	0.3	7.4	9.8	9.5	8.7	7.4	5.7	3.5	5.0	11.5	12.6	12.6	12.4	12.3	12.4	12.3	12.1	9.4	5.5	3.0	1.5	0.4	0.5	0.5	7.3	12.6	0.3
5	0.0	-0.6	-0.3	0.5	3.7	8.0	11.5	11.9	12.5	13.4	14.1	15.0	15.3	16.2	17.2	16.9	16.5	15.5	14.9	13.9	13.1	12.0	13.5	13.3	11.2	17.2	-0.6
6	12.7	9.8	5.7	3.3	2.1	0.9	-0.2	-0.5	1.1	7.0	7.4	8.8	9.4	8.9	9.0	8.3	7.0	6.2	5.8	5.3	4.5	4.2	3.9	3.5	5.6	12.7	-0.5
7	3.1	2.4	0.8	1.1	0.4	-0.3	-0.6	-0.6	-0.2	4.9	11.3	13.0	13.7	13.5	13.5	12.9	8.5	2.9	2.9	2.7	1.3	-0.8	-2.1	-4.0	4.2	13.7	-4.0
8	-6.8	-8.0	-9.2	-10.4	-10.8	-11.3	-11.9	-12.7	-13.2	-13.2	-13.2	-13.2	-13.5	-14.0	-14.2	-14.3	-14.7	-14.8	-14.9	-14.9	-14.7	-14.6	-14.2	-14.0	-12.8	-6.8	-14.9
9	-14.0	-14.0	-14.0	-14.1	-14.7	-15.7	-15.8	-15.3	-14.6	-13.9	-12.5	-11.1	-10.0	-8.5	-8.1	-8.0	-8.8	-10.5	-14.0	-14.0	-12.6	-10.0	-9.4	-9.8	-12.2	-8.0	-15.8
10	-11.5	-12.4	-13.1	-15.6	-16.2	-17.0	-17.5	-16.0	-12.7	-8.5	-7.0	-5.4	-4.6	-3.5	-3.1	-3.4	-3.9	-4.4	-5.0	-4.8	-4.8	-4.7	-4.9	-5.4	-8.6	-3.1	-17.5
11	-5.5	-6.0	-6.5	-6.4	-6.8	-8.1	-9.7	-10.7	-10.7	-9.9	-9.3	-9.6	-9.6	-9.5	-9.2	-9.6	-10.8	-12.6	-15.1	-16.2	-16.1	-15.1	-14.2	-13.5	-10.4	-5.5	-16.2
12	-12.8	-11.8	-10.9	-10.5	-9.5	-9.8	-9.7	-9.7	-10.6	-8.5	-6.3	-5.4	-4.9	-4.4	-3.9	-4.4	-6.1	-6.9	-6.7	-6.3	-6.2	-5.4	-6.4	-6.5	-7.7	-3.9	-12.8
13	-8.9	-10.0	-6.8	-6.1	-5.2	-5.1	-4.6	-4.6	-2.9	-1.9	-1.0	0.4	0.9	0.8	1.2	1.2	0.3	0.0	-0.9	-0.2	-1.0	-0.8	-0.3	-1.7	-2.4	1.2	-10.0
14	-2.0	-2.1	-2.5	-3.0	-3.5	-3.7	-3.8	-3.7	-3.5	-3.2	-3.0	-3.1	-2.8	-2.4	-2.4	-2.6	-3.1	-3.6	-4.1	-4.6	-4.8	-6.4	-9.1	-11.1	-3.9	-2.0	-11.1
15	-11.7	-12.0	-9.7	-8.2	-5.3	-5.3	-4.9	-4.2	-3.3	-1.8	-0.4	1.1	2.6	3.6	3.9	3.4	2.6	2.1	1.7	1.4	0.9	0.6	0.1	0.2	-1.8	3.9	-12.0
16	0.3	0.2	0.2	-0.2	-0.3	-0.2	-0.1	-1.3	-1.9	-0.2	1.4	2.1	2.3	2.7	3.0	3.3	3.4	3.1	2.9	2.6	3.1	4.0	4.6	4.0	1.6	4.6	-1.9
17	4.4	4.6	5.0	5.8	4.9	3.0	2.1	2.2	3.2	8.2	9.7	11.9	11.6	10.8	11.2	11.8	11.3	11.2	10.6	8.6	9.8	8.3	6.4	7.3	7.7	11.9	2.1
18	8.4	8.4	8.4	8.0	6.9	5.4	4.2	4.4	4.2	3.2	2.0	1.2	1.6	2.1	2.6	3.0	2.7	1.1	-0.3	-1.1	0.0	0.9	0.8	2.3	3.3	8.4	-1.1
19	0.6	0.3	-0.1	-0.3	-0.8	-2.4	-2.4	-2.3	-3.2	-1.8	1.0	1.2	1.2	1.3	1.2	0.7	0.3	-0.2	-0.7	-0.8	-1.3	-1.4	-2.0	-2.7	-0.6	1.3	-3.2
20	-2.7	-2.7	-2.8	-3.1	-3.5	-3.7	-4.0	-5.2	-5.0	-2.7	-1.7	-1.1	-0.4	-0.1	0.0	-0.1	-1.0	-3.0	-4.2	-6.8	-7.3	-8.6	-9.5	-10.6	-3.7	0.0	-10.6
21	-10.0	-9.7	-8.5	-8.0	-7.2	-5.0	-4.6	-5.5	-4.5	-2.2	-1.1	-0.5	-0.2	0.0	0.0	0.1	-0.7	-2.1	-3.0	-5.2	-7.7	-9.2	-10.5	-11.7	-4.9	0.1	-11.7
22	-12.4	-12.9	-13.1	-13.1	-13.5	-13.7	-13.5	-13.1	-12.0	-7.9	-2.8	0.6	2.6	3.2	3.5	3.5	-0.3	-3.1	-4.9	-6.7	-8.3	-8.6	-9.5	-10.5	-6.9	3.5	-13.7
23	-10.6	-9.4	-10.4	-10.5	-10.4	-11.0	-11.7	-12.0	-11.2	-8.8	-5.5	-0.6	0.3	0.9	0.8	-0.6	-0.7	-1.5	-1.7	-1.9	-2.1	-2.3	-2.7	-3.1	-5.3	0.9	-12.0
24	-4.6	-5.9	-6.3	-6.8	-8.0	-5.4	-2.1	-1.7	-1.7	-1.1	-0.9	-0.8	0.0	0.5	0.6	0.5	-0.2	-2.4	-5.0	-5.9	-7.0	-7.3	-7.3	-8.0	-3.6	0.6	-8.0
25	-8.8	-9.3	-8.8	-8.4	-6.9	-5.4	-4.6	-5.4	-4.4	-2.3	-0.4	-0.3	0.7	-0.2	-0.9	-1.1	-1.7	-2.0	-3.1	-3.6	-4.4	-5.1	-5.4	-6.9	-4.1	0.7	-9.3
26	-5.7	-6.3	-6.4	-5.9	-4.9	-4.3	-4.3	-4.3	-4.1	-4.3	-3.1	-2.2	-1.8	-1.3	-1.3	-1.7	-2.5	-2.8	-2.8	-3.3	-3.5	-3.7	-3.8	-4.0	-3.7	-1.3	-6.4
27	-4.7	-5.5	-7.6	-8.8	-9.4	-9.8	-10.0	-10.8	-10.3	-8.5	-5.9	-3.5	-0.4	2.2	3.9	3.9	2.9	0.8	-1.3	-3.4	-5.3	-6.3	-6.9	-7.2	-4.7	3.9	-10.8
28	-7.3	-5.3	-6.1	-7.4	-8.1	-8.2	-8.4	-8.8	-8.6	-5.6	-2.1	4.2	3.8	4.2	3.9	3.0	2.1	1.4	0.6	-0.3	-0.5	-1.0	-2.9	-4.6	-2.6	4.2	-8.8
29	-6.3	-8.0	-9.5	-11.1	-12.2	-13.0	-13.2	-13.5	-13.3	-9.3	-5.0	-0.9	1.2	2.5	3.1	2.9	0.8	-3.6	-6.5	-7.2	-8.0	-9.4	-11.2	-11.2	-6.7	3.1	-13.5
30	-11.0	-10.9	-10.9	-10.8	-11.9	-12.0	-11.8	-7.8	-7.7	-3.1	3.8	4.7	5.4	5.6	4.9	4.2	1.7	-0.3	-0.9	-0.6	-0.9	-1.5	-2.5	-2.9	-3.2	5.6	-12.0
Avg	-4.6	-4.7	-4.9	-5.2	-5.2	-5.3	-5.4	-5.4	-4.7	-2.1	0.3	1.9	2.6	3.1	3.3	3.1	2.0	0.2	-1.3	-2.2	-2.7	-3.1	-3.6	-4.1	-2.0	4.2	-8.4
Max	12.7	9.8	9.8	9.5	8.7	8.0	11.5	11.9	12.5	13.4	14.1	15.0	15.9	16.7	17.2	16.9	16.5	15.5	14.9	13.9	13.1	12.0	13.5	13.3	11.2	17.2	2.1
Min	-14.0	-14.0	-14.0	-15.6	-16.2	-17.0	-17.5	-16.0	-14.6	-13.9	-13.2	-13.2	-13.5	-14.0	-14.2	-14.3	-14.7	-14.8	-15.1	-16.2	-16.1	-15.1	-14.2	-14.0	-12.8	-8.0	-17.5

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-Meter Temperature (Degrees Celsius)
December 2020

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	-3.0	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.9	-3.4	-3.9	-3.9	-3.8	-3.7	-3.6	-3.6	-4.4	-5.7	-5.9	-6.4	-7.3	-8.3	-10.1	-12.1	-14.1	-5.1	-2.8	-14.1
2	-16.0	-16.3	-17.3	-17.2	-17.5	-18.1	-18.0	-18.5	-18.2	-15.3	-11.9	-8.1	-5.0	-2.0	-1.4	-1.6	-3.9	-7.2	-8.6	-9.3	-11.2	-11.8	-12.4	-13.0	-11.7	-1.4	-18.5
3	-13.8	-14.1	-14.5	-14.8	-14.8	-15.6	-16.0	-16.0	-15.9	-12.6	-9.5	-5.6	-2.6	1.9	3.8	3.2	-1.3	-3.7	-4.8	-6.0	-7.5	-8.5	-9.3	-10.7	-8.7	3.8	-16.0
4	-10.7	-10.6	-11.3	-12.0	-12.9	-11.9	-13.4	-13.4	-12.2	-10.3	-6.7	-0.7	2.8	3.9	5.0	4.5	0.8	-3.8	-5.0	-7.0	-8.3	-9.8	-9.8	-10.5	-6.8	5.0	-13.4
5	-11.5	-11.4	-11.6	-12.5	-13.3	-13.1	-13.7	-13.8	-14.0	-11.3	-7.8	-3.8	1.9	4.3	5.2	4.1	-0.7	-3.5	-5.7	-6.8	-7.8	-8.7	-9.7	-9.8	-7.3	5.2	-14.0
6	-9.1	-9.6	-9.9	-10.6	-11.0	-11.2	-12.0	-11.6	-11.7	-9.6	-5.5	-1.3	4.5	6.2	6.6	6.5	3.2	-1.9	-4.5	-6.1	-7.2	-8.0	-9.2	-9.5	-5.5	6.6	-12.0
7	-9.7	-10.1	-10.5	-10.4	-11.4	-12.2	-12.5	-12.3	-12.3	-9.8	-5.0	0.4	5.7	6.2	6.9	6.6	6.0	4.0	4.4	2.0	2.2	1.3	0.0	-1.3	-3.0	6.9	-12.5
8	-2.2	-2.2	-2.2	-2.0	-2.5	-2.2	-1.7	-1.9	-1.4	3.3	3.2	3.2	9.3	10.0	9.9	10.0	8.3	4.9	1.1	-0.3	-1.6	-1.5	-0.4	0.0	1.7	10.0	-2.5
9	-0.5	0.0	0.0	-0.1	-0.6	-1.6	-0.5	0.9	-2.3	-2.7	1.8	6.2	6.8	6.7	6.1	4.8	3.6	2.7	1.5	0.4	-1.5	-2.5	-2.7	-2.1	1.0	6.8	-2.7
10	-2.7	-3.6	-4.6	-4.5	-5.1	-4.8	-4.8	-5.6	-5.5	-4.4	-2.6	-1.8	-1.9	-0.8	-0.5	-0.9	-2.9	-5.6	-7.9	-9.7	-10.2	-11.0	-11.8	-12.4	-5.2	-0.5	-12.4
11	-13.0	-13.8	-14.1	-14.1	-14.9	-12.4	-10.7	-9.3	-8.3	-6.1	-4.2	-4.0	-3.7	-3.7	-4.2	-4.6	-5.8	-6.5	-6.9	-7.1	-7.1	-7.5	-7.7	-8.0	-8.2	-3.7	-14.9
12	-8.3	-8.8	-10.4	-11.9	-12.5	-13.0	-12.3	-12.0	-11.5	-10.7	-8.9	-7.7	-6.6	-6.2	-6.0	-6.3	-6.6	-6.2	-6.5	-6.7	-7.0	-7.3	-7.7	-8.2	-8.7	-6.0	-13.0
13	-8.4	-8.6	-8.6	-8.8	-9.5	-11.0	-11.0	-11.0	-11.3	-9.9	-7.5	-5.9	-5.5	-5.2	-5.2	-5.3	-5.8	-6.3	-6.5	-6.5	-7.1	-6.9	-6.8	-6.5	-7.7	-5.2	-11.3
14	-6.3	-6.1	-6.6	-6.3	-6.5	-6.3	-6.0	-5.7	-5.4	-5.2	-4.6	-4.0	-3.2	-2.4	-2.0	-2.3	-2.7	-3.4	-3.7	-3.9	-4.1	-4.2	-4.4	-4.6	-4.6	-2.0	-6.6
15	-4.7	-5.0	-6.0	-6.2	-5.7	-4.7	-5.3	-5.9	-5.9	-4.9	-3.3	-2.6	-2.4	-2.7	-4.6	-5.0	-4.5	-4.2	-4.0	-3.2	-3.6	-3.1	-2.9	-2.1	-4.3	-2.1	-6.2
16	-1.9	-1.7	-1.7	-1.5	-1.4	-1.5	-1.2	-1.1	-1.1	-0.8	-0.6	-0.6	0.4	0.8	0.7	0.3	-0.6	-2.7	-4.7	-6.9	-8.4	-9.3	-8.5	-7.5	-2.6	0.8	-9.3
17	-6.6	-3.9	-1.4	-0.5	0.0	0.0	-0.2	-0.4	-0.5	0.0	0.8	1.7	2.0	1.7	1.9	1.6	0.6	0.4	-0.6	-1.3	-2.4	-4.2	-6.0	-8.5	-1.1	2.0	-8.5
18	-8.9	-8.5	-7.9	-7.5	-7.0	-7.1	-6.1	-4.2	-2.7	-1.8	-1.1	-0.4	0.0	0.1	0.2	-0.2	-0.4	-0.5	-0.6	-1.3	-1.0	-0.8	-0.5	-1.4	-2.9	0.2	-8.9
19	-1.2	-0.1	0.2	0.3	0.2	0.4	1.3	1.3	1.0	1.2	1.4	1.7	2.2	2.5	2.4	2.1	1.5	0.6	0.0	-0.1	-0.1	-0.6	-1.0	0.0	0.7	2.5	-1.2
20	1.1	1.6	1.9	2.3	2.6	2.8	3.0	3.9	3.9	3.9	4.2	4.5	4.7	4.4	3.8	3.3	3.0	2.4	1.8	1.6	1.6	2.0	1.8	1.7	2.8	4.7	1.1
21	0.2	0.6	1.1	1.6	1.5	1.4	1.4	0.9	0.3	-0.1	-0.5	-0.3	0.3	0.6	1.2	2.1	2.0	1.2	0.8	0.3	1.0	6.5	6.4	5.5	1.5	6.5	-0.5
22	4.3	4.8	4.0	3.7	4.2	3.7	3.6	2.1	-1.7	-1.7	-2.1	-4.7	-6.4	-7.2	-7.8	-8.0	-8.0	-8.2	-8.5	-8.6	-8.8	-9.1	-9.4	-9.9	-3.3	4.8	-9.9
23	-10.6	-11.8	-13.2	-16.3	-19.0	-19.5	-20.2	-20.5	-21.3	-21.0	-17.8	-13.6	-9.4	-7.4	-6.8	-6.6	-7.9	-9.9	-11.5	-13.0	-14.8	-14.5	-16.0	-16.9	-14.1	-6.6	-21.3
24	-17.4	-17.5	-18.0	-18.2	-18.1	-17.8	-18.2	-19.1	-19.2	-18.9	-15.6	-10.8	-7.2	-0.8	1.4	0.3	-3.0	-5.2	-6.9	-8.8	-10.4	-10.7	-12.1	-13.0	-11.9	1.4	-19.2
25	-13.7	-13.8	-13.5	-12.7	-12.6	-12.7	-12.2	-12.5	-10.3	-9.4	-7.8	-6.0	-4.7	-2.9	-1.7	-1.4	-2.0	-5.5	-7.6	-7.8	-6.9	-5.8	-2.7	-0.7	-7.8	-0.7	-13.8
26	-1.2	-1.2	0.5	2.4	2.8	1.6	1.1	0.4	-0.1	-0.3	0.0	0.8	1.4	1.4	1.3	1.3	1.1	0.4	-0.4	-1.6	-1.6	-1.6	-2.5	-1.7	0.2	2.8	-2.5
27	-1.9	-1.9	-1.9	-2.4	-2.5	-2.8	-3.4	-3.6	-3.6	-3.9	-3.4	-2.5	-2.1	-2.0	-1.9	-1.9	-2.3	-3.3	-5.3	-6.9	-7.3	-8.4	-9.5	-10.8	-4.0	-1.9	-10.8
28	-12.4	-14.5	-15.0	-15.7	-17.2	-17.7	-18.3	-18.6	-19.2	-17.3	-14.0	-9.8	-6.4	-2.9	-2.0	-2.2	-4.0	-8.5	-11.0	-12.7	-14.2	-15.1	-15.8	-16.4	-12.5	-2.0	-19.2
29	-17.4	-17.0	-16.0	-15.7	-16.1	-17.2	-18.3	-18.0	-17.1	-14.8	-12.3	-8.2	-5.6	-5.3	-5.5	-5.5	-6.5	-10.2	-13.3	-15.1	-16.3	-17.1	-16.9	-17.7	-13.5	-5.3	-18.3
30	-17.2	-16.8	-17.1	-17.4	-18.1	-18.2	-17.9	-17.2	-16.6	Au	Au	Au	Au	-0.5	-1.1	-2.4	-3.5	-3.7	-3.7	-3.6	-3.8	-3.2	-3.2	-3.2	-9.4	-0.5	-18.2
31	-3.4	-3.1	-2.4	-1.6	-1.8	-2.2	-2.7	-3.8	-5.0	-4.5	-3.5	-2.3	-0.9	-0.9	-0.2	0.1	-0.3	-1.6	-2.8	-2.6	-1.9	-0.9	-0.6	-1.3	-2.1	0.1	-5.0
Avg	-7.4	-7.3	-7.4	-7.5	-7.9	-8.0	-8.0	-8.0	-8.1	-6.8	-5.0	-3.0	-1.2	-0.2	0.1	-0.3	-1.6	-3.3	-4.4	-5.4	-6.0	-6.2	-6.6	-6.9	-5.3	0.9	-10.8
Max	4.3	4.8	4.0	3.7	4.2	3.7	3.6	3.9	3.9	3.9	4.2	6.2	9.3	10.0	9.9	10.0	8.3	4.9	4.4	2.0	2.2	6.5	6.4	5.5	2.8	10.0	1.1
Min	-17.4	-17.5	-18.0	-18.2	-19.0	-19.5	-20.2	-20.5	-21.3	-21.0	-17.8	-13.6	-9.4	-7.4	-7.8	-8.0	-8.0	-10.2	-13.3	-15.1	-16.3	-17.1	-16.9	-17.7	-14.1	-6.6	-21.3

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
2-Meter Temperature (Degrees Celsius)
October 2020

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	-3.5	-4.2	-4.3	-5.0	-5.4	-5.8	-5.6	-3.7	2.3	9.5	13.1	15.6	16.9	18.0	18.5	18.6	18.0	16.2	13.0	9.9	6.9	4.0	1.5	0.2	6.0	18.6	-5.8
2	-0.4	-1.0	-1.9	-2.4	-2.9	-3.3	-3.3	-2.7	2.5	12.9	16.6	17.6	18.6	19.1	19.0	18.4	17.7	15.3	12.1	7.9	4.9	2.3	0.4	-0.3	7.0	19.1	-3.3
3	-1.4	-2.4	-2.6	-3.3	-4.0	-4.8	-5.2	-2.6	3.2	10.6	15.3	16.9	17.9	18.6	19.1	19.2	19.2	16.1	9.6	6.1	3.2	1.5	0.0	-0.4	6.2	19.2	-5.2
4	-0.9	-1.8	-2.7	-3.3	-3.0	-3.2	-4.1	-2.2	4.2	13.0	18.1	19.8	21.3	21.7	21.7	21.5	20.8	18.5	15.9	13.8	14.4	13.7	12.1	7.8	9.9	21.7	-4.1
5	5.3	4.7	5.1	5.6	3.3	0.8	0.0	0.1	6.8	13.0	14.9	15.8	16.8	17.6	18.4	18.8	18.5	16.8	12.8	10.7	8.6	7.0	6.3	5.2	9.7	18.8	0.0
6	3.7	1.7	0.2	-0.6	-0.8	-1.2	-1.8	0.1	7.4	16.7	19.2	20.2	20.9	21.3	21.7	21.9	21.3	19.4	16.3	12.1	7.6	5.1	3.7	2.0	9.9	21.9	-1.8
7	1.0	0.6	-0.3	-1.1	-0.9	-1.7	-2.2	-0.3	6.7	14.3	18.1	19.7	20.6	21.5	22.2	22.2	20.0	15.8	13.0	11.6	9.0	8.8	8.1	5.5	9.7	22.2	-2.2
8	3.0	1.4	0.4	0.0	-0.5	-2.0	-3.1	-1.5	4.6	12.0	17.9	19.8	20.2	21.0	20.9	19.6	18.5	17.5	15.4	13.8	7.6	7.1	7.0	8.8	9.6	21.0	-3.1
9	9.1	10.2	10.2	8.2	6.9	3.9	1.6	2.8	4.8	11.4	14.9	14.9	15.8	16.8	17.8	18.2	17.0	12.1	7.3	4.9	2.3	0.3	-0.9	-2.0	8.7	18.2	-2.0
10	-2.3	-3.0	-3.3	-3.3	-3.0	-4.3	-4.7	-3.2	4.0	15.5	18.8	18.9	20.5	21.1	20.6	19.7	19.2	15.5	11.4	9.0	6.2	5.8	4.6	4.4	7.8	21.1	-4.7
11	4.7	4.1	3.8	3.4	2.6	1.8	1.5	1.8	2.6	3.4	4.7	5.8	6.5	6.0	6.3	6.4	5.1	3.4	-0.4	0.3	3.7	2.6	2.6	4.1	3.6	6.5	-0.4
12	4.0	3.2	2.2	2.9	3.1	2.6	2.5	2.5	5.4	7.2	8.2	9.0	9.7	9.4	9.4	8.7	8.1	6.8	6.3	5.7	5.1	4.8	4.0	3.4	5.6	9.7	2.2
13	1.6	-2.1	-3.4	-3.8	-3.6	-3.0	-2.5	-1.4	0.4	2.0	4.6	6.8	8.6	8.2	8.4	8.1	7.4	7.5	7.7	7.6	7.3	5.7	5.7	5.3	3.5	8.6	-3.8
14	4.2	3.6	3.4	3.5	3.3	2.8	2.5	2.6	3.2	3.3	3.1	0.6	0.2	0.4	1.7	1.4	1.3	1.2	0.6	0.6	-0.8	-1.7	-1.7	-2.3	1.5	4.2	-2.3
15	-3.0	-3.0	-3.2	-4.8	-5.9	-7.1	-7.2	-6.6	-4.0	-0.6	-0.6	0.5	2.9	1.8	2.2	3.5	1.6	1.4	0.7	-0.2	-0.7	-1.6	-2.6	-2.9	-1.6	3.5	-7.2
16	-2.8	-3.1	-1.1	-0.4	0.3	-0.2	-1.6	-1.7	-0.8	-0.1	0.5	4.3	6.1	6.9	7.5	7.3	8.2	9.1	9.2	9.0	8.2	6.1	1.7	0.4	3.0	9.2	-3.1
17	-0.9	-2.3	-3.1	-3.7	-3.9	-4.6	-4.5	-4.6	-4.2	-3.9	-3.6	-3.7	-3.5	-3.3	-4.0	-5.1	-6.3	-6.5	-6.8	-7.3	-7.3	-7.3	-7.7	-8.1	-4.8	-0.9	-8.1
18	-8.4	-8.3	-8.1	-8.0	-7.7	-7.4	-7.3	-7.3	-7.1	-6.6	-6.2	-5.8	-5.2	-5.0	-4.5	-3.5	-3.6	-3.5	-3.4	-3.3	-3.4	-3.3	-3.0	-2.7	-5.5	-2.7	-8.4
19	-2.5	-2.1	-1.7	-1.5	-1.1	-0.7	-0.2	0.2	1.9	2.9	3.8	4.3	5.1	5.4	5.4	4.8	4.7	4.5	3.8	2.8	4.0	4.3	3.8	3.5	2.3	5.4	-2.5
20	3.9	3.5	1.8	1.1	0.7	0.4	0.0	-0.5	0.0	1.3	3.0	3.1	3.5	3.5	3.7	3.8	3.0	1.7	0.6	0.2	0.2	-0.2	-0.7	-1.1	1.5	3.9	-1.1
21	-1.8	-2.1	-1.5	-1.9	-1.6	-1.6	-1.5	-1.7	-1.1	-0.3	0.5	1.2	2.7	3.1	1.1	0.2	-1.5	-2.8	-4.1	-5.3	-6.5	-7.2	-7.3	-7.4	-2.0	3.1	-7.4
22	-7.7	-8.0	-8.4	-9.3	-10.0	-10.3	-10.3	-10.1	-9.3	-7.9	-7.2	-6.7	-6.5	-6.3	-6.1	-5.8	-5.9	-6.7	-7.9	-8.3	-8.4	-8.6	-8.6	-8.6	-8.0	-5.8	-10.3
23	-9.0	-11.2	-12.5	-12.1	-12.1	-12.1	-12.9	-14.0	-10.5	-6.7	-5.5	-4.7	-4.1	-4.7	-5.4	-5.5	-6.0	-7.3	-8.1	-8.1	-7.9	-7.9	-8.6	-8.8	-8.6	-4.1	-14.0
24	-10.2	-11.8	-12.0	-12.1	-12.5	-13.0	-13.1	-12.9	-12.6	-11.8	-10.8	-10.1	-9.5	-10.2	-10.6	-11.3	-12.7	-14.3	-16.6	-17.9	-20.0	-22.3	-24.1	-24.2	-14.0	-9.5	-24.2
25	-24.9	-25.8	-26.8	-28.4	-29.4	-30.8	-31.5	-31.7	-29.9	-26.2	-22.3	-18.4	-15.1	-13.5	-13.5	-13.7	-15.0	-18.8	-21.7	-22.7	-24.6	-24.6	-26.2	-27.3	-23.4	-13.5	-31.7
26	-27.7	-28.3	-28.4	-27.6	-27.1	-27.1	-26.6	-26.2	-23.9	-20.3	-15.2	-10.8	-7.7	-7.2	-7.0	-6.3	-6.9	-8.6	-12.3	-13.4	-13.8	-13.9	-13.7	-9.1	-17.0	-6.3	-28.4
27	-6.4	-7.0	-7.6	-7.9	-8.0	-9.3	-8.4	-7.9	-7.5	-5.9	-1.4	0.7	1.7	2.5	3.0	3.0	2.1	0.9	-0.6	-1.8	-4.1	-5.6	-6.3	-7.4	-3.7	3.0	-9.3
28	-8.8	-8.9	-8.9	-8.7	-7.4	-5.8	-4.9	-3.8	-1.7	2.6	4.2	5.0	5.5	5.5	5.6	5.6	5.3	5.3	4.3	2.8	2.2	0.8	0.0	0.4	-0.2	5.6	-8.9
29	2.0	5.5	2.4	1.9	2.3	1.9	2.2	4.8	7.3	7.6	8.3	9.0	9.6	10.4	10.6	10.0	9.3	8.4	4.5	0.7	-0.5	-2.1	-4.3	-5.1	4.4	10.6	-5.1
30	-6.3	-5.7	-6.5	-6.7	-6.9	-7.6	-7.6	-7.5	-3.0	5.9	11.5	13.2	13.6	13.9	14.7	13.6	8.2	5.7	4.1	3.7	4.1	4.4	4.2	3.8	2.8	14.7	-7.6
31	2.8	1.9	0.3	0.1	0.1	-2.4	-2.8	-1.7	0.8	2.1	3.2	4.1	5.1	5.9	6.2	5.9	4.6	0.1	-2.9	-4.4	-5.5	-6.5	-7.1	-6.7	0.1	6.2	-7.1
Avg	-2.7	-3.3	-3.8	-4.2	-4.4	-5.0	-5.2	-4.5	-1.5	2.5	4.8	6.0	7.1	7.4	7.6	7.4	6.5	4.9	2.7	1.3	0.1	-0.9	-1.8	-2.2	0.8	8.2	-7.1
Max	9.1	10.2	10.2	8.2	6.9	3.9	2.5	4.8	7.4	16.7	19.2	20.2	21.3	21.7	22.2	22.2	21.3	19.4	16.3	13.8	14.4	13.7	12.1	8.8	9.9	22.2	2.2
Min	-27.7	-28.3	-28.4	-28.4	-29.4	-30.8	-31.5	-31.7	-29.9	-26.2	-22.3	-18.4	-15.1	-13.5	-13.5	-13.7	-15.0	-18.8	-21.7	-22.7	-24.6	-24.6	-26.2	-27.3	-23.4	-13.5	-31.7

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
2-Meter Temperature (Degrees Celsius)
November 2020

A-14

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	-6.8	-7.1	-7.7	-8.1	-7.5	-7.1	-7.3	-7.1	-3.6	2.3	8.5	11.0	12.3	13.3	13.8	13.6	11.8	8.2	3.3	1.8	0.5	-1.7	-2.1	-3.1	1.3	13.8	-8.1
2	-4.2	-4.8	-5.2	-5.3	-5.2	-5.3	-5.5	-5.6	-1.6	4.1	9.8	13.9	15.7	16.3	16.9	16.9	13.5	5.9	1.0	-1.1	-2.3	-3.6	-4.3	-4.0	2.3	16.9	-5.6
3	-4.7	-4.5	-5.3	-6.1	-6.4	-6.8	-6.8	-7.0	-3.5	2.2	9.4	15.1	16.6	17.3	17.2	16.5	13.8	6.5	2.8	-0.1	-1.3	-1.5	-2.4	-1.9	2.5	17.3	-7.0
4	-1.9	5.6	9.1	8.3	7.2	5.6	3.7	1.7	3.9	11.7	13.0	13.1	12.6	12.3	12.5	12.1	11.3	8.0	4.1	1.9	0.2	-1.0	-0.7	-1.0	6.4	13.1	-1.9
5	-1.7	-2.1	-2.2	-1.9	0.0	5.4	10.7	11.3	12.4	13.3	14.3	15.7	16.0	16.6	17.5	16.9	16.2	14.8	14.2	13.2	12.2	10.8	13.0	12.8	10.4	17.5	-2.2
6	12.2	8.5	4.9	2.8	1.0	-0.6	-1.9	-2.2	0.4	7.3	7.7	9.4	9.9	9.3	9.5	8.3	6.8	5.8	5.1	4.8	4.3	4.0	3.7	3.2	5.2	12.2	-2.2
7	2.8	2.1	0.2	0.7	-0.2	-1.1	-1.1	-1.2	-0.2	5.6	12.0	13.5	14.3	13.7	13.7	12.7	8.2	2.9	2.7	2.5	1.1	-0.8	-2.1	-4.0	4.1	14.3	-4.0
8	-6.8	-7.9	-9.1	-10.3	-10.8	-11.3	-11.8	-12.6	-13.1	-13.0	-13.0	-12.9	-13.3	-13.8	-14.0	-14.1	-14.5	-14.8	-14.8	-14.8	-14.6	-14.5	-14.1	-13.8	-12.7	-6.8	-14.8
9	-13.9	-13.9	-13.9	-14.2	-15.0	-16.6	-17.2	-15.3	-14.4	-13.6	-11.9	-10.3	-9.2	-7.9	-7.4	-7.7	-8.8	-12.3	-15.2	-15.1	-14.3	-11.3	-10.8	-11.1	-12.6	-7.4	-17.2
10	-13.6	-14.9	-15.8	-17.2	-17.5	-18.6	-19.2	-17.1	-12.7	-8.6	-6.7	-5.3	-4.5	-3.4	-3.0	-3.5	-4.0	-4.7	-5.5	-5.2	-5.1	-4.9	-5.1	-5.8	-9.2	-3.0	-19.2
11	-5.6	-6.1	-6.5	-6.5	-7.2	-8.6	-10.2	-11.9	-11.5	-9.9	-8.7	-9.3	-9.3	-9.1	-8.8	-9.5	-11.3	-13.9	-16.3	-17.4	-16.5	-15.1	-14.1	-13.4	-10.7	-5.6	-17.4
12	-12.8	-12.6	-12.2	-11.7	-9.8	-10.2	-10.1	-10.1	-11.1	-8.1	-6.0	-5.1	-4.5	-4.1	-3.5	-4.6	-6.8	-7.6	-7.6	-7.1	-6.9	-6.1	-7.7	-7.4	-8.1	-3.5	-12.8
13	-10.6	-11.8	-9.0	-7.2	-6.0	-5.9	-5.5	-5.6	-3.1	-1.7	-0.9	-0.1	0.8	0.8	1.1	1.1	0.2	0.0	-0.9	-0.3	-1.4	-1.2	-0.7	-1.8	-2.9	1.1	-11.8
14	-2.2	-2.2	-2.7	-3.2	-3.5	-3.8	-3.9	-3.7	-3.6	-3.2	-2.9	-3.0	-2.7	-2.4	-2.5	-2.7	-3.2	-3.8	-4.5	-5.3	-5.6	-7.7	-10.7	-12.8	-4.2	-2.2	-12.8
15	-13.2	-13.1	-10.9	-9.4	-5.5	-5.4	-5.1	-4.2	-3.3	-1.7	-0.2	1.3	2.7	3.7	4.0	3.3	2.4	1.8	1.5	1.1	0.6	0.3	-0.1	0.0	-2.1	4.0	-13.2
16	0.0	0.0	0.0	-0.5	-0.7	-0.8	-0.5	-1.8	-2.2	0.1	1.9	2.1	2.4	2.8	3.1	3.2	3.1	2.8	2.4	1.9	2.4	3.2	4.0	2.9	1.3	4.0	-2.2
17	3.4	3.4	3.6	4.5	3.7	2.5	1.2	1.2	2.2	7.6	9.4	12.0	11.4	10.6	10.9	11.5	10.8	10.8	10.0	7.6	9.2	7.5	4.9	5.9	6.9	12.0	1.2
18	7.5	7.6	7.8	7.0	5.8	4.3	3.6	4.0	3.9	3.0	2.0	1.3	1.7	2.2	2.6	2.9	2.4	0.5	-1.0	-2.7	-1.3	-0.2	-0.2	1.9	2.8	7.8	-2.7
19	0.5	0.0	-0.7	-1.1	-1.7	-3.6	-3.2	-3.4	-3.5	-1.6	1.1	1.4	1.4	1.3	1.3	0.6	0.1	-0.4	-1.0	-0.9	-1.4	-1.5	-2.1	-2.9	-0.9	1.4	-3.6
20	-2.8	-2.7	-2.8	-3.3	-3.6	-4.2	-4.5	-6.7	-5.7	-2.2	-1.2	-0.5	0.2	0.5	0.5	0.2	-1.5	-4.8	-6.1	-7.6	-7.7	-9.6	-10.5	-11.6	-4.1	0.5	-11.6
21	-10.7	-10.2	-8.7	-8.3	-7.6	-6.2	-6.8	-7.6	-5.4	-1.9	-0.6	0.0	0.4	0.4	0.1	0.3	-0.8	-2.4	-3.5	-6.6	-8.9	-10.4	-11.5	-13.0	-5.4	0.4	-13.0
22	-13.5	-14.2	-14.4	-14.4	-14.7	-14.8	-14.7	-14.2	-12.3	-7.6	-2.5	1.1	3.2	3.8	4.0	3.7	-1.0	-4.2	-6.3	-9.0	-10.5	-11.3	-11.5	-12.4	-7.8	4.0	-14.8
23	-12.1	-10.6	-11.7	-11.7	-11.3	-12.5	-12.8	-13.1	-11.6	-8.7	-5.2	0.1	0.7	1.6	1.2	-0.5	-0.7	-1.6	-1.7	-1.9	-2.2	-2.4	-2.9	-3.3	-5.6	1.6	-13.1
24	-6.0	-7.7	-8.2	-8.3	-9.3	-6.2	-2.3	-1.8	-1.7	-1.0	-0.7	-0.5	0.7	1.2	1.2	0.8	-0.8	-4.0	-6.7	-7.8	-8.7	-8.5	-9.0	-9.6	-4.4	1.2	-9.6
25	-10.5	-10.8	-10.4	-10.2	-8.4	-7.0	-5.7	-6.8	-5.2	-2.3	-0.2	-0.1	1.0	-0.1	-0.8	-1.0	-1.9	-2.2	-3.5	-4.1	-5.2	-5.6	-6.0	-7.8	-4.8	1.0	-10.8
26	-6.3	-7.9	-7.6	-6.8	-5.3	-4.3	-4.4	-4.4	-4.1	-4.2	-2.9	-2.0	-1.6	-0.9	-0.9	-1.6	-2.6	-3.0	-2.9	-3.8	-4.7	-4.4	-4.4	-4.7	-4.0	-0.9	-7.9
27	-5.8	-6.7	-8.3	-9.7	-10.0	-10.5	-11.2	-12.1	-11.1	-8.3	-5.6	-3.2	0.1	2.8	4.4	4.0	2.5	-0.6	-3.2	-5.4	-7.9	-8.1	-8.8	-8.8	-5.5	4.4	-12.1
28	-9.3	-6.6	-7.7	-9.2	-9.6	-9.8	-10.0	-10.1	-9.2	-5.2	-2.0	4.3	3.9	4.2	3.8	2.9	1.7	1.0	0.2	-1.0	-1.0	-1.6	-4.1	-6.6	-3.4	4.3	-10.1
29	-7.9	-9.3	-11.4	-12.8	-13.7	-14.6	-15.1	-15.7	-14.3	-9.2	-4.3	-0.3	1.8	3.2	3.6	3.0	0.0	-5.1	-8.7	-9.6	-10.1	-11.2	-13.3	-13.2	-7.8	3.6	-15.7
30	-13.4	-13.5	-13.1	-13.8	-14.3	-14.8	-14.0	-9.5	-9.7	-3.3	4.1	5.2	5.9	6.0	4.9	4.0	1.6	-0.4	-1.0	-0.7	-1.0	-1.5	-2.6	-2.9	-4.1	6.0	-14.8
Avg	-5.7	-5.8	-6.0	-6.3	-6.2	-6.4	-6.4	-6.4	-5.2	-1.9	0.6	2.3	3.0	3.4	3.6	3.1	1.6	-0.6	-2.1	-3.1	-3.6	-4.0	-4.5	-5.0	-2.6	4.4	-9.7
Max	12.2	8.5	9.1	8.3	7.2	5.6	10.7	11.3	12.4	13.3	14.3	15.7	16.6	17.3	17.5	16.9	16.2	14.8	14.2	13.2	12.2	10.8	13.0	12.8	10.4	17.5	1.2
Min	-13.9	-14.9	-15.8	-17.2	-17.5	-18.6	-19.2	-17.1	-14.4	-13.6	-13.0	-12.9	-13.3	-13.8	-14.0	-14.1	-14.5	-14.8	-16.3	-17.4	-16.5	-15.1	-14.1	-13.8	-12.7	-7.4	-19.2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
2-Meter Temperature (Degrees Celsius)
December 2020

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	-3.0	-2.8	-2.8	-2.8	-2.8	-2.8	-2.9	-3.0	-3.6	-4.0	-3.8	-3.7	-3.5	-3.7	-3.6	-4.6	-6.1	-6.2	-6.8	-8.1	-9.3	-11.5	-14.1	-16.1	-5.5	-2.8	-16.1
2	-18.2	-18.8	-19.3	-19.7	-20.1	-20.3	-20.0	-20.2	-19.7	-15.4	-11.7	-7.5	-3.4	-1.2	-0.8	-1.2	-4.6	-8.2	-9.9	-11.0	-13.1	-13.6	-14.0	-15.1	-12.8	-0.8	-20.3
3	-15.8	-16.2	-16.5	-16.9	-17.4	-17.9	-17.8	-17.9	-17.6	-13.3	-9.3	-5.2	-1.2	2.3	3.9	1.8	-1.7	-4.5	-6.6	-7.8	-9.0	-10.4	-11.3	-12.5	-9.9	3.9	-17.9
4	-12.2	-12.3	-13.1	-14.0	-14.8	-13.9	-15.5	-14.7	-13.7	-11.1	-6.8	-2.3	3.4	4.4	5.4	4.1	-0.3	-5.3	-7.3	-9.2	-10.3	-12.2	-12.0	-12.2	-8.2	5.4	-15.5
5	-13.4	-13.6	-14.1	-14.6	-15.6	-16.0	-16.2	-16.6	-15.7	-11.6	-7.5	-3.3	2.5	4.9	5.6	3.7	-1.6	-5.5	-7.7	-9.5	-10.8	-11.6	-12.1	-12.9	-8.9	5.6	-16.6
6	-12.2	-12.6	-12.8	-13.3	-13.6	-14.1	-14.0	-14.2	-13.7	-9.7	-5.1	-1.0	4.8	6.6	6.8	6.5	0.8	-2.9	-5.5	-7.5	-9.2	-9.8	-10.8	-11.2	-7.0	6.8	-14.2
7	-11.1	-11.5	-12.1	-12.5	-13.1	-14.2	-14.2	-14.1	-13.8	-10.4	-4.9	0.3	5.8	6.3	6.8	6.1	5.2	2.7	2.5	1.4	1.2	0.6	-1.2	-2.5	-4.0	6.8	-14.2
8	-3.4	-3.4	-3.9	-3.8	-3.7	-3.3	-3.1	-2.6	-2.2	1.3	2.1	2.6	8.7	9.6	9.4	9.3	6.5	3.4	0.3	-1.9	-2.8	-2.5	-1.5	-1.3	0.6	9.6	-3.9
9	-1.8	-2.2	-1.4	-1.9	-2.9	-4.2	-4.0	-2.4	-4.6	-3.7	2.1	5.9	6.7	6.6	5.9	4.5	3.3	2.4	1.0	-0.9	-3.0	-4.1	-3.4	-2.9	-0.2	6.7	-4.6
10	-3.7	-4.6	-5.5	-5.6	-5.7	-5.6	-5.6	-6.3	-6.0	-4.3	-2.2	-1.4	-1.6	-0.3	0.0	-0.5	-4.2	-7.6	-10.2	-11.7	-12.0	-13.2	-13.6	-14.1	-6.1	0.0	-14.1
11	-15.0	-15.3	-15.8	-16.7	-16.2	-12.7	-10.7	-9.3	-8.4	-6.1	-4.1	-3.8	-3.3	-3.4	-4.0	-4.4	-5.7	-6.5	-7.0	-7.3	-7.1	-7.4	-7.7	-8.0	-8.6	-3.3	-16.7
12	-8.3	-9.1	-11.8	-12.7	-13.3	-14.3	-12.5	-12.0	-11.4	-10.4	-8.5	-7.3	-6.0	-5.7	-5.7	-6.3	-6.9	-6.2	-6.6	-6.8	-7.0	-7.3	-7.8	-8.2	-8.8	-5.7	-14.3
13	-8.5	-8.6	-8.6	-8.9	-10.5	-11.8	-11.7	-11.6	-12.5	-10.2	-7.3	-5.4	-5.2	-4.9	-5.0	-5.4	-6.6	-6.4	-6.7	-7.0	-7.8	-7.3	-7.2	-6.8	-8.0	-4.9	-12.5
14	-6.5	-6.2	-6.7	-6.4	-6.5	-6.3	-6.1	-5.7	-5.4	-4.9	-4.1	-3.6	-2.7	-2.1	-1.9	-2.3	-2.7	-3.4	-3.8	-3.9	-4.1	-4.3	-4.5	-4.6	-4.5	-1.9	-6.7
15	-4.8	-5.2	-6.6	-7.2	-6.2	-5.1	-6.0	-6.9	-6.7	-5.0	-3.1	-2.2	-1.9	-2.4	-4.4	-4.9	-4.7	-4.4	-4.2	-3.4	-3.8	-3.3	-3.2	-2.2	-4.5	-1.9	-7.2
16	-2.1	-1.7	-1.8	-1.5	-1.6	-1.6	-1.4	-1.2	-1.3	-0.8	-0.6	-0.5	0.7	1.0	0.9	0.4	-1.3	-4.4	-6.7	-9.3	-10.6	-11.1	-9.7	-8.9	-3.1	1.0	-11.1
17	-8.3	-5.7	-1.7	-0.6	-0.1	-0.1	-0.4	-0.6	-0.8	0.0	1.0	2.0	2.2	1.8	2.0	1.5	0.1	0.2	-1.0	-1.7	-3.1	-6.0	-7.7	-9.9	-1.5	2.2	-9.9
18	-9.7	-8.8	-8.4	-7.7	-7.5	-8.2	-7.3	-5.8	-3.0	-1.7	-1.0	-0.1	0.3	0.6	0.4	-0.2	-0.5	-0.6	-0.9	-2.0	-1.6	-1.2	-1.2	-2.2	-3.3	0.6	-9.7
19	-1.9	-0.4	-0.1	0.0	0.0	0.1	1.1	1.2	1.0	1.2	1.4	1.7	2.5	2.6	2.4	2.1	1.3	0.3	-0.4	-0.4	-0.4	-1.3	-2.3	-0.9	0.4	2.6	-2.3
20	0.8	1.5	1.8	2.2	2.5	2.7	2.8	3.7	3.7	3.9	4.2	4.5	4.6	4.4	3.7	3.2	2.8	2.2	1.5	1.4	1.4	1.8	1.5	1.2	2.7	4.6	0.8
21	-0.8	-0.3	0.4	1.0	1.1	0.9	0.8	0.6	0.0	-0.1	-0.4	-0.1	0.4	0.7	1.2	1.9	1.6	0.6	-0.4	-1.4	-0.9	5.7	5.8	4.9	1.0	5.8	-1.4
22	3.7	4.4	3.3	3.0	3.7	3.2	3.0	1.8	-1.8	-1.8	-2.2	-4.6	-6.2	-7.0	-7.6	-8.0	-8.0	-8.2	-8.4	-8.6	-8.9	-9.1	-9.3	-10.0	-3.5	4.4	-10.0
23	-11.2	-12.8	-14.3	-18.0	-20.2	-20.7	-21.6	-22.8	-23.2	-22.0	-17.8	-13.8	-9.3	-7.2	-6.6	-6.6	-8.8	-12.3	-14.0	-14.7	-16.0	-15.8	-17.5	-18.8	-15.3	-6.6	-23.2
24	-19.2	-19.4	-19.6	-19.8	-19.7	-19.9	-19.6	-20.8	-21.1	-20.3	-16.2	-10.8	-6.6	-1.0	1.4	-0.5	-3.9	-7.1	-8.8	-10.7	-12.8	-12.6	-14.0	-15.4	-13.3	1.4	-21.1
25	-15.2	-15.1	-14.4	-13.6	-13.5	-13.7	-13.9	-14.2	-11.7	-10.3	-8.3	-6.3	-4.8	-3.0	-2.5	-1.9	-3.3	-8.6	-10.0	-9.4	-8.1	-6.8	-3.7	-1.0	-8.9	-1.0	-15.2
26	-2.0	-2.1	-0.4	2.0	2.5	1.2	0.9	0.0	-0.9	-0.6	-0.2	0.9	1.6	1.5	1.4	1.0	0.9	0.2	-0.9	-2.3	-2.6	-2.4	-3.7	-2.0	-0.2	2.5	-3.7
27	-2.0	-2.0	-2.0	-2.6	-2.6	-2.9	-3.5	-4.1	-3.8	-3.8	-3.3	-2.2	-1.9	-1.9	-1.8	-2.0	-2.6	-3.9	-6.3	-8.2	-7.9	-9.6	-10.6	-12.2	-4.3	-1.8	-12.2
28	-14.1	-16.5	-16.7	-17.7	-18.6	-19.7	-20.3	-21.2	-21.2	-17.6	-13.7	-9.6	-5.5	-2.3	-1.3	-2.0	-4.8	-10.3	-13.1	-14.5	-16.6	-16.6	-18.1	-18.0	-13.8	-1.3	-21.2
29	-19.3	-18.6	-17.0	-16.8	-18.4	-19.1	-19.4	-19.3	-17.2	-14.6	-12.0	-8.1	-5.4	-4.9	-5.2	-5.3	-7.5	-12.1	-14.9	-16.9	-17.5	-18.5	-18.4	-18.9	-14.4	-4.9	-19.4
30	-17.9	-17.9	-18.2	-19.2	-19.7	-19.7	-19.2	-18.7	-17.7	Au	Au	Au	Au	-0.1	-1.0	-2.3	-3.4	-3.7	-3.7	-3.9	-4.0	-3.3	-3.4	-3.3	-10.0	-0.1	-19.7
31	-3.5	-3.3	-2.7	-1.8	-2.0	-2.3	-3.0	-4.6	-5.7	-4.8	-3.3	-2.0	-0.7	-0.6	-0.2	-0.1	-0.6	-2.6	-4.4	-3.9	-2.8	-1.2	-0.8	-1.8	-2.4	-0.1	-5.7
Avg	-8.4	-8.4	-8.5	-8.6	-8.9	-9.1	-9.1	-9.1	-9.0	-7.1	-4.9	-2.9	-0.8	0.1	0.2	-0.4	-2.2	-4.2	-5.5	-6.5	-7.1	-7.3	-7.7	-8.0	-6.0	1.1	-12.3
Max	3.7	4.4	3.3	3.0	3.7	3.2	3.0	3.7	3.7	3.9	4.2	5.9	8.7	9.6	9.4	9.3	6.5	3.4	2.5	1.4	1.4	5.7	5.8	4.9	2.7	9.6	0.8
Min	-19.3	-19.4	-19.6	-19.8	-20.2	-20.7	-21.6	-22.8	-23.2	-22.0	-17.8	-13.8	-9.3	-7.2	-7.6	-8.0	-8.8	-12.3	-14.9	-16.9	-17.5	-18.5	-18.4	-18.9	-15.3	-6.6	-23.2

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-2 M Delta Temperature (Degrees Celsius)
October 2020

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	1.84	1.49	1.42	1.92	1.58	1.70	1.36	0.91	-0.69	-0.76	-0.77	-0.95	-1.05	-1.11	-0.78	-0.41	0.04	0.83	1.47	1.14	1.11	2.18	1.79	1.68	0.66	2.18	-1.11
2	2.27	1.60	1.67	1.77	1.85	1.97	1.35	1.05	-0.37	-0.68	-0.96	-1.04	-1.14	-1.18	-1.02	-0.81	-0.43	0.42	1.62	2.14	2.45	1.95	2.02	1.52	0.75	2.45	-1.18
3	2.21	1.58	1.48	1.57	1.81	2.22	1.79	0.12	-0.87	-0.96	-0.82	-1.21	-1.14	-1.06	-0.99	-0.73	-0.46	0.92	1.23	1.86	1.98	2.28	2.27	2.23	0.72	2.28	-1.21
4	2.15	3.03	2.44	1.51	1.88	2.05	2.13	0.66	-0.68	-0.68	-0.80	-0.95	-0.94	-0.86	-0.63	-0.43	-0.07	0.68	1.44	2.04	1.03	0.91	0.95	2.36	0.80	3.03	-0.95
5	1.91	0.56	1.40	2.97	1.67	1.44	1.10	0.94	-0.84	-0.74	-0.87	-0.96	-1.07	-1.02	-0.91	-0.64	-0.34	0.37	1.76	1.42	2.52	3.38	4.09	2.83	0.87	4.09	-1.07
6	0.77	1.21	1.77	1.85	1.68	1.61	1.52	0.36	-0.66	-0.67	-0.79	-0.80	-0.91	-0.94	-0.81	-0.56	-0.26	0.49	1.41	1.95	0.93	1.42	1.70	1.48	0.57	1.95	-0.94
7	2.25	2.14	1.96	1.69	1.62	2.07	1.81	0.91	-0.37	-0.91	-0.87	-0.82	-0.86	-0.88	-0.76	-0.65	-0.31	0.52	1.08	1.52	2.51	2.92	2.25	1.04	0.83	2.92	-0.91
8	1.60	1.70	1.99	1.72	1.65	1.89	1.99	0.99	-0.66	-0.84	-0.77	-0.91	-0.88	-0.83	-0.74	-0.10	0.34	0.67	1.34	1.54	3.43	2.96	2.57	1.92	0.94	3.43	-0.91
9	1.57	1.55	1.01	1.72	1.83	2.49	1.04	0.16	-0.07	-0.82	-0.85	-0.55	-0.78	-0.77	-0.82	-0.66	0.23	1.38	1.17	1.64	1.84	2.00	1.72	2.23	0.76	2.49	-0.85
10	1.56	2.24	2.12	2.65	2.05	2.17	2.21	1.41	-0.32	-0.40	-0.59	-0.17	-0.54	-0.37	-0.11	0.08	0.14	0.20	0.09	0.09	0.14	0.18	0.31	0.29	0.64	2.65	-0.59
11	0.17	0.14	0.14	0.13	0.13	0.17	0.15	0.04	-0.18	-0.40	-0.61	-0.79	-0.88	-0.50	-0.38	-0.43	-0.17	0.35	1.62	1.13	0.19	0.84	0.77	0.19	0.08	1.62	-0.88
12	0.18	0.17	0.08	0.15	0.10	0.13	0.06	0.04	0.16	-0.06	-0.31	-0.44	-0.55	-0.49	-0.35	-0.16	0.01	0.11	0.13	0.15	0.19	0.20	0.41	0.57	0.02	0.57	-0.55
13	1.23	2.14	1.25	0.99	0.73	0.51	0.38	0.10	0.00	-0.10	-0.03	-0.30	-0.06	-0.05	-0.09	0.01	0.08	0.14	0.14	0.18	0.18	0.15	0.18	0.14	0.33	2.14	-0.30
14	0.18	0.24	0.17	0.07	0.04	0.01	0.01	-0.05	-0.16	-0.25	-0.19	-0.07	0.03	-0.03	-0.41	-0.22	-0.13	0.10	0.23	0.19	0.55	0.66	0.73	0.78	0.10	0.78	-0.41
15	0.62	0.60	0.95	1.06	0.59	0.76	0.73	0.14	-0.26	-0.46	-0.18	-0.51	-0.91	-0.50	-0.46	-0.70	-0.02	0.25	0.44	0.53	0.62	0.79	1.17	1.44	0.28	1.44	-0.91
16	1.26	1.43	0.35	0.19	0.14	0.09	0.13	0.01	-0.06	-0.02	0.04	0.27	0.27	0.27	0.32	0.54	0.61	0.47	0.30	0.23	0.19	0.29	0.24	0.09	0.32	1.43	-0.06
17	0.02	0.01	-0.04	-0.03	-0.05	-0.01	-0.08	-0.13	-0.18	-0.23	-0.22	-0.28	-0.39	-0.35	-0.35	-0.27	-0.17	-0.09	-0.08	-0.07	-0.06	-0.07	-0.11	-0.13	-0.14	0.02	-0.39
18	-0.14	-0.11	-0.12	-0.11	-0.12	-0.12	-0.09	-0.10	-0.14	-0.17	-0.20	-0.23	-0.24	-0.26	-0.20	-0.24	-0.16	-0.12	-0.08	-0.09	-0.11	-0.09	-0.07	-0.03	-0.14	-0.03	-0.26
19	-0.05	-0.05	-0.07	-0.07	-0.02	-0.07	0.00	0.07	0.16	0.02	-0.18	-0.03	-0.04	0.02	0.14	0.25	0.31	0.40	0.41	0.63	0.47	0.38	0.30	0.52	0.15	0.63	-0.18
20	0.31	0.28	0.19	0.14	0.08	0.10	0.08	-0.07	-0.28	-0.22	-0.34	-0.12	-0.24	-0.18	-0.10	-0.03	0.49	0.94	0.40	0.66	0.49	0.86	0.40	0.21	0.17	0.94	-0.34
21	0.40	0.43	0.31	0.28	0.35	0.30	0.14	0.17	-0.09	-0.24	-0.14	-0.19	-0.22	-0.50	-0.49	-0.40	-0.03	-0.05	-0.07	-0.10	-0.07	-0.02	-0.12	-0.11	-0.02	0.43	-0.50
22	-0.08	-0.12	-0.12	0.11	0.13	0.07	-0.01	-0.16	-0.44	-0.76	-0.79	-0.63	-0.54	-0.44	-0.49	-0.29	-0.21	-0.11	-0.10	-0.08	-0.12	-0.12	-0.10	-0.11	-0.23	0.13	-0.79
23	-0.02	0.54	0.55	-0.07	-0.11	-0.08	0.15	0.27	-0.37	-0.48	-0.48	-0.40	-0.39	-0.28	-0.23	-0.18	-0.12	-0.08	-0.07	-0.06	-0.06	-0.06	-0.07	-0.06	-0.09	0.55	-0.48
24	-0.06	-0.10	-0.06	-0.06	-0.04	-0.04	-0.04	-0.05	-0.08	-0.17	-0.21	-0.25	-0.42	-0.17	-0.15	0.01	0.21	0.29	0.76	1.18	1.41	1.90	2.02	1.60	0.31	2.02	-0.42
25	1.57	1.80	1.76	2.08	1.92	2.41	2.54	2.00	1.07	0.61	-0.21	-0.09	-0.79	-0.93	-0.22	0.13	0.93	1.81	1.28	1.43	1.85	1.75	2.29	1.97	1.21	2.54	-0.93
26	1.48	1.80	1.61	1.90	1.97	1.97	1.70	1.76	1.44	0.64	0.34	0.30	-0.48	-0.24	-0.08	-0.18	0.38	0.92	0.70	0.82	1.03	0.74	1.07	0.86	0.94	1.97	-0.48
27	0.47	0.63	0.62	0.85	0.62	0.66	0.30	0.41	0.59	0.81	0.11	-0.31	-0.28	-0.18	-0.11	-0.09	0.44	0.79	1.38	0.79	0.96	1.16	1.34	1.18	0.55	1.38	-0.31
28	1.78	1.48	1.53	0.99	0.59	0.12	0.21	0.60	0.34	0.20	0.04	-0.12	0.13	0.18	0.17	0.25	0.37	0.40	0.63	0.75	0.95	1.19	1.11	1.82	0.65	1.82	-0.12
29	1.68	0.70	1.36	1.51	2.27	2.00	1.53	0.66	0.60	0.58	0.57	0.52	0.42	0.28	0.12	0.21	0.47	0.91	1.31	0.58	0.57	0.89	1.75	1.46	0.96	2.27	0.12
30	1.92	1.41	1.81	1.73	1.80	1.90	2.19	2.33	0.37	-0.11	-0.15	-0.28	-0.41	-0.23	-0.22	0.21	0.26	0.20	0.35	0.40	0.26	0.13	0.12	0.13	0.67	2.33	-0.41
31	0.27	0.40	0.91	0.70	0.65	1.17	1.22	0.70	-0.06	-0.52	-0.71	-0.77	-0.81	-0.85	-0.74	-0.45	0.02	1.74	1.46	1.63	1.19	1.86	1.85	1.12	0.50	1.86	-0.85
Avg	1.01	1.00	0.98	1.03	0.95	1.02	0.89	0.52	-0.10	-0.28	-0.39	-0.42	-0.52	-0.47	-0.38	-0.22	0.08	0.51	0.77	0.85	0.92	1.08	1.13	1.01	0.46	1.75	-0.62
Max	2.27	3.03	2.44	2.97	2.27	2.49	2.54	2.33	1.44	0.81	0.57	0.52	0.42	0.28	0.32	0.54	0.93	1.81	1.76	2.14	3.43	3.38	4.09	2.83	1.21	4.09	0.12
Min	-0.14	-0.12	-0.12	-0.11	-0.12	-0.12	-0.09	-0.16	-0.87	-0.96	-0.96	-1.21	-1.14	-1.18	-1.02	-0.81	-0.46	-0.12	-0.10	-0.10	-0.12	-0.12	-0.12	-0.13	-0.23	-0.03	-1.21

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-2 M Delta Temperature (Degrees Celsius)
November 2020

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	0.99	1.22	1.44	1.50	1.22	1.28	1.30	0.91	-0.09	-0.70	-0.67	-0.71	-0.75	-0.72	-0.65	-0.42	0.23	1.47	1.02	0.50	0.62	1.07	1.56	1.45	0.54	1.56	-0.75
2	1.64	1.70	1.87	1.62	1.51	1.71	1.81	1.31	0.10	-0.55	-0.86	-0.72	-0.71	-0.70	-0.56	-0.32	0.96	2.24	1.83	1.58	1.42	1.74	1.90	1.74	0.93	2.24	-0.86
3	1.96	1.52	1.92	2.07	2.02	1.77	1.80	1.95	0.07	-0.62	-0.48	-0.62	-0.65	-0.60	-0.46	-0.18	1.62	2.55	1.87	1.58	1.70	1.64	1.80	1.65	1.08	2.55	-0.65
4	2.29	1.78	0.71	1.16	1.48	1.75	1.96	1.79	1.10	-0.20	-0.43	-0.41	-0.15	0.00	-0.04	0.15	0.77	1.35	1.45	1.12	1.28	1.43	1.28	1.52	0.96	2.29	-0.43
5	1.66	1.59	1.93	2.48	3.74	2.59	0.82	0.54	0.19	0.01	-0.18	-0.65	-0.65	-0.38	-0.36	-0.02	0.31	0.75	0.71	0.76	0.89	1.22	0.51	0.43	0.79	3.74	-0.65
6	0.52	1.31	0.78	0.49	1.07	1.50	1.67	1.70	0.74	-0.23	-0.33	-0.61	-0.51	-0.43	-0.53	-0.06	0.13	0.44	0.62	0.50	0.18	0.19	0.22	0.33	0.40	1.70	-0.61
7	0.36	0.37	0.58	0.47	0.61	0.86	0.46	0.59	0.08	-0.63	-0.65	-0.50	-0.54	-0.24	-0.12	0.25	0.36	-0.03	0.22	0.22	0.13	0.05	0.01	0.00	0.12	0.86	-0.65
8	-0.05	-0.06	-0.06	-0.10	-0.06	-0.06	-0.09	-0.09	-0.13	-0.18	-0.20	-0.27	-0.27	-0.25	-0.26	-0.18	-0.11	-0.04	-0.07	-0.07	-0.10	-0.10	-0.09	-0.10	-0.12	-0.04	-0.27
9	-0.09	-0.08	-0.07	0.01	0.32	0.92	1.31	0.08	-0.20	-0.30	-0.62	-0.89	-0.80	-0.61	-0.72	-0.28	0.02	1.80	1.20	1.07	1.69	1.33	1.39	1.38	0.33	1.80	-0.89
10	2.07	2.52	2.79	1.68	1.24	1.54	1.78	1.16	-0.03	0.06	-0.30	-0.08	-0.10	-0.07	-0.10	0.08	0.10	0.28	0.50	0.42	0.29	0.17	0.22	0.34	0.69	2.79	-0.30
11	0.09	0.08	0.06	0.14	0.42	0.57	0.52	1.22	0.76	-0.05	-0.55	-0.36	-0.35	-0.37	-0.40	-0.08	0.49	1.25	1.22	1.16	0.44	-0.06	-0.11	-0.10	0.25	1.25	-0.55
12	-0.02	0.81	1.27	1.26	0.22	0.37	0.35	0.41	0.58	-0.37	-0.25	-0.27	-0.33	-0.31	-0.45	0.11	0.71	0.75	0.90	0.83	0.69	0.69	1.23	0.87	0.42	1.27	-0.45
13	1.76	1.81	2.23	1.14	0.73	0.75	0.83	0.94	0.23	-0.16	-0.04	0.07	0.10	0.05	0.04	0.07	0.08	0.07	0.08	0.16	0.36	0.32	0.36	0.10	0.50	2.23	-0.16
14	0.14	0.17	0.13	0.15	0.08	0.03	0.03	0.04	0.03	0.00	-0.12	-0.04	-0.07	-0.06	0.01	0.06	0.12	0.21	0.44	0.69	0.79	1.29	1.59	1.60	0.30	1.60	-0.12
15	1.46	1.13	1.19	1.18	0.20	0.09	0.14	0.05	0.01	-0.08	-0.24	-0.27	-0.09	-0.14	-0.04	0.10	0.21	0.29	0.27	0.28	0.25	0.26	0.26	0.25	0.28	1.46	-0.27
16	0.26	0.23	0.23	0.29	0.46	0.57	0.40	0.43	0.31	-0.34	-0.41	-0.08	-0.08	-0.09	-0.07	0.12	0.33	0.31	0.46	0.66	0.72	0.87	0.66	1.09	0.31	1.09	-0.41
17	0.98	1.19	1.37	1.21	1.18	0.56	0.97	0.99	0.94	0.56	0.25	-0.10	0.19	0.19	0.24	0.36	0.52	0.46	0.59	1.05	0.58	0.74	1.51	1.32	0.74	1.51	-0.10
18	0.93	0.84	0.59	1.06	1.13	1.03	0.61	0.46	0.34	0.18	-0.03	-0.13	-0.11	-0.13	0.07	0.12	0.32	0.57	0.74	1.63	1.28	1.15	1.13	0.44	0.59	1.63	-0.13
19	0.11	0.28	0.57	0.73	0.83	1.17	0.79	1.08	0.32	-0.17	-0.15	-0.26	-0.13	-0.07	-0.06	0.03	0.14	0.22	0.35	0.11	0.16	0.07	0.09	0.25	0.27	1.17	-0.26
20	0.11	0.05	0.07	0.16	0.20	0.48	0.53	1.43	0.71	-0.48	-0.51	-0.59	-0.64	-0.63	-0.54	-0.29	0.46	1.85	1.88	0.80	0.45	1.09	0.96	0.98	0.36	1.88	-0.64
21	0.65	0.57	0.28	0.23	0.38	1.25	2.20	2.07	0.95	-0.28	-0.48	-0.56	-0.68	-0.47	-0.15	-0.15	0.07	0.28	0.50	1.35	1.14	1.18	1.04	1.28	0.53	2.20	-0.68
22	1.11	1.31	1.32	1.33	1.28	1.18	1.21	1.12	0.37	-0.31	-0.29	-0.45	-0.61	-0.65	-0.56	-0.21	0.74	1.11	1.39	2.33	2.15	2.70	2.00	1.86	0.89	2.70	-0.65
23	1.54	1.23	1.17	1.16	0.93	1.56	1.15	1.15	0.38	-0.13	-0.34	-0.68	-0.43	-0.68	-0.38	-0.16	0.03	0.07	0.01	0.03	0.04	0.08	0.16	0.28	0.34	1.56	-0.68
24	1.42	1.79	1.93	1.55	1.31	0.77	0.18	0.10	0.04	-0.15	-0.21	-0.26	-0.73	-0.71	-0.57	-0.26	0.65	1.65	1.77	1.89	1.71	1.16	1.73	1.55	0.76	1.93	-0.73
25	1.70	1.48	1.68	1.77	1.50	1.63	1.17	1.46	0.78	0.02	-0.16	-0.25	-0.33	-0.11	-0.09	-0.04	0.22	0.15	0.37	0.43	0.74	0.52	0.56	0.92	0.67	1.77	-0.33
26	0.61	1.63	1.21	0.85	0.37	0.06	0.10	0.07	-0.05	-0.12	-0.16	-0.23	-0.24	-0.39	-0.33	-0.14	0.09	0.13	0.11	0.51	1.17	0.71	0.65	0.76	0.31	1.63	-0.39
27	1.06	1.18	0.68	0.82	0.59	0.68	1.25	1.24	0.81	-0.12	-0.28	-0.34	-0.48	-0.57	-0.46	-0.09	0.39	1.46	1.94	2.02	2.62	1.85	1.99	1.55	0.82	2.62	-0.57
28	2.04	1.26	1.55	1.78	1.57	1.73	1.55	1.35	0.53	-0.44	-0.12	-0.04	-0.08	-0.01	0.05	0.11	0.36	0.42	0.41	0.68	0.54	0.62	1.28	1.97	0.80	2.04	-0.44
29	1.54	1.28	1.86	1.70	1.46	1.62	1.88	2.16	1.01	-0.25	-0.67	-0.60	-0.54	-0.62	-0.48	-0.12	0.83	1.52	2.22	2.41	2.11	1.78	2.16	1.90	1.09	2.41	-0.67
30	2.42	2.54	2.15	3.00	2.41	2.85	2.18	1.70	1.98	0.19	-0.32	-0.49	-0.55	-0.49	-0.03	0.21	0.08	0.06	0.14	0.11	0.05	0.01	0.02	0.01	0.84	3.00	-0.55
Avg	1.04	1.09	1.11	1.10	1.01	1.09	1.03	0.98	0.43	-0.19	-0.33	-0.38	-0.38	-0.34	-0.27	-0.04	0.37	0.79	0.84	0.89	0.87	0.86	0.94	0.92	0.56	1.88	-0.49
Max	2.42	2.54	2.79	3.00	3.74	2.85	2.20	2.16	1.98	0.56	0.25	0.07	0.19	0.19	0.24	0.36	1.62	2.55	2.22	2.41	2.62	2.70	2.16	1.97	1.09	3.74	-0.10
Min	-0.09	-0.08	-0.07	-0.10	-0.06	-0.06	-0.09	-0.09	-0.20	-0.70	-0.86	-0.89	-0.80	-0.72	-0.72	-0.42	-0.11	-0.04	-0.07	-0.07	-0.10	-0.10	-0.11	-0.10	-0.12	-0.04	-0.89

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
9-2 M Delta Temperature (Degrees Celsius)
December 2020

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	-0.01	0.01	0.00	0.01	0.01	0.04	0.03	0.12	0.16	0.06	-0.09	-0.12	-0.18	0.06	0.01	0.24	0.42	0.31	0.37	0.76	0.96	1.43	1.90	2.06	0.36	2.06	-0.18
2	2.16	2.48	2.05	2.57	2.54	2.26	1.97	1.65	1.39	0.07	-0.26	-0.62	-1.55	-0.78	-0.64	-0.45	0.68	0.93	1.35	1.67	1.91	1.75	1.66	2.15	1.12	2.57	-1.55
3	2.05	2.16	1.98	2.08	2.56	2.27	1.79	2.04	1.69	0.67	-0.25	-0.38	-1.39	-0.44	-0.09	1.41	0.38	0.85	1.79	1.78	1.48	1.89	1.99	1.76	1.25	2.56	-1.39
4	1.62	1.67	1.82	2.04	1.85	1.92	2.09	1.30	1.52	0.88	0.08	1.65	-0.59	-0.48	-0.41	0.45	1.14	1.52	2.33	2.23	2.04	2.32	2.22	1.71	1.37	2.33	-0.59
5	1.95	2.16	2.40	2.10	2.36	2.85	2.51	2.74	1.65	0.37	-0.34	-0.44	-0.62	-0.62	-0.44	0.33	0.86	1.96	2.03	2.68	2.99	2.92	2.49	3.16	1.59	3.16	-0.62
6	3.09	3.03	2.89	2.74	2.62	2.85	2.00	2.59	2.04	0.15	-0.40	-0.37	-0.27	-0.39	-0.16	0.00	2.39	1.01	0.99	1.39	1.94	1.80	1.63	1.72	1.47	3.09	-0.40
7	1.38	1.48	1.51	2.10	1.67	1.98	1.84	1.83	1.55	0.56	-0.18	0.14	-0.13	-0.06	0.12	0.48	0.81	1.37	1.93	0.56	0.96	0.70	1.23	1.20	1.04	2.10	-0.18
8	1.24	1.27	1.68	1.76	1.25	1.05	1.37	0.72	0.81	1.98	1.16	0.63	0.58	0.47	0.49	0.70	1.81	1.53	0.77	1.63	1.18	1.05	1.14	1.35	1.15	1.98	0.47
9	1.32	2.33	1.39	1.83	2.29	2.60	3.53	3.30	2.38	0.97	-0.34	0.28	0.16	0.15	0.23	0.25	0.27	0.33	0.52	1.30	1.51	1.54	0.73	0.80	1.24	3.53	-0.34
10	0.98	1.01	0.90	1.03	0.58	0.82	0.87	0.69	0.47	-0.11	-0.37	-0.40	-0.33	-0.59	-0.44	-0.33	1.29	2.00	2.38	2.03	1.83	2.24	1.82	1.70	0.84	2.38	-0.59
11	2.00	1.54	1.64	2.57	1.33	0.22	-0.02	-0.05	0.14	0.02	-0.07	-0.22	-0.38	-0.34	-0.22	-0.15	-0.03	0.00	0.09	0.15	-0.03	-0.04	-0.02	0.02	0.34	2.57	-0.38
12	0.06	0.28	1.41	0.86	0.77	1.35	0.13	0.06	-0.06	-0.21	-0.36	-0.41	-0.50	-0.49	-0.31	0.05	0.31	0.03	0.04	0.03	0.02	0.06	0.05	0.04	0.13	1.41	-0.50
13	0.00	0.00	0.00	0.13	0.92	0.72	0.71	0.65	1.13	0.28	-0.28	-0.50	-0.38	-0.34	-0.17	0.04	0.82	0.07	0.18	0.52	0.69	0.37	0.34	0.26	0.26	1.13	-0.50
14	0.20	0.08	0.12	0.08	0.05	0.06	0.03	0.02	-0.04	-0.23	-0.42	-0.43	-0.42	-0.32	-0.18	-0.06	0.03	0.02	0.03	0.04	0.06	0.06	0.12	0.05	-0.04	0.20	-0.43
15	0.09	0.25	0.61	1.04	0.54	0.33	0.70	0.97	0.78	0.12	-0.19	-0.36	-0.51	-0.31	-0.15	-0.08	0.18	0.22	0.23	0.20	0.12	0.12	0.32	0.11	0.22	1.04	-0.51
16	0.15	0.06	0.11	0.05	0.14	0.17	0.16	0.12	0.15	0.02	-0.02	-0.06	-0.20	-0.26	-0.20	-0.03	0.66	1.67	2.05	2.41	2.25	1.84	1.21	1.40	0.58	2.41	-0.26
17	1.75	1.81	0.31	0.16	0.18	0.14	0.15	0.19	0.25	-0.01	-0.20	-0.37	-0.26	-0.15	-0.05	0.10	0.52	0.19	0.36	0.40	0.73	1.76	1.72	1.38	0.46	1.81	-0.37
18	0.67	0.31	0.45	0.20	0.42	1.03	1.20	1.56	0.24	-0.06	-0.18	-0.32	-0.35	-0.43	-0.17	-0.02	0.10	0.17	0.32	0.69	0.59	0.38	0.65	0.80	0.34	1.56	-0.43
19	0.67	0.31	0.32	0.29	0.21	0.24	0.13	0.11	0.07	0.04	0.02	-0.04	-0.24	-0.05	0.04	0.03	0.23	0.28	0.35	0.32	0.35	0.65	1.29	0.98	0.27	1.29	-0.24
20	0.27	0.09	0.11	0.09	0.11	0.14	0.18	0.15	0.15	0.05	0.00	0.00	0.08	0.09	0.08	0.08	0.18	0.21	0.24	0.25	0.25	0.22	0.32	0.45	0.16	0.45	0.00
21	1.08	0.92	0.72	0.54	0.37	0.55	0.54	0.30	0.28	-0.01	-0.11	-0.10	-0.11	-0.13	-0.01	0.22	0.37	0.62	1.24	1.74	1.96	0.87	0.59	0.69	0.55	1.96	-0.13
22	0.68	0.44	0.75	0.65	0.47	0.47	0.62	0.28	0.10	0.14	0.08	-0.08	-0.19	-0.20	-0.13	-0.04	-0.01	0.00	0.00	0.00	0.04	0.03	-0.01	0.12	0.18	0.75	-0.20
23	0.60	1.00	1.10	1.69	1.15	1.20	1.47	2.27	1.90	1.06	0.00	0.14	-0.12	-0.19	-0.20	0.04	0.90	2.33	2.48	1.83	1.16	1.27	1.43	1.86	1.10	2.48	-0.20
24	1.83	1.91	1.60	1.60	1.64	2.06	1.54	1.73	1.85	1.47	0.64	0.00	-0.59	0.22	0.02	0.80	0.90	1.94	1.88	1.85	2.37	1.93	1.91	2.41	1.40	2.41	-0.59
25	1.56	1.31	0.92	0.87	0.96	1.00	1.72	1.70	1.46	0.89	0.55	0.30	0.12	0.10	0.79	0.50	1.29	3.18	2.41	1.55	1.21	1.00	1.03	0.26	1.11	3.18	0.10
26	0.75	0.93	0.89	0.35	0.29	0.32	0.27	0.52	0.79	0.33	0.15	-0.07	-0.20	-0.09	-0.01	0.24	0.17	0.29	0.49	0.71	0.93	0.85	1.17	0.30	0.43	1.17	-0.20
27	0.10	0.11	0.12	0.20	0.11	0.13	0.10	0.47	0.23	-0.03	-0.11	-0.29	-0.24	-0.13	-0.07	0.02	0.26	0.56	0.95	1.31	0.68	1.26	1.14	1.46	0.35	1.46	-0.29
28	1.72	2.13	1.73	2.06	1.49	2.02	1.98	2.60	1.96	0.36	-0.26	-0.29	-0.91	-0.65	-0.68	-0.12	0.79	1.79	2.19	1.93	2.54	1.48	2.24	1.63	1.24	2.60	-0.91
29	1.84	1.64	1.02	1.06	2.30	1.92	1.11	1.31	0.16	-0.16	-0.26	-0.07	-0.11	-0.39	-0.22	-0.24	0.99	2.04	1.58	1.85	1.27	1.40	1.52	1.16	0.95	2.30	-0.39
30	0.71	1.11	1.23	1.70	1.64	1.49	1.29	1.44	1.03	Au	Au	Au	Au	-0.35	-0.10	-0.05	-0.02	0.08	0.07	0.27	0.24	0.19	0.21	0.09	0.61	1.70	-0.35
31	0.08	0.22	0.27	0.22	0.16	0.14	0.34	0.81	0.85	0.30	-0.21	-0.25	-0.24	-0.23	0.01	0.20	0.28	1.02	1.64	1.36	0.91	0.24	0.20	0.55	0.37	1.64	-0.25
Avg	1.05	1.10	1.03	1.12	1.06	1.11	1.04	1.10	0.87	0.33	-0.07	-0.10	-0.34	-0.24	-0.11	0.15	0.61	0.92	1.07	1.14	1.13	1.08	1.10	1.08	0.72	1.98	-0.40
Max	3.09	3.03	2.89	2.74	2.62	2.85	3.53	3.30	2.38	1.98	1.16	1.65	0.58	0.47	0.79	1.41	2.39	3.18	2.48	2.68	2.99	2.92	2.49	3.16	1.59	3.53	0.47
Min	-0.01	0.00	0.00	0.01	0.01	0.04	-0.02	-0.05	-0.06	-0.23	-0.42	-0.62	-1.55	-0.78	-0.68	-0.45	-0.03	0.00	0.00	0.00	-0.03	-0.04	-0.02	0.02	-0.04	0.20	-1.55

**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (Watts per Square Meter)
October 2020**

	<< 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	13	118	286	400	423	615	654	580	378	242	110	26	0	0	0	0	0	0	160	654	0
2	0	0	0	0	0	0	6	60	263	453	572	648	695	650	545	396	234	65	1	0	0	0	0	0	191	695	0
3	0	0	0	0	0	0	11	138	292	453	581	656	673	643	530	387	246	67	0	0	0	0	0	0	195	673	0
4	0	0	0	0	0	0	10	121	278	439	562	635	645	595	488	354	192	41	0	0	0	0	0	0	182	645	0
5	0	0	0	0	0	0	7	121	292	450	572	646	665	624	531	375	234	46	0	0	0	0	0	0	190	665	0
6	0	0	0	0	0	0	6	121	291	452	572	647	663	637	534	392	226	57	0	0	0	0	0	0	192	663	0
7	0	0	0	0	0	0	5	122	290	448	567	639	657	617	524	390	220	49	0	0	0	0	0	0	189	657	0
8	0	0	0	0	0	0	4	106	275	378	553	626	568	598	495	181	102	25	0	0	0	0	0	0	163	626	0
9	0	0	0	0	0	0	12	98	140	450	513	321	532	484	465	347	127	19	0	0	0	0	0	0	146	532	0
10	0	0	0	0	0	0	6	106	254	392	491	239	507	383	167	77	50	6	0	0	0	0	0	0	112	507	0
11	0	0	0	0	0	0	3	79	171	291	489	594	629	326	269	317	111	8	0	0	0	0	0	0	137	629	0
12	0	0	0	0	0	0	1	15	88	207	310	408	501	391	284	165	68	27	0	0	0	0	0	0	103	501	0
13	0	0	0	0	0	0	1	27	45	62	96	176	68	48	72	52	25	3	0	0	0	0	0	0	28	176	0
14	0	0	0	0	0	0	1	41	114	143	158	171	108	167	383	131	52	14	0	0	0	0	0	0	62	383	0
15	0	0	0	0	0	0	3	51	106	272	103	523	737	319	333	435	84	17	0	0	0	0	0	0	124	737	0
16	0	0	0	0	0	0	0	9	42	52	54	48	49	57	42	22	5	0	0	0	0	0	0	0	16	57	0
17	0	0	0	0	0	0	0	20	37	75	94	101	156	173	190	97	12	2	0	0	0	0	0	0	40	190	0
18	0	0	0	0	0	0	0	21	50	99	159	155	178	187	207	73	26	3	0	0	0	0	0	0	48	207	0
19	0	0	0	0	0	0	0	6	53	180	319	228	274	193	140	53	27	2	0	0	0	0	0	0	61	319	0
20	0	0	0	0	0	0	1	22	129	225	453	246	300	188	138	123	44	3	0	0	0	0	0	0	78	453	0
21	0	0	0	0	0	0	0	10	49	156	148	212	417	538	315	212	50	3	0	0	0	0	0	0	88	538	0
22	0	0	0	0	0	0	0	45	219	412	348	229	255	169	169	78	43	4	0	0	0	0	0	0	82	412	0
23	0	0	0	0	0	0	1	82	235	252	233	158	150	84	49	29	11	0	0	0	0	0	0	0	54	252	0
24	0	0	0	0	0	0	0	24	81	229	265	325	311	250	200	128	53	5	0	0	0	0	0	0	78	325	0
25	0	0	0	0	0	0	1	48	226	376	500	577	590	544	441	299	124	5	0	0	0	0	0	0	155	590	0
26	0	0	0	0	0	0	1	42	167	217	351	425	508	442	382	288	113	4	0	0	0	0	0	0	123	508	0
27	0	0	0	0	0	0	0	26	98	297	427	461	432	388	330	202	73	2	0	0	0	0	0	0	114	461	0
28	0	0	0	0	0	0	0	10	77	139	230	231	256	287	188	110	44	1	0	0	0	0	0	0	66	287	0
29	0	0	0	0	0	0	0	25	101	177	462	545	540	497	395	157	68	4	0	0	0	0	0	0	124	545	0
30	0	0	0	0	0	0	0	31	211	428	416	534	550	379	384	114	7	1	0	0	0	0	0	0	127	550	0
31	0	0	0	0	0	0	0	32	183	347	461	506	533	487	395	259	98	2	0	0	0	0	0	0	138	533	0
Avg	0	0	0	0	0	0	3	57	166	289	370	404	445	385	321	209	93	16	0	0	0	0	0	0	115	483	0
Max	0	0	0	0	0	0	13	138	292	453	581	656	737	650	545	435	246	67	1	0	0	0	0	0	195	737	0
Min	0	0	0	0	0	0	0	6	37	52	54	48	49	48	42	22	5	0	0	0	0	0	0	0	16	57	0

A-19

**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (Watts per Square Meter)
November 2020**

[illegible]

A-20

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Solar Radiation (Watts per Square Meter)
December 2020

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	0	0	26	74	115	176	170	142	204	97	10	0	0	0	0	0	0	0	42	204	0
2	0	0	0	0	0	0	0	2	32	137	262	341	402	355	277	158	17	0	0	0	0	0	0	0	83	402	0
3	0	0	0	0	0	0	0	2	33	165	293	385	404	369	283	161	18	0	0	0	0	0	0	0	88	404	0
4	0	0	0	0	0	0	0	1	47	145	256	352	401	311	350	133	19	0	0	0	0	0	0	0	84	401	0
5	0	0	0	0	0	0	0	1	36	83	232	385	406	371	285	164	18	0	0	0	0	0	0	0	83	406	0
6	0	0	0	0	0	0	0	1	53	213	313	382	403	369	282	160	17	0	0	0	0	0	0	0	91	403	0
7	0	0	0	0	0	0	0	2	39	197	255	331	347	274	163	46	10	0	0	0	0	0	0	0	69	347	0
8	0	0	0	0	0	0	0	0	3	11	37	90	149	157	117	67	13	0	0	0	0	0	0	0	27	157	0
9	0	0	0	0	0	0	0	2	34	116	264	120	143	164	75	21	3	0	0	0	0	0	0	0	39	264	0
10	0	0	0	0	0	0	0	0	75	92	168	220	263	386	277	154	17	0	0	0	0	0	0	0	69	386	0
11	0	0	0	0	0	0	0	0	17	53	73	118	199	136	77	56	7	0	0	0	0	0	0	0	31	199	0
12	0	0	0	0	0	0	0	0	14	60	118	149	268	274	168	60	9	0	0	0	0	0	0	0	47	274	0
13	0	0	0	0	0	0	0	0	23	99	252	321	211	194	97	44	5	0	0	0	0	0	0	0	52	321	0
14	0	0	0	0	0	0	0	0	13	67	152	147	173	168	94	40	7	0	0	0	0	0	0	0	36	173	0
15	0	0	0	0	0	0	0	0	23	80	157	317	378	169	43	14	11	0	0	0	0	0	0	0	50	378	0
16	0	0	0	0	0	0	0	0	33	75	84	119	377	407	281	117	13	0	0	0	0	0	0	0	63	407	0
17	0	0	0	0	0	0	0	0	16	41	157	286	222	184	142	56	11	0	0	0	0	0	0	0	46	286	0
18	0	0	0	0	0	0	0	0	39	49	140	253	269	354	172	69	9	0	0	0	0	0	0	0	56	354	0
19	0	0	0	0	0	0	0	0	7	22	46	78	253	116	58	70	8	0	0	0	0	0	0	0	27	253	0
20	0	0	0	0	0	0	0	0	17	92	122	96	49	38	43	39	12	0	0	0	0	0	0	0	21	122	0
21	0	0	0	0	0	0	0	0	7	30	37	39	68	50	62	32	11	0	0	0	0	0	0	0	14	68	0
22	0	0	0	0	0	0	0	0	4	18	40	55	125	119	68	27	6	0	0	0	0	0	0	0	19	125	0
23	0	0	0	0	0	0	0	0	14	78	222	280	294	206	246	155	18	0	0	0	0	0	0	0	63	294	0
24	0	0	0	0	0	0	0	0	21	50	288	368	382	354	276	161	23	0	0	0	0	0	0	0	80	382	0
25	0	0	0	0	0	0	0	0	19	58	66	112	163	139	99	154	21	0	0	0	0	0	0	0	35	163	0
26	0	0	0	0	0	0	0	0	9	44	97	157	287	162	148	47	9	0	0	0	0	0	0	0	40	287	0
27	0	0	0	0	0	0	0	0	23	56	128	402	264	161	115	62	34	0	0	0	0	0	0	0	52	402	0
28	0	0	0	0	0	0	0	0	19	136	274	360	388	364	280	164	37	0	0	0	0	0	0	0	84	388	0
29	0	0	0	0	0	0	0	0	14	55	127	183	302	268	179	183	29	0	0	0	0	0	0	0	56	302	0
30	0	0	0	0	0	0	0	0	12	Au	Au	Au	Au	303	176	70	10	0	0	0	0	0	0	0	29	303	0
31	0	0	0	0	0	0	0	0	12	68	151	156	190	131	82	20	15	0	0	0	0	0	0	0	34	190	0
Avg	0	0	0	0	0	0	0	0	24	82	164	226	265	232	168	90	14	0	0	0	0	0	0	0	52	292	0
Max	0	0	0	0	0	0	0	2	75	213	313	402	406	407	350	183	37	0	0	0	0	0	0	0	91	407	0
Min	0	0	0	0	0	0	0	0	3	11	37	39	49	38	43	14	3	0	0	0	0	0	0	0	14	68	0

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (inches of mercury)
October 2020

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	24.79	24.79	24.78	24.77	24.77	24.76	24.75	24.74	24.74	24.74	24.73	24.71	24.69	24.67	24.66	24.65	24.66	24.66	24.65	24.65	24.65	24.65	24.64	24.63	24.71	24.79	24.63
2	24.62	24.62	24.60	24.60	24.61	24.61	24.61	24.62	24.64	24.64	24.64	24.63	24.62	24.62	24.62	24.62	24.62	24.61	24.62	24.62	24.62	24.63	24.64	24.64	24.62	24.64	24.60
3	24.63	24.63	24.63	24.63	24.63	24.63	24.63	24.64	24.65	24.64	24.64	24.62	24.61	24.59	24.58	24.57	24.56	24.56	24.56	24.56	24.56	24.55	24.54	24.54	24.60	24.65	24.54
4	24.53	24.52	24.50	24.50	24.49	24.49	24.48	24.48	24.49	24.48	24.48	24.46	24.44	24.43	24.41	24.40	24.40	24.40	24.40	24.41	24.42	24.42	24.44	24.45	24.45	24.53	24.40
5	24.47	24.49	24.51	24.52	24.54	24.55	24.56	24.59	24.60	24.60	24.59	24.59	24.57	24.56	24.55	24.55	24.55	24.55	24.56	24.56	24.55	24.55	24.54	24.54	24.55	24.60	24.47
6	24.55	24.55	24.54	24.54	24.54	24.54	24.54	24.55	24.56	24.55	24.54	24.53	24.53	24.51	24.50	24.48	24.48	24.49	24.50	24.51	24.52	24.52	24.53	24.53	24.53	24.56	24.48
7	24.53	24.53	24.53	24.53	24.53	24.53	24.54	24.54	24.55	24.54	24.53	24.52	24.49	24.47	24.45	24.44	24.43	24.44	24.45	24.45	24.44	24.43	24.42	24.41	24.49	24.55	24.41
8	24.40	24.38	24.38	24.36	24.35	24.35	24.33	24.34	24.35	24.34	24.33	24.31	24.30	24.28	24.27	24.27	24.27	24.27	24.29	24.30	24.30	24.31	24.32	24.32	24.32	24.40	24.27
9	24.35	24.35	24.35	24.36	24.37	24.38	24.38	24.39	24.40	24.40	24.41	24.40	24.40	24.38	24.37	24.36	24.35	24.35	24.35	24.35	24.34	24.34	24.33	24.32	24.37	24.41	24.32
10	24.31	24.31	24.30	24.28	24.26	24.25	24.23	24.22	24.21	24.18	24.15	24.12	24.08	24.04	24.01	23.99	23.97	23.99	24.03	24.06	24.07	24.07	24.08	24.06	24.14	24.31	23.97
11	24.08	24.10	24.10	24.11	24.13	24.16	24.18	24.19	24.21	24.24	24.26	24.27	24.27	24.28	24.29	24.30	24.32	24.33	24.33	24.33	24.34	24.32	24.30	24.28	24.24	24.34	24.08
12	24.26	24.25	24.22	24.20	24.20	24.20	24.19	24.20	24.20	24.21	24.22	24.24	24.24	24.25	24.28	24.31	24.33	24.35	24.39	24.42	24.43	24.45	24.46	24.46	24.29	24.46	24.19
13	24.47	24.46	24.46	24.45	24.45	24.44	24.42	24.41	24.39	24.38	24.36	24.32	24.28	24.25	24.22	24.21	24.20	24.19	24.18	24.16	24.16	24.20	24.22	24.24	24.31	24.47	24.16
14	24.26	24.27	24.26	24.28	24.29	24.31	24.32	24.34	24.37	24.40	24.41	24.44	24.46	24.48	24.49	24.50	24.51	24.53	24.54	24.55	24.56	24.56	24.57	24.56	24.43	24.57	24.26
15	24.56	24.57	24.57	24.58	24.59	24.61	24.61	24.62	24.63	24.65	24.66	24.67	24.66	24.65	24.66	24.66	24.65	24.64	24.65	24.65	24.64	24.64	24.63	24.62	24.63	24.67	24.56
16	24.59	24.58	24.56	24.53	24.51	24.49	24.44	24.42	24.40	24.39	24.36	24.34	24.31	24.27	24.24	24.22	24.21	24.21	24.21	24.22	24.22	24.23	24.26	24.27	24.35	24.59	24.21
17	24.29	24.30	24.30	24.31	24.32	24.32	24.32	24.33	24.35	24.35	24.36	24.37	24.38	24.38	24.39	24.39	24.41	24.43	24.44	24.46	24.48	24.49	24.49	24.49	24.38	24.49	24.29
18	24.49	24.48	24.47	24.45	24.43	24.41	24.41	24.39	24.38	24.37	24.34	24.34	24.33	24.33	24.33	24.33	24.33	24.32	24.32	24.32	24.32	24.32	24.31	24.31	24.37	24.49	24.31
19	24.30	24.30	24.30	24.29	24.29	24.29	24.30	24.31	24.31	24.32	24.34	24.34	24.33	24.31	24.30	24.30	24.29	24.28	24.28	24.27	24.27	24.27	24.27	24.27	24.30	24.34	24.27
20	24.27	24.27	24.30	24.31	24.34	24.35	24.37	24.38	24.39	24.40	24.40	24.41	24.40	24.39	24.39	24.38	24.36	24.35	24.35	24.35	24.35	24.34	24.33	24.32	24.35	24.41	24.27
21	24.31	24.30	24.28	24.27	24.26	24.24	24.25	24.24	24.24	24.24	24.24	24.23	24.22	24.24	24.26	24.28	24.27	24.29	24.32	24.35	24.38	24.40	24.41	24.42	24.29	24.42	24.22
22	24.44	24.47	24.49	24.50	24.51	24.53	24.55	24.58	24.59	24.60	24.60	24.60	24.60	24.60	24.60	24.61	24.62	24.63	24.64	24.63	24.63	24.62	24.62	24.62	24.58	24.64	24.44
23	24.62	24.62	24.62	24.61	24.60	24.59	24.58	24.55	24.53	24.49	24.47	24.45	24.41	24.39	24.36	24.33	24.32	24.30	24.29	24.28	24.26	24.25	24.25	24.25	24.43	24.62	24.25
24	24.25	24.26	24.27	24.29	24.31	24.34	24.36	24.39	24.42	24.44	24.46	24.47	24.46	24.48	24.49	24.51	24.55	24.57	24.59	24.60	24.61	24.62	24.62	24.62	24.46	24.62	24.25
25	24.62	24.62	24.62	24.61	24.62	24.62	24.62	24.62	24.65	24.67	24.67	24.66	24.63	24.61	24.61	24.61	24.61	24.60	24.60	24.60	24.59	24.59	24.58	24.56	24.62	24.67	24.56
26	24.55	24.54	24.52	24.52	24.52	24.51	24.51	24.51	24.52	24.53	24.53	24.51	24.50	24.48	24.47	24.46	24.46	24.46	24.47	24.47	24.47	24.47	24.47	24.47	24.50	24.55	24.46
27	24.46	24.45	24.45	24.45	24.46	24.46	24.47	24.48	24.49	24.48	24.48	24.48	24.46	24.45	24.44	24.43	24.43	24.42	24.41	24.41	24.41	24.42	24.42	24.43	24.45	24.49	24.41
28	24.44	24.45	24.46	24.46	24.45	24.45	24.46	24.47	24.48	24.50	24.51	24.52	24.52	24.51	24.51	24.51	24.51	24.51	24.50	24.49	24.48	24.48	24.48	24.47	24.48	24.52	24.44
29	24.47	24.47	24.46	24.45	24.45	24.45	24.45	24.45	24.47	24.46	24.47	24.47	24.46	24.45	24.46	24.47	24.48	24.48	24.49	24.49	24.48	24.48	24.48	24.47	24.47	24.49	24.45
30	24.47	24.45	24.44	24.42	24.40	24.38	24.36	24.35	24.32	24.30	24.25	24.21	24.17	24.11	24.08	24.08	24.17	24.18	24.21	24.23	24.25	24.28	24.31	24.33	24.28	24.47	24.08
31	24.34	24.38	24.41	24.44	24.47	24.49	24.52	24.55	24.60	24.62	24.63	24.63	24.63	24.64	24.65	24.66	24.66	24.64	24.64	24.64	24.66	24.67	24.66	24.67	24.58	24.67	24.34
Avg	24.44	24.44	24.44	24.44	24.44	24.44	24.44	24.45	24.46	24.46	24.45	24.45	24.43	24.42	24.42	24.42	24.42	24.42	24.43	24.43	24.43	24.44	24.44	24.44	24.44	24.53	24.34
Max	24.79	24.79	24.78	24.77	24.77	24.76	24.75	24.74	24.74	24.74	24.73	24.71	24.69	24.67	24.66	24.66	24.66	24.66	24.65	24.65	24.66	24.67	24.66	24.67	24.71	24.79	24.63
Min	24.08	24.10	24.10	24.11	24.13	24.16	24.18	24.19	24.20	24.18	24.15	24.12	24.08	24.04	24.01	23.99	23.97	23.99	24.03	24.06	24.07	24.07	24.08	24.06	24.14	24.31	23.97

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (inches of mercury)
November 2020

A-23

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	24.66	24.66	24.67	24.67	24.68	24.68	24.69	24.70	24.71	24.73	24.74	24.74	24.73	24.72	24.70	24.70	24.70	24.70	24.70	24.71	24.71	24.71	24.70	24.69	24.70	24.74	24.66
2	24.68	24.68	24.68	24.67	24.67	24.67	24.67	24.66	24.66	24.67	24.66	24.63	24.61	24.59	24.57	24.56	24.56	24.54	24.53	24.52	24.52	24.51	24.51	24.50	24.61	24.68	24.50
3	24.50	24.50	24.50	24.49	24.48	24.48	24.48	24.47	24.46	24.48	24.47	24.45	24.43	24.41	24.40	24.39	24.39	24.39	24.39	24.39	24.39	24.39	24.41	24.42	24.44	24.50	24.39
4	24.42	24.43	24.45	24.45	24.45	24.46	24.47	24.48	24.51	24.53	24.55	24.57	24.56	24.56	24.58	24.59	24.59	24.59	24.59	24.60	24.59	24.58	24.58	24.56	24.53	24.60	24.42
5	24.55	24.54	24.53	24.51	24.51	24.51	24.50	24.50	24.49	24.48	24.47	24.46	24.44	24.41	24.38	24.36	24.35	24.34	24.33	24.32	24.30	24.29	24.27	24.25	24.42	24.55	24.25
6	24.25	24.25	24.25	24.23	24.22	24.21	24.20	24.20	24.21	24.21	24.20	24.20	24.18	24.17	24.17	24.16	24.16	24.16	24.16	24.14	24.14	24.12	24.11	24.09	24.18	24.25	24.09
7	24.08	24.07	24.05	24.03	24.01	23.98	23.96	23.95	23.94	23.93	23.91	23.89	23.87	23.85	23.83	23.81	23.80	23.83	23.83	23.82	23.84	23.85	23.86	23.87	23.91	24.08	23.80
8	23.88	23.90	23.95	23.99	23.98	23.97	24.03	24.06	24.08	24.09	24.10	24.11	24.14	24.15	24.16	24.18	24.21	24.22	24.24	24.27	24.29	24.31	24.32	24.32	24.12	24.32	23.88
9	24.32	24.32	24.32	24.32	24.31	24.32	24.32	24.33	24.33	24.33	24.31	24.28	24.26	24.25	24.24	24.23	24.23	24.24	24.24	24.24	24.24	24.23	24.23	24.21	24.28	24.33	24.21
10	24.21	24.20	24.20	24.19	24.17	24.16	24.15	24.15	24.16	24.15	24.14	24.14	24.13	24.13	24.13	24.12	24.12	24.13	24.14	24.14	24.14	24.14	24.14	24.15	24.15	24.21	24.12
11	24.15	24.14	24.15	24.16	24.16	24.17	24.20	24.22	24.23	24.23	24.23	24.23	24.23	24.23	24.24	24.26	24.27	24.29	24.29	24.30	24.30	24.31	24.31	24.32	24.23	24.32	24.14
12	24.32	24.32	24.32	24.32	24.32	24.32	24.32	24.33	24.34	24.34	24.34	24.33	24.31	24.31	24.30	24.28	24.28	24.27	24.27	24.26	24.24	24.23	24.22	24.21	24.30	24.34	24.21
13	24.21	24.19	24.18	24.17	24.16	24.13	24.10	24.07	24.02	23.99	23.95	23.90	23.83	23.81	23.82	23.82	23.83	23.85	23.84	23.84	23.84	23.83	23.84	23.86	23.96	24.21	23.81
14	23.87	23.88	23.91	23.92	23.94	23.96	23.97	23.99	24.03	24.08	24.12	24.15	24.17	24.19	24.22	24.24	24.26	24.28	24.29	24.31	24.31	24.32	24.32	24.31	24.13	24.32	23.87
15	24.32	24.29	24.28	24.26	24.23	24.22	24.22	24.22	24.24	24.25	24.25	24.24	24.21	24.22	24.23	24.25	24.26	24.29	24.31	24.33	24.34	24.37	24.38	24.39	24.28	24.39	24.21
16	24.42	24.43	24.45	24.47	24.48	24.49	24.51	24.53	24.54	24.56	24.57	24.56	24.55	24.53	24.52	24.51	24.50	24.50	24.49	24.49	24.49	24.49	24.48	24.47	24.50	24.57	24.42
17	24.47	24.47	24.46	24.46	24.45	24.43	24.42	24.40	24.40	24.38	24.35	24.32	24.30	24.27	24.25	24.22	24.20	24.19	24.18	24.16	24.16	24.15	24.16	24.15	24.31	24.47	24.15
18	24.15	24.14	24.14	24.15	24.16	24.16	24.17	24.17	24.18	24.19	24.20	24.20	24.18	24.18	24.17	24.16	24.17	24.16	24.16	24.15	24.14	24.14	24.15	24.17	24.16	24.20	24.14
19	24.21	24.24	24.25	24.26	24.26	24.27	24.29	24.30	24.32	24.34	24.36	24.37	24.37	24.39	24.40	24.42	24.45	24.46	24.48	24.49	24.51	24.53	24.55	24.57	24.38	24.57	24.21
20	24.58	24.59	24.61	24.62	24.63	24.65	24.66	24.67	24.69	24.70	24.70	24.69	24.68	24.67	24.68	24.68	24.68	24.67	24.67	24.67	24.67	24.67	24.67	24.66	24.66	24.70	24.58
21	24.64	24.62	24.61	24.62	24.60	24.60	24.59	24.60	24.60	24.60	24.60	24.61	24.61	24.62	24.62	24.63	24.65	24.65	24.66	24.67	24.68	24.69	24.69	24.69	24.63	24.69	24.59
22	24.68	24.67	24.67	24.66	24.65	24.64	24.63	24.61	24.59	24.56	24.52	24.49	24.46	24.44	24.41	24.38	24.34	24.31	24.31	24.31	24.28	24.26	24.25	24.24	24.47	24.68	24.24
23	24.22	24.21	24.20	24.19	24.18	24.19	24.20	24.21	24.21	24.20	24.19	24.20	24.18	24.19	24.19	24.21	24.22	24.23	24.25	24.27	24.28	24.28	24.28	24.29	24.22	24.29	24.18
24	24.30	24.31	24.32	24.32	24.31	24.30	24.29	24.29	24.29	24.30	24.30	24.30	24.29	24.29	24.29	24.28	24.28	24.27	24.27	24.27	24.26	24.25	24.23	24.22	24.28	24.32	24.22
25	24.22	24.20	24.20	24.18	24.16	24.16	24.15	24.14	24.13	24.15	24.15	24.15	24.14	24.16	24.17	24.19	24.21	24.23	24.25	24.27	24.30	24.31	24.32	24.33	24.20	24.33	24.13
26	24.33	24.33	24.33	24.32	24.31	24.31	24.32	24.33	24.35	24.37	24.38	24.39	24.38	24.39	24.39	24.41	24.41	24.43	24.43	24.44	24.46	24.47	24.48	24.49	24.39	24.49	24.31
27	24.50	24.49	24.51	24.52	24.52	24.53	24.53	24.54	24.54	24.54	24.53	24.53	24.52	24.52	24.51	24.51	24.51	24.50	24.50	24.50	24.50	24.50	24.49	24.49	24.51	24.54	24.49
28	24.48	24.46	24.44	24.43	24.42	24.43	24.44	24.44	24.44	24.43	24.45	24.45	24.44	24.45	24.47	24.49	24.51	24.54	24.56	24.58	24.60	24.63	24.65	24.67	24.50	24.67	24.42
29	24.68	24.68	24.69	24.70	24.69	24.69	24.70	24.70	24.70	24.69	24.67	24.67	24.65	24.64	24.63	24.62	24.61	24.61	24.61	24.61	24.60	24.59	24.59	24.58	24.65	24.70	24.58
30	24.56	24.54	24.52	24.50	24.47	24.46	24.43	24.41	24.39	24.37	24.33	24.30	24.26	24.23	24.21	24.22	24.26	24.27	24.28	24.29	24.29	24.30	24.32	24.36	24.36	24.56	24.21
Avg	24.36	24.36	24.36	24.36	24.35	24.35	24.35	24.36	24.36	24.36	24.36	24.35	24.34	24.33	24.33	24.33	24.33	24.34	24.34	24.35	24.35	24.35	24.35	24.35	24.35	24.45	24.25
Max	24.68	24.68	24.69	24.70	24.69	24.69	24.70	24.70	24.71	24.73	24.74	24.74	24.73	24.72	24.70	24.70	24.70	24.70	24.70	24.71	24.71	24.71	24.70	24.69	24.70	24.74	24.66
Min	23.87	23.88	23.91	23.92	23.94	23.96	23.96	23.95	23.94	23.93	23.91	23.89	23.83	23.81	23.82	23.81	23.80	23.83	23.83	23.82	23.84	23.83	23.84	23.86	23.91	24.08	23.80

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Barometric Pressure (inches of mercury)
December 2020

A-24

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	24.39	24.41	24.44	24.47	24.50	24.52	24.55	24.58	24.60	24.62	24.64	24.65	24.66	24.65	24.65	24.66	24.67	24.69	24.71	24.72	24.73	24.74	24.76	24.77	24.62	24.77	24.39	
2	24.77	24.78	24.78	24.77	24.77	24.77	24.78	24.79	24.80	24.81	24.80	24.78	24.77	24.77	24.76	24.75	24.74	24.75	24.76	24.76	24.75	24.75	24.74	24.73	24.77	24.81	24.73	
3	24.72	24.71	24.70	24.70	24.69	24.68	24.68	24.68	24.68	24.67	24.65	24.64	24.63	24.62	24.62	24.61	24.60	24.60	24.61	24.62	24.62	24.63	24.64	24.65	24.65	24.72	24.60	
4	24.65	24.66	24.66	24.66	24.66	24.66	24.66	24.67	24.68	24.70	24.70	24.71	24.71	24.72	24.73	24.74	24.74	24.74	24.77	24.76	24.78	24.78	24.78	24.76	24.71	24.78	24.65	
5	24.75	24.75	24.75	24.75	24.75	24.74	24.73	24.73	24.72	24.71	24.69	24.67	24.67	24.66	24.65	24.64	24.62	24.62	24.61	24.61	24.60	24.60	24.59	24.59	24.68	24.75	24.59	
6	24.58	24.57	24.57	24.58	24.58	24.58	24.59	24.61	24.63	24.63	24.63	24.64	24.64	24.64	24.64	24.65	24.64	24.65	24.67	24.68	24.69	24.70	24.71	24.72	24.63	24.72	24.57	
7	24.71	24.70	24.71	24.71	24.71	24.71	24.71	24.71	24.71	24.69	24.69	24.68	24.68	24.67	24.66	24.65	24.66	24.67	24.67	24.68	24.69	24.67	24.65	24.64	24.68	24.71	24.64	
8	24.62	24.60	24.59	24.59	24.58	24.58	24.58	24.57	24.56	24.56	24.58	24.57	24.55	24.55	24.55	24.55	24.55	24.55	24.55	24.54	24.53	24.51	24.49	24.48	24.56	24.62	24.48	
9	24.46	24.43	24.42	24.40	24.37	24.36	24.35	24.34	24.33	24.34	24.36	24.36	24.36	24.36	24.36	24.39	24.40	24.42	24.42	24.43	24.43	24.43	24.44	24.44	24.39	24.46	24.33	
10	24.44	24.44	24.44	24.44	24.44	24.44	24.44	24.44	24.44	24.44	24.44	24.43	24.41	24.40	24.38	24.38	24.37	24.38	24.37	24.37	24.37	24.36	24.35	24.34	24.41	24.44	24.34	
11	24.33	24.32	24.31	24.31	24.31	24.31	24.30	24.30	24.29	24.29	24.28	24.27	24.26	24.25	24.26	24.26	24.27	24.27	24.27	24.27	24.27	24.27	24.28	24.28	24.28	24.33	24.25	
12	24.29	24.28	24.29	24.30	24.30	24.31	24.32	24.33	24.33	24.35	24.35	24.34	24.32	24.33	24.34	24.37	24.39	24.41	24.41	24.41	24.42	24.44	24.44	24.44	24.35	24.44	24.28	
13	24.44	24.43	24.43	24.43	24.42	24.42	24.41	24.41	24.41	24.41	24.41	24.38	24.36	24.33	24.32	24.30	24.30	24.31	24.31	24.29	24.28	24.28	24.28	24.27	24.27	24.35	24.44	24.27
14	24.27	24.26	24.26	24.27	24.27	24.28	24.30	24.30	24.30	24.32	24.33	24.34	24.33	24.33	24.33	24.34	24.35	24.37	24.38	24.39	24.39	24.39	24.39	24.39	24.33	24.39	24.26	
15	24.39	24.39	24.40	24.40	24.39	24.36	24.36	24.35	24.33	24.32	24.31	24.29	24.27	24.25	24.25	24.24	24.23	24.23	24.21	24.22	24.22	24.21	24.21	24.23	24.29	24.40	24.21	
16	24.22	24.22	24.22	24.23	24.24	24.25	24.26	24.27	24.28	24.30	24.32	24.32	24.31	24.30	24.31	24.30	24.30	24.29	24.30	24.28	24.27	24.26	24.24	24.20	24.27	24.32	24.20	
17	24.17	24.14	24.11	24.10	24.09	24.08	24.07	24.07	24.07	24.07	24.07	24.05	24.04	24.03	24.04	24.05	24.06	24.09	24.11	24.13	24.15	24.17	24.21	24.25	24.10	24.25	24.03	
18	24.27	24.29	24.31	24.33	24.34	24.35	24.36	24.35	24.35	24.36	24.38	24.38	24.38	24.38	24.37	24.38	24.37	24.36	24.35	24.34	24.32	24.31	24.30	24.29	24.34	24.38	24.27	
19	24.28	24.26	24.26	24.23	24.19	24.19	24.19	24.20	24.24	24.28	24.29	24.30	24.30	24.31	24.33	24.36	24.38	24.39	24.39	24.39	24.38	24.35	24.32	24.31	24.30	24.39	24.19	
20	24.28	24.26	24.23	24.21	24.20	24.19	24.19	24.17	24.17	24.16	24.18	24.20	24.22	24.24	24.26	24.27	24.29	24.31	24.32	24.32	24.32	24.32	24.33	24.34	24.25	24.34	24.16	
21	24.34	24.33	24.34	24.35	24.34	24.34	24.34	24.34	24.33	24.33	24.31	24.29	24.27	24.25	24.22	24.21	24.20	24.18	24.15	24.12	24.10	24.08	24.06	24.05	24.24	24.35	24.05	
22	24.03	23.98	23.97	23.94	23.90	23.87	23.87	23.88	23.92	23.94	23.97	23.99	24.03	24.07	24.11	24.16	24.21	24.27	24.32	24.36	24.40	24.44	24.47	24.50	24.11	24.50	23.87	
23	24.52	24.54	24.55	24.56	24.57	24.57	24.58	24.56	24.57	24.58	24.59	24.58	24.55	24.55	24.55	24.56	24.57	24.58	24.58	24.58	24.60	24.60	24.61	24.61	24.57	24.61	24.52	
24	24.61	24.61	24.62	24.63	24.63	24.63	24.63	24.63	24.63	24.64	24.65	24.61	24.58	24.56	24.55	24.53	24.50	24.51	24.50	24.50	24.50	24.50	24.50	24.50	24.57	24.65	24.50	
25	24.49	24.49	24.48	24.47	24.47	24.46	24.44	24.44	24.42	24.42	24.41	24.38	24.36	24.35	24.33	24.33	24.31	24.30	24.29	24.29	24.27	24.26	24.25	24.22	24.37	24.49	24.22	
26	24.21	24.21	24.20	24.20	24.18	24.18	24.19	24.18	24.19	24.20	24.19	24.18	24.18	24.17	24.17	24.17	24.19	24.20	24.21	24.21	24.22	24.23	24.24	24.26	24.20	24.26	24.17	
27	24.27	24.29	24.30	24.31	24.32	24.33	24.33	24.34	24.35	24.37	24.38	24.38	24.37	24.36	24.36	24.38	24.38	24.39	24.41	24.42	24.43	24.44	24.44	24.44	24.37	24.44	24.27	
28	24.44	24.45	24.45	24.45	24.45	24.44	24.43	24.43	24.42	24.43	24.42	24.39	24.37	24.35	24.33	24.32	24.31	24.32	24.32	24.32	24.32	24.31	24.31	24.31	24.38	24.45	24.31	
29	24.30	24.29	24.29	24.30	24.32	24.33	24.34	24.36	24.37	24.39	24.40	24.39	24.37	24.36	24.36	24.36	24.37	24.39	24.40	24.41	24.41	24.41	24.41	24.40	24.36	24.41	24.29	
30	24.40	24.40	24.40	24.39	24.38	24.38	24.37	24.36	24.35	24.35	24.33	24.31	24.29	24.27	24.25	24.24	24.24	24.23	24.21	24.19	24.18	24.17	24.16	24.17	24.29	24.40	24.16	
31	24.18	24.18	24.19	24.20	24.21	24.21	24.23	24.24	24.26	24.27	24.29	24.30	24.30	24.30	24.30	24.32	24.34	24.35	24.35	24.37	24.37	24.38	24.38	24.38	24.29	24.38	24.18	
Avg	24.41	24.41	24.41	24.41	24.41	24.40	24.41	24.41	24.41	24.42	24.42	24.41	24.40	24.40	24.40	24.40	24.41	24.41	24.42	24.42	24.42	24.42	24.42	24.42	24.41	24.50	24.32	
Max	24.77	24.78	24.78	24.77	24.77	24.77	24.78	24.79	24.80	24.81	24.80	24.78	24.77	24.77	24.76	24.75	24.74	24.75	24.77	24.76	24.78	24.78	24.78	24.77	24.77	24.81	24.73	
Min	24.03	23.98	23.97	23.94	23.90	23.87	23.87	23.88	23.92	23.94	23.97	23.99	24.03	24.03	24.04	24.05	24.06	24.09	24.11	24.12	24.10	24.08	24.06	24.05	24.10	24.25	23.87	

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (Percent)
October 2020

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	84.9	86.9	88.0	88.2	88.9	89.0	89.4	86.3	71.5	50.6	40.0	33.7	30.4	27.4	25.1	23.5	23.2	25.6	31.8	39.9	48.6	55.9	64.5	69.5	56.8	89.4	23.2
2	71.1	74.6	78.1	79.9	81.5	83.6	83.6	81.2	65.7	40.4	32.5	31.4	28.8	27.5	27.2	28.2	29.8	34.9	43.5	56.2	65.1	73.3	78.4	81.5	57.4	83.6	27.2
3	84.0	86.6	87.5	88.9	89.4	89.4	89.6	80.7	69.5	51.6	34.1	30.3	29.0	25.0	21.8	22.6	21.0	25.2	41.7	52.8	59.3	65.5	71.4	74.5	58.0	89.6	21.0
4	77.3	80.8	82.6	84.2	85.3	86.2	87.8	82.2	66.6	42.2	25.7	22.5	19.3	18.4	17.5	17.6	18.9	23.2	28.1	31.9	31.1	28.7	31.8	42.6	47.2	87.8	17.5
5	51.9	57.0	58.1	57.4	64.8	72.6	75.4	70.0	54.1	36.1	34.1	31.8	29.6	28.7	25.5	23.5	23.6	25.7	32.4	36.8	42.5	48.3	53.1	57.2	45.4	75.4	23.5
6	64.2	70.4	75.6	78.5	80.5	82.2	83.6	74.7	54.5	29.8	27.6	27.3	25.9	24.8	24.2	23.8	24.5	27.5	33.1	41.6	55.9	63.5	68.5	73.9	51.5	83.6	23.8
7	78.3	79.7	82.5	85.0	85.6	86.7	87.9	81.9	60.3	40.9	31.2	27.4	24.6	21.0	17.0	16.2	26.2	35.3	41.9	45.2	53.1	54.4	56.3	63.6	53.4	87.9	16.2
8	72.8	77.5	80.3	81.4	82.7	85.0	87.0	81.7	62.8	40.6	22.5	16.3	15.7	13.0	13.2	14.7	16.1	16.0	16.6	19.4	30.2	34.6	38.0	36.3	43.9	87.0	13.0
9	38.7	40.7	44.6	52.9	57.7	66.0	72.9	70.3	66.4	46.8	35.4	34.7	32.0	27.5	24.9	23.2	24.1	33.0	45.5	52.6	59.7	68.0	70.5	73.8	48.4	73.8	23.2
10	75.2	77.2	77.7	78.1	76.6	79.8	79.8	74.5	56.2	24.0	14.2	12.3	10.9	10.9	12.5	13.5	14.3	24.6	47.1	63.6	85.6	80.6	70.3	60.5	50.8	85.6	10.9
11	57.0	61.8	56.8	55.6	58.3	57.0	55.6	53.9	54.1	51.7	44.4	40.8	38.1	38.8	34.9	36.2	44.7	50.0	60.0	60.6	49.4	52.8	52.8	49.2	50.6	61.8	34.9
12	54.2	62.4	77.8	75.0	81.4	86.3	86.9	88.5	76.2	63.6	58.1	50.2	45.1	44.1	37.8	35.1	36.3	40.1	39.5	43.0	44.8	44.0	43.6	43.3	56.6	88.5	35.1
13	48.9	63.5	69.5	72.9	74.1	75.1	76.0	76.2	70.4	66.6	72.9	61.3	49.4	54.5	59.6	71.5	75.7	74.9	64.4	59.6	58.4	65.2	50.8	49.1	65.0	76.2	48.9
14	51.2	49.5	49.7	50.0	52.1	56.4	58.5	58.6	51.1	53.7	57.9	84.2	83.3	78.8	75.0	76.1	78.0	74.3	72.8	68.4	73.3	78.1	78.2	80.4	66.2	84.2	49.5
15	83.3	82.8	83.2	86.2	86.0	85.6	86.2	85.3	85.7	76.2	79.8	75.6	60.8	62.3	57.3	50.1	57.0	50.1	49.8	58.1	62.4	65.1	69.8	70.8	71.2	86.2	49.8
16	69.4	71.0	67.8	63.0	55.5	62.6	78.5	83.9	82.9	83.1	82.5	69.2	65.2	63.5	63.6	68.9	65.1	60.6	60.9	60.8	64.0	75.0	75.6	75.8	69.5	83.9	55.5
17	78.2	80.1	82.1	84.3	84.6	85.6	85.6	86.1	84.3	83.5	81.4	81.4	80.7	81.3	82.5	83.2	84.4	81.7	73.7	72.8	74.0	74.8	80.2	81.3	81.2	86.1	72.8
18	81.6	82.8	82.9	83.4	84.1	84.2	85.0	83.9	82.7	79.8	78.0	80.0	82.4	82.3	80.2	78.8	82.7	83.8	84.4	85.0	87.2	88.5	88.7	89.2	83.4	89.2	78.0
19	89.7	89.7	89.8	89.9	90.1	90.4	90.9	91.0	88.9	84.4	79.6	78.3	74.8	70.6	70.0	72.0	72.2	73.3	77.7	83.8	76.2	74.1	76.1	75.8	81.2	91.0	70.0
20	72.0	75.2	82.4	83.7	87.2	86.7	87.2	89.6	87.0	75.2	66.9	61.6	58.0	56.5	54.5	50.5	54.2	63.4	71.6	75.2	74.0	74.6	79.2	82.0	72.9	89.6	50.5
21	83.4	84.9	83.4	84.3	82.9	83.5	86.0	89.5	89.3	85.0	79.9	71.9	52.1	46.1	59.5	60.9	67.8	73.9	70.6	70.4	72.0	72.1	72.7	70.9	74.7	89.5	46.1
22	68.4	69.4	69.7	69.4	66.6	67.7	69.0	67.6	63.8	56.7	55.6	54.4	59.0	61.3	64.1	59.9	58.7	65.1	73.3	73.7	74.6	75.4	75.3	76.2	66.5	76.2	54.4
23	77.6	80.9	82.3	78.8	78.1	79.3	78.9	77.8	69.5	62.7	60.4	58.2	56.0	68.7	82.6	85.1	85.9	85.2	84.8	85.0	85.4	85.2	84.3	84.5	77.4	85.9	56.0
24	83.0	82.0	81.9	81.7	81.3	80.6	80.6	80.8	80.3	79.2	77.3	71.8	68.5	76.8	76.6	63.1	59.3	64.0	67.4	69.9	72.0	75.3	75.4	74.8	75.1	83.0	59.3
25	73.5	72.2	71.6	69.8	68.5	67.8	67.5	66.6	67.5	69.5	69.3	60.6	52.7	50.2	58.3	60.8	63.8	76.3	77.6	75.5	74.2	73.7	72.2	71.0	67.9	77.6	50.2
26	70.0	69.7	69.5	70.0	70.0	70.6	70.3	70.8	72.8	75.0	78.3	61.7	43.1	48.4	50.0	49.5	50.6	60.9	74.8	76.0	78.0	78.1	79.5	78.0	67.3	79.5	43.1
27	71.8	74.1	76.5	78.4	78.9	80.7	82.8	81.8	79.3	72.6	66.9	61.3	60.1	58.5	58.0	56.6	60.9	66.2	73.5	78.2	83.4	85.4	87.4	86.0	73.3	87.4	56.6
28	86.8	86.6	86.0	85.6	86.4	87.2	87.5	87.8	86.4	70.9	63.7	60.8	63.4	65.0	65.3	65.4	68.0	68.6	72.2	79.8	80.9	83.4	84.9	79.8	77.2	87.8	60.8
29	73.1	57.2	69.2	69.4	67.9	71.5	70.0	58.7	46.6	45.4	43.9	40.7	40.4	39.7	38.6	41.3	44.1	46.5	59.7	74.7	79.4	82.2	85.0	87.6	59.7	87.6	38.6
30	87.3	87.2	87.0	87.1	86.7	86.2	86.6	84.6	78.6	55.6	31.0	23.6	24.2	24.0	23.6	24.6	43.3	50.3	53.4	49.5	48.3	54.5	55.9	57.6	57.9	87.3	23.6
31	57.2	57.0	60.1	63.1	63.7	71.8	76.5	71.8	62.4	57.3	53.4	49.4	44.3	42.0	39.6	39.6	40.0	58.3	71.5	75.9	78.1	80.6	82.5	81.0	61.5	82.5	39.6
Avg	71.5	73.3	75.3	76.0	76.7	78.6	80.1	78.0	70.6	59.7	54.1	50.5	46.7	46.4	46.5	46.3	48.9	52.9	57.9	61.8	65.2	68.1	69.4	70.2	63.5	84.0	41.1
Max	89.7	89.7	89.8	89.9	90.1	90.4	90.9	91.0	89.3	85.0	82.5	84.2	83.3	82.3	82.6	85.1	85.9	85.2	84.8	85.0	87.2	88.5	88.7	89.2	83.4	91.0	78.0
Min	38.7	40.7	44.6	50.0	52.1	56.4	55.6	53.9	46.6	24.0	14.2	12.3	10.9	10.9	12.5	13.5	14.3	16.0	16.6	19.4	30.2	28.7	31.8	36.3	43.9	61.8	10.9

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (Percent)
November 2020

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	80.3	81.3	81.2	82.1	79.6	77.7	76.9	76.3	69.4	58.0	30.6	21.7	22.7	24.2	25.3	26.6	31.0	40.2	58.3	65.0	70.2	76.5	79.1	83.1	59.1	83.1	21.7
2	85.6	86.3	86.5	86.2	86.5	86.1	85.4	83.8	74.2	61.1	42.7	23.9	20.4	19.1	18.3	17.7	22.6	43.8	60.2	69.8	73.1	78.2	80.4	79.9	61.3	86.5	17.7
3	80.8	81.6	82.5	83.4	84.0	84.2	84.1	83.2	74.5	65.5	42.0	20.6	16.2	15.7	15.7	16.6	19.9	37.2	49.7	61.8	67.8	69.6	73.3	73.5	57.6	84.2	15.7
4	73.4	47.3	34.0	35.0	38.4	44.1	50.5	59.7	53.5	32.1	31.2	33.0	37.4	39.5	39.7	42.6	44.5	54.5	68.3	75.6	80.3	83.8	84.7	85.0	52.8	85.0	31.2
5	86.2	85.6	86.1	83.4	75.4	57.8	37.6	36.4	35.9	35.1	32.8	29.3	29.2	28.6	26.9	27.5	29.0	30.6	31.4	30.9	31.9	34.7	29.7	29.1	43.4	86.2	26.9
6	29.3	38.0	50.3	59.9	64.3	71.4	76.3	79.0	75.9	57.0	57.4	51.6	50.0	51.9	50.3	54.8	62.1	66.2	69.8	72.8	76.7	78.6	80.2	82.0	62.7	82.0	29.3
7	83.5	85.2	87.6	86.6	87.8	89.6	90.4	90.3	88.8	68.7	40.5	34.4	32.1	34.2	32.8	34.3	54.0	84.3	86.6	82.3	81.8	72.9	68.2	73.7	69.6	90.4	32.1
8	75.8	66.0	65.4	76.2	69.9	64.3	65.0	67.1	72.4	67.6	64.4	60.4	63.8	67.2	68.0	66.7	67.1	68.9	72.2	74.6	73.8	74.6	74.3	73.9	69.1	76.2	60.4
9	74.2	74.1	76.0	77.5	78.8	79.3	79.2	78.9	77.6	75.3	65.8	60.1	61.3	57.7	57.8	57.6	60.2	71.9	80.3	80.3	78.8	75.8	75.7	76.7	72.1	80.3	57.6
10	79.4	81.4	79.7	79.5	79.4	78.3	77.5	79.1	81.4	83.9	82.2	75.3	72.1	67.6	65.1	65.7	71.6	69.9	69.6	63.5	65.1	65.5	65.7	70.1	73.7	83.9	63.5
11	75.3	81.0	84.8	84.0	82.4	78.6	67.7	72.0	70.7	66.1	60.6	72.8	73.5	71.8	70.0	71.9	76.7	80.1	79.8	78.6	78.6	79.4	79.9	80.3	75.7	84.8	60.6
12	80.7	81.2	80.4	81.2	76.6	75.7	74.7	72.6	71.0	57.7	53.8	51.9	50.0	46.6	43.5	48.5	59.8	64.5	64.5	61.7	59.8	54.2	59.2	58.4	63.7	81.2	43.5
13	68.2	74.2	67.7	62.4	58.4	58.1	56.4	55.7	49.7	46.3	48.4	42.8	44.2	50.1	48.3	52.1	64.1	69.3	79.2	72.8	75.0	72.8	64.7	75.3	60.7	79.2	42.8
14	72.3	60.6	58.1	59.5	61.3	64.0	63.0	59.1	58.0	55.5	55.2	54.3	51.3	48.1	45.4	47.1	51.9	56.6	58.8	60.8	60.8	64.2	72.0	78.5	59.0	78.5	45.4
15	78.6	79.8	75.6	75.4	72.8	78.0	78.4	76.3	72.6	65.7	58.1	53.0	49.7	47.5	45.1	45.7	47.5	50.3	54.7	55.5	58.2	61.6	65.7	63.2	62.9	79.8	45.1
16	63.3	62.9	63.0	64.2	64.0	63.7	62.7	69.1	72.8	58.8	48.8	49.5	47.0	46.7	48.3	53.2	58.5	60.1	62.4	66.0	66.3	64.3	63.5	67.6	60.3	72.8	46.7
17	66.3	66.4	65.2	61.4	64.6	69.1	72.2	71.4	64.8	43.5	37.2	29.6	31.1	33.8	32.1	30.0	31.4	31.3	32.9	40.6	35.9	41.0	49.8	46.6	47.8	72.2	29.6
18	41.2	41.3	41.2	43.8	48.3	57.1	62.0	72.4	82.4	86.4	87.2	89.0	89.4	88.4	86.7	84.2	85.1	88.5	90.5	90.6	91.3	88.1	87.1	81.5	75.2	91.3	41.2
19	81.8	76.1	69.6	69.2	68.6	74.9	78.8	76.0	74.9	75.5	56.5	54.2	54.4	53.1	51.8	54.6	55.9	60.8	65.1	64.5	64.5	63.6	66.1	62.5	65.5	81.8	51.8
20	64.0	62.3	62.2	63.2	65.1	65.8	65.6	70.9	71.7	52.7	50.9	48.8	45.5	44.3	42.6	41.7	48.9	61.3	67.2	72.8	76.0	79.0	80.8	81.2	61.9	81.2	41.7
21	81.4	81.6	80.5	80.5	79.2	68.3	62.3	63.3	58.6	44.8	44.9	43.9	45.2	46.8	46.9	45.1	50.5	58.6	62.0	71.1	76.6	78.4	81.3	81.1	63.9	81.6	43.9
22	81.8	81.1	81.3	81.0	80.7	80.3	80.7	80.5	79.0	73.5	56.3	30.2	24.1	24.4	21.4	21.8	38.0	52.8	58.0	63.7	68.7	69.1	69.3	71.4	61.2	81.8	21.4
23	72.0	70.9	71.8	74.5	73.5	77.0	77.2	77.6	77.0	73.2	68.2	41.5	34.8	33.8	36.5	60.3	57.8	61.5	62.7	64.7	66.7	68.3	70.7	70.8	64.3	77.6	33.8
24	76.4	80.7	80.2	81.4	81.8	80.2	67.5	63.0	61.5	59.2	58.9	57.3	52.2	50.9	49.6	49.8	55.6	65.6	75.3	78.0	79.7	80.1	79.8	80.7	68.6	81.8	49.6
25	81.4	82.9	82.1	81.5	80.5	80.1	75.6	77.4	74.8	70.5	65.2	66.1	57.9	65.2	67.8	62.4	50.5	51.7	58.4	62.4	65.0	66.2	67.8	72.0	69.4	82.9	50.5
26	69.0	73.6	73.8	69.9	67.8	67.2	65.5	64.5	64.4	71.7	62.3	57.3	55.9	53.6	53.2	56.3	61.4	64.1	64.3	66.9	68.8	69.5	69.1	69.0	65.0	73.8	53.2
27	71.0	72.1	78.2	79.7	81.1	81.7	81.6	81.9	82.2	80.2	77.5	73.2	55.2	41.8	31.7	30.2	33.8	43.4	54.0	61.5	69.2	70.4	73.5	73.9	65.8	82.2	30.2
28	75.9	65.3	68.5	70.7	73.3	72.3	71.9	72.7	70.7	64.5	60.3	20.4	22.2	22.8	32.8	41.9	46.4	50.5	56.4	59.0	59.5	62.6	69.5	77.2	57.8	77.2	20.4
29	79.6	81.8	82.8	83.8	82.2	81.5	81.2	80.5	80.2	74.9	67.3	50.9	39.7	30.5	27.5	28.1	36.8	53.9	64.4	68.6	68.6	69.9	75.2	74.9	65.2	83.8	27.5
30	75.0	74.2	72.8	71.6	72.2	69.2	68.1	54.3	56.0	46.1	22.9	19.5	19.3	20.9	23.0	27.3	44.9	58.1	61.6	52.4	55.7	63.0	77.5	83.0	53.7	83.0	19.3
Avg	73.5	72.6	72.3	73.0	72.6	72.5	71.2	71.5	69.9	62.4	54.3	47.2	44.9	44.2	43.5	45.4	50.6	58.3	64.0	66.3	68.1	69.2	71.1	72.5	63.0	81.5	38.5
Max	86.2	86.3	87.6	86.6	87.8	89.6	90.4	90.3	88.8	86.4	87.2	89.0	89.4	88.4	86.7	84.2	85.1	88.5	90.5	90.6	91.3	88.1	87.1	85.0	75.7	91.3	63.5
Min	29.3	38.0	34.0	35.0	38.4	44.1	37.6	36.4	35.9	32.1	22.9	19.5	16.2	15.7	15.7	16.6	19.9	30.6	31.4	30.9	31.9	34.7	29.7	29.1	43.4	72.2	15.7

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Relative Humidity (Percent)
December 2020

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	86.7	85.7	84.6	84.6	84.5	84.0	84.6	76.8	69.1	72.8	72.6	69.3	62.4	57.0	58.4	61.4	76.1	78.7	80.9	83.4	84.2	85.1	82.3	79.6	76.9	86.7	57.0
2	77.7	77.2	76.5	76.1	75.6	75.4	75.9	75.7	78.4	79.6	74.0	64.5	52.3	52.2	52.8	55.7	72.4	83.2	85.1	84.9	82.9	82.0	81.7	80.2	73.8	85.1	52.2
3	79.4	79.1	78.6	78.2	77.9	77.4	77.4	77.5	78.6	82.0	76.6	73.6	57.2	52.4	49.0	58.9	76.5	82.3	85.4	86.5	85.5	85.0	84.4	83.0	75.9	86.5	49.0
4	83.1	83.0	81.8	81.4	81.1	81.7	79.9	80.5	80.2	80.3	77.6	65.9	37.3	35.5	32.6	37.8	59.7	77.2	79.8	83.0	84.9	84.0	83.1	83.7	72.3	84.9	32.6
5	82.7	82.5	82.2	81.6	80.7	80.5	79.8	79.5	79.8	78.1	72.6	62.8	50.2	38.8	38.5	45.3	66.3	78.3	79.7	82.8	81.9	82.3	82.2	82.2	73.0	82.8	38.5
6	82.6	82.3	81.0	81.1	80.5	80.2	81.2	81.1	79.1	69.5	58.8	55.4	35.9	27.8	27.3	25.9	45.8	61.3	67.4	72.5	75.8	77.2	77.9	79.8	66.1	82.6	25.9
7	78.8	79.7	81.7	80.8	81.5	81.6	81.3	81.4	80.5	75.1	68.2	55.7	36.4	35.7	33.2	33.5	35.0	45.8	49.1	54.5	58.7	59.9	65.1	66.7	62.5	81.7	33.2
8	68.7	67.7	69.6	70.5	71.0	69.6	69.3	68.0	69.9	55.9	54.4	56.7	35.1	33.9	35.4	35.0	41.4	52.0	63.2	70.0	73.5	74.7	72.1	72.5	60.4	74.7	33.9
9	72.6	70.1	67.7	68.3	66.6	68.5	66.7	56.9	64.3	63.8	49.2	37.1	33.6	32.7	37.2	47.1	52.5	50.5	55.0	65.1	74.2	79.4	79.4	77.6	59.8	79.4	32.7
10	80.3	82.6	84.4	84.8	84.8	85.1	84.7	85.1	80.2	78.1	67.0	60.6	61.8	49.0	42.8	42.9	53.6	66.5	75.7	78.3	79.2	79.6	80.4	81.0	72.9	85.1	42.8
11	81.2	81.1	80.5	79.4	79.7	81.9	82.6	82.8	82.5	80.9	75.0	70.7	67.8	70.2	78.6	79.3	78.6	79.1	78.7	79.5	78.7	81.4	80.5	80.5	78.8	82.8	67.8
12	81.8	83.0	82.9	82.4	81.3	80.9	80.7	80.4	80.9	78.9	75.9	73.3	68.1	68.0	68.9	71.3	73.3	70.7	71.7	72.6	74.6	77.8	79.2	80.0	76.6	83.0	68.0
13	80.0	79.8	80.5	81.5	82.2	82.3	81.5	80.6	78.5	75.3	62.5	51.4	51.9	52.1	53.5	56.1	62.4	65.5	68.9	68.6	73.1	75.3	76.7	77.3	70.7	82.3	51.4
14	78.5	79.5	81.5	82.9	83.2	83.1	83.0	82.8	82.0	79.8	75.2	72.7	68.9	66.6	66.3	69.8	72.5	74.1	73.8	73.3	73.7	73.2	73.0	73.6	76.0	83.2	66.3
15	74.8	74.0	76.4	76.1	73.1	68.1	69.4	70.9	71.3	64.7	57.0	54.2	51.7	54.3	78.4	84.1	78.9	74.1	73.6	69.2	74.9	77.5	75.9	70.8	70.6	84.1	51.7
16	73.6	74.9	74.7	74.2	71.7	71.1	69.2	67.7	66.9	66.9	68.0	69.2	61.3	58.7	58.3	58.2	62.3	70.0	77.3	81.5	83.6	83.2	84.0	82.5	71.2	84.0	58.2
17	80.8	75.9	67.0	65.9	61.8	63.0	66.3	71.4	75.2	72.3	66.1	60.8	60.0	63.5	57.4	57.0	61.7	61.3	59.3	55.7	60.9	67.9	74.1	77.8	66.0	80.8	55.7
18	80.7	80.7	81.0	79.8	80.8	82.3	81.8	79.9	72.9	67.5	64.8	61.2	57.9	56.2	55.1	57.9	59.0	59.6	60.6	62.9	62.0	61.5	62.1	64.8	68.0	82.3	55.1
19	66.8	60.5	59.9	57.7	55.6	54.2	52.4	53.2	55.6	56.9	58.3	58.8	55.2	50.5	48.1	47.6	49.6	52.1	52.6	53.4	57.5	59.1	61.4	55.2	55.5	66.8	47.6
20	48.5	46.2	47.0	49.7	53.2	54.9	56.9	57.4	59.8	60.9	59.2	57.6	56.3	51.8	50.0	49.8	44.1	44.3	48.0	51.3	55.7	60.5	58.6	56.0	53.2	60.9	44.1
21	62.1	62.0	62.0	63.6	63.9	65.1	66.3	68.7	73.6	79.8	87.4	88.5	85.9	86.1	86.4	87.1	87.3	89.9	90.1	87.0	82.1	54.0	51.1	55.6	74.4	90.1	51.1
22	62.0	58.1	59.9	60.9	57.8	58.3	57.1	61.4	70.0	58.1	51.1	73.0	70.3	72.3	76.4	81.0	79.9	78.9	79.5	79.7	79.4	79.4	79.1	78.3	69.2	81.0	51.1
23	76.5	75.5	77.7	78.9	77.0	76.6	75.1	74.6	74.0	74.4	75.7	74.7	69.7	68.5	66.3	64.2	69.1	78.1	80.0	79.4	79.4	80.7	79.6	78.3	75.2	80.7	64.2
24	77.7	77.1	76.6	76.4	76.6	76.0	76.1	75.1	75.5	75.1	77.2	74.7	62.2	52.5	45.4	56.5	72.1	77.8	79.0	82.1	83.2	83.2	82.3	81.1	73.8	83.2	45.4
25	80.9	80.3	80.6	80.9	80.9	80.8	80.9	81.4	82.2	82.1	82.7	81.0	77.7	72.0	69.7	65.1	67.4	80.0	81.9	81.7	80.7	79.5	75.0	75.3	78.4	82.7	65.1
26	77.3	73.3	56.5	49.9	49.8	54.4	65.5	68.7	74.1	72.4	70.5	67.8	64.1	65.6	67.9	63.3	66.3	67.6	71.0	76.2	75.7	74.5	77.8	70.4	67.5	77.8	49.8
27	69.9	69.7	67.3	68.4	70.0	71.3	78.3	75.6	69.9	73.1	70.1	65.0	62.7	58.8	56.3	56.5	55.8	59.8	68.1	74.5	74.5	78.2	81.6	82.3	69.1	82.3	55.8
28	82.2	80.3	80.2	78.4	77.9	76.8	76.3	75.4	75.3	75.9	75.1	71.8	62.8	51.0	46.2	47.8	56.3	73.1	79.1	81.3	80.9	80.5	79.1	78.5	72.6	82.2	46.2
29	77.7	78.0	78.4	78.1	77.3	76.9	76.7	76.3	77.9	79.4	80.7	77.1	62.3	62.2	61.4	58.1	62.4	75.1	78.9	80.1	79.7	78.5	78.5	77.8	74.6	80.7	58.1
30	77.6	77.4	77.7	77.0	76.3	76.5	76.4	76.9	77.1	80.0	83.1	70.2	55.1	52.8	57.2	69.2	84.4	88.2	86.8	84.4	82.3	78.6	79.7	79.0	76.0	88.2	52.8
31	82.9	82.9	78.9	72.2	71.0	70.6	72.8	76.6	80.5	79.7	76.2	73.9	65.4	67.1	65.1	61.7	63.6	68.7	74.6	75.1	73.0	69.4	68.0	68.5	72.4	82.9	61.7
Avg	76.3	75.5	74.7	74.2	73.7	73.8	74.4	74.2	74.7	73.2	69.8	66.1	58.0	55.3	55.5	57.6	64.1	69.8	72.7	74.5	75.7	75.6	75.7	75.2	70.4	81.7	50.5
Max	86.7	85.7	84.6	84.8	84.8	85.1	84.7	85.1	82.5	82.1	87.4	88.5	85.9	86.1	86.4	87.1	87.3	89.9	90.1	87.0	85.5	85.1	84.4	83.7	78.8	90.1	68.0
Min	48.5	46.2	47.0	49.7	49.8	54.2	52.4	53.2	55.6	55.9	49.2	37.1	33.6	27.8	27.3	25.9	35.0	44.3	48.0	51.3	55.7	54.0	51.1	55.2	53.2	60.9	25.9

A-27

Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
October 2020

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	0.00	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	
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	
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	
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	
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	
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	
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	
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	
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	0.03	0.05	0.01	0.00	0.00	0.09	
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	
12	0.00	0.00	0.00	0.00	0.00	0.03	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	0.00	0.04	
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	
14	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
16	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.06	0.03	0.06	0.03	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.24	
17	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	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	0.05	
18	0.00	0.00	0.01	0.00	0.01	0.01	0.05	0.03	0.02	0.01	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.04	0.05	0.39	
19	0.02	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.07	
20	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	0.00	0.00	0.00	0.00	0.01	
21	0.00	0.00	0.00	0.00	0.00	0.00	0.02	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	0.03	
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	
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	0.02	0.03	0.04	0.03	0.02	0.04	0.05	0.04	0.03	0.03	0.33	
24	0.02	0.00	0.02	0.00	0.01	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	0.00	0.06	
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
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	
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	
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	
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	0.00	0.00	0.00	0.00	0.00	0.00	
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	
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	
Tot	0.05	0.00	0.04	0.02	0.06	0.04	0.09	0.10	0.05	0.07	0.06	0.04	0.03	0.02	0.03	0.05	0.04	0.03	0.02	0.07	0.15	0.14	0.07	0.08	1.35	
Max	0.02	0.00	0.02	0.01	0.03	0.01	0.05	0.06	0.03	0.06	0.03	0.01	0.02	0.02	0.02	0.03	0.04	0.03	0.02	0.04	0.05	0.05	0.04	0.05	0.39	

**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
November 2020**

[illegible]

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**Sandfire Resources America Inc.
Black Butte Copper Project Met Tower Air Monitoring Summary
Precipitation (Inches)
December 2020**

[illegible]

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APPENDIX B: PERFORMANCE AUDIT REPORT
FOURTH QUARTER 2020



BISON

ENGINEERING, INC.

Bison Engineering

Preliminary Meteorological Parameters Audit Form

Audit Dates: 12/30/2020 Tower Lowered : 10:24 MST Tower Back Up : 13:55 MST
 Client: Tintina Resources
 Site: Black Butte
 AUDITOR: Don Milmine PRECEDING CALIBRATION BY: Steve Heck

Temperature

Audit Device: Control Company - digital thermometer Model 4000 Cert. No. 4000-11479308
 Meter S/N: 140251289 Temperature Sensor: Climatronics 100093
 Last certified: 17 Aug 2020 S/N X17929 (Upper), S/N X17927 (Lower) - Matched Set

Temperature water bath results

	9m	9m	2m	2m	9m - 2m	Both of the removed fans were working properly
Audit	DAS	DAS	DAS	DAS	DAS	DAS
Value	Value	Diff.	Value	Diff.	Diff.	Delta T
°C	°C	°C	°C	°C	°C	
-0.01	0.12	0.13	0.13	0.14	-0.01	0.01
9.14	9.18	0.04	9.17	0.03	0.01	0.01
30.68	30.72	0.04	30.72	0.04	0.00	-0.01

Wind Direction

		Linearity Check from DAS			
Sensor height:	9 Meter	Setpoint	Clockwise	Counter-CW	Diff CCW
Sensor (Make/model number):	Climatronics/ 102083	0	2.2	2.1	2.2
Serial Number :	P1336C	30	32.0	31.9	2.0
Crossarm orientation (from Nextar GPS):	0.0 / 180.0	60	62.5	61.9	2.5
GPS location north sensor:		90	92.4	92.1	2.4
N 46.77274 deg , W 110.88248 deg		120	122.3	122.6	2.3
GPS location south sensor:		150	151.7	152.5	1.7
N 46.77230 deg , W 110.88248 deg		180	182.3	182.5	2.3
Sensor response aligned with crossarm (as found):	180.4	210	211.7	211.7	1.7
Sensor response aligned with crossarm (as left):	179.8	240	241.8	241.9	1.8
		270	271.8	271.8	1.8
Linearity Audit Device: Climatronics 101966, SN 72		300	301.8	301.8	1.8
		330	331.9	331.9	1.9
Wind Direction Threshold Torque : 4.8 g-cm (CW) / 4.9 g-cm (CCW)				Max Diff	2.5
(torque disk)					2.6

Wind Speed

Sensor height:: 9 Meter
 Sensor (Make/model number): Climatronics/ 102083
 Serial Number : P1336C
 Calibration device: Y M Young Model 18811 serial number CA02929 shaft speed symulator
 NIST certification conducted on July 9, 2020

Synchronous motor checks

		Wind Speed	Threshold Torque: 0.2 g-cm. (torque disk)
Known	Known	DAS	DAS
Value	Value	Value	Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
50	1.30	1.30	0.00
100	2.37	2.37	0.00
200	4.51	4.51	0.00
300	6.66	6.66	0.00
600	13.09	13.11	0.02
800	17.38	17.40	0.02
990	21.45	21.47	0.02

Solar Radiation

Audit Device: Eppley Pyranometer, SN 16166F3 (certified by Eppley January 2019)

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1413	413	444	7.5	2.4

Relative Humidity

Site Sensor: Met One 083E-0-35
Sensor Height: 2 meters
Reference Std: Control Company Model 4185 Hygrometer S/N 61644981 with NIST Certification on June 29, 2020

Ref Dry-Bulb:		deg C	BP = 24.31 in. Hg
Ref Wet-Bulb		deg C	
Ref RH:	60.8	%RH	
Station RH:	63.9	%RH	
Diff:	3.1	%RH	

Barometric Pressure

Audit Device: Vaisala model PTB330(50-1100) Serial number C4310002 with NIST Certification on July 6, 2020

Audit Value:	24.31	in Hg
Station Value:	24.31	in Hg
Diff:	0.00	in Hg

Precipitation

Rain Gauge = Met One Model 375D, Serial No. X15682
Level checked OK
Wind Screen in place
8" opening
250 ml water added
Calibration is 8.24 ml per tip
Known audit value is $250 / 8.24 = 30.3$ tips (so 30 or 31 full tips expected)
Unit registered 32 tips
% difference from expected = 6.7

Signature Site Operator : _____

Signature Site Auditor :  _____