

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

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## **CERTIFICATION OF DATA INTEGRITY**

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

Preparer: Don Milmine.

Signature:



Title: Project Engineer

Date: May 15, 2020

Reviewer: Steve Heck

Signature:



Title: Meteorologist

Date: May 15, 2020

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## **APPENDICES**

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- Appendix A: Meteorological Data
- Appendix B: Performance Audit Reports

## 1.0 INTRODUCTION

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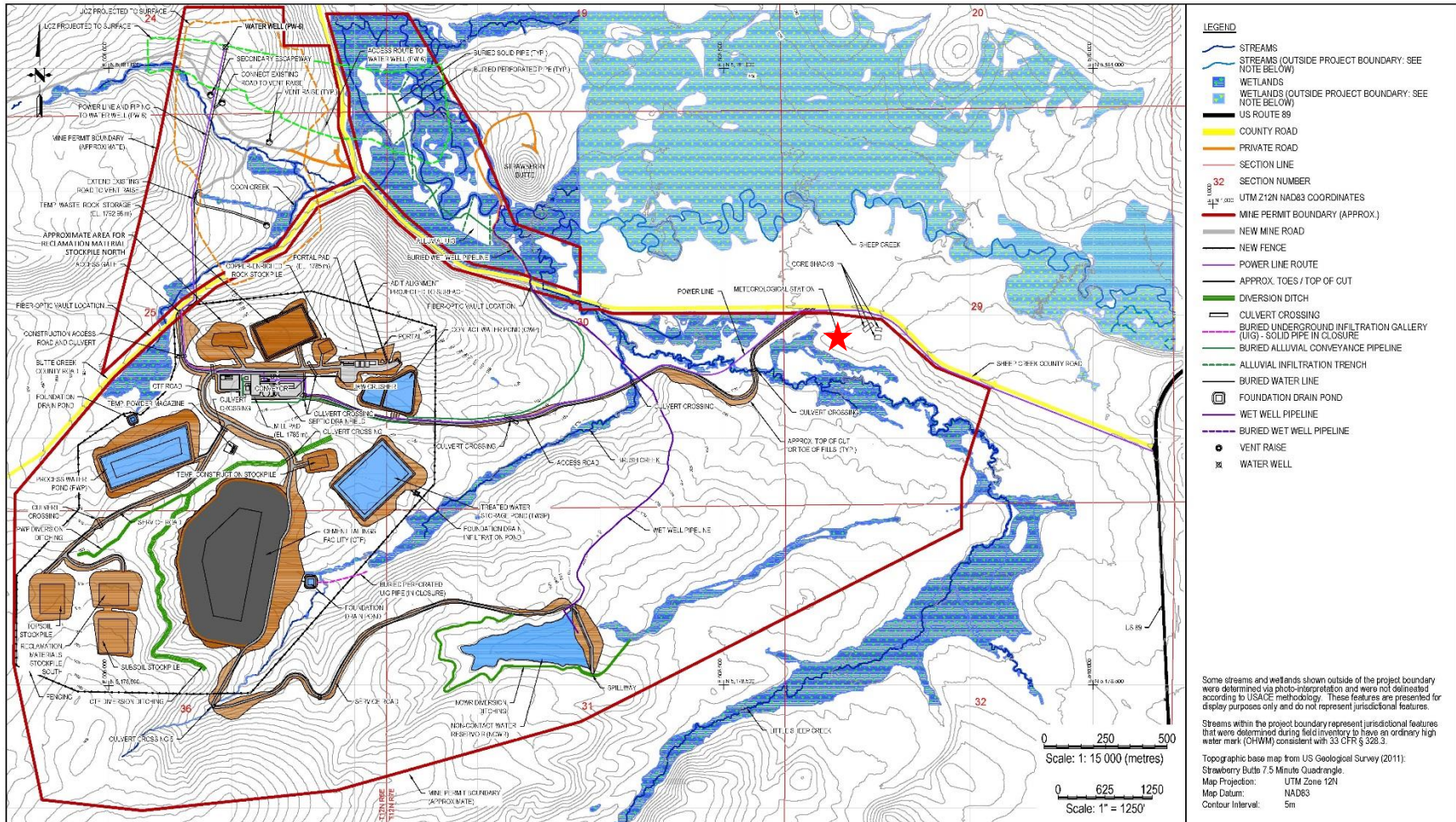
Sandfire Resources, Inc. established an ambient air monitoring site to measure wind speed, wind direction, standard deviation of wind direction, temperature at 9 meters and 2 meters, delta temperature, solar radiation, barometric pressure, and precipitation. The station was established to accurately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

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

This report presents the data collected during the first quarter (January through March) of 2020. In addition, a description of the monitoring system operations is presented, together with summaries of quality assurance activities, including calibrations and performance audits. Tabular summaries of the data completeness achieved, and the periods of missing data also are presented. Appendix A presents hourly meteorological data collected.

On June 23, 2015, an evaporation pan and manual precipitation gauge were installed adjacent to the existing meteorological system. The evaporation data will be used for hydrological / water balance studies. The manual rain gauge was installed to provide a backup data source for the existing automatic rain gauge, which has experienced occasional mechanical problems. 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 first quarter of 2020.

**Figure 1. Monitoring Site Location**



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



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

## 2.0 MONITORING SYSTEM OPERATIONS

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Monitoring activities continued in the normal manner during the first quarter of 2020. Data were downloaded and reviewed by Bison at least once a week and examined for suspect behavior. All instruments except the automatic rain gauge were operational throughout the quarter. Other than the rain gauge problems (described below), data losses were limited to seven hours of wind speed data in March when the anemometer cups were frozen in place by snow and ice.

Review of hourly data records indicated that the rain gauge heater failed around the start of 2020. Failure of the gauge heater was subsequently confirmed by Sandfire personnel. Because virtually all precipitation at the Black Butte site falls as snow from January through March, failure of the heater renders any precipitation readings during those months questionable since they only reflect periods when ambient temperatures were sufficiently warm to melt some of the snow accumulated in the rain gauge funnel. The readings do not accurately reflect hourly precipitation.

A replacement rain gauge heater was obtained from Met One in February with the intention of installing it during the Quarter 1 performance audit. The audit was initially delayed by excessive snow cover. Once the snow cover had decreased in late March the site was shut down due to Covid-19 virus concerns. In late May, the restrictions were eased to permit as-needed activities at the Black Butte site. An audit was performed on June 2, and all results were satisfactory. The replacement heater will be installed during the Quarter 3 audit, which will occur in August or early September.

### **3.0 PERFORMANCE AUDIT DATA**

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The performance audit originally contemplated for the first quarter of 2020 was delayed due to Covid-19 restrictions. The audit was performed on June 2, after restrictions were eased to permit site access for essential activities. All audit results were satisfactory, including the rain gauge. As discussed in Section 2.0, the rain gauge heater failed during the past winter which rendered the precipitation data unreliable. However, the June 2 audit showed the tipping bucket mechanism itself to be working correctly.

The preceding audit was performed on December 5, 2019. Because both the December 5 and June 2 audit results were satisfactory, all meteorological instruments – except for the rain gauge – are believed to have functioned properly throughout the first quarter.

## 4.0 CALIBRATION DATA

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The performance audit discussed in Section 3.0 showed all meteorological sensors to be working correctly and no calibration adjustments were made. A replacement rain gauge heater was obtained in February with the intention installing it at the site during the Quarter 1 audit. Because the audit was delayed until June 2, the decision was made to wait until the Quarter 3 audit (in August or early September 2020) to install it, and avoid subjecting the heater to unnecessary wear – since virtually all precipitation from June through early September would be expected to fall as rain.



## 5.0 DATA COMPLETENESS

The meteorological percentages of data recovery achieved during the first quarter of 2020 are given in Tables 1 and 2. In these tables, the number of possible data values during each month of the quarter is given, together with the number of valid readings and the number of hours spent on quality assurance activities (such as calibrations, performance audits, and maintenance on the sensors). The quality assurance hours are added to the number of hours of valid data to compute the net percentage data recovery.

During the first quarter the net percentage data recovery was 99.6 percent for wind speed, and 100.0 percent for all other parameters except precipitation. The loss of wind speed data was due to the anemometer cups being briefly frozen in place by snow and ice. No valid precipitation data were collected due to a frozen gauge heater, as discussed in Section 2.0.

**Table 1. Monthly Data Completeness**

<b>January 2020</b>					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
<b>Black Butte Copper Project Met Tower</b>					
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	0	0.0	0	0.0
<b>Total</b>	<b>7,440</b>	<b>6,696</b>	<b>90.0</b>	<b>0</b>	<b>90.0</b>

**Table 1. Monthly Data Completeness (Continued)**

<b>February 2020</b>					
<b>Parameter</b>	<b>Readings Possible</b>	<b>Valid Readings</b>	<b>Percentage Recovery</b>	<b>Quality Assurance Hours</b>	<b>Net Percentage Recovery</b>
<b>Black Butte Copper Project Met Tower</b>					
Wind Speed	696	696	100.0	0	100.0
Wind Direction	696	696	100.0	0	100.0
Standard Deviation	696	696	100.0	0	100.0
9-Meter Temperature	696	696	100.0	0	100.0
2-Meter Temperature	696	696	100.0	0	100.0
9-2 M Delta Temperature	696	696	100.0	0	100.0
Solar Radiation	696	696	100.0	0	100.0
Barometric Pressure	696	696	100.0	0	100.0
Relative Humidity	696	696	100.0	0	100.0
Precipitation	696	0	0.0	0	0.0
<b>Total</b>	<b>6,960</b>	<b>6,264</b>	<b>90.0</b>	<b>0</b>	<b>90.0</b>

**Table 1. Monthly Data Completeness (Continued)**

<b>March 2020</b>					
Parameter	Readings Possible	Valid Readings	Percentage Recovery	Quality Assurance Hours	Net Percentage Recovery
<b>Black Butte Copper Project Met Tower</b>					
Wind Speed	744	737	99.1	0	99.1
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	0	0.0	0	0.0
<b>Total</b>	<b>7,440</b>	<b>6,689</b>	<b>89.9</b>	<b>0</b>	<b>89.9</b>

**Table 2. Quarterly Data Completeness**

<b>First Quarter 2020</b>					
<b>Parameter</b>	<b>Readings Possible</b>	<b>Valid Readings</b>	<b>Percentage Recovery</b>	<b>Quality Assurance Hours</b>	<b>Net Percentage Recovery</b>
<b>Black Butte Copper Project Met Tower</b>					
Wind Speed	2,184	2,177	99.7	0	99.7
Wind Direction	2,184	2,184	100.0	0	100.0
Standard Deviation	2,184	2,184	100.0	0	100.0
9-Meter Temperature	2,184	2,184	100.0	0	100.0
2-Meter Temperature	2,184	2,184	100.0	0	100.0
9-2 M Delta Temperature	2,184	2,184	100.0	0	100.0
Solar Radiation	2,184	2,184	100.0	0	100.0
Barometric Pressure	2,184	2,184	100.0	0	100.0
Relative Humidity	2,184	2,184	100.0	0	100.0
Precipitation	2,184	0	0.0	0	0.0
<b>Total</b>	<b>21,840</b>	<b>19,649</b>	<b>90.0</b>	<b>0</b>	<b>90.0</b>

## 6.0 MONITORING DATA

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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**

<b>Mnemonic Code</b>	<b>Description</b>	<b>Equivalent EPA Null Value Reason Code</b>
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**

January 2020																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.7	0.5	0.9	1.5	2.3	3.0	6.0	4.3	1.9	0.9	0.4	0.4	0.3	0.7	0.3	0.7	24.7
	1.1 - 2.0	0.4	0.8	1.2	1.2	3.1	4.2	4.0	3.0	0.8	0.8	0.7	1.2	0.9	1.6	0.8	0.7	25.4
	2.1 - 3.0	0.0	0.0	0.4	0.7	1.3	1.6	0.9	0.9	0.8	0.3	0.8	1.1	2.2	1.2	0.5	0.4	13.2
	3.1 - 4.0	0.0	0.0	0.0	0.1	0.5	0.4	1.1	1.2	0.8	0.8	0.4	0.8	2.7	1.6	0.9	0.0	11.4
	4.1 - 5.0	0.0	0.0	0.0	0.1	0.7	0.0	0.5	0.4	0.4	0.4	0.3	0.4	1.6	1.5	0.3	0.1	6.7
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.1	0.5	0.3	0.5	3.2	1.6	0.1	0.0	7.1
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.4	0.7	2.8	1.1	0.0	0.0	5.2
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.9	0.8	0.0	0.0	2.6
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.7	0.4	0.0	0.0	1.7
	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	0.7	0.0	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	0.7	0.0	0.0	0.0	0.7
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	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	0.0	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	1.1	1.3	2.6	3.6	7.9	9.1	12.9	10.3	5.0	4.0	3.6	5.9	17.2	10.5	3.0	1.9		100.0
Average Speed	1.0	1.1	1.3	1.5	1.8	1.6	1.6	1.9	2.2	3.0	3.7	4.0	5.3	4.3	2.7	1.6		2.9

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

February 2020																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	1.1	0.7	0.3	0.7	2.7	3.9	6.9	3.9	1.1	0.4	0.3	0.7	0.3	0.1	0.4	0.4	24.1
	1.1 - 2.0	0.7	0.6	0.7	1.6	4.2	5.0	3.4	1.3	0.1	0.3	0.4	0.9	0.6	1.1	0.4	0.3	21.7
	2.1 - 3.0	0.4	0.0	0.0	0.4	1.3	0.6	0.3	0.1	0.1	0.1	0.4	0.4	2.0	1.3	1.0	0.7	9.3
	3.1 - 4.0	0.4	0.0	0.1	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.4	1.0	2.0	2.3	0.7	0.3	8.3
	4.1 - 5.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.1	1.4	4.3	2.2	0.7	0.6	10.1
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.7	0.4	3.7	3.6	0.6	0.1	9.5
	6.1 - 7.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	2.7	2.4	0.3	0.3	7.3
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	2.0	1.1	0.3	0.1	4.9
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.3	0.7	0.0	0.0	2.4
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.0	0.0	0.9
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.1	0.0	0.0	0.7
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.3	0.4	0.0	0.0	0.0	0.7
	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	3.3	1.3	1.1	3.0	8.5	9.6	11.2	5.7	1.4	1.0	3.6	7.3	20.0	15.5	4.5	2.9		100.0
Average Speed	2.5	1.0	1.4	1.5	1.5	1.2	1.1	1.1	0.8	2.1	4.8	4.7	5.5	5.1	3.8	3.5		3.3



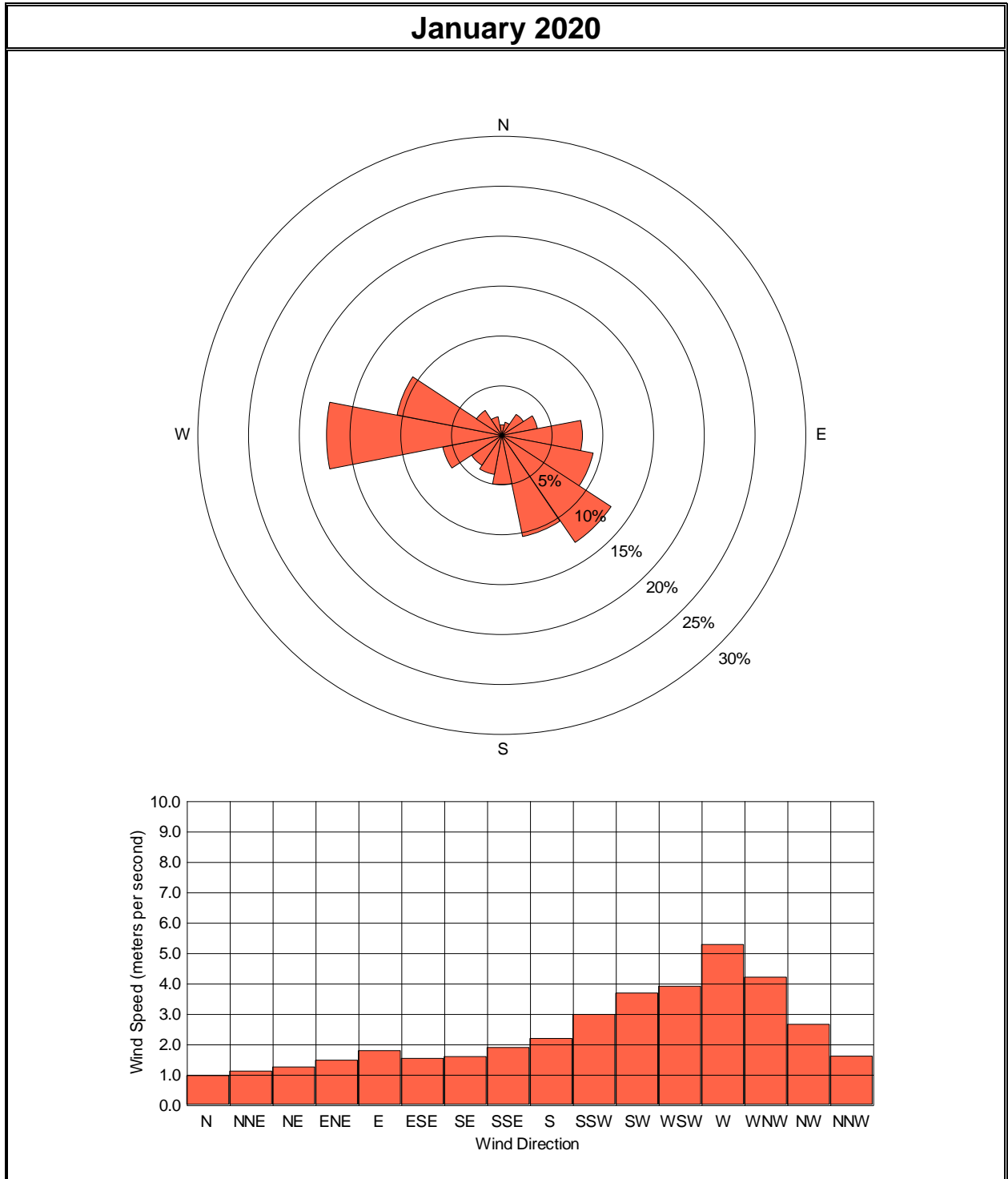
**Table 6. Monthly Wind Rose Summary, Black Butte Copper Project Met Tower**

March 2020																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.0	0.8	0.4	0.5	0.5	1.1	1.8	1.9	0.8	0.7	0.7	0.1	0.3	0.1	0.3	1.2	11.3
	1.1 - 2.0	0.3	0.8	1.2	0.8	4.2	3.7	4.2	1.5	1.2	0.4	1.8	1.1	0.9	0.7	1.2	1.1	25.1
	2.1 - 3.0	0.3	0.0	0.1	0.9	0.9	0.8	0.9	1.1	0.3	0.4	0.4	2.0	2.8	1.4	1.6	0.3	14.4
	3.1 - 4.0	0.0	0.1	0.0	0.0	0.1	0.1	0.3	0.4	0.8	0.3	0.4	2.6	4.7	0.8	1.2	0.3	12.2
	4.1 - 5.0	0.0	0.0	0.0	0.0	0.4	0.0	0.7	0.9	0.3	0.4	0.4	2.2	2.6	1.4	0.3	0.3	9.8
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.5	0.7	0.4	0.3	1.2	3.0	0.9	0.7	0.1	8.7
	6.1 - 7.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.4	0.1	0.5	0.9	0.4	1.5	0.5	0.0	0.1	6.1
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.3	0.5	0.4	1.9	0.1	0.1	0.0	4.1
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.4	0.4	0.8	0.4	0.1	0.3	3.3
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.3	0.0	0.0	1.2
	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	0.1	1.2	0.3	0.1	0.0	1.8
	11.1 - 12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.9
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.3	0.0	0.0	0.7
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	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	0.5	1.8	1.8	2.3	6.2	5.8	10.4	7.1	4.3	4.2	6.0	11.0	21.6	7.6	5.7	3.7		100.0
Average Speed	1.7	1.3	1.4	1.7	1.9	1.7	2.9	2.8	2.8	4.9	4.1	4.3	5.5	5.4	3.4	2.5		3.7

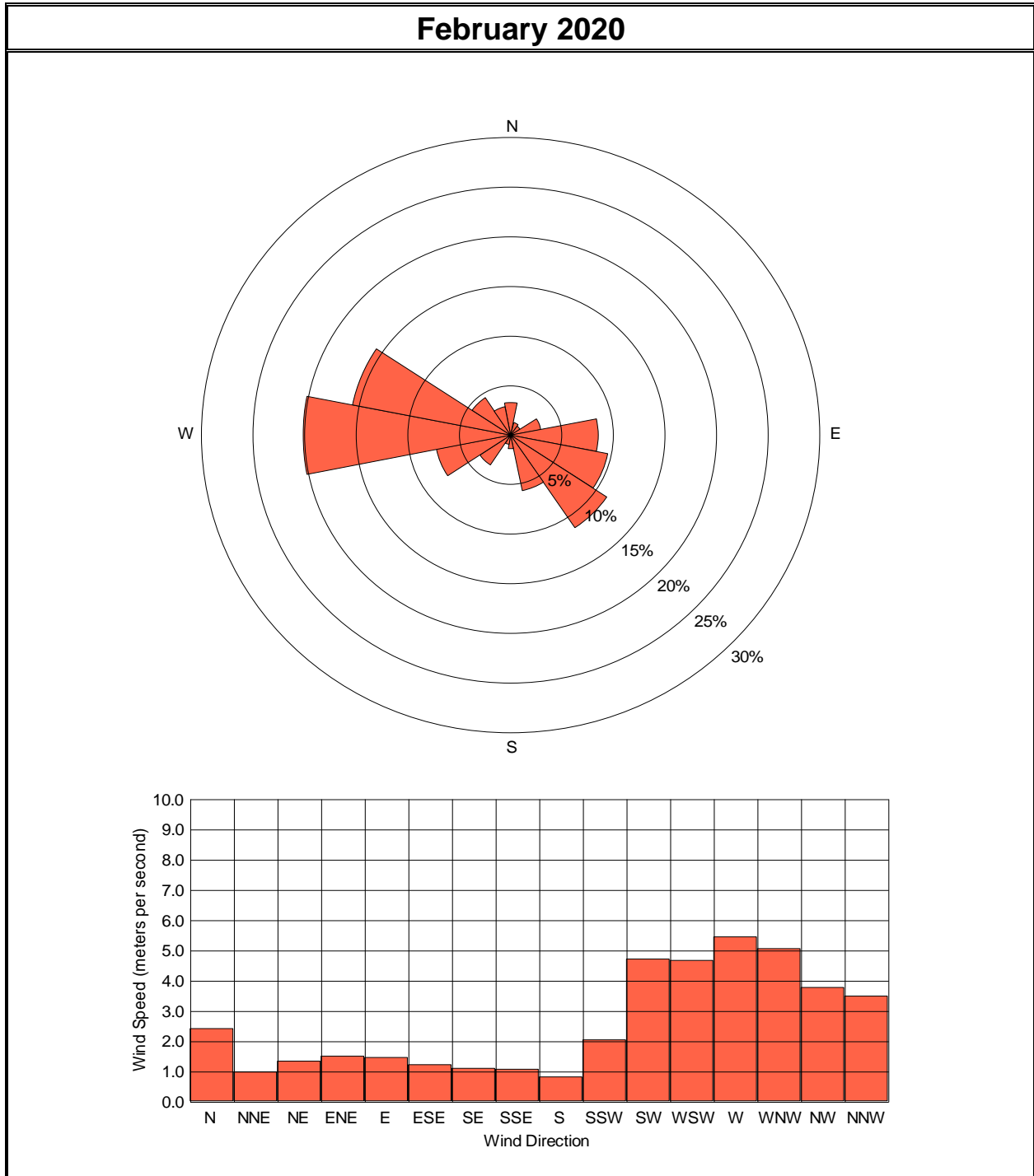
**Table 7. Quarterly Wind Rose Summary, Black Butte Copper Project Met Tower**

First Quarter 2020																		
Direction>>>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
Wind Speed (meters per second)	0.1 - 1.0	0.6	0.7	0.6	0.9	1.8	2.6	4.9	3.4	1.3	0.7	0.5	0.4	0.3	0.3	0.3	0.8	20.0
	1.1 - 2.0	0.5	0.7	1.1	1.2	3.8	4.3	3.9	1.9	0.7	0.5	1.0	1.1	0.8	1.1	0.8	0.7	24.1
	2.1 - 3.0	0.2	0.0	0.2	0.7	1.2	1.0	0.7	0.7	0.4	0.3	0.6	1.2	2.3	1.3	1.1	0.5	12.4
	3.1 - 4.0	0.1	0.0	0.0	0.1	0.3	0.2	0.5	0.6	0.6	0.4	0.4	1.5	3.2	1.6	1.0	0.2	10.7
	4.1 - 5.0	0.1	0.0	0.0	0.0	0.4	0.0	0.5	0.5	0.2	0.3	0.3	1.3	2.8	1.7	0.4	0.3	8.8
	5.1 - 6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.3	0.3	0.4	0.7	3.3	2.0	0.5	0.1	8.4
	6.1 - 7.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.2	0.6	0.7	2.3	1.3	0.1	0.1	6.2
	7.1 - 8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.4	0.6	1.6	0.7	0.1	0.0	3.8
	8.1 - 9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.9	0.5	0.0	0.1	2.5
	9.1 - 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.2	0.0	0.0	0.9
	10.1 - 11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	0.0	0.0	1.1
	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	0.4	0.1	0.0	0.0	0.5
	12.1 - 13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2
	13.1 - 14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.3
	14.1 - 15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.1 - 16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.1 - 17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.1 - 18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.1 - 19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.1 - 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calm																		0.0
Total	1.6	1.5	1.8	3.0	7.5	8.2	11.5	7.8	3.6	3.1	4.4	8.1	19.6	11.1	4.4	2.8		100.0
Average Speed	2.0	1.2	1.3	1.6	1.7	1.5	1.8	2.0	2.3	3.8	4.2	4.3	5.5	4.9	3.4	2.7		3.3

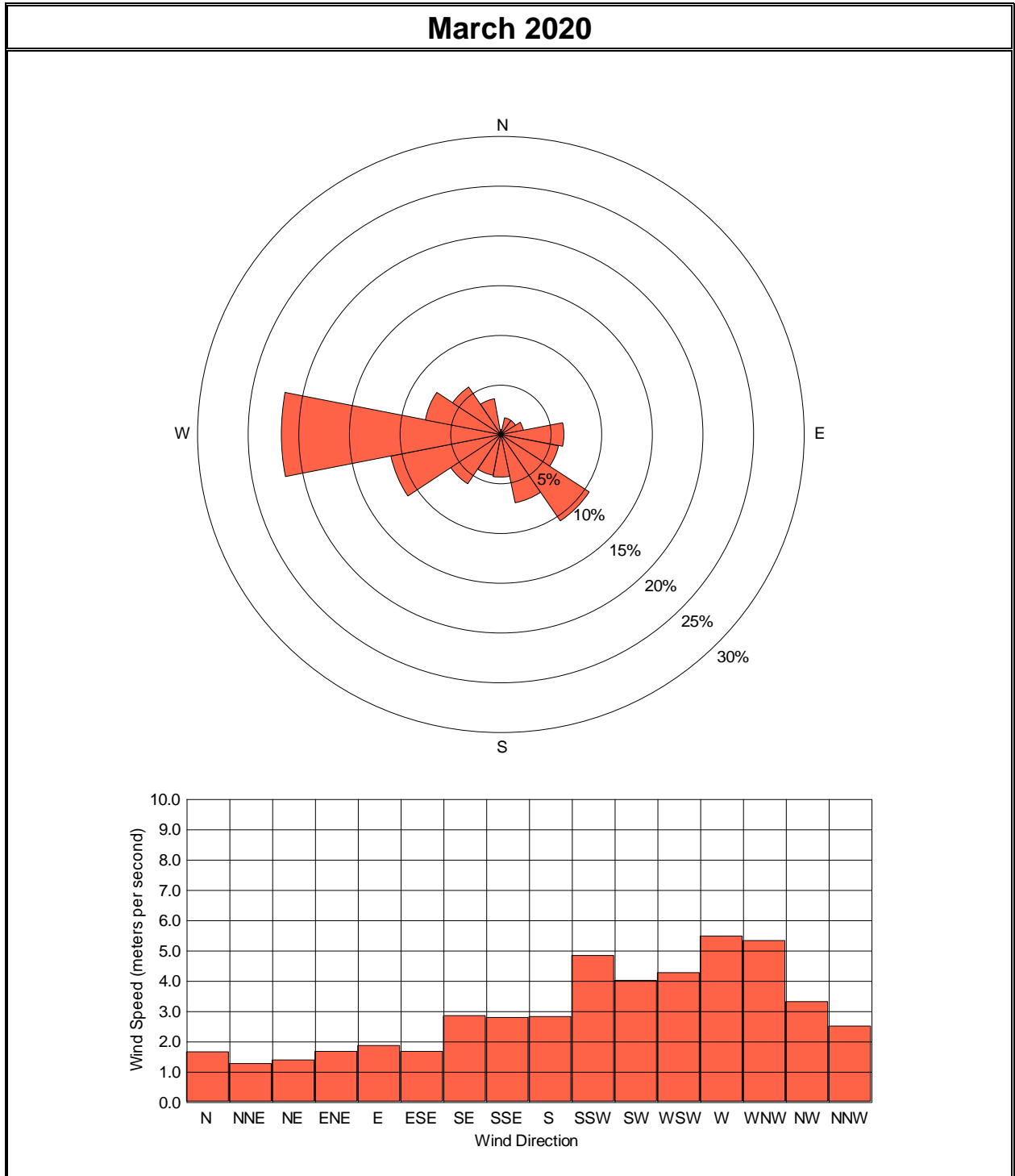
**Figure 2. Monthly Wind Rose, Black Butte Copper Project Met Tower**



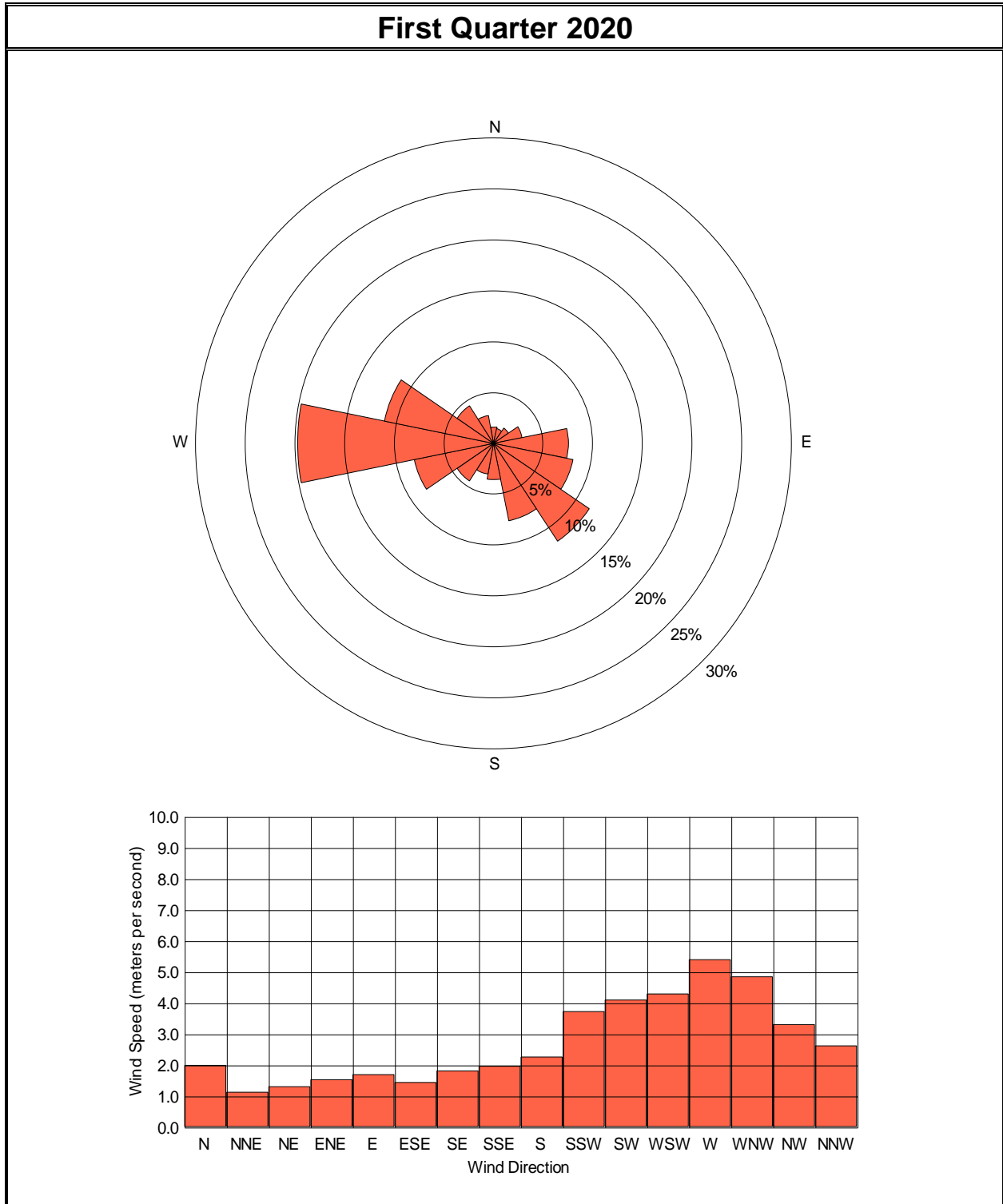
**Figure 3. Monthly Wind Rose, Black Butte Copper Project Met Tower**



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



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



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

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

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	3.3	3.8	2.8	3.7	7.0	7.2	6.6	6.6	6.9	7.6	7.5	8.2	7.8	8.3	7.9	8.5	5.0	5.3	4.9	3.9	4.4	3.1	3.1	2.7	5.7	8.5	2.7
2	1.5	2.3	4.6	5.3	3.7	2.7	3.2	5.3	5.0	7.6	8.2	10.7	11.1	9.4	9.5	9.6	8.5	6.8	7.9	6.1	6.2	5.9	6.6	7.2	6.5	11.1	1.5
3	6.9	5.1	3.9	1.9	1.6	1.1	1.5	1.3	1.2	0.9	1.1	3.7	5.7	5.2	5.9	3.0	2.2	2.6	0.9	2.0	2.1	4.3	6.4	3.2	3.1	6.9	0.9
4	3.7	3.4	3.2	4.8	4.1	7.6	4.2	4.2	4.0	6.6	5.9	5.0	8.3	9.7	11.1	12.0	11.4	10.7	10.4	8.2	7.2	5.4	4.8	4.0	6.7	12.0	3.2
5	4.1	1.9	1.9	4.8	2.4	1.3	0.9	0.8	1.3	1.4	2.3	1.1	1.6	3.3	2.8	3.2	1.7	1.9	2.4	1.3	1.1	1.0	0.8	1.0	1.9	4.8	0.8
6	1.9	6.6	8.5	10.2	9.4	10.5	8.4	6.9	6.2	6.2	3.5	4.4	5.7	8.5	7.7	4.9	3.9	2.6	1.1	0.7	0.8	2.4	7.6	7.7	5.7	10.5	0.7
7	9.0	6.7	6.9	5.6	4.3	1.6	0.8	1.6	0.9	0.8	1.4	2.4	3.1	4.9	6.7	5.0	1.5	1.2	1.6	0.9	2.0	4.7	3.4	2.6	3.3	9.0	0.8
8	3.6	5.6	2.9	2.7	3.9	3.5	5.3	2.3	2.0	3.9	3.7	5.3	6.1	6.3	7.3	5.6	6.3	3.0	2.2	4.0	5.3	5.3	2.9	2.8	4.2	7.3	2.0
9	1.3	1.9	1.5	1.8	1.5	1.3	1.5	2.2	1.1	0.3	0.4	2.4	4.3	3.3	1.8	3.5	3.1	2.4	2.8	1.6	1.6	2.1	1.4	0.5	1.9	4.3	0.3
10	0.6	2.0	1.1	1.0	0.6	0.5	0.4	0.7	0.6	0.7	0.7	0.8	0.9	3.6	6.9	4.4	3.9	5.0	5.2	5.4	5.4	4.4	3.3	3.7	2.6	6.9	0.4
11	4.8	3.6	5.2	3.4	2.4	2.9	2.4	2.1	3.0	2.0	3.0	2.9	3.5	2.8	3.1	2.3	2.2	2.9	2.0	2.5	2.2	1.6	1.3	0.8	2.7	5.2	0.8
12	3.1	1.1	2.6	1.7	1.1	1.0	1.1	1.2	2.2	1.5	1.5	2.2	3.8	5.3	5.2	3.6	3.8	2.0	1.7	3.5	3.5	4.2	2.9	3.0	2.6	5.3	1.0
13	1.9	1.3	1.5	1.8	4.9	1.8	0.5	0.7	0.7	0.5	0.6	0.9	2.7	8.1	3.5	3.5	2.2	2.2	1.1	1.7	0.6	1.2	0.8	0.8	1.9	8.1	0.5
14	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.8	1.3	1.2	3.4	3.6	4.0	0.9	0.5	0.9	2.1	0.9	1.0	1.0	0.7	1.3	1.6	1.4	1.3	4.0	0.5
15	0.8	0.7	1.1	0.8	0.8	1.4	1.1	1.7	1.6	1.0	1.0	1.1	4.3	3.8	5.2	3.6	1.9	1.9	2.9	2.3	1.5	1.7	2.1	1.9	1.9	5.2	0.7
16	2.8	4.6	4.7	2.5	1.6	1.2	1.0	1.2	1.4	1.2	0.7	0.6	1.0	3.3	3.7	2.0	1.6	3.1	2.6	2.0	1.4	0.9	1.6	1.8	2.0	4.7	0.6
17	0.9	1.4	1.9	1.9	1.4	2.2	3.3	3.3	7.2	6.1	5.9	5.2	6.0	6.7	6.8	7.8	7.4	7.5	6.7	5.3	5.2	5.4	3.6	2.0	4.6	7.8	0.9
18	2.3	1.3	1.6	3.1	1.1	1.0	1.6	0.7	0.7	0.6	1.2	2.5	5.7	5.0	3.9	1.8	1.4	1.1	1.0	0.7	0.8	1.5	1.0	0.9	1.8	5.7	0.6
19	0.6	1.0	0.8	0.9	1.1	1.0	0.6	0.6	0.4	0.4	0.4	0.7	2.4	3.0	1.8	2.0	1.0	2.2	1.4	1.7	1.2	1.1	0.7	0.8	1.2	3.0	0.4
20	0.7	0.8	0.9	0.8	0.9	1.0	0.8	1.0	1.0	0.7	0.9	0.4	0.5	1.2	4.3	2.9	2.8	1.5	1.3	1.4	1.8	4.0	2.4	1.6	1.5	4.3	0.4
21	2.2	0.9	1.4	0.9	1.5	1.1	1.2	1.0	1.0	1.0	0.9	0.9	0.7	1.2	0.7	1.3	0.7	1.6	1.8	1.0	0.8	0.6	1.9	3.6	1.3	3.6	0.6
22	6.8	6.3	4.8	4.5	6.1	4.6	4.1	5.4	3.5	5.0	6.1	5.6	6.0	5.9	7.1	6.6	8.1	6.4	1.5	1.1	2.2	1.5	1.9	2.3	4.7	8.1	1.1
23	1.1	0.9	0.6	0.7	0.8	0.5	0.4	0.4	0.4	0.9	0.8	0.9	1.3	3.8	4.2	4.8	1.9	1.9	2.9	0.7	0.7	1.4	0.5	0.8	1.4	4.8	0.4
24	1.0	1.3	0.9	1.0	0.8	0.6	0.6	0.9	0.9	0.9	0.8	0.7	0.8	3.2	6.5	3.9	1.2	2.3	2.4	3.3	5.4	2.8	3.8	2.0	2.0	6.5	0.6
25	1.6	2.6	5.1	4.0	3.5	1.1	0.8	1.3	1.0	2.5	3.8	6.2	6.1	6.3	7.0	3.7	4.4	5.2	2.5	1.3	0.8	0.9	0.7	0.8	3.1	7.0	0.7
26	0.5	1.0	1.2	0.9	1.1	1.6	0.9	1.0	1.4	0.7	0.5	1.0	1.1	1.9	3.7	1.8	0.8	1.0	1.2	0.9	0.3	0.2	0.7	0.8	1.1	3.7	0.2
27	1.9	5.3	4.7	2.5	2.1	2.0	2.2	2.9	3.0	4.2	5.1	5.7	5.9	5.4	6.7	6.4	5.1	5.5	2.2	2.2	2.1	1.8	2.2	1.8	3.7	6.7	1.8
28	1.2	1.3	0.8	1.2	0.9	0.8	0.5	0.8	0.9	4.1	3.5	1.4	1.7	1.6	3.0	3.3	1.6	0.8	1.6	1.0	1.1	0.8	0.9	1.2	1.5	4.1	0.5
29	0.9	1.1	0.9	0.7	0.9	0.4	0.3	0.7	0.9	2.7	5.7	4.7	5.1	5.3	4.2	4.6	3.1	3.0	0.9	1.7	1.7	1.9	2.9	1.3	2.3	5.7	0.3
30	1.6	3.1	3.7	5.4	5.7	3.6	4.2	2.6	4.7	6.0	4.0	3.8	4.7	5.4	4.7	3.6	2.3	1.2	1.5	2.2	2.3	1.7	1.5	1.7	3.4	6.0	1.2
31	1.8	1.0	0.7	1.4	1.3	1.8	1.8	2.1	2.3	2.3	1.6	3.5	3.9	2.4	1.5	1.0	1.2	1.7	3.1	2.3	1.2	1.9	1.5	2.2	1.9	3.9	0.7
Avg	2.4	2.6	2.7	2.7	2.6	2.2	2.0	2.1	2.2	2.6	2.8	3.2	4.1	4.7	5.0	4.2	3.4	3.1	2.7	2.4	2.4	2.5	2.5	2.2	2.9	6.3	0.9
Max	9.0	6.7	8.5	10.2	9.4	10.5	8.4	6.9	7.2	7.6	8.2	10.7	11.1	9.7	11.1	12.0	11.4	10.7	10.4	8.2	7.2	5.9	7.6	7.7	6.7	12.0	3.2
Min	0.5	0.7	0.6	0.7	0.6	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.9	0.5	0.9	0.7	0.8	0.9	0.7	0.3	0.2	0.5	0.5	1.1	3.0	0.2

A-1



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

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	5.6	6.2	4.0	4.8	7.4	5.4	2.7	9.1	10.4	7.8	8.0	8.4	13.5	13.8	13.5	13.3	13.4	11.0	9.8	7.4	8.1	10.1	8.2	9.9	8.8	13.8	2.7
2	8.0	8.5	5.8	5.6	4.7	4.4	7.3	7.8	6.8	6.5	6.0	4.4	4.7	5.0	6.7	6.9	4.9	3.5	2.7	1.4	2.0	1.7	1.1	0.9	4.9	8.5	0.9
3	1.4	1.0	1.1	1.1	0.8	0.8	0.8	0.9	0.7	0.6	0.5	1.0	1.8	2.8	3.8	4.4	4.0	4.2	2.8	2.6	1.2	1.1	1.0	2.1	1.8	4.4	0.5
4	2.4	2.1	1.5	1.4	1.4	0.6	0.9	0.8	0.5	0.4	2.7	5.5	6.9	6.6	6.5	6.5	6.0	4.3	4.4	7.1	6.1	4.9	3.7	6.1	3.7	7.1	0.4
5	2.7	2.8	2.5	1.2	0.5	0.9	1.4	1.0	1.0	0.9	1.2	1.0	6.1	6.7	7.4	7.4	5.8	4.4	5.4	4.4	7.2	5.7	4.4	5.4	3.6	7.4	0.5
6	5.3	5.7	5.5	6.5	6.5	5.6	5.1	4.9	4.7	4.8	6.4	5.0	4.6	5.0	4.4	3.7	3.7	1.6	0.5	1.7	0.7	0.4	0.6	0.6	3.9	6.5	0.4
7	0.6	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.8	3.3	4.5	5.2	5.9	3.9	3.0	1.7	1.2	0.7	0.6	1.4	2.2	1.2	1.6	1.7	5.9	0.2
8	1.3	1.1	1.9	1.4	1.2	1.5	1.9	2.2	7.0	5.7	4.9	6.5	6.2	7.0	7.8	7.5	6.7	4.9	4.7	5.0	7.0	2.3	3.9	1.3	4.2	7.8	1.1
9	1.7	1.2	1.5	1.1	1.0	0.7	0.7	0.5	0.7	0.6	0.4	0.7	1.9	4.3	7.8	6.4	5.7	4.6	2.6	3.0	3.7	5.1	5.1	3.3	2.7	7.8	0.4
10	3.3	1.6	2.6	1.8	2.9	2.5	2.9	1.2	1.6	2.2	3.5	5.2	6.3	6.5	5.6	5.6	5.2	3.5	1.3	0.6	0.9	0.7	0.4	0.6	2.9	6.5	0.4
11	0.6	0.8	0.6	0.6	1.0	0.8	3.1	4.6	4.9	4.3	4.0	2.6	5.8	7.8	8.7	6.7	6.3	7.8	6.9	6.8	5.4	5.1	3.5	4.2	4.3	8.7	0.6
12	4.6	5.0	5.4	5.4	7.5	3.0	3.9	3.5	2.7	1.8	4.0	2.3	2.3	1.3	0.6	0.4	0.3	0.4	0.5	0.3	1.1	0.4	0.4	0.4	2.4	7.5	0.3
13	0.4	0.3	0.6	0.4	0.3	0.7	1.3	0.7	0.5	0.5	0.4	0.8	0.7	1.1	1.1	3.5	1.3	1.4	1.3	2.6	1.0	1.6	0.9	0.8	1.0	3.5	0.3
14	0.7	1.5	1.9	1.9	6.6	7.5	6.5	5.5	6.6	8.3	8.6	10.6	9.2	8.5	6.8	5.9	6.6	6.8	5.4	4.8	3.9	3.8	3.8	4.3	5.7	10.6	0.7
15	2.9	1.2	1.0	0.8	0.8	1.3	3.0	4.8	5.3	4.9	4.9	5.7	6.0	6.3	8.6	8.3	6.4	4.2	3.6	4.4	3.1	2.4	2.0	1.3	3.9	8.6	0.8
16	0.7	0.9	0.8	2.3	1.8	1.1	1.1	3.1	4.1	6.0	7.3	6.6	7.7	8.0	8.0	7.8	5.8	6.7	5.6	5.3	3.4	4.0	4.5	4.8	4.5	8.0	0.7
17	3.4	2.0	2.1	3.2	3.5	3.5	1.4	1.4	0.6	0.6	0.7	3.4	5.4	5.9	4.3	4.0	2.1	1.9	3.1	2.4	2.1	2.3	1.9	0.9	2.6	5.9	0.6
18	0.9	0.8	0.8	1.0	0.9	1.1	2.2	1.2	0.5	2.7	3.7	4.8	4.9	4.9	5.0	4.5	3.3	2.2	1.5	1.1	1.8	0.8	1.1	0.5	2.2	5.0	0.5
19	0.7	0.4	0.4	0.5	0.9	0.5	0.6	0.3	0.4	0.6	1.0	0.6	1.0	1.9	1.5	1.2	0.5	0.4	1.4	1.5	1.4	1.2	1.1	0.8	0.9	1.9	0.3
20	0.9	0.6	0.7	0.7	0.5	0.6	0.7	0.7	0.7	0.3	0.3	0.4	2.1	5.1	4.6	3.3	1.1	0.5	1.7	1.3	1.4	1.5	1.7	1.4	1.4	5.1	0.3
21	1.8	1.5	1.3	1.0	1.2	1.1	1.0	0.9	0.8	0.6	0.8	1.0	0.9	2.5	2.2	5.3	4.2	4.8	2.7	1.4	2.5	2.0	1.8	1.7	1.9	5.3	0.6
22	1.8	1.7	1.3	2.0	2.1	2.4	1.2	1.8	1.5	0.9	3.3	4.3	5.0	7.1	5.8	4.5	5.4	4.5	2.9	3.5	3.1	2.9	3.9	3.9	3.2	7.1	0.9
23	2.1	1.4	0.9	0.4	0.3	0.3	0.2	0.6	1.4	1.3	1.0	0.9	3.0	1.2	4.8	5.6	5.6	1.7	1.7	2.2	7.3	5.1	5.7	5.0	2.5	7.3	0.2
24	5.7	6.6	6.5	3.8	3.9	6.2	7.4	5.4	5.3	6.3	6.3	6.8	6.7	5.8	5.6	5.5	5.3	3.8	2.9	3.2	2.6	1.7	1.7	3.3	4.9	7.4	1.7
25	1.8	1.5	1.2	0.8	0.7	0.4	0.6	0.6	0.5	0.5	0.4	0.6	2.4	5.1	5.0	4.1	4.0	1.5	0.9	1.5	1.4	1.4	0.6	0.6	1.6	5.1	0.4
26	0.6	1.0	1.1	0.9	1.2	1.5	1.2	1.3	1.2	1.3	4.5	6.0	7.6	7.9	7.5	6.1	6.2	8.6	8.1	9.4	7.1	6.9	5.8	6.1	4.5	9.4	0.6
27	4.1	3.1	1.5	1.2	1.9	1.8	2.0	1.9	1.1	1.0	2.1	7.3	8.8	8.7	7.2	5.8	6.0	5.8	3.2	1.3	1.5	1.5	2.1	2.6	3.5	8.8	1.0
28	1.8	2.1	1.8	1.4	1.2	1.0	0.7	1.0	0.5	0.5	1.2	7.3	7.1	3.2	1.4	2.4	5.4	4.1	4.0	1.4	1.6	2.0	3.2	4.1	2.5	7.3	0.5
29	3.3	1.9	1.2	1.8	2.7	2.3	1.6	1.5	1.2	4.2	4.9	4.4	5.0	8.2	9.0	10.1	9.9	8.8	6.4	5.6	3.8	2.2	2.5	1.2	4.3	10.1	1.2
Avg	2.5	2.2	2.0	1.9	2.3	2.1	2.2	2.4	2.5	2.7	3.3	4.1	5.1	5.7	5.7	5.5	4.9	4.1	3.4	3.2	3.2	2.9	2.7	2.7	3.3	7.2	0.7
Max	8.0	8.5	6.5	6.5	7.5	7.5	7.4	9.1	10.4	8.3	8.6	10.6	13.5	13.8	13.5	13.3	13.4	11.0	9.8	9.4	8.1	10.1	8.2	9.9	8.8	13.8	2.7
Min	0.4	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.7	1.1	0.6	0.4	0.4	0.3	0.4	0.5	0.3	0.4	0.4	0.4	0.9	1.9	0.2

A-2

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

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	3.5	3.6	2.2	1.2	1.0	1.6	0.8	2.2	1.3	1.4	4.6	5.5	5.9	6.0	4.4	2.8	4.6	4.6	3.2	2.2	4.1	5.8	5.8	6.4	3.5	6.4	0.8
2	7.6	7.5	6.6	5.8	4.8	4.5	4.0	3.6	4.9	8.5	8.6	11.4	10.2	11.3	10.6	9.2	11.3	7.8	6.6	8.3	10.3	11.3	7.6	7.2	7.9	11.4	3.6
3	6.7	6.3	4.2	5.8	7.5	7.7	10.6	11.4	10.8	10.7	10.4	10.3	10.7	10.2	9.0	7.9	7.7	4.0	5.8	2.2	1.5	1.3	1.6	1.4	6.9	11.4	1.3
4	1.1	1.1	4.5	3.6	7.3	6.9	9.5	12.0	11.3	12.7	13.2	14.9	15.1	12.6	13.1	12.5	12.6	10.5	6.5	4.3	2.6	1.0	2.2	2.0	8.0	15.1	1.0
5	1.9	1.5	1.4	1.5	1.5	1.4	1.3	1.3	1.7	1.8	4.4	5.1	5.4	5.5	4.1	3.6	3.8	4.7	2.5	4.5	4.6	2.6	3.3	4.4	3.1	5.5	1.3
6	3.0	2.1	2.3	1.9	0.9	1.4	1.4	1.0	0.9	3.6	6.8	4.4	6.4	7.0	7.3	8.4	6.7	5.4	4.8	3.9	3.4	2.6	1.8	1.6	3.7	8.4	0.9
7	1.9	0.9	1.4	1.6	1.5	1.1	1.9	1.2	1.2	1.2	3.1	5.7	6.2	9.0	6.4	5.1	5.5	3.2	1.2	4.0	5.0	2.4	1.2	0.6	3.0	9.0	0.6
8	2.5	0.7	Wx	Wx	Wx	Wx	Wx	Wx	Wx	1.7	3.9	3.9	2.8	4.2	3.3	3.6	3.1	1.7	0.9	0.9	1.0	1.2	1.4	3.2	2.4	4.2	0.7
9	2.5	0.9	0.5	1.0	0.3	1.0	0.5	1.0	0.8	0.7	1.9	2.9	2.7	4.9	5.7	5.1	5.3	4.3	3.0	1.5	1.3	1.3	1.9	2.1	2.2	5.7	0.3
10	2.1	1.7	1.3	2.8	2.6	2.2	4.9	5.6	6.2	7.3	9.1	8.9	8.7	7.2	6.3	5.2	3.8	3.1	2.1	0.9	3.0	4.0	4.8	3.9	4.5	9.1	0.9
11	2.8	3.2	1.2	2.6	3.6	6.9	7.6	7.9	9.8	9.1	9.4	10.1	7.8	8.6	10.5	10.0	9.1	9.0	7.6	5.8	8.2	4.1	4.2	4.3	6.8	10.5	1.2
12	3.6	2.4	1.8	0.7	1.4	2.2	2.7	1.5	1.2	1.0	3.9	5.5	6.6	6.5	6.0	6.0	5.6	4.3	3.8	2.4	1.6	1.3	2.1	1.9	3.2	6.6	0.7
13	1.1	1.3	1.9	1.2	2.0	4.7	4.1	2.3	4.7	5.4	7.8	7.8	5.8	6.6	4.4	6.4	5.7	6.3	5.5	7.0	5.1	4.8	6.8	6.2	4.8	7.8	1.1
14	4.7	5.4	4.5	4.6	4.1	3.4	3.3	2.2	3.4	3.7	4.3	4.5	4.9	4.0	4.4	3.9	3.9	3.0	1.4	3.4	3.2	2.8	1.5	1.0	3.6	5.4	1.0
15	2.0	1.5	2.6	2.6	2.8	1.8	0.7	0.7	0.7	2.0	1.1	1.5	2.5	2.3	2.8	1.8	3.6	2.9	2.5	1.0	1.2	1.0	0.6	1.1	1.8	3.6	0.6
16	0.9	0.8	1.4	1.4	2.1	3.1	1.4	1.2	1.0	0.8	0.9	0.7	2.1	2.6	2.4	2.8	2.2	1.6	1.4	1.2	1.1	1.1	1.3	0.8	1.5	3.1	0.7
17	0.8	0.7	0.5	0.4	0.7	0.7	0.4	0.4	0.8	1.2	1.2	5.7	6.7	9.1	7.4	5.2	5.9	5.5	8.3	6.8	5.6	5.1	4.6	3.3	3.6	9.1	0.4
18	2.0	2.4	1.8	0.9	0.8	1.6	1.5	2.9	6.7	7.4	8.3	6.7	4.4	3.8	1.4	1.2	1.6	1.2	1.4	1.0	1.0	0.6	0.7	0.8	2.6	8.3	0.6
19	1.2	3.5	1.0	1.7	1.1	0.9	0.7	0.5	1.9	3.1	2.9	3.6	3.9	5.1	5.3	3.7	2.2	5.7	6.3	7.5	6.9	6.5	6.4	6.3	3.7	7.5	0.5
20	6.3	4.9	3.2	2.4	2.1	3.0	2.9	2.1	1.4	1.7	1.1	1.1	1.6	3.8	4.3	3.8	4.6	3.4	2.5	1.6	1.8	1.6	2.0	1.5	2.7	6.3	1.1
21	1.2	1.2	1.0	1.5	1.0	0.7	0.7	0.8	0.7	1.3	4.7	4.6	5.0	4.3	3.3	4.2	5.6	4.5	3.5	2.7	1.3	1.5	1.9	1.4	2.4	5.6	0.7
22	0.9	1.8	3.4	3.0	3.1	3.7	1.7	2.2	1.1	1.2	1.2	3.2	4.7	5.0	5.2	5.6	5.4	4.9	3.7	2.5	2.7	1.8	1.4	1.1	2.9	5.6	0.9
23	1.5	1.8	1.9	1.7	2.0	1.8	1.6	1.6	1.0	0.8	2.1	7.4	7.2	5.7	8.4	8.0	5.5	5.9	2.7	4.9	6.0	2.6	1.4	1.0	3.5	8.4	0.8
24	2.0	5.6	2.8	1.3	1.5	3.9	2.3	1.2	1.1	2.3	4.9	4.5	2.5	3.6	4.0	3.6	2.4	1.2	0.8	1.5	1.5	4.0	2.7	3.3	2.7	5.6	0.8
25	2.7	1.7	0.9	1.8	2.5	2.0	0.7	0.9	1.4	1.8	3.2	3.2	2.9	2.8	3.8	2.0	2.2	4.6	4.6	2.1	2.0	1.3	0.5	1.7	2.2	4.6	0.5
26	1.6	1.1	2.4	1.6	2.1	2.0	2.2	1.4	4.3	7.7	8.1	7.1	8.0	9.0	8.7	8.8	8.1	7.5	4.4	3.1	3.0	3.5	3.9	5.0	4.8	9.0	1.1
27	2.7	2.4	2.9	1.1	2.6	2.9	1.6	0.5	0.6	1.2	1.1	2.9	4.0	3.9	2.9	3.1	5.2	5.7	3.6	2.4	2.6	4.7	3.2	3.4	2.8	5.7	0.5
28	4.6	3.2	2.9	2.7	3.6	3.8	3.4	3.5	3.0	4.9	6.4	6.0	6.8	6.7	5.7	6.4	5.6	5.5	5.6	3.3	2.3	1.5	1.9	1.4	4.2	6.8	1.4
29	1.8	1.7	1.8	1.6	1.4	1.5	1.2	0.9	0.7	2.5	6.9	6.1	6.1	5.8	6.8	4.2	4.9	2.6	2.2	3.9	2.5	0.7	1.7	3.9	3.1	6.9	0.7
30	1.3	1.3	1.5	1.6	1.2	1.3	1.0	1.2	1.5	5.1	5.4	9.0	8.7	7.7	8.3	12.3	8.4	8.2	6.9	4.5	5.5	5.3	3.9	4.5	4.8	12.3	1.0
31	6.1	2.0	0.9	1.1	1.0	1.3	1.1	0.5	1.0	1.4	2.1	1.9	1.9	3.3	4.7	1.9	3.9	6.7	2.3	5.7	3.7	2.2	5.5	6.0	2.8	6.7	0.5
Avg	2.7	2.5	2.2	2.1	2.3	2.7	2.6	2.5	2.9	3.7	4.9	5.7	5.7	6.1	5.8	5.4	5.4	4.8	3.8	3.5	3.4	3.0	2.9	3.0	3.7	7.5	0.9
Max	7.6	7.5	6.6	5.8	7.5	7.7	10.6	12.0	11.3	12.7	13.2	14.9	15.1	12.6	13.1	12.5	12.6	10.5	8.3	8.3	10.3	11.3	7.6	7.2	8.0	15.1	3.6
Min	0.8	0.7	0.5	0.4	0.3	0.7	0.4	0.4	0.6	0.7	0.9	0.7	1.6	2.3	1.4	1.2	1.6	1.2	0.8	0.9	1.0	0.6	0.5	0.6	1.5	3.1	0.3

A-3

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

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	148	178	267	264	256	264	268	260	258	256	254	258	252	262	274	286	290	291	282	277	294	309	310	284	268
2	152	301	286	272	285	256	261	258	263	251	259	279	278	276	278	273	277	275	278	275	285	296	285	284	273
3	275	273	287	301	15	1	330	345	17	64	108	303	291	277	273	253	258	287	336	152	46	213	232	201	297
4	123	101	106	86	91	187	184	177	164	158	148	192	234	271	277	278	281	273	275	266	272	268	276	302	220
5	282	106	122	85	55	70	103	167	114	48	78	92	225	268	281	265	138	164	93	51	113	98	145	131	111
6	247	248	258	264	276	280	279	275	269	263	258	239	228	213	217	216	224	240	299	202	154	297	282	282	252
7	284	284	279	279	292	274	172	147	203	121	79	162	78	127	221	218	261	156	194	188	201	192	149	93	195
8	112	202	178	174	178	183	194	183	248	213	191	229	271	273	284	290	267	273	236	266	259	273	269	276	234
9	250	232	179	266	345	119	107	78	80	106	99	339	327	314	318	268	274	267	300	292	5	50	133	154	314
10	239	287	123	112	155	260	104	140	131	58	82	170	345	209	207	174	150	144	140	156	174	147	173	143	155
11	155	137	150	134	152	175	134	137	106	126	116	125	175	171	194	119	77	202	120	118	155	122	168	166	143
12	235	179	201	261	181	132	141	237	272	217	222	129	194	208	199	159	138	133	166	158	164	161	157	153	181
13	157	169	146	148	298	315	145	62	94	140	101	356	332	221	239	256	245	227	245	105	175	96	105	212	172
14	157	147	159	162	175	295	116	133	330	300	310	313	323	283	358	77	319	46	56	220	138	151	301	83	107
15	15	237	180	220	50	133	96	82	111	96	163	106	133	131	145	144	133	95	95	125	137	174	172	151	130
16	127	101	95	126	147	152	175	161	124	106	26	307	87	132	148	101	97	99	113	150	340	175	141	115	122
17	184	159	145	124	53	116	290	260	282	288	284	285	286	282	280	272	278	282	283	273	285	274	243	233	264
18	255	43	141	266	104	132	82	261	146	155	46	285	289	283	284	287	255	156	105	92	185	67	100	91	146
19	322	155	147	149	130	132	134	132	76	84	28	128	274	283	299	135	134	116	120	109	99	135	157	145	127
20	141	147	140	127	103	144	141	127	142	140	148	177	117	141	135	103	104	127	155	20	99	88	93	123	126
21	91	295	202	180	135	139	77	60	30	133	106	156	143	297	302	237	284	161	113	119	130	202	116	142	140
22	255	288	271	268	272	275	273	265	263	258	249	249	258	255	262	265	283	284	204	127	79	111	78	92	259
23	77	90	205	134	132	150	146	145	215	96	169	94	32	281	279	295	285	142	154	238	127	143	204	130	153
24	153	145	170	148	127	159	120	146	160	114	355	148	39	241	219	235	73	266	249	250	266	231	268	157	180
25	146	162	274	283	259	48	166	91	128	272	271	270	274	268	271	264	260	273	270	256	172	110	81	147	237
26	132	70	68	83	82	88	60	121	98	129	195	351	20	111	155	134	158	114	350	339	166	134	121	84	101
27	249	264	284	309	316	282	267	281	262	268	270	273	273	273	262	267	269	268	266	229	104	115	91	95	269
28	126	119	71	82	136	141	146	164	147	74	88	113	88	49	285	290	321	121	119	139	101	117	43	98	108
29	62	44	56	358	110	329	40	165	136	231	261	271	287	259	267	274	270	257	163	139	308	279	291	318	284
30	266	283	277	271	293	311	305	328	316	311	301	291	299	287	255	267	274	115	85	105	70	119	130	121	293
31	118	107	340	48	164	60	22	60	97	96	63	277	303	310	324	72	292	269	209	220	199	157	210	122	92
Prev	175	172	180	186	138	166	139	156	151	143	144	239	285	255	257	243	256	205	186	181	153	153	164	142	190

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

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	226	218	233	237	230	214	224	223	228	236	213	230	242	256	267	259	264	259	255	264	278	280	300	288	246
2	280	278	260	263	267	281	291	285	290	287	302	274	290	323	344	355	354	6	6	355	5	100	230	258	303
3	117	30	119	41	141	301	351	79	7	130	146	336	135	297	255	256	292	9	82	10	27	42	18	81	39
4	88	59	55	85	121	121	146	132	141	157	297	269	261	266	260	261	265	271	268	263	269	266	271	294	243
5	286	279	264	249	156	123	104	165	156	130	62	350	264	262	261	267	266	253	262	270	291	296	294	296	259
6	282	283	281	279	292	295	290	301	294	298	306	314	330	328	331	313	266	294	124	100	203	116	96	142	295
7	138	166	146	325	271	181	89	149	176	15	289	279	298	302	310	265	242	156	154	126	93	115	119	133	175
8	150	156	119	145	196	142	63	204	278	270	277	278	291	291	293	309	335	326	327	326	352	280	334	265	284
9	152	95	108	120	112	74	122	178	117	161	141	141	293	270	257	278	279	298	305	300	293	294	290	297	223
10	297	292	310	330	326	337	332	241	269	295	281	283	300	311	289	272	266	276	118	185	134	136	147	132	282
11	107	131	131	158	137	131	237	276	262	271	288	310	280	271	256	253	246	263	273	275	296	303	293	285	258
12	300	308	314	327	347	325	358	359	337	322	261	262	301	342	135	80	163	133	119	152	163	140	192	92	325
13	222	151	124	115	177	118	148	245	95	147	138	114	38	72	68	142	127	140	98	117	149	136	95	114	126
14	52	94	88	93	227	220	242	267	270	279	280	280	282	283	290	282	277	286	272	262	270	269	266	276	271
15	267	298	159	222	171	211	275	276	264	246	257	257	255	249	257	269	258	260	234	247	266	221	98	111	245
16	10	267	239	140	135	238	129	258	263	259	256	252	253	281	297	285	281	268	265	273	291	290	285	278	265
17	294	293	281	288	285	287	288	151	58	154	90	240	261	261	256	271	252	308	298	296	288	320	259	183	274
18	85	94	123	126	106	251	247	186	171	276	271	274	274	290	283	291	276	236	139	64	97	30	62	113	200
19	141	122	129	119	127	136	12	252	317	139	119	112	328	286	283	354	329	7	122	113	94	112	146	166	112
20	136	139	149	152	158	144	199	137	134	110	130	112	135	142	131	148	115	246	108	139	103	112	144	73	135
21	115	142	132	113	114	125	135	144	143	112	130	151	92	306	276	268	266	264	238	136	102	106	105	84	135
22	82	86	121	103	65	95	158	123	112	64	249	250	279	269	226	243	253	260	262	262	52	264	76	80	160
23	61	108	117	128	168	162	124	132	158	110	317	350	187	143	234	230	227	248	102	83	305	282	293	275	167
24	282	288	287	307	296	283	280	284	292	295	288	293	298	296	323	324	315	325	346	325	261	311	10	76	304
25	68	50	101	151	91	86	72	115	158	93	95	110	272	259	259	252	257	235	112	131	112	84	91	81	112
26	134	79	143	10	42	61	80	100	86	16	291	284	264	262	256	253	268	281	277	279	279	277	273	281	293
27	302	300	261	122	97	88	82	97	31	10	338	264	262	259	254	266	282	282	331	125	123	61	92	88	352
28	101	113	114	93	106	124	127	128	66	93	137	292	288	255	101	165	155	128	97	149	73	355	226	156	122
29	118	118	125	97	89	87	103	97	219	278	284	274	272	288	296	289	282	287	282	268	269	283	2	24	287
Prev	121	120	146	125	143	150	132	181	202	223	264	273	277	281	273	271	267	274	246	233	297	305	314	123	248

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

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	323	335	128	94	321	51	89	138	135	248	272	258	260	259	254	256	242	215	251	237	247	262	261	262	252
2	264	259	265	257	271	278	271	262	291	282	270	262	267	263	256	259	264	278	280	280	282	285	273	274	271
3	267	273	269	281	264	271	271	279	281	279	278	280	279	281	283	275	269	261	260	282	250	234	182	101	268
4	43	338	213	200	233	255	277	283	278	271	267	272	280	286	289	281	289	286	289	295	300	329	110	83	281
5	56	107	78	42	69	133	144	132	143	133	135	151	145	153	152	149	134	159	108	82	84	105	85	85	116
6	79	63	103	101	119	115	113	129	333	226	195	185	213	220	223	223	220	194	206	171	105	110	143	58	154
7	80	33	129	94	114	111	112	87	346	127	190	185	180	202	235	238	235	257	165	246	283	304	187	175	173
8	318	294	296	277	305	317	250	160	156	234	281	280	285	267	267	263	256	204	193	140	83	113	187	174	248
9	135	132	334	91	172	249	137	156	118	88	167	250	289	272	270	282	286	293	291	274	232	137	120	97	204
10	101	107	251	280	264	256	263	271	265	261	254	256	275	266	256	266	295	277	262	184	199	215	239	249	253
11	259	245	318	258	242	232	231	237	235	238	244	262	279	301	306	287	286	314	315	324	336	320	333	339	281
12	306	295	278	151	93	72	45	79	146	63	275	281	276	283	287	296	303	298	322	2	79	186	6	164	318
13	125	94	92	136	166	155	153	128	128	140	130	130	123	131	141	131	144	135	133	126	143	138	139	138	133
14	150	304	284	262	261	260	279	283	274	249	259	251	250	261	251	253	254	267	231	299	281	275	277	166	261
15	292	247	320	320	318	301	329	335	338	327	307	13	336	315	310	317	319	305	313	223	343	329	185	5	316
16	128	135	31	310	308	315	280	263	143	129	219	138	290	264	278	260	275	205	158	143	97	56	130	159	204
17	108	133	139	154	155	155	119	155	117	124	186	280	275	260	284	270	268	333	330	340	320	308	258	267	228
18	278	252	255	231	311	304	326	242	161	160	155	156	164	186	183	46	316	343	221	14	157	24	153	212	224
19	313	304	262	320	171	343	329	219	298	316	269	251	253	257	257	252	240	157	151	145	137	135	144	146	243
20	141	134	140	164	170	155	159	151	144	126	10	110	25	267	257	262	279	287	251	141	113	115	106	82	149
21	19	93	29	98	68	23	47	123	277	88	285	274	271	293	284	279	260	250	256	267	244	94	96	86	327
22	77	226	259	270	266	278	243	255	216	70	19	294	282	285	260	270	268	279	272	119	87	98	87	32	272
23	82	95	110	79	119	129	137	119	105	49	132	192	183	177	220	217	206	224	254	252	252	96	336	126	150
24	229	286	311	106	168	254	152	68	80	282	271	319	306	314	344	25	70	176	30	215	105	158	158	157	218
25	162	147	150	95	79	96	161	102	103	290	284	265	278	291	256	248	244	208	166	201	287	210	194	216	203
26	235	227	260	265	240	80	131	123	244	256	257	271	258	263	263	257	262	268	275	267	273	270	271	258	254
27	275	58	82	81	73	77	56	222	171	41	74	257	263	240	257	271	265	259	246	220	230	247	264	258	248
28	245	268	268	261	262	273	280	278	269	263	263	264	261	258	257	261	262	257	257	263	263	143	119	110	258
29	107	118	109	149	143	154	154	170	209	166	193	227	220	209	223	238	266	225	202	191	175	159	229	232	187
30	115	108	133	142	140	165	199	140	139	149	184	202	200	194	201	199	200	214	203	187	185	178	205	228	176
31	296	330	41	140	130	125	187	163	75	144	141	36	101	182	236	331	320	298	78	268	278	344	291	310	298
Prev	126	204	255	168	191	209	187	176	184	197	237	248	258	253	256	263	263	252	243	231	229	169	181	165	234

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

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	16	33	6	25	16	10	11	11	10	9	10	9	9	9	10	11	12	10	9	11	18	11	15	51	14	51	6
2	42	43	17	11	17	32	17	12	14	10	11	12	10	10	10	11	9	10	9	9	10	10	9	11	15	43	9
3	10	10	12	57	76	74	35	49	27	59	67	19	13	16	12	32	66	20	88	49	38	52	8	69	40	88	8
4	13	37	41	15	19	26	15	14	16	10	8	33	13	19	10	10	11	10	12	12	9	14	11	10	16	41	8
5	32	24	50	18	56	53	56	88	83	82	49	87	46	21	27	16	73	77	37	75	50	88	74	73	56	88	16
6	52	13	13	13	12	10	10	9	12	10	13	23	13	10	10	14	13	18	62	51	61	57	9	9	22	62	9
7	9	11	10	10	11	60	29	44	55	91	42	56	9	77	10	31	46	39	40	47	34	21	18	20	34	91	9
8	66	13	14	20	17	20	12	39	58	15	13	29	15	16	17	14	11	12	20	9	13	12	13	28	21	66	9
9	48	45	77	46	96	53	49	31	61	86	67	34	9	8	26	14	20	21	10	30	66	78	26	66	44	96	8
10	87	21	54	50	55	68	58	78	76	79	87	100	51	29	13	17	10	8	9	17	11	12	18	15	43	100	8
11	11	19	16	27	26	14	19	30	36	20	16	18	17	21	16	46	26	43	62	10	31	75	30	81	30	81	10
12	10	65	63	21	44	35	67	78	23	40	55	55	15	15	15	7	14	20	15	13	29	6	10	8	30	78	6
13	6	13	14	19	67	47	89	96	75	77	83	77	58	11	14	21	25	23	96	33	53	62	74	82	51	96	6
14	54	69	23	46	54	33	71	36	56	59	5	6	7	83	100	95	47	49	91	95	58	59	64	49	55	100	5
15	78	84	100	76	70	25	55	45	24	86	89	83	6	10	8	11	25	23	30	28	46	45	39	28	46	100	6
16	19	20	19	26	27	19	51	58	45	63	77	94	53	51	15	28	34	18	22	33	92	91	29	64	44	94	15
17	78	34	15	27	62	74	49	19	19	10	7	9	11	10	10	10	10	7	12	15	15	9	19	32	23	78	7
18	24	65	92	20	55	67	55	94	32	83	29	36	10	11	11	27	78	27	86	58	54	19	68	39	48	94	10
19	87	65	70	58	29	58	90	85	90	72	96	71	43	25	32	42	56	43	39	21	39	41	53	51	57	96	21
20	29	29	33	45	38	25	52	23	44	33	21	53	83	58	6	16	15	30	73	93	73	35	23	56	41	93	6
21	34	78	71	68	73	50	80	77	90	63	69	52	77	42	46	49	74	27	20	57	50	86	74	38	60	90	20
22	49	14	15	15	11	12	17	13	14	14	8	13	13	13	12	11	8	11	36	43	33	41	36	19	20	49	8
23	52	74	82	70	70	30	88	43	51	85	84	46	63	18	22	13	63	31	60	76	84	58	96	48	59	96	13
24	46	22	50	47	81	87	64	36	92	100	68	83	58	58	12	16	92	16	21	16	10	43	49	40	50	100	10
25	70	93	15	15	14	71	70	58	74	25	14	13	14	12	12	8	10	19	25	71	61	33	45	62	38	93	8
26	92	80	36	37	40	22	42	38	32	37	88	37	34	41	18	55	25	47	92	58	53	21	32	32	45	92	18
27	55	9	15	13	13	19	36	26	11	10	11	12	12	13	9	13	10	11	28	67	27	38	52	44	23	67	9
28	49	51	74	77	73	56	98	40	63	8	21	40	13	40	32	15	67	49	66	58	39	34	53	61	49	98	8
29	66	51	47	54	66	59	77	65	30	70	13	18	13	16	12	14	15	70	43	26	48	89	11	35	42	89	11
30	33	15	19	10	17	22	12	13	9	9	15	13	15	9	10	14	22	56	65	35	41	29	42	31	23	65	9
31	38	71	67	84	78	81	59	72	39	78	61	54	13	27	34	77	79	64	66	59	82	45	81	55	61	84	13
Avg	44	41	40	36	45	42	49	46	44	48	42	41	26	26	19	24	34	29	43	41	43	42	38	42	39	83	10
Max	92	93	100	84	96	87	98	96	92	100	96	100	83	83	100	95	92	77	96	95	92	91	96	82	61	100	21
Min	6	9	6	10	11	10	10	9	9	8	5	6	6	8	6	7	8	7	9	9	9	6	8	8	14	41	5

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

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	13	11	13	16	13	10	52	9	10	9	13	16	9	11	10	9	10	11	9	11	10	10	9	10	13	52	9
2	11	10	10	9	9	9	8	7	10	9	11	16	16	11	10	17	16	17	14	27	24	39	93	83	20	93	7
3	82	91	93	102	98	69	79	71	93	73	32	62	62	34	13	11	17	17	83	33	81	85	65	31	62	102	11
4	21	27	41	52	38	27	25	61	36	59	91	15	12	10	13	13	13	12	14	12	12	11	15	10	27	91	10
5	20	14	14	40	59	36	36	61	47	85	38	66	15	9	10	10	13	15	10	14	9	8	11	12	27	85	8
6	10	9	9	9	9	10	8	8	8	12	14	15	13	9	6	18	7	61	62	15	53	76	63	43	23	76	6
7	56	75	60	88	94	92	82	76	81	46	15	9	15	10	15	20	32	9	18	42	13	40	40	43	45	94	9
8	22	35	44	33	62	85	39	57	13	10	14	9	16	13	10	13	14	11	8	11	12	69	21	66	29	85	8
9	89	60	48	36	46	58	64	75	64	59	81	65	68	15	11	11	12	12	10	10	9	8	7	8	39	89	7
10	11	32	15	14	19	15	16	65	45	21	11	8	13	9	15	11	7	71	31	87	54	58	73	88	33	88	7
11	73	66	75	67	78	60	69	10	14	15	27	23	18	18	9	12	11	8	11	8	8	9	12	9	30	78	8
12	8	7	11	12	13	17	69	26	45	71	25	17	27	13	55	48	75	54	70	18	34	13	83	77	37	83	7
13	89	86	51	31	34	33	28	62	65	70	75	53	43	36	45	10	34	54	49	33	60	34	53	80	50	89	10
14	76	92	58	52	16	10	27	13	17	10	10	10	9	11	9	15	12	9	10	10	8	8	14	12	22	92	8
15	12	42	46	87	43	39	20	12	14	11	13	10	12	13	10	11	13	11	15	8	17	48	36	70	26	87	8
16	80	26	92	50	47	87	55	16	12	11	10	9	7	12	13	12	11	8	9	9	18	16	18	8	27	92	7
17	24	42	16	10	9	11	85	44	85	87	65	57	9	7	9	14	38	23	34	22	19	20	15	73	34	87	7
18	54	72	56	78	65	30	17	58	96	29	12	12	13	22	12	22	23	39	49	56	33	49	45	91	43	96	12
19	94	85	61	53	27	66	81	91	93	88	23	32	72	26	24	32	52	84	21	29	35	47	37	52	54	94	21
20	48	50	33	49	55	50	38	41	60	75	58	93	11	4	10	6	61	59	32	61	38	41	16	79	45	93	4
21	61	35	46	87	46	58	55	77	53	80	67	73	65	41	36	15	18	18	22	37	30	26	47	37	47	87	15
22	55	54	56	43	56	56	75	34	51	75	27	15	19	13	35	15	13	9	12	51	98	97	61	52	45	98	9
23	63	43	73	49	92	61	83	82	48	75	42	94	35	57	11	10	9	75	66	84	32	21	13	10	51	94	9
24	15	10	9	15	22	11	8	8	9	9	6	8	13	13	9	9	11	9	19	21	27	20	56	9	14	56	6
25	40	38	51	38	93	80	77	76	65	72	73	50	66	9	9	10	14	29	62	35	30	49	49	63	49	93	9
26	96	89	90	80	83	42	41	83	54	53	21	11	9	7	7	7	15	9	10	8	9	8	9	11	36	96	7
27	9	11	91	52	26	43	48	45	75	79	83	10	9	8	9	13	11	12	74	54	50	72	35	36	40	91	8
28	50	33	39	63	50	80	76	67	83	51	42	23	7	13	64	38	9	12	22	77	95	40	95	79	50	95	7
29	26	34	34	64	40	56	63	77	93	19	22	15	14	9	13	10	10	8	9	19	17	30	75	93	35	93	8
Avg	45	44	46	48	46	45	49	49	50	47	35	31	24	16	17	15	20	26	29	31	32	36	40	46	36	88	9
Max	96	92	93	102	98	92	85	91	96	88	91	94	72	57	64	48	75	84	83	87	98	97	95	93	62	102	21
Min	8	7	9	9	9	9	8	7	8	9	6	8	7	4	6	6	7	8	8	8	8	8	7	8	13	52	4

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

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	14	32	59	85	60	68	73	83	39	45	17	6	4	4	7	11	18	11	18	18	13	13	11	11	30	85	4
2	11	11	11	12	15	16	17	28	17	13	12	8	10	9	9	9	9	9	8	8	9	8	9	10	12	28	8
3	11	12	15	18	12	13	11	10	10	10	9	11	11	10	11	11	10	13	10	59	63	44	83	68	22	83	9
4	87	48	33	27	12	14	11	10	12	11	11	12	11	14	12	10	10	9	10	7	16	43	42	30	21	87	7
5	44	72	59	74	72	43	54	32	22	30	27	6	5	7	16	12	9	9	56	8	8	68	39	17	33	74	5
6	28	42	35	25	87	51	59	74	73	59	10	21	21	12	11	8	7	16	9	62	28	43	41	41	36	87	7
7	38	73	53	45	49	49	55	77	81	62	64	11	10	12	13	13	8	6	78	46	15	28	95	35	42	95	6
8	15	15	21	15	18	16	77	22	39	52	10	13	17	20	22	17	13	19	52	56	73	35	93	25	31	93	10
9	27	54	100	48	94	46	44	30	61	60	52	20	27	21	18	21	14	10	14	35	55	47	21	25	39	100	10
10	34	51	86	25	17	18	10	11	11	12	10	12	17	17	13	17	22	19	29	86	42	29	11	13	26	86	10
11	13	23	54	23	13	10	9	9	8	10	14	9	14	13	11	9	9	17	8	12	30	39	32	15	17	54	8
12	31	11	23	74	49	19	21	49	19	57	51	17	13	17	19	13	10	14	17	41	56	86	41	27	32	86	10
13	30	74	29	77	38	13	9	27	14	14	13	15	21	16	16	15	15	11	13	10	14	14	13	11	22	77	9
14	14	61	22	7	18	12	19	27	19	8	11	8	6	16	8	10	12	26	24	37	25	24	46	64	22	64	6
15	32	75	7	6	8	26	39	64	70	49	38	59	9	24	13	27	7	19	10	91	100	35	83	77	40	100	6
16	92	51	68	45	22	12	24	29	33	83	42	47	60	15	32	15	17	46	23	16	30	25	28	50	38	92	12
17	63	28	15	28	53	43	63	96	74	73	86	10	9	7	7	28	13	30	12	9	11	14	17	18	34	96	7
18	14	8	45	32	52	13	22	98	5	5	5	7	4	16	43	55	43	33	66	70	67	71	58	86	38	98	4
19	50	16	45	52	71	97	63	60	26	11	18	7	6	4	3	6	23	4	7	6	8	8	8	8	25	97	3
20	10	10	15	18	14	6	5	8	11	53	20	34	30	29	11	19	13	11	12	19	26	28	53	44	21	53	5
21	40	46	52	42	37	59	62	84	78	67	23	14	14	15	15	25	9	9	19	19	63	51	25	44	38	84	9
22	79	39	15	18	15	27	45	35	93	41	67	65	25	23	15	13	12	10	18	55	28	24	51	34	35	93	10
23	53	46	42	51	29	16	12	30	74	74	77	14	14	36	13	17	19	20	8	31	23	99	101	72	40	101	8
24	83	18	81	75	67	9	92	65	58	81	17	18	36	16	18	43	13	68	99	83	81	13	47	10	50	99	9
25	10	24	37	22	36	37	38	72	74	85	37	27	29	54	10	14	15	14	14	62	25	54	83	28	38	85	10
26	12	24	21	51	69	57	21	85	18	12	11	16	18	9	10	9	12	11	11	12	13	11	12	8	22	85	8
27	17	29	23	73	31	20	58	75	84	48	60	32	15	25	46	33	13	9	11	8	10	13	11	12	32	84	8
28	8	15	17	51	12	11	13	13	15	11	10	12	12	10	11	11	10	9	9	10	22	36	23	36	16	51	8
29	24	23	30	31	47	54	24	32	90	56	13	12	18	24	17	18	53	53	22	5	24	82	63	29	35	90	5
30	69	61	25	26	67	67	92	32	49	12	23	14	16	15	19	8	15	27	12	14	12	11	16	45	31	92	8
31	11	11	80	9	36	59	73	84	76	98	61	35	59	57	57	41	28	16	91	14	22	55	10	15	46	98	9
Avg	34	36	39	38	39	32	39	47	44	42	30	19	18	18	17	18	16	19	25	33	33	37	41	33	31	84	8
Max	92	75	100	85	94	97	92	98	93	98	86	65	60	57	57	55	53	68	99	91	100	99	101	86	50	101	12
Min	8	8	7	6	8	6	5	8	5	5	5	6	4	4	3	6	7	4	7	5	8	8	8	8	12	28	3

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature 9 Meters (degrees Celsius)**  
**January 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.1	0.2	1.7	2.1	2.3	1.0	0.6	0.5	0.7	0.9	1.4	1.5	1.6	1.7	1.8	1.1	0.4	-0.1	-0.5	-0.7	-0.8	-0.7	-0.9	-1.6	0.6	2.3	-1.6
2	-2.8	-2.7	-1.2	-1.0	-1.4	-1.8	-2.0	-2.0	-1.8	-1.2	-1.1	-1.0	-1.2	-1.5	-2.0	-2.4	-2.8	-3.4	-3.8	-4.5	-4.8	-4.9	-4.4	-4.0	-2.5	-1.0	-4.9
3	-3.7	-4.5	-4.4	-4.7	-5.1	-4.7	-4.0	-3.9	-3.9	-3.3	-2.0	0.0	1.4	2.0	2.1	2.2	2.1	2.8	2.1	0.1	0.9	1.8	2.8	2.5	-0.9	2.8	-5.1
4	1.7	-1.2	-0.5	-1.9	-2.7	2.1	1.9	1.0	0.7	1.3	1.3	2.9	4.0	0.3	-0.1	-0.7	-1.8	-3.0	-3.5	-4.2	-4.6	-4.9	-4.9	-5.2	-0.9	4.0	-5.2
5	-6.1	-8.1	-10.6	-11.5	-13.1	-13.2	-13.3	-13.3	-12.7	-11.4	-8.3	-6.9	-4.7	-4.3	-4.0	-4.2	-5.7	-9.2	-10.8	-12.8	-12.7	-12.2	-11.1	-8.7	-9.5	-4.0	-13.3
6	-6.2	-3.5	-3.4	-4.0	-4.5	-4.6	-4.5	-4.4	-4.5	-4.4	-4.0	-3.7	-3.4	-3.0	-3.2	-3.1	-2.4	-2.2	-2.4	-3.1	-3.3	-2.2	-0.1	-0.1	-3.3	-0.1	-6.2
7	0.1	0.4	0.3	0.3	0.4	0.2	-0.5	-1.2	-0.8	0.0	0.4	1.1	0.4	1.5	2.5	2.4	2.1	0.6	0.0	0.7	1.0	2.2	1.3	0.5	0.7	2.5	-1.2
8	1.1	2.4	1.9	1.4	1.5	0.9	0.4	-0.2	-0.3	0.3	0.0	0.6	0.4	0.5	-0.3	-0.5	-1.1	-1.8	-2.4	-2.9	-2.7	-3.5	-4.6	-4.9	-0.6	2.4	-4.9
9	-6.0	-6.8	-7.5	-6.6	-7.0	-7.8	-9.8	-11.3	-10.9	-10.3	-9.2	-7.6	-8.2	-9.4	-8.6	-11.3	-12.5	-13.1	-12.8	-13.7	-15.4	-17.2	-17.7	-18.0	-10.8	-6.0	-18.0
10	-17.4	-16.0	-17.3	-20.2	-21.2	-21.5	-22.4	-23.9	-25.0	-24.5	-21.4	-17.7	-13.8	-8.5	-7.0	-7.3	-7.5	-7.0	-6.4	-6.1	-6.5	-6.4	-5.9	-6.3	-14.0	-5.9	-25.0
11	-6.1	-6.0	-5.8	-5.8	-6.0	-6.1	-5.5	-5.6	-5.9	-5.6	-5.2	-5.1	-3.8	-3.2	-2.8	-3.2	-3.8	-3.1	-3.5	-3.9	-3.9	-4.0	-3.8	-4.1	-4.7	-2.8	-6.1
12	-3.1	-3.4	-3.5	-3.6	-4.6	-5.7	-6.9	-7.5	-6.1	-5.7	-5.4	-5.2	-4.6	-4.4	-4.5	-5.0	-5.5	-6.0	-6.7	-6.5	-7.5	-9.1	-9.0	-9.3	-5.8	-3.1	-9.3
13	-9.5	-9.0	-8.1	-7.6	-13.3	-16.4	-15.4	-15.1	-16.0	-16.6	-15.1	-11.9	-8.3	-7.7	-8.2	-8.8	-8.8	-8.9	-9.3	-10.0	-10.7	-11.3	-11.6	-12.1	-11.2	-7.6	-16.6
14	-12.8	-12.6	-12.7	-13.9	-14.4	-13.2	-10.8	-12.3	-16.7	-17.5	-17.5	-17.1	-17.6	-16.4	-15.5	-14.8	-15.3	-15.3	-15.0	-15.2	-16.9	-19.2	-19.7	-17.1	-15.4	-10.8	-19.7
15	-16.2	-16.7	-17.4	-16.2	-15.3	-17.2	-19.8	-21.8	-22.5	-21.7	-19.5	-15.1	-9.5	-8.4	-7.7	-7.5	-8.4	-11.1	-11.2	-11.2	-11.0	-12.8	-13.6	-16.0	-14.5	-7.5	-22.5
16	-15.0	-11.4	-9.9	-8.9	-8.7	-8.7	-8.2	-8.6	-10.0	-10.4	-8.3	-4.4	0.1	2.5	2.4	2.5	1.9	0.1	-2.4	-4.6	-7.0	-7.9	-8.1	-7.7	-5.9	2.5	-15.0
17	-8.0	-7.9	-6.3	-5.6	-4.7	-1.7	0.0	-1.8	-3.6	-5.7	-5.9	-5.5	-5.3	-4.9	-4.3	-4.6	-5.4	-6.1	-6.9	-7.5	-7.9	-7.7	-8.6	-9.8	-5.7	0.0	-9.8
18	-9.9	-9.8	-9.8	-8.7	-9.2	-9.8	-8.5	-9.0	-8.7	-8.6	-7.2	-4.9	-3.8	-3.5	-3.5	-3.4	-3.8	-4.3	-4.7	-5.7	-5.9	-6.0	-6.2	-6.5	-6.7	-3.4	-9.9
19	-7.4	-9.2	-11.0	-12.1	-12.6	-11.2	-12.5	-13.6	-14.5	-13.6	-11.5	-7.9	-3.1	0.1	0.2	0.3	-1.0	-4.3	-6.9	-9.3	-11.3	-11.7	-12.1	-13.3	-8.7	0.3	-14.5
20	-12.9	-12.8	-12.5	-13.0	-12.8	-12.6	-12.3	-12.5	-11.5	-9.2	-7.4	-5.7	-3.0	1.1	4.8	4.9	3.7	0.6	-1.8	-2.5	-2.1	-1.6	1.8	1.7	-5.3	4.9	-13.0
21	1.9	-0.3	-1.6	-4.7	-6.1	-5.9	-6.6	-6.7	-5.8	-5.3	-4.8	-3.8	-1.5	1.8	3.8	3.9	3.3	2.2	1.3	0.0	-0.8	-2.1	-0.6	0.5	-1.6	3.9	-6.7
22	-0.6	-0.9	-1.2	-1.7	-2.3	-2.6	-2.9	-2.7	-2.4	-1.8	-1.5	-1.2	-0.9	-0.7	-0.2	-0.3	-0.3	-1.2	-4.1	-4.8	-5.7	-7.8	-9.0	-10.6	-2.8	-0.2	-10.6
23	-12.0	-11.6	-11.0	-10.7	-10.6	-10.0	-9.4	-8.3	-7.9	-6.4	-4.9	-2.6	0.2	1.7	2.1	2.2	1.9	1.4	0.7	-0.7	-1.5	-2.1	-1.6	-3.0	-4.3	2.2	-12.0
24	-3.9	-5.0	-6.2	-6.8	-8.1	-7.6	-8.5	-9.1	-8.7	-8.0	-7.0	-4.8	-1.6	4.0	4.1	2.2	1.3	1.4	1.1	0.6	0.5	-0.6	-0.7	-3.2	-3.1	4.1	-9.1
25	-5.3	-3.6	-0.8	-1.3	-1.6	-2.0	-2.1	-2.4	-2.0	-1.4	0.0	0.5	0.7	1.3	1.8	1.0	1.0	-0.1	-0.9	-1.2	-1.5	-1.3	-2.0	-2.1	-1.1	1.8	-5.3
26	-2.5	-2.2	-1.1	-0.9	-1.2	-1.4	-1.3	-2.9	-5.8	-5.8	-4.1	-1.4	1.5	2.6	2.8	2.6	1.7	0.8	0.0	-0.5	-1.1	-1.5	-1.4	-1.1	-1.0	2.8	-5.8
27	-0.6	-0.4	-1.2	-1.7	-1.8	-1.8	-1.7	-2.4	-2.1	-1.8	-1.3	-0.6	0.0	0.4	0.4	0.7	0.5	0.0	-1.7	-3.9	-6.0	-9.5	-11.3	-12.3	-2.5	0.7	-12.3
28	-13.4	-14.5	-16.0	-16.4	-15.7	-15.3	-13.7	-11.6	-8.6	-4.4	-3.8	-2.7	-1.0	0.1	1.4	1.3	0.8	0.1	-1.7	-3.3	-4.3	-6.6	-6.5	-6.5	-6.8	1.4	-16.4
29	-8.3	-10.3	-9.5	-9.6	-9.5	-8.7	-8.0	-7.7	-7.2	-3.6	-0.8	-0.3	0.1	0.6	0.9	1.3	0.8	-0.4	-2.8	-4.2	-2.0	-2.1	-1.8	-2.0	-4.0	1.3	-10.3
30	-1.6	-1.1	-1.5	-1.6	-1.3	-1.9	-1.9	-2.6	-2.4	-2.0	-1.9	-1.2	-0.4	0.2	0.1	0.2	-0.4	-2.2	-5.2	-7.5	-9.0	-10.5	-11.6	-12.1	-3.3	0.2	-12.1
31	-12.7	-10.8	-9.5	-8.1	-6.9	-5.4	-3.4	-1.0	-1.3	-2.0	-0.2	2.2	2.7	3.0	3.0	3.0	3.7	3.7	4.6	4.7	4.1	5.0	4.8	4.3	-0.5	5.0	-12.7
Avg	-6.4	-6.4	-6.4	-6.6	-7.0	-6.9	-6.9	-7.2	-7.4	-6.8	-5.7	-4.2	-2.7	-1.6	-1.2	-1.5	-2.0	-2.9	-3.8	-4.7	-5.2	-5.8	-5.7	-6.1	-5.0	-0.2	-10.8
Max	1.9	2.4	1.9	2.1	2.3	2.1	1.9	1.0	0.7	1.3	1.4	2.9	4.0	4.0	4.8	4.9	3.7	3.7	4.6	4.7	4.1	5.0	4.8	4.3	0.7	5.0	-1.2
Min	-17.4	-16.7	-17.4	-20.2	-21.2	-21.5	-22.4	-23.9	-25.0	-24.5	-21.4	-17.7	-17.6	-16.4	-15.5	-14.8	-15.3	-15.3	-15.0	-15.2	-16.9	-19.2	-19.7	-18.0	-15.4	-10.8	-25.0

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature 9 Meters (degrees Celsius)**  
**February 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	5.4	5.3	4.9	5.1	5.4	4.3	4.2	5.3	6.0	7.0	7.8	8.4	9.6	10.4	10.1	9.8	9.4	8.6	8.1	7.4	6.8	4.6	2.4	1.2	6.6	10.4	1.2
2	0.2	-0.6	-1.7	-1.9	-2.3	-2.4	-2.7	-3.1	-3.4	-3.8	-4.3	-5.1	-5.3	-5.7	-6.4	-6.9	-7.2	-7.7	-8.1	-8.4	-8.8	-9.8	-10.3	-11.3	-5.3	0.2	-11.3
3	-12.2	-12.7	-13.4	-13.8	-14.1	-14.2	-14.3	-15.2	-15.8	-15.7	-13.6	-11.2	-7.4	-6.7	-6.4	-5.9	-5.9	-6.6	-8.3	-8.8	-10.0	-11.8	-13.8	-15.1	-11.4	-5.9	-15.8
4	-16.1	-17.4	-19.3	-20.7	-21.0	-20.5	-21.0	-21.4	-21.8	-20.5	-14.5	-9.7	-8.9	-8.1	-7.5	-6.9	-7.0	-7.4	-7.7	-8.3	-8.8	-9.1	-9.1	-9.1	-13.4	-6.9	-21.8
5	-9.2	-9.1	-9.1	-9.7	-10.0	-9.6	-9.3	-9.2	-9.9	-9.5	-7.4	-6.1	-4.8	-4.0	-3.2	-3.2	-3.7	-3.9	-4.0	-3.7	-3.3	-3.7	-3.5	-6.4	-3.2	-10.0	
6	-3.5	-3.3	-3.2	-2.7	-2.5	-2.4	-2.6	-2.5	-2.6	-2.1	-1.7	-2.7	-2.3	-2.4	-2.6	-2.7	-3.3	-4.5	-5.1	-6.6	-7.6	-8.0	-8.9	-9.7	-4.0	-1.7	-9.7
7	-11.5	-12.4	-12.2	-12.1	-11.4	-10.6	-10.0	-9.4	-9.1	-6.9	-4.6	-4.3	-3.6	-3.1	-3.3	-3.6	-4.2	-5.0	-5.4	-5.4	-5.3	-4.9	-4.8	-4.5	-7.0	-3.1	-12.4
8	-4.6	-4.3	-3.8	-3.2	-3.7	-3.7	-2.3	-2.5	-1.6	-2.5	-2.2	-1.8	-2.4	-2.7	-4.1	-5.1	-5.4	-6.1	-6.5	-7.5	-8.3	-9.7	-10.7	-11.5	-4.8	-1.6	-11.5
9	-12.9	-12.5	-14.2	-16.8	-18.9	-21.1	-22.1	-23.3	-23.5	-22.7	-20.7	-17.0	-10.5	-7.1	-5.9	-5.9	-5.6	-5.9	-6.3	-5.9	-5.7	-5.7	-5.9	-12.6	-5.6	-23.5	
10	-6.2	-6.8	-6.9	-7.3	-7.2	-7.5	-7.9	-9.2	-9.0	-8.4	-7.2	-6.6	-6.2	-6.1	-6.2	-6.4	-7.3	-8.5	-9.2	-11.1	-11.8	-13.1	-14.6	-16.9	-8.7	-6.1	-16.9
11	-19.1	-20.2	-19.5	-19.5	-17.8	-16.4	-10.2	-7.8	-6.4	-5.9	-5.8	-5.2	-3.5	-3.2	-3.4	-3.2	-2.9	-2.9	-3.0	-3.0	-3.6	-3.8	-3.9	-3.9	-8.1	-2.9	-20.2
12	-4.2	-4.5	-4.8	-5.5	-6.0	-6.8	-8.4	-9.7	-11.2	-10.5	-10.5	-10.0	-9.5	-9.0	-8.7	-8.2	-8.5	-8.8	-9.2	-9.7	-10.0	-10.4	-10.8	-10.6	-8.6	-4.2	-11.2
13	-10.6	-10.5	-10.3	-9.9	-10.0	-10.7	-12.0	-11.8	-11.1	-10.2	-9.6	-6.7	-4.4	-3.4	-2.5	-3.0	-2.4	-3.1	-5.2	-6.8	-8.8	-10.1	-12.0	-12.8	-8.2	-2.4	-12.8
14	-13.6	-12.2	-11.4	-7.9	-2.1	-3.1	-3.1	-3.1	-3.3	-3.3	-3.1	-3.0	-2.4	-2.2	-2.4	-2.5	-2.2	-2.6	-3.2	-4.2	-5.0	-5.1	-5.2	-5.1	-4.6	-2.1	-13.6
15	-5.7	-6.6	-7.9	-7.1	-6.3	-6.0	-4.9	-4.6	-4.5	-4.3	-4.2	-3.8	-3.4	-2.8	-2.1	-2.0	-2.2	-2.2	-2.1	-2.3	-2.5	-2.8	-3.9	-5.0	-4.1	-2.0	-7.9
16	-5.5	-5.3	-4.4	-3.8	-4.0	-4.2	-4.0	-3.3	-2.8	-2.6	-1.9	-1.6	-1.3	-0.5	-0.7	-1.1	-1.8	-2.2	-3.1	-3.8	-4.4	-4.8	-5.1	-5.3	-3.2	-0.5	-5.5
17	-5.9	-6.1	-6.7	-6.8	-7.0	-7.4	-8.1	-10.2	-10.4	-9.7	-7.7	-5.9	-5.0	-5.0	-5.4	-5.7	-6.2	-6.6	-7.0	-6.9	-7.0	-7.5	-8.5	-10.7	-7.2	-5.0	-10.7
18	-11.3	-11.6	-11.5	-11.6	-10.8	-10.0	-9.2	-10.5	-10.2	-9.3	-8.7	-8.1	-7.7	-7.7	-7.8	-7.5	-8.4	-10.5	-13.0	-16.5	-18.7	-20.3	-20.6	-21.2	-11.8	-7.5	-21.2
19	-22.2	-23.7	-24.5	-24.2	-23.7	-21.4	-20.1	-18.4	-17.1	-15.6	-13.1	-10.8	-9.8	-8.1	-7.6	-7.2	-7.5	-9.1	-12.7	-15.5	-18.3	-19.2	-19.7	-20.8	-16.3	-7.2	-24.5
20	-22.5	-23.0	-22.8	-23.7	-23.9	-24.4	-23.8	-24.2	-23.7	-21.1	-18.3	-14.3	-8.3	-3.0	-1.8	-1.6	-1.7	-4.9	-8.9	-12.2	-14.0	-15.3	-15.1	-16.7	-15.4	-1.6	-24.4
21	-17.4	-17.0	-17.5	-18.1	-18.3	-18.4	-19.2	-19.2	-18.6	-16.6	-14.2	-11.3	-2.9	1.3	2.3	2.7	2.4	1.9	0.8	-2.2	-6.0	-9.6	-11.5	-12.0	-9.9	2.7	-19.2
22	-13.3	-13.4	-14.0	-12.0	-9.9	-6.6	-7.0	-7.3	-8.3	-4.3	0.3	0.9	2.2	3.4	3.6	3.9	3.9	3.5	2.7	1.3	0.2	-1.8	-3.7	-5.7	-3.4	3.9	-14.0
23	-7.4	-9.2	-11.3	-12.0	-11.5	-10.5	-10.0	-9.5	-8.6	-7.7	-5.1	-2.0	1.8	2.5	3.6	3.7	3.8	2.3	-0.9	-0.5	-2.8	-2.8	-3.0	-3.4	-4.2	3.8	-12.0
24	-3.9	-4.2	-4.0	-4.6	-4.3	-4.0	-4.2	-4.5	-4.8	-4.6	-4.7	-4.2	-4.1	-4.1	-4.2	-4.0	-4.2	-5.5	-5.9	-6.2	-7.7	-9.4	-9.5	-11.4	-5.3	-3.9	-11.4
25	-13.8	-15.8	-17.0	-17.7	-19.4	-20.5	-20.2	-18.8	-16.8	-15.1	-13.1	-10.0	-6.1	-4.7	-4.5	-4.2	-3.7	-5.1	-8.0	-10.9	-13.2	-15.0	-16.0	-15.8	-12.7	-3.7	-20.5
26	-14.9	-14.3	-13.2	-12.5	-11.3	-9.5	-7.1	-7.8	-7.6	-4.6	-1.6	0.0	0.9	0.9	0.8	1.0	1.2	1.4	1.0	0.7	0.2	-0.4	-1.1	-1.4	-4.1	1.4	-14.9
27	-2.1	-2.9	-4.7	-6.4	-8.5	-10.9	-12.1	-12.6	-12.6	-9.7	-2.9	-0.1	0.4	0.9	1.6	2.3	2.2	1.7	0.4	-1.8	-4.1	-5.1	-6.5	-6.3	-4.2	2.3	-12.6
28	-7.5	-8.8	-9.4	-10.4	-11.3	-12.1	-11.8	-11.7	-11.3	-9.6	-5.2	3.6	5.4	5.1	5.1	6.4	5.7	5.7	3.6	0.4	-0.5	-0.2	2.5	2.2	-2.7	6.4	-12.1
29	1.7	-1.0	-1.8	-3.1	-3.9	-5.3	-6.1	-6.1	-5.4	0.0	0.9	0.3	-0.2	-0.6	-1.0	-0.8	-1.3	-1.5	-2.1	-2.9	-3.8	-4.7	-6.0	-8.8	-2.6	1.7	-8.8
Avg	-9.3	-9.8	-10.2	-10.3	-10.2	-10.2	-10.0	-10.1	-9.8	-8.6	-6.8	-5.1	-3.4	-2.6	-2.4	-2.3	-2.6	-3.3	-4.4	-5.6	-6.6	-7.6	-8.2	-9.0	-7.0	-1.5	-14.1
Max	5.4	5.3	4.9	5.1	5.4	4.3	4.2	5.3	6.0	7.0	7.8	8.4	9.6	10.4	10.1	9.8	9.4	8.6	8.1	7.4	6.8	4.6	2.5	2.2	6.6	10.4	1.2
Min	-22.5	-23.7	-24.5	-24.2	-23.9	-24.4	-23.8	-24.2	-23.7	-22.7	-20.7	-17.0	-10.5	-9.0	-8.7	-8.2	-8.5	-10.5	-13.0	-16.5	-18.7	-20.3	-20.6	-21.2	-16.3	-7.5	-24.5

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature 9 Meters (degrees Celsius)**  
**March 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-7.5	-8.7	-9.3	-8.9	-8.2	-8.0	-7.5	-8.6	-8.9	-7.2	-5.4	-5.0	-4.3	-3.8	-3.4	-2.6	-2.1	-2.4	-3.3	-4.9	-4.4	-4.5	-4.9	-5.3	-5.8	-2.1	-9.3
2	-5.7	-6.1	-6.2	-6.2	-5.9	-5.6	-5.8	-6.0	-5.1	-3.5	-2.1	-1.7	-0.8	-0.5	-0.9	-0.8	-0.6	-1.3	-1.5	-1.6	-1.7	-1.8	-2.0	-1.7	-3.1	-0.5	-6.2
3	-1.4	-1.2	-1.2	0.1	0.6	1.0	1.7	2.1	2.0	2.1	2.4	3.2	3.6	3.7	4.0	4.3	4.0	3.2	2.7	1.5	-0.1	-1.3	-1.7	-5.0	1.3	4.3	-5.0
4	-6.2	-5.0	0.9	1.8	2.2	2.3	2.3	1.6	1.6	1.9	2.1	2.5	1.0	-0.5	-1.2	-0.3	-0.9	-1.4	-2.2	-3.0	-3.8	-4.9	-7.7	-10.3	-1.1	2.5	-10.3
5	-12.2	-13.8	-15.3	-16.1	-16.8	-16.8	-17.7	-17.6	-15.0	-10.8	-1.4	2.0	3.1	4.1	5.2	5.2	5.5	5.9	4.7	3.8	3.5	2.6	0.6	-0.1	-4.5	5.9	-17.7
6	-1.9	-3.8	-3.8	-4.4	-5.6	-6.2	-6.7	-6.6	-5.4	3.6	9.2	9.6	11.1	11.4	11.4	11.9	11.6	10.8	9.4	8.1	5.3	3.1	1.5	0.3	3.1	11.9	-6.7
7	-0.6	-2.0	-1.9	-1.4	-2.2	-2.7	-2.8	-3.4	-1.7	0.6	6.6	8.5	9.0	9.8	10.1	9.7	9.2	7.6	5.8	5.8	3.4	1.1	0.6	0.3	2.9	10.1	-3.4
8	0.3	0.2	0.1	-0.5	-1.7	-2.3	-3.1	-5.3	-5.1	-3.0	-1.6	-1.2	-0.7	-0.1	0.2	0.5	0.6	0.3	-1.6	-2.6	-2.4	-1.5	-2.2	-2.0	-1.4	0.6	-5.3
9	-2.6	-2.4	-2.9	-3.2	-3.5	-3.4	-3.7	-4.0	-3.9	-3.1	-2.4	-1.8	-1.1	-0.1	0.3	0.6	0.6	0.3	-0.5	-2.5	-3.2	-4.9	-7.7	-10.2	-2.7	0.6	-10.2
10	-11.1	-8.6	-6.5	-5.2	-5.0	-5.4	-4.8	-4.3	-3.6	-2.5	-1.7	-0.8	0.1	0.3	0.8	1.5	2.0	2.0	1.5	0.1	1.2	2.7	2.5	2.3	-1.8	2.7	-11.1
11	2.0	2.0	0.6	2.2	2.5	2.6	2.8	3.1	3.5	4.1	4.9	5.3	5.2	4.7	3.1	3.7	3.4	2.1	0.0	-1.4	-3.2	-4.5	-5.0	-5.7	1.6	5.3	-5.7
12	-6.3	-7.2	-7.3	-7.7	-8.7	-9.9	-10.6	-10.6	-10.5	-8.3	-5.2	-4.7	-4.0	-3.3	-3.1	-2.8	-2.9	-3.1	-4.0	-5.0	-6.5	-7.5	-6.9	-8.3	-6.4	-2.8	-10.6
13	-9.2	-10.0	-9.7	-8.8	-7.9	-8.3	-8.2	-7.6	-6.9	-6.6	-6.0	-6.1	-6.1	-6.2	-6.7	-6.8	-7.1	-7.1	-7.0	-6.5	-6.7	-6.8	-6.9	-6.9	-7.3	-6.0	-10.0
14	-6.9	-10.0	-13.0	-15.1	-16.7	-17.3	-18.2	-19.2	-19.4	-19.7	-19.4	-19.9	-20.2	-20.2	-20.5	-20.4	-20.6	-20.6	-20.3	-20.6	-21.3	-21.6	-22.7	-23.4	-18.6	-6.9	-23.4
15	-23.5	-23.2	-22.8	-22.8	-22.7	-22.3	-21.6	-21.1	-20.3	-19.2	-17.8	-15.8	-13.6	-11.8	-12.3	-11.8	-11.2	-11.1	-11.2	-11.0	-10.7	-10.5	-10.3	-12.4	-16.3	-10.3	-23.5
16	-13.4	-14.5	-13.0	-12.3	-11.4	-11.8	-12.0	-12.2	-12.4	-10.8	-9.1	-7.2	-5.0	-3.8	-2.5	-1.5	-1.1	-1.8	-4.3	-6.4	-8.9	-11.1	-12.7	-13.6	-8.9	-1.1	-14.5
17	-14.6	-14.9	-15.1	-15.1	-16.2	-15.5	-16.6	-15.4	-12.9	-9.8	-5.7	1.9	2.3	0.9	2.0	0.4	-0.7	-0.5	-2.0	-3.4	-4.0	-4.5	-5.9	-7.5	-7.2	2.3	-16.6
18	-8.1	-8.5	-9.0	-9.0	-8.7	-8.8	-8.8	-7.7	-7.3	-6.8	-6.7	-6.5	-5.7	-4.4	-4.3	-3.4	-2.6	-2.2	-2.1	-3.6	-5.7	-7.0	-7.0	-7.0	-6.3	-2.1	-9.0
19	-6.7	-7.3	-7.3	-7.6	-9.6	-9.1	-8.8	-8.4	-8.1	-7.4	-6.8	-6.6	-6.2	-6.4	-6.6	-6.5	-6.5	-6.6	-7.2	-7.7	-7.9	-8.0	-8.3	-8.8	-7.5	-6.2	-9.6
20	-9.0	-9.1	-9.2	-9.6	-9.8	-9.8	-9.8	-9.6	-8.6	-6.7	-5.3	-4.0	-2.4	-0.7	0.5	1.7	2.4	2.4	0.7	-2.7	-4.4	-6.5	-8.2	-9.4	-5.3	2.4	-9.8
21	-9.9	-10.3	-11.2	-11.8	-12.5	-12.5	-13.3	-12.8	-10.9	-5.6	1.5	2.3	2.9	3.2	3.5	3.7	4.1	3.5	3.0	2.3	1.0	0.0	-0.7	-2.0	-3.4	4.1	-13.3
22	-2.6	-2.3	-3.8	-4.6	-5.7	-6.0	-6.8	-6.5	-6.5	-5.8	-3.4	-1.4	0.0	1.1	2.0	2.8	3.6	3.8	2.8	-1.2	-3.4	-4.9	-6.4	-7.3	-2.6	3.8	-7.3
23	-8.5	-9.7	-9.3	-9.3	-9.5	-10.0	-10.4	-9.7	-7.9	-4.9	1.3	4.5	5.2	5.7	6.5	6.4	6.3	6.3	5.3	3.8	2.7	0.5	0.4	-0.4	-1.4	6.5	-10.4
24	-0.3	-0.7	-1.6	-2.3	-2.7	-2.3	-3.6	-5.5	-4.2	-1.5	-0.2	0.0	0.3	0.3	0.0	-0.5	-0.5	-0.5	-1.7	-2.6	-2.0	-2.0	-1.6	-2.7	-1.6	0.3	-5.5
25	-3.0	-3.9	-5.5	-6.6	-6.8	-7.6	-8.5	-8.2	-6.9	-3.4	-2.0	-1.4	-0.8	-0.6	-0.1	0.2	0.4	0.2	-1.2	-2.5	-3.1	-3.7	-3.8	-3.9	-3.4	0.4	-8.5
26	-4.2	-4.6	-4.9	-5.5	-6.4	-7.7	-9.3	-8.8	-5.3	-4.3	-4.0	-3.0	-2.0	-1.3	-0.6	-0.1	-0.1	-0.5	-1.4	-2.2	-2.9	-3.3	-3.8	-4.5	-3.8	-0.1	-9.3
27	-4.8	-7.0	-7.6	-8.1	-8.9	-10.2	-10.8	-9.9	-8.5	-5.3	-2.8	-2.0	-1.4	-1.0	-0.7	-0.4	-0.1	-0.3	-0.6	-1.1	-1.1	-0.9	-1.5	-1.8	-4.0	-0.1	-10.8
28	-2.0	-2.6	-2.9	-3.1	-2.6	-2.4	-2.3	-2.1	-1.5	-0.6	0.2	1.0	2.0	2.4	2.9	3.3	3.5	3.6	3.3	2.6	1.2	-1.5	-3.4	-4.9	-0.2	3.6	-4.9
29	-6.3	-6.8	-7.5	-8.0	-8.7	-8.1	-9.0	-8.5	-6.0	0.8	3.8	4.3	5.0	5.7	6.3	6.2	5.4	4.8	5.0	4.3	2.4	1.9	1.6	2.6	-0.4	6.3	-9.0
30	1.1	-1.7	-2.7	-3.1	-4.3	-4.8	-4.8	-3.8	-0.7	2.8	4.1	5.5	6.0	6.2	6.8	6.4	5.7	4.5	3.8	2.9	3.4	3.5	3.4	2.5	1.8	6.8	-4.8
31	-0.9	-1.7	-1.9	-2.4	-2.6	-3.1	-3.4	-3.6	-3.6	-2.1	-0.2	0.7	1.5	2.1	2.0	1.1	0.3	-1.9	-2.3	-6.3	-6.9	-6.7	-7.8	-8.0	-2.4	2.1	-8.0
Avg	-6.0	-6.6	-6.8	-6.9	-7.3	-7.5	-7.8	-7.7	-6.8	-4.6	-2.4	-1.2	-0.5	-0.1	0.2	0.4	0.4	-0.0	-0.9	-2.1	-2.9	-3.7	-4.5	-5.3	-3.8	1.4	-10.0
Max	2.0	2.0	0.9	2.2	2.5	2.6	2.8	3.1	3.5	4.1	9.2	9.6	11.1	11.4	11.4	11.9	11.6	10.8	9.4	8.1	5.3	3.5	3.4	2.6	3.1	11.9	-3.4
Min	-23.5	-23.2	-22.8	-22.8	-22.7	-22.3	-21.6	-21.1	-20.3	-19.7	-19.4	-19.9	-20.2	-20.2	-20.5	-20.4	-20.6	-20.6	-20.3	-20.6	-21.3	-21.6	-22.7	-23.4	-18.6	-10.3	-23.5

A-12

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature 2 Meters (degrees Celsius)**  
**January 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.0	-0.1	1.4	1.9	2.1	1.0	0.6	0.5	0.6	0.8	1.3	1.5	1.5	1.7	1.7	0.9	0.3	-0.1	-0.5	-0.7	-0.8	-0.9	-1.3	-2.3	0.5	2.1	-2.3
2	-4.2	-3.4	-1.4	-1.1	-1.8	-2.2	-2.4	-2.2	-1.9	-1.3	-1.2	-1.2	-1.4	-1.7	-2.1	-2.5	-2.9	-3.5	-3.9	-4.7	-5.1	-5.3	-4.7	-4.2	-2.8	-1.1	-5.3
3	-3.8	-4.5	-4.5	-5.0	-5.5	-4.8	-4.1	-4.0	-3.9	-3.2	-2.0	-0.1	1.3	1.9	1.9	2.0	1.7	1.9	1.1	-0.9	-0.4	1.4	2.6	1.9	-1.2	2.6	-5.5
4	0.7	-2.2	-2.1	-2.9	-3.7	1.3	-0.4	-1.5	-0.5	1.0	1.0	2.7	3.8	0.1	-0.4	-1.2	-2.2	-3.3	-3.8	-4.5	-4.9	-5.7	-5.3	-5.9	-1.7	3.8	-5.9
5	-6.8	-9.4	-12.4	-13.3	-13.5	-14.0	-14.4	-14.4	-14.1	-12.5	-9.7	-7.5	-4.8	-4.4	-4.1	-4.7	-6.8	-10.7	-12.2	-14.2	-13.9	-12.9	-11.8	-10.0	-10.5	-4.1	-14.4
6	-7.4	-3.7	-3.6	-4.1	-4.7	-4.7	-4.6	-4.6	-4.6	-4.5	-4.1	-3.8	-3.4	-3.0	-3.2	-3.0	-2.4	-2.3	-2.7	-3.4	-3.8	-2.4	-0.2	-0.2	-3.5	-0.2	-7.4
7	0.0	0.3	0.2	0.2	0.2	-0.1	-1.0	-1.6	-1.1	-0.3	0.3	1.0	0.3	1.4	2.4	2.3	1.5	0.2	-0.4	-0.1	0.1	2.0	1.1	0.2	0.4	2.4	-1.6
8	0.8	2.2	1.6	1.0	1.2	0.4	-0.5	-0.7	-1.4	0.0	-0.1	0.5	0.2	0.3	-0.4	-0.7	-1.3	-2.5	-3.5	-3.8	-3.0	-3.9	-5.1	-5.9	-1.0	2.2	-5.9
9	-7.1	-7.7	-8.5	-7.7	-8.0	-9.3	-11.5	-11.7	-10.9	-10.2	-8.9	-7.3	-7.9	-9.0	-8.4	-11.2	-12.4	-13.0	-12.8	-14.1	-16.6	-17.7	-18.1	-18.3	-11.2	-7.1	-18.3
10	-17.6	-16.2	-18.1	-21.6	-21.9	-22.5	-24.8	-25.8	-26.7	-25.6	-22.0	-18.4	-13.9	-8.5	-7.0	-7.5	-8.0	-7.1	-6.5	-6.2	-6.5	-6.4	-5.9	-6.3	-14.6	-5.9	-26.7
11	-6.0	-6.0	-5.8	-5.8	-6.3	-6.8	-5.7	-6.3	-6.3	-5.7	-5.1	-4.9	-3.7	-3.1	-2.8	-3.2	-4.0	-3.4	-3.8	-4.4	-4.3	-4.2	-4.1	-4.5	-4.8	-2.8	-6.8
12	-3.2	-3.7	-3.8	-3.8	-5.4	-6.5	-7.6	-8.4	-6.2	-5.7	-5.3	-5.0	-4.5	-4.3	-4.4	-5.0	-5.9	-6.3	-7.1	-6.9	-7.9	-9.3	-9.1	-9.3	-6.0	-3.2	-9.3
13	-9.4	-9.0	-8.3	-7.7	-13.2	-16.2	-15.3	-15.3	-16.4	-17.3	-15.0	-12.5	-7.9	-7.7	-8.2	-8.7	-9.0	-9.2	-9.3	-10.2	-11.0	-11.9	-12.2	-13.0	-11.4	-7.7	-17.3
14	-14.0	-13.5	-13.9	-16.0	-16.2	-15.0	-12.6	-13.8	-17.0	-17.2	-17.2	-16.8	-17.4	-16.1	-14.7	-15.0	-15.2	-15.5	-15.2	-15.7	-18.4	-21.0	-20.9	-17.2	-16.1	-12.6	-21.0
15	-16.5	-17.4	-18.7	-17.7	-17.1	-19.3	-21.7	-23.5	-24.8	-22.8	-20.5	-16.2	-10.3	-8.4	-7.8	-7.7	-9.0	-12.6	-12.5	-11.6	-12.0	-15.6	-16.4	-17.9	-15.8	-7.7	-24.8
16	-17.2	-11.6	-9.9	-9.1	-9.1	-9.3	-8.8	-9.4	-11.6	-11.4	-8.2	-4.2	0.0	2.4	2.2	2.2	1.4	-0.9	-4.2	-7.2	-9.1	-10.0	-10.7	-10.3	-6.8	2.4	-17.2
17	-9.7	-9.4	-8.2	-7.3	-6.1	-2.7	-0.3	-2.0	-3.5	-5.7	-5.9	-5.5	-5.4	-5.1	-4.5	-4.9	-5.7	-6.6	-7.5	-8.1	-8.3	-7.9	-9.4	-11.4	-6.3	-0.3	-11.4
18	-10.9	-10.8	-11.0	-9.2	-9.8	-10.6	-8.9	-9.4	-9.0	-8.7	-7.2	-4.7	-3.9	-3.6	-3.5	-3.6	-4.2	-5.0	-4.9	-5.8	-6.1	-6.0	-6.4	-6.7	-7.1	-3.5	-11.0
19	-8.3	-10.4	-12.5	-13.8	-14.7	-13.9	-14.5	-15.7	-16.5	-15.2	-12.5	-8.6	-3.1	0.0	0.0	0.0	-1.8	-5.8	-9.2	-11.5	-12.6	-13.3	-14.8	-15.5	-10.2	0.0	-16.5
20	-14.8	-15.1	-15.3	-15.3	-14.9	-14.4	-14.5	-14.5	-13.3	-10.8	-8.2	-6.5	-4.3	-0.6	3.6	3.9	2.4	-0.8	-3.5	-4.3	-3.0	-2.1	0.2	0.8	-6.9	3.9	-15.3
21	1.0	-1.6	-3.6	-6.4	-7.7	-7.4	-8.1	-7.7	-6.8	-6.3	-5.5	-4.5	-2.1	1.2	3.9	3.5	3.0	1.4	0.8	-0.9	-2.5	-3.4	-1.4	0.3	-2.5	3.9	-8.1
22	-0.6	-1.0	-1.3	-1.9	-2.5	-3.0	-3.4	-3.0	-2.7	-1.9	-1.6	-1.2	-0.9	-0.7	-0.3	-0.4	-0.7	-1.8	-5.6	-7.0	-7.4	-9.2	-10.3	-11.8	-3.3	-0.3	-11.8
23	-13.0	-12.6	-12.0	-11.6	-11.7	-10.2	-9.7	-8.5	-7.8	-6.5	-4.9	-2.8	0.5	1.8	2.1	2.1	1.9	1.2	0.4	-1.3	-2.4	-2.6	-2.2	-4.4	-4.8	2.1	-13.0
24	-4.7	-6.4	-7.5	-8.4	-9.8	-9.4	-9.6	-10.7	-10.2	-9.2	-7.8	-5.2	-2.3	3.4	3.9	2.1	1.2	1.1	0.8	0.1	0.0	-1.8	-1.6	-4.6	-4.0	3.9	-10.7
25	-6.9	-5.1	-1.2	-1.8	-2.5	-3.1	-3.0	-3.4	-2.8	-2.0	-0.2	0.3	0.4	1.1	1.5	0.7	0.8	-0.3	-1.2	-1.5	-1.9	-2.1	-2.5	-2.7	-1.6	1.5	-6.9
26	-2.8	-2.6	-1.7	-1.4	-2.0	-1.9	-1.8	-4.1	-7.0	-6.2	-4.5	-1.2	1.6	2.8	2.6	2.3	1.3	-0.1	-0.6	-0.7	-1.3	-1.6	-1.6	-1.3	-1.4	2.8	-7.0
27	-0.7	-0.4	-1.2	-1.7	-1.8	-2.0	-2.1	-3.0	-2.6	-2.1	-1.5	-0.8	-0.1	0.3	0.2	0.5	0.1	-0.3	-2.7	-5.5	-7.3	-11.8	-13.2	-13.9	-3.1	0.5	-13.9
28	-15.1	-16.7	-17.6	-17.8	-16.8	-16.1	-14.0	-12.0	-9.7	-4.6	-3.7	-2.6	-1.0	0.3	1.4	1.0	0.3	-0.5	-2.5	-4.1	-5.4	-7.6	-7.4	-7.6	-7.5	1.4	-17.8
29	-10.0	-11.6	-10.8	-10.4	-10.1	-9.1	-8.4	-8.1	-7.8	-4.6	-0.9	-0.4	0.1	0.5	0.8	1.1	0.3	-1.5	-5.1	-6.1	-2.2	-2.2	-1.9	-2.0	-4.6	1.1	-11.6
30	-1.7	-1.2	-1.7	-2.1	-1.6	-2.2	-2.2	-3.2	-2.8	-2.2	-2.1	-1.4	-0.5	-0.1	-0.2	-0.2	-0.9	-3.3	-6.6	-9.0	-10.1	-11.9	-13.4	-13.4	-3.9	-0.1	-13.4
31	-14.2	-11.8	-9.8	-8.5	-7.2	-5.9	-4.7	-2.3	-3.1	-3.2	-1.0	2.1	2.7	2.9	2.9	2.8	2.9	2.7	4.1	3.9	3.5	4.6	4.2	3.7	-1.2	4.6	-14.2
Avg	-7.2	-7.2	-7.2	-7.4	-7.8	-7.7	-7.7	-8.1	-8.1	-7.3	-5.9	-4.4	-2.8	-1.7	-1.3	-1.7	-2.4	-3.5	-4.5	-5.5	-6.0	-6.5	-6.6	-6.9	-5.6	-0.5	-12.0
Max	1.0	2.2	1.6	1.9	2.1	1.3	0.6	0.5	0.6	1.0	1.3	2.7	3.8	3.4	3.9	3.9	3.0	2.7	4.1	3.9	3.5	4.6	4.2	3.7	0.5	4.6	-1.6
Min	-17.6	-17.4	-18.7	-21.6	-21.9	-22.5	-24.8	-25.8	-26.7	-25.6	-22.0	-18.4	-17.4	-16.1	-14.7	-15.0	-15.2	-15.5	-15.2	-15.7	-18.4	-21.0	-20.9	-18.3	-16.1	-12.6	-26.7

A-13

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature 2 Meters (degrees Celsius)**  
**February 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	4.9	4.9	4.4	4.4	5.0	3.6	3.4	4.8	5.6	6.6	7.4	8.1	9.1	9.6	9.4	9.0	8.6	8.0	7.4	6.8	6.2	4.3	2.2	1.1	6.0	9.6	1.1
2	0.1	-0.6	-1.7	-2.0	-2.3	-2.5	-2.7	-3.2	-3.6	-3.9	-4.4	-5.1	-5.3	-5.6	-6.4	-6.9	-7.3	-7.8	-8.3	-8.8	-9.4	-10.6	-10.9	-11.9	-5.5	0.1	-11.9
3	-13.0	-13.6	-14.3	-14.3	-14.8	-15.1	-15.1	-15.8	-16.5	-16.2	-13.4	-10.6	-7.1	-6.3	-6.3	-6.0	-6.4	-7.1	-8.4	-8.8	-10.2	-12.7	-14.9	-15.2	-11.8	-6.0	-16.5
4	-16.5	-17.9	-20.2	-21.7	-22.2	-21.2	-22.1	-22.9	-23.3	-20.8	-14.6	-9.7	-8.8	-8.0	-7.4	-7.0	-7.1	-7.7	-7.9	-8.5	-8.8	-9.1	-9.1	-9.1	-13.8	-7.0	-23.3
5	-9.2	-9.1	-9.2	-10.1	-10.4	-10.0	-9.5	-9.5	-10.3	-9.6	-7.5	-5.7	-4.8	-4.0	-3.2	-3.3	-3.7	-4.0	-4.1	-3.8	-3.4	-3.7	-3.6	-3.5	-6.5	-3.2	-10.4
6	-3.4	-3.3	-3.2	-2.7	-2.5	-2.4	-2.6	-2.5	-2.6	-2.1	-1.7	-2.6	-2.2	-2.4	-2.6	-2.9	-3.7	-5.0	-5.8	-7.4	-8.1	-8.7	-10.0	-11.2	-4.2	-1.7	-11.2
7	-12.6	-13.6	-13.3	-13.0	-11.9	-10.8	-10.1	-9.6	-9.1	-7.0	-4.6	-4.2	-3.5	-3.2	-3.2	-3.7	-4.4	-5.7	-5.9	-5.7	-5.4	-4.9	-4.8	-4.6	-7.3	-3.2	-13.6
8	-4.7	-4.6	-4.0	-3.5	-4.4	-3.9	-2.6	-3.1	-1.8	-2.6	-2.3	-1.9	-2.4	-2.7	-4.2	-5.1	-5.5	-6.2	-6.5	-7.9	-8.8	-10.4	-11.5	-12.1	-5.1	-1.8	-12.1
9	-14.1	-13.1	-15.2	-18.3	-20.5	-22.2	-23.7	-25.3	-25.6	-24.1	-21.6	-17.8	-11.0	-7.3	-6.1	-6.0	-5.7	-5.9	-6.3	-5.9	-5.7	-5.7	-5.7	-5.9	-13.3	-5.7	-25.6
10	-6.3	-7.0	-7.2	-7.6	-7.5	-8.1	-8.8	-10.8	-10.3	-8.6	-7.3	-6.6	-6.2	-6.1	-6.2	-6.5	-7.8	-9.5	-10.7	-12.1	-12.7	-14.8	-16.2	-19.4	-9.3	-6.1	-19.4
11	-21.4	-22.2	-21.0	-20.7	-18.7	-18.2	-10.8	-7.9	-6.6	-6.0	-5.7	-5.0	-3.6	-3.3	-3.5	-3.3	-3.0	-2.9	-3.1	-3.0	-3.6	-3.8	-3.9	-4.0	-8.6	-2.9	-22.2
12	-4.2	-4.5	-4.8	-5.6	-6.2	-6.9	-8.7	-10.2	-11.6	-10.7	-10.5	-9.9	-9.1	-8.6	-8.5	-8.0	-8.6	-9.0	-9.6	-10.3	-10.4	-10.8	-11.1	-10.9	-8.7	-4.2	-11.6
13	-10.8	-10.6	-10.4	-10.1	-10.2	-12.6	-13.5	-12.5	-11.4	-10.5	-10.6	-7.9	-4.4	-3.3	-2.8	-4.6	-3.4	-4.4	-7.2	-8.3	-11.0	-12.3	-13.7	-14.8	-9.2	-2.8	-14.8
14	-15.5	-13.5	-13.3	-8.7	-3.1	-3.1	-3.1	-3.1	-3.7	-3.6	-3.4	-3.3	-2.7	-2.6	-2.7	-2.7	-2.4	-2.9	-3.4	-4.5	-5.2	-5.4	-5.5	-5.3	-5.1	-2.4	-15.5
15	-6.1	-7.1	-9.9	-8.0	-7.1	-6.7	-5.1	-4.7	-4.6	-4.4	-4.3	-4.0	-3.5	-2.9	-2.4	-2.2	-2.4	-2.4	-2.3	-2.6	-2.7	-3.2	-4.6	-5.5	-4.5	-2.2	-9.9
16	-6.2	-5.9	-5.4	-4.3	-4.3	-4.5	-4.3	-3.5	-3.0	-2.8	-2.1	-1.8	-1.5	-0.7	-1.0	-1.5	-2.3	-2.4	-3.4	-3.9	-4.6	-4.9	-5.2	-5.5	-3.5	-0.7	-6.2
17	-6.0	-6.3	-6.7	-6.7	-7.0	-7.3	-8.7	-11.1	-11.0	-9.9	-8.7	-6.0	-5.2	-5.1	-5.7	-5.8	-7.2	-7.0	-7.2	-6.9	-7.1	-7.6	-8.8	-11.8	-7.5	-5.1	-11.8
18	-12.3	-11.9	-11.8	-12.1	-11.4	-10.6	-9.6	-11.3	-10.7	-9.4	-8.6	-8.0	-7.7	-7.6	-7.8	-7.5	-9.1	-11.9	-15.2	-17.7	-20.9	-21.7	-22.1	-22.5	-12.5	-7.5	-22.5
19	-23.3	-24.9	-26.1	-25.7	-24.8	-22.0	-20.3	-18.5	-17.2	-15.9	-14.5	-11.4	-9.9	-7.8	-7.2	-7.1	-7.8	-11.1	-15.6	-18.5	-20.3	-20.9	-22.2	-23.2	-17.3	-7.1	-26.1
20	-24.8	-25.1	-25.6	-26.0	-26.1	-26.4	-26.3	-26.0	-25.8	-23.0	-19.6	-15.7	-10.4	-4.8	-3.1	-3.8	-3.8	-6.6	-11.9	-14.8	-16.2	-17.9	-18.1	-18.8	-17.5	-3.1	-26.4
21	-19.7	-19.4	-20.2	-20.3	-20.8	-20.8	-21.6	-21.6	-20.6	-18.0	-15.4	-12.1	-6.7	0.9	1.9	2.0	1.2	0.9	-0.7	-4.2	-8.0	-11.5	-13.3	-13.6	-11.7	2.0	-21.6
22	-14.9	-14.9	-16.1	-15.1	-13.1	-10.7	-10.2	-9.0	-9.6	-5.1	-0.1	0.4	1.8	3.0	3.1	3.4	3.2	2.4	1.3	-0.7	-2.1	-3.8	-5.0	-6.9	-4.9	3.4	-16.1
23	-8.4	-10.7	-12.8	-13.6	-12.8	-11.2	-10.7	-10.7	-9.5	-8.2	-5.7	-2.7	1.5	2.4	3.2	3.3	3.4	1.3	-1.7	-0.9	-2.9	-2.9	-3.1	-3.5	-4.9	3.4	-13.6
24	-4.1	-4.5	-4.1	-4.7	-4.4	-4.1	-4.3	-4.5	-4.9	-4.6	-4.7	-4.2	-4.1	-4.0	-4.2	-4.1	-4.3	-5.5	-6.0	-6.5	-8.7	-10.2	-10.0	-11.8	-5.5	-4.0	-11.8
25	-14.5	-16.7	-17.9	-19.1	-21.1	-22.2	-21.0	-19.1	-17.0	-15.0	-12.8	-10.9	-6.5	-4.8	-4.7	-4.4	-4.0	-6.4	-9.8	-12.4	-15.5	-16.6	-17.3	-17.1	-13.6	-4.0	-22.2
26	-16.3	-15.1	-13.9	-13.3	-12.1	-10.5	-8.1	-8.5	-8.9	-5.4	-1.8	-0.2	0.6	0.7	0.5	0.7	0.9	1.1	0.8	0.4	0.0	-0.5	-1.3	-1.5	-4.7	1.1	-16.3
27	-2.3	-3.8	-6.0	-8.5	-10.5	-12.4	-13.1	-14.3	-13.9	-11.4	-3.9	-0.4	0.0	0.5	1.3	2.0	1.9	1.3	-0.2	-3.1	-6.4	-7.0	-8.5	-8.5	-5.3	2.0	-14.3
28	-8.6	-10.5	-11.0	-12.0	-12.6	-13.7	-13.7	-13.3	-12.7	-11.5	-6.5	2.6	4.9	4.2	4.4	5.4	3.1	3.8	2.2	-0.9	-2.4	-2.0	1.9	1.7	-4.0	5.4	-13.7
29	0.5	-2.5	-3.1	-4.8	-5.8	-6.5	-7.9	-7.7	-7.0	-0.9	0.6	0.0	-0.3	-0.8	-1.3	-1.3	-1.7	-2.1	-2.6	-3.6	-5.0	-5.7	-7.4	-10.5	-3.6	0.6	-10.5
Avg	-10.1	-10.6	-11.2	-11.3	-11.2	-11.1	-10.9	-10.9	-10.6	-9.1	-7.2	-5.4	-3.8	-2.8	-2.6	-2.7	-3.1	-4.0	-5.2	-6.4	-7.6	-8.4	-9.1	-9.9	-7.7	-1.8	-15.5
Max	4.9	4.9	4.4	4.4	5.0	3.6	3.4	4.8	5.6	6.6	7.4	8.1	9.1	9.6	9.4	9.0	8.6	8.0	7.4	6.8	6.2	4.3	2.2	1.7	6.0	9.6	1.1
Min	-24.8	-25.1	-26.1	-26.0	-26.1	-26.4	-26.3	-26.0	-25.8	-24.1	-21.6	-17.8	-11.0	-8.6	-8.5	-8.0	-9.1	-11.9	-15.6	-18.5	-20.9	-21.7	-22.2	-23.2	-17.5	-7.5	-26.4

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature 2 Meters (degrees Celsius)**  
**March 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	-9.9	-11.1	-10.2	-9.6	-8.9	-8.5	-8.1	-9.8	-9.9	-8.1	-5.7	-5.1	-4.5	-4.0	-3.6	-3.0	-2.8	-3.9	-4.7	-6.5	-5.4	-5.0	-5.4	-5.7	-6.6	-2.8	-11.1
2	-6.0	-6.4	-6.4	-6.5	-6.1	-5.8	-6.1	-6.3	-5.4	-3.8	-2.2	-1.8	-0.9	-0.7	-1.1	-0.9	-0.9	-1.5	-1.9	-1.9	-2.1	-2.1	-2.3	-1.8	-3.4	-0.7	-6.5
3	-1.5	-1.2	-1.3	0.0	0.5	0.9	1.5	1.7	1.7	1.8	2.1	2.7	3.1	3.2	3.5	3.8	3.5	2.4	2.0	0.5	-1.6	-2.7	-2.9	-6.5	0.7	3.8	-6.5
4	-8.2	-8.2	-2.0	0.5	1.5	1.9	2.0	1.3	1.3	1.6	1.8	2.1	0.6	-0.7	-1.4	-0.6	-1.2	-1.8	-2.8	-3.9	-4.9	-6.2	-10.1	-11.4	-2.0	2.1	-11.4
5	-13.2	-15.4	-16.8	-17.8	-18.2	-18.8	-19.7	-19.4	-17.1	-13.1	-3.1	1.1	2.3	3.1	4.3	4.0	4.1	4.6	3.4	2.6	1.8	1.2	-1.1	-1.9	-6.0	4.6	-19.7
6	-2.9	-5.0	-5.7	-7.0	-7.6	-8.8	-9.1	-9.0	-7.5	1.7	8.1	8.1	10.2	10.5	10.5	10.8	10.1	8.5	7.6	6.9	4.0	1.7	0.0	-0.5	1.5	10.8	-9.1
7	-1.5	-3.3	-3.9	-2.7	-3.7	-4.7	-4.4	-4.6	-3.1	-0.6	5.5	7.7	8.1	8.9	9.2	8.5	8.1	6.3	4.9	4.8	3.0	1.0	0.5	0.3	1.8	9.2	-4.7
8	0.2	0.2	0.0	-0.6	-1.8	-2.5	-3.4	-6.0	-5.7	-3.2	-1.6	-1.2	-0.5	-0.1	0.2	0.5	0.4	-0.4	-2.3	-3.3	-3.2	-2.2	-2.6	-2.1	-1.7	0.5	-6.0
9	-2.8	-2.6	-3.0	-3.3	-3.6	-3.5	-3.9	-4.3	-4.1	-3.0	-2.3	-1.7	-0.7	-0.1	0.2	0.5	0.3	-0.2	-1.3	-3.1	-3.9	-6.2	-8.9	-11.3	-3.0	0.5	-11.3
10	-12.3	-10.4	-8.9	-6.5	-6.2	-6.8	-6.0	-4.9	-4.0	-2.8	-1.9	-1.0	0.0	0.2	0.7	1.4	1.9	1.5	0.7	-0.7	0.0	1.4	1.8	1.8	-2.5	1.9	-12.3
11	1.4	1.1	-0.4	1.8	2.1	2.3	2.4	2.7	3.2	3.8	4.6	4.9	4.8	4.4	2.9	3.3	3.1	1.8	-0.2	-1.7	-3.2	-4.6	-5.1	-5.8	1.2	4.9	-5.8
12	-7.0	-7.7	-7.5	-8.1	-9.2	-10.2	-10.8	-10.7	-10.3	-7.8	-4.9	-4.6	-4.0	-3.2	-3.0	-2.8	-3.1	-3.6	-4.8	-5.5	-7.2	-8.2	-7.6	-9.1	-6.7	-2.8	-10.8
13	-10.1	-10.6	-10.0	-9.6	-8.5	-8.6	-8.6	-7.6	-6.9	-6.6	-6.0	-6.1	-6.1	-6.2	-6.6	-6.7	-7.1	-7.1	-7.0	-6.6	-6.7	-6.8	-6.9	-6.9	-7.5	-6.0	-10.6
14	-6.9	-9.9	-12.9	-14.9	-16.5	-17.1	-18.0	-19.1	-19.1	-19.5	-19.2	-19.7	-20.0	-19.9	-20.3	-20.1	-20.3	-20.4	-20.1	-20.4	-21.1	-21.7	-22.9	-23.8	-18.5	-6.9	-23.8
15	-23.7	-23.1	-22.6	-22.7	-22.5	-22.1	-21.4	-20.9	-19.8	-18.7	-17.2	-15.3	-13.1	-11.2	-12.0	-11.3	-11.0	-10.9	-11.0	-10.9	-10.6	-10.4	-10.3	-13.4	-16.1	-10.3	-23.7
16	-14.5	-15.2	-13.0	-12.2	-11.3	-11.6	-11.9	-12.3	-13.0	-10.5	-9.0	-6.8	-4.5	-3.6	-2.1	-1.6	-1.1	-2.7	-5.8	-7.9	-10.2	-12.1	-14.3	-15.4	-9.3	-1.1	-15.4
17	-16.2	-16.9	-17.2	-17.3	-18.1	-18.0	-18.3	-17.0	-14.2	-10.2	-6.4	1.7	2.1	0.6	1.7	0.3	-1.0	-0.9	-2.6	-3.6	-4.2	-4.7	-6.0	-7.5	-8.1	2.1	-18.3
18	-8.0	-8.5	-9.1	-8.9	-8.6	-8.8	-8.7	-7.7	-7.2	-6.8	-6.6	-6.5	-5.6	-4.3	-4.0	-3.0	-2.4	-2.2	-2.5	-4.7	-7.1	-8.6	-7.9	-7.6	-6.5	-2.2	-9.1
19	-7.0	-7.4	-7.5	-8.0	-10.5	-9.4	-8.8	-8.4	-7.9	-7.2	-6.7	-6.4	-6.1	-6.3	-6.5	-6.4	-6.4	-6.6	-7.1	-7.7	-7.9	-8.0	-8.3	-8.8	-7.6	-6.1	-10.5
20	-9.0	-9.0	-9.1	-9.5	-9.8	-9.8	-9.8	-9.5	-8.5	-6.4	-4.3	-3.7	-1.7	-0.5	0.5	1.6	2.1	1.9	-0.4	-3.7	-5.6	-8.2	-9.7	-11.2	-5.6	2.1	-11.2
21	-11.0	-11.9	-12.5	-13.3	-14.0	-13.9	-14.8	-14.3	-11.6	-7.2	1.5	2.1	2.6	3.0	3.2	3.6	3.8	3.1	2.6	1.5	0.2	-0.7	-1.2	-2.4	-4.2	3.8	-14.8
22	-3.2	-2.7	-3.9	-4.7	-5.8	-6.0	-7.2	-6.5	-6.3	-5.2	-2.6	-1.1	0.1	1.2	1.8	2.6	3.2	3.3	1.4	-2.1	-4.4	-5.8	-7.5	-8.3	-2.9	3.3	-8.3
23	-9.9	-11.0	-10.5	-10.5	-11.0	-11.5	-12.0	-11.1	-8.4	-5.4	0.4	4.1	4.8	5.3	6.1	5.9	5.8	5.8	4.5	3.4	2.5	0.4	0.1	-0.7	-2.2	6.1	-12.0
24	-0.6	-0.8	-1.9	-2.7	-3.3	-3.2	-4.6	-6.3	-5.2	-1.4	-0.2	0.0	0.3	0.1	-0.1	-0.6	-0.5	-0.9	-2.4	-3.3	-2.5	-2.4	-1.7	-3.7	-2.0	0.3	-6.3
25	-3.9	-4.6	-6.6	-7.0	-6.9	-8.1	-9.5	-8.8	-7.0	-3.4	-1.9	-1.3	-0.6	-0.3	-0.2	0.1	0.2	-0.1	-1.6	-2.9	-3.2	-3.9	-3.8	-4.6	-3.7	0.2	-9.5
26	-4.6	-5.1	-5.4	-5.9	-7.0	-8.8	-11.0	-9.6	-5.5	-4.4	-4.2	-3.1	-2.0	-1.5	-0.8	-0.4	-0.3	-0.7	-1.7	-2.8	-3.5	-4.0	-4.4	-5.1	-4.2	-0.3	-11.0
27	-5.5	-8.5	-8.8	-8.6	-9.2	-10.4	-11.2	-9.9	-8.3	-4.6	-2.2	-1.9	-1.4	-0.9	-0.6	-0.4	-0.2	-0.4	-0.8	-1.9	-1.3	-1.0	-1.7	-2.1	-4.2	-0.2	-11.2
28	-2.2	-3.0	-3.4	-3.5	-2.7	-2.6	-2.5	-2.1	-1.5	-0.6	0.2	1.0	1.9	2.2	2.7	3.1	3.2	3.3	3.0	2.1	0.3	-2.4	-4.0	-5.7	-0.6	3.3	-5.7
29	-7.3	-8.3	-8.6	-9.4	-10.1	-10.0	-10.6	-10.2	-6.4	0.0	3.6	4.0	4.7	5.4	5.9	5.7	4.8	4.3	4.0	2.4	1.4	1.3	0.3	1.9	-1.3	5.9	-10.6
30	0.3	-2.4	-3.5	-3.9	-5.1	-5.9	-5.6	-4.1	-1.2	2.6	3.9	5.1	5.5	5.8	6.3	5.9	5.3	4.1	3.5	2.7	3.1	3.3	3.0	2.2	1.3	6.3	-5.9
31	-0.9	-1.7	-1.9	-2.6	-2.9	-3.5	-3.9	-3.9	-3.7	-2.0	0.0	1.0	1.7	2.1	2.0	1.2	0.2	-1.9	-2.4	-6.2	-6.9	-6.7	-7.7	-8.0	-2.4	2.1	-8.0
Avg	-6.7	-7.4	-7.6	-7.6	-7.9	-8.2	-8.5	-8.3	-7.2	-4.9	-2.5	-1.3	-0.6	-0.2	-0.0	0.2	0.1	-0.5	-1.5	-2.7	-3.6	-4.3	-5.1	-6.0	-4.3	1.1	-11.0
Max	1.4	1.1	0.0	1.8	2.1	2.3	2.4	2.7	3.2	3.8	8.1	8.1	10.2	10.5	10.5	10.8	10.1	8.5	7.6	6.9	4.0	3.3	3.0	2.2	1.8	10.8	4.7
Min	-23.7	-23.1	-22.6	-22.7	-22.5	-22.1	-21.4	-20.9	-19.8	-19.5	-19.2	-19.7	-20.0	-19.9	-20.3	-20.1	-20.3	-20.4	-20.1	-20.4	-21.1	-21.7	-22.9	-23.8	-18.5	-10.3	-23.8

A-15

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature Delta T (degrees Celsius)**  
**January 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.11	0.32	0.30	0.18	0.16	0.06	0.04	0.03	0.08	0.09	0.03	0.06	0.03	0.01	0.06	0.12	0.10	0.07	0.01	0.01	0.04	0.17	0.40	0.64	0.13	0.64	0.01
2	1.37	0.65	0.20	0.13	0.38	0.35	0.42	0.15	0.11	0.10	0.08	0.18	0.21	0.16	0.15	0.12	0.13	0.11	0.12	0.25	0.37	0.44	0.34	0.19	0.28	1.37	0.08
3	0.08	0.01	0.15	0.29	0.39	0.12	0.13	0.05	0.02	-0.07	-0.09	0.15	0.11	0.09	0.21	0.22	0.43	0.88	0.92	1.07	1.40	0.41	0.23	0.59	0.32	1.40	-0.09
4	0.99	0.94	1.59	0.96	1.02	0.76	2.30	2.60	1.23	0.33	0.29	0.20	0.12	0.23	0.35	0.45	0.47	0.34	0.27	0.30	0.30	0.75	0.36	0.72	0.74	2.60	0.12
5	0.77	1.38	1.82	1.77	0.36	0.82	1.10	1.11	1.33	1.09	1.32	0.65	0.07	0.12	0.09	0.41	1.13	1.54	1.38	1.40	1.15	0.70	0.73	1.29	0.98	1.82	0.07
6	1.18	0.19	0.14	0.12	0.15	0.18	0.15	0.12	0.11	0.08	0.10	0.10	0.06	0.03	0.01	0.00	0.05	0.13	0.34	0.38	0.48	0.25	0.08	0.09	0.19	1.18	0.00
7	0.08	0.09	0.08	0.10	0.20	0.29	0.53	0.33	0.33	0.37	0.15	0.07	0.06	0.09	0.08	0.09	0.62	0.38	0.38	0.84	0.90	0.26	0.27	0.39	0.29	0.90	0.06
8	0.27	0.21	0.28	0.37	0.28	0.54	0.94	0.52	1.08	0.27	0.13	0.09	0.14	0.13	0.16	0.16	0.19	0.63	1.04	0.90	0.23	0.34	0.59	1.06	0.44	1.08	0.09
9	1.08	0.94	0.96	1.05	0.99	1.50	1.73	0.31	0.08	-0.15	-0.27	-0.27	-0.24	-0.34	-0.26	-0.09	-0.10	-0.04	0.00	0.41	1.12	0.58	0.45	0.33	0.41	1.73	-0.34
10	0.18	0.20	0.81	1.39	0.73	0.97	2.39	1.87	1.71	1.06	0.56	0.71	0.18	0.08	-0.02	0.17	0.51	0.18	0.10	0.07	0.01	0.05	0.03	0.01	0.58	2.39	-0.02
11	-0.01	0.00	0.02	0.09	0.27	0.62	0.26	0.75	0.31	0.04	-0.10	-0.14	-0.07	-0.10	-0.01	0.04	0.15	0.23	0.28	0.56	0.38	0.19	0.29	0.42	0.19	0.75	-0.14
12	0.16	0.32	0.31	0.20	0.80	0.75	0.74	0.85	0.11	-0.02	-0.09	-0.14	-0.10	-0.08	-0.02	0.00	0.38	0.28	0.44	0.42	0.47	0.12	0.09	-0.04	0.25	0.85	-0.14
13	-0.03	0.01	0.18	0.05	-0.08	-0.15	-0.10	0.21	0.43	0.74	-0.11	0.58	-0.36	0.00	0.02	-0.01	0.17	0.23	0.04	0.21	0.37	0.54	0.62	0.91	0.19	0.91	-0.36
14	1.18	0.95	1.24	2.14	1.78	1.78	1.73	1.45	0.29	-0.20	-0.26	-0.31	-0.24	-0.32	-0.70	0.13	-0.10	0.05	0.22	0.53	1.52	1.79	1.21	0.11	0.67	2.14	-0.70
15	0.32	0.66	1.29	1.50	1.65	2.11	1.97	1.71	2.25	1.07	0.92	1.04	0.82	-0.03	0.16	0.29	0.61	1.51	1.24	0.47	1.05	2.76	2.87	1.88	1.25	2.87	-0.03
16	2.25	0.20	0.05	0.15	0.40	0.54	0.65	0.74	1.58	1.00	-0.10	-0.18	0.20	0.16	0.25	0.25	0.52	1.02	1.77	2.55	2.14	2.24	2.68	2.62	0.99	2.68	-0.18
17	1.68	1.47	1.85	1.68	1.34	0.99	0.29	0.17	-0.01	-0.03	-0.02	0.02	0.04	0.14	0.18	0.26	0.35	0.45	0.51	0.52	0.37	0.16	0.80	1.55	0.61	1.85	-0.03
18	1.05	0.92	1.17	0.48	0.59	0.80	0.42	0.45	0.37	0.07	0.02	-0.25	0.08	0.02	0.07	0.13	0.48	0.71	0.28	0.18	0.18	0.04	0.17	0.24	0.36	1.17	-0.25
19	0.81	1.28	1.55	1.74	2.13	2.71	2.01	2.02	1.95	1.58	0.93	0.67	0.04	0.17	0.26	0.34	0.77	1.49	2.28	2.23	1.36	1.69	2.68	2.22	1.45	2.71	0.04
20	1.94	2.38	2.78	2.24	2.06	1.76	2.22	2.00	1.85	1.56	0.74	0.73	1.30	1.69	1.20	0.94	1.22	1.43	1.67	1.80	1.04	0.53	1.62	0.88	1.57	2.78	0.53
21	0.91	1.27	1.94	1.78	1.65	1.49	1.46	1.09	0.99	1.01	0.66	0.75	0.54	0.61	-0.12	0.41	0.36	0.76	0.50	0.86	1.69	1.24	0.80	0.20	0.95	1.94	-0.12
22	0.05	0.09	0.08	0.12	0.20	0.33	0.49	0.31	0.25	0.09	0.08	0.02	0.01	0.00	0.09	0.18	0.41	0.64	1.45	2.16	1.70	1.35	1.32	1.28	0.53	2.16	0.00
23	1.11	1.05	1.03	0.84	1.02	0.24	0.21	0.20	-0.02	0.12	-0.02	0.19	-0.30	-0.08	0.00	0.10	0.02	0.17	0.34	0.59	0.85	0.49	0.60	1.35	0.42	1.35	-0.30
24	0.78	1.35	1.29	1.58	1.78	1.79	1.01	1.58	1.52	1.21	0.72	0.35	0.70	0.64	0.15	0.10	0.16	0.28	0.31	0.42	0.41	1.19	0.96	1.33	0.90	1.79	0.10
25	1.62	1.46	0.36	0.54	1.00	1.11	0.93	0.97	0.81	0.64	0.21	0.17	0.28	0.19	0.22	0.37	0.23	0.17	0.23	0.33	0.47	0.66	0.48	0.58	0.58	1.62	0.17
26	0.29	0.40	0.56	0.55	0.72	0.53	0.44	1.26	1.22	0.42	0.41	-0.21	-0.04	-0.14	0.20	0.25	0.42	0.89	0.58	0.25	0.19	0.15	0.19	0.23	0.41	1.26	-0.21
27	0.13	0.03	0.01	0.02	0.04	0.22	0.42	0.65	0.44	0.29	0.16	0.13	0.14	0.09	0.13	0.16	0.41	0.26	0.99	1.67	1.34	2.25	1.86	1.65	0.56	2.25	0.01
28	1.63	2.14	1.60	1.43	1.16	0.82	0.28	0.43	1.11	0.12	-0.03	-0.07	-0.01	-0.10	0.01	0.30	0.47	0.69	0.82	0.85	1.09	1.09	0.83	1.02	0.74	2.14	-0.10
29	1.61	1.33	1.28	0.76	0.62	0.45	0.43	0.40	0.59	0.97	0.14	0.10	0.00	0.08	0.15	0.19	0.47	1.11	2.26	1.89	0.25	0.10	0.01	0.03	0.63	2.26	0.00
30	0.13	0.13	0.27	0.43	0.32	0.33	0.31	0.65	0.47	0.22	0.20	0.18	0.10	0.34	0.35	0.51	0.53	1.17	1.36	1.50	1.06	1.43	1.79	1.28	0.63	1.79	0.10
31	1.57	0.98	0.29	0.42	0.34	0.55	1.29	1.24	1.78	1.16	0.72	0.17	0.05	0.13	0.08	0.19	0.77	0.93	0.44	0.84	0.68	0.44	0.52	0.67	0.68	1.78	0.05
Avg	0.82	0.75	0.82	0.81	0.79	0.82	0.88	0.85	0.79	0.49	0.24	0.19	0.13	0.13	0.11	0.22	0.40	0.60	0.73	0.85	0.79	0.79	0.83	0.83	0.61	1.75	-0.05
Max	2.25	2.38	2.78	2.24	2.13	2.71	2.39	2.60	2.25	1.58	1.32	1.04	1.30	1.69	1.20	0.94	1.22	1.54	2.28	2.55	2.14	2.76	2.87	2.62	1.57	2.87	0.53
Min	-0.03	0.00	0.01	0.02	-0.08	-0.15	-0.10	0.03	-0.02	-0.20	-0.27	-0.31	-0.36	-0.34	-0.70	-0.09	-0.10	-0.04	0.00	0.01	0.01	0.04	0.01	-0.04	0.13	0.64	-0.70

A-16

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature Delta T (degrees Celsius)**  
**February 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0.48	0.32	0.47	0.72	0.35	0.63	0.76	0.50	0.40	0.39	0.38	0.37	0.58	0.79	0.78	0.81	0.71	0.65	0.62	0.59	0.54	0.37	0.20	0.16	0.52	0.81	0.16
2	0.08	0.06	0.02	0.04	0.02	0.03	0.08	0.11	0.15	0.15	0.04	-0.02	-0.01	-0.04	0.00	0.01	0.04	0.08	0.23	0.39	0.64	0.72	0.57	0.59	0.17	0.72	-0.04
3	0.75	0.84	0.89	0.57	0.72	0.84	0.81	0.64	0.73	0.48	-0.12	-0.60	-0.30	-0.34	-0.10	0.08	0.58	0.42	0.09	0.09	0.25	0.89	1.10	0.14	0.39	1.10	-0.60
4	0.37	0.53	0.90	0.98	1.14	0.68	1.13	1.53	1.54	0.30	0.16	-0.12	-0.12	-0.08	-0.06	0.03	0.14	0.23	0.18	0.05	0.00	-0.03	-0.02	0.00	0.39	1.54	-0.12
5	-0.01	0.02	0.08	0.35	0.36	0.41	0.15	0.29	0.37	0.17	0.06	-0.40	-0.03	-0.03	0.00	0.05	0.06	0.11	0.13	0.05	0.04	0.00	-0.01	-0.01	0.09	0.41	-0.40
6	-0.02	-0.03	-0.02	-0.02	0.00	0.00	0.00	0.01	0.01	0.01	0.07	-0.07	-0.06	-0.02	0.04	0.20	0.38	0.50	0.73	0.75	0.48	0.67	1.08	1.43	0.25	1.43	-0.07
7	1.09	1.13	1.01	0.89	0.48	0.21	0.15	0.16	0.05	0.13	-0.04	-0.04	-0.14	0.03	-0.06	0.06	0.17	0.64	0.60	0.28	0.04	0.03	0.01	0.05	0.29	1.13	-0.14
8	0.06	0.22	0.18	0.30	0.67	0.19	0.28	0.62	0.26	0.17	0.17	0.11	0.03	0.02	0.07	0.02	0.02	0.02	0.11	0.34	0.43	0.65	0.77	0.56	0.26	0.77	0.02
9	1.15	0.66	1.01	1.47	1.63	1.23	1.61	1.97	2.14	1.43	1.04	0.76	0.48	0.19	0.16	0.12	0.03	0.02	0.03	0.01	0.01	0.00	0.03	0.01	0.72	2.14	0.00
10	0.14	0.16	0.25	0.37	0.33	0.56	0.90	1.56	1.30	0.22	0.11	0.00	-0.01	0.00	-0.01	0.07	0.53	1.02	1.37	0.99	0.96	1.70	1.66	2.46	0.69	2.46	-0.01
11	2.39	1.97	1.58	1.18	0.97	1.71	0.61	0.14	0.24	0.04	-0.05	-0.17	0.05	0.11	0.12	0.09	0.06	0.08	0.06	0.03	0.01	0.00	0.01	0.07	0.47	2.39	-0.17
12	0.02	0.02	0.02	0.09	0.18	0.16	0.34	0.50	0.55	0.21	0.04	-0.08	-0.34	-0.42	-0.25	-0.20	0.04	0.09	0.35	0.61	0.43	0.40	0.38	0.25	0.14	0.61	-0.42
13	0.12	0.12	0.05	0.13	0.21	1.83	1.48	0.65	0.26	0.44	1.08	1.12	-0.02	-0.09	0.37	1.69	0.95	1.37	2.02	1.47	2.11	2.20	1.74	1.98	0.97	2.20	-0.09
14	1.85	1.25	1.90	0.88	1.06	0.02	0.01	0.05	0.31	0.36	0.30	0.34	0.32	0.31	0.27	0.23	0.23	0.27	0.22	0.33	0.29	0.28	0.25	0.17	0.48	1.90	0.01
15	0.40	0.58	2.05	0.86	0.77	0.64	0.19	0.08	0.08	0.10	0.09	0.13	0.12	0.11	0.24	0.24	0.22	0.19	0.19	0.31	0.24	0.37	0.68	0.43	0.39	2.05	0.08
16	0.71	0.61	0.93	0.55	0.29	0.34	0.31	0.25	0.18	0.21	0.19	0.19	0.17	0.23	0.24	0.36	0.44	0.23	0.22	0.13	0.20	0.10	0.09	0.20	0.31	0.93	0.09
17	0.10	0.21	-0.02	-0.01	-0.02	-0.02	0.53	0.88	0.50	0.19	0.97	0.10	0.15	0.13	0.23	0.16	1.04	0.37	0.16	0.07	0.06	0.11	0.33	1.14	0.31	1.14	-0.02
18	0.99	0.27	0.30	0.56	0.66	0.59	0.34	0.77	0.46	0.10	0.03	-0.04	-0.03	-0.09	0.08	-0.05	0.74	1.48	2.20	1.18	2.13	1.43	1.52	1.33	0.71	2.20	-0.09
19	1.07	1.26	1.58	1.52	1.04	0.65	0.20	0.09	0.12	0.34	1.41	0.57	0.02	-0.36	-0.41	-0.07	0.32	2.02	2.85	2.93	2.03	1.74	2.48	2.35	1.07	2.93	-0.41
20	2.35	2.05	2.78	2.36	2.18	1.99	2.56	1.81	2.06	1.97	1.26	1.37	2.13	1.75	1.30	2.13	2.08	1.68	3.01	2.65	2.28	2.56	2.92	2.10	2.14	3.01	1.26
21	2.27	2.42	2.64	2.27	2.50	2.39	2.54	2.40	1.99	1.55	1.24	0.71	3.82	0.44	0.36	0.73	1.15	0.96	1.57	1.99	1.97	1.90	1.87	1.61	1.80	3.82	0.36
22	1.64	1.51	2.15	3.17	3.21	4.08	3.12	1.73	1.23	0.86	0.46	0.43	0.44	0.46	0.47	0.51	0.63	1.11	1.35	2.04	2.30	1.91	1.27	1.20	1.55	4.08	0.43
23	1.00	1.41	1.57	1.66	1.29	0.71	0.72	1.19	0.92	0.49	0.60	0.69	0.38	0.17	0.33	0.40	0.41	1.01	0.82	0.41	0.09	0.12	0.18	0.15	0.70	1.66	0.09
24	0.28	0.36	0.18	0.07	0.06	0.09	0.12	0.07	0.08	0.03	-0.02	-0.02	-0.04	-0.10	-0.08	0.02	0.07	0.09	0.12	0.38	0.96	0.81	0.56	0.42	0.19	0.96	-0.10
25	0.71	0.96	0.93	1.32	1.70	1.73	0.81	0.32	0.15	-0.16	-0.26	0.87	0.43	0.12	0.22	0.16	0.34	1.31	1.87	1.50	2.23	1.53	1.30	1.27	0.89	2.23	-0.26
26	1.40	0.83	0.76	0.86	0.79	0.95	0.92	0.62	1.27	0.85	0.23	0.18	0.24	0.28	0.32	0.37	0.28	0.24	0.21	0.27	0.19	0.13	0.16	0.13	0.52	1.40	0.13
27	0.21	0.81	1.35	2.04	2.05	1.51	0.99	1.68	1.24	1.76	0.97	0.27	0.33	0.36	0.30	0.25	0.29	0.39	0.63	1.34	2.24	1.85	2.03	2.16	1.13	2.24	0.21
28	1.07	1.69	1.64	1.57	1.34	1.62	1.84	1.55	1.43	1.93	1.36	0.99	0.50	0.93	0.61	0.92	2.54	1.96	1.33	1.36	1.84	1.83	0.65	0.49	1.37	2.54	0.49
29	1.16	1.53	1.33	1.69	1.95	1.19	1.78	1.61	1.61	0.96	0.27	0.28	0.17	0.28	0.29	0.43	0.43	0.53	0.54	0.68	1.19	0.98	1.42	1.69	1.00	1.95	0.17
Avg	0.82	0.82	0.98	0.98	0.96	0.93	0.87	0.82	0.75	0.54	0.42	0.27	0.32	0.18	0.20	0.34	0.51	0.66	0.82	0.80	0.90	0.87	0.87	0.85	0.69	1.82	0.02
Max	2.39	2.42	2.78	3.17	3.21	4.08	3.12	2.40	2.14	1.97	1.41	1.37	3.82	1.75	1.30	2.13	2.54	2.02	3.01	2.93	2.30	2.56	2.92	2.46	2.14	4.08	1.26
Min	-0.02	-0.03	-0.02	-0.02	-0.02	-0.02	0.00	0.01	0.01	-0.16	-0.26	-0.60	-0.34	-0.42	-0.41	-0.20	0.02	0.02	0.03	0.01	0.00	-0.03	-0.02	-0.01	0.09	0.41	-0.60



**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Temperature Delta T (degrees Celsius)**  
**March 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	2.45	2.37	0.95	0.71	0.72	0.54	0.55	1.21	1.06	0.85	0.23	0.15	0.14	0.15	0.25	0.34	0.63	1.51	1.34	1.65	1.02	0.50	0.42	0.39	0.84	2.45	0.14
2	0.30	0.30	0.23	0.31	0.26	0.18	0.32	0.31	0.23	0.22	0.16	0.16	0.15	0.19	0.16	0.18	0.23	0.29	0.39	0.32	0.32	0.30	0.22	0.14	0.24	0.39	0.14
3	0.12	0.07	0.07	0.12	0.09	0.12	0.24	0.39	0.31	0.32	0.33	0.43	0.50	0.49	0.46	0.44	0.49	0.75	0.64	0.95	1.44	1.43	1.27	1.54	0.54	1.54	0.07
4	1.96	3.14	2.86	1.24	0.66	0.41	0.34	0.34	0.30	0.32	0.29	0.39	0.40	0.21	0.28	0.30	0.35	0.37	0.54	0.91	1.17	1.34	2.39	1.11	0.90	3.14	0.21
5	1.08	1.55	1.47	1.67	1.37	2.02	1.93	1.76	2.09	2.30	1.75	0.88	0.78	0.96	0.92	1.26	1.39	1.37	1.27	1.17	1.64	1.37	1.73	1.86	1.48	2.30	0.78
6	1.03	1.15	1.86	2.59	1.96	2.60	2.37	2.39	2.12	1.95	1.15	1.48	0.96	0.89	0.93	1.09	1.49	2.29	1.76	1.16	1.26	1.35	1.54	0.86	1.59	2.60	0.86
7	0.97	1.25	2.05	1.31	1.50	1.98	1.58	1.27	1.38	1.21	1.13	0.81	0.97	0.90	0.94	1.16	1.09	1.30	0.99	0.93	0.48	0.11	0.11	0.03	1.06	2.05	0.03
8	0.03	0.04	0.09	0.03	0.02	0.17	0.34	0.73	0.61	0.21	0.04	-0.05	-0.17	-0.01	-0.02	0.00	0.21	0.84	0.65	0.68	0.82	0.73	0.42	0.16	0.27	0.84	-0.17
9	0.23	0.15	0.13	0.09	0.10	0.12	0.17	0.30	0.22	-0.08	-0.08	-0.09	-0.38	-0.04	0.07	0.08	0.25	0.51	0.81	0.67	0.72	1.28	1.23	1.13	0.32	1.28	-0.38
10	1.18	1.81	2.37	1.36	1.19	1.37	1.19	0.60	0.40	0.26	0.21	0.20	0.17	0.09	0.13	0.12	0.14	0.44	0.76	0.89	1.16	1.27	0.63	0.48	0.77	2.37	0.09
11	0.59	0.83	1.01	0.40	0.41	0.31	0.39	0.35	0.30	0.28	0.32	0.46	0.42	0.38	0.20	0.33	0.34	0.29	0.27	0.28	0.02	0.05	0.07	0.18	0.35	1.01	0.02
12	0.61	0.49	0.25	0.40	0.39	0.29	0.26	0.08	-0.10	-0.55	-0.30	-0.06	0.02	-0.12	-0.13	0.00	0.18	0.44	0.82	0.47	0.64	0.70	0.65	0.86	0.26	0.86	-0.55
13	0.85	0.68	0.31	0.81	0.60	0.34	0.46	0.02	-0.01	-0.03	-0.04	-0.03	-0.06	-0.05	-0.09	-0.08	-0.06	-0.02	0.04	0.05	0.01	0.00	0.00	-0.03	0.15	0.85	-0.09
14	-0.02	-0.09	-0.16	-0.18	-0.19	-0.21	-0.18	-0.20	-0.25	-0.21	-0.22	-0.23	-0.22	-0.24	-0.22	-0.23	-0.21	-0.21	-0.15	-0.18	-0.18	0.04	0.24	0.49	-0.13	0.49	-0.25
15	0.15	-0.13	-0.18	-0.15	-0.18	-0.20	-0.20	-0.24	-0.46	-0.48	-0.61	-0.53	-0.50	-0.58	-0.37	-0.48	-0.31	-0.20	-0.14	-0.11	-0.12	-0.12	-0.07	1.05	-0.22	1.05	-0.61
16	1.04	0.68	-0.07	-0.10	-0.08	-0.11	-0.11	0.10	0.63	-0.27	-0.08	-0.32	-0.47	-0.20	-0.39	0.14	0.06	0.86	1.53	1.46	1.26	1.03	1.56	1.81	0.42	1.81	-0.47
17	1.53	2.01	2.11	2.21	1.84	2.53	1.77	1.66	1.23	0.43	0.74	0.24	0.25	0.32	0.32	0.12	0.31	0.33	0.56	0.17	0.11	0.20	0.06	-0.05	0.87	2.53	-0.05
18	-0.05	-0.01	0.13	-0.07	-0.08	-0.01	-0.07	-0.03	-0.05	-0.02	-0.02	-0.03	-0.09	-0.09	-0.30	-0.41	-0.12	-0.01	0.39	1.09	1.33	1.59	0.89	0.63	0.19	1.59	-0.41
19	0.29	0.11	0.23	0.33	0.89	0.32	0.01	-0.07	-0.20	-0.27	-0.18	-0.15	-0.15	-0.09	-0.08	-0.08	-0.05	-0.02	-0.02	-0.02	-0.01	-0.03	-0.04	-0.04	0.03	0.89	-0.27
20	-0.03	-0.04	-0.04	-0.03	-0.03	-0.04	-0.05	-0.10	-0.12	-0.26	-1.00	-0.29	-0.74	-0.15	0.09	0.04	0.29	0.50	1.13	0.97	1.17	1.70	1.53	1.72	0.26	1.72	-1.00
21	1.16	1.63	1.30	1.47	1.44	1.48	1.53	1.42	0.64	1.59	0.00	0.23	0.29	0.20	0.28	0.11	0.36	0.38	0.48	0.84	0.76	0.69	0.49	0.35	0.80	1.63	0.00
22	0.60	0.45	0.08	0.08	0.09	-0.05	0.38	-0.04	-0.18	-0.59	-0.79	-0.33	-0.13	-0.05	0.14	0.23	0.36	0.46	1.32	0.93	0.97	0.94	1.18	1.07	0.30	1.32	-0.79
23	1.40	1.24	1.20	1.05	1.53	1.55	1.58	1.45	0.56	0.57	0.85	0.40	0.41	0.41	0.42	0.45	0.52	0.52	0.85	0.42	0.18	0.09	0.28	0.31	0.76	1.58	0.09
24	0.37	0.02	0.23	0.45	0.57	0.89	1.03	0.78	0.96	-0.12	0.08	-0.01	-0.03	0.20	0.15	0.03	0.02	0.34	0.78	0.72	0.53	0.37	0.18	0.96	0.40	1.03	-0.12
25	0.91	0.78	1.12	0.43	0.09	0.51	0.97	0.62	0.12	0.00	-0.10	-0.09	-0.22	-0.37	0.09	0.08	0.19	0.39	0.38	0.39	0.09	0.12	0.06	0.67	0.30	1.12	-0.37
26	0.43	0.55	0.54	0.33	0.57	1.12	1.64	0.76	0.22	0.14	0.15	0.05	0.03	0.15	0.18	0.24	0.22	0.25	0.34	0.53	0.62	0.62	0.57	0.65	0.45	1.64	0.03
27	0.67	1.37	1.12	0.41	0.36	0.28	0.44	0.00	-0.16	-0.71	-0.56	-0.05	-0.03	-0.07	-0.11	-0.08	0.07	0.10	0.17	0.72	0.33	0.17	0.25	0.24	0.21	1.37	-0.71
28	0.25	0.37	0.48	0.43	0.20	0.13	0.12	0.07	0.00	0.00	0.02	0.04	0.12	0.17	0.17	0.23	0.22	0.30	0.30	0.53	0.95	0.88	0.62	0.82	0.31	0.95	0.00
29	1.05	1.54	1.08	1.46	1.35	1.91	1.60	1.58	0.31	0.90	0.23	0.26	0.28	0.35	0.39	0.46	0.51	0.47	1.06	1.91	1.01	0.55	1.25	0.71	0.93	1.91	0.23
30	0.75	0.73	0.76	0.80	0.81	1.12	0.80	0.32	0.45	0.16	0.24	0.38	0.42	0.41	0.44	0.43	0.40	0.32	0.25	0.27	0.25	0.23	0.32	0.31	0.47	1.12	0.16
31	-0.02	-0.03	0.00	0.17	0.30	0.43	0.57	0.31	0.18	-0.08	-0.18	-0.36	-0.19	0.00	-0.01	-0.11	0.04	-0.01	0.11	-0.05	0.01	0.08	-0.10	-0.06	0.04	0.57	-0.36
Avg	0.71	0.81	0.76	0.65	0.60	0.71	0.71	0.59	0.41	0.26	0.12	0.13	0.09	0.14	0.17	0.21	0.31	0.49	0.63	0.67	0.64	0.63	0.64	0.66	0.49	1.48	-0.12
Max	2.45	3.14	2.86	2.59	1.96	2.60	2.37	2.39	2.12	2.30	1.75	1.48	0.97	0.96	0.94	1.26	1.49	2.29	1.76	1.91	1.64	1.70	2.39	1.86	1.59	3.14	0.86
Min	-0.05	-0.13	-0.18	-0.18	-0.19	-0.21	-0.20	-0.24	-0.46	-0.71	-1.00	-0.53	-0.74	-0.58	-0.39	-0.48	-0.31	-0.21	-0.15	-0.18	-0.18	-0.12	-0.10	-0.06	-0.22	0.39	-1.00

A-18

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Solar Radiation (watts m<sup>2</sup>)**  
**January 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0	0	0	0	0	0	0	0	26	87	116	82	136	226	162	39	15	0	0	0	0	0	0	0	37	226	0
2	0	0	0	0	0	0	0	0	13	66	126	251	214	160	139	101	26	0	0	0	0	0	0	0	46	251	0
3	0	0	0	0	0	0	0	0	12	34	64	116	279	249	129	58	7	0	0	0	0	0	0	0	40	279	0
4	0	0	0	0	0	0	0	0	29	68	94	104	276	71	229	146	47	0	0	0	0	0	0	0	44	276	0
5	0	0	0	0	0	0	0	0	16	68	117	356	282	150	106	56	16	0	0	0	0	0	0	0	49	356	0
6	0	0	0	0	0	0	0	0	23	49	63	66	80	79	70	61	17	0	0	0	0	0	0	0	21	80	0
7	0	0	0	0	0	0	0	0	6	29	58	61	63	68	65	38	9	0	0	0	0	0	0	0	17	68	0
8	0	0	0	0	0	0	0	0	7	22	154	108	100	130	103	85	30	0	0	0	0	0	0	0	31	154	0
9	0	0	0	0	0	0	0	0	12	34	61	159	140	120	91	55	11	0	0	0	0	0	0	0	28	159	0
10	0	0	0	0	0	0	0	0	22	88	158	174	226	149	223	45	13	0	0	0	0	0	0	0	46	226	0
11	0	0	0	0	0	0	0	0	20	88	102	163	265	271	112	37	16	0	0	0	0	0	0	0	45	271	0
12	0	0	0	0	0	0	0	0	8	50	70	133	157	168	101	58	19	0	0	0	0	0	0	0	32	168	0
13	0	0	0	0	0	0	0	0	15	97	179	264	326	371	222	108	36	0	0	0	0	0	0	0	67	371	0
14	0	0	0	0	0	0	0	0	14	35	88	128	128	138	296	96	15	0	0	0	0	0	0	0	39	296	0
15	0	0	0	0	0	0	0	0	40	81	136	221	264	270	334	221	89	1	0	0	0	0	0	0	69	334	0
16	0	0	0	0	0	0	0	0	27	97	245	351	334	254	166	64	21	1	0	0	0	0	0	0	65	351	0
17	0	0	0	0	0	0	0	0	35	89	102	160	253	300	345	237	82	1	0	0	0	0	0	0	67	345	0
18	0	0	0	0	0	0	0	0	17	111	237	411	318	262	195	78	26	0	0	0	0	0	0	0	69	411	0
19	0	0	0	0	0	0	0	0	17	84	109	135	399	401	331	236	89	2	0	0	0	0	0	0	75	401	0
20	0	0	0	0	0	0	0	0	2	29	91	136	240	257	212	107	79	75	1	0	0	0	0	0	51	257	0
21	0	0	0	0	0	0	0	0	40	133	108	155	177	233	204	49	34	1	0	0	0	0	0	0	47	233	0
22	0	0	0	0	0	0	0	0	33	82	133	266	434	421	345	119	60	2	0	0	0	0	0	0	79	434	0
23	0	0	0	0	0	0	0	0	17	56	137	257	316	316	191	83	38	1	0	0	0	0	0	0	59	316	0
24	0	0	0	0	0	0	0	0	25	64	130	429	486	453	133	54	41	4	0	0	0	0	0	0	76	486	0
25	0	0	0	0	0	0	0	0	25	88	213	207	213	420	370	75	20	1	0	0	0	0	0	0	68	420	0
26	0	0	0	0	0	0	0	1	74	184	343	454	441	460	260	110	24	1	0	0	0	0	0	0	98	460	0
27	0	0	0	0	0	0	0	0	26	93	186	235	352	199	127	109	60	3	0	0	0	0	0	0	58	352	0
28	0	0	0	0	0	0	0	2	31	49	123	159	247	246	251	101	30	2	0	0	0	0	0	0	52	251	0
29	0	0	0	0	0	0	0	1	28	203	396	349	436	496	352	299	91	4	0	0	0	0	0	0	111	496	0
30	0	0	0	0	0	0	0	1	38	92	158	395	513	413	311	215	95	11	0	0	0	0	0	0	93	513	0
31	0	0	0	0	0	0	0	0	23	63	84	127	187	186	140	112	31	4	0	0	0	0	0	0	40	187	0
Avg	0	0	0	0	0	0	0	0	24	80	143	217	268	255	200	104	38	1	0	0	0	0	0	0	55	304	0
Max	0	0	0	0	0	0	0	2	74	203	396	454	513	496	370	299	95	11	0	0	0	0	0	0	111	513	0
Min	0	0	0	0	0	0	0	0	6	22	58	61	63	68	65	37	7	0	0	0	0	0	0	0	17	68	0

A-19

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Solar Radiation (watts m<sup>2</sup>)**  
**February 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0	0	0	0	0	0	0	1	65	162	231	266	231	303	339	241	123	7	0	0	0	0	0	0	82	339	0
2	0	0	0	0	0	0	0	0	18	55	130	153	146	137	89	55	35	3	0	0	0	0	0	0	34	153	0
3	0	0	0	0	0	0	0	2	43	154	333	467	497	490	448	326	102	16	0	0	0	0	0	0	120	497	0
4	0	0	0	0	0	0	0	3	43	164	482	516	556	523	441	328	127	8	0	0	0	0	0	0	133	556	0
5	0	0	0	0	0	0	0	3	50	210	216	252	274	437	445	239	74	6	0	0	0	0	0	0	92	445	0
6	0	0	0	0	0	0	0	1	31	124	178	269	350	281	276	113	65	7	0	0	0	0	0	0	71	350	0
7	0	0	0	0	0	0	0	1	19	52	96	160	243	214	273	77	47	5	0	0	0	0	0	0	49	273	0
8	0	0	0	0	0	0	0	1	27	91	441	262	251	356	362	220	71	6	0	0	0	0	0	0	87	441	0
9	0	0	0	0	0	0	0	5	115	290	414	445	467	340	338	192	52	4	0	0	0	0	0	0	111	467	0
10	0	0	0	0	0	0	0	6	122	277	321	351	377	358	282	285	72	10	0	0	0	0	0	0	103	377	0
11	0	0	0	0	0	0	0	5	52	144	179	254	220	206	106	120	40	6	0	0	0	0	0	0	56	254	0
12	0	0	0	0	0	0	0	8	98	169	226	278	367	320	277	132	78	11	0	0	0	0	0	0	82	367	0
13	0	0	0	0	0	0	0	8	45	144	221	441	550	474	355	219	253	55	0	0	0	0	0	0	115	550	0
14	0	0	0	0	0	0	0	5	64	268	297	362	546	467	223	173	209	41	0	0	0	0	0	0	111	546	0
15	0	0	0	0	0	0	0	4	38	111	192	190	273	357	536	307	56	9	0	0	0	0	0	0	86	536	0
16	0	0	0	0	0	0	0	8	97	247	467	298	413	552	281	240	85	46	0	0	0	0	0	0	114	552	0
17	0	0	0	0	0	0	0	9	77	299	436	363	420	402	283	185	136	14	0	0	0	0	0	0	109	436	0
18	0	0	0	0	0	0	0	8	46	116	273	517	472	412	361	499	215	17	0	0	0	0	0	0	122	517	0
19	0	0	0	0	0	0	0	11	84	267	404	586	636	614	538	407	242	60	0	0	0	0	0	0	160	636	0
20	0	0	0	0	0	0	0	13	157	331	466	581	637	618	544	419	249	50	0	0	0	0	0	0	169	637	0
21	0	0	0	0	0	0	0	13	134	327	453	559	637	611	538	424	258	72	0	0	0	0	0	0	168	637	0
22	0	0	0	0	0	0	0	31	186	395	231	320	570	616	549	422	233	76	0	0	0	0	0	0	151	616	0
23	0	0	0	0	0	0	0	35	153	106	213	445	603	468	251	258	130	25	0	0	0	0	0	0	112	603	0
24	0	0	0	0	0	0	0	11	84	264	312	397	404	402	290	190	90	34	0	0	0	0	0	0	103	404	0
25	0	0	0	0	0	0	0	17	85	150	340	632	644	675	540	244	297	56	0	0	0	0	0	0	153	675	0
26	0	0	0	0	0	0	0	14	103	187	335	667	772	569	367	303	89	24	0	0	0	0	0	0	143	772	0
27	0	0	0	0	0	0	0	35	221	360	503	612	670	656	626	452	286	87	1	0	0	0	0	0	188	670	0
28	0	0	0	0	0	0	0	28	139	417	601	613	685	381	292	357	208	65	1	0	0	0	0	0	158	685	0
29	0	0	0	0	0	0	0	31	76	308	240	146	193	223	248	236	137	95	2	0	0	0	0	0	81	308	0
Avg	0	0	0	0	0	0	0	11	85	213	318	393	452	430	362	264	140	32	0	0	0	0	0	0	113	493	0
Max	0	0	0	0	0	0	0	35	221	417	601	667	772	675	626	499	297	95	2	0	0	0	0	0	188	772	0
Min	0	0	0	0	0	0	0	0	18	52	96	146	146	137	89	55	35	3	0	0	0	0	0	0	34	153	0

A-20

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Solar Radiation (watts m<sup>2</sup>)**  
**March 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	0	0	0	0	0	0	0	27	71	312	364	596	696	676	602	460	310	111	2	0	0	0	0	0	176	696	0
2	0	0	0	0	0	0	0	34	177	402	578	795	859	549	246	268	345	53	2	0	0	0	0	0	180	859	0
3	0	0	0	0	0	0	0	16	78	147	268	631	704	691	582	481	286	53	3	0	0	0	0	0	164	704	0
4	0	0	0	0	0	0	0	27	235	424	466	652	225	492	364	406	288	139	3	0	0	0	0	0	155	652	0
5	0	0	0	0	0	0	2	70	250	428	497	417	536	441	383	203	203	96	5	0	0	0	0	0	147	536	0
6	0	0	0	0	0	0	1	48	160	366	560	661	725	721	501	309	85	47	2	0	0	0	0	0	174	725	0
7	0	0	0	0	0	0	1	56	227	296	331	307	505	440	433	171	141	47	2	0	0	0	0	0	123	505	0
8	0	0	0	0	0	0	1	73	349	493	576	540	352	370	326	347	188	121	4	0	0	0	0	0	156	576	0
9	0	0	0	0	0	0	0	19	62	157	472	502	500	568	465	400	261	127	6	0	0	0	0	0	147	568	0
10	0	0	0	0	0	0	3	91	279	469	600	640	706	578	575	511	290	31	6	0	0	0	0	0	199	706	0
11	0	0	0	0	0	0	2	53	175	360	418	563	185	256	198	150	114	50	6	0	0	0	0	0	105	563	0
12	0	0	0	0	0	0	4	58	169	467	536	312	581	698	519	321	123	78	5	0	0	0	0	0	161	698	0
13	0	0	0	0	0	0	4	37	139	307	469	364	356	323	281	230	146	55	4	0	0	0	0	0	113	469	0
14	0	0	0	0	0	0	2	42	96	172	297	228	214	256	199	191	106	45	4	0	0	0	0	0	77	297	0
15	0	0	0	0	0	0	3	37	140	189	287	248	495	334	186	229	181	63	5	0	0	0	0	0	100	495	0
16	0	0	0	0	0	0	6	115	304	499	649	747	788	762	683	551	376	183	18	0	0	0	0	0	237	788	0
17	0	0	0	0	0	0	7	46	63	290	657	754	796	771	690	558	380	181	14	0	0	0	0	0	217	796	0
18	0	0	0	0	0	0	6	47	121	234	332	364	439	428	589	394	246	58	10	0	0	0	0	0	136	589	0
19	0	0	0	0	0	0	5	50	131	234	332	426	410	298	265	171	101	48	6	0	0	0	0	0	103	426	0
20	0	0	0	0	0	0	7	71	161	315	657	753	682	737	608	577	393	176	25	0	0	0	0	0	215	753	0
21	0	0	0	0	0	0	12	107	256	520	697	334	349	242	247	322	320	65	10	0	0	0	0	0	145	697	0
22	0	0	0	0	0	0	8	74	233	533	691	754	773	763	696	578	403	210	27	0	0	0	0	0	239	773	0
23	0	0	0	0	0	0	18	170	258	337	361	360	551	626	296	323	194	87	8	0	0	0	0	0	150	626	0
24	0	0	0	0	0	0	15	152	362	469	555	407	255	143	190	184	121	134	22	0	0	0	0	0	125	555	0
25	0	0	0	0	0	0	24	138	288	455	435	626	539	657	395	319	240	86	20	0	0	0	0	0	176	657	0
26	0	0	0	0	0	0	15	71	233	340	393	599	854	842	707	607	407	223	39	0	0	0	0	0	222	854	0
27	0	0	0	0	0	0	21	121	265	596	568	346	406	490	295	226	136	53	10	0	0	0	0	0	147	596	0
28	0	0	0	0	0	0	17	80	187	336	464	561	513	467	352	255	139	130	24	0	0	0	0	0	147	561	0
29	0	0	0	0	0	0	28	196	384	566	624	449	770	717	657	268	133	115	25	0	0	0	0	0	206	770	0
30	0	0	0	0	0	0	15	140	263	661	437	816	766	609	473	216	130	55	10	0	0	0	0	0	191	816	0
31	0	0	0	0	0	0	10	37	126	565	675	622	662	292	256	166	53	41	13	0	0	0	0	0	147	675	0
Avg	0	0	0	0	0	0	8	74	201	385	492	528	555	524	428	335	221	96	11	0	0	0	0	0	161	645	0
Max	0	0	0	0	0	0	28	196	384	661	697	816	859	842	707	607	407	223	39	0	0	0	0	0	239	859	0
Min	0	0	0	0	0	0	0	16	62	147	268	228	185	143	186	150	53	31	2	0	0	0	0	0	77	297	0

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Barometric Pressure (InHg)**  
**January 2020**

Day	<< Hour >>																								Avg	Max	Min	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1	23.94	23.92	23.90	23.89	23.88	23.87	23.86	23.85	23.85	23.85	23.86	23.85	23.85	23.84	23.84	23.86	23.89	23.91	23.92	23.93	23.95	23.97	23.98	24.00	23.89	24.00	23.84	
2	24.00	24.01	24.02	24.04	24.04	24.05	24.04	24.03	24.04	24.05	24.06	24.08	24.08	24.09	24.12	24.15	24.17	24.20	24.22	24.24	24.25	24.27	24.27	24.29	24.12	24.29	24.00	
3	24.30	24.30	24.30	24.30	24.31	24.31	24.32	24.32	24.32	24.35	24.37	24.37	24.38	24.38	24.38	24.40	24.42	24.44	24.44	24.43	24.43	24.42	24.42	24.41	24.37	24.44	24.30	
4	24.39	24.35	24.33	24.30	24.26	24.23	24.22	24.21	24.20	24.20	24.22	24.21	24.19	24.22	24.25	24.28	24.33	24.38	24.41	24.45	24.48	24.52	24.55	24.57	24.32	24.57	24.19	
5	24.57	24.58	24.60	24.60	24.60	24.58	24.57	24.56	24.56	24.55	24.53	24.50	24.46	24.42	24.41	24.40	24.41	24.42	24.42	24.42	24.42	24.41	24.40	24.39	24.49	24.60	24.39	
6	24.38	24.35	24.36	24.38	24.39	24.41	24.43	24.44	24.45	24.46	24.47	24.45	24.43	24.40	24.38	24.38	24.36	24.35	24.35	24.34	24.33	24.34	24.35	24.35	24.39	24.47	24.33	
7	24.36	24.36	24.36	24.37	24.37	24.37	24.36	24.35	24.36	24.37	24.37	24.35	24.32	24.30	24.29	24.29	24.29	24.27	24.25	24.23	24.21	24.20	24.19	24.16	24.31	24.37	24.16	
8	24.12	24.09	24.07	24.06	24.03	24.00	23.98	23.97	23.96	23.97	23.97	23.96	23.94	23.93	23.93	23.94	23.96	23.97	23.98	23.97	23.98	23.99	24.01	24.02	23.99	24.12	23.93	
9	24.03	24.03	24.05	24.05	24.06	24.06	24.08	24.09	24.10	24.11	24.12	24.11	24.11	24.11	24.10	24.13	24.17	24.21	24.23	24.25	24.25	24.26	24.28	24.29	24.14	24.29	24.03	
10	24.30	24.32	24.34	24.34	24.35	24.36	24.36	24.36	24.37	24.38	24.40	24.37	24.32	24.28	24.25	24.24	24.22	24.21	24.18	24.16	24.15	24.14	24.14	24.12	24.28	24.40	24.12	
11	24.10	24.09	24.09	24.09	24.08	24.08	24.09	24.08	24.09	24.08	24.09	24.08	24.05	24.04	24.03	24.03	24.04	24.04	24.03	24.03	24.03	24.03	24.03	24.04	24.06	24.10	24.03	
12	24.04	24.05	24.06	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.06	24.04	24.02	24.02	24.02	24.02	24.01	24.00	23.99	23.98	23.97	23.97	23.97	24.03	24.07	23.97	
13	23.95	23.93	23.92	23.92	23.93	23.96	23.98	23.99	24.00	24.02	24.03	24.03	24.01	24.00	24.03	24.06	24.07	24.08	24.09	24.08	24.07	24.07	24.07	24.07	24.02	24.09	23.92	
14	24.06	24.04	24.04	24.03	24.02	24.01	24.01	24.00	24.00	24.02	24.03	24.03	24.05	24.06	24.05	24.06	24.08	24.10	24.11	24.12	24.12	24.13	24.15	24.18	24.06	24.18	24.00	
15	24.20	24.21	24.23	24.26	24.28	24.31	24.33	24.35	24.38	24.40	24.43	24.42	24.39	24.36	24.35	24.36	24.36	24.38	24.38	24.37	24.36	24.35	24.35	24.35	24.34	24.43	24.20	
16	24.33	24.32	24.32	24.31	24.29	24.28	24.28	24.27	24.27	24.26	24.24	24.24	24.21	24.19	24.17	24.16	24.15	24.13	24.11	24.10	24.08	24.06	24.05	24.05	24.20	24.33	24.05	
17	24.02	24.00	23.99	23.98	23.97	23.98	24.00	24.02	24.07	24.13	24.18	24.21	24.23	24.26	24.29	24.32	24.36	24.39	24.42	24.44	24.44	24.46	24.47	24.48	24.21	24.48	23.97	
18	24.49	24.49	24.50	24.50	24.51	24.52	24.53	24.54	24.54	24.55	24.55	24.55	24.55	24.55	24.54	24.55	24.56	24.57	24.59	24.60	24.61	24.63	24.63	24.63	24.55	24.63	24.49	
19	24.63	24.64	24.65	24.67	24.68	24.69	24.70	24.70	24.71	24.71	24.72	24.69	24.69	24.67	24.67	24.66	24.66	24.65	24.66	24.67	24.67	24.67	24.65	24.65	24.67	24.72	24.63	
20	24.65	24.64	24.62	24.62	24.62	24.60	24.59	24.58	24.57	24.55	24.53	24.50	24.47	24.45	24.43	24.42	24.40	24.38	24.37	24.35	24.35	24.34	24.34	24.34	24.49	24.65	24.34	
21	24.32	24.30	24.28	24.28	24.27	24.25	24.25	24.24	24.24	24.23	24.22	24.21	24.20	24.18	24.17	24.17	24.16	24.16	24.16	24.15	24.14	24.14	24.14	24.15	24.21	24.32	24.14	
22	24.16	24.17	24.19	24.21	24.22	24.23	24.23	24.24	24.26	24.29	24.30	24.32	24.32	24.31	24.32	24.34	24.35	24.36	24.38	24.39	24.40	24.41	24.42	24.43	24.30	24.43	24.16	
23	24.43	24.44	24.44	24.44	24.44	24.45	24.45	24.44	24.45	24.44	24.44	24.45	24.44	24.43	24.42	24.42	24.42	24.42	24.42	24.41	24.39	24.39	24.39	24.37	24.43	24.45	24.37	
24	24.36	24.36	24.35	24.35	24.34	24.34	24.34	24.33	24.33	24.32	24.32	24.30	24.30	24.28	24.27	24.28	24.29	24.30	24.30	24.31	24.31	24.31	24.31	24.32	24.31	24.32	24.36	24.27
25	24.31	24.30	24.30	24.31	24.32	24.33	24.33	24.33	24.34	24.35	24.37	24.37	24.35	24.33	24.34	24.35	24.34	24.35	24.34	24.35	24.36	24.36	24.36	24.36	24.34	24.37	24.30	
26	24.37	24.37	24.37	24.37	24.37	24.37	24.37	24.36	24.37	24.36	24.37	24.35	24.34	24.32	24.32	24.30	24.29	24.28	24.29	24.29	24.29	24.29	24.29	24.29	24.33	24.37	24.28	
27	24.29	24.29	24.30	24.30	24.31	24.31	24.32	24.33	24.35	24.35	24.37	24.38	24.37	24.37	24.37	24.38	24.39	24.41	24.42	24.42	24.44	24.44	24.44	24.43	24.37	24.44	24.29	
28	24.43	24.42	24.41	24.41	24.40	24.39	24.38	24.37	24.37	24.35	24.35	24.34	24.33	24.32	24.31	24.31	24.31	24.32	24.33	24.34	24.35	24.38	24.40	24.40	24.36	24.43	24.31	
29	24.42	24.43	24.44	24.44	24.45	24.45	24.46	24.47	24.47	24.46	24.46	24.45	24.44	24.40	24.37	24.36	24.34	24.33	24.32	24.32	24.31	24.31	24.30	24.30	24.40	24.47	24.30	
30	24.30	24.30	24.30	24.30	24.32	24.34	24.38	24.42	24.45	24.48	24.51	24.54	24.54	24.53	24.54	24.54	24.54	24.52	24.52	24.53	24.51	24.50	24.48	24.45	24.45	24.54	24.30	
31	24.44	24.44	24.44	24.42	24.42	24.41	24.43	24.44	24.45	24.47	24.49	24.50	24.48	24.46	24.44	24.43	24.43	24.43	24.43	24.43	24.42	24.41	24.40	24.39	24.44	24.50	24.39	
Avg	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.29	24.30	24.30	24.29	24.27	24.27	24.28	24.28	24.29	24.29	24.29	24.29	24.30	24.30	24.30	24.29	24.38	24.19	
Max	24.65	24.64	24.65	24.67	24.68	24.69	24.70	24.70	24.71	24.71	24.72	24.69	24.69	24.67	24.67	24.66	24.66	24.65	24.66	24.67	24.67	24.67	24.67	24.65	24.67	24.72	24.63	
Min	23.94	23.92	23.90	23.89	23.88	23.87	23.86	23.85	23.85	23.85	23.86	23.85	23.85	23.84	23.84	23.86	23.89	23.91	23.92	23.93	23.95	23.97	23.97	23.97	23.89	24.00	23.84	

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Barometric Pressure (InHg)**  
**February 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	24.38	24.37	24.37	24.37	24.36	24.35	24.33	24.31	24.29	24.29	24.29	24.26	24.18	24.19	24.19	24.18	24.17	24.16	24.15	24.16	24.17	24.19	24.20	24.21	24.26	24.38	24.15
2	24.20	24.20	24.20	24.20	24.19	24.18	24.19	24.20	24.20	24.21	24.21	24.21	24.20	24.20	24.20	24.21	24.22	24.23	24.25	24.25	24.25	24.24	24.24	24.23	24.21	24.25	24.18
3	24.23	24.24	24.23	24.24	24.24	24.26	24.26	24.27	24.28	24.29	24.28	24.27	24.25	24.25	24.25	24.26	24.27	24.30	24.33	24.36	24.38	24.39	24.40	24.41	24.29	24.41	24.23
4	24.42	24.42	24.42	24.41	24.42	24.41	24.41	24.40	24.41	24.41	24.40	24.38	24.35	24.31	24.29	24.28	24.27	24.26	24.24	24.23	24.23	24.23	24.22	24.22	24.34	24.42	24.22
5	24.21	24.20	24.20	24.20	24.21	24.21	24.19	24.19	24.20	24.19	24.18	24.17	24.15	24.12	24.11	24.11	24.10	24.08	24.06	24.05	24.05	24.04	24.04	24.03	24.14	24.21	24.03
6	24.03	24.03	24.03	24.03	24.03	24.04	24.03	24.04	24.06	24.07	24.09	24.10	24.11	24.12	24.12	24.13	24.13	24.14	24.14	24.14	24.15	24.16	24.15	24.16	24.09	24.16	24.03
7	24.16	24.17	24.17	24.16	24.17	24.17	24.17	24.19	24.20	24.20	24.21	24.22	24.23	24.23	24.23	24.24	24.24	24.24	24.24	24.23	24.21	24.18	24.16	24.14	24.20	24.24	24.14
8	24.11	24.08	24.05	24.00	23.97	23.97	23.96	23.96	23.98	24.01	24.04	24.05	24.06	24.08	24.11	24.14	24.19	24.25	24.30	24.36	24.39	24.43	24.45	24.47	24.14	24.47	23.96
9	24.49	24.49	24.49	24.49	24.49	24.48	24.47	24.45	24.45	24.45	24.44	24.41	24.37	24.32	24.28	24.29	24.28	24.29	24.29	24.30	24.30	24.32	24.33	24.35	24.39	24.49	24.28
10	24.36	24.37	24.38	24.39	24.40	24.41	24.44	24.46	24.49	24.50	24.51	24.52	24.51	24.51	24.52	24.51	24.53	24.54	24.53	24.52	24.51	24.50	24.49	24.46	24.47	24.54	24.36
11	24.44	24.42	24.41	24.39	24.37	24.34	24.32	24.30	24.27	24.25	24.23	24.23	24.21	24.18	24.16	24.16	24.15	24.14	24.15	24.16	24.19	24.21	24.23	24.25	24.26	24.44	24.14
12	24.27	24.29	24.32	24.33	24.36	24.40	24.42	24.44	24.45	24.46	24.47	24.47	24.45	24.43	24.42	24.40	24.39	24.39	24.39	24.38	24.38	24.38	24.37	24.36	24.39	24.47	24.27
13	24.36	24.34	24.33	24.32	24.31	24.32	24.31	24.30	24.31	24.30	24.29	24.28	24.26	24.23	24.20	24.18	24.18	24.16	24.15	24.15	24.14	24.13	24.13	24.11	24.24	24.36	24.11
14	24.10	24.09	24.08	24.05	24.03	24.02	24.03	24.04	24.05	24.09	24.11	24.12	24.13	24.14	24.15	24.17	24.19	24.20	24.21	24.23	24.25	24.26	24.27	24.27	24.14	24.27	24.02
15	24.28	24.28	24.28	24.27	24.27	24.27	24.26	24.26	24.26	24.26	24.26	24.26	24.25	24.22	24.21	24.22	24.23	24.24	24.25	24.24	24.25	24.23	24.21	24.20	24.25	24.28	24.20
16	24.20	24.18	24.17	24.14	24.13	24.13	24.12	24.13	24.14	24.14	24.14	24.14	24.13	24.12	24.12	24.13	24.14	24.15	24.17	24.19	24.20	24.21	24.22	24.23	24.16	24.23	24.12
17	24.25	24.26	24.27	24.27	24.28	24.29	24.30	24.32	24.33	24.33	24.33	24.33	24.33	24.33	24.33	24.34	24.35	24.37	24.39	24.40	24.41	24.43	24.45	24.46	24.34	24.46	24.25
18	24.47	24.47	24.48	24.47	24.47	24.47	24.46	24.47	24.48	24.48	24.48	24.47	24.47	24.46	24.46	24.46	24.47	24.49	24.51	24.52	24.53	24.54	24.55	24.55	24.49	24.55	24.46
19	24.56	24.56	24.57	24.57	24.58	24.60	24.60	24.60	24.62	24.63	24.63	24.63	24.62	24.60	24.60	24.61	24.61	24.61	24.63	24.64	24.64	24.65	24.66	24.66	24.61	24.66	24.56
20	24.65	24.64	24.64	24.63	24.63	24.63	24.62	24.63	24.64	24.66	24.66	24.65	24.62	24.59	24.58	24.57	24.58	24.56	24.58	24.59	24.59	24.59	24.58	24.57	24.61	24.66	24.56
21	24.56	24.55	24.54	24.53	24.52	24.52	24.52	24.52	24.52	24.50	24.48	24.45	24.44	24.43	24.41	24.40	24.38	24.37	24.38	24.38	24.39	24.39	24.39	24.39	24.46	24.56	24.37
22	24.38	24.37	24.36	24.36	24.35	24.36	24.36	24.35	24.36	24.35	24.36	24.35	24.33	24.31	24.31	24.30	24.30	24.31	24.32	24.33	24.33	24.34	24.35	24.35	24.34	24.38	24.30
23	24.36	24.37	24.37	24.36	24.36	24.36	24.35	24.34	24.33	24.31	24.29	24.29	24.26	24.24	24.21	24.20	24.18	24.16	24.14	24.14	24.18	24.19	24.20	24.21	24.27	24.37	24.14
24	24.21	24.21	24.23	24.25	24.27	24.29	24.31	24.33	24.35	24.37	24.38	24.39	24.40	24.41	24.43	24.44	24.46	24.49	24.53	24.55	24.58	24.60	24.62	24.64	24.41	24.64	24.21
25	24.67	24.68	24.69	24.70	24.71	24.73	24.74	24.75	24.76	24.76	24.75	24.74	24.73	24.70	24.69	24.67	24.66	24.64	24.66	24.66	24.65	24.64	24.63	24.62	24.69	24.76	24.62
26	24.61	24.59	24.58	24.57	24.57	24.58	24.56	24.56	24.56	24.55	24.55	24.54	24.52	24.50	24.49	24.49	24.48	24.47	24.47	24.48	24.49	24.50	24.51	24.52	24.53	24.61	24.47
27	24.54	24.55	24.56	24.55	24.55	24.56	24.56	24.57	24.58	24.58	24.57	24.56	24.56	24.55	24.55	24.55	24.54	24.54	24.54	24.54	24.55	24.56	24.57	24.56	24.56	24.58	24.54
28	24.56	24.56	24.56	24.56	24.56	24.56	24.55	24.55	24.53	24.51	24.49	24.48	24.47	24.46	24.44	24.42	24.40	24.38	24.37	24.34	24.32	24.29	24.28	24.26	24.45	24.56	24.26
29	24.23	24.20	24.18	24.15	24.13	24.12	24.11	24.10	24.10	24.11	24.12	24.11	24.10	24.10	24.10	24.11	24.11	24.13	24.15	24.17	24.18	24.20	24.21	24.23	24.14	24.23	24.10
Avg	24.35	24.35	24.35	24.34	24.34	24.35	24.34	24.35	24.35	24.35	24.35	24.35	24.33	24.32	24.32	24.32	24.32	24.32	24.33	24.33	24.34	24.35	24.35	24.35	24.34	24.44	24.25
Max	24.67	24.68	24.69	24.70	24.71	24.73	24.74	24.75	24.76	24.76	24.75	24.74	24.73	24.70	24.69	24.67	24.66	24.64	24.66	24.66	24.65	24.65	24.66	24.66	24.69	24.76	24.62
Min	24.03	24.03	24.03	24.00	23.97	23.97	23.96	23.96	23.98	24.01	24.04	24.05	24.06	24.08	24.10	24.11	24.10	24.08	24.06	24.05	24.05	24.04	24.04	24.03	24.09	24.16	23.96

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Barometric Pressure (InHg)**  
**March 2020**

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

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Relative Humidity (% RH)**  
**January 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	81.8	81.1	74.1	71.7	71.0	82.0	85.1	84.7	81.4	78.0	74.6	71.0	70.6	68.7	64.9	70.1	76.3	81.2	86.2	87.3	86.8	82.0	77.6	74.6	77.6	87.3	64.9
2	78.8	75.8	67.6	66.2	64.9	65.4	68.4	72.1	69.6	62.2	61.0	56.5	52.2	50.3	51.9	53.7	54.1	57.0	60.0	60.9	59.9	59.8	60.5	61.9	62.1	78.8	50.3
3	66.1	77.6	77.6	77.5	79.6	80.6	79.5	86.2	87.8	88.6	84.7	71.3	63.9	61.9	63.3	63.0	67.5	66.9	69.7	77.6	76.4	67.0	59.5	58.6	73.0	88.6	58.6
4	63.0	73.7	69.5	75.0	77.5	54.2	54.4	57.2	53.3	49.9	51.5	45.6	42.8	72.5	61.7	48.2	49.8	50.3	50.7	49.9	50.4	51.8	55.3	58.6	56.9	77.5	42.8
5	60.1	65.1	72.2	74.0	74.4	76.3	77.3	77.1	76.7	73.1	63.4	52.4	45.0	49.9	49.1	51.9	57.9	68.0	71.3	76.6	76.5	75.7	75.2	74.5	67.2	77.3	45.0
6	68.3	54.8	53.6	60.5	63.6	55.6	54.8	55.9	58.9	60.6	57.8	55.3	55.2	57.4	63.6	68.6	66.1	66.4	68.5	73.0	75.9	74.6	71.1	72.0	63.0	75.9	53.6
7	72.4	71.1	72.2	72.2	71.4	72.2	75.3	78.2	77.1	73.7	73.2	69.0	75.8	70.7	65.9	69.0	71.5	77.1	80.4	78.2	71.7	63.2	70.1	77.3	72.9	80.4	63.2
8	70.3	58.1	58.9	60.3	61.2	62.7	62.8	61.5	63.4	56.6	56.2	54.4	54.4	53.1	60.5	62.9	64.5	65.3	64.7	63.8	62.5	65.0	66.7	66.7	61.5	70.3	53.1
9	68.9	68.9	72.4	69.6	72.3	75.1	78.5	80.0	81.7	81.1	78.4	78.1	77.4	76.2	71.2	74.4	76.6	79.0	77.9	77.3	78.8	78.4	77.6	77.2	76.1	81.7	68.9
10	77.6	78.2	78.0	76.0	74.4	74.2	73.6	72.8	71.1	69.7	68.8	69.0	63.7	50.5	42.8	45.8	48.5	50.9	53.0	56.7	68.1	72.9	71.4	80.6	66.2	80.6	42.8
11	79.5	77.9	77.0	74.2	74.1	74.5	70.3	70.5	71.7	67.5	72.3	74.6	59.1	54.0	54.8	62.4	71.2	63.0	63.3	66.5	66.4	68.5	68.8	70.8	68.9	79.5	54.0
12	64.9	66.4	65.0	63.9	68.2	72.8	75.9	80.1	83.8	79.7	75.7	74.4	73.0	71.2	70.9	78.1	76.8	76.2	74.1	73.6	74.1	76.0	75.0	79.4	73.7	83.8	63.9
13	82.1	82.7	83.1	81.9	78.3	78.6	78.9	78.8	78.5	73.9	65.5	66.1	56.0	60.1	60.5	73.2	73.0	70.4	77.0	81.9	81.6	81.9	82.7	81.3	75.3	83.1	56.0
14	80.9	80.7	80.4	81.2	80.6	81.1	79.5	79.5	77.6	76.0	75.3	73.4	74.9	72.9	65.4	70.3	76.3	78.0	78.6	79.1	78.6	78.6	77.2	78.4	77.3	81.2	65.4
15	78.3	77.6	77.1	78.6	78.6	76.3	75.1	73.7	72.7	73.2	74.8	75.9	57.3	48.1	44.2	38.8	41.1	63.3	62.8	59.6	58.5	68.6	72.5	76.2	66.8	78.6	38.8
16	76.4	71.9	71.6	71.6	72.1	75.2	75.4	76.6	78.1	76.2	66.1	52.3	44.5	42.0	43.2	43.2	45.8	59.0	68.8	75.4	79.9	82.8	83.9	83.0	67.3	83.9	42.0
17	83.2	83.7	82.0	80.3	77.0	72.3	68.9	82.8	82.9	78.9	77.5	71.2	65.5	56.0	44.3	40.4	40.3	44.3	47.2	50.8	51.4	54.2	59.0	65.4	65.0	83.7	40.3
18	67.2	67.3	70.4	69.7	71.6	74.2	72.2	74.5	73.9	70.0	63.7	48.1	51.2	52.5	54.4	55.3	59.3	64.2	71.5	84.0	86.2	86.5	86.0	86.3	69.2	86.5	48.1
19	85.9	84.5	83.4	82.1	81.7	81.5	80.5	79.7	79.2	78.7	78.9	72.0	59.8	54.3	51.4	52.1	55.9	73.9	80.6	84.1	83.8	82.5	81.5	80.2	75.3	85.9	51.4
20	80.7	80.0	80.2	80.2	80.2	80.7	80.0	80.2	81.6	83.5	85.1	84.6	77.2	59.4	43.8	42.4	50.6	58.8	64.7	68.5	63.9	65.3	55.2	53.5	70.0	85.1	42.4
21	58.6	64.7	71.6	76.9	80.8	80.6	82.3	82.3	79.5	70.0	72.4	69.6	65.4	53.4	43.5	48.3	51.9	60.1	63.7	68.2	73.5	76.1	74.8	75.8	68.5	82.3	43.5
22	81.0	78.1	76.2	72.2	66.5	64.2	64.6	63.8	61.0	58.0	58.0	56.8	55.7	55.5	53.8	52.7	49.6	52.4	62.3	68.2	68.9	73.3	76.3	79.6	64.5	81.0	49.6
23	82.2	82.4	81.7	81.1	81.4	82.3	82.3	82.8	81.3	80.0	74.1	68.8	62.9	68.4	68.5	69.0	71.0	76.5	78.6	82.4	85.0	86.1	84.6	87.9	78.4	87.9	62.9
24	88.7	88.3	87.0	86.0	85.1	85.1	84.8	83.8	84.5	85.4	86.4	88.1	82.1	58.1	55.4	72.4	79.6	79.0	79.5	79.0	76.7	77.9	72.5	80.8	80.3	88.7	55.4
25	84.4	79.0	64.9	70.5	68.0	72.1	73.0	74.6	72.5	67.0	59.8	59.5	56.8	53.8	52.4	55.5	57.9	68.5	76.1	77.4	78.3	79.6	81.3	82.3	69.4	84.4	52.4
26	82.9	83.3	81.9	80.9	82.4	82.4	81.5	84.4	85.3	75.6	65.3	61.2	49.9	44.9	50.6	51.5	54.9	62.0	68.2	78.8	86.4	89.4	89.8	89.5	73.5	89.8	44.9
27	87.7	81.9	82.8	86.6	87.8	85.8	78.1	76.0	71.6	69.4	65.9	62.9	58.8	58.9	59.5	55.1	52.0	56.6	60.5	61.4	68.5	78.1	81.2	80.8	71.2	87.8	52.0
28	82.3	81.1	80.0	80.3	79.3	79.6	80.6	81.8	82.3	79.0	83.3	77.1	66.7	59.4	56.5	60.9	64.4	67.9	75.1	79.1	82.8	85.8	85.6	85.7	76.5	85.8	56.5
29	85.9	84.6	84.8	83.9	84.2	84.8	85.2	85.3	85.5	81.3	67.5	63.2	57.9	55.9	54.4	52.4	53.3	59.6	70.8	75.2	81.4	87.9	88.0	89.2	75.1	89.2	52.4
30	87.6	79.6	79.0	76.9	69.2	71.5	68.6	70.7	62.4	55.9	55.4	48.8	45.3	40.4	45.6	42.6	43.1	50.1	63.6	72.8	76.8	79.9	83.1	82.2	64.6	87.6	40.4
31	81.3	81.3	78.3	75.6	74.9	72.8	63.8	56.0	60.5	63.7	63.8	60.7	66.0	68.1	67.4	67.2	68.6	70.7	66.7	69.0	71.1	68.2	69.2	71.2	69.0	81.3	56.0
Avg	77.1	76.2	75.3	75.4	75.2	75.1	74.6	75.6	75.1	72.1	69.6	65.5	60.9	58.0	56.0	57.8	60.3	65.1	68.9	72.1	73.6	74.8	74.6	76.2	70.2	83.1	52.0
Max	88.7	88.3	87.0	86.6	87.8	85.8	85.2	86.2	87.8	88.6	86.4	88.1	82.1	76.2	71.2	78.1	79.6	81.2	86.2	87.3	86.8	89.4	89.8	89.5	80.3	89.8	68.9
Min	58.6	54.8	53.6	60.3	61.2	54.2	54.4	55.9	53.3	49.9	51.5	45.6	42.8	40.4	42.8	38.8	40.3	44.3	47.2	49.9	50.4	51.8	55.2	53.5	56.9	70.3	38.8

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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Relative Humidity (% RH)**  
**February 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	60.7	55.5	53.4	48.0	41.9	44.4	42.8	38.4	36.8	33.5	30.2	29.1	26.1	24.3	25.1	27.4	28.6	30.7	32.8	35.2	38.9	52.1	61.7	63.6	40.1	63.6	24.3
2	69.4	70.3	78.7	75.5	77.2	76.6	73.9	67.5	63.2	60.0	61.5	68.1	63.8	64.3	62.8	52.0	52.2	55.6	58.9	60.9	61.7	67.5	66.7	70.5	65.8	78.7	52.0
3	72.3	75.0	76.0	76.7	78.6	78.7	77.7	78.2	76.2	71.4	55.3	49.1	38.9	39.0	31.4	27.5	32.7	37.2	51.3	58.5	60.8	66.2	71.6	70.7	60.5	78.7	27.5
4	71.9	72.8	75.9	75.5	76.2	75.5	74.7	74.9	74.1	73.6	63.5	58.0	55.6	52.1	49.8	46.1	44.4	45.8	47.7	62.6	68.9	75.5	76.2	78.0	65.4	78.0	44.4
5	78.5	77.4	74.6	75.5	77.7	77.8	78.6	77.9	78.2	64.9	66.1	62.2	69.4	68.9	66.6	67.3	69.0	70.5	71.9	74.5	77.0	83.5	85.9	87.1	74.2	87.1	62.2
6	87.4	87.4	87.4	87.3	86.6	86.4	86.9	86.6	85.4	83.4	73.6	77.8	69.0	66.0	66.5	66.5	74.5	79.5	82.3	85.1	85.8	86.1	86.1	84.8	81.2	87.4	66.0
7	83.3	81.7	81.7	81.8	82.5	83.2	83.7	84.1	85.0	86.1	83.4	78.3	73.3	68.9	68.7	74.6	79.5	81.9	83.9	85.9	87.2	87.0	86.5	85.6	81.6	87.2	68.7
8	86.3	86.7	87.5	87.1	88.1	88.9	89.9	89.2	73.7	70.0	63.7	63.7	71.5	77.4	74.7	76.8	74.2	79.3	78.0	76.4	68.4	72.7	76.2	79.5	78.3	89.9	63.7
9	81.2	80.0	78.3	80.3	78.2	75.3	74.2	72.3	72.0	73.9	74.0	73.8	69.7	64.6	66.4	67.1	69.4	76.8	85.1	85.5	85.3	84.9	83.3	83.6	76.5	85.5	64.6
10	81.9	83.9	84.5	84.4	82.1	82.7	80.1	83.5	80.5	69.4	72.6	74.0	71.5	66.8	70.7	70.9	74.8	77.3	79.5	82.1	82.9	82.8	80.7	78.3	78.2	84.5	66.8
11	75.6	74.7	75.7	75.4	77.0	77.8	80.0	70.6	70.4	69.9	79.1	75.0	68.0	67.9	71.3	69.5	70.6	72.1	74.4	77.1	84.9	87.2	86.6	84.5	75.6	87.2	67.9
12	85.3	84.3	83.8	83.8	82.6	70.8	72.4	67.3	66.8	65.4	73.8	71.3	69.9	70.1	62.6	63.2	69.3	75.9	80.7	82.4	83.0	83.5	83.2	83.3	75.2	85.3	62.6
13	82.9	83.0	83.0	82.7	82.7	83.6	83.8	82.8	81.8	74.9	61.2	63.6	51.8	54.1	53.0	65.3	56.7	58.8	74.5	78.1	84.0	84.8	81.7	80.6	73.7	84.8	51.8
14	80.2	81.8	82.3	85.0	70.5	81.7	84.3	81.4	65.3	56.9	57.3	58.0	53.6	50.3	50.1	49.6	50.9	53.5	56.6	62.3	68.3	68.8	70.0	70.1	66.2	85.0	49.6
15	69.9	73.5	76.8	74.0	71.2	70.4	62.4	60.7	59.5	57.8	60.0	59.1	57.8	57.2	59.0	58.4	60.0	59.9	59.3	61.7	62.7	64.3	71.3	75.1	64.3	76.8	57.2
16	76.8	77.8	77.1	75.6	78.4	79.9	79.9	76.2	72.5	71.7	66.3	61.6	61.0	53.0	51.6	47.6	48.2	53.0	59.6	63.2	69.4	71.1	71.8	66.7	67.1	79.9	47.6
17	73.4	74.3	82.0	83.2	82.8	81.5	82.0	82.6	81.2	70.2	57.8	61.0	61.4	62.3	64.1	67.9	64.9	83.4	84.4	83.6	84.2	83.5	83.6	83.4	75.8	84.4	57.8
18	83.2	82.2	82.5	82.4	82.6	82.7	78.5	78.6	77.9	73.4	69.2	70.6	70.1	68.3	63.9	60.2	63.8	74.5	81.2	79.7	77.4	76.2	75.2	74.4	75.4	83.2	60.2
19	73.7	72.0	71.0	71.4	71.9	73.9	75.4	76.8	78.1	78.8	76.2	58.2	49.3	52.7	47.4	47.7	42.9	55.7	74.9	79.9	79.0	77.4	76.1	74.9	68.1	79.9	42.9
20	72.8	73.0	72.2	71.4	71.4	71.1	70.9	71.2	71.6	73.2	76.5	75.1	64.7	46.2	41.9	42.0	36.6	45.6	65.5	73.7	79.7	80.4	79.9	78.0	66.9	80.4	36.6
21	77.5	77.5	76.3	76.1	75.6	75.7	75.0	75.0	75.9	77.8	78.6	74.8	47.9	28.9	26.5	30.6	28.9	28.4	30.6	36.9	54.0	63.5	70.4	75.3	59.9	78.6	26.5
22	77.5	78.4	80.9	80.3	77.6	73.4	71.8	72.1	70.7	56.0	46.1	46.2	42.5	43.2	39.3	38.5	41.3	44.5	48.5	56.9	59.9	62.8	67.8	73.1	60.4	80.9	38.5
23	75.9	79.9	83.0	83.9	82.4	82.8	82.8	82.3	78.0	77.6	70.0	57.1	40.7	37.5	38.1	39.6	42.6	48.8	62.7	75.4	88.1	77.7	65.5	63.0	67.3	88.1	37.5
24	62.6	63.2	63.7	73.3	72.8	69.9	68.9	68.1	71.5	72.9	78.6	75.6	74.9	74.8	74.9	69.3	70.1	81.4	76.9	72.4	81.9	84.4	82.9	79.8	73.5	84.4	62.6
25	80.3	80.5	79.7	79.2	78.2	76.8	76.0	76.8	78.3	77.9	72.3	56.5	61.2	63.9	60.1	59.2	55.8	58.6	71.4	79.5	82.0	80.3	79.2	79.2	72.6	82.0	55.8
26	79.0	80.1	80.5	81.1	81.9	83.4	85.4	84.9	81.6	66.8	60.7	58.2	59.5	61.1	63.3	61.5	61.0	60.3	60.4	58.9	60.7	63.4	66.9	66.2	69.5	85.4	58.2
27	67.5	68.6	72.3	76.2	80.9	82.8	82.2	81.6	76.1	66.8	51.9	49.0	51.2	53.4	52.5	50.5	50.4	54.8	61.2	66.5	75.8	76.7	79.6	80.5	67.0	82.8	49.0
28	81.7	84.3	85.1	83.8	83.2	81.8	81.2	81.6	82.9	82.8	71.2	42.5	36.9	39.8	38.1	36.1	48.2	45.0	49.9	61.3	64.9	60.7	47.0	46.4	63.2	85.1	36.1
29	49.7	57.4	59.8	63.2	67.4	67.7	71.2	70.7	67.8	58.4	59.8	61.2	59.7	54.1	45.3	41.7	39.9	41.7	43.6	45.4	52.1	55.0	60.4	66.3	56.6	71.2	39.9
Avg	75.8	76.5	77.4	77.7	76.9	77.1	76.8	75.7	73.6	69.5	65.9	62.4	58.3	56.2	54.7	54.3	55.2	59.7	65.1	69.0	72.7	74.5	75.0	75.3	69.0	82.3	51.0
Max	87.4	87.4	87.5	87.3	88.1	88.9	89.9	89.2	85.4	86.1	83.4	78.3	74.9	77.4	74.9	76.8	79.5	83.4	85.1	85.9	88.1	87.2	86.6	87.1	81.6	89.9	68.7
Min	49.7	55.5	53.4	48.0	41.9	44.4	42.8	38.4	36.8	33.5	30.2	29.1	26.1	24.3	25.1	27.4	28.6	28.4	30.6	35.2	38.9	52.1	47.0	46.4	40.1	63.6	24.3

A-26

**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Relative Humidity (% RH)**  
**March 2020**

Day	<< Hour >>																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	67.8	70.9	70.5	72.2	78.4	82.2	84.2	84.2	84.2	71.5	64.8	66.2	63.4	60.2	53.6	46.9	45.5	50.4	51.8	58.1	57.7	57.1	58.2	58.3	64.9	84.2	45.5
2	59.9	60.4	59.4	58.4	57.1	58.1	59.7	61.3	59.8	59.2	57.8	60.6	57.9	58.5	62.0	61.5	58.5	58.5	59.9	61.3	62.9	65.5	66.8	67.4	60.5	67.4	57.1
3	69.0	72.3	75.6	69.2	69.7	67.4	64.0	60.3	59.0	57.9	55.2	48.7	44.2	41.5	37.2	37.1	36.6	40.0	38.9	39.8	47.9	55.8	56.7	66.4	54.6	75.6	36.6
4	72.0	69.8	52.8	45.7	43.3	46.3	52.2	63.1	62.6	56.8	55.2	46.7	55.3	67.5	61.0	45.7	44.2	43.0	44.9	47.8	49.4	53.9	63.0	66.9	54.5	72.0	43.0
5	70.6	75.0	76.3	78.7	78.5	78.6	78.7	78.0	75.1	63.4	47.4	42.7	42.3	42.2	40.1	42.9	42.7	40.9	44.1	45.0	46.6	47.8	57.0	60.9	58.1	78.7	40.1
6	64.5	70.2	72.5	77.2	79.8	81.6	81.6	80.4	73.3	52.2	35.1	35.8	29.3	30.2	30.8	29.1	31.2	38.5	42.3	43.2	55.3	63.6	68.6	70.6	55.7	81.6	29.1
7	71.6	77.2	79.0	74.3	76.1	78.6	74.9	75.2	65.1	60.7	44.5	36.8	37.2	35.2	36.1	37.8	41.3	51.1	58.7	59.5	72.2	86.3	90.4	90.6	62.9	90.6	35.2
8	91.4	89.7	86.6	84.9	80.7	73.7	78.2	81.4	73.1	60.2	55.2	53.7	52.6	50.5	51.3	50.6	50.8	50.1	63.7	70.2	71.7	67.1	70.5	76.3	68.1	91.4	50.1
9	84.5	82.5	83.3	85.9	87.3	86.9	86.2	85.8	81.1	73.0	63.9	59.3	52.9	49.9	49.5	42.7	43.0	47.0	49.5	51.0	50.6	58.1	66.8	72.6	66.4	87.3	42.7
10	74.7	71.3	67.1	62.5	63.9	63.9	54.1	49.0	48.9	48.4	48.4	46.5	43.0	39.7	38.7	37.1	36.8	40.2	44.0	52.8	47.6	41.1	41.8	42.8	50.2	74.7	36.8
11	46.2	47.5	53.9	48.4	48.9	48.6	49.6	49.4	47.4	46.2	45.8	46.7	47.4	52.5	64.7	51.6	46.3	56.9	64.0	71.4	78.3	66.2	64.1	63.1	54.4	78.3	45.8
12	65.4	72.8	77.0	78.1	80.3	77.3	76.9	78.1	75.2	62.8	58.5	61.2	49.9	44.2	42.8	41.5	43.7	44.7	53.2	62.2	65.8	70.7	67.5	69.3	63.3	80.3	41.5
13	71.4	72.0	68.7	69.0	71.0	78.9	75.6	71.2	71.3	65.9	62.6	63.1	61.7	62.4	67.5	69.3	71.5	72.5	71.4	69.3	73.0	73.2	73.9	78.5	70.2	78.9	61.7
14	78.9	77.9	77.3	77.7	77.4	78.0	76.0	74.1	73.5	74.9	74.9	74.4	73.2	71.7	71.9	71.4	72.0	72.0	73.6	73.0	72.2	72.8	73.3	72.7	74.4	78.9	71.4
15	73.1	72.9	73.2	73.2	73.5	73.4	72.4	71.6	69.2	69.2	68.5	68.8	70.4	67.0	72.2	71.5	73.1	74.1	75.3	75.4	76.1	76.2	76.3	80.2	72.8	80.2	67.0
16	81.9	80.9	81.0	80.7	79.2	75.9	73.8	65.9	57.0	44.9	38.9	39.0	42.8	44.7	41.9	42.8	40.6	45.9	58.3	66.3	75.7	79.6	83.0	81.7	62.6	83.0	38.9
17	80.4	79.4	79.3	78.2	77.7	77.9	77.4	78.0	76.0	65.9	55.8	48.7	49.1	53.3	46.4	53.5	61.7	48.2	56.5	65.9	68.3	70.2	79.0	82.8	67.1	82.8	46.4
18	84.6	83.8	83.4	83.8	83.4	84.0	84.1	84.1	84.4	82.9	83.3	81.1	76.2	67.8	59.2	60.1	64.1	66.7	73.2	76.1	82.4	84.2	84.5	83.9	78.4	84.6	59.2
19	83.9	87.3	86.4	85.4	84.1	84.9	84.9	85.3	82.6	72.5	72.0	73.5	71.9	74.0	75.1	74.2	74.2	76.7	77.7	77.1	75.7	76.3	77.3	78.9	78.8	87.3	71.9
20	78.3	77.6	77.5	78.0	77.8	78.0	77.6	76.7	73.4	68.0	58.9	51.9	55.7	57.0	55.2	47.1	42.9	42.3	53.4	65.0	70.7	77.5	78.7	81.3	66.7	81.3	42.3
21	82.5	82.7	82.9	83.1	83.1	83.2	82.2	79.0	67.0	63.4	51.3	50.0	47.2	45.4	44.7	46.3	43.9	48.2	51.1	56.6	63.0	68.1	68.0	71.6	64.4	83.2	43.9
22	76.2	79.0	81.2	81.1	83.9	86.1	85.8	85.9	79.2	67.8	52.1	56.7	52.2	45.7	41.5	39.6	34.7	30.4	36.9	51.0	57.8	62.1	67.9	69.8	62.7	86.1	30.4
23	72.3	74.4	74.8	72.6	73.3	75.3	75.5	67.4	57.0	54.0	43.7	35.2	33.1	36.0	35.6	39.6	41.9	42.1	49.5	61.7	69.6	86.9	85.0	87.9	60.2	87.9	33.1
24	87.1	86.3	86.7	86.8	81.7	70.2	69.1	72.0	63.0	50.5	52.0	51.2	47.4	49.5	51.8	62.0	62.3	57.8	64.9	72.3	70.1	76.6	64.7	70.8	66.9	87.1	47.4
25	77.2	82.3	84.5	82.5	80.0	81.5	83.9	79.2	74.7	61.0	52.2	49.7	44.2	45.4	44.3	40.5	38.7	46.2	62.9	71.0	80.2	85.7	88.1	86.6	67.6	88.1	38.7
26	84.4	83.5	79.2	76.7	74.1	77.5	78.9	73.8	63.2	57.8	56.1	53.8	51.0	47.8	45.5	43.4	44.0	45.8	49.1	52.3	55.0	56.2	55.0	57.4	60.9	84.4	43.4
27	58.7	66.9	70.7	73.0	74.6	76.4	77.5	72.6	66.2	55.0	50.3	53.9	53.3	51.3	51.2	56.1	58.5	59.6	61.9	66.1	63.4	61.6	64.0	67.4	62.9	77.5	50.3
28	67.4	68.1	67.8	69.5	69.0	69.9	70.5	69.5	67.1	64.2	62.7	58.5	53.5	52.6	50.5	49.4	49.3	49.7	51.6	56.3	59.8	67.8	73.0	76.8	62.3	76.8	49.3
29	80.3	82.5	82.4	83.7	84.6	84.5	83.7	75.2	61.1	53.7	45.0	41.3	39.0	37.2	36.7	38.8	48.0	51.5	50.9	56.1	61.2	61.6	65.5	64.2	61.2	84.6	36.7
30	67.7	76.2	81.2	81.7	83.4	86.0	85.7	81.8	74.8	65.6	56.7	42.1	42.0	41.8	38.8	43.4	48.9	59.4	64.3	71.6	67.5	64.7	64.8	69.4	65.0	86.0	38.8
31	87.2	88.9	89.7	89.7	89.4	89.4	89.0	87.8	83.8	67.7	52.5	49.8	44.7	50.3	52.1	64.6	76.5	85.8	81.1	86.0	85.4	84.7	83.5	77.7	76.6	89.7	44.7
Avg	74.6	76.2	76.2	75.5	75.7	75.9	75.6	74.1	69.3	61.8	55.5	53.1	51.1	50.7	50.0	49.6	50.6	52.8	57.4	62.3	65.6	68.4	70.2	72.4	64.4	82.3	45.8
Max	91.4	89.7	89.7	89.7	89.4	89.4	89.0	87.8	84.4	82.9	83.3	81.1	76.2	74.0	75.1	74.2	76.5	85.8	81.1	86.0	85.4	86.9	90.4	90.6	78.8	91.4	71.9
Min	46.2	47.5	52.8	45.7	43.3	46.3	49.6	49.0	47.4	44.9	35.1	35.2	29.3	30.2	30.8	29.1	31.2	30.4	36.9	39.8	46.6	41.1	41.8	42.8	50.2	67.4	29.1

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

Day	<< Hour >>																								Tot	Max	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
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Tot																											
Max																											

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

Day	<< Hour >>																								Tot	Max	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
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**Sandfire Resources America Inc.**  
**Black Butte Copper Project Met Tower Air Monitoring Summary**  
**Precipitation (inches)**  
**March 2020**

Day	<< Hour >>																								Tot	Max	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
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Tot																											
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A-30

# **APPENDIX B: PERFORMANCE AUDIT REPORT FIRST QUARTER 2020**

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**Audit delayed until June 2, 2020 due to Covid-19 restrictions**



# BISON ENGINEERING, INC.

## Bison Engineering

### Preliminary Meteorological Parameters Audit Form

Audit Dates: 06/02/2020 Tower Lowered : 11:30 MST Tower Back Up : 15:30 MST  
 Client: Tintina Resources  
 Site: Black Butte  
 AUDITOR: Don Milmine PRECEDING CALIBRATION BY: Jeff Bell

#### Temperature

Audit Device: Control Company - digital thermometer Model 4000  
 Meter S/N: 140251289 Temperature Sensor: Climatronics 100093  
 Last certified: 6/4/2019 S/N X17929 (Upper), S/N X17927 (Lower) - Matched Set

#### Temperature bath results

Audit Value	9m Value	9m DAS Diff.	2m Value	2m DAS Diff.	9m - 2m Diff.	Logger 9m-2m ▲ T Reading
°C	°C	°C	°C	°C	°C	°C
0.01	0.02	0.01	0.01	0.00	0.01	0.02
19.30	19.26	-0.04	19.26	-0.04	0.00	0.00
29.62	29.67	0.05	29.64	0.02	0.03	0.03

#### Wind Direction

Sensor height: 9 Meter	Sensor (Make/model number): Climatronics/ 102083	Serial Number : P1336C	Crossarm orientation from nextar Q4-01 GPS: 359.6/ 179.6	Setpoint	Clockwise	<u>Linearity Check from DAS</u>		
						Counter-CW	Diff CW	Diff CCW
				0	1.3	1.4	1.3	1.4
				30	31.0	31.0	1.0	1.0
				60	61.2	61.5	1.2	1.5
<b>GPS location north of sensor:</b>				90	91.4	91.4	1.4	1.4
N 46 deg 46 min 22.95 sec, W 110 deg 52 min 56.90 sec				120	121.0	121.5	1.0	1.5
<b>GPS location south of sensor:</b>				150	150.9	151.2	0.9	1.2
N 46 deg 46 min 21.90 sec, W 110 deg 52 min 56.89 sec				180	180.9	181.2	0.9	1.2
Sensor response aligned with crossarm (as found): 178.4				210	210.8	210.6	0.8	0.6
Sensor response aligned with crossarm (as left): 179.0				240	240.5	240.7	0.5	0.7
				270	270.8	270.6	0.8	0.6
Linearity Audit Device: Climatronics 101966, SN 70				300	300.8	300.7	0.8	0.7
( torque disk)				330	330.8	330.9	0.8	0.9
Threshold Torque: 2.8 gm-cm ( torque disk)						<b>Max Diff</b>	<b>1.4</b>	<b>1.5</b>

#### Wind Speed

Sensor height: 9 Meter  
 Sensor (Make/model number): Climatronics/ 102083  
 Serial Number : P1336C  
 Calibration device: R.M. Young Model 18801 wind speed shaft simulator  
 S/N CA02929

#### chronous motor checks

Known Value	Known Value	DAS Value	DAS Diff.
RPM	m/s	m/s	m/s
0	0.22	0.22	0.00
50	1.30	1.30	0.00
300	6.66	6.66	0.00
500	10.94	10.95	0.01
600	13.09	13.10	0.01
700	15.23	15.24	0.01
800	17.38	17.40	0.02
990	21.45	21.45	0.00

Threshold Torque: 0.2 g-cm  
 ( torque disk)

**Solar Radiation**

Audit Device: Met One Part # 096-1 Serial # Y82228

Time (MST)	CTS Value (W/m2)	Site Value (W/m2)	Diff. (%)	Diff. (% FS)
1514	936	935	-0.1	-0.1
1518	930	932	0.2	0.2

**Relative Humidity**

Site Sensor: Met One 083E-0-35  
 Sensor Height: 2 meters  
 Reference Std: Taylor Hygrometer Tool # T66978

Ref Dry-Bulb: 20.3 deg C      BP = 24.35 in. Hg  
 Ref Wet-Bulb: 11.1 deg C  
 Ref RH: 34.9 %RH  
 Station RH: 31.2 %RH  
 Diff: -3.7 %RH

**Barometric Pressure**


Audit Device: Vaisala Model PTB330(50-1100) serial # C4310002  
 Checked against Bison Mercury barometer (Billings) May 2020

Audit Value: 24.31 in Hg  
 Station Value: 24.35 in Hg  
 Diff: 0.04 in Hg

**Precipitation**

Rain Gauge = Met One Model 375D, Serial No. N3939  
 This gauge installed as temporary replacement for site gauge which had failed. Gauge had no heater.  
 Level checked OK  
 Wind Screen in place  
 8" opening  
 Precip audit performed June 2, 2020  
 250 ml water added  
 Calibration is 8.24 ml per tip  
 Known audit value is 250 / 8.24 = 30.3 tips (so 30 full tips expected)  
 Unit registered 30 tips  
 % difference from expected = 0.0%

Signature Site Operator : \_\_\_\_\_

Signature Auditor :  \_\_\_\_\_