

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

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November 29, 2021

CERTIFICATION OF DATA INTEGRITY

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

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Date: November 22, 2021

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Title: Meteorologist

Date: November 23, 2021

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APPENDICES

Appendix A: Meteorological Data

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1.0 INTRODUCTION

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

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

This report presents the data collected during the third quarter (July through September) of 2021. In addition, a description of the monitoring system operations is presented, together with summaries of quality assurance activities, including calibrations and performance audits. Tabular summaries of the data completeness achieved, and the periods of missing data also are presented. Appendix A presents hourly meteorological data collected.

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

Figure 1. Monitoring Site Location

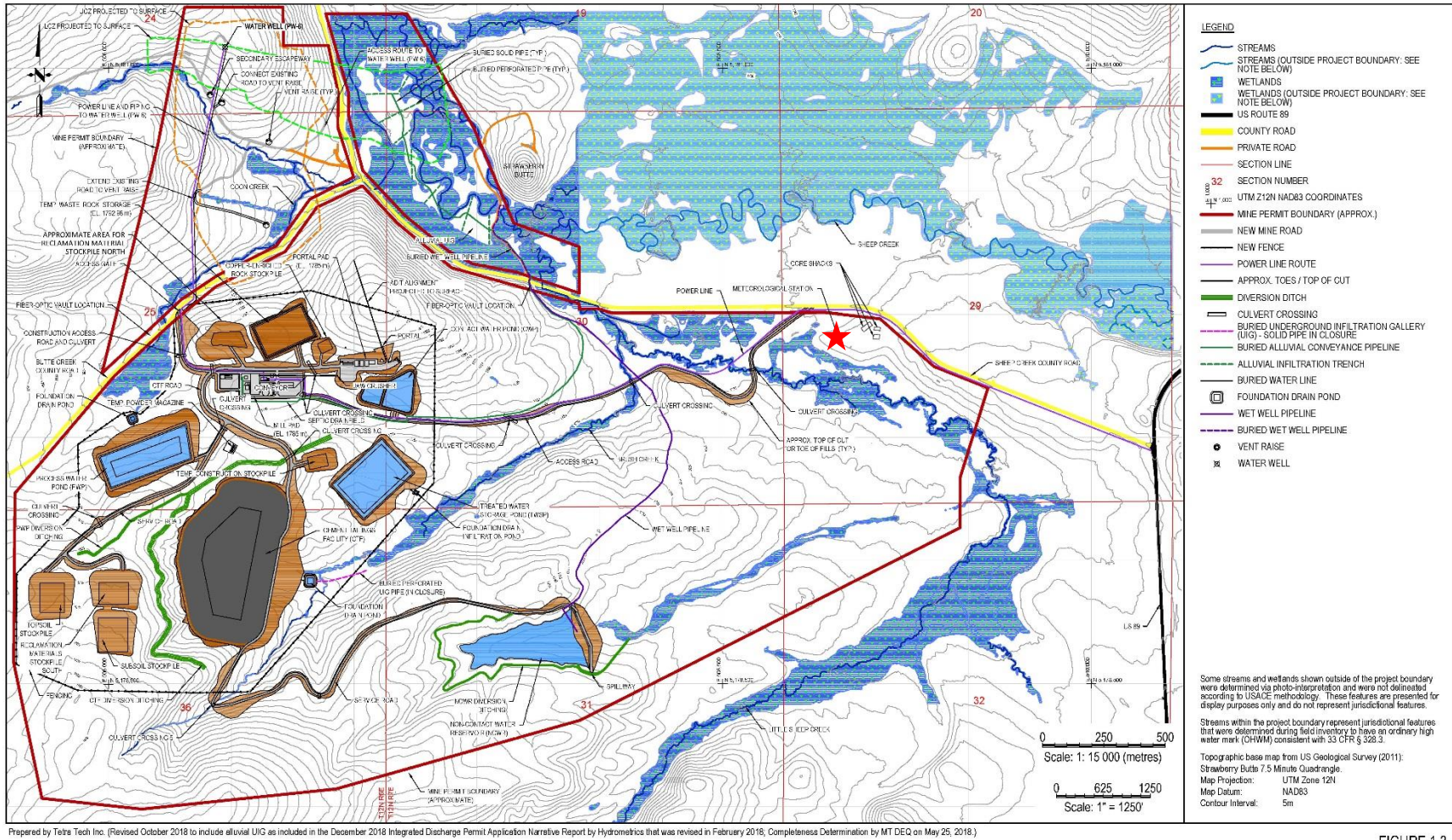


FIGURE 1.3
Facilities Site Plan
Black Butte Copper Project
Mine Operating Permit Application
Meagher County, Montana



2.0 MONITORING SYSTEM OPERATIONS

Monitoring activities continued in the normal manner during the third quarter of 2021. Data were downloaded and reviewed by Bison at least once a week and examined for suspect behavior. All instruments were operational throughout the quarter. However, the station battery power failed in late September which resulted in the loss of 70 hours of data between September 25 and September 28.

Steve Heck of Bison conducted performance audits of the meteorological system on October 1, 2021.¹ No calibration adjustments were made to any of the instrumentation. However, both temperature sensor aspirator fans were replaced for annual preventive maintenance.

¹ The preceding audit was performed on July 8, 2021; those results were presented in the Quarter 2, 2021 data report. The audit associated with a given quarter is typically performed in the last month of the quarter. However, for the first three quarters of 2021 the audit was performed in the first month of the following quarter due to remote communications issues. During the audits, all data through the end of the calendar quarter were manually downloaded.

3.0 PERFORMANCE AUDIT DATA

Steve Heck of Bison conducted performance audits of the meteorological system on October 1, 2021. 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

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

5.0 DATA COMPLETENESS

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

During the third quarter a 70-hour period of data from September 25 to September 28 was lost because a circuit breaker tripped and disabled the data logger battery charger.

Table 1. Monthly Data Completeness

July 2021					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	744	741	99.6	3	100.0
Wind Direction	744	741	99.6	3	100.0
Standard Deviation	744	741	99.6	3	100.0
9-Meter Temperature	744	741	99.6	3	100.0
2-Meter Temperature	744	741	99.6	3	100.0
9-2 M Delta Temperature	744	741	99.6	3	100.0
Solar Radiation	744	741	99.6	3	100.0
Barometric Pressure	744	744	100.0	0	100.0
Relative Humidity	744	744	100.0	0	100.0
Precipitation	744	742	99.7	2	100.0
Total	7,440	7,417	99.7	23	100.0

Table 1. Monthly Data Completeness (Continued)

August 2021					
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)

September 2021					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	720	650	90.3	0	90.3
Wind Direction	720	650	90.3	0	90.3
Standard Deviation	720	650	90.3	0	90.3
9-Meter Temperature	720	650	90.3	0	90.3
2-Meter Temperature	720	650	90.3	0	90.3
9-2 M Delta Temperature	720	650	90.3	0	90.3
Solar Radiation	720	650	90.3	0	90.3
Barometric Pressure	720	650	90.3	0	90.3
Relative Humidity	720	650	90.3	0	90.3
Precipitation	720	650	90.3	0	90.3
Total	7,200	6,500	90.3	0	90.3

Table 2. Quarterly Data Completeness

Third Quarter 2021					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
Black Butte Copper Project Met Tower					
Wind Speed	2,208	2,135	96.7	3	96.8
Wind Direction	2,208	2,135	96.7	3	96.8
Standard Deviation	2,208	2,135	96.7	3	96.8
9-Meter Temperature	2,208	2,135	96.7	3	96.8
2-Meter Temperature	2,208	2,135	96.7	3	96.8
9-2 M Delta Temperature	2,208	2,135	96.7	3	96.8
Solar Radiation	2,208	2,135	96.7	3	96.8
Barometric Pressure	2,208	2,138	96.8	0	96.8
Relative Humidity	2,208	2,138	96.8	0	96.8
Precipitation	2,208	2,136	96.7	2	96.8
Total	22,080	21,357	96.7	23	96.8

6.0 MONITORING DATA

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

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

Table 3. Missing Data Codes

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

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

July 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.7	0.8	1.2	1.2	1.3	2.4	1.6	1.3	0.3	0.5	0.3	0.7	0.3	0.1	1.2	0.8	14.8
	1.1 - 2.0	0.8	1.1	2.6	3.1	4.2	5.4	4.6	1.5	0.8	0.9	0.1	0.4	0.7	1.2	1.3	0.3	29.0
	2.1 - 3.0	1.2	0.5	0.9	2.2	3.9	2.6	1.3	0.8	0.1	0.7	0.3	1.2	1.1	1.8	1.9	0.9	21.5
	3.1 - 4.0	0.0	0.4	0.3	0.8	1.1	0.7	0.5	0.9	0.7	0.0	0.4	0.4	1.9	3.0	1.5	0.4	13.0
	4.1 - 5.0	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.4	0.1	0.3	0.5	0.4	1.6	2.0	1.3	0.5	8.0
	5.1 - 6.0	0.1	0.1	0.0	0.4	0.7	0.1	0.1	0.5	0.1	0.3	0.1	0.4	0.4	0.4	0.8	0.4	5.1
	6.1 - 7.0	0.1	0.4	0.0	0.3	0.4	0.0	1.1	0.1	0.1	0.0	0.1	0.1	0.3	0.5	0.3	0.1	4.0
	7.1 - 8.0	0.1	0.0	0.0	0.0	0.1	0.0	0.9	0.1	0.0	0.1	0.1	0.1	0.3	0.4	0.3	0.0	2.7
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	1.5
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3
	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	0.0	0.0	0.0	0.0	0.0
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calm																		0.0
Total		3.1	3.4	5.1	8.0	11.9	11.3	11.2	6.1	2.3	2.8	2.0	3.8	7.2	9.7	8.6	3.5	100.0
Average Speed		2.4	2.5	1.7	2.3	2.4	1.7	3.1	3.0	2.8	2.5	3.6	3.1	4.2	3.9	3.2	3.0	2.8

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

August 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.4	1.1	0.5	1.1	0.3	2.6	1.9	1.3	0.5	0.8	0.1	0.4	0.8	0.5	0.8	0.1	13.3
	1.1 - 2.0	0.7	1.1	1.9	2.6	3.8	7.1	3.9	0.7	0.3	0.4	0.1	0.3	1.1	0.9	2.0	0.9	27.7
	2.1 - 3.0	0.1	0.3	0.4	2.0	2.7	1.5	1.5	0.7	0.5	0.1	0.1	0.5	1.5	2.2	1.7	0.8	16.7
	3.1 - 4.0	0.0	0.0	0.0	0.7	1.7	0.1	0.5	0.5	0.1	0.1	0.4	0.9	3.0	2.6	0.9	0.4	12.1
	4.1 - 5.0	0.3	0.3	0.0	0.1	0.5	0.4	0.0	0.3	0.4	0.3	0.0	0.9	1.3	1.2	0.8	0.7	7.5
	5.1 - 6.0	0.0	0.3	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.1	0.0	0.9	3.1	1.1	1.1	0.1	8.2
	6.1 - 7.0	0.0	0.3	0.0	0.0	0.0	0.0	0.8	0.4	0.1	0.4	0.0	1.2	2.2	0.9	0.9	0.3	7.5
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.0	1.6	0.7	0.4	0.0	3.8
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.1	0.4	0.5	0.1	0.0	0.0	1.9
	9.1 - 10.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.7
	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	0.4	0.0	0.1	0.0	0.5
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calm																		0.0
Total		1.6	3.2	3.0	6.9	9.1	12.0	10.3	4.3	2.2	2.4	0.9	5.6	15.9	10.3	8.9	3.4	100.0
Average Speed		2.5	2.3	1.7	2.2	2.4	1.7	3.1	2.7	2.8	3.1	3.5	4.7	5.0	4.0	3.6	3.0	3.2

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

September 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.8	0.9	1.2	1.5	1.5	2.6	2.2	1.8	0.5	0.8	0.0	0.2	0.3	0.6	0.5	0.2	15.5
	1.1 - 2.0	0.8	0.8	1.5	3.1	6.2	7.1	4.8	2.5	0.6	0.3	0.5	0.5	0.5	0.8	0.8	0.8	31.2
	2.1 - 3.0	0.0	0.3	0.0	1.7	2.9	1.8	0.0	0.0	0.0	0.0	0.0	1.2	1.1	1.2	0.9	0.3	11.5
	3.1 - 4.0	0.3	0.0	0.2	0.3	0.8	0.0	0.6	0.3	0.3	0.0	0.2	0.9	2.9	1.4	1.4	0.2	9.7
	4.1 - 5.0	0.3	0.0	0.0	0.2	0.0	0.2	0.0	0.9	0.3	0.2	0.2	0.9	4.2	2.9	0.9	0.2	11.2
	5.1 - 6.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.6	0.0	1.1	3.5	1.5	0.6	0.0	8.3
	6.1 - 7.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.3	2.5	0.8	0.2	0.0	4.6
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.5	0.8	0.6	0.3	0.0	2.5
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.2	1.2	0.8	0.2	0.0	2.9
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.1	0.2	0.2	0.0	1.5
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	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	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calm																		0.0
Total		2.5	2.0	2.9	6.8	11.4	11.7	7.8	5.8	2.2	3.8	1.2	5.7	18.0	10.8	5.8	1.5	100.0
Average Speed		2.5	1.3	1.4	1.7	1.8	1.5	1.6	2.1	3.2	6.0	5.2	4.2	5.3	4.6	3.8	2.0	3.2

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

Third Quarter 2021																		
Direction>>>		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Wind Speed (meters per second)	0.1 - 1.0	0.6	0.9	1.0	1.3	1.0	2.5	1.9	1.5	0.4	0.7	0.1	0.4	0.5	0.4	0.8	0.4	14.5
	1.1 - 2.0	0.7	1.0	2.0	2.9	4.6	6.5	4.4	1.5	0.6	0.6	0.2	0.4	0.7	1.0	1.4	0.7	29.2
	2.1 - 3.0	0.5	0.4	0.5	2.0	3.2	2.0	1.0	0.5	0.2	0.3	0.1	1.0	1.2	1.7	1.5	0.7	16.8
	3.1 - 4.0	0.1	0.1	0.1	0.6	1.2	0.3	0.6	0.6	0.4	0.0	0.3	0.7	2.6	2.3	1.3	0.3	11.7
	4.1 - 5.0	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.5	0.3	0.2	0.2	0.7	2.3	2.0	1.0	0.5	8.8
	5.1 - 6.0	0.1	0.1	0.0	0.3	0.3	0.1	0.1	0.4	0.2	0.3	0.0	0.8	2.3	1.0	0.8	0.2	7.2
	6.1 - 7.0	0.1	0.2	0.0	0.1	0.1	0.0	0.7	0.2	0.1	0.3	0.0	0.6	1.6	0.7	0.5	0.1	5.4
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.1	0.1	0.2	0.9	0.6	0.3	0.0	3.0
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.1	0.0	0.2	0.7	0.4	0.0	0.0	2.1
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.8
	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	0.2	0.0	0.0	0.0	0.3
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	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	0.1
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calm																		0.0
Total		2.4	2.9	3.7	7.2	10.8	11.7	9.9	5.4	2.2	3.0	1.4	5.0	13.5	10.3	7.9	2.9	100.0
Average Speed		2.5	2.2	1.6	2.1	2.2	1.7	2.7	2.6	2.9	4.0	4.0	4.1	5.0	4.2	3.5	2.8	3.1

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

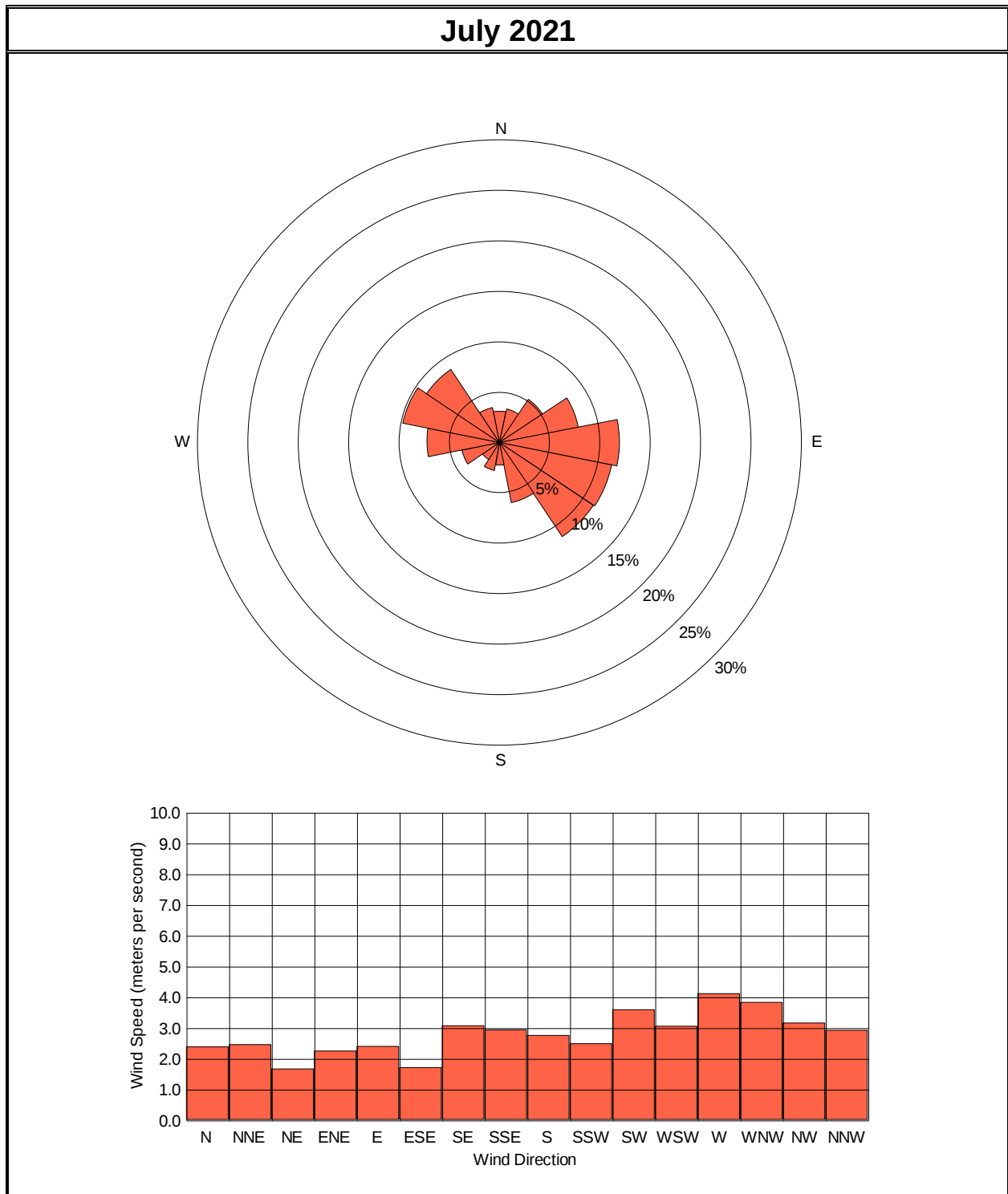


Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower

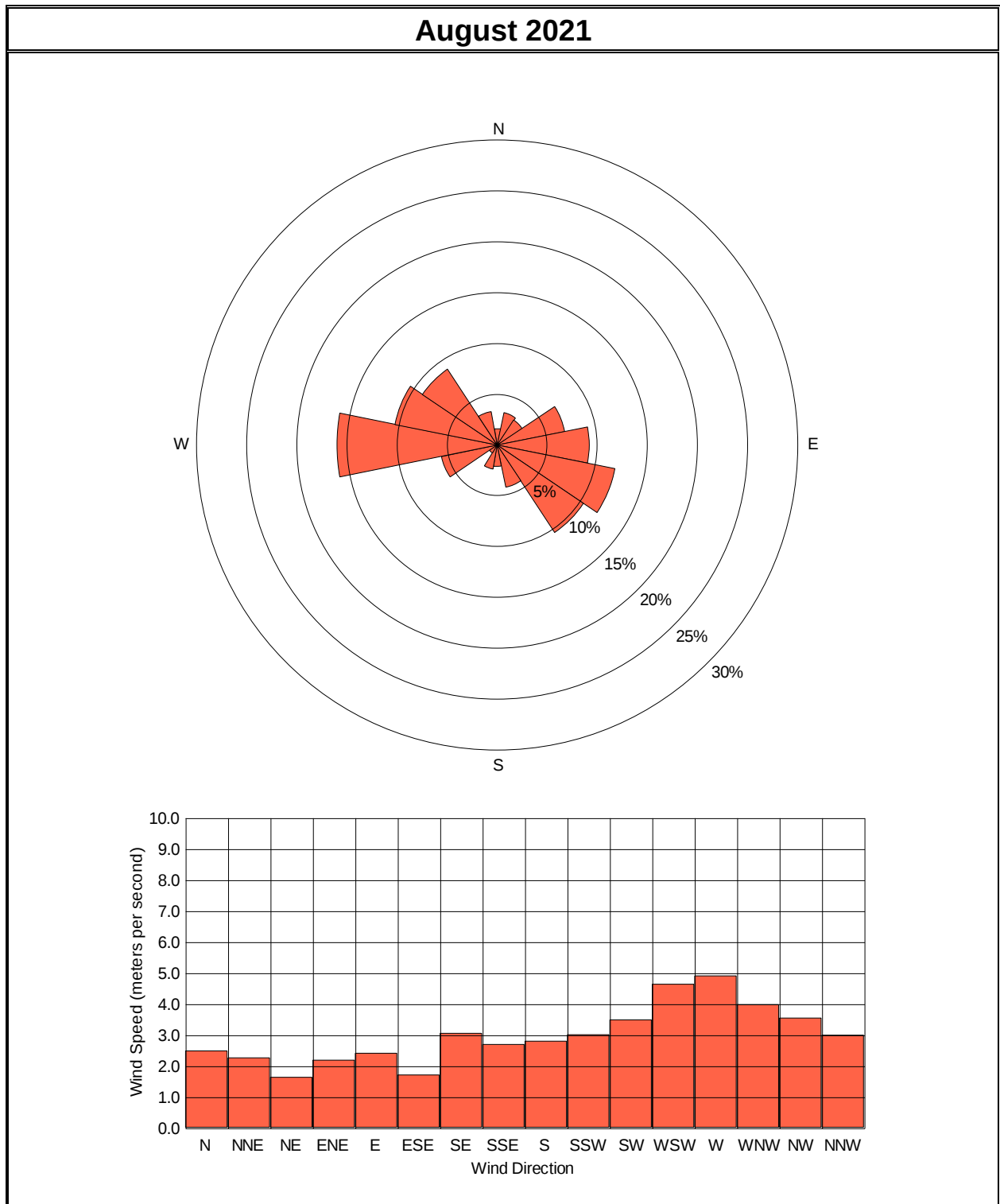


Figure 4. Monthly Wind Rose, Black Butte Copper Project Met Tower

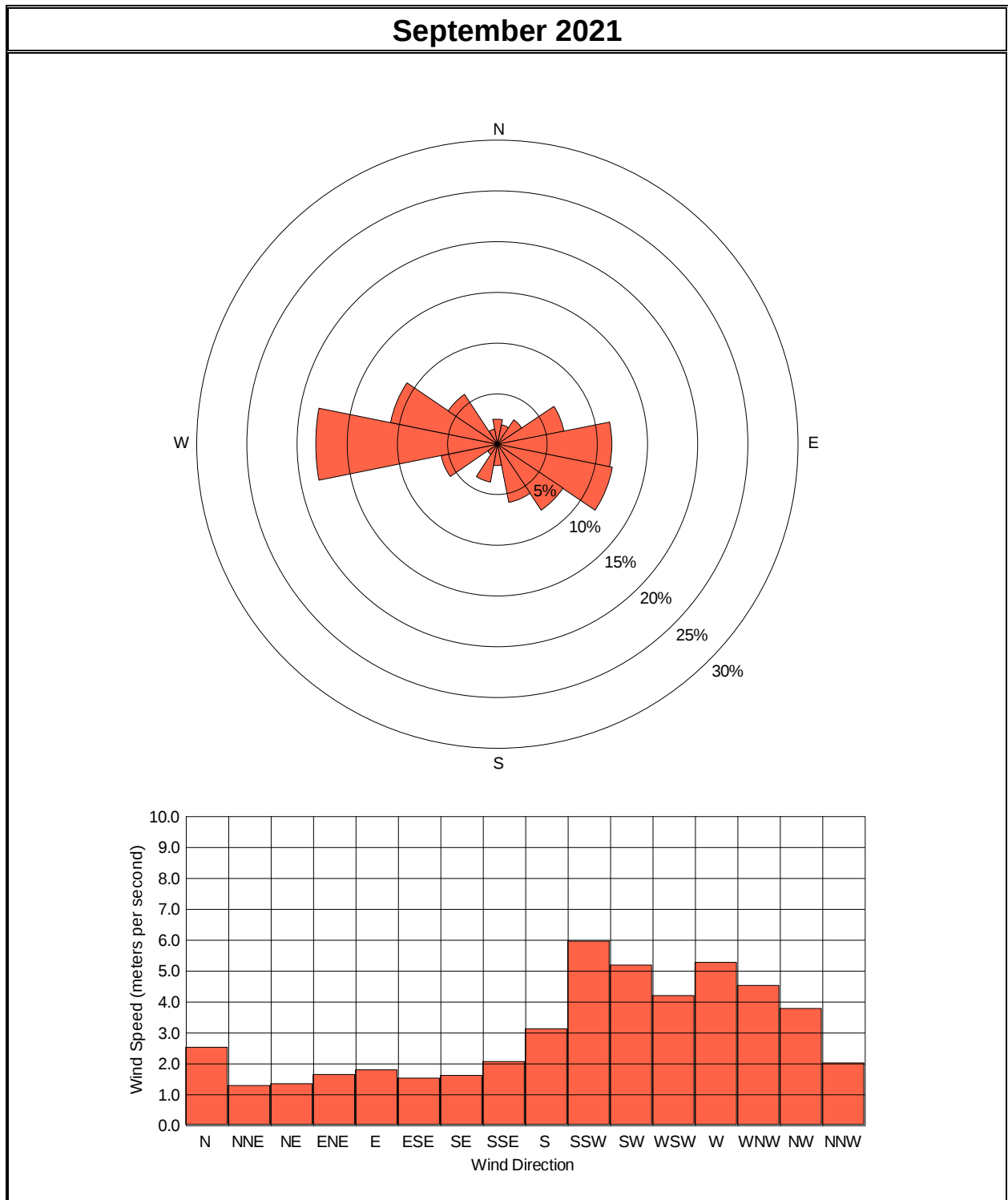
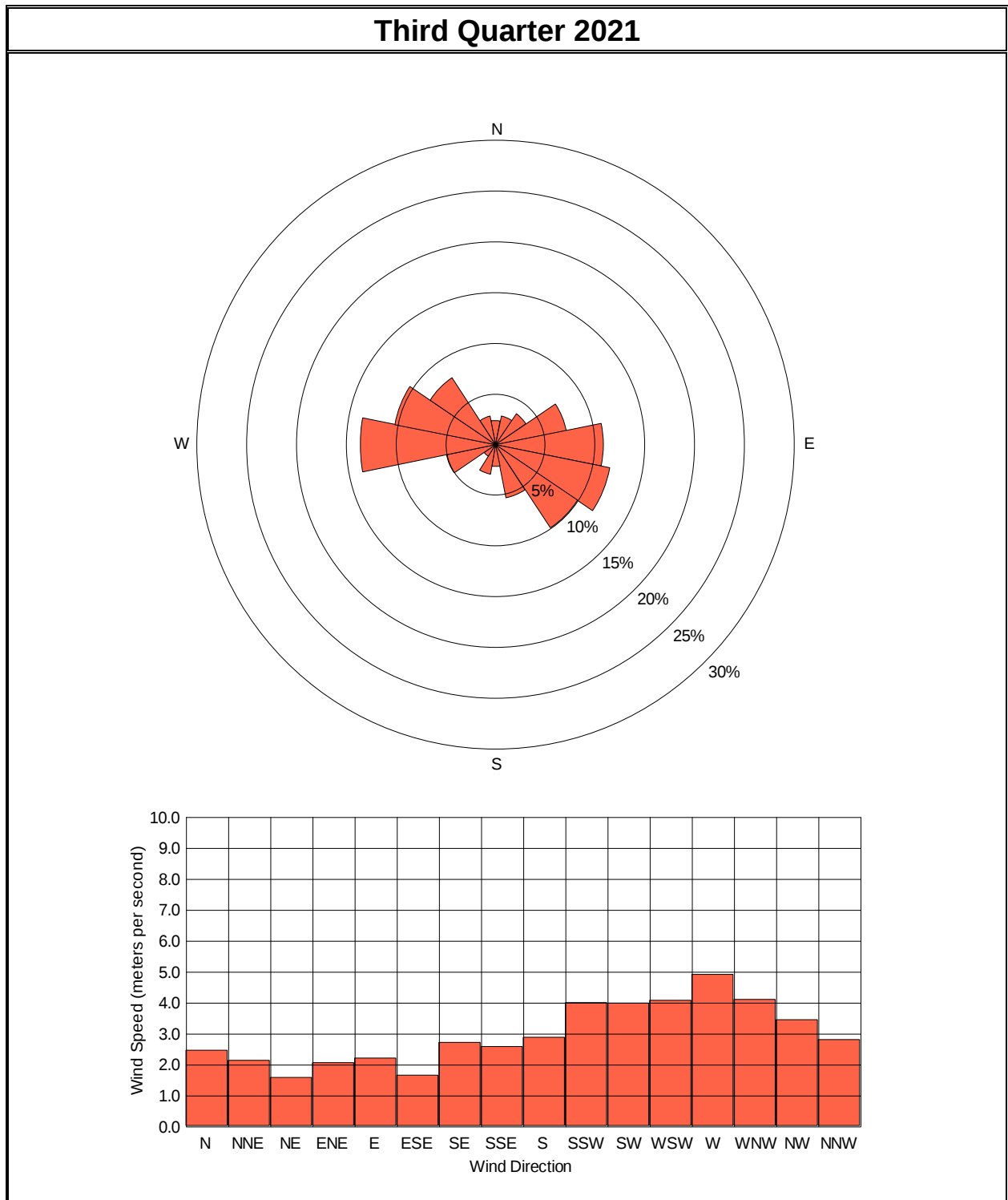


Figure 5. Quarterly Wind Rose, Black Butte Copper Project Met Tower



APPENDIX A: HOURLY METEOROLOGICAL DATA, THIRD QUARTER 2021

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

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	2.7	2.7	1.1	1.3	1.3	1.2	0.9	0.8	2.5	3.3	2.5	2.2	2.2	2.3	2.3	2.0	2.0	4.0	5.2	6.2	5.6	3.8	6.0	6.2	2.9	6.2	0.8
2	3.9	3.1	2.7	2.7	2.3	1.8	0.8	0.8	1.4	2.8	4.8	4.0	4.2	4.6	5.4	4.8	3.2	3.3	2.8	1.4	1.8	2.9	2.3	1.8	2.9	5.4	0.8
3	2.1	0.9	1.1	1.3	1.2	1.1	0.8	0.8	1.9	2.8	4.1	4.3	7.2	7.5	6.4	5.9	5.2	4.5	3.6	2.7	2.5	2.2	3.6	2.3	3.2	7.5	0.8
4	1.6	1.5	1.0	0.9	1.4	0.6	2.0	2.8	1.2	3.6	2.4	2.3	5.0	4.5	3.6	4.2	4.4	4.2	3.6	4.2	2.2	3.0	1.3	1.4	2.6	5.0	0.6
5	1.2	1.3	1.4	3.4	2.3	3.0	1.2	1.9	1.2	1.1	1.4	2.2	2.0	2.7	2.5	3.0	2.7	5.4	6.8	4.6	2.9	1.7	1.7	1.0	2.4	6.8	1.0
6	1.5	1.0	1.2	1.2	0.7	0.7	0.6	1.3	2.4	3.1	3.1	4.8	4.9	5.8	5.7	6.4	4.7	4.9	5.6	3.2	1.8	1.8	1.8	1.0	2.9	6.4	0.6
7	1.4	0.8	0.8	1.3	1.1	1.4	0.6	0.7	1.8	3.7	4.8	4.1	6.7	5.0	3.6	5.8	7.8	3.8	2.7	2.2	2.5	2.3	1.5	1.5	2.8	7.8	0.6
8	1.6	1.8	1.3	0.8	0.8	1.2	0.8	0.6	3.5	7.0	8.1	Au	Au	Au	5.4	7.8	7.1	5.3	4.5	3.0	1.9	2.1	1.6	1.3	3.2	8.1	0.6
9	1.1	1.5	1.0	1.0	1.3	1.4	2.1	2.1	2.3	1.2	2.2	7.4	5.3	4.4	4.4	3.4	4.5	5.9	5.4	3.4	2.2	3.1	2.1	2.4	3.0	7.4	1.0
10	1.4	1.3	1.2	1.4	1.2	1.2	0.6	0.9	1.4	2.9	2.4	4.2	3.5	3.9	4.1	4.2	4.3	3.3	3.2	1.3	2.8	2.7	2.6	1.8	2.4	4.3	0.6
11	2.0	1.0	1.5	1.4	1.2	0.8	0.8	0.7	1.0	2.0	3.2	3.0	4.0	4.5	5.5	6.9	7.7	5.6	6.1	2.7	2.5	1.5	1.4	0.8	2.8	7.7	0.7
12	1.4	1.4	1.1	0.8	1.4	0.7	0.8	4.4	5.9	7.5	8.6	7.4	5.5	4.3	4.0	3.8	6.5	7.6	8.4	7.7	6.0	3.6	3.9	2.8	4.4	8.6	0.7
13	2.3	2.3	2.5	2.5	2.7	5.5	3.5	4.9	4.6	4.7	6.5	5.6	2.4	2.7	3.7	5.7	4.0	3.3	3.8	2.2	2.9	1.9	2.5	1.1	3.5	6.5	1.1
14	0.9	1.0	0.8	0.7	0.8	1.3	0.6	0.8	1.9	2.1	2.6	1.7	2.4	2.8	2.0	2.2	2.5	2.0	2.1	1.7	1.9	2.7	1.0	1.0	1.6	2.8	0.6
15	1.9	2.4	1.7	2.2	2.1	1.7	1.3	0.6	0.8	1.2	2.7	3.4	3.4	4.3	4.0	3.2	3.8	3.2	3.7	5.2	3.4	3.9	1.8	1.9	2.7	5.2	0.6
16	2.4	1.2	1.6	1.5	1.4	1.1	1.2	1.2	1.3	1.6	1.9	2.2	3.7	4.9	4.8	4.2	3.8	3.6	2.4	1.9	1.9	2.8	2.6	2.1	2.4	4.9	1.1
17	1.4	1.0	1.2	1.2	1.8	1.5	0.9	0.6	1.2	1.9	3.3	3.8	2.9	3.3	3.7	3.9	2.9	2.7	3.0	1.1	2.5	2.6	1.3	1.4	2.1	3.9	0.6
18	1.4	0.9	1.1	1.1	0.9	0.9	0.9	0.7	1.0	1.6	2.4	2.3	2.9	2.9	4.2	2.6	3.4	2.0	3.3	3.8	4.0	2.7	3.0	1.2	2.1	4.2	0.7
19	1.2	1.1	1.1	0.8	0.9	1.5	1.0	0.7	0.9	2.7	1.6	1.4	2.9	6.1	6.6	6.9	7.0	4.7	2.8	2.7	1.5	2.4	1.2	1.5	2.6	7.0	0.7
20	1.0	0.8	1.3	0.8	1.1	1.0	2.4	2.2	1.1	1.2	2.6	3.3	4.3	3.6	3.5	3.3	2.1	4.3	4.3	3.2	2.2	1.4	1.3	1.1	2.2	4.3	0.8
21	1.3	1.4	1.7	1.7	1.5	1.3	1.0	0.8	0.9	1.2	2.2	2.6	5.4	5.4	4.7	3.2	2.2	4.2	3.4	2.0	1.6	1.1	1.6	3.2	2.3	5.4	0.8
22	1.6	1.3	1.5	1.6	1.2	1.1	1.3	1.0	1.4	3.3	6.0	7.5	7.5	5.4	7.1	6.4	6.9	5.1	5.0	4.5	1.1	1.4	1.5	1.1	3.4	7.5	1.0
23	1.1	1.5	0.7	1.2	1.6	1.2	0.7	0.8	2.2	5.5	6.2	9.2	10.3	9.8	8.6	8.3	7.6	8.3	6.5	5.0	2.8	1.3	2.3	1.6	4.3	10.3	0.7
24	1.5	1.6	1.0	1.4	0.9	1.1	1.1	0.8	0.9	1.9	2.7	3.0	3.0	3.3	3.2	3.2	2.8	3.5	2.8	1.0	2.4	2.2	1.9	1.1	2.0	3.5	0.8
25	1.2	1.2	0.8	1.3	0.9	0.9	0.8	0.5	0.7	2.3	4.0	4.8	4.5	5.6	5.9	6.6	4.3	4.4	3.7	2.9	2.3	2.6	2.5	2.2	2.8	6.6	0.5
26	1.5	1.6	0.8	1.1	1.0	1.2	0.9	0.9	0.7	3.6	4.3	4.5	3.4	4.6	5.0	3.8	3.7	3.1	2.7	1.6	3.1	2.4	1.8	2.4	2.5	5.0	0.7
27	1.7	2.4	1.0	1.1	1.0	1.7	1.0	0.6	0.7	1.1	2.3	3.0	2.9	3.5	2.9	2.8	2.3	3.6	3.0	1.9	3.1	3.6	1.4	1.3	2.1	3.6	0.6
28	2.9	2.4	1.6	2.0	1.6	1.8	1.6	0.9	4.0	6.9	8.9	8.5	7.8	6.9	7.0	7.0	8.7	8.6	7.0	6.9	6.6	7.1	2.4	1.3	5.0	8.9	0.9
29	1.1	1.5	2.1	1.0	1.8	0.9	1.1	0.8	0.8	2.1	1.7	1.2	1.8	2.2	3.2	3.0	2.5	3.5	4.3	3.5	2.2	2.3	2.6	2.4	2.1	4.3	0.8
30	2.6	1.4	1.2	0.8	1.0	1.0	0.8	0.7	0.8	1.1	2.1	2.5	3.0	3.1	5.5	6.5	6.4	3.6	3.0	3.1	2.0	3.2	3.0	2.3	2.5	6.5	0.7
31	1.3	0.8	1.3	1.2	0.7	1.0	0.6	0.9	3.5	7.4	8.4	7.7	7.4	6.0	5.4	5.3	6.2	5.8	4.8	3.5	3.1	3.0	2.9	1.6	3.7	8.4	0.6
Avg	1.7	1.5	1.3	1.4	1.3	1.4	1.1	1.2	1.8	3.0	3.9	4.1	4.4	4.5	4.6	4.7	4.6	4.4	4.2	3.2	2.8	2.6	2.2	1.8	2.8	6.1	0.7
Max	3.9	3.1	2.7	3.4	2.7	5.5	3.5	4.9	5.9	7.5	8.9	9.2	10.3	9.8	8.6	8.3	8.7	8.6	8.4	7.7	6.6	7.1	6.0	6.2	5.0	10.3	1.1
Min	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.7	1.1	1.4	1.2	1.8	2.2	2.0	2.0	2.0	2.0	2.1	1.0	1.1	1.1	1.0	0.8	1.6	2.8	0.5

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

A-2

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	2.0	3.4	1.5	2.1	1.3	2.5	1.1	1.0	1.3	3.3	6.6	8.5	8.2	6.6	6.8	6.2	6.3	7.6	6.6	5.0	4.8	5.8	1.5	1.3	4.2	8.5	1.0
2	2.9	1.4	1.5	0.9	0.8	0.5	0.7	0.7	1.0	2.1	2.7	2.7	3.3	4.4	8.8	2.9	2.3	4.3	2.6	2.2	1.2	1.2	1.6	0.6	2.2	8.8	0.5
3	0.9	0.6	0.6	0.5	0.5	0.7	0.5	0.2	0.6	2.3	3.0	3.7	6.1	6.0	5.4	4.1	2.3	3.3	3.3	2.7	4.4	4.2	3.7	3.0	2.6	6.1	0.2
4	2.3	2.4	1.7	1.7	1.5	1.2	1.0	0.6	0.8	1.4	2.8	3.3	3.9	5.4	3.6	3.8	4.2	5.6	5.5	5.7	5.2	2.1	2.6	2.3	2.9	5.7	0.6
5	2.0	3.5	1.4	1.2	1.5	1.2	1.7	1.6	1.6	1.6	2.7	3.8	3.3	5.0	3.1	2.0	2.7	6.2	4.0	3.1	2.8	2.4	1.9	2.5	2.6	6.2	1.2
6	3.8	1.5	1.6	2.7	2.8	1.6	1.4	2.0	3.1	3.5	2.9	5.3	6.2	6.0	7.4	5.4	5.3	4.9	3.4	3.4	3.8	2.2	2.7	1.5	3.5	7.4	1.4
7	1.7	1.7	2.4	2.8	2.7	2.1	1.6	1.4	8.3	7.5	5.9	7.3	7.8	6.4	6.0	6.7	6.3	5.2	5.2	4.5	1.7	3.4	3.0	2.1	4.3	8.3	1.4
8	1.5	1.3	1.8	2.0	1.5	2.1	1.9	2.1	3.7	6.6	5.7	4.2	5.3	7.4	7.7	6.3	4.3	1.5	4.8	2.4	6.9	5.1	2.1	1.0	3.7	7.7	1.0
9	1.6	1.5	0.9	0.6	0.7	1.8	2.0	3.6	5.9	6.4	6.1	6.4	6.6	7.1	8.6	7.8	7.9	6.9	6.7	5.1	2.4	1.6	1.6	1.5	4.2	8.6	0.6
10	1.0	0.9	0.8	1.0	1.0	1.7	1.1	4.8	8.3	11.1	9.4	10.1	10.3	10.2	9.3	8.4	8.4	7.6	6.8	5.7	5.2	3.3	2.5	2.2	5.5	11.1	0.8
11	1.9	1.6	1.2	1.2	0.8	0.9	0.7	1.0	5.8	5.9	6.9	7.0	7.3	6.2	7.5	7.6	6.8	5.4	6.1	2.0	0.9	1.5	1.1	0.9	3.7	7.6	0.7
12	0.7	0.9	1.1	1.0	0.9	1.1	1.1	4.1	5.5	5.7	4.1	3.5	3.0	3.4	4.2	3.3	4.6	4.7	2.8	1.9	3.6	3.6	4.3	3.2	3.0	5.7	0.7
13	2.3	1.9	1.4	1.5	1.2	0.9	0.8	0.8	1.0	1.4	2.0	2.5	3.0	3.6	3.2	2.1	2.3	2.5	2.6	1.8	3.1	3.7	1.9	2.5	2.1	3.7	0.8
14	2.3	2.2	1.3	1.3	1.0	1.1	1.0	0.6	0.8	0.8	2.0	4.7	4.8	4.5	5.8	4.9	5.2	5.2	3.4	1.2	3.9	2.4	1.7	1.3	2.6	5.8	0.6
15	1.6	1.0	1.5	1.3	1.2	1.0	1.0	1.1	0.8	1.0	4.0	4.0	5.6	6.0	5.9	7.1	6.5	7.0	6.5	3.8	1.9	3.0	2.3	1.9	3.2	7.1	0.8
16	1.6	1.7	1.4	1.3	1.1	1.5	0.8	0.6	0.7	1.1	3.3	5.2	6.8	6.3	6.7	6.1	5.5	4.7	3.9	3.7	5.2	3.8	3.0	1.7	3.2	6.8	0.6
17	1.8	1.5	1.5	1.7	1.0	0.9	0.9	0.9	2.0	3.7	5.4	3.8	4.5	6.0	7.1	10.6	9.5	4.2	2.4	6.6	7.0	4.3	4.7	6.2	4.1	10.6	0.9
18	3.8	5.4	4.4	4.5	6.3	3.8	2.9	2.7	3.0	3.6	2.3	1.7	2.5	4.3	2.2	1.4	1.9	2.0	0.6	1.6	2.3	1.4	1.2	0.8	2.8	6.3	0.6
19	0.6	0.5	1.6	1.3	0.7	1.2	1.5	0.9	1.4	2.5	2.8	2.1	1.8	1.6	2.8	2.6	2.3	4.1	3.2	1.2	1.0	0.8	0.6	0.7	1.7	4.1	0.5
20	1.4	2.8	2.1	1.5	2.1	2.7	2.7	3.2	2.6	3.0	3.9	3.0	4.3	3.7	3.5	4.0	2.7	2.2	1.9	2.6	3.1	2.6	2.0	1.7	2.7	4.3	1.4
21	1.7	1.5	0.8	1.3	2.0	2.3	2.4	6.3	7.3	6.3	3.8	7.6	8.0	8.0	9.1	8.3	7.4	8.3	8.0	5.3	1.6	4.0	5.4	2.0	4.9	9.1	0.8
22	2.5	2.7	0.9	1.1	2.4	3.5	4.5	5.2	4.1	6.7	8.8	8.8	7.3	6.6	6.5	5.5	5.8	4.7	2.7	2.5	3.9	2.9	1.6	1.6	4.3	8.8	0.9
23	1.8	1.7	1.9	1.7	1.8	1.9	1.3	1.0	1.8	5.3	6.4	7.3	9.0	6.8	5.7	6.3	6.1	7.9	6.1	2.2	3.6	6.2	5.2	2.0	4.2	9.0	1.0
24	1.6	0.8	1.4	1.3	1.3	1.3	0.8	1.1	2.0	3.2	3.2	3.1	3.3	3.2	2.8	2.5	2.6	3.0	2.9	3.7	3.0	2.3	3.8	3.7	2.4	3.8	0.8
25	2.9	3.2	2.6	1.5	2.4	2.4	1.1	1.0	1.9	1.9	2.1	1.9	1.7	1.9	3.6	3.3	2.5	6.2	8.3	4.3	5.2	4.5	2.6	2.3	3.0	8.3	1.0
26	1.7	1.6	1.3	1.3	1.6	1.5	1.5	1.4	1.3	1.2	1.4	2.2	3.8	4.3	6.2	5.7	5.1	1.9	1.6	1.2	2.8	3.0	2.1	1.8	2.4	6.2	1.2
27	1.9	1.4	0.8	0.7	0.9	1.0	0.9	0.5	2.1	5.5	6.9	7.1	7.4	9.3	7.5	5.7	5.7	6.6	5.5	2.7	2.4	2.5	1.6	1.3	3.7	9.3	0.5
28	1.6	1.2	0.9	0.9	0.7	0.8	1.0	0.8	1.8	4.3	3.9	4.6	5.5	5.0	5.0	3.8	4.5	3.8	2.6	1.4	3.7	2.9	2.8	1.7	2.7	5.5	0.7
29	1.7	1.4	1.4	1.3	0.7	1.3	0.9	0.8	0.7	1.2	4.6	4.4	4.8	4.0	3.9	3.2	3.5	3.2	1.9	3.8	3.8	3.4	2.1	1.4	2.5	4.8	0.7
30	1.1	1.4	1.2	1.3	1.4	0.8	1.4	0.8	0.9	1.4	3.3	4.1	4.4	4.9	3.6	5.2	4.9	4.9	6.9	3.0	1.9	2.9	1.4	1.1	2.7	6.9	0.8
31	2.0	1.7	1.2	1.1	1.6	1.8	1.4	0.9	0.8	1.1	3.6	4.9	6.4	5.7	6.0	6.5	5.9	5.2	4.7	1.5	1.8	1.3	0.7	1.0	2.9	6.5	0.7
Avg	1.9	1.8	1.5	1.5	1.5	1.6	1.4	1.7	2.7	3.6	4.3	4.8	5.4	5.5	5.7	5.1	4.9	4.9	4.3	3.2	3.4	3.0	2.4	1.9	3.2	7.1	0.8
Max	3.8	5.4	4.4	4.5	6.3	3.8	4.5	6.3	8.3	11.1	9.4	10.1	10.3	10.2	9.3	10.6	9.5	8.3	8.3	6.6	7.0	6.2	5.4	6.2	5.5	11.1	1.4
Min	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.2	0.6	0.8	1.4	1.7	1.7	1.6	2.2	1.4	1.9	1.5	0.6	1.2	0.9	0.8	0.6	0.6	1.7	3.7	0.2

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

A-3

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.8	0.8	0.7	0.9	0.9	0.9	1.1	0.8	1.4	4.7	4.6	5.6	5.4	4.8	3.8	5.1	4.0	3.1	1.4	3.0	1.7	0.9	1.8	1.1	2.5	5.6	0.7
2	1.2	0.8	1.0	1.2	1.0	1.2	0.9	0.7	1.2	4.0	5.0	3.8	3.3	3.3	3.3	3.2	4.3	3.6	3.9	3.1	3.3	3.4	3.5	1.2	2.6	5.0	0.7
3	2.7	0.8	1.1	1.0	1.4	1.5	1.3	1.0	1.2	1.3	3.7	4.2	4.3	4.0	6.3	5.8	5.6	4.1	1.3	2.1	2.3	1.7	1.3	1.7	2.6	6.3	0.8
4	1.5	1.5	0.9	1.1	1.1	0.7	1.0	0.6	0.7	1.0	3.5	6.2	6.0	6.6	7.0	6.4	6.1	4.1	2.5	2.0	2.2	2.0	1.9	1.3	2.8	7.0	0.6
5	1.2	1.3	1.2	1.0	0.9	1.4	1.5	0.6	0.8	2.2	6.5	7.5	6.5	7.7	8.5	6.9	4.9	3.3	2.3	1.6	2.9	2.3	1.9	1.6	3.2	8.5	0.6
6	1.2	1.6	1.0	1.0	1.0	0.9	1.3	0.8	1.0	4.2	5.6	9.9	9.5	8.9	8.2	8.4	9.1	7.9	5.6	2.3	1.7	2.4	1.6	1.2	4.0	9.9	0.8
7	1.0	1.0	1.0	1.0	0.7	0.9	0.6	0.6	0.7	2.3	4.8	4.6	4.4	5.0	4.9	5.2	4.2	3.5	1.9	2.3	1.6	1.1	1.6	2.4	2.4	5.2	0.6
8	1.0	1.6	1.9	1.6	2.6	1.9	1.2	0.8	0.6	1.5	3.8	4.6	4.1	5.4	5.5	4.8	4.8	5.6	4.0	1.9	2.3	1.9	1.8	1.8	2.8	5.6	0.6
9	1.1	1.1	1.0	0.9	1.4	1.2	1.0	0.9	0.7	0.9	2.7	5.0	5.3	5.8	6.3	4.8	3.5	1.3	1.4	2.1	2.1	2.3	2.0	1.6	2.3	6.3	0.7
10	1.2	1.5	1.2	2.1	1.4	1.5	0.8	1.1	1.1	0.7	1.5	3.0	2.4	2.9	3.6	4.5	5.1	2.7	3.7	2.5	6.4	4.1	1.1	3.1	2.5	6.4	0.7
11	4.6	2.0	1.5	1.0	0.7	0.7	4.0	3.1	6.2	6.7	8.7	9.1	8.3	8.4	5.9	7.3	6.1	6.5	4.9	1.4	1.7	1.8	1.7	1.3	4.3	9.1	0.7
12	1.1	0.9	1.2	1.6	1.1	1.4	1.1	0.7	0.8	1.9	4.0	3.7	5.1	5.6	4.3	4.5	4.0	3.8	1.8	2.7	6.1	4.0	2.4	1.1	2.7	6.1	0.7
13	1.3	0.8	0.7	1.3	0.9	0.8	0.7	0.8	0.8	4.3	4.5	4.5	4.1	5.1	4.8	3.7	3.0	2.9	1.4	2.3	2.5	2.0	1.9	1.2	2.3	5.1	0.7
14	1.1	0.8	0.8	1.0	0.8	0.9	1.2	0.6	0.8	5.2	5.0	4.7	5.2	5.5	6.3	5.9	6.0	4.9	3.1	1.6	1.4	1.5	1.4	1.5	2.8	6.3	0.6
15	1.7	1.2	1.1	1.1	1.4	1.2	1.4	1.5	6.5	9.3	8.0	9.0	9.9	9.4	8.7	8.7	8.9	7.1	6.7	5.5	5.3	5.4	3.4	1.4	5.2	9.9	1.1
16	1.1	2.0	1.7	1.5	2.8	2.9	1.1	1.8	4.7	8.1	9.0	9.7	8.6	7.3	5.9	3.5	4.7	4.2	1.8	1.9	2.4	2.7	1.8	1.1	3.8	9.7	1.1
17	1.0	1.5	1.1	0.9	1.0	1.5	1.6	1.7	3.6	4.9	5.1	5.0	5.5	7.0	7.7	6.8	7.3	4.7	2.0	2.1	1.6	1.3	1.3	1.0	3.2	7.7	0.9
18	1.0	1.5	2.4	1.3	1.4	1.8	1.4	1.7	8.1	8.4	10.2	11.9	12.6	12.8	11.4	11.3	8.9	8.1	10.0	7.4	4.6	4.0	6.0	7.4	6.5	12.8	1.0
19	5.9	4.5	2.7	6.8	6.0	6.8	5.6	4.5	5.0	3.7	2.3	2.0	3.8	2.7	4.9	7.5	7.9	5.4	4.9	3.8	3.5	2.5	1.7	2.5	4.5	7.9	1.7
20	1.2	1.5	1.5	1.6	3.6	4.2	3.9	3.7	3.8	4.7	5.7	4.2	6.4	4.8	5.1	4.6	3.6	5.4	1.4	1.5	2.5	3.4	2.0	1.6	3.4	6.4	1.2
21	0.8	1.0	0.9	1.0	1.1	0.7	1.0	0.7	0.8	4.0	5.4	6.8	6.3	5.9	5.6	6.0	5.7	3.9	1.5	1.3	2.2	1.9	1.2	1.3	2.8	6.8	0.7
22	1.3	1.9	1.7	1.8	1.6	1.3	1.8	0.9	0.9	2.4	5.2	8.0	8.1	6.3	6.4	5.7	4.9	2.1	2.2	2.0	2.3	1.3	1.0	1.1	3.0	8.1	0.9
23	3.0	3.4	4.7	1.9	2.0	2.3	2.3	1.4	1.0	2.1	3.4	2.8	3.4	4.1	4.8	5.6	6.0	5.5	2.7	1.2	2.3	2.5	1.5	1.4	3.0	6.0	1.0
24	1.0	1.1	0.7	0.9	0.9	1.0	0.7	0.9	0.8	2.7	4.5	4.8	3.9	4.4	4.4	3.6	3.2	2.8	1.7	2.6	2.3	2.5	2.2	1.4	2.3	4.8	0.7
25	1.4	1.2	1.6	1.2	1.6	1.4	1.4	1.3	0.9	1.6	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	1.4	1.6	0.9
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
28	DI	DI	DI	DI	DI	DI	DI	DI	DI	3.0	2.2	1.5	4.6	6.7	7.7	9.2	7.1	6.1	4.5	2.2	5.5	4.2	3.1	5.7	4.7	9.2	1.5
29	3.3	1.5	2.2	1.5	1.8	1.3	0.8	0.9	1.2	3.6	5.1	4.9	5.4	4.9	4.9	5.2	4.2	3.4	1.9	2.9	2.4	1.8	1.5	1.1	2.8	5.4	0.8
30	1.5	1.5	1.1	1.2	1.3	1.1	1.1	1.1	0.8	2.0	4.4	4.1	4.0	4.1	5.1	4.9	3.6	2.7	2.0	2.6	3.0	2.2	1.1	1.2	2.4	5.1	0.8
Avg	1.7	1.5	1.4	1.5	1.6	1.6	1.5	1.3	2.1	3.6	5.0	5.6	5.8	5.9	6.0	5.9	5.4	4.4	3.1	2.5	2.9	2.5	2.0	1.9	3.2	6.9	0.8
Max	5.9	4.5	4.7	6.8	6.0	6.8	5.6	4.5	8.1	9.3	10.2	11.9	12.6	12.8	11.4	11.3	9.1	8.1	10.0	7.4	6.4	5.4	6.0	7.4	6.5	12.8	1.7
Min	0.8	0.8	0.7	0.9	0.7	0.7	0.6	0.6	0.6	0.7	1.5	2.0	2.4	2.7	3.3	3.2	3.0	1.3	1.3	1.2	1.4	0.9	1.0	1.0	1.4	1.6	0.6

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

A-4

Day	<< Hour >>																								Prev
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	108	110	70	60	73	125	22	350	126	144	165	325	339	360	317	295	257	249	356	63	80	12	79	74	50
2	76	84	41	97	64	96	131	114	31	295	291	296	296	291	320	312	325	296	286	321	107	85	76	47	17
3	119	81	31	93	84	133	152	122	349	264	264	267	272	270	307	319	336	324	316	359	94	100	73	120	28
4	95	159	189	117	101	59	108	92	98	312	88	86	218	269	262	231	237	344	179	166	131	144	104	109	134
5	43	304	111	311	242	283	272	244	202	291	282	318	328	284	201	192	197	171	140	148	137	152	141	125	220
6	143	240	154	171	112	141	258	146	145	161	285	269	277	282	289	269	293	300	324	329	69	73	131	152	216
7	109	70	341	113	36	107	96	8	131	152	161	232	327	48	80	12	1	47	115	109	108	91	61	78	78
8	95	88	131	140	43	130	230	109	274	275	268	Au	Au	Au	273	285	292	305	322	34	69	172	122	87	112
9	126	107	74	119	154	303	38	230	136	101	317	318	346	313	302	317	316	317	328	340	88	75	60	101	22
10	111	60	78	105	100	126	195	322	136	167	227	265	295	285	256	266	280	275	276	191	88	75	97	65	166
11	120	48	128	91	116	91	147	313	309	332	302	331	284	293	303	303	309	310	16	45	353	182	151	340	346
12	135	350	202	299	116	151	106	145	159	148	147	142	142	143	148	159	142	145	141	126	114	97	107	93	136
13	287	26	106	120	130	161	114	326	345	312	316	75	91	152	155	152	150	172	233	245	161	126	87	119	132
14	151	148	130	146	3	110	125	278	151	155	150	65	317	301	307	259	267	208	204	193	113	99	72	82	149
15	112	103	77	88	123	101	131	201	316	80	268	298	266	274	312	253	262	295	268	264	51	76	57	155	194
16	97	360	91	192	52	54	117	278	69	7	286	239	309	244	263	285	295	339	1	86	145	60	309	143	359
17	107	75	117	105	126	97	125	22	8	42	289	293	271	288	299	292	300	340	358	127	58	75	301	83	31
18	106	154	241	134	115	35	23	238	305	318	330	352	15	354	233	200	180	174	226	71	74	73	77	70	76
19	260	270	194	187	9	101	12	98	338	335	325	300	324	295	353	20	15	311	50	252	73	98	215	51	345
20	319	51	102	68	139	123	96	117	93	91	249	279	290	259	307	304	248	330	331	293	13	120	112	205	23
21	91	102	28	60	24	96	113	254	121	55	3	326	202	236	282	306	30	197	271	293	28	16	80	116	41
22	37	33	36	108	108	63	163	201	104	144	203	205	225	254	255	214	181	167	173	193	37	96	60	65	141
23	42	133	123	140	99	126	23	305	342	274	287	261	272	277	273	284	291	292	293	305	305	141	112	54	299
24	36	112	49	132	75	131	134	315	92	29	297	300	288	263	274	298	286	258	273	327	102	58	70	46	8
25	46	49	47	97	121	88	146	214	55	310	290	287	267	256	255	246	275	282	298	305	73	74	78	79	352
26	90	114	92	102	87	119	165	115	70	268	289	298	300	297	308	293	291	307	302	172	102	98	62	91	68
27	84	110	1	48	335	119	71	122	315	312	319	298	320	263	242	260	278	227	244	85	133	191	269	5	307
28	65	47	177	40	131	313	153	265	131	137	132	128	138	143	148	145	145	142	142	138	135	126	116	100	130
29	148	127	125	156	106	41	117	342	47	307	304	142	321	335	175	255	92	15	117	100	123	113	83	69	94
30	65	113	126	23	114	82	144	126	109	317	130	47	354	25	82	95	83	93	79	107	102	94	92	105	88
31	126	243	144	157	120	148	197	141	147	140	147	137	88	69	66	101	90	91	94	92	83	86	91	284	119
Prev	95	87	101	110	94	105	124	203	83	320	274	294	297	285	277	272	281	285	292	99	90	98	89	88	91

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

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	28	97	207	137	104	92	37	29	339	166	153	140	145	134	136	139	131	136	127	114	111	123	297	259	122
2	182	113	105	118	110	135	113	145	11	337	296	318	296	282	251	61	73	87	82	206	173	84	110	204	116
3	138	168	262	143	240	148	161	162	352	264	292	319	314	320	314	323	339	281	305	28	81	72	69	83	317
4	101	86	106	109	99	99	149	270	267	327	293	259	270	238	240	255	18	67	77	76	86	69	77	48	80
5	117	99	134	140	123	150	104	70	58	72	292	272	284	311	316	335	162	205	256	302	172	72	125	101	120
6	123	115	138	92	91	30	79	104	263	287	293	265	262	259	266	315	337	326	330	224	260	145	136	122	253
7	113	102	105	76	97	103	51	120	262	268	258	266	261	275	252	265	265	263	274	281	223	81	88	112	220
8	104	131	120	124	129	112	123	111	139	206	265	296	272	302	320	321	339	13	122	271	292	21	153	132	128
9	65	95	126	210	121	246	262	270	255	258	254	253	261	268	267	283	279	279	278	275	250	107	108	119	247
10	111	126	29	125	139	131	83	258	261	262	265	265	263	265	264	284	276	275	278	279	276	272	83	74	257
11	108	93	65	87	71	105	136	32	269	289	273	283	291	293	301	304	302	324	14	317	15	91	131	175	357
12	197	103	262	122	164	138	83	158	145	148	150	140	146	283	290	261	320	343	24	74	75	72	79	96	123
13	100	87	80	80	79	42	323	317	73	316	312	282	268	285	282	320	255	219	180	139	78	93	48	70	26
14	73	70	42	101	73	108	117	212	319	359	319	265	263	287	249	287	282	263	263	206	88	58	35	39	349
15	84	109	52	77	27	43	73	161	331	18	249	266	262	266	262	259	254	264	270	266	143	98	105	57	340
16	49	55	118	111	109	123	118	176	192	66	286	266	276	264	257	240	261	249	279	227	155	85	106	91	171
17	108	129	90	143	97	125	273	267	324	307	293	285	267	269	273	324	354	3	282	302	317	332	349	345	313
18	323	306	329	334	338	330	323	294	71	298	265	309	266	268	285	307	278	283	250	311	318	308	109	217	301
19	197	129	63	104	16	198	144	293	338	273	261	333	305	314	323	275	297	314	307	267	179	294	249	305	289
20	298	299	302	320	317	310	315	308	327	301	290	303	284	295	282	291	346	316	291	93	98	82	93	90	316
21	119	104	156	125	130	128	158	148	145	144	154	137	136	127	133	131	126	126	129	116	100	303	288	106	132
22	55	274	310	241	291	262	253	259	249	257	257	258	262	264	258	243	269	258	265	107	87	95	123	119	255
23	139	116	121	103	95	128	136	138	127	174	200	200	232	254	289	324	320	324	323	340	346	23	12	279	146
24	332	13	343	7	32	318	75	75	322	267	263	283	296	249	308	308	315	307	134	81	98	134	160	152	335
25	130	134	138	162	166	136	98	29	151	175	180	307	352	67	233	300	300	169	147	12	36	87	77	127	124
26	132	103	61	129	121	132	127	356	116	148	263	246	258	272	298	246	326	285	300	80	69	76	39	60	92
27	99	63	156	145	70	119	62	122	158	261	260	275	280	299	283	273	278	291	293	270	354	102	59	82	292
28	95	104	41	117	87	69	123	299	299	294	292	288	278	286	269	265	260	265	251	136	95	80	80	52	339
29	123	114	120	104	46	122	112	279	325	342	253	278	247	276	257	262	265	259	267	92	81	75	105	56	160
30	21	78	48	118	114	111	132	156	183	24	145	170	172	201	211	196	209	190	153	83	128	107	118	51	134
31	60	51	82	122	121	116	142	167	286	10	191	259	267	287	292	314	309	322	323	359	77	21	109	106	29
Prev	101	99	91	116	95	115	110	183	291	287	260	270	267	275	273	285	295	284	278	327	91	75	91	93	223

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

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	52	113	115	78	83	80	81	143	341	303	265	267	276	263	261	264	281	297	326	75	37	290	110	139	356
2	260	208	310	114	127	121	134	98	305	133	150	142	181	254	311	309	318	2	96	81	74	73	79	90	109
3	101	268	162	159	93	105	56	13	16	331	256	263	269	307	246	260	255	289	322	115	75	80	82	70	2
4	60	66	94	137	89	169	127	105	172	157	282	260	281	274	266	263	258	266	254	117	78	86	85	87	145
5	44	116	90	135	50	105	105	206	52	325	261	264	268	272	280	280	265	263	244	123	87	84	97	124	131
6	136	113	116	121	124	34	152	292	6	288	287	270	276	281	295	300	297	294	291	268	117	66	97	94	304
7	76	77	72	73	107	113	116	330	117	345	293	289	316	315	311	323	317	35	51	65	123	124	81	98	49
8	81	118	115	72	105	112	128	158	202	150	161	177	160	171	196	186	156	150	154	121	91	95	97	104	136
9	129	62	76	43	109	76	111	122	280	213	303	280	275	282	304	322	333	293	137	117	25	65	113	113	59
10	90	106	86	103	101	127	45	89	162	198	353	341	277	256	191	149	127	92	94	98	144	74	213	142	117
11	110	141	82	160	138	150	266	305	287	269	279	264	268	269	293	281	275	289	294	190	96	95	85	125	238
12	114	27	68	99	19	73	109	162	128	27	274	271	283	263	274	299	287	318	308	83	351	1	13	292	351
13	342	290	5	73	79	96	126	64	241	297	294	301	286	299	272	283	316	314	262	123	88	91	96	82	344
14	66	101	130	113	117	113	132	309	39	250	266	274	266	261	261	252	263	262	223	139	118	107	118	57	171
15	136	115	60	156	112	154	119	40	278	266	261	260	259	261	276	280	288	284	286	305	315	296	269	235	264
16	233	264	228	201	286	267	305	237	289	286	284	317	322	325	316	311	294	285	283	111	81	65	97	90	288
17	119	129	144	169	151	146	139	147	146	152	148	148	195	199	211	208	220	237	241	107	98	100	174	136	159
18	3	137	121	342	299	100	14	75	195	184	197	206	212	215	206	198	206	213	229	317	7	288	302	249	225
19	202	229	255	211	189	196	212	212	282	308	243	294	245	263	270	268	255	256	272	270	260	258	360	300	253
20	121	132	58	188	274	272	273	276	290	269	279	297	277	1	356	335	252	265	358	118	92	93	105	119	294
21	150	120	151	148	139	127	140	16	74	290	261	267	259	261	255	268	277	284	180	125	104	86	159	131	174
22	156	136	126	134	126	155	121	148	324	303	242	242	251	269	270	275	255	263	81	48	66	56	13	346	190
23	267	312	274	54	82	81	82	44	356	287	282	287	251	280	264	279	295	283	299	139	87	99	112	89	320
24	49	74	23	77	83	123	156	135	360	289	260	255	259	249	261	264	254	258	154	106	73	65	75	104	108
25	111	103	153	151	139	152	152	130	30	238	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	137
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	
28	DI	DI	DI	DI	DI	DI	DI	DI	313	261	349	305	298	294	290	275	283	297	297	316	265	265	261	281	290
29	314	27	104	104	102	110	77	81	52	277	251	275	267	263	269	260	255	264	166	119	103	80	107	91	114
30	119	103	71	77	70	90	76	121	285	358	279	283	277	252	281	261	262	253	139	97	79	80	57	84	75
Prev	101	110	100	118	106	119	116	110	324	274	267	269	264	269	271	273	271	279	256	108	80	76	93	103	191

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

A-7

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

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

A-8

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	55	30	62	27	29	35	48	72	33	51	14	11	14	18	15	16	16	10	10	10	11	12	66	51	30	72	10
2	70	99	35	55	96	54	81	61	72	22	35	44	33	22	20	58	29	31	73	62	83	58	64	73	55	99	20
3	52	23	55	56	63	32	35	91	50	28	28	23	16	19	17	34	68	54	15	83	12	10	10	20	37	91	10
4	19	18	20	26	34	62	20	80	74	62	64	42	41	29	47	26	62	15	10	9	14	71	38	51	39	80	9
5	69	26	72	41	40	47	24	50	23	80	63	36	41	23	44	91	39	25	49	58	77	25	25	20	45	91	20
6	24	55	45	33	18	78	57	27	62	28	38	20	19	27	22	37	9	18	11	71	87	29	48	55	38	87	9
7	40	28	29	44	39	39	71	76	15	14	18	17	23	22	26	18	17	17	16	11	84	25	15	23	30	84	11
8	35	19	20	36	24	31	25	26	34	21	20	19	16	17	18	16	25	90	38	72	16	83	27	56	33	90	16
9	46	38	36	81	51	76	29	14	12	12	14	14	13	16	14	12	13	11	11	10	48	43	32	45	29	81	10
10	37	58	102	47	78	31	57	26	12	11	14	12	12	14	16	15	16	13	11	12	10	35	23	42	29	102	10
11	23	50	47	43	51	55	51	87	19	20	18	20	19	24	22	16	22	13	26	69	69	48	60	91	40	91	13
12	81	94	85	74	82	49	70	8	12	11	19	31	67	78	30	33	23	37	17	71	11	11	6	17	42	94	6
13	21	36	34	34	46	34	92	35	69	66	49	81	70	43	32	61	59	58	10	51	22	36	56	19	46	92	10
14	25	19	35	40	48	32	42	70	37	71	58	25	29	26	26	26	30	11	18	64	19	44	44	40	37	71	11
15	35	27	69	50	88	58	41	85	40	43	33	25	25	22	21	17	15	15	10	13	43	24	20	21	35	88	10
16	42	46	40	40	47	22	82	89	93	60	51	21	16	19	21	19	20	19	17	53	42	20	33	50	40	93	16
17	20	38	47	69	68	51	84	77	77	14	22	19	22	18	18	19	30	72	87	22	17	27	21	18	40	87	14
18	23	20	11	11	11	15	76	21	87	22	32	65	27	21	51	61	34	21	52	20	15	59	78	59	37	87	11
19	44	67	43	67	78	87	22	79	35	26	18	19	25	19	9	13	17	9	8	85	29	93	66	48	42	93	8
20	28	15	12	14	19	10	13	15	29	20	10	16	26	21	24	34	29	41	28	79	28	38	50	49	27	79	10
21	23	54	73	53	35	50	39	12	12	14	83	14	12	13	10	11	9	8	8	22	57	16	34	53	30	83	8
22	46	41	76	82	28	14	14	13	18	17	14	16	18	20	20	22	16	17	17	74	14	20	24	21	28	82	13
23	15	33	36	52	36	16	18	36	24	21	18	27	18	35	17	15	13	10	10	22	27	9	36	47	25	52	9
24	57	75	30	50	53	44	83	73	28	36	36	28	35	37	50	41	33	36	91	9	37	23	10	11	42	91	9
25	13	19	15	17	16	17	55	64	31	35	52	61	71	75	43	29	28	35	21	72	59	40	36	27	39	75	13
26	35	38	38	19	35	35	33	53	61	60	58	51	20	20	41	53	32	33	23	66	11	21	28	52	38	66	11
27	21	43	46	78	65	62	93	87	66	14	17	22	18	12	17	21	22	13	10	56	95	28	47	70	43	95	10
28	32	39	44	54	86	100	100	93	51	14	18	37	22	25	18	28	29	22	14	35	11	11	14	30	39	100	11
29	27	17	20	24	59	28	48	74	55	75	18	23	24	35	31	37	31	22	38	14	12	12	20	46	33	75	12
30	35	36	47	26	29	41	21	59	92	89	27	21	28	31	40	28	18	18	21	56	58	28	97	54	42	97	18
31	44	45	44	56	62	52	48	65	46	85	57	28	16	21	18	14	11	10	10	75	38	67	87	78	45	87	10
Avg	37	40	44	45	49	44	51	55	44	37	33	29	27	27	26	30	26	26	25	46	37	34	39	43	37	86	12
Max	81	99	102	82	96	100	100	93	93	89	83	81	71	78	51	91	68	90	91	85	95	93	97	91	55	102	20
Min	13	15	11	11	11	10	13	8	12	11	10	11	12	12	9	11	9	8	8	9	10	9	6	11	25	52	6

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

A-9

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	63	55	78	62	54	56	46	39	62	15	30	26	34	30	37	21	27	16	27	28	38	100	65	78	45	100	15
2	74	97	93	54	54	35	56	72	47	30	21	31	56	29	59	27	38	53	9	12	9	10	13	57	43	97	9
3	36	83	90	56	64	72	46	87	75	90	35	28	29	51	18	26	16	35	70	21	17	27	41	40	48	90	16
4	59	33	59	65	90	80	33	88	56	80	66	15	24	24	19	18	13	15	22	40	27	22	30	42	43	90	13
5	51	34	56	30	47	48	48	93	92	65	15	21	21	21	16	15	14	14	11	40	22	28	31	30	36	93	11
6	44	72	35	59	48	82	54	93	47	25	16	14	21	17	13	11	10	10	9	49	46	36	42	49	38	93	9
7	54	49	76	72	53	35	57	69	89	41	17	20	26	23	21	15	17	38	38	19	43	72	27	29	42	89	15
8	84	30	23	61	15	24	17	44	96	42	17	22	19	22	24	35	13	12	16	47	54	46	39	29	35	96	12
9	42	46	48	83	71	67	64	70	99	94	52	17	18	18	19	15	9	32	46	32	47	48	28	37	46	99	9
10	43	42	80	69	70	58	88	63	59	65	69	25	49	38	27	21	20	52	15	51	27	30	71	18	48	88	15
11	26	24	79	59	54	82	96	21	15	14	14	12	18	17	13	11	13	8	9	60	55	49	70	44	36	96	8
12	35	50	59	57	43	83	53	64	72	81	28	33	31	25	29	20	15	11	65	71	19	23	69	82	47	83	11
13	53	44	75	43	45	75	42	79	99	30	24	15	35	35	26	35	28	20	74	28	14	22	31	60	43	99	14
14	60	54	24	41	37	30	37	90	96	19	17	20	26	22	23	20	15	13	30	24	19	32	34	75	36	96	13
15	32	75	68	38	64	77	85	72	32	17	17	18	14	18	14	13	9	10	10	16	19	13	18	45	33	85	9
16	48	26	72	80	25	41	79	45	50	13	16	14	10	15	26	27	23	16	39	35	28	77	39	70	38	80	10
17	55	31	25	50	42	31	20	23	15	13	13	18	30	19	13	17	15	25	34	27	55	58	75	86	33	86	13
18	94	83	48	101	67	53	62	44	23	16	13	14	15	13	15	11	11	11	14	40	16	15	12	26	34	101	11
19	19	24	13	18	12	9	11	14	22	12	58	83	13	42	24	15	11	10	11	15	12	35	34	31	23	83	9
20	82	73	57	74	11	11	9	14	16	19	21	21	26	67	58	34	17	12	68	51	43	27	33	32	37	82	9
21	49	64	67	45	24	26	26	88	76	47	17	17	18	20	17	20	17	16	53	76	21	53	75	47	41	88	16
22	56	27	31	27	31	22	23	55	64	66	18	16	13	22	24	20	18	19	59	29	55	86	80	103	40	103	13
23	16	37	12	66	55	47	49	73	62	52	27	26	26	32	30	28	18	11	33	68	23	34	37	41	38	73	11
24	72	59	55	63	50	39	93	92	53	46	23	19	25	33	33	27	21	17	63	21	25	27	31	27	42	93	17
25	25	46	45	21	17	33	21	57	82	86	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	43	86	17
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
28	DI	DI	DI	DI	DI	DI	DI	DI	28	39	57	26	20	11	16	14	12	12	13	48	9	10	17	15	22	57	9
29	83	73	37	72	38	75	70	76	54	40	19	25	23	25	26	27	19	14	56	15	13	28	40	41	41	83	13
30	22	30	60	59	60	43	58	46	80	72	20	33	28	18	21	17	21	8	37	20	14	29	49	40	37	80	8
Avg	51	50	54	56	46	49	50	62	59	44	27	23	25	26	24	21	17	19	34	36	29	38	42	47	39	89	12
Max	94	97	93	101	90	83	96	93	99	94	69	83	56	67	59	35	38	53	74	76	55	100	80	103	48	103	17
Min	16	24	12	18	11	9	9	14	15	12	13	12	10	11	13	11	9	8	9	12	9	10	12	15	22	57	8

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

A-10

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	13.1	11.7	9.9	10.0	8.3	8.1	11.7	18.0	24.3	25.9	26.7	27.7	28.5	29.1	29.8	30.4	30.3	29.1	25.7	23.6	20.5	18.5	15.1	13.6	20.4	30.4	8.1
2	12.2	10.9	10.9	9.0	8.5	8.0	10.1	13.5	19.9	23.5	24.9	25.9	26.9	27.1	27.7	28.2	28.5	27.9	28.0	25.7	21.7	18.1	15.6	15.2	19.5	28.5	8.0
3	13.0	12.3	11.8	10.8	9.8	9.7	12.6	18.1	23.1	25.0	25.8	26.7	28.3	28.9	29.3	29.2	29.1	28.7	27.9	26.4	22.8	21.3	18.7	14.9	21.0	29.3	9.7
4	13.5	12.5	11.5	11.1	10.9	10.8	14.3	19.1	21.3	20.8	20.6	24.5	27.1	27.6	27.8	27.0	27.4	26.5	25.1	23.7	21.5	19.8	18.1	15.1	19.9	27.8	10.8
5	13.5	13.0	12.2	12.5	11.6	11.7	12.3	13.1	14.7	16.3	17.6	18.2	19.3	20.2	21.2	21.6	22.0	21.8	20.7	19.2	17.7	16.5	15.3	14.1	16.5	22.0	11.6
6	12.8	11.9	11.0	10.0	9.4	7.8	10.5	16.5	19.7	21.7	23.3	24.5	25.5	26.9	27.4	27.5	27.4	27.4	26.7	25.4	21.1	16.2	12.1	10.3	18.9	27.5	7.8
7	8.9	8.8	8.0	8.0	7.1	7.5	9.8	15.0	20.9	24.7	26.4	27.2	24.7	24.5	26.6	24.9	16.4	16.0	16.4	16.6	14.8	13.7	11.3	10.0	16.2	27.2	7.1
8	8.7	7.9	6.2	4.9	4.4	4.4	6.5	10.7	16.9	19.3	20.7	Au	Au	Au	24.2	24.8	24.9	24.4	23.3	20.5	17.9	15.2	13.2	10.8	14.8	24.9	4.4
9	9.0	7.4	7.3	6.1	5.6	5.6	9.6	13.0	16.2	17.7	19.1	18.4	16.8	17.1	19.6	21.3	22.3	22.7	22.1	21.0	17.8	14.0	11.8	8.9	14.6	22.7	5.6
10	7.1	6.3	4.9	3.7	3.3	3.8	7.0	12.7	19.6	22.4	23.4	24.2	24.9	25.9	26.5	26.9	27.0	27.1	27.0	24.6	18.7	15.5	11.6	10.0	16.8	27.1	3.3
11	7.9	7.2	6.4	5.2	4.9	5.0	7.2	12.2	18.0	22.9	24.6	26.0	27.1	27.8	28.1	28.0	27.6	26.6	24.0	20.2	17.3	14.2	10.9	9.1	17.0	28.1	4.9
12	7.2	6.2	6.3	5.3	4.2	4.3	6.3	14.7	18.2	19.7	20.9	22.2	22.9	23.9	25.1	25.3	25.5	25.0	23.8	22.7	21.3	20.3	19.8	19.0	17.1	25.5	4.2
13	17.6	18.0	17.8	16.9	17.4	16.9	17.2	16.3	12.4	12.1	10.7	10.1	13.3	16.3	17.9	18.6	18.4	18.7	17.9	16.8	15.0	13.4	12.4	10.0	15.5	18.7	10.0
14	8.4	7.5	6.1	4.7	4.0	3.9	6.3	11.3	14.9	16.9	18.8	20.4	22.0	23.2	24.1	24.9	25.4	25.6	25.4	23.1	20.5	17.4	14.9	14.4	16.0	25.6	3.9
15	12.9	11.0	9.6	8.4	7.3	6.6	8.7	13.5	19.2	23.4	25.6	26.6	27.3	27.7	27.5	27.8	28.3	28.3	27.7	24.7	22.5	20.5	17.4	14.1	19.4	28.3	6.6
16	14.3	11.8	10.9	10.2	9.5	8.7	10.3	13.8	18.4	22.0	22.9	24.0	25.0	25.8	26.2	26.3	26.2	25.2	24.6	21.4	18.8	20.6	20.0	16.5	18.9	26.3	8.7
17	14.5	12.3	10.5	8.6	7.8	7.3	9.3	14.4	20.8	23.9	24.3	24.1	24.9	25.4	26.3	27.4	27.9	27.8	26.8	24.2	19.3	16.8	14.7	13.4	18.9	27.9	7.3
18	11.6	11.6	12.8	12.6	11.1	10.1	11.9	15.6	20.8	25.5	26.5	27.7	29.3	30.4	31.2	31.4	31.8	31.6	30.2	26.9	25.3	23.3	22.9	21.8	22.2	31.8	10.1
19	18.6	17.2	16.7	14.9	13.4	11.8	13.1	16.7	22.2	26.0	27.6	28.8	30.8	29.3	27.7	26.8	27.3	24.9	25.2	24.8	23.1	22.0	19.8	18.7	22.0	30.8	11.8
20	17.8	17.8	17.4	16.3	15.7	15.3	15.2	15.8	17.5	19.8	22.1	23.9	25.3	25.9	26.9	26.8	25.9	22.4	19.1	18.0	16.9	16.1	15.6	14.6	19.5	26.9	14.6
21	13.9	12.0	11.8	11.6	11.0	10.6	11.2	13.6	17.1	20.5	22.6	24.4	25.7	25.7	26.5	27.1	27.4	26.9	19.1	17.8	16.3	13.9	12.6	15.9	18.1	27.4	10.6
22	13.7	12.1	10.9	9.2	8.3	8.1	9.1	13.4	18.9	23.1	25.0	26.1	27.2	27.4	27.5	26.7	24.9	24.5	23.6	22.1	18.9	15.7	13.3	11.4	18.4	27.5	8.1
23	9.9	8.3	7.8	6.7	5.4	4.1	5.6	11.4	17.8	20.3	21.5	22.6	23.3	23.9	24.4	24.9	25.0	24.5	23.7	21.9	19.3	16.7	11.4	8.7	16.2	25.0	4.1
24	7.1	5.8	4.0	2.9	2.4	2.0	4.5	10.1	16.6	19.8	21.2	22.2	23.8	24.9	25.8	26.5	27.0	27.1	26.6	24.5	17.9	14.9	12.7	10.6	15.9	27.1	2.0
25	9.3	7.9	6.9	6.1	5.7	5.2	6.5	11.6	18.2	23.4	24.7	25.7	26.7	27.7	27.9	28.2	28.4	28.2	27.2	25.4	19.8	15.0	12.5	10.3	17.9	28.4	5.2
26	8.8	6.5	6.6	5.2	4.1	3.4	6.1	12.0	19.1	23.6	25.0	26.2	27.3	28.7	29.1	28.9	29.4	29.6	28.8	25.6	20.2	16.9	15.9	15.7	18.4	29.6	3.4
27	13.9	14.6	13.8	12.9	12.5	10.6	11.1	14.5	18.8	24.8	28.0	29.3	30.2	30.4	30.7	30.6	30.8	30.6	29.9	27.3	25.9	26.4	23.6	21.7	22.6	30.8	10.6
28	22.4	21.5	20.8	19.5	20.0	19.1	17.4	19.1	22.0	23.3	24.0	24.7	25.2	25.6	26.3	26.4	25.7	24.6	23.8	23.2	22.4	22.1	21.3	20.5	22.5	26.4	17.4
29	20.3	19.8	18.8	18.7	16.8	16.0	15.6	15.9	16.7	17.0	18.6	21.4	25.0	26.4	27.6	28.3	27.8	24.5	19.1	18.3	16.2	14.3	12.7	11.7	19.5	28.3	11.7
30	11.1	9.2	8.7	8.1	7.5	7.5	8.9	12.7	18.3	22.8	25.6	26.8	27.0	27.6	25.3	24.0	23.4	25.2	24.1	21.7	20.7	17.0	15.9	19.1	18.3	27.6	7.5
31	18.9	18.8	18.6	16.9	14.7	13.1	14.2	19.9	24.0	25.1	25.7	26.4	24.3	23.6	24.3	27.1	27.1	25.9	25.2	24.3	23.2	22.5	21.6	19.7	21.9	27.1	13.1
Avg	12.6	11.6	10.9	9.9	9.1	8.6	10.3	14.5	18.9	21.7	23.0	24.2	25.2	25.8	26.3	26.6	26.3	25.8	24.5	22.6	19.8	17.7	15.6	14.2	18.6	27.2	8.1
Max	22.4	21.5	20.8	19.5	20.0	19.1	17.4	19.9	24.3	26.0	28.0	29.3	30.8	30.4	31.2	31.4	31.8	31.6	30.2	27.3	25.9	26.4	23.6	21.8	22.6	31.8	17.4
Min	7.1	5.8	4.0	2.9	2.4	2.0	4.5	10.1	12.4	12.1	10.7	10.1	13.3	16.3	17.9	18.6	16.4	16.0	16.4	16.6	14.8	13.4	10.9	8.7	14.6	18.7	2.0

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

A-11

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	20.6	20.1	18.5	17.7	16.6	13.7	12.6	16.5	20.2	23.3	25.7	26.4	27.1	27.2	27.6	27.9	28.1	27.5	26.6	25.6	24.7	24.5	21.7	21.7	22.6	28.1	12.6
2	20.8	18.4	16.1	16.0	15.9	15.6	15.6	17.2	20.1	22.1	23.0	24.2	25.2	25.6	22.9	18.1	17.3	16.8	16.2	16.1	15.7	15.0	14.7	13.9	18.4	25.6	13.9
3	13.6	13.8	13.7	13.6	13.5	13.0	13.3	14.6	16.0	17.3	19.0	20.5	21.7	22.8	23.4	24.1	24.3	25.0	24.3	22.3	18.6	16.5	14.7	12.9	18.0	25.0	12.9
4	10.9	10.2	8.8	8.0	7.4	6.1	6.7	10.1	15.7	21.4	23.5	24.4	25.2	26.1	26.7	26.8	24.1	19.9	19.6	17.9	16.1	14.4	13.7	13.7	16.6	26.8	6.1
5	13.9	16.8	16.4	16.8	14.7	12.0	12.4	15.4	19.8	22.3	24.0	24.9	26.0	26.6	26.9	27.3	26.9	24.3	21.6	20.2	18.9	17.9	15.5	15.6	19.9	27.3	12.0
6	15.9	15.4	13.9	13.1	12.6	11.4	11.4	14.8	17.7	18.6	20.1	21.9	22.4	23.4	24.0	22.6	22.0	21.7	21.2	19.2	18.8	16.0	15.0	13.2	17.8	24.0	11.4
7	11.0	12.1	10.4	9.7	8.5	7.6	9.3	11.9	17.0	18.1	19.2	21.0	22.3	22.9	23.8	24.3	24.5	24.7	24.7	23.3	19.9	15.8	13.3	11.3	16.9	24.7	7.6
8	10.6	10.0	8.4	8.3	7.4	7.0	9.3	15.1	21.1	23.8	22.1	21.3	20.3	17.3	12.1	10.4	10.4	9.6	9.9	9.8	9.3	7.4	6.1	4.6	12.2	23.8	4.6
9	3.3	2.1	1.8	2.6	3.5	4.7	6.1	7.0	8.0	8.3	9.2	10.3	11.9	13.4	14.4	15.2	16.1	15.9	15.9	14.9	13.1	10.5	7.3	5.2	9.2	16.1	1.8
10	3.9	3.6	5.3	5.7	4.4	5.6	10.0	13.3	14.9	16.2	16.6	17.6	19.6	20.3	21.4	22.0	21.9	21.7	21.0	19.9	18.8	17.4	14.0	11.1	14.4	22.0	3.6
11	8.8	7.3	6.2	5.7	5.0	4.3	6.0	12.6	18.1	19.6	21.2	22.6	23.8	25.1	26.1	26.8	27.2	26.8	24.6	22.0	19.2	15.7	13.8	12.4	16.7	27.2	4.3
12	12.2	12.0	11.6	10.6	9.0	8.4	10.0	14.2	15.9	17.1	18.0	19.3	20.8	22.1	23.3	23.6	24.1	23.5	22.4	19.8	17.7	16.6	14.6	12.4	16.6	24.1	8.4
13	11.0	9.5	7.9	5.8	4.8	4.4	4.8	9.6	15.6	18.8	20.9	22.5	23.4	24.1	24.8	25.4	26.1	25.9	25.2	20.6	16.4	15.0	13.0	11.5	16.1	26.1	4.4
14	10.3	9.6	8.2	6.8	6.0	5.6	6.0	9.7	14.3	20.1	23.7	25.0	25.9	27.0	27.7	28.2	28.0	27.4	26.3	22.2	16.5	13.2	12.2	10.0	17.1	28.2	5.6
15	9.2	7.5	6.7	6.5	6.9	5.6	5.7	8.8	14.2	19.9	22.3	23.9	25.7	27.0	27.7	28.0	28.2	28.3	27.5	25.3	20.8	15.8	13.9	11.9	17.4	28.3	5.6
16	10.7	10.1	9.0	8.3	7.6	6.5	7.4	11.0	16.6	22.7	25.3	26.4	27.4	27.7	28.1	28.2	28.4	28.1	27.0	25.2	22.1	20.6	16.2	13.3	18.9	28.4	6.5
17	11.3	10.7	9.8	8.9	8.5	8.2	8.6	13.6	18.5	18.9	18.4	15.9	15.6	17.2	18.3	15.0	11.0	11.1	10.4	9.3	7.8	8.3	8.0	7.6	12.1	18.9	7.6
18	7.5	7.1	7.2	7.1	6.7	6.5	5.7	5.3	5.8	5.6	5.2	5.5	5.8	5.5	5.2	6.2	6.6	6.8	6.8	6.8	6.1	6.1	6.3	6.4	6.2	7.5	5.2
19	6.2	6.3	6.7	6.3	6.2	6.5	6.9	7.5	8.5	9.6	9.9	10.4	10.7	11.2	11.1	10.2	10.0	10.4	10.4	9.8	9.4	8.8	8.8	8.7	8.8	11.2	6.2
20	8.7	8.8	8.7	8.4	8.3	8.2	8.0	8.2	8.3	8.6	8.8	9.0	9.4	10.2	11.5	12.5	12.9	13.1	12.2	9.7	8.4	7.1	6.2	5.3	9.2	13.1	5.3
21	4.7	4.7	5.8	6.0	6.9	8.7	9.4	10.3	10.8	10.7	11.5	12.4	13.1	13.9	14.5	14.8	15.2	14.7	14.4	13.6	13.2	11.7	8.7	7.9	10.7	15.2	4.7
22	7.8	8.0	8.0	8.0	8.3	8.3	8.4	8.9	9.5	11.3	12.7	14.3	14.5	15.2	16.0	16.3	17.1	17.4	16.7	12.5	9.4	7.3	5.2	4.6	11.1	17.4	4.6
23	3.5	4.0	2.7	2.1	2.0	1.4	1.8	6.2	13.2	18.0	19.6	20.2	21.3	21.6	21.4	20.8	20.5	18.5	16.4	15.4	14.4	12.9	11.6	10.4	12.5	21.6	1.4
24	9.9	8.9	8.0	7.5	7.3	5.4	4.8	6.9	9.4	10.6	11.6	12.9	13.8	14.8	15.3	16.3	16.3	15.3	13.8	11.9	10.6	10.4	10.0	9.2	10.9	16.3	4.8
25	8.6	8.6	8.4	8.3	7.7	7.3	5.6	7.4	11.6	13.9	15.7	17.4	18.9	20.3	21.4	21.6	21.3	18.8	16.7	15.2	11.1	10.8	9.4	8.0	13.1	21.6	5.6
26	6.6	5.7	5.0	4.1	4.5	4.2	4.9	7.5	11.1	14.6	17.4	18.8	19.3	19.3	17.1	15.0	14.8	14.2	13.2	12.2	9.9	8.4	7.8	6.2	10.9	19.3	4.1
27	4.9	4.7	5.2	5.6	5.8	5.1	4.9	6.5	10.0	13.5	14.5	15.2	15.6	15.0	13.9	13.9	14.4	14.3	13.4	11.3	8.9	7.0	5.1	4.5	9.7	15.6	4.5
28	3.5	2.0	1.4	1.3	2.5	3.4	4.1	6.2	10.1	11.2	11.9	13.3	13.8	14.4	14.9	15.4	16.0	16.0	15.2	10.8	7.9	6.2	4.8	3.8	8.8	16.0	1.3
29	2.0	1.1	0.4	-0.4	-0.3	-0.9	-0.4	3.5	9.5	15.1	17.0	17.9	19.0	20.0	20.7	21.4	21.7	21.5	20.2	14.2	11.2	9.8	6.8	5.8	10.7	21.7	-0.9
30	5.0	4.5	3.5	3.1	2.2	2.1	2.5	6.8	13.8	19.4	21.6	22.7	23.7	24.5	25.0	25.5	25.5	24.7	21.8	19.5	18.3	17.6	15.0	12.5	15.0	25.5	2.1
31	10.2	8.1	6.4	5.2	3.7	3.3	2.5	6.1	11.8	17.9	21.3	22.0	22.3	22.4	22.3	21.6	20.8	19.2	18.0	14.9	10.9	8.4	7.8	5.6	13.0	22.4	2.5
Avg	9.3	8.8	8.1	7.6	7.2	6.7	7.2	10.1	13.8	16.4	17.8	18.7	19.5	20.1	20.3	20.2	20.1	19.5	18.5	16.5	14.3	12.7	11.0	9.7	13.9	21.6	5.8
Max	20.8	20.1	18.5	17.7	16.6	15.6	15.6	17.2	21.1	23.8	25.7	26.4	27.4	27.7	28.1	28.2	28.4	28.3	27.5	25.6	24.7	24.5	21.7	21.7	22.6	28.4	13.9
Min	2.0	1.1	0.4	-0.4	-0.3	-0.9	-0.4	3.5	5.8	5.6	5.2	5.5	5.8	5.5	5.2	6.2	6.6	6.8	6.8	6.8	6.1	4.8	3.8		6.2	7.5	-0.9

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

A-12

	<< Hour >>																											
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	4.0	2.3	1.5	0.0	-1.0	-1.8	-1.6	2.0	9.0	12.5	13.5	14.9	15.7	16.6	17.3	17.7	17.9	17.8	16.2	10.5	8.8	6.2	4.6	3.4	8.7	17.9	-1.8	
2	4.0	4.0	2.7	2.1	0.6	0.2	-0.5	3.1	8.9	12.4	13.5	14.1	14.7	15.0	15.4	16.5	16.5	16.1	14.3	11.2	10.4	10.4	8.8	5.3	9.2	16.5	-0.5	
3	6.1	5.8	6.5	6.2	5.7	4.8	4.3	4.3	10.0	13.2	14.7	15.3	16.2	16.6	17.8	18.0	18.2	17.6	16.0	11.0	8.7	5.5	3.7	2.8	10.4	18.2	2.8	
4	1.7	1.0	0.1	-0.5	-1.1	-1.2	-1.1	1.0	4.6	9.4	15.2	16.7	17.9	19.3	20.1	20.5	20.7	20.5	18.1	13.0	8.8	6.6	5.6	4.0	9.2	20.7	-1.2	
5	3.3	2.5	2.1	2.0	1.4	1.5	1.5	4.5	9.6	17.6	20.8	21.5	22.0	22.9	24.0	24.3	24.3	24.0	22.0	16.6	11.9	9.8	7.0	5.7	12.6	24.3	1.4	
6	4.7	3.5	3.2	2.4	1.9	2.8	2.4	4.4	11.5	18.3	19.3	20.2	21.1	21.6	22.2	21.9	22.1	21.9	21.0	18.6	13.5	10.2	7.3	5.1	12.5	22.2	1.9	
7	4.2	3.1	2.5	2.2	1.6	1.1	0.8	4.3	11.6	17.4	19.2	20.3	21.8	23.2	23.5	23.6	23.5	23.1	21.0	15.9	10.8	10.3	8.2	7.0	12.5	23.6	0.8	
8	6.9	6.0	6.1	5.8	5.7	4.5	4.0	6.4	11.9	18.3	21.2	22.9	24.1	25.6	27.1	27.5	26.9	24.8	21.8	18.7	14.8	13.8	12.6	10.9	15.3	27.5	4.0	
9	8.6	7.3	6.4	6.0	5.1	4.1	3.4	5.4	9.9	15.9	20.2	22.1	23.2	24.5	24.9	24.4	24.3	23.2	20.2	15.4	12.9	12.8	11.5	9.8	14.2	24.9	3.4	
10	9.1	8.0	7.9	7.8	6.8	7.4	7.6	8.8	13.2	18.8	23.3	24.5	25.4	25.7	25.7	25.0	24.9	23.1	21.5	20.1	16.0	13.0	12.4	12.3	16.2	25.7	6.8	
11	13.8	12.8	11.2	9.9	9.0	8.7	9.3	11.2	12.6	12.9	13.3	14.5	15.2	15.6	15.5	15.6	15.1	14.7	13.3	11.2	7.1	4.6	3.9	2.5	11.4	15.6	2.5	
12	0.9	0.7	-0.1	-0.3	0.1	0.5	-0.1	1.5	8.1	13.7	16.2	17.6	18.8	19.6	20.1	20.2	19.5	18.1	16.6	15.4	13.8	12.9	12.2	10.6	10.7	20.2	-0.3	
13	8.8	7.0	5.6	4.4	2.5	2.0	0.9	3.4	8.7	13.5	14.1	14.3	15.2	16.3	16.3	16.8	16.5	16.2	14.2	9.9	7.8	4.7	3.4	1.8	9.3	16.8	0.9	
14	1.4	0.7	-0.2	-0.8	-1.3	-1.8	-2.1	0.9	7.1	11.5	12.4	13.8	15.1	15.9	16.8	16.9	17.5	17.2	15.3	10.2	7.5	5.0	2.9	3.1	7.7	17.5	-2.1	
15	2.4	1.0	0.7	0.4	0.7	0.4	1.1	7.1	15.1	16.8	16.9	18.0	18.9	19.7	19.5	19.2	18.4	18.2	17.4	16.4	15.1	14.4	13.5	11.9	11.8	19.7	0.4	
16	11.4	11.1	10.4	9.2	7.0	5.7	4.9	5.8	8.4	9.2	10.0	8.5	6.7	7.8	9.2	9.5	10.0	9.7	7.9	3.2	0.6	-1.5	-1.5	-3.4	6.7	11.4	-3.4	
17	-4.6	-5.8	-6.3	-6.0	-6.0	-5.8	-4.6	-0.5	8.3	10.9	12.6	14.4	17.3	18.6	19.5	20.4	21.2	21.0	18.4	12.2	8.2	7.6	6.4	5.2	7.6	21.2	-6.3	
18	5.2	4.2	4.4	4.1	5.3	8.2	8.3	12.9	19.2	21.0	22.2	23.4	24.0	23.6	22.8	23.0	22.4	22.1	22.0	18.7	14.6	13.4	12.8	12.0	15.4	24.0	4.1	
19	12.0	11.4	10.8	11.1	10.3	9.9	9.5	9.3	8.0	5.6	5.3	5.8	6.7	8.0	9.6	10.4	9.7	9.3	8.1	6.7	5.9	4.5	4.5	4.2	8.2	12.0	4.2	
20	3.4	2.5	0.8	1.6	3.9	4.1	4.0	4.2	5.0	6.0	6.9	6.8	8.9	8.1	8.5	7.7	8.5	7.4	5.4	4.4	2.5	0.3	-1.5	-3.0	4.4	8.9	-3.0	
21	-3.7	-5.0	-5.3	-6.0	-6.4	-6.6	-7.1	-4.6	1.6	7.0	9.1	11.0	12.6	14.1	15.2	16.0	16.2	15.6	13.0	8.2	4.3	2.2	1.3	0.3	4.3	16.2	-7.1	
22	0.3	-0.6	-0.2	-0.2	-1.1	-1.1	-1.5	0.7	7.0	14.5	17.2	18.4	19.4	20.2	20.6	20.9	20.6	19.4	16.2	13.1	11.2	11.0	13.6	12.4	10.5	20.9	-1.5	
23	12.7	11.9	12.0	9.5	5.3	2.6	1.1	3.8	8.0	10.6	11.4	11.9	12.5	14.0	14.8	15.5	15.7	15.0	13.2	11.5	9.2	6.9	4.1	1.9	9.8	15.7	1.1	
24	1.3	-0.1	-0.4	-1.3	-2.2	-2.7	-3.2	-0.8	5.2	11.4	13.0	14.2	15.4	16.8	17.5	18.0	18.1	17.5	13.7	8.9	6.9	6.0	4.1	2.2	7.5	18.1	-3.2	
25	1.3	0.5	0.1	-0.2	-0.7	-0.5	-0.3	2.5	8.9	16.7	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	2.8	16.7	-0.7	
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
28	DI	DI	DI	DI	DI	DI	DI	DI	DI	9.6	11.6	12.6	13.1	14.2	14.5	14.2	12.0	8.5	6.6	5.5	4.8	3.5	3.0	2.7	2.7	8.7	14.5	2.7
29	1.9	0.6	-2.4	-3.9	-4.1	-5.1	-6.4	-5.4	0.7	5.2	6.8	8.0	8.9	9.9	10.5	10.7	10.7	9.8	5.8	1.6	-0.4	-2.3	-3.6	-4.1	2.2	10.7	-6.4	
30	-5.3	-5.5	-6.2	-6.3	-5.9	-6.7	-7.0	-5.4	1.2	8.1	10.7	12.0	13.4	14.7	15.7	16.1	15.9	15.0	9.8	6.0	4.1	2.0	0.4	-1.2	4.0	16.1	-7.0	
Avg	4.3	3.4	2.7	2.2	1.6	1.3	1.0	3.4	8.7	12.9	14.5	15.5	16.5	17.3	17.9	18.1	17.9	17.2	15.1	11.6	8.8	7.2	6.0	4.6	9.6	18.5	-0.3	
Max	13.8	12.8	12.0	11.1	10.3	9.9	9.5	12.9	19.2	21.0	23.3	24.5	25.4	25.7	27.1	27.5	26.9	24.8	22.0	20.1	16.0	14.4	13.6	12.4	16.2	27.5	6.8	
Min	-5.3	-5.8	-6.3	-6.3	-6.4	-6.7	-7.1	-5.4	0.7	5.2	5.3	5.8	6.7	7.8	8.5	7.7	8.5	6.6	5.4	1.6	-0.4	-2.3	-3.6	-4.1	2.2	8.9	-7.1	

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

A-13

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	11.0	9.4	8.5	8.3	6.4	6.7	12.0	18.7	25.0	26.6	27.4	28.6	29.4	30.1	30.8	31.3	31.0	28.7	25.3	23.5	20.3	17.6	14.9	13.5	20.2	31.3	6.4
2	12.1	10.3	10.3	8.1	7.4	7.3	10.3	13.8	20.7	24.3	25.9	27.0	27.8	27.6	28.6	29.3	29.5	28.2	28.2	24.6	20.7	16.2	14.8	14.1	19.5	29.5	7.3
3	10.9	11.0	10.8	9.0	8.6	8.9	12.8	18.6	23.9	25.7	26.7	27.6	29.2	29.7	30.4	30.2	30.0	29.3	27.9	25.5	21.8	20.1	17.8	12.9	20.8	30.4	8.6
4	11.7	10.5	9.4	8.5	8.6	9.4	13.1	19.2	21.8	20.5	20.8	25.2	28.0	28.4	28.4	26.5	27.7	26.5	24.8	23.2	20.0	18.9	16.5	13.9	19.2	28.4	8.5
5	12.6	11.9	11.1	12.0	11.2	11.5	12.5	13.4	15.2	16.9	18.2	19.0	20.1	21.1	21.9	22.3	22.3	22.4	20.8	18.9	17.4	15.9	14.0	11.9	16.4	22.4	11.1
6	10.5	9.1	8.9	7.9	7.2	6.4	10.9	17.2	20.3	22.5	24.2	25.6	26.7	28.0	28.5	28.2	28.1	28.1	26.8	24.5	19.4	14.2	10.0	8.1	18.4	28.5	6.4
7	6.8	6.7	5.9	6.0	5.4	6.2	10.1	15.4	21.5	25.4	27.1	27.7	24.9	25.1	27.2	24.7	16.2	15.9	16.5	16.3	14.1	13.0	10.6	9.1	15.7	27.7	5.4
8	7.0	6.4	5.0	3.5	3.1	3.3	6.6	11.1	17.3	19.9	21.5	Au	Au	Au	25.3	25.9	25.7	25.0	23.5	20.3	16.7	13.6	11.8	9.3	14.4	25.9	3.1
9	7.2	5.9	5.3	4.2	4.0	5.0	9.2	13.2	16.3	18.2	19.7	19.0	17.1	17.6	20.3	22.3	23.3	23.3	22.2	19.8	15.5	12.9	10.2	7.0	14.1	23.3	4.0
10	5.4	3.8	3.3	2.0	1.7	2.6	7.3	13.5	20.3	23.1	24.2	25.2	26.0	27.0	27.5	27.7	27.5	27.6	26.9	23.4	17.6	13.9	9.8	8.0	16.5	27.7	1.7
11	5.6	5.5	4.5	3.5	3.3	3.4	6.8	12.7	18.6	23.6	25.5	27.0	28.3	29.0	29.2	28.8	28.2	26.9	23.9	20.0	16.4	13.0	9.3	7.4	16.7	29.2	3.3
12	5.4	4.5	5.1	3.8	2.7	2.8	6.2	15.0	18.7	20.6	21.9	23.4	24.1	24.9	26.1	26.1	26.2	25.4	23.8	22.5	20.9	20.0	19.4	18.5	17.0	26.2	2.7
13	16.3	17.4	17.2	16.0	16.8	16.5	17.1	15.8	12.1	12.0	10.5	10.1	13.8	16.9	18.7	19.3	18.6	18.9	17.9	16.7	14.2	12.8	11.9	8.5	15.2	19.3	8.5
14	6.6	5.9	4.8	3.5	2.8	2.7	6.5	11.8	15.4	17.5	19.5	21.1	23.0	24.1	25.1	25.8	26.2	26.0	25.4	22.1	19.1	16.0	13.1	12.2	15.7	26.2	2.7
15	9.8	8.8	7.8	6.4	5.2	5.1	8.7	14.0	19.9	24.1	26.4	27.5	28.2	28.6	28.1	28.1	28.6	28.6	27.0	24.1	21.6	19.9	16.5	12.5	19.0	28.6	5.1
16	13.3	11.0	9.7	8.9	8.3	7.6	10.5	14.2	18.8	22.5	23.4	24.7	26.1	26.5	26.8	26.9	26.6	24.9	23.4	20.4	17.8	19.7	19.2	14.7	18.6	26.9	7.6
17	13.0	10.5	8.5	6.8	6.0	5.7	9.1	15.1	21.7	24.7	24.9	24.9	25.5	26.1	27.2	28.3	28.6	28.1	25.6	23.0	17.9	15.7	12.9	11.5	18.4	28.6	5.7
18	9.7	10.0	11.3	10.7	9.2	8.5	11.7	15.9	21.6	26.2	27.3	28.5	30.2	31.3	32.1	32.1	32.3	31.7	29.0	26.2	24.6	22.6	21.7	20.1	21.9	32.3	8.5
19	16.7	14.9	14.3	12.7	10.9	9.5	12.8	17.0	23.0	26.8	28.4	29.5	31.9	29.7	28.0	26.9	27.4	24.9	25.2	24.1	22.4	21.2	19.0	18.2	21.5	31.9	9.5
20	17.1	16.8	16.8	15.6	15.0	14.8	15.0	15.8	17.9	20.5	22.8	24.8	26.3	26.6	27.7	27.2	25.5	21.9	18.9	17.7	16.5	15.7	15.1	14.2	19.4	27.7	14.2
21	13.3	11.0	11.1	11.1	10.2	9.9	11.0	14.0	17.4	21.1	23.6	25.5	26.6	26.4	27.4	28.0	28.1	26.7	18.8	17.5	15.4	12.9	11.3	15.2	18.1	28.1	9.9
22	12.4	10.9	9.2	7.6	6.9	7.1	9.0	13.7	19.5	23.9	25.8	26.9	28.1	27.9	27.7	26.8	25.2	24.8	23.6	21.5	17.6	14.2	11.8	9.8	18.0	28.1	6.9
23	8.5	6.9	6.7	4.9	3.6	2.7	5.7	12.1	18.6	21.1	22.5	23.6	24.4	25.1	25.5	26.0	25.9	25.0	23.8	21.4	17.7	14.3	9.7	7.2	16.0	26.0	2.7
24	5.5	3.9	2.0	0.9	0.5	0.1	4.2	10.8	17.2	20.8	22.3	23.3	24.7	25.9	26.8	27.5	27.8	27.6	26.7	23.2	16.5	13.5	9.7	8.7	15.4	27.8	0.1
25	7.4	5.7	5.1	3.9	3.6	3.2	6.3	12.2	18.8	24.3	25.7	26.8	27.7	28.7	28.9	28.9	29.1	28.7	27.2	24.1	18.1	13.6	10.5	7.8	17.3	29.1	3.2
26	6.5	4.4	4.0	3.3	2.1	1.2	5.6	12.4	19.7	24.2	25.9	27.3	28.3	29.8	30.1	29.4	29.9	30.1	28.0	23.6	19.4	15.5	15.0	14.5	17.9	30.1	1.2
27	12.9	13.9	12.6	11.2	10.7	8.5	10.4	14.6	19.4	25.6	28.9	30.2	31.1	31.0	31.2	30.9	31.2	30.8	29.2	26.2	24.9	25.7	22.7	20.7	22.3	31.2	8.5
28	22.0	21.1	20.0	18.2	19.3	17.8	16.8	19.3	22.3	23.9	24.9	25.8	26.2	26.5	27.2	27.1	26.0	24.6	23.8	23.1	22.2	21.9	20.9	20.1	22.5	27.2	16.8
29	20.0	19.5	18.3	18.2	16.1	15.3	15.1	15.7	16.8	17.2	18.9	21.8	25.9	27.4	28.6	29.2	28.2	24.2	18.6	18.0	15.5	13.5	12.3	11.3	19.4	29.2	11.3
30	10.2	7.8	7.3	6.8	6.0	5.9	8.7	13.1	18.8	23.6	26.3	27.8	27.7	28.1	25.3	24.2	23.7	25.7	24.1	20.9	19.4	15.6	14.8	16.3	17.8	28.1	5.9
31	16.6	16.6	15.7	13.9	12.5	11.6	13.4	20.1	24.5	25.9	26.7	27.6	24.8	23.9	24.5	27.7	27.6	26.1	25.2	24.0	22.9	22.1	20.9	17.9	21.4	27.7	11.6
Avg	11.1	10.1	9.4	8.3	7.6	7.3	10.2	14.8	19.5	22.4	23.8	25.1	26.1	26.6	27.1	27.2	26.8	26.0	24.3	21.9	18.9	16.6	14.5	12.7	18.2	27.9	6.7
Max	22.0	21.1	20.0	18.2	19.3	17.8	17.1	20.1	25.0	26.8	28.9	30.2	31.9	31.3	32.1	32.1	32.3	31.7	29.2	26.2	24.9	25.7	22.7	20.7	22.5	32.3	16.8
Min	5.4	3.8	2.0	0.9	0.5	0.1	4.2	10.8	12.1	12.0	10.5	10.1	13.8	16.9	18.7	19.3	16.2	15.9	16.5	16.3	14.1	12.8	9.3	7.0	14.1	19.3	0.1

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

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	19.5	19.4	16.9	15.7	14.2	12.5	12.2	16.9	20.8	23.8	26.6	27.3	28.2	28.1	28.6	28.7	28.6	27.7	26.4	25.1	24.1	24.1	20.6	20.4	22.4	28.7	12.2
2	19.4	17.1	15.2	15.1	15.2	14.9	15.1	17.3	20.5	22.7	24.0	25.2	26.1	26.2	23.2	18.0	17.4	16.7	16.1	16.0	15.5	14.9	14.6	13.7	18.3	26.2	13.7
3	13.5	13.8	13.7	13.5	13.4	12.8	13.2	14.8	16.4	17.8	19.5	21.3	22.5	23.6	24.4	25.1	24.7	25.4	24.2	21.8	18.3	16.4	14.6	12.4	18.2	25.4	12.4
4	9.7	8.8	7.2	6.6	6.0	5.0	6.2	10.5	16.2	22.2	24.3	25.2	26.2	27.1	27.5	27.3	24.0	20.2	19.6	17.9	16.0	14.1	13.5	13.2	16.4	27.5	5.0
5	13.0	15.3	14.4	14.7	12.3	10.2	10.6	15.8	20.5	23.0	24.9	25.8	27.1	27.8	27.8	27.8	26.8	23.8	21.4	19.7	18.1	17.2	14.7	14.7	19.5	27.8	10.2
6	15.3	14.7	13.2	12.8	12.4	10.7	11.2	15.2	18.1	19.2	21.0	22.8	23.4	24.5	25.0	22.3	21.6	21.4	20.6	18.2	18.2	15.0	13.6	11.9	17.6	25.0	10.7
7	10.1	10.2	8.7	8.3	8.0	7.1	9.4	11.9	17.3	18.8	20.0	22.0	23.4	24.0	24.7	24.9	24.8	25.0	25.0	22.6	18.1	15.0	12.2	9.4	16.7	25.0	7.1
8	9.4	7.9	6.8	6.4	5.8	5.5	8.7	15.3	21.6	24.3	22.8	22.5	20.9	17.4	12.0	10.4	10.3	9.5	9.7	9.6	9.2	7.3	5.8	4.1	11.8	24.3	4.1
9	2.9	1.8	1.9	2.6	3.6	4.6	6.1	7.0	8.1	8.5	9.5	10.7	12.3	13.8	14.9	15.6	16.5	16.1	15.9	14.4	12.2	8.7	6.0	3.7	9.1	16.5	1.8
10	2.8	2.0	3.0	3.4	2.7	3.6	8.2	13.2	15.1	16.5	16.9	18.1	20.2	21.0	22.2	22.8	22.5	22.0	20.9	19.4	18.2	16.5	12.6	9.9	13.9	22.8	2.0
11	7.7	6.5	5.2	4.4	3.9	3.3	5.8	13.1	18.5	20.5	22.1	23.6	25.0	26.2	27.2	27.8	28.0	27.3	24.7	21.3	18.1	14.6	12.7	11.4	16.6	28.0	3.3
12	11.0	11.2	10.8	9.7	7.8	7.4	9.1	14.1	16.5	17.9	18.8	20.2	21.7	23.0	24.3	24.4	25.0	24.0	22.3	19.2	17.3	16.1	14.0	11.7	16.6	25.0	7.4
13	10.3	8.8	6.8	4.4	3.3	3.0	4.4	10.4	16.3	19.6	21.8	23.3	24.3	25.1	25.9	26.3	26.8	26.3	24.5	19.4	15.5	14.6	12.4	10.7	16.0	26.8	3.0
14	9.3	8.2	6.8	5.0	4.6	3.7	5.1	9.8	15.0	20.7	24.4	25.8	26.7	27.9	28.3	28.9	28.1	27.3	25.5	20.4	15.8	12.1	11.0	8.5	16.6	28.9	3.7
15	7.5	5.8	5.3	4.8	4.9	3.9	4.4	9.0	14.8	20.7	22.9	24.7	26.5	27.8	28.5	28.6	28.6	28.5	27.3	24.2	18.7	14.5	12.1	10.5	16.9	28.6	3.9
16	9.4	8.6	7.4	6.6	5.8	5.1	6.8	11.3	17.1	23.4	25.9	27.1	28.4	28.5	28.8	28.8	28.8	28.3	26.4	24.0	21.6	19.5	15.3	12.4	18.6	28.8	5.1
17	9.6	9.0	7.9	7.0	6.9	6.6	7.1	13.5	18.8	19.7	19.3	16.5	16.3	18.3	19.4	15.5	11.1	10.9	10.4	9.2	7.8	8.1	8.0	7.6	11.9	19.7	6.6
18	7.5	7.1	7.2	7.1	6.7	6.5	5.6	5.3	5.8	5.6	5.3	5.6	6.1	5.8	5.4	6.5	6.9	7.1	6.9	6.9	6.2	6.2	6.4	6.5	6.3	7.5	5.3
19	6.3	6.4	6.8	6.2	6.2	6.6	7.0	7.7	8.9	10.2	10.2	10.8	11.1	11.5	11.3	10.4	10.0	10.3	10.1	9.5	9.2	8.8	8.7	8.6	8.9	11.5	6.2
20	8.7	8.8	8.5	8.3	8.3	8.1	8.0	8.2	8.4	8.7	9.0	9.3	9.8	10.6	12.2	13.4	13.5	13.4	11.6	9.4	8.2	6.8	6.0	4.6	9.2	13.5	4.6
21	3.8	3.5	4.8	4.9	6.0	8.2	9.2	10.5	11.2	10.9	11.8	13.0	13.7	14.3	15.0	15.3	15.5	14.8	14.3	13.3	12.9	11.4	8.7	7.9	10.6	15.5	3.5
22	7.8	7.9	8.0	7.9	8.2	8.1	8.3	9.0	9.7	11.6	13.3	15.0	15.1	15.8	16.5	16.7	17.6	17.7	16.5	12.0	9.0	6.4	4.0	3.3	11.1	17.7	3.3
23	2.4	2.7	1.5	0.9	0.6	0.0	1.0	6.3	13.5	18.5	20.1	20.8	21.9	22.4	22.1	21.3	21.1	18.7	16.2	14.8	13.4	12.5	11.2	9.7	12.2	22.4	0.0
24	9.3	8.4	7.1	6.8	6.8	4.6	4.3	7.4	10.2	11.3	12.3	13.7	14.8	15.6	16.1	17.3	16.8	15.3	13.6	11.4	10.0	8.5	8.8	8.3	10.8	17.3	4.3
25	7.7	7.9	7.6	7.5	6.3	5.1	4.5	7.9	12.1	14.3	16.3	18.2	19.7	21.0	22.1	22.4	21.7	18.7	16.6	14.9	10.7	10.7	9.1	7.4	12.9	22.4	4.5
26	5.8	4.8	4.0	3.1	3.3	3.4	4.4	7.7	11.5	15.1	17.9	19.2	19.9	19.7	17.3	15.0	15.0	14.4	13.2	11.8	9.6	8.0	7.3	5.2	10.7	19.9	3.1
27	3.9	4.0	4.9	5.4	5.3	4.6	4.7	6.7	10.2	13.9	15.0	15.9	16.4	16.1	14.6	14.6	15.0	14.6	13.3	10.4	7.1	6.4	4.6	3.7	9.6	16.4	3.7
28	2.6	0.8	0.4	0.6	2.4	3.4	4.1	6.5	10.7	12.0	12.8	14.4	14.7	15.5	15.9	16.2	16.7	16.5	14.9	10.0	7.4	5.5	3.7	2.8	8.8	16.7	0.4
29	0.3	-0.3	-0.9	-1.6	-1.4	-2.3	-1.1	4.0	10.4	15.9	17.6	18.9	19.8	20.9	21.5	22.2	22.3	21.8	19.6	13.3	10.6	9.1	4.7	4.2	10.4	22.3	-2.3
30	3.8	2.8	2.1	1.1	0.8	0.7	1.1	7.1	14.3	20.1	22.3	23.5	24.5	25.2	25.6	26.0	25.6	24.3	21.4	18.9	17.5	16.4	13.1	11.0	14.5	26.0	0.7
31	9.0	6.9	4.9	3.6	1.9	1.5	1.4	6.3	12.5	18.5	21.8	22.6	23.0	23.3	23.0	22.2	21.2	19.0	16.9	13.1	9.8	7.1	6.3	3.9	12.5	23.3	1.4
Avg	8.4	7.8	7.0	6.5	6.2	5.8	6.6	10.3	14.2	17.0	18.4	19.5	20.3	20.9	21.0	20.7	20.4	19.6	18.3	15.9	13.7	12.0	10.2	8.8	13.7	22.2	4.9
Max	19.5	19.4	16.9	15.7	15.2	14.9	15.1	17.3	21.6	24.3	26.6	27.3	28.4	28.5	28.8	28.9	28.8	28.5	27.3	25.1	24.1	24.1	20.6	20.4	22.4	28.9	13.7
Min	0.3	-0.3	-0.9	-1.6	-1.4	-2.3	-1.1	4.0	5.8	5.6	5.3	5.6	6.1	5.8	5.4	6.5	6.9	7.1	6.9	6.9	6.2	5.5	3.7	2.8	6.3	7.5	-2.3

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

A-15

	<< 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	2.4	0.6	-0.3	-1.6	-2.5	-3.1	-2.7	2.2	9.8	13.4	14.3	15.8	16.7	17.6	18.2	18.6	18.7	18.3	15.8	9.8	7.7	4.7	3.4	1.4	8.3	18.7	-3.1	
2	2.4	2.2	0.9	0.5	-1.1	-1.5	-1.4	3.4	9.6	13.2	14.4	15.0	15.4	15.6	15.8	17.4	17.4	16.7	14.3	10.9	10.0	9.8	7.9	4.6	8.9	17.4	-1.5	
3	4.9	4.0	5.2	4.9	4.5	3.7	3.4	4.3	10.6	13.9	15.4	16.3	17.2	17.6	18.6	18.9	18.7	18.0	15.4	9.5	7.7	4.7	2.0	0.8	10.0	18.9	0.8	
4	0.0	-0.8	-1.5	-2.2	-2.6	-2.8	-2.5	0.7	4.8	9.8	16.0	17.4	18.8	20.3	21.0	21.2	21.1	20.5	16.9	11.5	7.4	4.7	3.8	2.1	8.6	21.2	-2.8	
5	1.7	1.1	0.7	0.1	-0.3	0.0	0.2	4.9	10.1	18.4	21.5	22.4	22.8	23.7	24.7	24.9	24.6	23.8	20.5	14.8	10.8	8.6	5.1	3.6	12.0	24.9	-0.3	
6	2.1	1.1	1.5	0.3	-0.2	0.6	0.5	4.5	12.2	18.9	19.9	21.0	22.0	22.2	22.9	22.3	22.6	22.0	20.5	17.1	11.8	9.0	6.1	3.8	11.9	22.9	-0.2	
7	2.5	1.5	0.7	0.2	0.0	-0.6	-0.4	4.8	12.3	18.2	20.2	21.4	22.9	24.4	24.5	24.3	24.1	23.3	20.1	14.7	8.5	7.6	5.9	4.7	11.9	24.5	-0.6	
8	5.0	3.5	3.1	3.5	3.5	2.1	1.6	6.2	12.5	18.8	21.9	23.6	24.9	26.4	27.9	28.1	27.2	24.7	20.8	17.1	14.0	13.0	11.9	9.7	14.6	28.1	1.6	
9	6.9	5.7	5.0	4.2	3.3	2.2	1.8	5.3	10.4	16.3	20.8	22.7	23.9	25.3	25.7	24.6	24.2	22.7	19.0	13.7	11.7	11.8	10.1	8.4	13.6	25.7	1.8	
10	7.3	6.3	6.2	5.9	5.3	6.5	6.7	7.9	13.5	19.3	24.0	25.3	26.1	26.3	25.7	25.1	25.0	22.8	21.2	19.4	15.5	12.8	11.7	11.3	15.7	26.3	5.3	
11	13.4	12.1	9.7	8.6	7.8	7.8	8.7	11.3	12.8	13.1	13.5	15.2	16.2	16.3	15.9	15.8	15.3	15.0	12.7	9.8	6.2	3.5	3.0	1.3	11.0	16.3	1.3	
12	-0.6	-0.6	-1.6	-1.5	-0.7	-0.8	-1.3	1.5	8.6	14.6	17.0	18.4	19.9	20.6	21.0	20.8	19.8	17.6	15.5	14.5	13.7	12.7	11.8	9.9	10.5	21.0	-1.6	
13	7.8	6.3	4.7	3.0	1.3	0.5	-0.4	3.6	9.3	14.2	15.0	15.0	16.2	17.8	17.1	17.6	17.1	16.4	13.3	9.1	6.5	3.1	1.4	0.2	9.0	17.8	-0.4	
14	-0.2	-1.1	-1.9	-2.5	-2.9	-3.4	-3.4	1.1	7.8	12.2	13.3	14.8	16.1	16.8	17.7	17.4	18.0	17.3	13.9	8.7	5.0	2.7	1.0	1.9	7.1	18.0	-3.4	
15	0.6	-0.5	-0.7	-1.5	-0.7	-1.2	0.0	7.2	15.3	17.4	17.3	18.8	19.7	20.5	19.8	19.4	18.5	18.2	17.2	16.0	14.8	14.0	13.0	11.1	11.4	20.5	-1.5	
16	10.6	10.5	9.7	8.3	6.1	5.2	4.6	5.8	8.9	9.5	10.8	9.7	8.1	9.0	10.4	10.4	10.4	9.9	7.1	1.4	-0.5	-2.8	-2.8	-5.6	6.4	10.8	-5.6	
17	-6.5	-7.8	-8.1	-8.2	-8.1	-7.6	-6.5	-1.0	8.7	11.6	13.4	15.3	18.1	19.2	19.9	20.6	21.2	20.7	17.0	10.9	6.5	5.8	3.9	3.1	6.8	21.2	-8.2	
18	2.5	1.7	2.1	2.0	2.4	5.0	4.8	11.6	19.4	21.5	22.7	24.1	24.6	24.0	22.8	23.2	22.2	21.8	21.8	18.5	14.1	12.7	12.6	11.9	14.6	24.6	1.7	
19	11.8	11.1	10.1	10.9	10.1	9.7	9.4	9.3	7.9	5.6	5.4	6.1	6.9	8.6	10.3	11.1	10.2	9.4	7.8	6.2	5.4	4.0	4.1	3.7	8.1	11.8	3.7	
20	2.5	1.2	0.1	0.8	3.7	4.0	4.0	4.4	5.4	6.5	7.5	7.3	9.9	8.8	8.6	7.7	8.6	7.2	4.6	3.2	1.5	-0.1	-2.1	-4.1	4.2	9.9	-4.1	
21	-5.2	-6.7	-7.0	-7.5	-8.0	-8.3	-8.3	-4.7	2.0	7.6	9.9	11.9	13.5	15.1	16.0	16.9	16.7	15.8	11.7	6.8	2.4	0.8	-0.3	-1.4	3.7	16.9	-8.3	
22	-1.6	-2.3	-2.3	-2.4	-3.3	-3.4	-3.7	0.2	7.6	15.3	17.8	19.2	20.2	21.1	21.4	21.7	20.8	18.9	15.3	12.2	10.1	9.6	11.9	11.1	9.8	21.7	-3.7	
23	12.0	11.2	11.3	8.0	3.7	1.5	0.2	3.9	8.4	11.0	12.0	12.4	13.0	14.8	15.7	16.3	16.4	15.1	12.2	10.2	7.5	5.7	2.5	0.4	9.4	16.4	0.2	
24	-0.1	-1.3	-1.8	-3.0	-3.7	-4.1	-4.5	-1.0	6.1	12.1	13.8	15.1	16.3	17.7	18.3	18.7	18.6	17.4	11.7	8.0	6.0	5.0	2.9	0.3	7.0	18.7	-4.5	
25	-0.5	-1.2	-1.4	-2.0	-2.4	-2.4	-2.1	2.2	9.4	17.2	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	1.7	17.2	-2.4	
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
28	DI	DI	DI	DI	DI	DI	DI	DI	DI	8.9	11.7	13.0	13.5	15.0	15.6	15.0	12.6	8.7	6.7	5.5	4.0	3.1	2.1	1.8	2.1	8.7	15.6	1.8
29	1.2	-0.5	-3.6	-5.1	-5.4	-7.0	-8.1	-5.7	1.4	5.9	7.6	9.1	9.9	10.9	11.6	11.5	11.2	9.7	3.7	0.4	-2.4	-4.5	-5.3	-6.1	1.7	11.6	-8.1	
30	-7.1	-7.6	-8.0	-8.2	-7.6	-8.3	-8.6	-5.6	1.9	8.9	11.5	13.0	14.4	15.4	16.7	16.9	16.4	14.5	8.4	4.9	2.9	0.0	-1.4	-3.0	3.4	16.9	-8.6	
Avg	2.8	1.8	1.2	0.6	0.1	-0.2	-0.3	3.3	9.1	13.4	15.2	16.3	17.4	18.2	18.6	18.7	18.3	17.2	14.2	10.5	7.7	6.0	4.7	3.2	9.1	19.1	-1.8	
Max	13.4	12.1	11.3	10.9	10.1	9.7	9.4	11.6	19.4	21.5	24.0	25.3	26.1	26.4	27.9	28.1	27.2	24.7	21.8	19.4	15.5	14.0	13.0	11.9	15.7	28.1	5.3	
Min	-7.1	-7.8	-8.1	-8.2	-8.1	-8.3	-8.6	-5.7	1.4	5.6	5.4	6.1	6.9	8.6	8.6	7.7	8.6	6.7	3.7	0.4	-2.4	-4.5	-5.3	-6.1	1.7	9.9	-8.6	

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

A-16

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	2.08	2.24	1.40	1.76	1.92	1.45	-0.37	-0.76	-0.68	-0.68	-0.72	-0.90	-0.93	-1.00	-1.00	-0.92	-0.64	0.39	0.38	0.15	0.21	0.90	0.18	0.10	0.19	2.24	-1.00
2	0.07	0.56	0.59	0.88	1.11	0.79	-0.18	-0.26	-0.80	-0.82	-1.05	-1.13	-0.95	-0.58	-0.87	-1.02	-0.92	-0.30	-0.18	1.06	1.07	1.92	0.80	1.16	0.04	1.92	-1.13
3	2.06	1.33	0.94	1.79	1.20	0.80	-0.18	-0.51	-0.85	-0.72	-0.82	-0.84	-0.89	-0.86	-1.10	-1.00	-0.82	-0.58	-0.02	0.86	0.97	1.13	0.90	1.97	0.20	2.06	-1.10
4	1.82	2.03	2.19	2.63	2.30	1.41	1.12	-0.04	-0.51	0.31	-0.25	-0.72	-0.95	-0.80	-0.56	0.55	-0.36	0.00	0.33	0.58	1.53	0.86	1.60	1.29	0.68	2.63	-0.95
5	0.87	1.13	1.08	0.48	0.41	0.18	-0.25	-0.31	-0.49	-0.52	-0.53	-0.77	-0.80	-0.87	-0.69	-0.66	-0.38	-0.55	-0.08	0.32	0.33	0.62	1.31	2.16	0.08	2.16	-0.87
6	2.23	2.72	2.19	2.08	2.27	1.34	-0.40	-0.64	-0.59	-0.77	-0.90	-1.04	-1.18	-1.16	-1.12	-0.68	-0.69	-0.64	-0.16	0.93	1.67	1.94	2.18	2.24	0.49	2.72	-1.18
7	2.09	2.15	2.04	1.95	1.68	1.27	-0.24	-0.47	-0.55	-0.73	-0.72	-0.49	-0.17	-0.67	-0.59	0.18	0.18	0.13	-0.04	0.22	0.70	0.63	0.72	0.86	0.42	2.15	-0.73
8	1.70	1.44	1.21	1.43	1.25	1.01	-0.09	-0.42	-0.40	-0.61	-0.80	Au	Au	Au	-1.04	-1.08	-0.86	-0.65	-0.21	0.21	1.20	1.64	1.32	1.52	0.37	1.70	-1.08
9	1.82	1.45	1.96	1.90	1.60	0.70	0.40	-0.21	-0.17	-0.44	-0.59	-0.57	-0.38	-0.47	-0.76	-1.03	-0.97	-0.62	-0.11	1.19	2.28	1.07	1.65	1.94	0.49	2.28	-1.03
10	1.71	2.48	1.61	1.64	1.53	1.24	-0.24	-0.74	-0.62	-0.69	-0.73	-0.97	-1.08	-1.17	-0.96	-0.71	-0.57	-0.47	0.11	1.14	1.11	1.60	1.83	2.02	0.38	2.48	-1.17
11	2.34	1.68	1.88	1.70	1.66	1.65	0.44	-0.55	-0.55	-0.63	-0.90	-1.05	-1.19	-1.19	-1.05	-0.82	-0.65	-0.29	0.09	0.17	0.87	1.15	1.60	1.70	0.34	2.34	-1.19
12	1.79	1.70	1.23	1.47	1.49	1.48	0.13	-0.31	-0.58	-0.84	-1.00	-1.18	-1.18	-1.03	-0.97	-0.83	-0.76	-0.44	0.01	0.24	0.31	0.30	0.35	0.55	0.08	1.79	-1.18
13	1.34	0.65	0.63	0.91	0.62	0.42	0.09	0.51	0.29	0.11	0.17	0.00	-0.50	-0.63	-0.79	-0.68	-0.25	-0.26	0.02	0.05	0.81	0.60	0.52	1.50	0.26	1.50	-0.79
14	1.75	1.64	1.29	1.30	1.23	1.20	-0.20	-0.51	-0.47	-0.58	-0.69	-0.69	-0.98	-0.90	-1.01	-0.84	-0.75	-0.39	0.00	1.00	1.40	1.40	1.79	2.24	0.34	2.24	-1.01
15	3.05	2.28	1.87	2.01	2.16	1.48	-0.03	-0.47	-0.71	-0.68	-0.82	-0.97	-0.83	-0.89	-0.61	-0.30	-0.34	-0.33	0.75	0.60	0.87	0.62	0.93	1.55	0.47	3.05	-0.97
16	1.00	0.86	1.16	1.31	1.22	1.03	-0.16	-0.33	-0.45	-0.53	-0.47	-0.67	-1.03	-0.69	-0.63	-0.56	-0.36	0.29	1.19	0.92	0.95	0.84	0.79	1.71	0.31	1.71	-1.03
17	1.49	1.79	2.01	1.81	1.80	1.57	0.18	-0.70	-0.81	-0.78	-0.66	-0.74	-0.62	-0.74	-0.86	-0.85	-0.68	-0.33	1.26	1.16	1.39	1.14	1.81	1.89	0.48	2.01	-0.86
18	1.93	1.58	1.45	1.90	1.91	1.64	0.16	-0.28	-0.71	-0.68	-0.72	-0.84	-0.95	-0.86	-0.84	-0.64	-0.48	-0.08	1.20	0.73	0.71	0.70	1.20	1.68	0.40	1.93	-0.95
19	1.83	2.23	2.40	2.17	2.54	2.28	0.30	-0.27	-0.72	-0.83	-0.75	-0.74	-1.08	-0.41	-0.28	-0.09	-0.08	0.07	0.09	0.66	0.68	0.78	0.83	0.51	0.51	2.54	-1.08
20	0.72	0.96	0.62	0.67	0.71	0.53	0.22	0.02	-0.40	-0.66	-0.75	-0.94	-1.05	-0.72	-0.81	-0.43	0.40	0.48	0.25	0.32	0.40	0.42	0.41	0.46	0.08	0.96	-1.05
21	0.55	0.97	0.71	0.51	0.81	0.71	0.20	-0.33	-0.33	-0.62	-0.99	-1.09	-0.89	-0.69	-0.89	-0.91	-0.64	0.27	0.31	0.32	0.88	0.97	1.35	0.80	0.08	1.35	-1.09
22	1.21	1.14	1.66	1.56	1.41	0.96	0.16	-0.34	-0.59	-0.72	-0.77	-0.87	-0.82	-0.53	-0.19	-0.12	-0.25	-0.28	-0.04	0.59	1.28	1.59	1.48	1.51	0.38	1.66	-0.87
23	1.34	1.39	1.11	1.82	1.83	1.45	-0.10	-0.73	-0.79	-0.82	-1.04	-1.01	-1.07	-1.14	-1.07	-1.03	-0.88	-0.50	-0.12	0.59	1.55	2.45	1.69	1.54	0.27	2.45	-1.14
24	1.67	1.86	1.98	1.96	1.89	1.93	0.24	-0.65	-0.62	-0.96	-1.10	-1.08	-0.92	-0.94	-1.05	-1.02	-0.84	-0.54	-0.12	1.24	1.40	1.43	3.02	1.90	0.45	3.02	-1.10
25	1.91	2.20	1.81	2.18	2.11	1.99	0.29	-0.60	-0.68	-0.84	-0.97	-1.15	-1.00	-1.03	-0.96	-0.77	-0.71	-0.50	0.04	1.25	1.63	1.43	1.99	2.48	0.50	2.48	-1.15
26	2.30	2.11	2.54	1.87	1.98	2.15	0.45	-0.39	-0.59	-0.64	-0.98	-1.09	-0.99	-1.02	-0.99	-0.43	-0.52	-0.50	0.72	1.94	0.84	1.40	0.85	1.14	0.51	2.54	-1.09
27	1.06	0.67	1.21	1.72	1.72	2.11	0.72	-0.10	-0.59	-0.76	-0.81	-0.93	-0.98	-0.63	-0.55	-0.28	-0.46	-0.15	0.65	1.12	1.03	0.76	0.86	1.04	0.35	2.11	-0.98
28	0.44	0.41	0.80	1.35	0.67	1.35	0.62	-0.24	-0.30	-0.66	-0.91	-1.10	-1.04	-0.86	-0.92	-0.66	-0.26	0.00	0.08	0.14	0.23	0.25	0.40	0.43	0.01	1.35	-1.10
29	0.32	0.36	0.54	0.41	0.67	0.70	0.43	0.18	-0.09	-0.18	-0.34	-0.48	-0.86	-0.93	-0.99	-0.91	-0.43	0.38	0.48	0.22	0.72	0.83	0.37	0.46	0.08	0.83	-0.99
30	0.90	1.42	1.42	1.25	1.55	1.61	0.20	-0.45	-0.56	-0.81	-0.72	-0.98	-0.68	-0.53	0.00	-0.18	-0.32	-0.41	-0.01	0.77	1.34	1.36	1.06	2.76	0.42	2.76	-0.98
31	2.27	2.20	2.92	2.93	2.24	1.50	0.79	-0.26	-0.52	-0.79	-0.92	-1.17	-0.52	-0.30	-0.25	-0.64	-0.58	-0.20	-0.03	0.23	0.27	0.45	0.71	1.79	0.51	2.93	-1.17
Avg	1.54	1.54	1.50	1.59	1.53	1.29	0.15	-0.36	-0.53	-0.63	-0.75	-0.87	-0.88	-0.81	-0.79	-0.62	-0.51	-0.23	0.22	0.67	0.99	1.07	1.18	1.45	0.33	2.13	-1.03
Max	3.05	2.72	2.92	2.93	2.54	2.28	1.12	0.51	0.29	0.31	0.17	0.00	-0.17	-0.30	0.00	0.55	0.40	0.48	1.26	1.94	2.28	2.45	3.02	2.76	0.68	3.05	-0.73
Min	0.07	0.36	0.54	0.41	0.41	0.18	-0.40	-0.76	-0.85	-0.96	-1.10	-1.18	-1.19	-1.19	-1.12	-1.08	-0.97	-0.65	-0.21	0.05	0.21	0.25	0.18	0.10	0.01	0.83	-1.19

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

A-17

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.19	0.70	1.55	1.91	2.34	1.21	0.39	-0.39	-0.63	-0.50	-0.85	-0.93	-1.10	-0.95	-0.97	-0.80	-0.55	-0.19	0.22	0.45	0.56	0.41	1.19	1.31	0.23	2.34	-1.10
2	1.44	1.34	0.82	0.91	0.69	0.66	0.49	-0.13	-0.41	-0.65	-0.95	-1.02	-0.94	-0.62	-0.29	0.04	-0.11	0.04	0.09	0.08	0.23	0.14	0.09	0.20	0.09	1.44	-1.02
3	0.18	0.00	0.03	0.09	0.12	0.16	0.01	-0.15	-0.36	-0.42	-0.49	-0.78	-0.74	-0.78	-0.98	-1.00	-0.45	-0.38	0.15	0.54	0.31	0.08	0.12	0.52	-0.18	0.54	-1.00
4	1.17	1.40	1.58	1.35	1.40	1.13	0.46	-0.42	-0.46	-0.77	-0.75	-0.82	-0.96	-0.92	-0.81	-0.49	0.13	-0.27	-0.05	0.06	0.13	0.29	0.24	0.53	0.13	1.58	-0.96
5	0.89	1.49	2.06	2.04	2.40	1.81	1.77	-0.35	-0.65	-0.74	-0.86	-0.91	-1.11	-1.15	-0.88	-0.49	0.12	0.47	0.27	0.43	0.86	0.64	0.84	0.88	0.41	2.40	-1.15
6	0.58	0.67	0.64	0.32	0.21	0.67	0.15	-0.34	-0.45	-0.64	-0.92	-0.96	-1.05	-1.09	-1.06	0.26	0.37	0.31	0.63	1.03	0.62	1.07	1.41	1.23	0.15	1.41	-1.09
7	0.99	1.90	1.65	1.46	0.54	0.52	-0.10	0.07	-0.31	-0.72	-0.83	-1.00	-1.06	-1.10	-0.89	-0.67	-0.36	-0.26	-0.21	0.75	1.81	0.81	1.11	1.95	0.25	1.95	-1.10
8	1.13	2.11	1.55	1.91	1.63	1.52	0.65	-0.22	-0.49	-0.45	-0.71	-1.21	-0.56	-0.08	0.14	-0.01	0.17	0.10	0.11	0.14	0.06	0.09	0.29	0.50	0.35	2.11	-1.21
9	0.43	0.33	0.00	-0.03	-0.09	0.12	0.02	-0.07	-0.11	-0.15	-0.28	-0.34	-0.41	-0.40	-0.48	-0.44	-0.42	-0.11	0.00	0.42	0.89	1.77	1.32	1.47	0.14	1.77	-0.48
10	1.15	1.61	2.29	2.23	1.65	1.93	1.77	0.05	-0.13	-0.35	-0.34	-0.53	-0.63	-0.62	-0.82	-0.84	-0.52	-0.27	0.10	0.44	0.60	0.82	1.42	1.24	0.51	2.29	-0.84
11	1.05	0.83	0.99	1.28	1.02	1.03	0.12	-0.49	-0.45	-0.86	-0.86	-0.98	-1.14	-1.12	-1.10	-1.01	-0.80	-0.51	-0.03	0.70	1.15	1.11	1.12	1.02	0.09	1.28	-1.14
12	1.18	0.78	0.81	0.98	1.23	0.91	0.98	0.08	-0.57	-0.77	-0.82	-0.87	-0.90	-0.88	-1.06	-0.76	-0.83	-0.52	0.05	0.56	0.40	0.45	0.55	0.70	0.07	1.23	-1.06
13	0.70	0.72	1.12	1.48	1.41	1.38	0.42	-0.81	-0.75	-0.79	-0.86	-0.86	-0.89	-1.02	-1.04	-0.84	-0.69	-0.37	0.68	1.21	0.90	0.40	0.52	0.86	0.12	1.48	-1.04
14	1.06	1.37	1.41	1.79	1.33	1.86	0.87	-0.19	-0.67	-0.64	-0.71	-0.75	-0.77	-0.91	-0.62	-0.64	-0.16	0.06	0.75	1.87	0.77	1.12	1.16	1.53	0.45	1.87	-0.91
15	1.70	1.70	1.40	1.65	1.96	1.72	1.24	-0.26	-0.60	-0.75	-0.58	-0.76	-0.84	-0.87	-0.79	-0.60	-0.42	-0.16	0.20	1.10	2.08	1.26	1.76	1.39	0.52	2.08	-0.87
16	1.30	1.50	1.56	1.68	1.84	1.45	0.66	-0.26	-0.43	-0.64	-0.59	-0.72	-0.93	-0.81	-0.73	-0.57	-0.46	-0.14	0.61	1.15	0.49	1.09	0.89	0.90	0.37	1.84	-0.93
17	1.72	1.69	1.84	1.89	1.59	1.64	1.46	0.01	-0.37	-0.79	-0.87	-0.52	-0.69	-1.13	-1.04	-0.51	-0.14	0.15	0.02	0.13	0.00	0.17	0.06	0.02	0.26	1.89	-1.13
18	0.03	-0.02	0.00	-0.01	-0.02	0.01	0.04	-0.04	-0.01	-0.05	-0.15	-0.17	-0.21	-0.27	-0.26	-0.33	-0.30	-0.24	-0.16	-0.08	-0.14	-0.12	-0.08	-0.11	-0.11	0.04	-0.33
19	-0.10	-0.10	-0.06	0.02	-0.02	-0.01	-0.08	-0.18	-0.39	-0.51	-0.32	-0.39	-0.34	-0.30	-0.16	-0.16	-0.07	0.14	0.30	0.26	0.17	0.06	0.11	0.11	-0.08	0.30	-0.51
20	0.08	0.04	0.12	0.05	0.08	0.10	0.04	0.06	-0.05	-0.14	-0.23	-0.30	-0.42	-0.44	-0.73	-0.85	-0.60	-0.32	0.56	0.35	0.22	0.36	0.20	0.61	-0.05	0.61	-0.85
21	0.98	1.19	1.08	1.10	0.90	0.50	0.19	-0.20	-0.40	-0.25	-0.30	-0.68	-0.64	-0.44	-0.47	-0.51	-0.35	-0.11	0.06	0.27	0.25	0.29	0.07	0.00	0.11	1.19	-0.68
22	0.00	0.07	0.02	0.09	0.15	0.17	0.10	-0.02	-0.13	-0.36	-0.57	-0.74	-0.56	-0.65	-0.47	-0.42	-0.49	-0.30	0.17	0.50	0.37	0.92	1.21	1.32	0.02	1.32	-0.74
23	1.09	1.33	1.21	1.18	1.44	1.41	0.90	-0.12	-0.30	-0.46	-0.55	-0.60	-0.60	-0.77	-0.78	-0.50	-0.60	-0.20	0.23	0.59	1.02	0.39	0.35	0.72	0.27	1.44	-0.78
24	0.62	0.59	0.86	0.71	0.51	0.83	0.57	-0.54	-0.83	-0.64	-0.73	-0.82	-0.98	-0.74	-0.77	-1.08	-0.51	-0.01	0.17	0.45	0.60	1.96	1.25	0.92	0.10	1.96	-1.08
25	0.88	0.71	0.80	0.84	1.36	2.22	1.14	-0.47	-0.40	-0.49	-0.56	-0.74	-0.83	-0.67	-0.65	-0.79	-0.35	0.16	0.11	0.32	0.44	0.14	0.25	0.55	0.17	2.22	-0.83
26	0.76	0.87	1.04	1.03	1.23	0.81	0.48	-0.24	-0.38	-0.43	-0.54	-0.45	-0.59	-0.47	-0.13	0.00	-0.20	-0.25	-0.04	0.38	0.30	0.43	0.46	0.96	0.21	1.23	-0.59
27	0.99	0.70	0.28	0.23	0.54	0.51	0.17	-0.17	-0.14	-0.42	-0.56	-0.64	-0.75	-1.15	-0.70	-0.74	-0.56	-0.26	0.12	0.93	1.79	0.57	0.50	0.80	0.09	1.79	-1.15
28	0.89	1.24	0.93	0.64	0.09	0.02	-0.02	-0.32	-0.68	-0.79	-0.90	-1.03	-0.94	-1.12	-0.94	-0.79	-0.69	-0.47	0.37	0.79	0.48	0.74	1.10	1.03	-0.02	1.24	-1.12
29	1.73	1.48	1.42	1.28	1.10	1.36	0.70	-0.53	-0.87	-0.84	-0.67	-0.91	-0.80	-0.90	-0.78	-0.72	-0.60	-0.29	0.66	0.95	0.60	0.70	2.06	1.58	0.32	2.06	-0.91
30	1.16	1.72	1.37	1.97	1.41	1.45	1.37	-0.33	-0.55	-0.70	-0.68	-0.79	-0.81	-0.65	-0.57	-0.51	-0.10	0.32	0.38	0.58	0.80	1.18	1.95	1.49	0.48	1.97	-0.81
31	1.20	1.17	1.47	1.54	1.80	1.74	1.15	-0.18	-0.66	-0.60	-0.51	-0.62	-0.77	-0.84	-0.66	-0.54	-0.32	0.23	1.09	1.76	1.09	1.30	1.46	1.70	0.54	1.80	-0.84
Avg	0.91	1.00	1.03	1.08	1.03	0.99	0.58	-0.23	-0.44	-0.56	-0.63	-0.74	-0.77	-0.77	-0.69	-0.56	-0.35	-0.12	0.25	0.62	0.64	0.67	0.81	0.90	0.19	1.57	-0.91
Max	1.73	2.11	2.29	2.23	2.40	2.22	1.77	0.08	-0.01	-0.05	-0.15	-0.17	-0.21	-0.08	0.14	0.26	0.37	0.47	1.09	1.87	2.08	1.96	2.06	1.95	0.54	2.40	-0.33
Min	-0.10	-0.10	-0.06	-0.03	-0.09	-0.01	-0.10	-0.81	-0.87	-0.86	-0.95	-1.21	-1.14	-1.15	-1.10	-1.08	-0.83	-0.52	-0.21	-0.08	-0.14	-0.12	-0.08	-0.11	-0.18	0.04	-1.21

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

A-18

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.61	1.78	1.86	1.60	1.47	1.35	1.12	-0.20	-0.74	-0.92	-0.80	-0.91	-1.00	-1.00	-0.91	-0.83	-0.76	-0.52	0.42	0.78	1.09	1.43	1.21	2.00	0.38	2.00	-1.00
2	1.61	1.83	1.80	1.54	1.68	1.71	0.81	-0.36	-0.72	-0.78	-0.89	-0.90	-0.68	-0.62	-0.46	-0.89	-0.83	-0.58	0.01	0.28	0.42	0.61	0.91	0.69	0.26	1.83	-0.90
3	1.21	1.84	1.38	1.21	1.25	1.09	0.84	0.03	-0.62	-0.70	-0.69	-0.94	-1.00	-0.95	-0.83	-0.88	-0.57	-0.35	0.56	1.50	1.00	0.84	1.68	2.05	0.37	2.05	-1.00
4	1.70	1.83	1.58	1.67	1.55	1.62	1.39	0.31	-0.21	-0.36	-0.77	-0.72	-0.96	-0.96	-0.89	-0.68	-0.45	0.01	1.16	1.51	1.41	1.89	1.80	1.88	0.64	1.89	-0.96
5	1.62	1.39	1.38	1.95	1.72	1.53	1.32	-0.31	-0.51	-0.76	-0.67	-0.84	-0.83	-0.82	-0.76	-0.58	-0.32	0.16	1.53	1.86	1.18	1.20	1.87	2.03	0.60	2.03	-0.84
6	2.65	2.36	1.77	2.13	2.08	2.12	1.81	-0.07	-0.62	-0.52	-0.66	-0.76	-0.89	-0.58	-0.68	-0.36	-0.46	-0.08	0.49	1.46	1.66	1.28	1.18	1.29	0.69	2.65	-0.89
7	1.68	1.59	1.77	1.99	1.59	1.79	1.34	-0.55	-0.71	-0.76	-0.98	-1.02	-1.18	-1.20	-0.96	-0.72	-0.57	-0.22	0.84	1.13	2.26	2.62	2.27	2.31	0.60	2.62	-1.20
8	1.92	2.42	3.04	2.26	2.19	2.38	2.38	0.13	-0.55	-0.46	-0.68	-0.70	-0.78	-0.80	-0.71	-0.60	-0.25	0.18	0.94	1.63	0.78	0.82	0.78	1.24	0.73	3.04	-0.80
9	1.66	1.68	1.35	1.81	1.86	1.92	1.55	0.10	-0.41	-0.39	-0.58	-0.58	-0.70	-0.79	-0.73	-0.20	0.02	0.45	1.19	1.71	1.25	1.04	1.39	1.44	0.67	1.92	-0.79
10	1.84	1.71	1.65	1.88	1.53	0.86	0.89	0.96	-0.26	-0.43	-0.66	-0.81	-0.72	-0.56	0.06	-0.02	-0.06	0.27	0.30	0.70	0.50	0.20	0.75	0.94	0.48	1.88	-0.81
11	0.39	0.72	1.53	1.35	1.15	0.87	0.59	-0.10	-0.21	-0.16	-0.20	-0.68	-0.92	-0.64	-0.40	-0.26	-0.25	-0.25	0.58	1.44	0.90	1.13	0.89	1.24	0.36	1.53	-0.92
12	1.53	1.32	1.42	1.26	0.85	1.32	1.14	0.03	-0.49	-0.81	-0.80	-0.81	-1.11	-0.96	-0.95	-0.63	-0.24	0.47	1.07	0.94	0.14	0.25	0.42	0.63	0.25	1.53	-1.11
13	0.90	0.67	0.98	1.36	1.21	1.53	1.44	-0.23	-0.55	-0.75	-0.95	-0.77	-0.93	-1.40	-0.86	-0.77	-0.57	-0.21	0.87	0.79	1.34	1.62	1.99	1.69	0.35	1.99	-1.40
14	1.65	1.85	1.72	1.67	1.68	1.61	1.31	-0.23	-0.68	-0.65	-0.85	-1.03	-1.01	-0.90	-0.89	-0.56	-0.52	-0.04	1.40	1.51	2.59	2.29	1.87	1.13	0.62	2.59	-1.03
15	1.75	1.57	1.49	1.93	1.45	1.67	1.14	-0.14	-0.19	-0.64	-0.46	-0.77	-0.87	-0.71	-0.31	-0.23	-0.11	-0.02	0.22	0.41	0.27	0.35	0.51	0.76	0.38	1.93	-0.87
16	0.82	0.58	0.64	0.82	0.96	0.57	0.32	-0.05	-0.53	-0.27	-0.82	-1.15	-1.31	-1.19	-1.17	-0.89	-0.49	-0.23	0.78	1.79	1.15	1.29	1.31	2.16	0.21	2.16	-1.31
17	1.88	2.05	1.83	2.24	2.08	1.73	1.89	0.47	-0.46	-0.72	-0.78	-0.87	-0.84	-0.58	-0.43	-0.23	-0.07	0.26	1.46	1.29	1.78	1.73	2.49	2.09	0.85	2.49	-0.87
18	2.74	2.45	2.29	2.10	2.98	3.23	3.53	1.29	-0.13	-0.45	-0.48	-0.69	-0.57	-0.31	0.00	-0.15	0.14	0.29	0.22	0.29	0.44	0.69	0.20	0.08	0.84	3.53	-0.69
19	0.20	0.35	0.64	0.22	0.17	0.18	0.12	0.08	0.11	0.02	-0.10	-0.27	-0.22	-0.55	-0.71	-0.65	-0.45	-0.11	0.33	0.56	0.57	0.54	0.39	0.55	0.08	0.64	-0.71
20	0.90	1.25	0.69	0.83	0.19	0.09	0.01	-0.12	-0.42	-0.49	-0.58	-0.47	-0.98	-0.73	-0.13	0.02	-0.19	0.21	0.80	1.28	0.94	0.46	0.62	1.13	0.22	1.28	-0.98
21	1.50	1.69	1.76	1.55	1.65	1.70	1.22	0.14	-0.45	-0.62	-0.77	-0.91	-0.93	-0.97	-0.82	-0.83	-0.52	-0.11	1.35	1.41	1.90	1.38	1.65	1.78	0.57	1.90	-0.97
22	2.02	1.71	2.16	2.22	2.18	2.27	2.17	0.55	-0.68	-0.72	-0.57	-0.80	-0.88	-0.90	-0.80	-0.81	-0.22	0.50	0.88	0.96	1.15	1.42	1.71	1.32	0.70	2.27	-0.90
23	0.71	0.73	0.63	1.51	1.66	1.14	0.96	-0.10	-0.37	-0.42	-0.54	-0.47	-0.45	-0.79	-0.92	-0.77	-0.61	-0.04	1.01	1.36	1.62	1.20	1.54	1.50	0.42	1.66	-0.92
24	1.40	1.19	1.44	1.70	1.48	1.39	1.28	0.23	-0.87	-0.72	-0.76	-0.88	-0.88	-0.91	-0.80	-0.72	-0.47	0.14	2.04	0.84	0.89	1.00	1.22	1.96	0.47	2.04	-0.91
25	1.91	1.72	1.53	1.86	1.68	1.88	1.78	0.21	-0.45	-0.52	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	1.16	1.91	-0.52
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
28	DI	DI	DI	DI	DI	DI	DI	DI	0.61	-0.10	-0.30	-0.38	-0.86	-1.07	-0.81	-0.56	-0.19	-0.07	0.01	0.74	0.44	0.85	0.92	0.64	-0.01	0.92	-1.07
29	0.63	1.16	1.22	1.25	1.30	1.90	1.68	0.28	-0.68	-0.75	-0.74	-1.01	-0.99	-0.93	-1.06	-0.80	-0.49	0.10	2.06	1.22	2.00	2.17	1.70	1.99	0.55	2.17	-1.06
30	1.84	2.07	1.74	1.90	1.70	1.64	1.60	0.20	-0.73	-0.82	-0.86	-0.98	-1.00	-0.73	-0.99	-0.75	-0.51	0.41	1.43	1.08	1.23	2.03	1.87	1.76	0.63	2.07	-1.00
Avg	1.49	1.54	1.53	1.62	1.53	1.52	1.32	0.09	-0.45	-0.56	-0.66	-0.78	-0.87	-0.84	-0.70	-0.57	-0.37	0.02	0.89	1.13	1.14	1.20	1.30	1.42	0.49	2.02	-0.94
Max	2.74	2.45	3.04	2.26	2.98	3.23	3.53	1.29	0.61	0.02	-0.10	-0.27	-0.22	-0.31	0.06	0.02	0.14	0.50	2.06	1.86	2.59	2.62	2.49	2.31	1.16	3.53	-0.52
Min	0.20	0.35	0.63	0.22	0.17	0.09	0.01	-0.55	-0.87	-0.92	-0.98	-1.15	-1.31	-1.40	-1.17	-0.89	-0.83	-0.58	0.01	0.28	0.14	0.20	0.20	0.08	-0.01	0.64	-1.40

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

A-19

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	4	70	225	395	570	727	848	927	974	960	896	802	473	141	54	24	1	0	0	0	337	974	0
2	0	0	0	0	6	63	109	255	541	714	826	890	713	461	686	697	593	290	243	52	8	0	0	0	298	890	0
3	0	0	0	0	5	60	207	370	542	697	822	754	829	788	847	705	598	412	239	87	5	0	0	0	332	847	0
4	0	0	0	0	6	48	66	211	416	80	566	902	940	666	506	87	500	167	159	44	6	0	0	0	224	940	0
5	0	0	0	0	3	46	137	187	440	287	344	397	472	566	601	579	326	452	157	51	4	0	0	0	210	601	0
6	0	0	0	0	2	62	214	385	560	713	840	927	929	968	785	596	528	435	264	100	5	0	0	0	346	968	0
7	0	0	0	0	4	68	168	322	485	663	715	451	222	654	513	85	62	54	146	73	5	0	0	0	195	715	0
8	0	0	0	0	3	48	190	365	543	703	832	Au	Au	Au	863	757	605	425	236	80	3	0	0	0	269	863	0
9	0	0	0	0	4	61	89	188	235	330	466	544	302	267	587	726	575	410	232	75	4	0	0	0	212	726	0
10	0	0	0	0	3	56	203	375	553	711	831	898	895	893	818	595	467	394	225	60	3	0	0	0	333	898	0
11	0	0	0	0	2	42	151	298	463	493	655	818	896	872	761	631	534	338	161	50	3	0	0	0	299	896	0
12	0	0	0	0	3	53	163	355	535	690	821	902	930	909	788	702	540	411	184	63	3	0	0	0	336	930	0
13	0	0	0	0	7	6	38	20	69	54	6	72	839	865	841	558	223	272	84	62	5	0	0	0	168	865	0
14	0	0	0	0	2	53	195	360	539	696	823	904	944	930	855	742	575	419	235	71	2	0	0	0	348	944	0
15	0	0	0	0	2	45	169	324	492	647	771	841	782	774	541	358	409	316	136	19	2	0	0	0	276	841	0
16	0	0	0	0	2	49	155	260	384	470	373	810	863	700	587	457	340	201	98	29	1	0	0	0	241	863	0
17	0	0	0	0	2	34	168	330	501	603	502	548	589	555	630	655	483	318	150	35	1	0	0	0	254	655	0
18	0	0	0	0	1	36	151	290	443	536	571	706	912	851	835	617	518	319	96	24	0	0	0	0	288	912	0
19	0	0	0	0	2	34	126	250	479	620	529	658	869	298	252	190	185	77	95	18	0	0	0	0	195	869	0
20	0	0	0	0	0	11	26	124	332	607	703	848	813	624	551	246	76	39	32	7	0	0	0	0	210	848	0
21	0	0	0	0	0	22	88	210	283	422	701	683	884	573	628	635	438	81	73	49	1	0	0	0	240	884	0
22	0	0	0	0	1	24	134	270	467	636	741	844	823	434	253	242	335	333	199	53	2	0	0	0	241	844	0
23	0	0	0	0	1	36	169	336	518	677	800	892	928	907	834	722	565	394	210	58	1	0	0	0	335	928	0
24	0	0	0	0	1	30	164	328	517	677	800	868	915	921	842	722	587	407	223	59	1	0	0	0	336	921	0
25	0	0	0	0	1	29	121	294	469	612	747	852	881	860	803	690	539	353	190	51	1	0	0	0	312	881	0
26	0	0	0	0	1	37	171	328	439	573	740	879	897	845	656	363	418	359	128	40	1	0	0	0	286	897	0
27	0	0	0	0	0	17	91	187	359	543	519	773	677	457	465	270	313	264	78	7	0	0	0	0	209	773	0
28	0	0	0	0	0	9	62	219	288	548	683	750	725	626	670	500	251	91	46	29	0	0	0	0	229	750	0
29	0	0	0	0	0	4	17	39	48	88	172	532	830	685	748	720	229	21	64	52	1	0	0	0	177	830	0
30	0	0	0	0	0	25	131	277	438	593	729	867	495	511	149	407	297	336	102	30	0	0	0	0	224	867	0
31	0	0	0	0	0	24	131	278	452	615	707	832	298	216	217	473	418	152	92	14	0	0	0	0	205	832	0
Avg	0	0	0	0	2	39	136	272	432	549	651	752	769	688	645	533	419	280	149	47	2	0	0	0	263	853	0
Max	0	0	0	0	7	70	225	395	570	727	848	927	974	968	896	802	605	452	264	100	8	0	0	0	348	974	0
Min	0	0	0	0	0	4	17	20	48	54	6	72	222	216	149	85	62	21	32	7	0	0	0	0	168	601	0

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

	<< Hour >>																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0	0	0	0	0	17	109	253	359	453	707	691	855	622	681	558	409	251	75	15	0	0	0	0	252	855	0
2	0	0	0	0	0	8	37	137	226	322	585	748	579	307	143	65	102	29	16	4	0	0	0	0	138	748	0
3	0	0	0	0	0	4	45	129	195	374	341	467	528	520	624	606	274	272	85	29	0	0	0	0	187	624	0
4	0	0	0	0	0	17	105	249	414	574	695	793	808	822	710	410	89	235	88	14	0	0	0	0	251	822	0
5	0	0	0	0	0	19	101	239	422	588	714	751	801	728	571	388	144	36	19	3	0	0	0	0	230	801	0
6	0	0	0	0	0	10	117	238	330	365	683	732	798	859	717	200	170	118	68	7	0	0	0	0	226	859	0
7	0	0	0	0	0	15	134	201	418	645	696	843	890	753	716	411	251	219	195	21	0	0	0	0	267	890	0
8	0	0	0	0	0	16	111	261	447	521	492	704	278	54	8	93	27	6	0	1	0	0	0	0	126	704	0
9	0	0	0	0	0	6	45	82	142	149	247	335	344	359	472	367	350	185	141	25	0	0	0	0	135	472	0
10	0	0	0	0	0	21	113	189	376	467	421	621	628	647	737	634	417	278	77	18	0	0	0	0	235	737	0
11	0	0	0	0	0	15	126	288	455	633	720	808	873	846	777	670	512	331	152	19	0	0	0	0	301	873	0
12	0	0	0	0	0	8	55	212	436	585	729	821	834	781	746	607	461	306	133	16	0	0	0	0	280	834	0
13	0	0	0	0	0	13	125	293	474	634	766	853	883	858	788	667	510	323	153	13	0	0	0	0	306	883	0
14	0	0	0	0	0	13	89	204	353	496	614	705	764	697	628	521	296	225	103	11	0	0	0	0	238	764	0
15	0	0	0	0	0	9	76	214	350	473	604	706	763	746	662	548	433	280	114	7	0	0	0	0	249	763	0
16	0	0	0	0	0	10	77	203	366	501	488	710	757	697	628	563	411	248	65	14	0	0	0	0	239	757	0
17	0	0	0	0	0	11	70	201	265	459	492	227	401	713	636	248	32	18	37	3	0	0	0	0	159	713	0
18	0	0	0	0	0	0	2	7	17	14	30	75	74	91	95	156	110	45	25	2	0	0	0	0	31	156	0
19	0	0	0	0	0	3	17	58	167	257	167	122	119	83	43	53	40	34	11	3	0	0	0	0	49	257	0
20	0	0	0	0	0	2	7	32	62	88	130	153	286	268	536	570	292	158	43	4	0	0	0	0	110	570	0
21	0	0	0	0	0	5	74	272	338	181	271	577	540	319	405	383	278	106	23	3	0	0	0	0	157	577	0
22	0	0	0	0	0	3	38	91	135	444	688	875	490	591	475	428	446	306	108	5	0	0	0	0	213	875	0
23	0	0	0	0	0	6	91	244	414	570	696	728	825	804	612	426	412	214	32	4	0	0	0	0	253	825	0
24	0	0	0	0	0	6	91	265	449	611	749	834	867	817	561	670	279	114	69	4	0	0	0	0	266	867	0
25	0	0	0	0	0	4	74	238	416	575	703	784	822	793	698	495	247	57	7	1	0	0	0	0	246	822	0
26	0	0	0	0	0	3	77	209	372	510	658	753	795	450	175	98	153	161	49	1	0	0	0	0	186	795	0
27	0	0	0	0	0	4	41	103	230	511	592	577	634	847	465	449	369	199	83	2	0	0	0	0	213	847	0
28	0	0	0	0	0	1	32	191	426	453	559	785	716	808	722	599	442	274	92	2	0	0	0	0	254	808	0
29	0	0	0	0	0	3	95	253	428	592	729	814	848	821	743	619	452	266	83	1	0	0	0	0	281	848	0
30	0	0	0	0	0	3	72	243	420	575	706	791	813	776	701	564	312	153	58	0	0	0	0	0	258	813	0
31	0	0	0	0	0	2	58	206	367	505	623	700	724	651	565	474	327	141	49	1	0	0	0	0	225	724	0
Avg	0	0	0	0	0	8	74	194	331	456	558	648	656	617	550	437	292	180	73	8	0	0	0	0	212	738	0
Max	0	0	0	0	0	21	134	293	474	645	766	875	890	859	788	670	512	331	195	29	0	0	0	0	306	890	0
Min	0	0	0	0	0	0	2	7	17	14	30	75	74	54	8	53	27	6	0	0	0	0	0	0	31	156	0

A-20

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

A-21

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	3	67	234	410	584	717	806	835	808	725	605	441	258	70	1	0	0	0	0	274	835	0
2	0	0	0	0	0	2	60	214	392	561	678	770	593	485	302	514	480	288	84	1	0	0	0	0	226	770	0
3	0	0	0	0	0	1	32	148	384	552	680	783	698	701	742	598	423	237	59	0	0	0	0	0	252	783	0
4	0	0	0	0	0	3	50	125	166	386	749	588	769	789	706	539	383	186	25	0	0	0	0	0	228	789	0
5	0	0	0	0	0	1	47	167	321	556	650	783	676	689	634	500	329	168	37	0	0	0	0	0	232	783	0
6	0	0	0	0	0	2	38	170	315	426	515	691	765	466	528	338	400	204	62	0	0	0	0	0	205	765	0
7	0	0	0	0	0	1	52	214	386	550	681	766	793	762	582	446	320	232	37	0	0	0	0	0	243	793	0
8	0	0	0	0	0	1	47	178	335	515	640	661	701	732	640	496	307	148	13	0	0	0	0	0	226	732	0
9	0	0	0	0	0	0	39	154	264	391	487	509	559	601	502	238	218	104	19	0	0	0	0	0	170	601	0
10	0	0	0	0	0	0	22	110	263	436	574	624	621	480	119	186	183	20	15	0	0	0	0	0	152	624	0
11	0	0	0	0	0	0	44	139	250	238	249	605	715	449	209	179	156	174	19	0	0	0	0	0	143	715	0
12	0	0	0	0	0	1	41	170	372	529	666	749	776	717	637	363	172	33	3	0	0	0	0	0	218	776	0
13	0	0	0	0	0	0	44	209	322	462	610	388	705	814	527	410	255	155	23	0	0	0	0	0	205	814	0
14	0	0	0	0	0	1	50	193	367	534	663	754	782	668	589	378	346	143	15	0	0	0	0	0	228	782	0
15	0	0	0	0	0	0	52	188	310	567	354	631	652	559	222	188	136	96	15	0	0	0	0	0	165	652	0
16	0	0	0	0	0	0	25	123	331	263	611	804	773	734	681	449	237	150	17	0	0	0	0	0	217	804	0
17	0	0	0	0	0	1	25	202	318	481	539	633	771	503	398	284	205	77	11	0	0	0	0	0	185	771	0
18	0	0	0	0	0	0	30	161	337	486	479	697	608	347	115	268	71	27	2	0	0	0	0	0	151	697	0
19	0	0	0	0	0	0	5	17	28	62	52	221	198	583	489	485	317	126	6	0	0	0	0	0	108	583	0
20	0	0	0	0	0	0	7	62	207	249	334	418	753	418	194	188	194	32	7	0	0	0	0	0	128	753	0
21	0	0	0	0	0	0	20	147	341	503	630	713	740	704	622	492	328	148	6	0	0	0	0	0	225	740	0
22	0	0	0	0	0	0	20	167	336	514	560	715	747	663	534	482	211	81	3	0	0	0	0	0	210	747	0
23	0	0	0	0	0	0	33	158	217	260	293	221	311	527	606	443	307	125	5	0	0	0	0	0	146	606	0
24	0	0	0	0	0	0	25	165	328	489	613	692	716	679	583	466	268	117	5	0	0	0	0	0	214	716	0
25	0	0	0	0	0	0	24	145	308	491	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	97	491	0
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI			
28	DI	DI	DI	DI	DI	DI	DI	DI	DI	67	112	140	441	588	414	304	63	16	1	0	0	0	0	0	144	588	0
29	0	0	0	0	0	0	10	157	318	482	606	682	705	670	585	452	281	101	1	0	0	0	0	0	210	705	0
30	0	0	0	0	0	0	16	169	317	475	596	672	693	657	569	438	268	91	1	0	0	0	0	0	207	693	0
Avg	0	0	0	0	0	1	34	159	297	434	532	620	670	622	498	397	270	131	21	0	0	0	0	0	196	718	0
Max	0	0	0	0	0	3	67	234	410	584	749	806	835	814	742	605	480	288	84	1	0	0	0	0	274	835	0
Min	0	0	0	0	0	0	5	17	28	62	52	158	198	347	115	179	63	16	1	0	0	0	0	0	97	491	0

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

A-22

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	24.50	24.50	24.50	24.49	24.50	24.50	24.50	24.50	24.49	24.48	24.48	24.47	24.46	24.44	24.43	24.42	24.41	24.41	24.44	24.46	24.48	24.46	24.46	24.47	24.47	24.50	24.41
2	24.48	24.48	24.49	24.50	24.50	24.51	24.52	24.52	24.51	24.50	24.49	24.49	24.48	24.47	24.46	24.45	24.44	24.43	24.43	24.44	24.45	24.47	24.48	24.49	24.48	24.52	24.43
3	24.49	24.49	24.49	24.49	24.49	24.50	24.51	24.50	24.49	24.49	24.49	24.48	24.47	24.46	24.44	24.45	24.44	24.44	24.45	24.45	24.47	24.49	24.49	24.49	24.48	24.51	24.44
4	24.50	24.50	24.50	24.49	24.50	24.51	24.51	24.50	24.50	24.53	24.52	24.50	24.48	24.47	24.46	24.45	24.44	24.45	24.45	24.47	24.49	24.51	24.51	24.51	24.49	24.53	24.44
5	24.52	24.52	24.52	24.53	24.54	24.57	24.59	24.61	24.61	24.60	24.60	24.61	24.61	24.61	24.60	24.59	24.59	24.58	24.59	24.59	24.60	24.61	24.61	24.61	24.58	24.61	24.52
6	24.60	24.60	24.60	24.60	24.60	24.61	24.61	24.61	24.61	24.59	24.59	24.58	24.57	24.55	24.55	24.54	24.53	24.52	24.52	24.53	24.54	24.55	24.55	24.55	24.57	24.61	24.52
7	24.54	24.54	24.53	24.53	24.52	24.53	24.53	24.52	24.50	24.47	24.46	24.45	24.45	24.43	24.39	24.41	24.48	24.46	24.43	24.41	24.41	24.43	24.43	24.43	24.47	24.54	24.39
8	24.43	24.43	24.43	24.43	24.43	24.43	24.44	24.44	24.44	24.44	24.44	24.45	24.45	24.45	24.45	24.45	24.45	24.45	24.46	24.48	24.49	24.50	24.52	24.54	24.45	24.54	24.43
9	24.54	24.53	24.53	24.52	24.52	24.54	24.56	24.57	24.58	24.57	24.59	24.61	24.62	24.64	24.63	24.63	24.62	24.63	24.63	24.64	24.66	24.67	24.68	24.68	24.60	24.68	24.52
10	24.68	24.68	24.69	24.68	24.68	24.69	24.71	24.70	24.68	24.67	24.66	24.65	24.64	24.63	24.62	24.61	24.61	24.60	24.59	24.58	24.59	24.61	24.60	24.60	24.64	24.71	24.58
11	24.59	24.59	24.58	24.58	24.58	24.58	24.58	24.58	24.56	24.55	24.54	24.53	24.51	24.50	24.50	24.51	24.51	24.51	24.51	24.54	24.57	24.59	24.60	24.60	24.55	24.60	24.50
12	24.60	24.59	24.60	24.59	24.59	24.60	24.61	24.61	24.60	24.60	24.59	24.58	24.57	24.56	24.56	24.55	24.54	24.54	24.53	24.54	24.55	24.57	24.57	24.57	24.58	24.61	24.53
13	24.57	24.57	24.56	24.55	24.53	24.54	24.53	24.57	24.60	24.61	24.64	24.59	24.58	24.59	24.58	24.57	24.57	24.56	24.56	24.57	24.58	24.59	24.59	24.59	24.57	24.64	24.53
14	24.59	24.58	24.58	24.57	24.57	24.58	24.59	24.58	24.57	24.57	24.56	24.55	24.53	24.52	24.51	24.50	24.49	24.47	24.47	24.47	24.48	24.49	24.49	24.49	24.53	24.59	24.47
15	24.48	24.48	24.48	24.48	24.47	24.47	24.48	24.47	24.47	24.45	24.44	24.44	24.43	24.42	24.41	24.40	24.39	24.37	24.37	24.40	24.41	24.42	24.42	24.44	24.44	24.48	24.37
16	24.46	24.44	24.45	24.47	24.47	24.47	24.46	24.47	24.48	24.48	24.48	24.49	24.48	24.47	24.47	24.46	24.46	24.45	24.45	24.46	24.48	24.52	24.51	24.50	24.47	24.52	24.44
17	24.50	24.50	24.50	24.51	24.52	24.53	24.54	24.55	24.55	24.54	24.55	24.57	24.57	24.57	24.57	24.55	24.55	24.55	24.56	24.57	24.58	24.60	24.61	24.61	24.55	24.61	24.50
18	24.61	24.61	24.61	24.60	24.62	24.63	24.65	24.65	24.65	24.65	24.65	24.65	24.64	24.63	24.62	24.61	24.60	24.60	24.60	24.62	24.63	24.64	24.64	24.63	24.63	24.65	24.60
19	24.63	24.63	24.63	24.63	24.63	24.64	24.64	24.65	24.64	24.64	24.63	24.61	24.60	24.60	24.60	24.60	24.59	24.61	24.61	24.60	24.62	24.64	24.64	24.61	24.62	24.65	24.59
20	24.60	24.59	24.58	24.58	24.58	24.60	24.61	24.60	24.59	24.58	24.57	24.56	24.55	24.53	24.51	24.51	24.50	24.52	24.55	24.56	24.56	24.57	24.56	24.55	24.56	24.61	24.50
21	24.54	24.54	24.54	24.54	24.54	24.54	24.55	24.55	24.55	24.54	24.53	24.52	24.50	24.50	24.49	24.47	24.45	24.45	24.51	24.49	24.48	24.50	24.51	24.54	24.52	24.55	24.45
22	24.52	24.51	24.51	24.52	24.53	24.52	24.53	24.53	24.52	24.50	24.49	24.48	24.47	24.46	24.46	24.46	24.47	24.48	24.49	24.50	24.53	24.54	24.55	24.55	24.50	24.55	24.46
23	24.55	24.56	24.57	24.57	24.57	24.59	24.61	24.62	24.61	24.60	24.60	24.59	24.59	24.59	24.58	24.57	24.56	24.56	24.58	24.60	24.62	24.63	24.64	24.64	24.59	24.64	24.55
24	24.65	24.67	24.67	24.67	24.67	24.67	24.69	24.70	24.69	24.68	24.67	24.66	24.64	24.62	24.61	24.59	24.57	24.56	24.55	24.55	24.56	24.58	24.58	24.57	24.63	24.70	24.55
25	24.57	24.57	24.56	24.56	24.56	24.56	24.57	24.58	24.57	24.57	24.56	24.55	24.54	24.53	24.52	24.51	24.50	24.49	24.49	24.50	24.52	24.53	24.54	24.54	24.54	24.58	24.49
26	24.54	24.53	24.54	24.54	24.54	24.55	24.57	24.57	24.57	24.56	24.56	24.55	24.54	24.53	24.51	24.51	24.50	24.49	24.49	24.50	24.52	24.54	24.54	24.55	24.53	24.57	24.49
27	24.55	24.53	24.53	24.53	24.53	24.53	24.53	24.54	24.53	24.53	24.53	24.52	24.51	24.51	24.51	24.52	24.51	24.51	24.51	24.53	24.55	24.57	24.59	24.60	24.53	24.60	24.51
28	24.61	24.62	24.62	24.63	24.63	24.64	24.66	24.67	24.68	24.68	24.68	24.68	24.67	24.66	24.65	24.64	24.64	24.64	24.64	24.65	24.66	24.66	24.67	24.67	24.65	24.68	24.61
29	24.67	24.67	24.67	24.66	24.66	24.66	24.67	24.67	24.67	24.67	24.67	24.66	24.63	24.61	24.59	24.58	24.58	24.61	24.62	24.63	24.65	24.66	24.67	24.67	24.65	24.67	24.58
30	24.66	24.66	24.67	24.67	24.67	24.67	24.69	24.70	24.70	24.69	24.68	24.68	24.67	24.66	24.67	24.68	24.68	24.67	24.68	24.68	24.70	24.71	24.72	24.72	24.68	24.72	24.66
31	24.72	24.72	24.72	24.72	24.73	24.74	24.75	24.75	24.75	24.74	24.74	24.73	24.74	24.74	24.73	24.71	24.70	24.70	24.70	24.71	24.71	24.72	24.72	24.73	24.73	24.75	24.70
Avg	24.56	24.56	24.56	24.56	24.56	24.57	24.58	24.58	24.58	24.57	24.57	24.56	24.55	24.55	24.54	24.53	24.53	24.53	24.53	24.54	24.55	24.57	24.57	24.57	24.56	24.60	24.51
Max	24.72	24.72	24.72	24.72	24.73	24.74	24.75	24.75	24.75	24.74	24.74	24.73	24.74	24.74	24.73	24.71	24.70	24.70	24.70	24.71	24.71	24.72	24.72	24.73	24.73	24.75	24.70
Min	24.43	24.43	24.43	24.43	24.43	24.43	24.44	24.44	24.44	24.44	24.44	24.44	24.43	24.42	24.39	24.40	24.39	24.37	24.37	24.40	24.41	24.42	24.42	24.43	24.44	24.48	24.37

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

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	24.73	24.73	24.73	24.72	24.73	24.73	24.73	24.72	24.72	24.71	24.70	24.69	24.68	24.67	24.66	24.64	24.62	24.61	24.61	24.61	24.62	24.62	24.63	24.64	24.68	24.73	24.61
2	24.65	24.64	24.64	24.64	24.64	24.65	24.66	24.66	24.66	24.66	24.65	24.64	24.62	24.60	24.60	24.63	24.65	24.66	24.65	24.67	24.68	24.67	24.67	24.66	24.65	24.68	24.60
3	24.65	24.65	24.64	24.63	24.63	24.64	24.65	24.66	24.66	24.65	24.64	24.63	24.63	24.63	24.62	24.61	24.60	24.59	24.59	24.59	24.61	24.62	24.62	24.63	24.63	24.66	24.59
4	24.63	24.62	24.61	24.62	24.62	24.62	24.63	24.64	24.64	24.63	24.63	24.62	24.61	24.60	24.59	24.57	24.55	24.56	24.55	24.56	24.56	24.57	24.56	24.56	24.60	24.64	24.55
5	24.55	24.55	24.55	24.54	24.55	24.56	24.56	24.56	24.55	24.54	24.52	24.51	24.50	24.49	24.46	24.45	24.46	24.46	24.48	24.46	24.49	24.48	24.46	24.46	24.51	24.56	24.45
6	24.44	24.44	24.44	24.41	24.40	24.41	24.43	24.44	24.43	24.41	24.39	24.38	24.39	24.38	24.37	24.38	24.38	24.39	24.39	24.41	24.43	24.45	24.47	24.47	24.41	24.47	24.37
7	24.47	24.47	24.47	24.46	24.47	24.47	24.47	24.47	24.45	24.45	24.45	24.43	24.41	24.41	24.40	24.38	24.38	24.36	24.36	24.36	24.37	24.37	24.37	24.36	24.42	24.47	24.36
8	24.36	24.35	24.34	24.33	24.33	24.32	24.33	24.32	24.30	24.28	24.29	24.29	24.27	24.28	24.37	24.40	24.43	24.41	24.39	24.40	24.44	24.46	24.44	24.45	24.36	24.46	24.27
9	24.45	24.45	24.45	24.45	24.45	24.46	24.48	24.48	24.49	24.50	24.50	24.51	24.50	24.49	24.48	24.48	24.47	24.47	24.47	24.48	24.50	24.49	24.49	24.48	24.48	24.51	24.45
10	24.48	24.46	24.46	24.46	24.45	24.46	24.47	24.47	24.47	24.46	24.47	24.47	24.45	24.45	24.45	24.45	24.45	24.45	24.46	24.47	24.48	24.50	24.50	24.50	24.47	24.50	24.45
11	24.50	24.50	24.49	24.49	24.49	24.48	24.50	24.50	24.50	24.50	24.50	24.49	24.49	24.49	24.48	24.47	24.47	24.47	24.48	24.50	24.52	24.54	24.56	24.58	24.50	24.58	24.47
12	24.60	24.61	24.62	24.63	24.64	24.66	24.67	24.68	24.68	24.68	24.68	24.67	24.66	24.64	24.63	24.62	24.61	24.61	24.62	24.63	24.66	24.68	24.70	24.71	24.65	24.71	24.60
13	24.73	24.72	24.73	24.73	24.73	24.73	24.75	24.76	24.75	24.73	24.72	24.71	24.70	24.69	24.67	24.66	24.65	24.64	24.64	24.64	24.67	24.67	24.67	24.67	24.70	24.76	24.64
14	24.67	24.67	24.66	24.67	24.67	24.66	24.67	24.67	24.67	24.66	24.65	24.64	24.63	24.62	24.60	24.59	24.58	24.57	24.57	24.59	24.61	24.62	24.61	24.61	24.63	24.67	24.57
15	24.61	24.61	24.61	24.61	24.62	24.62	24.62	24.63	24.63	24.62	24.61	24.60	24.58	24.57	24.56	24.54	24.52	24.51	24.50	24.50	24.51	24.51	24.51	24.51	24.57	24.63	24.50
16	24.50	24.49	24.48	24.47	24.46	24.46	24.46	24.46	24.45	24.43	24.43	24.41	24.39	24.37	24.36	24.34	24.33	24.32	24.33	24.34	24.34	24.35	24.34	24.33	24.40	24.50	24.32
17	24.33	24.32	24.31	24.30	24.29	24.29	24.28	24.27	24.27	24.26	24.24	24.25	24.24	24.23	24.20	24.24	24.32	24.30	24.29	24.33	24.40	24.39	24.40	24.39	24.30	24.40	24.20
18	24.39	24.41	24.41	24.42	24.43	24.45	24.46	24.48	24.46	24.48	24.51	24.51	24.50	24.50	24.51	24.52	24.52	24.52	24.53	24.52	24.53	24.53	24.52	24.51	24.48	24.53	24.39
19	24.51	24.49	24.48	24.46	24.46	24.45	24.45	24.45	24.45	24.44	24.43	24.42	24.42	24.41	24.41	24.42	24.42	24.41	24.41	24.41	24.42	24.42	24.41	24.41	24.44	24.51	24.41
20	24.40	24.40	24.39	24.40	24.40	24.41	24.43	24.44	24.45	24.46	24.47	24.47	24.48	24.48	24.48	24.48	24.46	24.46	24.47	24.47	24.47	24.47	24.46	24.45	24.45	24.48	24.39
21	24.44	24.44	24.43	24.42	24.40	24.39	24.38	24.38	24.37	24.36	24.34	24.33	24.32	24.31	24.29	24.28	24.27	24.26	24.26	24.25	24.25	24.25	24.27	24.28	24.33	24.44	24.25
22	24.26	24.25	24.25	24.25	24.26	24.26	24.28	24.29	24.30	24.31	24.31	24.32	24.33	24.33	24.32	24.32	24.31	24.30	24.30	24.30	24.32	24.32	24.32	24.32	24.30	24.33	24.25
23	24.31	24.31	24.31	24.31	24.30	24.30	24.30	24.31	24.30	24.29	24.28	24.28	24.28	24.28	24.28	24.30	24.32	24.32	24.36	24.39	24.41	24.41	24.42	24.44	24.32	24.44	24.28
24	24.44	24.44	24.46	24.47	24.49	24.50	24.52	24.53	24.55	24.55	24.56	24.56	24.56	24.55	24.55	24.54	24.54	24.54	24.55	24.56	24.57	24.57	24.58	24.58	24.53	24.58	24.44
25	24.57	24.57	24.57	24.56	24.55	24.55	24.56	24.56	24.56	24.55	24.54	24.53	24.51	24.50	24.50	24.48	24.48	24.48	24.51	24.55	24.58	24.55	24.53	24.52	24.54	24.58	24.48
26	24.52	24.51	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.49	24.48	24.47	24.47	24.46	24.47	24.49	24.49	24.48	24.46	24.46	24.46	24.46	24.45	24.45	24.48	24.52	24.45
27	24.44	24.43	24.42	24.41	24.40	24.40	24.40	24.41	24.41	24.41	24.41	24.40	24.41	24.42	24.43	24.44	24.44	24.44	24.46	24.47	24.48	24.50	24.50	24.51	24.44	24.51	24.40
28	24.51	24.51	24.51	24.52	24.52	24.54	24.55	24.56	24.57	24.58	24.59	24.59	24.59	24.59	24.58	24.58	24.57	24.57	24.57	24.57	24.58	24.58	24.57	24.56	24.56	24.59	24.51
29	24.56	24.54	24.53	24.53	24.53	24.53	24.54	24.55	24.54	24.53	24.52	24.51	24.50	24.48	24.47	24.46	24.45	24.44	24.44	24.45	24.46	24.46	24.45	24.44	24.50	24.56	24.44
30	24.43	24.43	24.42	24.41	24.41	24.41	24.42	24.42	24.41	24.40	24.38	24.36	24.35	24.32	24.30	24.28	24.27	24.26	24.26	24.28	24.28	24.28	24.28	24.27	24.35	24.43	24.26
31	24.27	24.26	24.26	24.27	24.27	24.26	24.27	24.28	24.27	24.26	24.25	24.24	24.23	24.24	24.24	24.24	24.24	24.25	24.28	24.29	24.30	24.31	24.30	24.30	24.27	24.31	24.23
Avg	24.50	24.49	24.49	24.49	24.49	24.49	24.50	24.50	24.50	24.49	24.49	24.48	24.47	24.47	24.46	24.46	24.46	24.46	24.46	24.47	24.48	24.49	24.49	24.49	24.48	24.54	24.43
Max	24.73	24.73	24.73	24.73	24.73	24.73	24.75	24.76	24.75	24.73	24.72	24.71	24.70	24.69	24.67	24.66	24.65	24.66	24.65	24.67	24.68	24.68	24.70	24.71	24.70	24.76	24.64
Min	24.26	24.25	24.25	24.25	24.26	24.26	24.27	24.27	24.27	24.26	24.24	24.24	24.23	24.23	24.20	24.24	24.25	24.26	24.26	24.25	24.25	24.25	24.27	24.27	24.27	24.31	24.20

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

A-24

	<< Hour >>																											
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	24.30	24.30	24.30	24.31	24.32	24.33	24.36	24.38	24.38	24.38	24.38	24.37	24.37	24.37	24.37	24.36	24.37	24.37	24.38	24.39	24.42	24.42	24.43	24.42	24.37	24.43	24.30	
2	24.43	24.43	24.43	24.44	24.45	24.46	24.47	24.49	24.49	24.49	24.49	24.49	24.48	24.49	24.49	24.49	24.49	24.50	24.51	24.52	24.54	24.55	24.55	24.54	24.49	24.55	24.43	
3	24.54	24.53	24.52	24.53	24.54	24.55	24.55	24.56	24.55	24.55	24.54	24.53	24.53	24.52	24.52	24.51	24.51	24.51	24.52	24.52	24.54	24.55	24.54	24.54	24.53	24.56	24.51	
4	24.54	24.54	24.54	24.55	24.54	24.54	24.55	24.56	24.56	24.57	24.56	24.55	24.54	24.53	24.52	24.51	24.51	24.51	24.52	24.53	24.54	24.54	24.54	24.54	24.54	24.57	24.51	
5	24.53	24.53	24.53	24.53	24.52	24.53	24.54	24.56	24.57	24.56	24.55	24.54	24.53	24.52	24.50	24.50	24.49	24.47	24.47	24.49	24.51	24.51	24.51	24.51	24.52	24.57	24.47	
6	24.50	24.50	24.50	24.50	24.49	24.50	24.50	24.52	24.52	24.52	24.52	24.51	24.51	24.50	24.50	24.51	24.51	24.51	24.52	24.55	24.57	24.58	24.59	24.60	24.52	24.60	24.49	
7	24.60	24.60	24.61	24.62	24.63	24.63	24.65	24.66	24.67	24.67	24.67	24.66	24.65	24.64	24.64	24.63	24.62	24.62	24.62	24.64	24.65	24.66	24.65	24.65	24.64	24.67	24.60	
8	24.65	24.64	24.64	24.65	24.63	24.63	24.62	24.62	24.62	24.60	24.58	24.56	24.54	24.53	24.50	24.48	24.48	24.47	24.48	24.50	24.51	24.51	24.52	24.53	24.56	24.65	24.47	
9	24.53	24.53	24.52	24.52	24.52	24.52	24.53	24.54	24.55	24.55	24.54	24.53	24.51	24.50	24.50	24.49	24.49	24.48	24.48	24.51	24.52	24.53	24.52	24.52	24.52	24.55	24.48	
10	24.51	24.50	24.51	24.52	24.52	24.52	24.52	24.53	24.53	24.52	24.50	24.49	24.48	24.47	24.45	24.44	24.43	24.44	24.44	24.45	24.51	24.50	24.48	24.49	24.49	24.53	24.43	
11	24.47	24.47	24.48	24.49	24.50	24.50	24.51	24.54	24.54	24.54	24.55	24.54	24.54	24.54	24.54	24.54	24.55	24.56	24.57	24.57	24.58	24.58	24.58	24.58	24.54	24.58	24.47	
12	24.57	24.57	24.57	24.56	24.55	24.55	24.55	24.56	24.56	24.55	24.53	24.52	24.51	24.49	24.48	24.47	24.47	24.47	24.47	24.48	24.50	24.52	24.51	24.49	24.52	24.57	24.47	
13	24.49	24.48	24.48	24.48	24.48	24.49	24.49	24.50	24.51	24.52	24.51	24.51	24.50	24.49	24.49	24.48	24.48	24.48	24.48	24.49	24.50	24.50	24.50	24.51	24.49	24.52	24.48	
14	24.50	24.50	24.51	24.51	24.51	24.51	24.52	24.53	24.54	24.53	24.53	24.52	24.50	24.48	24.47	24.45	24.44	24.43	24.42	24.42	24.42	24.41	24.40	24.39	24.48	24.54	24.39	
15	24.38	24.37	24.36	24.34	24.34	24.33	24.33	24.34	24.34	24.33	24.33	24.31	24.28	24.27	24.26	24.26	24.26	24.26	24.27	24.27	24.28	24.28	24.28	24.28	24.31	24.38	24.26	
16	24.28	24.28	24.28	24.28	24.28	24.29	24.31	24.33	24.34	24.36	24.38	24.41	24.45	24.45	24.45	24.45	24.46	24.48	24.49	24.51	24.53	24.53	24.53	24.53	24.40	24.53	24.28	
17	24.54	24.53	24.51	24.50	24.49	24.49	24.48	24.47	24.47	24.46	24.46	24.44	24.42	24.40	24.39	24.38	24.37	24.36	24.36	24.38	24.38	24.38	24.38	24.38	24.43	24.54	24.36	
18	24.38	24.37	24.35	24.34	24.32	24.31	24.30	24.29	24.27	24.26	24.24	24.21	24.20	24.17	24.16	24.15	24.14	24.15	24.15	24.19	24.21	24.23	24.27	24.28	24.25	24.38	24.14	
19	24.26	24.25	24.25	24.25	24.24	24.23	24.25	24.26	24.28	24.30	24.31	24.30	24.32	24.32	24.31	24.31	24.32	24.34	24.36	24.39	24.41	24.43	24.44	24.45	24.32	24.45	24.23	
20	24.46	24.47	24.48	24.49	24.51	24.53	24.54	24.56	24.57	24.59	24.60	24.60	24.61	24.62	24.62	24.64	24.65	24.67	24.69	24.71	24.73	24.74	24.74	24.74	24.61	24.74	24.46	
21	24.75	24.75	24.75	24.74	24.74	24.75	24.75	24.74	24.75	24.76	24.75	24.74	24.73	24.72	24.71	24.71	24.70	24.70	24.69	24.69	24.69	24.69	24.69	24.68	24.72	24.76	24.68	
22	24.67	24.66	24.66	24.64	24.62	24.61	24.60	24.60	24.60	24.59	24.57	24.54	24.52	24.50	24.49	24.48	24.47	24.47	24.47	24.48	24.50	24.51	24.52	24.53	24.55	24.67	24.47	
23	24.54	24.55	24.56	24.56	24.55	24.56	24.58	24.59	24.61	24.62	24.62	24.62	24.61	24.59	24.58	24.58	24.60	24.60	24.61	24.62	24.63	24.65	24.65	24.65	24.60	24.65	24.54	
24	24.65	24.64	24.64	24.64	24.64	24.65	24.65	24.65	24.65	24.65	24.65	24.64	24.61	24.60	24.59	24.57	24.57	24.56	24.55	24.55	24.55	24.54	24.53	24.52	24.60	24.65	24.52	
25	24.51	24.50	24.48	24.47	24.47	24.47	24.46	24.47	24.47	24.46	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	24.48	24.51	24.46	
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
28	DI	DI	DI	DI	DI	DI	DI	DI	DI	24.17	24.18	24.19	24.18	24.19	24.21	24.23	24.26	24.32	24.36	24.37	24.38	24.39	24.40	24.41	24.42	24.29	24.42	24.17
29	24.42	24.43	24.44	24.45	24.48	24.50	24.51	24.52	24.53	24.54	24.54	24.53	24.53	24.53	24.53	24.53	24.55	24.56	24.57	24.58	24.59	24.60	24.62	24.63	24.53	24.63	24.42	
30	24.63	24.64	24.64	24.64	24.64	24.65	24.66	24.66	24.67	24.68	24.67	24.66	24.63	24.61	24.59	24.58	24.58	24.58	24.57	24.58	24.58	24.57	24.57	24.56	24.62	24.68	24.56	
Avg	24.50	24.50	24.50	24.50	24.50	24.50	24.51	24.52	24.51	24.51	24.51	24.50	24.49	24.48	24.48	24.47	24.48	24.48	24.48	24.48	24.50	24.51	24.52	24.52	24.52	24.50	24.57	24.43
Max	24.75	24.75	24.75	24.74	24.74	24.75	24.75	24.74	24.75	24.76	24.75	24.74	24.73	24.72	24.71	24.71	24.70	24.70	24.69	24.71	24.73	24.74	24.74	24.74	24.72	24.76	24.68	
Min	24.26	24.25	24.25	24.25	24.24	24.23	24.25	24.26	24.17	24.18	24.19	24.18	24.19	24.17	24.16	24.15	24.14	24.15	24.15	24.19	24.21	24.23	24.27	24.28	24.25	24.38	24.14	

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

A-25

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	52.1	57.7	62.0	62.9	70.3	69.4	57.3	42.5	26.1	19.5	17.6	16.7	15.6	13.6	12.2	11.0	11.6	17.1	25.0	29.5	42.5	53.1	72.4	77.1	39.0	77.1	11.0
2	80.0	82.7	78.4	84.8	86.1	85.4	79.4	67.2	45.4	31.1	28.2	26.6	24.5	22.5	21.1	19.9	18.2	22.4	23.3	31.7	42.8	55.1	60.6	60.7	49.1	86.1	18.2
3	72.9	73.2	73.8	79.6	80.2	78.4	65.2	46.6	34.0	29.8	28.6	26.7	20.1	18.4	19.0	19.3	18.0	18.3	20.9	27.6	31.4	32.7	38.0	54.1	42.0	80.2	18.0
4	58.4	62.8	66.9	69.8	70.6	69.0	64.7	47.5	36.7	46.6	49.5	30.1	23.4	22.3	21.4	22.5	21.6	23.9	28.0	29.8	36.9	43.3	52.7	61.8	44.2	70.6	21.4
5	67.8	70.1	73.0	81.1	83.6	85.3	80.7	76.5	66.9	62.1	57.2	57.5	53.5	48.1	43.8	41.0	38.8	42.4	48.3	55.1	61.2	64.2	69.3	73.0	62.5	85.3	38.8
6	77.3	80.6	80.9	82.2	83.6	82.3	71.4	53.3	42.2	36.9	27.7	23.9	19.6	13.6	12.0	13.1	15.8	15.0	15.4	18.8	27.7	41.5	54.6	62.3	43.8	83.6	12.0
7	70.5	74.6	80.7	85.7	87.8	87.7	77.2	62.4	43.6	27.8	19.6	18.7	28.5	31.3	23.2	32.6	74.0	78.3	73.9	73.2	81.1	83.4	87.3	88.8	62.2	88.8	18.7
8	91.0	92.5	92.7	92.8	93.0	93.4	93.6	88.1	59.3	36.6	26.8	20.6	19.2	19.4	17.2	14.3	14.4	18.8	25.6	40.1	51.3	60.7	65.3	73.6	54.2	93.6	14.3
9	80.3	84.5	85.8	88.1	89.8	88.0	80.4	67.1	57.4	47.4	41.5	43.5	43.0	45.8	31.4	23.2	18.6	17.2	20.3	26.9	37.1	47.0	55.7	67.8	53.7	89.8	17.2
10	74.4	79.3	81.7	84.9	86.0	83.4	67.9	53.6	33.3	22.4	18.4	16.0	16.1	16.6	14.2	11.3	13.2	12.4	12.9	19.2	32.4	39.7	50.8	55.3	41.5	86.0	11.3
11	65.1	65.0	67.7	71.5	72.4	72.2	63.7	46.5	35.8	23.5	16.8	15.5	15.1	14.6	14.3	12.9	11.6	10.5	26.7	39.9	50.7	60.5	71.0	78.1	42.6	78.1	10.5
12	81.9	85.1	83.9	84.2	86.8	85.8	78.3	50.1	37.3	32.7	28.1	24.0	25.4	24.2	20.8	20.5	21.7	23.0	24.8	26.0	29.9	31.7	32.1	33.8	44.7	86.8	20.5
13	39.7	37.6	37.2	41.0	38.8	40.9	39.1	47.6	76.8	79.4	84.9	83.8	69.3	56.6	51.1	43.7	44.6	43.7	51.1	54.8	59.4	65.1	71.0	80.6	55.7	84.9	37.2
14	85.4	87.9	88.7	90.2	91.6	92.3	85.7	70.4	55.5	48.6	42.4	37.7	30.4	23.2	21.2	20.6	18.8	18.7	20.2	30.0	37.2	49.2	60.9	62.7	52.9	92.3	18.7
15	69.3	74.0	77.7	81.2	85.8	85.0	78.2	60.1	42.6	24.6	20.9	16.8	14.5	15.1	15.9	15.4	13.8	14.3	17.4	20.3	27.4	31.1	38.9	52.8	41.4	85.8	13.8
16	55.6	69.5	72.9	77.1	75.3	79.3	73.2	61.2	44.9	31.2	27.5	24.3	22.1	19.7	18.2	18.5	18.0	22.1	25.3	32.0	38.5	34.2	36.3	48.0	42.7	79.3	18.0
17	54.8	63.6	67.7	74.2	76.8	78.1	67.9	50.4	36.1	24.6	24.2	24.7	21.6	20.5	17.9	14.1	11.9	13.2	19.7	23.9	34.6	39.7	49.4	55.2	40.2	78.1	11.9
18	62.7	64.5	62.7	64.7	68.7	69.9	63.7	50.9	37.1	23.4	20.9	18.9	14.8	9.8	7.7	7.2	6.4	7.7	12.1	21.3	25.5	29.0	31.0	33.0	33.9	69.9	6.4
19	40.8	44.0	44.2	48.5	57.3	62.4	57.2	45.8	28.9	23.7	18.2	17.3	15.1	22.1	30.9	28.0	24.7	36.2	31.3	29.2	34.1	42.6	56.1	62.9	37.6	62.9	15.1
20	67.2	67.8	66.0	72.0	74.3	76.9	80.4	81.7	68.1	55.1	46.0	39.0	33.7	32.0	26.8	28.2	33.3	47.0	60.3	63.1	70.5	75.8	77.0	81.6	59.3	81.7	26.8
21	82.3	86.4	87.8	85.1	88.6	88.7	86.6	74.5	61.9	46.3	37.5	34.9	29.0	30.6	24.8	19.0	19.1	22.4	55.0	65.1	75.3	78.0	80.7	62.0	59.2	88.7	19.0
22	70.4	75.2	78.9	85.1	84.8	85.5	81.2	64.8	48.8	35.3	30.4	28.4	23.2	22.2	19.9	22.5	26.5	28.4	30.5	35.5	46.2	58.3	67.3	73.4	50.9	85.5	19.9
23	78.0	82.5	82.4	84.9	84.1	83.6	73.4	47.5	22.7	19.0	17.4	14.7	14.3	13.4	13.2	12.8	12.9	12.9	14.2	17.5	23.1	29.1	39.2	49.2	39.3	84.9	12.8
24	55.0	59.6	66.9	68.8	71.3	72.8	60.8	44.9	28.8	22.4	19.5	16.4	14.0	10.0	9.5	9.8	8.7	8.7	11.4	18.6	29.5	36.2	46.6	51.9	35.1	72.8	8.7
25	57.3	63.1	65.9	70.4	70.7	72.5	66.2	44.8	31.0	19.1	17.9	17.1	14.0	10.6	9.4	8.7	8.2	8.6	11.5	15.1	25.2	34.7	41.5	50.0	34.7	72.5	8.2
26	53.2	59.8	60.7	62.7	67.4	69.5	59.6	39.9	26.0	16.7	13.4	12.4	11.3	9.9	10.6	11.0	10.8	10.5	14.6	23.4	32.1	38.0	40.4	40.6	33.1	69.5	9.9
27	45.7	43.6	47.5	51.9	52.8	60.2	57.0	42.9	32.9	18.5	14.9	14.5	13.2	12.8	12.7	14.6	14.3	14.6	17.2	22.8	26.7	24.9	31.6	38.2	30.3	60.2	12.7
28	30.9	29.9	31.2	37.3	35.0	41.2	48.3	39.0	30.9	27.5	27.2	26.7	25.9	25.8	25.5	25.8	27.6	28.0	29.8	33.1	35.6	34.1	35.1	38.1	32.1	48.3	25.5
29	39.1	40.9	45.0	45.8	53.4	58.4	61.5	61.8	57.2	57.7	54.1	42.8	31.1	26.8	24.9	22.5	25.7	35.1	66.3	68.6	77.0	81.8	84.7	84.2	51.9	84.7	22.5
30	84.0	91.1	91.8	92.1	92.3	92.7	88.7	71.5	52.4	37.9	29.6	24.6	25.2	24.5	33.5	38.7	37.6	31.7	37.2	49.3	53.7	64.0	64.8	58.5	57.0	92.7	24.5
31	56.6	59.0	62.1	68.0	72.6	75.1	68.1	49.1	35.7	34.6	32.1	28.4	35.5	36.2	36.8	27.9	27.6	30.9	32.8	35.3	36.9	36.6	36.7	42.8	44.1	75.1	27.6
Avg	64.5	68.0	69.8	73.2	75.2	76.3	70.2	56.5	43.1	34.3	30.3	27.2	24.6	23.0	21.3	20.3	21.5	23.7	29.1	34.7	42.4	48.2	54.8	59.7	45.5	79.9	17.8
Max	91.0	92.5	92.7	92.8	93.0	93.4	93.6	88.1	76.8	79.4	84.9	83.8	69.3	56.6	51.1	43.7	74.0	78.3	73.9	73.2	81.1	83.4	87.3	88.8	62.5	93.6	38.8
Min	30.9	29.9	31.2	37.3	35.0	40.9	39.1	39.0	22.7	16.7	13.4	12.4	11.3	9.8	7.7	7.2	6.4	7.7	11.4	15.1	23.1	24.9	31.0	33.0	30.3	48.3	6.4

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

A-26

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	35.3	33.6	39.8	43.8	48.9	55.6	59.6	49.5	38.7	31.3	24.2	22.7	20.9	21.4	21.8	21.5	20.9	22.7	24.4	25.6	25.9	26.2	33.2	35.3	32.6	59.6	20.9
2	36.1	42.3	49.4	52.2	53.8	54.7	57.8	50.7	41.7	36.5	39.8	37.7	35.6	36.3	47.4	76.3	83.9	85.2	83.1	82.5	84.7	88.0	89.7	90.3	59.8	90.3	35.6
3	91.3	91.8	91.7	92.0	92.1	92.3	92.4	90.6	80.8	75.0	64.9	54.2	44.6	37.3	31.9	31.2	31.3	28.2	31.0	42.5	63.3	69.2	72.8	77.6	65.4	92.4	28.2
4	86.3	85.2	90.4	90.5	90.4	90.8	89.2	76.8	59.7	33.3	25.1	20.7	20.0	19.1	17.7	17.3	27.1	44.1	47.9	60.1	64.5	66.7	64.7	63.1	56.3	90.8	17.3
5	61.6	50.2	53.0	55.6	64.1	73.4	73.5	60.8	40.2	30.7	26.5	22.4	19.2	20.3	19.3	18.8	21.0	27.2	33.8	37.8	44.4	47.5	55.6	57.4	42.3	73.5	18.8
6	59.7	62.9	67.3	69.8	71.7	77.4	76.0	62.1	50.1	47.3	40.1	34.2	34.0	31.2	29.3	36.9	37.9	36.9	37.7	47.5	44.3	59.7	67.8	73.0	52.3	77.4	29.3
7	77.7	76.3	80.1	80.1	81.3	83.4	78.2	73.4	48.1	43.0	38.9	32.6	28.8	28.4	27.2	26.2	26.6	26.6	26.6	30.9	40.9	54.8	63.7	71.7	51.9	83.4	26.2
8	72.4	77.9	80.0	81.6	82.6	83.8	77.8	59.1	36.3	25.6	35.8	39.7	47.0	59.9	84.2	85.2	80.5	86.1	85.7	87.4	87.6	82.9	87.7	90.6	71.6	90.6	25.6
9	91.4	91.7	92.5	92.7	92.8	92.0	85.4	81.9	77.0	75.5	72.1	67.8	60.5	53.3	47.1	41.6	37.7	38.6	39.3	44.7	53.2	66.4	77.5	83.7	69.0	92.8	37.7
10	86.4	88.4	86.7	84.6	86.8	84.9	72.1	53.2	46.3	40.1	39.1	37.5	33.5	32.7	30.7	28.8	29.0	30.2	32.9	36.6	40.0	45.1	60.1	70.7	53.2	88.4	28.8
11	77.9	82.8	85.6	87.7	89.3	89.9	82.1	65.5	47.8	41.4	38.2	34.7	31.3	29.7	27.3	26.1	25.6	25.5	33.9	41.7	53.3	65.1	74.3	78.4	55.6	89.9	25.5
12	82.0	81.1	83.2	83.2	86.1	87.8	85.5	57.5	46.5	42.7	41.2	38.9	36.1	33.8	30.7	29.2	28.4	31.3	36.4	44.8	47.4	48.4	54.6	61.9	54.1	87.8	28.4
13	66.6	72.7	77.1	85.1	86.6	87.1	80.8	63.9	43.6	34.3	29.6	23.6	24.5	24.0	21.1	17.6	14.3	15.1	21.5	34.6	46.6	48.6	55.4	59.7	47.3	87.1	14.3
14	63.9	67.9	71.6	79.2	79.8	82.3	79.9	66.5	51.7	36.6	26.2	24.2	21.6	17.3	14.2	12.0	12.7	15.4	17.0	24.6	40.4	48.4	52.0	61.0	44.4	82.3	12.0
15	63.5	69.8	73.7	75.2	76.5	80.4	79.8	70.4	55.4	37.3	30.2	25.9	22.2	19.3	18.7	18.7	18.1	17.4	17.2	21.8	32.8	46.1	53.4	60.2	45.2	80.4	17.2
16	64.6	68.0	70.7	74.9	77.0	79.6	75.5	60.2	46.8	30.8	22.9	20.6	19.2	19.0	18.8	18.4	17.8	18.5	20.6	25.9	34.9	39.5	51.4	59.6	43.1	79.6	17.8
17	69.1	71.7	74.4	78.0	79.1	79.4	78.9	61.7	43.7	39.7	42.6	52.4	54.7	49.2	46.9	58.0	70.5	77.8	83.3	83.0	86.4	80.0	80.2	80.2	67.5	86.4	39.7
18	80.9	82.1	80.7	79.0	78.3	78.3	85.9	89.0	88.4	89.3	90.4	90.0	89.5	90.8	91.3	87.3	87.4	87.8	88.3	89.1	91.3	92.4	92.4	92.4	87.2	92.4	78.3
19	92.5	92.6	92.5	90.8	91.7	91.8	91.5	90.0	85.5	79.8	79.1	75.1	73.4	73.0	77.4	85.3	88.1	83.5	82.2	85.5	88.1	89.9	91.0	91.3	85.9	92.6	73.0
20	91.8	91.2	89.2	89.9	90.4	89.7	89.8	87.0	85.0	82.9	81.0	82.5	82.1	75.4	65.6	59.3	56.5	56.6	64.3	79.0	84.1	86.1	87.7	88.1	80.6	91.8	56.5
21	90.3	89.9	89.5	88.2	85.9	80.8	76.5	74.7	70.9	71.1	67.2	64.4	63.6	62.5	60.0	60.4	59.5	62.2	65.1	70.4	70.7	78.2	85.1	89.7	74.0	90.3	59.5
22	90.2	89.3	89.0	89.7	86.5	85.9	84.6	82.3	78.9	69.3	59.2	50.9	49.5	45.7	41.8	41.1	37.5	36.1	38.8	59.6	75.5	82.1	87.1	89.4	68.3	90.2	36.1
23	90.5	90.4	91.1	91.5	91.0	91.4	89.8	79.5	54.0	33.5	25.8	24.6	18.7	19.9	21.8	24.9	28.5	35.2	35.6	34.3	36.3	33.1	31.2	37.6	50.4	91.5	18.7
24	44.4	48.7	57.5	58.8	59.1	65.7	67.2	54.3	45.0	40.3	35.1	30.9	28.5	26.2	27.1	24.9	27.1	33.8	45.2	52.4	56.5	61.8	61.4	61.9	46.4	67.2	24.9
25	62.8	62.1	63.0	62.7	67.1	71.5	73.8	64.7	46.8	40.4	37.3	35.9	33.8	31.0	23.7	21.9	22.3	39.0	45.1	53.9	78.6	78.5	83.0	88.3	53.6	88.3	21.9
26	91.2	91.3	92.0	92.5	92.9	92.8	93.1	87.8	72.7	55.2	43.3	35.4	36.1	35.4	42.6	49.2	53.8	61.7	70.8	76.1	80.0	83.1	83.2	86.2	70.8	93.1	35.4
27	89.4	90.1	89.5	88.6	88.4	89.5	90.0	86.3	72.2	49.2	41.8	37.9	39.1	41.1	42.6	43.3	42.9	41.4	43.0	55.3	68.9	73.2	80.1	83.6	65.3	90.1	37.9
28	86.1	88.6	89.9	90.0	90.0	88.2	87.9	79.5	59.6	57.2	52.8	45.0	46.3	42.2	40.6	37.6	33.9	32.1	37.9	56.9	70.5	76.3	80.6	81.5	64.6	90.0	32.1
29	88.0	89.7	89.9	90.1	90.9	90.5	87.8	76.2	58.7	36.9	32.7	27.8	21.3	20.4	15.0	12.7	14.7	20.5	28.7	47.6	56.0	58.8	74.9	76.0	54.4	90.9	12.7
30	75.9	78.4	81.4	83.4	85.2	84.7	82.7	66.1	47.5	30.4	21.9	19.5	18.9	16.5	15.1	14.1	14.0	16.9	23.9	32.1	35.8	39.4	47.4	56.2	45.3	85.2	14.0
31	63.4	69.2	78.5	80.3	82.8	84.0	85.9	72.8	55.1	37.3	21.3	17.9	18.5	19.5	20.2	23.0	23.9	27.6	28.2	34.4	46.3	57.5	61.1	68.7	49.1	85.9	17.9
Avg	74.9	76.4	78.7	80.1	81.3	82.6	81.0	70.8	57.2	47.5	42.8	39.6	37.8	36.5	36.1	37.1	37.9	40.7	44.2	51.6	59.0	63.6	69.0	73.1	58.3	86.2	30.4
Max	92.5	92.6	92.5	92.7	92.9	92.8	93.1	90.6	88.4	89.3	90.4	90.0	89.5	90.8	91.3	87.3	88.1	87.8	88.3	89.1	91.3	92.4	92.4	92.4	87.2	93.1	78.3
Min	35.3	33.6	39.8	43.8	48.9	54.7	57.8	49.5	36.3	25.6	21.3	17.9	18.5	16.5	14.2	12.0	12.7	15.1	17.0	21.8	25.9	26.2	31.2	35.3	32.6	59.6	12.0

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

A-27

	<< 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	69.6	75.1	75.9	78.8	79.8	81.0	78.4	64.3	43.6	33.9	31.1	25.4	22.1	20.5	19.9	17.8	17.3	17.8	25.4	42.2	46.8	57.9	60.9	70.3	48.2	81.0	17.3	
2	65.5	65.8	70.5	71.6	76.3	77.5	78.8	64.6	49.8	36.7	35.4	33.9	34.6	38.0	36.8	32.8	32.4	34.4	43.4	55.5	58.0	55.6	61.3	72.5	53.4	78.8	32.4	
3	71.5	75.2	73.3	77.0	78.8	81.0	79.7	78.3	54.4	39.6	35.4	36.7	33.1	32.2	19.9	19.9	20.0	23.6	32.0	47.5	55.5	64.7	74.8	78.8	53.5	81.0	19.9	
4	80.8	84.0	87.0	88.0	88.2	88.8	87.5	84.3	77.5	62.1	30.9	24.5	20.3	16.5	13.7	13.3	15.2	17.3	24.4	37.9	52.7	60.5	65.3	69.1	53.7	88.8	13.3	
5	72.3	75.4	76.3	77.3	78.7	77.5	76.4	61.6	50.6	27.8	17.1	18.9	19.1	18.4	15.4	14.7	15.7	17.2	22.0	34.4	47.0	52.7	63.2	68.6	45.8	78.7	14.7	
6	72.7	74.9	74.8	78.0	80.0	79.2	80.8	70.7	54.0	30.9	30.0	29.6	28.3	27.9	26.5	26.7	23.3	22.7	23.2	28.1	41.0	52.6	62.4	69.5	49.5	80.8	22.7	
7	74.4	79.1	80.3	81.8	83.3	85.0	82.6	65.3	45.6	27.5	20.0	18.1	17.3	17.4	18.5	20.5	20.5	21.7	26.7	38.8	55.9	58.5	65.1	69.2	48.9	85.0	17.3	
8	68.6	72.4	73.6	72.7	71.9	75.4	77.4	64.2	47.0	28.3	23.2	20.8	19.3	17.0	14.6	14.9	18.6	22.9	29.7	36.7	47.3	50.8	54.8	60.6	45.1	77.4	14.6	
9	68.5	72.2	75.4	79.0	80.2	81.6	82.1	73.5	59.6	41.3	26.0	19.1	18.1	16.6	17.2	20.0	21.8	25.1	36.1	48.0	53.9	52.3	57.7	64.2	49.6	82.1	16.6	
10	67.0	69.5	72.0	71.7	74.4	71.1	71.7	69.0	52.5	35.1	23.7	23.1	20.7	20.1	20.2	24.3	24.2	29.7	33.0	36.3	62.9	81.5	80.9	80.8	50.6	81.5	20.1	
11	70.3	72.7	81.5	85.6	88.2	89.6	88.3	80.5	66.6	57.5	51.3	47.2	41.5	38.7	39.9	41.0	45.2	44.5	51.8	61.0	73.0	81.6	84.1	86.3	65.3	89.6	38.7	
12	88.7	90.2	90.4	91.1	91.2	90.7	90.4	83.9	65.6	43.7	33.1	28.7	24.5	24.4	22.6	23.0	27.1	34.4	40.5	45.4	53.0	57.7	62.2	69.7	57.2	91.2	22.6	
13	80.7	86.7	87.8	88.9	89.5	90.9	90.8	82.4	65.9	45.3	40.5	37.9	35.9	32.5	33.1	30.6	31.1	32.8	40.3	54.8	63.2	71.6	77.2	81.5	61.3	90.9	30.6	
14	83.0	85.4	87.1	88.3	89.2	89.7	88.8	76.7	60.2	46.6	40.5	33.3	27.7	25.3	22.2	21.8	19.0	20.1	26.5	38.0	49.5	57.9	64.2	65.1	54.4	89.7	19.0	
15	68.2	72.8	74.1	76.9	74.7	77.1	73.8	54.9	34.6	30.3	30.6	29.5	28.6	27.1	28.2	29.3	31.6	32.3	31.1	31.8	35.5	33.4	34.0	39.1	45.0	77.1	27.1	
16	43.4	48.8	52.1	53.2	56.9	62.1	65.6	59.7	44.5	38.9	30.3	43.4	47.4	36.6	33.3	31.6	30.0	29.2	35.8	52.3	60.7	69.4	69.1	76.8	48.8	76.8	29.2	
17	78.6	80.5	82.3	82.5	83.1	83.0	81.9	73.5	38.5	27.6	24.1	20.6	13.8	9.4	6.8	5.9	6.4	8.1	12.2	23.8	33.8	37.5	40.3	42.2	41.5	83.1	5.9	
18	44.8	50.5	52.8	54.4	54.3	46.5	47.3	35.1	19.0	15.2	14.7	12.4	12.1	13.7	16.3	16.4	16.7	16.1	13.0	21.9	37.4	42.5	42.9	44.4	30.8	54.4	12.1	
19	43.0	48.1	47.1	41.2	46.5	49.9	50.7	52.4	63.6	82.3	83.4	80.2	73.3	61.2	52.8	47.9	50.0	50.8	52.5	57.8	62.7	69.4	71.0	73.3	58.8	83.4	41.2	
20	76.7	80.3	84.0	83.8	73.7	73.1	73.3	73.0	67.0	61.9	55.4	61.5	46.3	51.1	48.6	59.2	49.8	56.4	67.3	72.8	80.5	84.3	85.9	87.2	68.9	87.2	46.3	
21	88.4	88.0	87.6	86.8	86.6	86.2	86.1	87.5	84.8	50.9	40.5	33.7	30.2	27.7	26.9	25.7	24.9	26.4	34.7	48.8	63.6	70.3	74.6	77.2	59.9	88.4	24.9	
22	78.7	81.5	82.1	82.9	84.2	85.7	84.6	74.8	57.9	32.2	23.8	20.8	19.5	18.6	18.3	17.3	18.8	22.6	32.6	40.4	48.0	50.7	41.5	44.6	48.4	85.7	17.3	
23	42.1	44.7	44.8	55.9	69.7	76.1	79.2	69.9	58.9	47.8	44.0	40.9	40.7	34.4	32.8	31.9	28.0	30.3	37.3	43.7	55.0	60.2	69.3	74.9	50.5	79.2	28.0	
24	78.7	81.6	82.4	84.4	85.6	86.6	85.6	75.8	58.9	46.4	40.9	36.3	32.4	27.9	27.9	26.8	26.4	28.6	41.2	55.1	62.8	65.5	71.4	79.4	57.9	86.6	26.4	
25	82.6	83.9	85.5	86.3	87.5	87.6	87.0	77.6	56.8	29.5	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	76.4	87.6	29.5	
26	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
27	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI	DI				
28	DI	DI	DI	DI	DI	DI	DI	DI	DI	44.1	34.5	34.4	38.7	41.3	40.9	42.1	44.3	51.3	57.2	62.6	66.4	66.5	66.4	65.3	63.8	51.2	66.5	34.4
29	65.6	70.7	78.3	81.8	82.8	84.2	85.3	78.6	64.0	51.2	45.7	39.4	35.1	30.4	26.3	24.3	26.4	29.0	42.4	54.4	62.1	68.1	72.7	74.6	57.2	85.3	24.3	
30	77.7	80.0	81.0	82.1	82.7	84.2	84.9	75.6	58.6	37.0	32.1	29.3	26.6	24.5	20.3	19.3	22.1	25.2	38.3	48.9	54.6	62.2	67.8	73.7	53.7	84.9	19.3	
Avg	70.4	73.7	75.6	77.1	78.4	79.3	79.2	70.7	55.1	40.8	34.7	32.7	30.0	27.7	26.0	26.0	26.4	28.8	35.4	45.3	54.9	60.6	64.4	68.8	52.6	82.2	23.8	
Max	88.7	90.2	90.4	91.1	91.2	90.9	90.8	87.5	84.8	82.3	83.4	80.2	73.3	61.2	52.8	59.2	51.3	57.2	67.3	72.8	80.5	84.3	85.9	87.2	76.4	91.2	46.3	
Min	42.1	44.7	44.8	41.2	46.5	46.5	47.3	35.1	19.0	15.2	14.7	12.4	12.1	9.4	6.8	5.9	6.4	8.1	12.2	21.9	33.8	33.4	34.0	39.1	30.8	54.4	5.9	

Sandfire Resources America Inc. Black Butte Copper Project Met Tower Air Monitoring Summary Precipitation (Inches) July 2021
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[illegible]

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

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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	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	0.04	0.02	0.03	0.00	0.00	0.02	0.01	0.01	0.00	0.13	0.04
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.07
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.06	0.17	0.16	0.02	0.11	0.12	0.00	0.00	0.74	0.17
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
18	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.05	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.09
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.01	0.02	0.05	0.03	0.03	0.18	0.05
20	0.03	0.07	0.00	0.07	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.07
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.27	0.39	0.27	0.27
22	0.06	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	0.00	0.00	0.07	0.06
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.18	0.00	0.00	0.00	0.29	0.18
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot	0.09	0.08	0.00	0.07	0.01	0.00	0.11	0.05	0.05	0.02	0.02	0.02	0.00	0.00	0.08	0.15	0.10	0.31	0.16	0.14	0.33	0.18	0.16	0.30	2.43	0.00
Max	0.06	0.07	0.00	0.07	0.01	0.00	0.09	0.05	0.05	0.02	0.02	0.02	0.00	0.00	0.08	0.07	0.06	0.17	0.16	0.11	0.18	0.12	0.12	0.27	0.74	0.27

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

[illegible]

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APPENDIX B: PERFORMANCE AUDIT REPORTS
THIRD QUARTER 2021



BISON

ENGINEERING, INC.

Bison Engineering

Preliminary Meteorological Parameters Audit Form

Audit Dates: 10/01/2021 Tower Lowered : 10:10 MST Tower Back Up : 12:30 MST
 Client: Tintina Resources
 Site: Black Butte
 AUDITOR: Steve Heck PRECEDING CALIBRATION BY: Don Milmine
 Kyle DeVerna

Temperature

Audit Device: Control Company - digital thermometer Model 4000
 Meter S/N: 130236679 Temperature Sensor: Climatronics 100093
 Last certified: Nov 2020 S/N X17929 (Upper), S/N X17927 (Lower) - Matched Set

Temperature bath results

	9m	9m	2m	2m	9m - 2m	
Audit	DAS	DAS	DAS	DAS	DAS	Replaced aspirator fans as PM
Value	Value	Diff.	Value	Diff.	Diff.	Existing fans both working well
°C	°C	°C	°C	°C	°C	
0.23	0.34	0.11	0.34	0.11	0.00	
16.94	16.89	-0.05	16.88	-0.06	0.01	
38.76	38.99	0.23	38.96	0.20	0.03	

Wind Direction

		Linearity Check from DAS			
Sensor height:	9 Meter	Setpoint	Clockwise	Counter-CW	Diff CW
Sensor (Make/model number):	Climatronics/ 102083	0	1.1	1.1	1.1
Serial Number :	P1336C	30	30.7	30.7	0.7
Crossarm orientation (from Garmin GPS):	0.0 / 180.0	60	60.6	61.2	0.6
GPS location at sensor:		90	91.3	91.2	1.3
N 46 deg 46.351 min, W 110 deg 52.949 min		120	120.8	121.2	0.8
GPS location at sighting point:		150	150.7	151.2	0.7
N 46 deg 46.303 min, W 110 deg 52.949 min		180	180.7	180.9	0.7
Sensor response aligned with crossarm (as found):	180.4	210	210.4	209.9	0.4
Sensor response aligned with crossarm (as left):	181.4	240	240.4	240.4	0.4
		270	270.4	270.4	0.4
Linearity Audit Device: Climatronics 101966, SN 70		300	300.5	300.4	0.5
		330	330.6	330.1	0.6
Threshold Torque: 0.06 oz.-in.				Max Diff	1.3
(Waters Model 366-1 torque watch)					1.2

Wind Speed

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

Synchronous motor checks

Known	Known	DAS	DAS
Value	Value	Value	Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
300	6.66	6.70	0.04
600	13.09	13.10	0.01

Threshold Torque: <0.003 oz.-in.
 (Waters Model 366-3 torque watch)

Solar Radiation

Audit Device: Eppley Pyranometer, SN 16166F3 (certified by Eppley January 2021)

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1315	334	325	-2.7	-0.7
1328	350	348	-0.6	-0.2
1341	184	186	1.1	0.2

Relative Humidity

Site Sensor: Met One 083E-0-35
Sensor Height: 2 meters
Reference Std: Assmann Psychrometer, thermometer calibrations checked June 2021

Ref Dry-Bulb:	17.8	deg C	BP = 24.53 in. Hg
Ref Wet-Bulb	8.3	deg C	
Ref RH:	28.8	%RH	
Station RH:	30.0	%RH	
Diff:	1.2	%RH	

Barometric Pressure

Audit Device: Wallace & Tiernan Model FA185260, S/N LL03297.
Checked against Bison Mercury barometer (Butte) August 2021

Audit Value:	24.53	in Hg
Station Value:	24.60	in Hg
Diff:	0.07	in Hg

Precipitation

Rain Gauge = Met One Model 375D, Serial No. X15682
Level checked OK
Wind Screen in place
8" opening
520 ml water added
Calibration is 8.24 ml per tip
Known audit value is $520 / 8.24 = 63.1$ tips (so 63 full tips expected)
Unit registered 65 tips
% difference from expected = +3.2%
Precip audit conducted during hours ending at 1300 & 1400 MST. No natural precipitation during audit.

Signature Site Operator : _____

Signature Auditor : Steven R. Heel